Draco tera enterprise

KVM Matrix Switch Series 480



Introduction



This manual contains important safety instructions as well as instructions for setting up the product and operating it. Please read the general safety instructions (see chapter 2, page 15) and additional notice in the respective chapters. Read carefully through the User Manual before you switch on the product.

Product Identification

The model and serial number of your products are indicated on the bottom of our products. Always refer to this information when you need to contact your distributor or the support of IHSE GmbH (see chapter 16, page 390).

Trademarks and Trade Names

All trademark and trade names mentioned in this document are acknowledged to be the property of their respective owners.

Validity of this Manual

This manual applies to all products of the series named on the cover page and to the firmware/software listed in chapter 1.1, page 12. Please note the change log for this manual in the chapter 20, page 402).

Differences between the various models are clearly described.

The manufacturer reserves the right to change specifications, functions or circuitry of the series described here without notice. Information in this manual can be changed, expanded, or deleted without notice. You can find the current version of the manual in the download area of our website.

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Name	Format	Description	Provision
User Manual	PDF	Provides an overview of the product together with technical data and safety instructions.Contains all instructions required to operate the product to a basic level.	Download from website
Quick Setup	Print	Provides a quick installation guide and safety instructions	Contained in the scope of delivery

Available Documentation

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1 Important Information

1.1 Firmware and Software

The release information for the firmware and software described in this user manual is listed below. The manual is updated when firmware or software changes affect user behavior or system behavior.

Firmware	Version from	Release date
MATAPP	F04.01	2021-12-17
MATLBDG	F02.01	2022-02-18
MATLOS	F01.10	2022-02-02
MATLOSD	F02.01	2022-01-24
MATLPXP	F01.11	2021-05-07
MATLVOSC	F02.02	2022-01-26
MATLVOSD	F02.05	2022-01-25
MATXDVI	F01.15	2015-03-12
MATXHID	F04.03	2021-05-21
MATXLNK	F01.05	2020-01-16
MATXOSD	F03.50	2022-01-28
MATXOSL	F03.15	2020-05-11
MATXVOSD	F04.05	2022-01-28
MATXVOSL	F03.06	2019-04-30

Please contact the manufacturer's technical support for further information about firmware to enter Chinese characters in the OSD.

Software	Version from	Release date
Tera Tool	V5.1.0.0	2022-01-17

1.2 Symbols for Warnings and Helpful Information

The meaning of the symbols used for warnings and helpful information in this manual is described below:

WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.
CAUTION, used with the safety alert symbol, indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

NOTICE

NOTICE identifies information, if not observed, endangers the functionality of your device or the security of your data.



This symbol indicates information about special features on the device or when using device and function variants.



This symbol indicates instructions for procedures recommended by the manufacturer for an effective utilization of the device potential.

1.3 Terms and Spellings

Uniform terms are used in this manual for better readability or easier assignment. The following terms are used for products and descriptions:

Term	Description
Matrix	Draco tera enterprise/flex/compact
Tera Tool	Management software
Source	Computer, graphics card (USB, video, audio, data)
Sink	Console (monitor, keyboard, mouse, video, audio, data)
CPU Unit	Encoder to connect to the source.
CON Unit	Decoder to connect at the console peripherals.
EXT Unit	Logical object for representing a CPU or CON Unit in the matrix.
CPU Device	Logical object for switching EXT Units of CPU Units via matrix.
CON Device	Logical object for switching EXT Units of CON Units via matrix.

The following spellings are used for keyboard commands:

Keyboard command	Description
key	Key on the keyboard.
key + key	Press keys simultaneously.
key, key	Press keys successively.
2x key	Press key quickly, twice in a row (like a mouse double-click).
Number/number on the keyboard	Numeric key at the top end of the alphanumeric keyboard usually used for described operations.
Number on the numerical pad	Numeric key on the numeric pad. If the use of the numeric pad is required, it is explicitly described.

The following spelling is used for, e.g., descriptions of editing files or updating firmware:

Keyboard command	Description
Config.txt	For instance, file name.
#CFG	For instance, file content.

The following spellings are used for software descriptions:

Spelling	Description			
Bold print	Description of terms that are used in the device firmware or the management software			
Bold print > Bold print	 OSD: selection of a in a menu in the working area, e.g., Configuration > System Management software: selection of a menu item in the working area, the menu bar, or the toolbar, e.g., Extras > Options 			

Mouse button	Description		
Left mouse button	Primary mouse button* (default in most operating systems)		
Right mouse button Secondary mouse button*			
* Unless you have customized your mouse settings in the used operating system			

* Unless you have customized your mouse settings in the used operating system.

Descriptions containing "click...", "mouse click" or "double-click" each means a click with the primary (left) mouse button. If the right mouse button has to be used, this is explicitly declared in the description.

1.4 EU Declaration of Conformity

Please find the EU Declaration of Conformity for the product series under: www.ihse.com/eu-declaration-of-conformity

A copy of the original, product-specific EU Declaration of Conformity can be provided upon request. For contact details, see page 2 of this manual.

2 Safety Instructions

To ensure reliable and safe long-term operation of your device, please note the following guidelines:

- Read this user manual carefully.
- Only use the device according to this user manual. Failure to follow the instructions described can damage the device or endanger the security of your data.
- ➡ Take any required ESD precautions.

Risk of electric shock due to freely accessible power connections when the chassis is open Risk of bruising, abrasion or shearing of fingertips due to rotating fan when the chassis is open If the chassis is opened while power is supplied to the device, electric shock may occur if the internal wiring is touched. If a running fan is touched while the case is open, bruises, abrasions or shearing of fingertips may occur.

There are no necessary maintenance procedures that require opening the chassis.

- ➡ Do NOT remove the cover of the chassis.
- Do NOT install the device in environments where children are likely to be present.

Risk of burns due to tremendously heated chassis surface after a long period of operation

The surface of the chassis can become very warm after a long period of operation. If the chassis surface is touched after a long period of operation, this can cause skin burns.

- ▶ Protective gloves must be worn to transport a fully equipped chassis after a long period of operation.
- Ensure that there is sufficient distance from the operator.
- ➡ Do NOT install the device in environments where children are likely to be present.

Installation location

While operating, the device and the power supply units can get warm. Damage to the device can occur in a damp environment.

- ➡ Use the device only in dry, indoor environments.
- Use the device only in a room with adequate ventilation.
- Existing ventilation openings on the device must always be free (lateral and rear).
- Do not place the power supply units directly on top of the device.
- ▶ For rack-mount installations, at least 0.5 RU (rack unit) is required above the device for ventilation.
- Place all power sockets including the sockets for the supplied external power supply units easily accessible and directly next to each other.

Connection

- Check the device and the power supply units for visible damage before connecting it.
- Only connect the device or the power supply units without any visible damage at the chassis or the cable.
- Only use power supply units originally supplied with the product or manufacturer-approved replacements.
- Connect all power supplies to grounded outlets.
- Ensure that the ground connection is maintained from the outlet socket through to the power supply unit's AC power input.
- Only connect the device to KVM devices using the interconnect cable not to other devices, particularly not to telecommunications or network devices.

Disconnect the Device from the Circuit

NOTICE

The cable plugs on the device side can contain a lock. In the event of a necessary quick and complete disconnection from the external electric circuits:

- Remove all corresponding cable plugs from the socket,
- Or set the power switch of the power outlets (if available) to the "Off" position.

Description

3.1 Intended Use

The Draco tera matrix is used to establish connections from consoles (monitor, keyboard, mouse, and other peripheral devices) to various sources.

In its maximum configuration, up to 576 independent ports can be defined and switched either as a CON Device or a CPU Device.

The Draco tera matrix is designed to operate with extender modules that transmit KVM, audio and data signals.

The connection between the matrix and the peripheral devices, such as KVM extender modules or video sources, can be made by Cat X, fiber, or coaxial cables.

The matrix serves as a repeater and can be run at a maximum distance of 10 km from the consoles and 10 km from the sources.

NOTICE

Interferences when the immunity limit values are exceeded

If the limit values listed in EN 55024 are exceeded, reliable and accurate functioning of the devices cannot be guaranteed.

NOTICE

Possible radio interference in a domestic environment

This is a Class A product. In a domestic environment, this product may cause radio interference in which case the user may be required to take adequate measures.

- ➡ Follow the safety and installation instructions given in this manual.
- Use connection cables according to the specifications for the length and type given in this manual.

3.2 System Overview

A Draco tera matrix system consists of a Draco tera matrix and, for KVM applications, one or more CPU Units/CON Units. The Draco tera matrix is connected to the CPU Units/CON Units by interconnect cables or directly to the video devices when used as a video matrix. All available ports of the matrix can be used either as input or output port depending on components and equipment. Non-blocking access is available for all users, i.e., a user's access is not limited by the activities of another.

CPU Units are connected directly to the sources by the provided cables. Monitor(s), keyboards, and mice are connected to the CON Units. The communication between the Draco tera matrix and the CPU Units/CON Units occurs over the respective interconnect cables.

The Draco tera matrix supports a wide and flexible range of system configurations:

A part of the Draco tera can be configured, e.g., as a Single-Head workstation, a part as Dual-Head workstation, or even as Quad-Head workstation. In addition, there are configurations with KVM and USB 2.0 available.

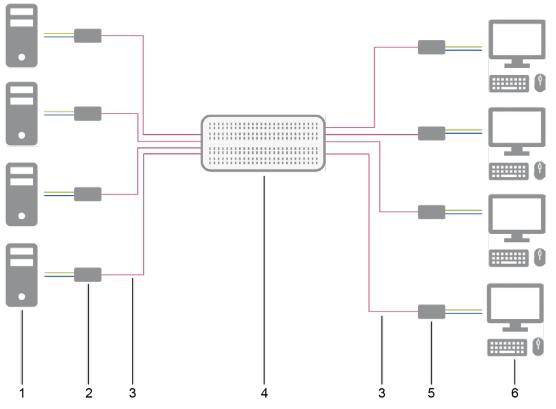


Fig. 1 Example - Single-Head installation

- 1 Single-Head sources
- 2 Single-Head CPU Units
- 3 Interconnect cable

4 Draco tera matrix

5 Single-Head CON Units

6 Consoles (monitor, keyboard, mouse)

If you have a Single-Head console, e.g., you can also get access to a Dual-Head or Quad-Head source. However, control is only possible at monitor 1 and only one video signal is displayed.

Any signal source can be switched to any number of monitors that will show the video signal at the same time. Audio may also be switched if required.

See chapter 3.7, page 38 for further installation examples.

3.2.1 Matrix System Hardware and Logical Objects

On all Draco tera matrices, switching extender modules follows the same principle:

- A CON/CPU Unit (hardware) is represented by an EXT Unit (logical object) in the matrix.
- This EXT Unit needs to be assigned to a CON or CPU Device (logical object).
- The actual switching takes place on the level of the CPU and CON Devices.

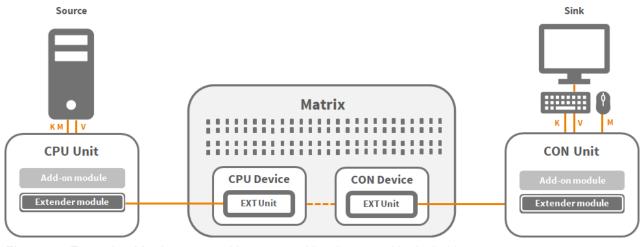


Fig. 2 Example - Matrix system with connected hardware and logical objects

3.2.2 Matrix Switching Possibilities

There are several possibilities to switch CON Devices to CPU Device depending on the access rights of the user or CON Device and the configuration.

- Full Access (FA): The video is displayed on the monitor of the associated CON Device with USB-HID control of the switched CPU Device. With enabled Sharing option, several users may have Full Access, but only one at a time. Others will remain in video only.
- Video only (VO): The video is displayed on the monitor connected to the switched CON Device without USB-HID control of the switched CPU Device.
- Private Mode (PM): With enabled Private Mode, only one CON Device can be switched to the respective CPU Device. The CPU Device is not available for other connections.

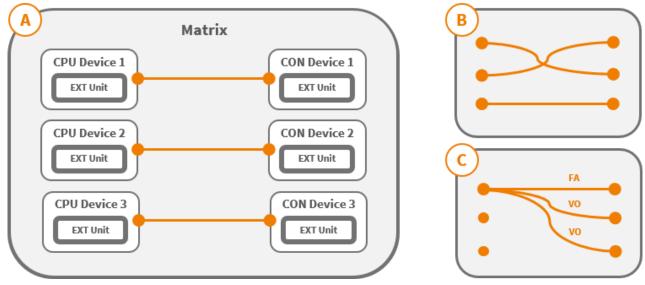


Fig. 3 Example - Matrix switching possibilities

3.3 Product Range

3.3.1 Matrix Chassis

The matrix chassis include one or two controller boards, fan trays, an exchangeable filter pad and one or two power supply units depending on the product model.

		I/O Boards		Controller boards		Satellite boards		Power supply units	
Туре	Ports	Slots	Incl.	Slots	Incl.	Slots	Incl.	Slots	Incl.
K480-048-R1	48	6	0	2	1	0	0	2	1
K480-080-R1	80	10	0	2	1	0	0	2	1
K480-152-R1	152	19	0	2	1	0	0	3	2
K480-160-R1	160	20	0	1	1	0	0	3	2
K480-288-R1	288	36	0	2	1	0	0	3	2
K480-576-R1	576	72	0	2	2	0	0	4	2
K480-576S-R1*	576	72	0	2	2	0	0	4	2
K480-576-R2**	576	72	0	2	1	1	1	4	2
K480-576S-R2*/**	576	72	0	2	1	1	1	4	2

* 288x288: switchable from one 288-port unit to the other 288-port unit, not switchable in between a 288-port unit.

** Available on demand from Q2/2022.

3.3.2 Accessories for Chassis

Part No.	Description
PC-TYP-E/C13-020	Power cord IEC Schuko 90° Type-E/C13 2.0 m lockable
PC-TYP-B/C13-020	Power cord IEC US Type-B/C13 2.0 m lockable
480-RED-048-80	Draco tera enterprise 48/80-Port Spare/Redundancy PSU
480-RED-160	Draco tera enterprise 152/160-Port Spare/Redundancy PSU
480-RED-288	Draco tera enterprise 288-Port Spare/Redundancy PSU
480-RED-288-AR	Draco tera enterprise 288-Port Spare/Redundancy PSU, reverse airstream
480-RED-576	Draco tera enterprise 576-Port Spare/Redundancy PSU
480-RED-576-AR	Draco tera enterprise 576-Port Spare/Redundancy PSU, reverse airstream
480-FAN-048	Draco tera enterprise 48-Port fan cartridge
480-FAN-080	Draco tera enterprise 80-Port fan cartridge
480-FAN-160/288	Draco tera enterprise 152/160/288-Port fan cartridge
480-FAN-288-AR	Draco tera enterprise 152/160/288-Port fan cartridge, reverse airstream
480-FAN-576	Draco tera enterprise 576-Port fan cartridge
480-FAN-576-AR	Draco tera enterprise 576-Port fan cartridge, reverse airstream
480-FLTR-048	Draco tera enterprise 48-Port air filter cartridge
480-FLTR-080	Draco tera enterprise 80-Port air filter cartridge
480-FLTR-160	Draco tera enterprise 152/160/288-Port air filter cartridge
480-FLTR-576	Draco tera enterprise 576-Port air filter cartridge

3.3.3 I/O Boards and Controller Boards

Part No.	Description	Interface
480-C8R1	Draco tera enterprise I/O-Board 8-Port, Cat X, Rev. 1	Cat X
480-C8X	Draco tera enterprise I/O-Board 8-Port, Cat X 3G, Rev. 1	Cat X
480-C8BDG	Draco tera enterprise I/O-Board 8-Port Bridge 1G/3G, Cat X 1G	Cat X
480-S8R1	Draco tera enterprise I/O-Board 8-Port, SFP Fiber SM, Rev. 1	Fiber
480-S8X	Draco tera enterprise I/O-Board 8-Port, SFP Fiber SM 3G	Fiber
480-S8BDG	Draco tera enterprise I/O-Board 8-Port Bridge 1G/3G, SFP Fiber SM 1G	Fiber
480-UNI16	Draco tera enterprise I/O-Board 8-Port, SFP cages universal, free configuration	USB 3.0, SDI and HDMI
480-GRD-S8-R1	Draco tera enterprise GRID-Board, Fiber SM 10G, 8x1G >1 Port	Grid
480-CTRL2	Draco tera enterprise Controller Board version 2 for 48-576 ports versions	Controller
480-576-SC*	Draco tera enterprise 576 satellite controller module	Satellite Card

3.3.4 Accessories for I/O Boards and Controller Boards

Part No.	Description	Interface
459-1C	SFP, bidirectional, 1G	Cat X, 1G
459-1S	SFP single-mode, LC duplex, bidirectional, 1G	Fiber 10G
459-10X	SFP single-mode, LC duplex, bidirectional, 10G, compatible with grid board 480-GRD-S8-R1	Fiber 10G
SDI/HDMI Conne	ctors for 480-UNI16 on demand	

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3.4 Scope of Delivery

The scope of delivery contains the following items:

Product type	Scope of delivery					
K480-48-R1	 Draco tera enterprise 1x Programing cable (RJ10 to D-Sub 9) 					
K480-80-R1	1x IEC country-specific power cord C13, 2.0 m, lockableQuick Setup					
K480-152-R1						
K480-160-R1						
K480-288-R1	Draco tera enterprise					
K480-576-R1	1x Programing cable (RJ10 to D-Sub 9)					
K480-576S-R1	 2x IEC country-specific power cord C13, 2.0 m, lockable Quick Setup 					
K480-576-R2*						
K480-576S-R2*						
* Available on dema	nd from Q2/2022.					

If anything is missing, please contact your distributor.

3.5 Device Views

The following views of the Draco tera matrix illustrate the various available chassis types.

3.5.1 Chassis

3.5.1.1 Draco tera 48 Port, Revision 1

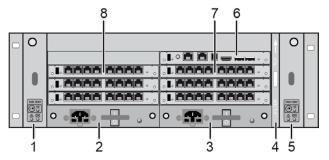


Fig. 4 Interface side - Example for Draco tera 48 port, revision 1

- 1 Slot for fan tray 1
- 2 Slot for power supply unit 1
- 3 Slot for power supply unit 2 (optional)
- 4 Slot for air filter

3.5.1.2 Draco tera 80 Port, Revision 1

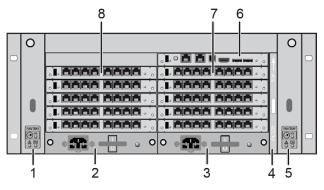


Fig. 5 Interface side - Example for Draco tera 80 port, revision 1

- 1 Slot for fan tray 1
- 2 Slot for power supply unit 1
- 3 Slot for power supply unit 2 (optional)
- 4 Slot for air filter

- 5 Slot for fan tray 2
- 6 Slot for controller board

Slot for fan tray 2

Slot for controller board

Slots for I/O boards 1 to 3

Slots for I/O boards 4 to 6

5

6

7

8

- 7 Slots for I/O boards 1 to 4
- 8 Slots for I/O boards 5 to 8

The grounding screws is located on the rear side of the chassis.

3.5.1.3 Draco tera 152 Port, Revision 1

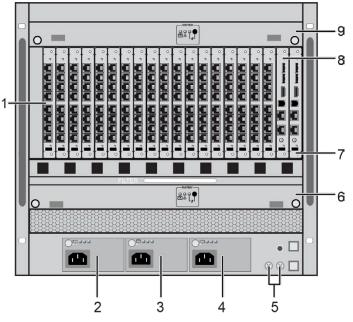


Fig. 6 Interface side - Example for Draco tera 152 port, revision 1

- 1 Slots for I/O boards 1 to 19
- 2 Slot for power supply unit 1
- 3 Slot for power supply unit 2 (optional)
- 4 Slot for power supply unit 3 (optional)
- 5 Grounding (2x)

3.5.1.4

- 6 Slot for fan tray 1
- 7 Slot for controller board
- 8 Slot for controller board (redundancy)
- 9 Slot for fan tray 2

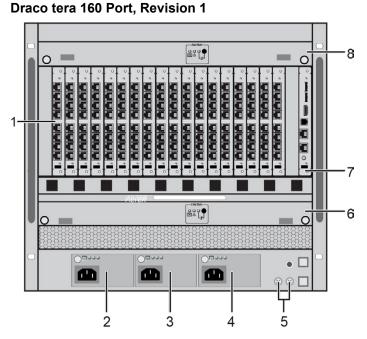


Fig. 7 Interface side - Example for Draco tera 160 port, revision 1

- 1 Slots for I/O boards 1 to 20
- 2 Slot for power supply unit 1
- 3 Slot for power supply unit 2 (optional)
- 4 Slot for power supply unit 3 (optional)
- 5 Grounding (2x)
- 6 Slot for fan tray 1
- 7 Slot for controller board for I/O boards 1 to 20
- 8 Slot for fan tray 2

3.5.1.5 Draco tera 288 Port, Revision 1

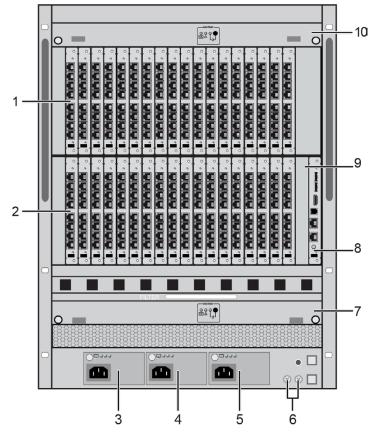


Fig. 8 Interface side - Example for Draco tera 288 port, revision 1

- 1 Slots for I/O boards 1 to 18
- 2 Slots for I/O boards 19 to 36
- 3 Slot for power supply unit 1
- 4 Slot for power supply unit 2 (optional)
- 5 Slot for power supply unit 3 (optional)
- 6 Grounding (2x)
- 7 Slot for fan tray 1
- 8 Slot for controller board for I/O boards 1 to 72
- 9 Slot for controller board for I/O boards 1 to 72 (redundancy)
- 10 Slot for fan tray 2

FAN THE OPENING - 13 C Draco ïhse. 1 12 D 2 · 3 11 I 4 10 ⊗ ■ B 8 9 5 6 7

3.5.1.6 Draco tera 576 Port, Revision 1

Fig. 9 Interface side - *Example for Draco tera 576 port, revision 1*

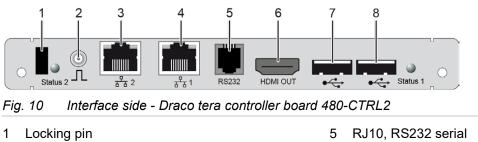
- 1 Slots for I/O boards 1 to 18
- 2 Slots for I/O boards 19 to 36
- 3 Slots for I/O boards 37 to 54
- 4 Slots for I/O boards 55 to 72
- 5 Slot for power supply unit 1
- 6 Slot for power supply unit 2
- 7 Slot for power supply unit 3 (optional)

- 8 Slot for power supply unit 4 (optional)
- 9 Grounding (2x)
- 10 Slot for fan tray 1
- 11 Slot for controller board for I/O boards 54 to 72
- 12 Slot for controller board for I/O boards 1 to 36
- 13 Slot for fan tray 2

The illustration for K480-576-R2 will be included in the next manual version.

3.5.2 **Boards**

3.5.2.1 **Draco tera Controller Board 480-CTRL2**



- 2 GenLock (not used)
- 3 Network port 2
- Network port 1 4

- 6 HDMI port (output)
- 7 USB Type A, USB-HID 1 USB-HID device 1
- 8 USB Type A, USB-HID 1 USB-HID device 2

3.5.2.2 I/O Boards

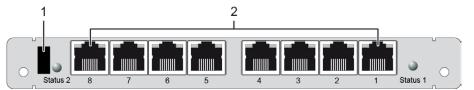
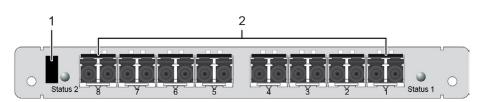
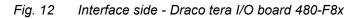
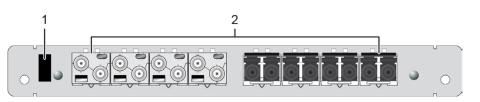


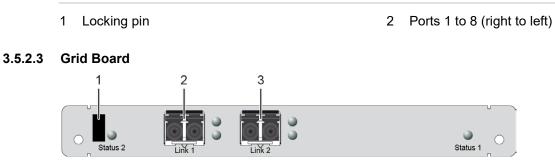
Fig. 11 Interface side - Draco tera I/O board 480-C8x (1G and 3G)







Interface side - Draco tera I/O board 480-UNI16 Fig. 13



Interface side - Draco tera grid board 480-GRD-S8-R1 Fig. 14

Locking pin 1

3 Interconnect port 2

Interconnect port 1 2

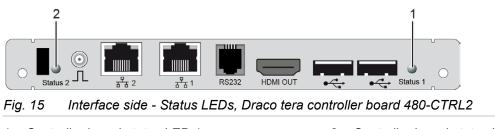
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3.6 Status Indication at the Device

Due to variations in LED type "white" might also appear as light purple or light blue.

3.6.1 Draco tera Controller Board 480-CTRL2

3.6.1.1 LEDs for Board Status



1 Controller board status LED 1

2 Controller board status LED 2

Status LEDs of the Primary Controller Board

The column designation has been chosen according to the LED position numbers of the controller board.

LED 2	LED 1	Description
O White	O White	System check while booting or running an update process.*
Flashing red	Flashing blue	Registration of the controller board has started.
Flashing blue	Flashing red	Controller board registration in progress.
Off	Flashing green	Operating condition, controller board registered at the matrix.
Flashing blue	Flashing green	Operating condition with communication between controller board and I/O board.
Flashing red	Flashing green	The matrix shutdown is finished (locking pin plugged in).
Flashing red	O Green	The controller board is de-registered and/or the matrix shutdown is finished (locking pin pulled out).
0	Flashing yellow	Matrix shutdown or restart in progress.*
* These LED page 318.	colors indicate v	very sensitive processes, see chapter 9.2, page 308 and chapter 12.2,

Status LEDs of the Secondary Controller Board

LED 2	LED 1	Description
Off	Flashing red	Secondary controller board in stand-by mode.



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LED status/colors when using the second controller card alone, see table for first controller card.

3.6.1.2 LEDs for Network Connection

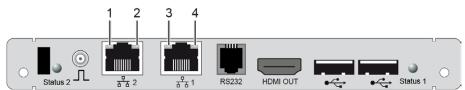


Fig. 16 Interface side - Network Connection LEDs, Draco tera controller board 480-CTRL2

- 1 Link status LED network connection 1
- 2 Activity status LED network connection 1
- 3 Link status LED network connection 1
- 4 Activity status LED network connection 1

Status LEDs for the Network Connection

For an easier identification, the LED representation and column designation in the table was selected analogously to the LED position on the ports.

The following tables show the respective LED states/colors of the network connection LED (Pos. 1/3) and activity LED (Pos. 2/4) for the respective situation.

LED 1/3	LED 2/4	Description
Off	Off	No network connection available.
Green	Off	Network connection available, no data traffic available.
Green	Orange	Network connection available, data traffic active.

3.6.2 Draco tera I/O Boards and Grid Board

3.6.2.1 LEDs for Board Status

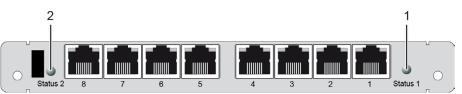


Fig. 17 Interface side - Status LEDs, Draco tera I/O board 480-C8x (1G and 3G)

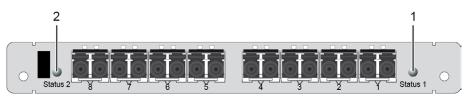


Fig. 18 Interface side - Status LEDs, Draco tera I/O board 480-F8x

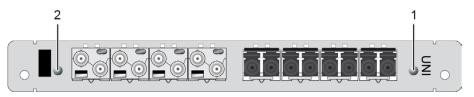


Fig. 19 Interface side - Status LEDs, Draco tera I/O board 480-UNI16



Fig. 20 Interface side - Status LEDs, Draco tera grid board 480-GRD-S8-R1

1 Status LED 1 I/O board

2 Status LED 2 I/O board

Status LEDs of the I/O Board

For an easier identification, the LED representation and column designation in the table was selected analogously to the LED position on the controller board.

LED 2	LED 1	Description
O White	O White	System check while booting or running an update process.*
Flashing red	Flashing blue	Registration of the I/O board has started.
Flashing blue	Flashing red	I/O board registration in progress.
Off	Flashing green	Operating condition, I/O board registered at the matrix.
Flashing blue	Flashing green	Operating condition with communication between controller board and I/O board.

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LED 2	LED 1	Description
Flashing red	Flashing green	Matrix shutdown is finished (locking pin plugged in).
O Blue	Flashing red	I/O board firmware conflict with controller board with chosen option Invalid IO-Boards
0	Flashing yellow	Matrix shutdown or restart in progress.*

* These LED colors indicate very sensitive processes, see chapter 9.2, page 308 and chapter 12.2, page 318.

3.6.2.2 LEDs for Link Connection 1G and 3G Cat X Board

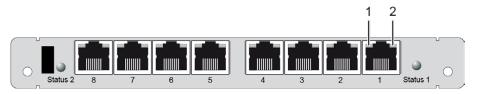


Fig. 21 Interface side - Link Connection LEDs, Draco tera I/O board, 1G Cat X

1 Link Status LED

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2 Activity Status LED

Status LEDs at the I/O Ports, 1G Cat X

For an easier identification, the LED representation and column designation in the table was selected analogously to the LED position on the controller board.

LED 1	LED 2	Description
Off	Off	No link connection available.
Off	Flashing orange	No link connection available, extender module is not detected.
O Green	Orange	Link connection available, extender module detection is running.
O Green	Off	Operating status, link connection available, data traffic is active.

Status LEDs at the I/O Ports, 3G Cat X

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For an easier identification, the LED representation and column designation in the table was selected analogously to the LED position on the controller board.

LED 1	LED 2	Description
Off	Off	No link connection available.
Off	Flashing red	No link connection available, extender module is not detected.
Green	Flashing red	Link connection available, extender module detection is running.
O Green	Off	Operating status, link connection available, data traffic is active.

3.6.2.3 LEDs for Link Connection 1G and 3G Fiber Board

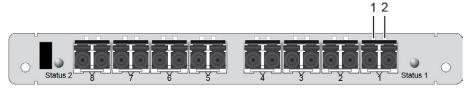


Fig. 22 Interface side - Link Connection LEDs, Draco tera I/O board, 1G and 3G fiber

1 Link Status LED

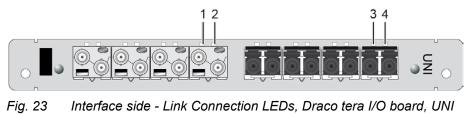
2 Activity Status LED

Status LEDs at the I/O Ports, 1G and 3G Fiber

For an easier identification, the LED representation and column designation in the table was selected analogously to the LED position on the controller board.

LED 1	LED 2	Description
Off	Off	No link connection available.
Off	Flashing red	No link connection available, extender module is not detected.
O Green	Red	Link connection available, extender module detection is running.
O Green	Off	Operating status, link connection available, data traffic is active.

3.6.2.4 LEDs for Link Connection UNI Board



1 Link Status LED

2 Activity Status LED

3 Link Status LED

Activity Status LED

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Status LEDs at the I/O Ports, UNI Board

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For an easier identification, the LED representation and column designation in the table was selected analogously to the LED position on the controller board.

LED 1/3	LED 2/4	Description
Off	Off	Port not activated.
Off	Flashing red	No link connection available, extender module is not detected.
O Green	Flashing red	Link connection available, extender module detection is running.
O Green	Off	Operating status, link connection available, data traffic is active.



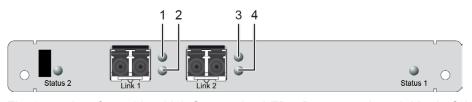


Fig. 24 Interface side - Link Connection LEDs, Draco tera board, Matrix Grid

- 1 Activity Status LED
- 2 Link Status LED

- 3 Activity Status LED
- 4 Link Status LED

Status LEDs of the I/O Ports, Matrix Grid

The following tables show the respective LED states/colors of the left LED 1 and right LED 2 of the I/O board for the respective situation.

Pos.	LED	Description	
1/3	Off	Dort not activated	
2/4	Off	Port not activated.	
1/3	Flashing orange	No link connection available, extender module is not detected.	
2/4	Off		
1/3	Flashing orange		
2/4	Flashing green	Link connection available, extender module detection is running.	
1/3	Off	On another status links and a subject of the state ter fits is a sting	
2/4	O Green	Operating status, link connection available, data traffic is active.	

3.6.3 Power Supply Units

3.6.3.1 Draco tera 48/80 Port, Status LEDs for Power Supply Voltage



Fig. 25 Status LEDs for power supply voltage, Draco tera 48/80 port

1 LED for power supply voltage

LEDs for Power Supply Voltage

LEDs	LED Status	Description
1	Green	Operating condition
	Red	No power supply voltage available. The matrix is powered by a second power supply unit.
	Off	No power supply voltage available.

3.6.3.2 Draco tera 152/160/288 Port

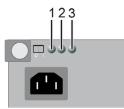


Fig. 26 Status LEDs for power supply voltage, Draco tera 152/160/288 port

1 LED for AC input

2

LED for AC output

3 LED for temperature

LEDs for Power Supply Voltage

LEDs	LED Status	Description
1	Green	Operating condition
2	Green	Operating condition
3	Off	Normal temperature
	O Yellow	High temperature

3.6.3.3 Draco tera 576 Port, Revision 1

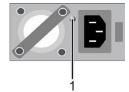


Fig. 27 Status LEDs for power supply voltage, Draco tera 576 port, revision 1

1 LED for power supply voltage

LEDs for Power Supply Voltage

LEDs	LED Status	Description
1	Flashing green	Stand-by on; main output off, AC input power on.
	Green	Stand-by on; main output on, no fault detected.
	Flashing orange	Fault detected: main output OCP (over current protected) or UVP (under voltage protected) or OVP (over voltage protected).
	Orange	Fan fault or OTP (over temperature protected) or stand-by on with OCP/UVP.
	Off	AC input power off.

3.6.3.4 Draco tera 576 Port, Revision 2

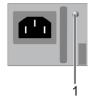


Fig. 28 Status LEDs for power supply voltage, Draco tera 576 port, revision 2

1 LED for power supply voltage

LEDs for Power Supply Voltage

LEDs	LED Status	Description
1	Flashing green	Stand-by on; main output off, AC input power on.
	Green	Stand-by on; main output on, no fault detected.
	Flashing orange	Power supply warning event
	Orange	Fault detected: main output stand-by output, fan, overtemperature, input OVP.
	Off	AC input power off.

Fan Trays 3.6.4

3.6.4.1 Draco tera 48/80 Port

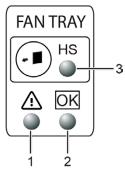


Fig. 29 Fan tray status LEDs, Draco tera 48/80 Port

Operation LED 1

3 Hot-Swap LED

Alarm LED 2

Pos.	LED	Description			
1 Off		No power to the fan tray			
	O Green	Normal operation			
2	Red	ttention status (error condition)			
3	Off	In use			
	Flashing blue	Preparing for extraction			
	O Blue	Ready to remove			

3.6.4.2 Draco tera 152/160/288/576 Port

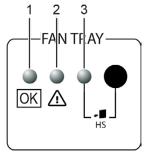


Fig. 30 Fan tray status LEDs, Draco tera 152/160/288/576 Port

Operation LED 1

3 Hot-Swap LED

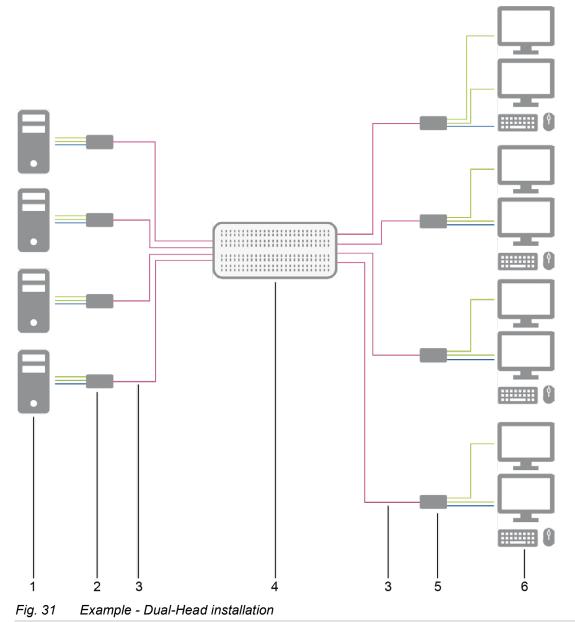
Alarm LED 2

Pos.	LED	Description		
1	Off	No power to the fan tray		
	O Green	Normal operation		
2	O Red	ttention status (error condition)		
3	Off	In use		
	Flashing blue	Preparing for extraction		
	O Blue	Ready to remove		

3.7 Installation Examples

Additionally, to the Single-Head installation, described in chapter 3.2, page 18, this chapter shows typical exemplary installations of the Draco tera:

3.7.1 Dual-Head Installation



- 1 Dual-Head sources
- 2 Dual-Head CPU Units
- 3 Interconnect cable

- 4 Draco tera matrix
- 5 Dual-Head CON Units
- 6 Consoles (2x monitor, keyboard, mouse)

3.7.2 Single-Head Installation with Multi-Screen Control

When using Multi-Screen Control (below referred to as "MSC"), switching the USB-HID control between up to eight connected sources can be performed at one sink with only one connected mouse or keyboard. In a Single-Head installation, the sink can consist of up to eight monitors. In a matrix system, MSC can be set up at multiple sinks.

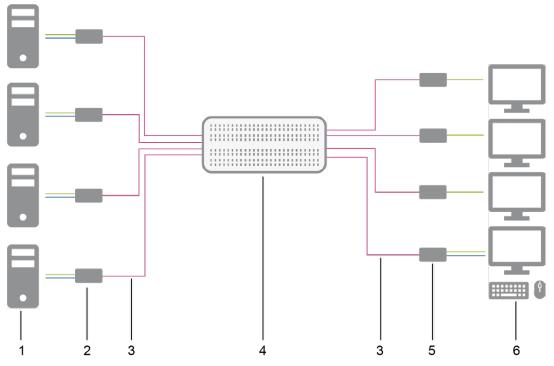


Fig. 32 Example - Single-Head installation with MSC

- 1 Single-Head sources
- 2 Single-Head CPU Units
- 3 Interconnect cable
- 4 Draco tera matrix

- 5 Single-Head CON Units
- 6 MSC console (e.g., 4x monitor, 1x keyboard, 1x mouse)

If you have a Single-Head console, e.g., you can also get access to a Dual-Head or Quad-Head source. However, control is only possible at monitor 1 and only one video signal is displayed.

Any signal source can be switched to any number of monitors that will show the video signal at the same time. Audio may also be switched if required.

3.7.3 Dual-Head Installation with Multi-Screen Control

When using MSC, switching the USB-HID control between up to eight connected sources can be performed at one sink with only one connected mouse or keyboard. In a Dual-Head installation, the sink can consist of up to sixteen monitors when operating Dual-Head Sources. In a matrix system, MSC can be set up at multiple sinks.

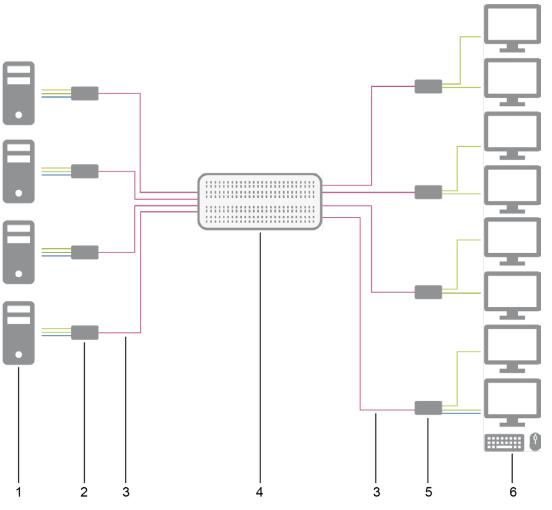


Fig. 33 Example - Dual-Head installation with MSC

- 1 Dual-Head sources
- 2 Dual-Head CPU Units
- 3 Interconnect cable
- 4 Draco tera matrix

- 5 Dual-Head CON Units
- 6 MSC console (e.g., 8x monitor, 1x keyboard, 1x mouse)

Any signal source can be switched to any number of monitors that will show the video signal at the same time. Audio may also be switched if required.

3.7.4 Single-Head, Dual-Head and Single-Head Multi-Screen Control Installation

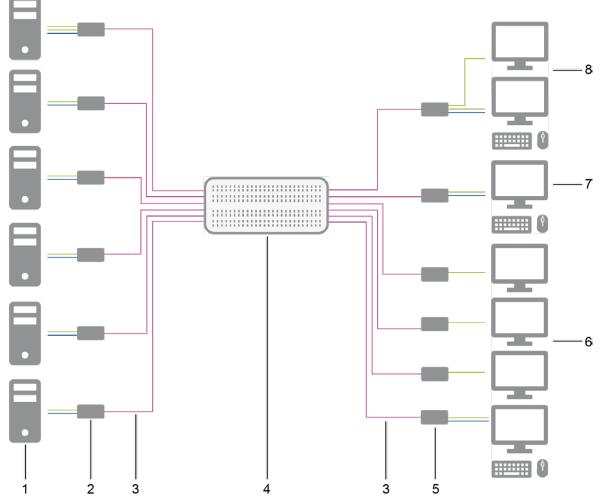


Fig. 34 Example - Single-Head, Dual-Head and Single-Head MSC Installation

- 1 Single-/Dual Head sources
- 2 Single-/Dual-Head CPU Units
- 3 Interconnect cables
- 4 Draco tera matrix

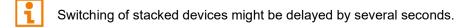
- 5 Single-/Dual-Head CON Units
- 6 Single-Head console (1x monitor, keyboard, mouse)
- 7 Dual-Head console (2x monitor, keyboard, mouse)
- 8 MSC console (e.g., 4x monitor, 1x keyboard, 1x mouse)

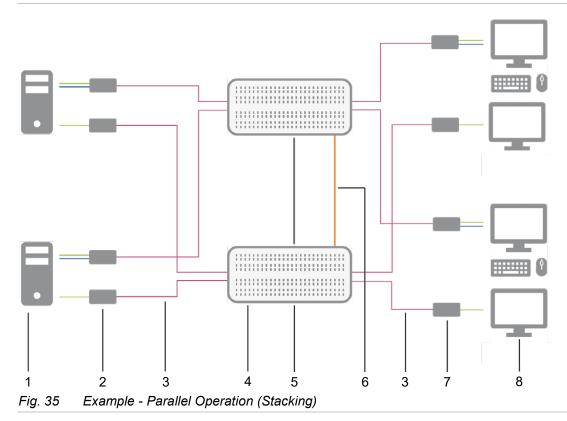
3.7.5 Parallel Operation (Stacking)

If you have special configurations, especially at installations with several monitors per workstation or additional support of USB 2.0 transmission paths, the number of connectable sources and sinks can be increased by a parallel operation (stacking) of several Draco tera devices.

One Draco tera matrix is defined as the **Master Matrix** and its IP address entered into the **Master IP Address** field (see chapter 6.3.1, page 72). All other matrices are defined as Sub Matrices. Sub matrices must be connected to the master matrix via network connector (RJ45) on the controller board. The **Enable LAN Echo** option has to be activated at the master matrix (see chapter 6.3.1, page 72).

If a switching command is performed using the OSD, the synchronized matrices will also switch automatically.



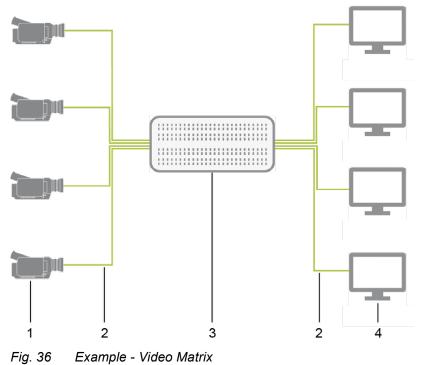


- 1 Dual-Head sources
- 2 Single-/Dual-Head CPU Units
- 3 Interconnect cable
- 4 Master matrix
- 5 Synchronized matrix

- 6 Network connection master matrix / synchronized matrix
- 7 Dual-Head CON Units
- 8 Console (2x monitor, 1x keyboard, 1x mouse)

3.7.6 Video Matrix

The matrix can be used as a video matrix. Up to 288 input ports can be switched to up to 288 output ports depending on components and equipment.



- 1 Video source (e. g. SDI camera)
- 2 Interconnect cables

- 3 Matrix
- 4 Video sink (e.g., monitor)

3.7.7 Matrix Grid

You can use a matrix grid for applications where the required number of ports is not sufficient or important connections need to be made to several matrices to provide redundancy.

A matrix grid consists of one master matrix and at least one sub matrix. In its maximum configuration, it can consist of up to 24 matrices.

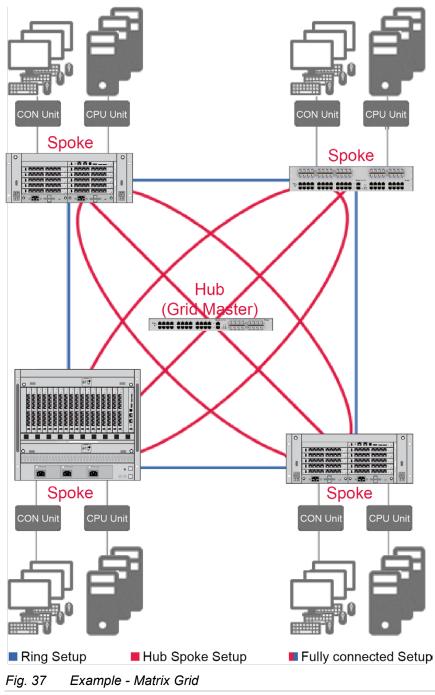
To build a matrix grid, the grid matrices are interconnected by "Grid Lines". In this case, the sub matrices can be connected directly to the master matrix or between themselves.

When arranging the grid lines, various grid setups can be realized, for example: a ring setup, a hub & spoke setup, or a fully connected setup of matrices.

Grid lines can process signals bidirectional (**Smart Connect**). Per grid line, one KVM connection can be transmitted.

All switching operation will be exclusively performed through the Grid Master.

To configure the matrix grid, see chapter 7.10, page 272.



4 Access Options

You have the following options to configure and operate the Draco tera:

Access and operation option	Description		
Command Mode and Keyboard commands	The command mode allows several functions to be controlled by keyboard commands during normal use.		
OSD	The OSD (On-Screen-Display) allows to configure the basic settings of the matrix operating system, to query several states, and to control several functions by keyboard commands during normal use.		
Tera Tool	The Tera Tool (management software) is available as a single executable program file that does not require an installation. The management software can be downloaded from the link <u>https://www.ihse.com/software</u> . Advanced settings can be configured on the Draco tera operating system using		
	the management software:Advanced configuration		
	Extended monitoring options		
	System update (firmware update)		
	Local backup option		
	Documentation		
API	The Draco tera API (application programming interface) is used to control the matrix externally by network (TCP/IP) or serial interface connection.		
	The Draco tera API has been successfully implemented with various common media control systems.		
	The Draco tera API provides the full scope of switching functionality. It does not support the configuration of a Draco tera system.		
	Detailed information about API switching commands is available upon request.		

4.1 Command Mode

The extender modules include a command mode that allows to access the matrix and to control several functions by keyboard commands during normal use.

To start the command mode, use a keyboard sequence (Hot Key) at the keyboard plugged in the matrix. To exit the command mode, press Esc.

NOTICE

While in command mode,

- the Caps Lock and Scroll Lock LEDs on the keyboard are flashing,
- ➡ the USB-HID devices are not operable, mouse and keyboard functions are deactivated,
- ➡ only selected keyboard commands are available.

If there is no keyboard command executed within 10 seconds after activating the command mode, it will be deactivated automatically.

The following keyboard commands are used to enter, and to exit the command mode, and to change the Hot Key.

Function	Keyboard command
2x Left Shift (Hot Key, factory setting)	Start the command mode
Esc	Exit the command mode
current Hot Key, c, new Hot Key Code, Enter	Change the Hot Key

NOTICE In a combined KVM matrix/U-Switch configuration, select different Hot Keys for extender modules connected to the KVM matrix (e.g., 2x Left Shift) and the U-Switch (e.g., 2x Right Shift).

Hot Key Code

The Hot Key to enter the command mode can be changed. The following table lists the Hot Key codes for the available Hot Keys.

Hot Key Code	Hot Key	
0	Freely selectable, except ESC, Del, and Enter	
2	2x Scroll	
3	2x Left Shift (default)	
4	2x Left Ctrl	
5	2x Left Alt	
6	2x Right Shift	
7	2x Right Ctrl	
8	2x Right Alt	

Change the current Hot Key via Hot Key Code (exemplary)

To change the current Hot Key to, e.g., 2x Left Alt, enter Hot Key, c, 5, Enter.

Set a freely selectable Hot Key (exemplary)

To set a freely selectable Hot Key (e.g., 2x Space), enter Hot Key, c, 0, Space, Enter.

Keyboard commands are fixed to the position of the keys on the keyboard. Keyboard mapping tables may vary for country-specific layouts.

Note the key position of a freely defined Hot Key when changing the keyboard layout, e.g., from QWERTZ to AZERTY. E.g., if defining 2x a as Hot Key on a German or US keyboard layout, the French keyboard layout (AZERTY) requires then 2x q as Hot Key to be pressed instead.

Reset the Hot Key

To set a Hot Key back to default settings, press Right Shift + Del within 5 s after switching on the CON Unit or plugging in a keyboard.

The Hot Key is set back to Left Shift.



4.2 Control Options via OSD

4.2.1 OSD Keyboard Control

There are the following options to enter the OSD of the matrix:

- via keyboard connected to the controller board
- via keyboard connected to a CON Unit of an extender module

The following keyboard commands are used to open, and to exit the OSD:

Keyboard command	Function	
Hot Key, o or Hot Key, m, o.	Open the OSD of the matrix or the master matrix in a cascading matrix system.	
Hot Key, s, o	Open the OSD of the sub matrix in a cascading matrix system.	
Esc	Exit the OSD in the main menu or go back one step in the menu structure.	
Left Shift + Esc	Exit the OSD within the menus.	
Left Ctrl + Esc		

NOTICE

If the OSD is closed with one of the keyboard commands mentioned above, possible changes are not saved. For information on saving changes, see configuration descriptions from chapter 6.9, from page 139.

Entering the OSD and the Main Menu

To open the main menu, proceed as follows:

1. Press Hot Key + o or the Fast Key to open the OSD.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing, and the OSD is opened on the display showing a list of all available CPU Devices.

2. Press Esc to open the main menu.



If the **Enable CPU Selection** checkbox is ticked in the **Configuration** menu, the CPU Device selection list for switching CPU Devices will be opened initially. Pressing **F7** within the selection list opens the OSD menu.

Leaving the OSD

Press Esc in the main menu or press Left Shift + Esc anywhere within the OSD.

The OSD is closed without saving any changes and the signal of the currently active CPU Device connection will be displayed.

4.2.2 **OSD Keyboard Commands**

The following keyboard commands are available for the navigation and configuration within the menus:

Keyboard command	Function		
Left Arrow	Input field: cursor left		
Right Arrow	Input field: cursor right		
Up Arrow	In input fields: line up (with wrap around)		
	In menus: line up (without wrap around)		
Down Arrow	In input fields: line down (with wrap around)		
	In menus: line down (without wrap around)		
Page Up	Previous page in menus with more than one page		
Page Down	Next page in menus with more than one page		
Tab	In menus with input fields: next input field		
Left Shift + Tab	In menus with input fields: previous input field		
+	Next option in selection fields		
	In the CPU selection list with cursor on a CPU Device Group: expand members of a group		
+	Previous option in selection fields		
	In the CPU selection list with cursor on a CPU Device Group: collapse members of a group		
Spacebar	Switching in selection fields between two conditions, e.g., between ON/OFF or Y (Yes)/ N (No)		
Enter	In menus with input fields: save data		
	In menus: select menu item		
	With buttons: confirm selected button		
Esc	In menus with input fields: cancel data input without saving		
	In menus with selection fields: go back to the superior menu		

Set a Fast Key for a direct Opening of the OSD

Next to the Hot Key for starting the command mode, a Fast Key can be exclusively set for opening the OSD directly. How often the shortcut key has to be pressed depends on the specified key: 1x for function keys or print key, 2x for all other keys.

To select a Fast Key from the Hot Key Code table (see page 46), enter:

Hot Key, f, Hot Key Code, Enter

To define a freely selectable Fast Key (e.g., 2x Space), enter Hot Key, f, 0, Space, Enter.

Delete the Fast Key

To delete the Fast Key, enter Hot Key, f, 0, Del, Enter.

4.2.3 OSD Menu Structure

The general layout of the OSD is structured into three areas:

- Upper status area (topmost two text lines)
- Working area (here shown with the main menu)
- Lower status area (lowest two text lines)

CON_0101	90841 (384/0)	ihse
		F10:Login
St As Co	u itch cro List tended Switch atus signments nfiguration out	
		Shift+ESC = Close
	4 4	
SWITCH_0		Draco tera
Fig. 38	OSD Main menu	

The following functions are available in most of the menus:

Button	Function
Cancel	Reject changes
Okay	Confirm changes (temporary storage of the active configuration in the volatile memory of the matrix).

4.2.4 OSD Sort Function

Lists and tables in the OSD offer a sorting function for fast and smooth search.

The following sorting functions are available:

Keyboard command	Function		
F1	 Sort ID numbers in descending order by pressing the keyboard command once. Sort ID numbers in ascending order by pressing the keyboard command twice (ID). 		
F2	 Sort ID names in descending order by pressing the keyboard command once. Sort ID names in ascending order by pressing the keyboard command twice (Name). 		
F3	Go to the next result in the list of results of the search field (Next).		
F4	Go to the previous result in the list of results of the search field (Previous).		
F5	Refresh the currently shown list (Refresh).		
F6	Jump between the search field and the list of results (Find).		
F8	Show unavailable CPU Devices.		
F9	Activate search function from the beginning of the name (Compare).		

4.3 Control Options via Management Software

4.3.1 Management Software Menu Structure



The main user interface elements for options and functions of the management software are described in this chapter. This allows to keep the user manual clear. Further options and functions are explicitly declared in the respective chapters.

The menu structure of the management software is subdivided into several sections:

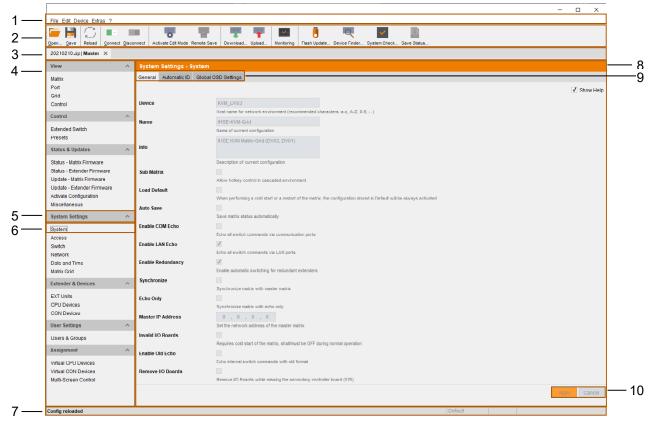


Fig. 39 Management software Menu structure (Example 1)

- 1 Menu bar
- 2 Toolbar
- 3 Tab bar (shows connections or configurations)
- 4 Task area
- 5 Task menu
- 6 Task menu item

- 7 Status bar (shows config version, activated Edit Mode and online mode)
- 8 Working area
- 9 Tabs (for additional menus)
- 10 Buttons

The following control elements are included in the menus:

Designation	Element	Description
Checkbox		Function is not active, disabled by default or by mouse click
	v	Function is active, enabled by default or by mouse click
Radio button		Option is not active, disabled by default or by mouse click
	\odot	Option is active, enabled by default or by mouse click
Drop-down menu	🗸	A selection list is opened by mouse click on the arrow
	0 🗘	The value (+/-) is set by mouse click on the up/down arrow

The following actions are available in most of the menus:

Button	Function
Apply	Confirm changes (temporary storage of the active configuration in the volatile memory of the matrix).
Cancel	Reject changes.

Based on the following figure, basic functions are described that are available in the working area of several menus for individual tabs. Further functions are explained separately in the respective chapters.

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27 03011 CON_03011 1300 CPU_01300 Use keys * and + to move CPU 28 r3 or ups Assign Settings to Copy Settings from Extender Replacement Send OSD Message to New Device Delete Device Device						1600	CPU_0160	D			Ľ	07	1007	CPU_01007		×
28 1001 001 <td></td> <td>27</td> <td>03011</td> <td></td> <td></td> <td>1300</td> <td>CPU_0130</td> <td>D</td> <td></td> <td></td> <td></td> <td></td> <td>4000</td> <td>0.000</td> <td>_</td> <td></td>		27	03011			1300	CPU_0130	D					4000	0.000	_	
	ser Settings		02012			1401	CPU 0140		n		Y		_	Use keys + and - to move Ci	10	
ssignment	Isers & Groups		Assign S	ettings to Copy	Settings from.		Extender Repla	cement S	end OSD Mes	sage to				New Device Device	e Apply	<u>C</u> ancel
	ssignment	^ ,														

Fig. 40 Management software Menu structure (Example 2)

- 1 Assigning/Copying settings
- 2 Assigning/Removing elements* to/from an assignment or list
- 3 Creating/Deleting elements*

- 4 Keyboard commands to move elements* up/down
- 5 Moving elements* up/down
- 6 Tabs (for additional functions)

* Element is a placeholder and stands for EXT Units, CON/CPU Devices, Extender Modules, Users, or Favorites (see respective configuration chapters).

These buttons for main functions are available in the lower part of the working area of several menus.

Button	Function
Assign Settings to	Assign settings from an element to another an element.
Copy Settings from	Copy settings from an element to other elements.
New Element	Create a new element.
Delete Element*	Delete an element.

The following functions are available in most of the tabs or dialogs to assign elements.

Button	Function					
•	Assign the selected element to an element.					
Assign all available elements to an element.						
•	Remove the selected element from an element.					
	Remove all elements from an element.					
•	Change the index number of an element upwards.					
	Change the index number of an element downwards.					
	Change the index number of an element to first position.					
	Change the index number of an element to last position.					

Keyboard Command Function

+	Change the index number of elements upwards
-	Change the index number of elements downwards

Access Rights Menu

In menus to assign access, keyboard commands are available shown in the lower area of the tab menu.

	Full Access	Video Access		No Access	
ID	Name	ID Name	ID	Name	
1002	CPU_01002		1001	CPU_01001	
1003	CPU_01003		1004	CPU_01004	
1039	CPU_01039		1005	CPU_01005	
1052	CPU_01052		1006	CPU_01006	
			1007	CPU_01007	
			1008	CPU_01008	
	Use keyboard keys	S F, V, N to change the access control lists.	Use right hand mouse click to	elect action.	<u>C</u> ance

Fig. 41 Management software Menu structure (Example 3)

The following keyboard commands are available in Access assignment tabs:

Keyboard command	Function
f	Add highlighted element to Full Access list
V	Add highlighted element to Video Access list
n	Add highlighted element to No Access list

A context menu is available when clicking with the right mouse button on an element:

- Assign Full Access rights
- Assign Video Access rights

Information and options panel

The information and options panel displays information and offers options for the matrix system, e.g., for the Matrix Status, Routing Information, I/O Port Color Coding, I/O Port Symbols, MSC and Redundancy.

20220215.zip Master X View ^ V Matrix Port Grid Control ^	View - Matrix	ode Remote Save	e Download	Upload	Monitoring	Flash Update	Device Fin	der System C	heck Save Sta	atus	Matrix Status		
Matrix Port Grid Control Control	View - Matrix										 Matrix Status 		
Matrix Port Grid Control Control											Matrix Status		_
Extended Switch Presets Status & Updates											Temperature PSU 1 PSU 2 PSU 3 PSU 4 Fan 1 Fan 2	Ok Off On Not Available Not Available Ok Ok	
miscellareous	01 02 03		06 07 08		10 11	12 13			18 19 • • • • • • • • • • • • • • •	20 CPU			
System Access Switch Network Date and Time Matrix Grid	GRD SFP 3G R1		CAT CAT CA 36 16 16 CPU CPU			CAT CAT 1G 1G CPU CPU			CAT 1G 1G Q Q		Options Automatic Rela Show Port Nu Grid Ports Local Port Show Multi-Sc Routing Inform	mbers s ts creen Control	_
Extender & Devices ^ EXT Units CPU Devices	• •					•				•	Show Video Show USB-HI	D	^
CON Devices User Settings											Full Access Grid Line	Video Access	
Users & Groups											No Access	Fixed Port	~
Assignment Virtual CPU Devices Virtual CON Devices Multi-Screen Control											IO Port Symbols Multi-Screen Co Redundancy		* * *

Fig. 42 Management software Menu structure (Example 4)

1 Information and options panel

Information for Operating and for Support Functions

The operation of the management software is intuitive and corresponds to the user interface of common operating systems.

The management software contains its own support function. The integrated help texts in the working area of the management software can be activated or deactivated by clicking the checkbox in the upper right corner. Auxiliary names (tooltips) for the menu items can be activated under **Extras > Options** on the **Style** tab.

4.3.2 Management Software Toolbar

Some functions are only available if a connection to the matrix has been established (online mode). The respective functions are colored if available.

												_	
<u>F</u> ile E	Eile Edit Device Extras 2												
		S			÷.		Ţ	Ψ.	_^^	Ü	Q	~	dim and
Open	<u>S</u> ave	Reload	Connect	Disconnect	Activate Edit Mode	Remote Save	Download	Upload	Monitoring	Flash Update	Device Finder	System Check	Save Status
												I	
1	2	3	4	5	6	7	8	9	10	11	12	13	14

Fig. 43 Management software **Toolbar**

- 1 Load a locally saved configuration
- 2 Save a configuration locally
- 3 Reload the current configuration
- 4 Connect to the matrix
- 5 Disconnect from the matrix
- 6 Activate/deactivate the edit mode
- 7 Save the active configuration on the matrix (online)
- 8 Download and show a predefined configuration saved on the matrix (online)

- 9 Upload a predefined configuration on the matrix (online)
- 10 Monitoring (online)
- 11 Flash update for single devices
- 12 Overview of devices in the subnet (online mode)
- 13 System check
- 14 Save status locally (online mode)

4.3.3 Management Software Mouse Control

The following mouse commands are selectable for menu functions:

Mouse command	Function
Left mouse button	Select menu, select function, open drop-down menus, enter input field, activate/deactivate option checkboxes, etc.
Double-click left mouse button	Open function specific selection menus
Right mouse button	Open context specific selection menus

4.3.4 Management Software Keyboard Control

The following keyboard commands are available for the navigation and configuration within the menus:

Keyboard command	Function
Left Arrow	Cursor to the left
Right Arrow	Cursor to the right
Up Arrow	Line up
Down Arrow	Line down
Page Up	In input or status menus with more than one page: previous page
Page Down	In input or status menus with more than one page: next page
Tab	In input menus: previous field
Left Shift + Tab	In input menus: next field
Spacebar	Switch in selection fields between two conditions (check mark or not).Open already marked fields with editing or selecting possibility.
Enter	Select menu itemIn menus: save data
Ctrl + Tab	Leave tablesJump from tables into the next field
Ctrl + Left Shift + Tab	Leave tablesJump from tables into the previous field



Several functions within the menus in the menu bar can be executed with the provided keyboard commands (e.g., press Ctrl + s to execute **Save**) that are listed to the right of the respective menu item.

4.3.5 Management Software Reload Options

The information about the current configuration of the matrix, shown in the management software, can be reloaded in different ways:

- Press F5 on the used keyboard.
- Click **Reload** in the toolbar.
- Click Edit >Reload in the drop-down menu of the menu bar.
- To activate the automatic reload option, tick the **Automatic Reload** checkbox in the right panel of the **View >Matrix** menu under **Options**.

4.3.6 Management Software Context Function

The management software offers several context functions that support user-friendly and effective operation. The context functions are described in the respective chapters.

Context function	Action	Results
Execute context function	Click with the right mouse button on a field.	A context menu opens and displays functions available for the corresponding filed (if existing).
	Click with the left mouse button on the desired function.	The desired function is executed.

4.3.7 Management Software Sort Function

Lists and tables in the management software offer a sorting function for fast and smooth search. An active filter is indicated by an arrow in the header.

Sort function	Action	Result
Ascending sort	Click with the left mouse button once on the header of the column to be sorted.	 The column is sorted in ascending order. The sorting of status is indicated by an arrow pointing upwards.
Descending sort	Click with the left mouse button twice on the header of the column to be sorted.	 The column is sorted in descending order. The sorting is displayed by an arrow that points downwards.
Cancel sort	Click with the left mouse button once or twice on the head of the sorted column.	The arrow displayed disappears.

4.3.8 Management Software Filter Function

Lists and tables in the management software offer a filter function that supports a fast and smooth search. The filter entry field is located above the header. An active filter is indicated by a green filter symbol in the filter entry field.

Filter function	Action	Results
Activate the filter	Click with the left mouse button in the filter entry field above the header. Write the word or part of a word to be filtered.	 The filter results are shown immediately. The filter symbol is displayed in green.
Clear the filter	Delete the text in the filter entry field.	The list or table shows the complete content.The filter symbol is displayed in gray.

4.3.9 Management Software Report Function

The management software is equipped with a report function that shows the current switching status and all relevant parts of the matrix configuration in a PDF file.



The report function can be used in both online and offline mode of the management software.

To create a report, proceed as follows:

- Select File > Report... in the menu bar. A selection dialog appears.
- 2. Select contents that should be included in the report (Matrix View, EXT Units, CPU Devices, CON Devices and Users).
- 3. Click **Next > >** to confirm the selection.

Configuration Report	×
Steps	Define Content
Steps 1. Define Content 2. Save Report	Define Content Imatrix View Imatrix View
	Select All
	< <u>B</u> ack Next > <u>F</u> inish Cancel

Fig. 44 Management software File - Report - Define Content

- 4. Go to the preferred location for storage of the report.
- 5. Click **Finish** to confirm the report.

The report will be created as a PDF file.

Configuration Report		×
Steps 1. Define Content 2. Save Report	Save Report Look In:Matrix Report_01.pdf	
	File <u>N</u> ame: Report_02.pdf Files of <u>Type</u> : (*.pdf)	✓
		< <u>Back</u> Next > <u>Finish</u> Cancel

Fig. 45 Management software File - Report - Save Report

4.4 Control via Serial Interface

The matrix operating system offers various functions for an operation via serial interface. There are telegrams for switching single or all connections available, both unidirectional and bidirectional. In addition, there are telegrams for an overall definition of the total switching status and for saving and loading such switching states.

The matrix optionally provides an echo of all affected switching operations via serial interface or network interface. This aids continuous tracking of a matrix configuration and enables your own applications to be updated.

As an additional application matrix clones can be parallelly switches as synchronized matrices (**Stacking**) via serial network interface.

5 Installation

NOTICE

Please verify that interconnect cables, interfaces, and handling of the devices comply with the requirements (see chapter 15, page 380). To achieve the best possible performance and results with the matrix system, we recommend using the supplied cables. If you need a replacement, please use the spare parts specified for this device, which can be requested from the manufacturer if required.



First-time users are recommended to set up the system in a test environment that is limited to a single room. This makes it easier to identify and solve any cabling problems, and experiment with your system more conveniently.

5.1 Preparing the Matrix for Rack Mounting

NOTICE

Due to the construction of a matrix with 48 ports into a 19" rack, it is recommended to use an additional subfloor below the matrix. It should be used in addition to the provided mounting brackets.

The supplied mounting brackets are required for mounting the KVM matrix switch.

- 1. For front rack mounting, remove the front and middle screws on both sides of the cover.
- 2. For rear rack mount, remove the rear and middle screws on both sides of the cover.
- 3. Mount the mounting bracket in the desired position using the screws on the cover/chassis.

5.2 Setting up the Matrix

5.2.1 Prerequisites for failure-free Installation of a Matrix Setup

To achieve a failure-free installation of a matrix system, we recommend to first establish a point-to-point connection between a CPU Unit and a CON Unit before connecting to the matrix as follows:

- Source CPU Unit Interconnection CON Unit console
- ➡ Ensure that this most simplistic setup works.
- ➡ Then continue as follows.

Establishing a Point-to-Point Connection of CON Unit and CPU Unit

- 1. Connect the monitor, keyboard, and mouse to the CON Unit.
- 2. Connect a source to the CPU Unit by using the provided connection cables.
- 3. Connect the CPU Unit to the CON Unit by using the interconnect cables (Cat X or fiber).
- 4. Connect the chassis of the CPU Unit and CON Unit to the power supply unit(s)/power socket(s).
- 5. Power up the system, following the recommended sequence: Monitor - CON Unit - CPU Unit - source
- 6. Boot the source and check if the video is visible and control the source can be controlled via keyboard and mouse.

5.2.2 Initial Commissioning of the Matrix

- 1. Connect the monitor, keyboard, and mouse to a functionally tested CON Unit.
- 2. Connect the CON Unit to an I/O port of the matrix by using interconnect cables (Cat X or fiber).
- 3. Connect the CON Unit to the power supply unit(s)/power socket(s).
- 4. Connect the matrix to the power sockets.
- 5. Establish the power supply voltage to the matrix and the CON Unit.
- 6. Wait until the boot process of the matrix is finished and the status LED flashes green.
- 7. Open the OSD via keyboard command 2x Left Shift, o.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing, and the OSD is opened with the **Switch** menu as a start page.

8. Press Esc to enter the main menu.

The OSD can be operated via keyboard and mouse.

- 9. Select **Configuration** in the main menu.
- 10. Login with administrator rights (see chapter 6.1, page 70).
- 11. Configure initially as requested (see from chapter 6.2, from page 71).
- 12. Save the settings by selecting **Configuration > Save** (see chapter 6.10.1, page 142).
- 13. Restart the matrix by selecting Configuration > Restart Matrix (see chapter 9.2.1, page 308).



Optional: Establish a network connection between the matrix and the management software to set an extended configuration (from chapter 5.4, page 64). The default IP address is 192.168.100.99 and DHCP is deactivated.

After initial configuration of the matrix and after changing the configuration of the system or the Matrix Grid, we recommend to de-register the primary controller board and to boot the secondary controller board until the boot process is finished.



When installing several matrices at the same time, it is strongly recommended to install them in sequence and to assign unique IP addresses to avoid IP address conflicts.

5.3 Connecting the Matrix to the Sinks and the Sources

The CON Units/CPU Units can be hot plugged at the matrix.

NOTICE

Faults in redundant matrix systems or dysfunctional updates

The primary interconnect port is used for updates. With redundant extender modules, if only the secondary interconnect port is connected to the matrix, no update can be performed.

To get a correct mapping of redundant links in fully redundant matrix systems and to perform effective and complete updates, we recommend:

- Connect all extender modules with interconnect port 1 to one matrix and with interconnect port 2 to the other matrix.
- Activate the **Primary Preferred** function (see chapter 6.3.1, page 72).



Please do not connect all extender modules at once to the matrix. It is recommended to connect them one by one and then rename them directly.

Preconditions

- The matrix is initially commissioned.
- A Point-to-Point connection of each CON Unit and CPU Unit has been established.

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5.3.1 Connecting a Sink (Console) to the Matrix

- 1. Connect the monitor(s), keyboard, and mouse to the CON Unit.
- 2. Connect the CON Unit to an I/O port of the matrix by using interconnect cables (Cat X or fiber).
- 3. Connect the CON Unit to the power supply unit(s)/power socket(s).
- 4. Establish the power supply voltage to the CON Unit.
- 5. Check the basic function of the CON Unit by opening the OSD via keyboard command Hot Key, o.

It is recommended to rename the automatically created EXT Unit directly (see chapter 6.5.1.2, page 101 or see chapter 7.6.2, page 199).

5.3.2 Connecting a Source to the Matrix

- 1. Connect a source to the CPU Unit by using the provided connection cables.
- 2. Connect the CPU Unit to an I/O port of the matrix using interconnect cables (Cat X or fiber).
- 3. Connect the CPU Unit to the power supply unit(s)/power socket(s).
- 4. Establish the power supply voltage to the CPU Unit.

It is recommended to rename the automatically created EXT Unit directly (see chapter 6.5.1.2, page 101 or see chapter 7.6.2, page 199).

5.4 Connecting the Management Software with the Matrix

NOTICE

Connection to the matrix blocked

Synchronization directories or offline directories require special attention regarding the firewall settings, e.g., Windows: roaming directories. If blocked by the firewall, no connection to the matrix can be established.

➡ Save the management software in a locally available directory.

5.4.1 Installing the Management Software

The management software is available as a single executable program file that does not require an installation.

Requirements

If you want to use the management software on Windows operating systems with integrated Java Runtime, the following requirements must be fulfilled:

Computer/Software/Network		Requirements/Recommendations		
Free memory	RAM	Recommended: 1 GB		
Operating system	Microsoft	Windows 8, Windows 8.1, Windows 10, Windows 11		
Management software with integrated Java Runtime	Tera Tool	Downloaded from https://www.ihse.com/software		
Network connection	-	Available between computer and matrix.		

If you want to use the management software without integrated Java Runtime, the following requirements must be fulfilled:

Computer/Software/Network		Requirements/Recommendations		
Free memory	RAM	Recommended: 1 GB		
Operating system Microsoft		Windows 8, Windows 8.1, Windows 10, Windows 11		
	macOS	macOS 10.14 (Mojave) or higher, Intel platform		
Specification	Java	Installed: Oracle Java Runtime Environment (JRE) 1.8.x or higher Strongly recommended: Oracle Java 1.8 update 152, or higher. (<u>https://adoptopenjdk.net</u> , <u>https://github.com/ojdkbuild/ojdkbuild</u>		
Management software	Tera Tool	Downloaded from https://www.ihse.com/software		
Network connection	-	Available between computer and matrix		



Contact your system administrator concerning JRE and network connection.

5.4.2 Setting up Network and Firewall Releases

Releasing Network Ports

The following ports are used by the matrix depending on the configuration and have to be released at the security gateway if necessary. The ports will only have to be released if you want to use the respective function.

Function	Port
FTP	21/TCP
DNS	53
SNTP	123/UDP
SNMP	161/162, both UDP
LDAP	389 (636 for SSL)
Syslog	514/UDP
API	5555/TCP (5565 for SSL)
Broadcast	5556/UDP (5566 for SSL)
Matrix Grid	5557/TCP (5567 for SSL)

Releasing Java Application in the Firewall

If using the management software, the Java application (file javaw.exe) has to be released in the firewall settings to use the management software. Contact your administrator to configure the firewall settings accordingly.

Using the management software with integrated Java Runtime, a request of the operating system could appear, e.g., if opening the Device Finder.

5.4.3 Connecting the Matrix to the Computer

NOTICE

For a connection between computer and matrix via switch or hub, parallelly assembled network cables are required.

- Only use a network connection between computer and the matrix that is not primarily used for streaming audio or video data.
- Connect the network cable to the RJ45 ports of the computer and the controller board of the matrix.

5.4.4 Starting the Management Software

Run the management software by a double-click on the program icon on the desktop or the file in the directory.

The management software starts in offline mode.

File	Edit Dev	vice E <u>x</u> tra	as ?											-	×
<u>Open</u>		C Reload		Disconnect	Activate Edit Mode	Remote Save	Download	Upload	Monitoring	Flash Update	Device Finder	System Check	Save Status		
Fig.	46	Ma	anage	ement	software I	anding	ı page	in off	fline m	ode					

There are two options to connect to a matrix.

- Via a known IP address
- Via Device Finder

5.4.5 Connecting to the Matrix with known IP Address

At least power user rights are required, and the API function have to be enabled.

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Up to 16 connections between the matrix and the management software can be established at the same time due to a limitation of available sockets.

To connect to a matrix when the IP address is known, proceed as follows:

- 1. Run the management software.
- 2. Click **Connect** in the tool bar.

A login dialog appears.

- 3. Enter the IP address according to the network configuration of the matrix (see chapter 7.4.8, page 166). By default, the IP address of the matrix is 192.168.100.99 and DHCP is deactivated.
- 4. Enter the username and password of the administrator (see chapter 7.5, page 182). By default, the username is admin, and the password of the administrator is admin.
- 5. Click Login to confirm your entries.

Connect	×
Hostname / IP Address	192.168.100.99
User	admin
Password	****
	Login C <u>a</u> ncel

Fig. 47 Management software dialog Connect



The data must be entered each time the network connection is re-established. Alternately, the data can be entered and stored in the management software under **Extras > Options** (see chapter 7.3.1, page 147). i

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5.4.6 Connecting to the Matrix via Device Finder

At least power user rights are required, and the API function have to be enabled.

Up to 16 connections between the matrix and the management software can be established at the same time due to a limitation of available sockets.

The **Device Finder** offers the possibility to find all matrices that are in the same subnet. This is useful, e.g., if the IP address of a specific matrix is unknown and should be accessed via IP.

vai	lable devices within the l	ocal network		Broadcast/Multicast	255 . 255 . 255 . 25
	Device	Name	IP Address	MAC Address	
01	DPSWITCH-01	Standard	192.168.100.79	00:21:5F:07:00:0C	Connect
02	DPSwitch_Support	Testgerät-02	192.168.100.57	00:21:5F:07:00:0E	Connect

Fig. 48Management software menu Device Finder

The following device information is shown in the Device Finder:

Information	Description
Broadcast/Multicast	Search parameters for finding devices.
	Search via broadcast: 255.255.255.255 (default).
	Input for search within a multicast group: multicast address (chapter 7.4.8, page 166)
Device	Name of the device
Name	Name of the active configuration
IP Address	Current IP address of the device
MAC Address	MAC address of the device
Туре	Type of the device



The last column of the **Device Finder** can be used to connect to the respective matrix directly clicking **Connect**.

To find and connect a device, proceed as follows:

- 1. Click Device Finder in the tool bar.
- 2. For searching within a multicast group, enter the multicast address. By default, the search is set via broadcast: 255.255.255.255.
- 3. Click **Connect** in the last column of the Device Finder to establish direct connection to the respective device within the same subnet.
- Enter the username and password of the administrator (see chapter 7.5, page 182).
 By default, the username is admin, and the password of the administrator is admin.
- 5. Click **Login** to confirm your entries.

6 Configuration via OSD

NOTICE

Possible loss of configuration changes

By clicking **Okay**, changes are applied to the active configuration and saved in the volatile memory of the matrix. In the event of a sudden power failure, these changes are lost. To save changes permanently:

save the configuration changes into the active configuration (Save, see chapter 6.10.1, page 142), save a predefined configuration (Save as..., from chapter 6.10.2, page 143), or perform a restart (Restart Matrix see chapter 9.2.1, page 308).

NOTICE

A change in system-relevant parameters (e.g., change of the IP address) is immediately displayed in the OSD. To initialize system-relevant configuration changes on the matrix, the matrix must be restarted. The restart of the matrix may take several minutes, and the matrix is not available during the restart.



After changing the configuration of the system, we recommend to de-register the primary controller board and to boot the secondary controller board until the boot process is finished.

6.1 Password Request

All configuration or assignment settings can only be configured with administrator rights. The following login data is saved in the factory settings:

Field	Entry
User	admin
Password	admin

To access the configuration menu, proceed as follows:

1. Press F10 in the main menu of the OSD.

The login mask appears.

2. Enter the login data of the administrator.

DN_010191923 (348/128) ihse
Login
User
Password
i usanvi u
Cancel Okay
Unice1 Ukuy
/ITCH_01:1 Draco tera

Fig. 49 OSD Menu Configuration - Login

NOTICE

For security reasons, please change the administrator password as soon as possible (see chapter 6.4.1, page 92).



To log out a user, press F10 again.

When leaving the configuration or assignment menu, the administrator is logged out automatically.

6.2 Overview Configuration Menu

Various system functions and options are available in the configuration menu. In addition, the following functions can be called up here: save (as active or predefined configuration) and shut down, restart, or reset to factory settings.

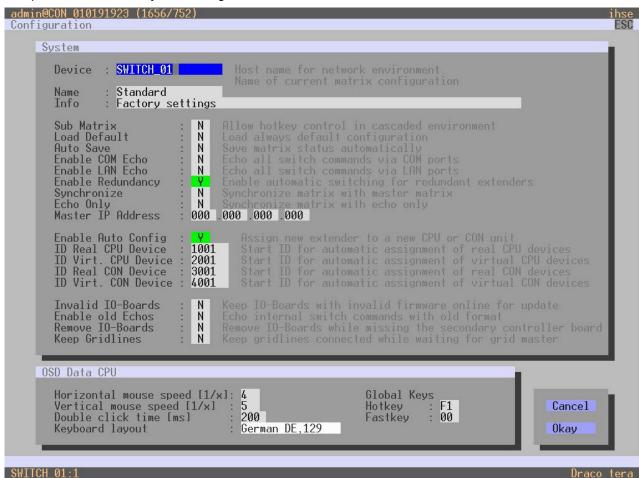
_admin@CON_010191923 (936/0	ihse ESC
	ESC
Configuration	
Onon	
Open	
System	
Access Switch	
Network #1	
Network #2 Date+Time	
Date+lime SNMP	
Matrix Grid	
EXT Units	
CPU Devices	
CON Devices REM Access	
User Data	
CON N	
CON Macros User Macros	
Save Save as	
odve ds	
Shut down IO Board	
Restart IO Board Restart CPU Board	
Shut down Matrix Restart Matrix	
Factory Reset	
SWITCH_01:1	Draco tera

Fig. 50 OSD Menu Configuration

6.3 Configuring System Settings

6.3.1 Setting System Configuration

The parameters for the system configuration are set in this menu:





The following parameters can be configured:

System

Field	Entry	Description
Device	Text	Enter the device name of the matrix (default: SWITCH_01).
Name	Text	Enter the name of the configuration that is used to save the current settings (default: Standard).
Info	Text	Enter additional text to describe the configuration if required (default: Factory settings).
Sub Matrix	Y	If the matrix is defined as a sub matrix in the OSD, the user will lose control. Control can be recovered by using the keyboard command Hot Key, s, o. The OSD for the matrix that has been defined as sub matrix will be reopened.
	Ν	Function not active (default).
Load Default	Y	Start the matrix after a restart or a switch-on with the default configuration.
	N	Start the matrix after a restart or a switch-on with the last saved configuration (default).

Field	Entry	Description
Auto Save	Y	 Save the current configuration of the matrix in the flash memory periodically. Note: During the save operation, the matrix will not react to commands. Saving takes place every 600 seconds if changes of the configuration or switching operations have been executed in the meantime.
	Ν	Function not active (default).
Enable COM Echo	Y	Send all switching commands performed in the matrix as an echo via serial interface. Note: This function should be enabled when using a media controller via serial interface.
	N	Function not active (default).
Enable LAN Echo	Y	 Send all switching commands performed in the matrix as an echo via LAN connection. Note: This function should be enabled when using a media controller via LAN connection or when using stacking with two or more matrices.
	N	Function not active (default).
Enable Redundancy	Y	 Automatically switch to the second link of a connected redundant CON Unit when losing the primary link of a CPU Unit (default). Note: This function will have to be activated: for a single matrix when using redundant link connections, for both matrices in a fully redundant setup.
	N	Function not active.
Synchronize	Y	Synchronize the sub matrix to the switch status of the master matrix.
	Ν	Function not active (default).
Echo Only	Y	 Synchronize the matrix according to the echo of a second matrix. Note: This is a bidirectional synchronization where both matrices have to be configured as Synchronize with the Master IP of the respective other matrix.
	N	Function not active (default).
Master IP Address	Byte	Set the network address of the master matrix (default: 000.000.000.000).
Invalid IO-Boards	Y	Keep I/O boards with incorrect or invalid firmware online in the matrixNote: To keep an I/O board with wrong or damaged firmware online in the matrix, the maintenance mode of the matrix will be activated.
	Ν	Shut down I/O boards with incorrect or invalid firmware automatically (default).
Enable old Echos	Y	Translate current switching command (implemented since V02.09) internally into the old, already known switching commands and send them as echo.

Field	Entry	Description
Remove IO-Boards	Y	Note: Only for Draco tera enterprise 576: Shut down I/O boards if the second controller board is not available. Connection will be disconnected.

OSD Data CPU

Field	Entry	Description
Horizontal Mouse Speed [1/x]	1 to 9	Adjust the horizontal mouse speed with 1 = fast, 9 = slow (default: 4).
Vertical Mouse Speed [1/x]	1 to 9	Adjust the vertical mouse speed with 1 = fast, 9 = slow (default: 5).
Double-click Time [ms]	100 to 800	Adjust the time slot for a double-click (default: 200).
Keyboard Layout	Region	Set the OSD keyboard layout according to the keyboard used (default: German (DE)).
Hot Key	Keyboard command	Start the command mode via keyboard sequence.
Fast Key	Keyboard command	Open the OSD directly (default: 00). How often the shortcut key has to be pressed depends on the specified key: 1x for function keys or print key, 2x for all other keys.

Settings for Global Hot Key and Fast Key

Field	Entry	Description
Hot Key/Fast Key	00	No global Hot Key/Fast Key defined, no modification of the extender module.
	01 to FE	Overwrite the Hot Key/Fast Key of the extender module with the entered value of the global Hot Key/Fast Key.
	FF	Deactivate the Hot Key/Fast Key of the extender module.

Valid values for the Hot Key and the Fast Key are USB-HID keyboard scan codes according to US keyboard layout.

To set modifier keys for the Hot Key and the Fast Key use the following values:

Entry	Modifier Key
F0	Left Ctrl
F1	Left Shift
F2	Left Alt
F4	Right Ctrl
F5	Right Shift
F6	Right Alt



Hot Key or Fast Key set in the CON EXT Units have priority over the global settings.

To set the parameters for the system configuration, proceed as follows:

- 1. Select **Configuration > System** in the main menu.
- 2. Change the desired settings.
- 3. Click **Okay** to confirm your entries.

6.3.2 Enabling Automatic Creation of Real CPU and CON Devices

The assignment of EXT Units to real CON or CPU Devices can be made manually or automatically when connecting a new extender module to the matrix.

The settings for automatic creation of CPU and CON Devices and the initial values for the ID numbers of real or virtual CON or CPU Devices are set in this menu.

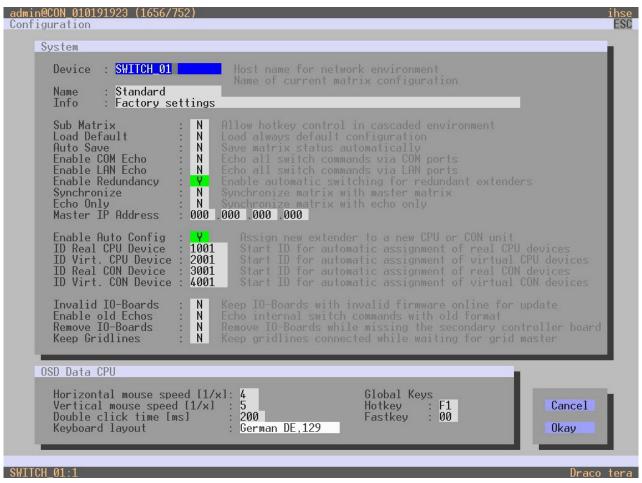


Fig. 52 OSD Menu Configuration - System - Automatic ID

The following parameters can be configured:

Field	Entry	Description
Enable Auto Config	Y	Enable the automatic creation of a new CPU or CON Device if new extender modules are connected (default). The new CON or CPU Device is assigned to the automatically created EXT Unit of the extender module.
	N	Function not active.
ID Real CPU Device	Numerical	Enter the initial value for automatic assignment of real CPU Devices (default: 1001).
ID Virtual CPU Device	Numerical	Enter the initial value for created virtual CPU Devices (default: 2001).
ID Real CON Device	Numerical	Enter the initial value for automatic assignment of real CON Devices (default: 3001).
ID Virtual CON Device	Numerical	Enter the initial value for created virtual CON Devices (default: 4001).

To set up the automatic creation of CPU Devices or CON Devices, proceed as follows:

- 1. Click **Configuration > System** in the main menu.
- 2. Change the desired settings.
- 3. Click **Okay** to confirm your entries.

6.3.3 Setting Access Configuration

The access configuration is set in this menu.

ccess Force User Login Enable User ACL Enable CON ACL OR User/CON ACL AND User/CON ACL	: N : N : N : N	Require user login to enter OSD Enable CPU Access Control List for all users Enable CPU Access Control List for all CON devices OR user and CON Access Control List (extend access) AND user and CON Access Control List (reduce access)
Enable new User	: N	Enable CPU access for new users
Enable new CON	: N	Enable CPU access for new CON devices
Auto Disconnect	: N	Disconnect CON from CPU upon opening the OSD
OSD Timeout [sec]	: 0	Specify inactivity time to quit OSD automatically
Auto Logout [min]	: 0	Specify inactivity time for automatic user logout
Keep CPU	: N	Keep CPU connection after Auto Logout
Show CPU	: N	Show CPU connection info on all CON units
		Cancel Okay

Fig. 53 OSD Menu Configuration - Access

The following parameters can be configured:

Field	Entry	Description
Force User Login	Y	The user has to login with a username and a password once to enter OSD. Thereafter the user remains logged in until he explicitly logs out or an auto logout is affected. Note: When the Force User Login function is activated and a user is logged in, only the user favorites are available. The CON favorites are not accessible.
	Ν	Function not active (default).
Enable User ACL	Y	 CPU Device access is restricted according to the permissions in the ACL (Access Control List). User login is required. Switching by keyboard Hot Keys requires a prior login.
	N	Function not active (default).
Enable CON ACL	Y	CPU Device access is restricted according to the permissions in the respective CON Device ACL (Access Control List). No login required.
	Ν	Function not active (default).

Field	Entry	Description
OR User/CON ACL	Y	The user obtains the sum of access rights from the CON Device and his personal access rights after logging in (extended access).
	Ν	Function not active (default).
AND User/CON ACL	Y	The user obtains the common divisor of access rights from the CON Device and his personal access rights after logging in (reduced access).
	Ν	Function not active (default).
Enable new User	Y	Newly created users automatically receive access to all CPU Devices.
	Ν	Function not active (default).
Enable new CON	Y	Newly created CON Devices automatically receive access to all CPU Devices.
	Ν	Function not active (default).
Auto Disconnect	Y	Upon opening the OSD, the CON Device will be automatically disconnected from the current CPU Device.
	Ν	Function not active (default).
OSD Timeout [sec]	0 to 999 seconds	Period of inactivity after which OSD will be closed automatically. Select 0 seconds for no timeout (default: 0 seconds).
Auto Logout [min]	0 to 999 minutes	Period of inactivity of a logged-in user at a CON Device after which he will be automatically logged out.
		In addition to the logout process, a complete disconnection from the connected CPU Device occurs under Full Access and Private Mode .
		• Select 0 minutes for an automatic user logout when leaving OSD.
		 Using the setting -1 allows the user to be logged in permanently, until a manual logout is executed.
		• The timer is not active as long as the OSD is open (default: 0 minutes).
Keep CPU	Y	Keep the connection to the CPU Device active in the background after Auto Logout. After a new login there is no need to re-connect to the CPU Device.
	Ν	Function not active (default).
Show CPU	Y	Permanently show the name of the currently connected CPU Device in the Connection Info box.
	Ν	Function not active (default).

To set the access configuration, proceed as follows:

- 1. Select **Configuration > Access** in the main menu.
- 2. Change the desired settings.
- 3. Click **Okay** to confirm your entries.

6.3.4 Setting Switch Configuration

This menu enables shared operation of a CPU Device by two or more CON Devices. A CPU Device can be controlled by only one CON Device at a time but can be taken over successively by other CON Devices. Control of a CPU Unit by a CON Unit is relinquished after the expiration of an inactivity timer associated with the controlling CON Device. The mouse or keyboard may also be used to take over control.

To allow a smooth and accurate function of the shared operation, use identical mice and keyboards. They should be connected to the same USB-HID ports of each CON Unit.

The alternative is using the USB-HID Ghosting (see chapter 8.3.2.2, page 296).

When taking over control within 10 s, any assigned USB 2.0 extender modules if available, will not be switched due to security and stability aspects.

The shared operation will be deactivated between CON Devices with a different priority as well as the Release Time.

The switching parameters are set in this menu.

Gwitch Enable Video Sharing : Y Force Connect : Y Force Disconnect : N	Allow shared video access to CPU Enforce full KVM access to CPU, other consoles retain video Enforce full KVM access to CPU, disconnect other consoles
CPU Auto Connect : N CPU Timeout [min]: 0	Connect to next available CPU, requires keyboard or mouse Specify inactivity time at currently connected CPU after which CPU will be disconnected automatically
Keyboard Connect : Y Mouse Connect : Y Release Time [sec]: o	Enable CPU control requests by keyboard activity Enable CPU control requests by mouse activity Specify inactivity time to accept CPU control requests from other consoles
Macro Single Step : N	Execute macros in single step mode
	Cancel Okay

Fig. 54 OSD Menu Configuration - Switch

The following parameters can be configured:

Field	Entry	Description
Enable Video Sharing	Y	The user can switch to any CPU Device as an observer, including ones that are already assigned to another user (observer without keyboard/mouse access).
		Note: The switching has to be performed by pressing Space, not Enter.
		The operator only will be informed if further users connect as an observer to the CPU Device that is connected to his CON Device, if the option Update Connection Info is activated for his CON EXT Unit (see chapter 6.7.2, page 117).
	Ν	Function not active (default).

Field	Entry	Description
Force Connect	Y	The user can connect to every single CPU Device as an operator, including those that are related to another user. Note: The previous user is set to Video Only status.
		To share K/M control, Force Connect has to be activated.
	Ν	Function not active (default).
Force Disconnect	Y	Extension of Force Connect : If the user connects as an operator to a CPU Device already related to another user, the previous user will be disconnected.
		Note: To share K/M control Force Disconnect has to be deactivated and Enable Video Sharing has to be activated.
	Ν	Function not active (default).
CPU Auto Connect	Y	If a CON Device is not connected to a CPU Device, you can establish an automatic connection to the next available CPU Device by typing any key or clicking a mouse button.
	Ν	Function not active (default).
CPU Timeout [min]	0 to 999 minutes	Period of inactivity after which a CON Device will be automatically disconnected from its current CPU Device (default: 0 minutes).
Keyboard Connect	Y	Activate request of K/M control by keyboard event (key will be lost).
	Ν	Function not active (default).
Mouse Connect	Y	Activate request of K/M control by mouse event.
	Ν	Function not active (default).
Release Time [sec]	0 to 999 seconds	Period of inactivity of a connected CON Device after which K/M control can be requested by other CON Devices connected to the CPU Device.
		Note: Set 0 for an immediate transfer in real-time.
		Only one CON Device can have keyboard and mouse control at a time. The other CON Devices that are connected to the same CPU Device have a Video Only status (default: 10 seconds).
Macro Single Step	Y	Execute macro commands sequentially.
	Ν	Function not active (default).

To configure shared operation, proceed as follows:

- 1. Select **Configuration > Switch** in the main menu.
- 2. Activate the Enable Video Sharing function.
- 3. Activate the Force Connect function.
- 4. Activate the **Keyboard Connect** function if taking over control by a keyboard event should be possible.
- 5. Activate the **Mouse Connect** function if taking over control by a mouse movement should be possible.
- 6. Define a **Release Time** of inactivity (0 to 999 seconds) after which KVM control can be taken over.
- 7. Click **Okay** to confirm your settings.



Keyboard Connect and/or Mouse Connect are only effective if Force Connect and/or CPU Auto Connect are activated.

If the **Keyboard Connect** and/or **Mouse Connect** options are enabled, the **Keyboard Connect** and/or **Mouse Connect** will not take effect until the time interval entered in the **Release Time** has elapsed.

6.3.5 Setting Network Configuration

NOTICE

To initialize system-relevant configuration changes, the matrix must be restarted. Restarting the matrix may take several minutes, and the matrix is not available during the restart.

NOTICE

Consult your system administrator before changing the network parameters. Otherwise, unexpected results and failures can occur in combination with the network.

NOTICE

If the syslog function is activated, the logging will be started after restarting the matrix or controller card.

The parameters for the network configuration are set in this menu.

admin@CON 010191923 (3 Configuration Network Interface Dual Interface DHCP IP Address Subnet Mask Gateway Multicast		hse ESC
Network Services		
API Service #1 Grid Service #1 SSL Services #1	: Y Enable Grid Service port (5557/5567)	
Syslog #1 Syslog Server	: N Enable Syslog Server #1 : 000 .000 .000 .514	
Syslog #2 Syslog Server	: N Enable Syslog Server #2 : 000 .000 .000 .514	
LDAP LDAP TLS/SSL LDAP Server LDAP Base DN	N Enable authentication with Active Directory Server N Enable Transport Layer Security for Active Directory access 000 .000 .000 .389	
Log Levels		
Trace Syslog #1 Syslog #2	: DEB N INF N NOT Y WAR Y ERR Y : DEB N INF N NOT Y WAR Y ERR Y : DEB N INF N NOT Y WAR Y ERR Y : DEB N INF N NOT Y WAR Y ERR Y	
SWITCH_01:1	Draco t	era

Fig. 55 OSD Menu Configuration - Network

The following parameters can be configured:

Network Interface #1

Field	Entry	Description
Dual Interface	Y	Redundant network connection is deactivated.
	Ν	Redundant network connection is activated (default).
DHCP	Y	The network settings are automatically supplied by a DHCP server. Note: If DHCP is activated and there is no physical network connection available, the boot times might increase.
	Ν	Function not active (default).
IP Address	Byte	Enter the IP address if DHCP is not active (default: 192.168.100.99).
Subnet Mask	Byte	Enter the subnet mask in the form "255.255.255.0" if DHCP is not active (default: 255.255.255.0).
Gateway	Byte	Enter the gateway address in the form "192.168.1.1" if DHCP is not active.
MAC Address	Byte	Unchangeable, is retrieved automatically.
Multicast	Byte	Enter the Multicast address if there is a Matrix Grid in use within a Multicast group (default: 255.255.255.255).

Network Services

Field	Entry	Description
API Service #1	Y	Activate the LAN interface at the matrix for access via management software (default, API service port 5555/5565).
	Ν	Function not active.
Grid Service #1	Y	Activate Grid interface at the matrix for access via management software (Grid Service Port 5557/5567).
	Ν	Function not active (default).
SSL Services #1	Y	Activate SSL encryption for API, management software (API), management software API, management software and Matrix Grid communication.
	Ν	Function not active (default).
Syslog #1/#2	Y	Syslog server for status request is active.
	Ν	Function not active (default).
Syslog Server #1/#2	Byte	Input of the IP address of the Syslog servers in the form "192.168.1.1" and of the Syslog port (default: 514).



The LDAP settings are explained in the chapter 6.3.6, page 85.

Log Levels

Field	Entry	Description
Trace	DEB	Activate debug messages in trace (default: N). Note: The debug messages are exclusively for matrix diagnostics. They only should be activated after consultation with the manufacturer. Otherwise, an increased traffic of data might limit the performance of the controller board.
	INF	Activate information messages in trace (default: N).
	NOT	Activate notification messages in trace (default: Y).
	WAR	Activate warning messages in trace (default: Y).
	ERR	Activate error messages in trace (default: Y).
Syslog #1/#2	DEB	Activate debug messages in Syslog (default: N). Note: The debug messages are exclusively for matrix diagnostics. They only should be activated after consultation with the manufacturer. Otherwise, an increased traffic of data might limit the performance of the controller board.
	INF	Activate information messages in Syslog (default: N).
	NOT	Activate notification messages in Syslog (default: Y).
	WAR	Activate warning messages in Syslog (default: Y).
	ERR	Activate error messages in Syslog (default: Y).

To set parameters for the network configuration, proceed as follows:

- 1. Select **Configuration > Network** in the task area.
- 2. Change the desired settings.
- 3. Click **Okay** to confirm your entries.

6.3.6 Setting LDAP Configuration (Active Directory)

NOTICE

To initialize the LDAP configuration changes, the matrix must be restarted. Restarting the matrix may take several minutes, and the matrix is not available during the restart.

The KVM matrix can be synchronized with the directory service Active Directory with regard to user authentication. This allows the user to login at the KVM matrix using login information from the Active Directory service and to contact the Active Directory Server for each authentication that does in fact the proper authentication.

The connection between KVM matrix and the Active Directory server is established via OpenLDAP and periodically synchronized every 5 minutes.

The search of users to be synchronized and automatically added to the KVM matrix configuration can either be based on a **group** or **organizational unit (OU)**. In both cases a user requires to be at least assigned to one group:

- In case of the group, all users belonging to a previously defined group on the active directory server are added to the KVM matrix and synchronized. In this alternative, the organizational structure of the organizational units (OUs) is added as matrix user group to the KVM matrix configuration. This means that the organizational unit (OU) that includes the user can be found as a matrix user group in the KVM matrix configuration after the synchronization. A user can be member of up to 8 groups.
- In case of the organizational unit, all users belonging to groups that are located directly under this
 organizational unit are added and synchronized. The groups can also include subgroups. The structure
 of the groups is added to the KVM matrix configuration as user group. Each group will be represented
 in the KVM matrix as a user group after the synchronization. Groups that are located in sub
 organizational units will be ignored.

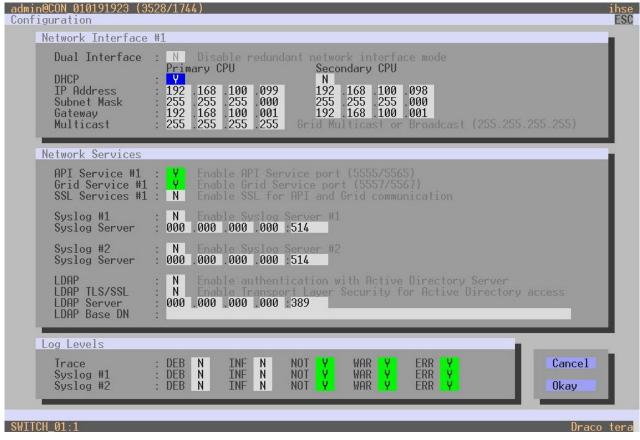


Fig. 56OSD Menu Configuration - Network

The following	parameters can	be configured.
The following	parameters can	be configured.

Field	Entry	Description
LDAP	Y	LDAP for the request of information from a user administration is active.
	Ν	Function not active (default).
LDAP TLS/SSL	Y	Enable a secured transmission (transport layer security) for the Active Directory access.
	Ν	Function not active (default).
LDAP Server	Byte	Input of the IP address for the LDAP-Servers in the form "192.168.1.1" and the LDAP port (Default: 389/636).
LDAP Base DN	Text	Input of the LDAP Base DN according to the existing structure of the user directory.



A matrix configuration should only include one LDAP user and one LDAP group at the same time. The LDAP user and the LDAP group can be created, changed, or deleted during ongoing operation: no restart of the matrix is required.

To configure and enable the synchronization to the Active Directory server, there are three steps required:

- Configuring the LDAP settings.
- Creating an LDAP User (see page 94).
- Creating an LDAP Group (see page 99).

To configure the LDAP settings, proceed as follows:

- 1. Select **System Settings > Network** in the task area.
- 2. Set the LDAP option to Y (Yes) within Network Services.
- 3. Optionally set the LDAP TLS/SSL option to Y (Yes) within Network Services.
- 4. Enter the appropriate IP address and the port number in the field **LDAP Server** (default port number: 389 (636 for SSL)).
- 5. Enter the LDAP Base DN into the appropriate field (e.g., dc=example, dc=com).
- 6. Click **Okay** to confirm the settings.
- 7. Restart the matrix.

Changes done in step 2 to 7 only come into effect after a restart of the matrix.

- 8. Create an LDAP User (see page 94).
- 9. Create an LDAP Group (see page 99).

6.3.7 Setting SNMP Function

The SNMP function allows all function-critical and safety-critical elements of the matrix to be monitored and queried. This function complies with the RFC 1157 conformal standard. Two SNMP servers can be used at the same time.

Enabling the SNMP function, the unencrypted SNMP monitoring (SNMPv2) is activated. An SNMPv3 User for encrypted SNMP monitoring (SNMPv3) can be set in the user settings (see chapter 7.5.1, page 182) and the login data for an SNMPv3 User at the SNMP server can be set in the default settings (see section on page 176).

NOTICE

When using SNMP monitoring, for reasons of access security, the use of a dedicated network according to the IT-Grundschutz-Kompendium (IT Baseline Protection) is recommended. The read only community for the MIB file is **kvm**.

NOTICE

For an activation of the SNMP agent function or the SNMP server function, a restart of the matrix or the controller board is necessary. Restarting the matrix or the controller board may take several minutes, and the matrix is not available during the restart.

The settings for the SNMP monitoring are set in this menu:

Enable Read Community	: <mark>N</mark> : dra	Activate the SNMP agent co	for GET requests and tr	
SNMP Server	_			
Enable Traps	: N	Server #1	N Server #2	
Server Address	: 000	.000 .000 .000 :162	000 .000 .000 .000 :16	2
Status Temperature	: N : N		N N	
Insert Board Remove Board Invalid Board	: N : N : N		N N N	
Insert Extender Remove Extender			N N	
Switch Command	: N		Ν	
Fan Tray #1 Fan Tray #2 Power Supply #1 Power Supply #2 Power Supply #3 Power Supply #4	: N : N		N N N N	
				Cancel Okay

The following parameters can be configured:

SNMP Agent

Traps	Description
Enable	Permission for an active query of the SNMP agent for traps is granted. This activation is a prerequisite for using the SNMP server.
Read Community	The read only community for the MIB file is kvm .

SNMP Server

The SNMP agent must be activated to enable SNMP traps.

Traps	Description		
Enable Traps	Sending of trap messages from the SNMP agent to the SNMP server.		
Server Address	IP address of the SNMP server in the form "192.168.1.1" and of the SNMP port (default: 162).		
Status	Notification about matrix status.		
Temperature	Notification about temperature within the matrix.		
Insert Board*	Notification about insertion of a new I/O board into a slot.		
Remove Board*	Notification about removal of an I/O board out of a slot.		
Invalid Board*	Notification about a faulty I/O board.		
Insert Extender	 Notification about a newly connected extender module to the matrix, notification about a switched-on extender module. 		
	 Notification about a newly established link between extender module and matrix. 		
Remove Extender	Notification about a removed extender module from the matrix.		
	Notification about a switched off extender module.		
	Notification about an interrupted link between extender module and matrix.		
Fan Tray #1	Notification about the fan status on the left side of the matrix (interface view).		
Fan Tray #2	Notification about the fan status on the right side of the matrix (interface view).		
Power Supply #1	Notification about the status of power supply unit 1.		
Power Supply #2	Notification about the status of power supply unit 2.		
Power Supply #3*	Notification about the status of power supply unit 3.		
Power Supply #4*	Notification about the status of power supply unit 4.		
* Only for Draco tera	enternrise		

* Only for Draco tera enterprise

Activating the SNMP Agent

To activate the SNMP agent, proceed as follows:

- 1. Select **Configuration > SNMP** in the main menu.
- 2. Set the **Enable** option to **Y** (Yes) within **SNMP Agent**.

By activating this option, the permission for an active query of the SNMP agent is granted.

3. Click **Okay** to confirm the changes.

Activate SNMP Traps

To activate active reporting of the SNMP traps, proceed as follows:

1. Set the Enable Traps option to Y (Yes) within SNMP Server.

This function allows an active transmission of trap messages from the SNMP agent to the SNMP server.

- 2. Set the IP address of the SNMP server within Server Address.
- 3. Activate the requested traps by enabling them to Y (Yes).
- 4. Click **Okay** to confirm the changes.

6.3.8 Date and Time

The parameters for the system configuration are set in this menu, based on Simple Network Time Protocol (SNTP):

	000 .000 .000 .000 GMT+00 Select your time zone	
eal Time Clock		
Date : 01 /	1 /00 Enter the date with format MM/DD/YY MM = month (112) DD = day (131) YY = year	
Day : 01	Enter the day of the week 1 = Monday 2 = Tuesday 7 = Sunday	
Time : 00 :	0:00 Enter the time with format hh:mm:ss hh = hours (023) mm = minutes (059) ss =	
	Set RTC	Cancel Okay

Fig. 58 OSD Menu Configuration - Date+Time

The following parameters can be configured:

Time Server

Field	Entry	Description
SNTP Client	Y	Enable the network time server synchronization.
	Ν	Function not active (default).
SNTP Server	Byte	Enter the SNTP server IP address (default: 000.000.000.000).
Time Zone	Region	Set your specific time zone (default: GMT + 00).

Real Time Clock

Field		Entry	Description
Date*	ММ	1 to 12	Enter the month.
	DD	1 to 31	Enter the day.
	YY	1 to 99	Enter the year.
Day 1		1 to 7	Enter day of the week.
Time	hh	0 to 23	Enter the hour.
	mm	0 to 59	Enter the minute.
	dd	0 to 59	Enter the second.

* Date format according to the English notation.

Configuring the Time Server

To configure a time server, proceed as follows:

- 1. Select **Configuration > Date+Time** in the main menu.
- 2. Set the SNTP Client option to Y (Yes).
- 3. Enter the IP address of your SNTP server into the SNTP Server field.
- 4. Select your time zone in the **Time Zone** field.
- 5. Click **Okay** to confirm your settings.
- 6. Restart the matrix.

The system time will now be provided by the SNTP server.

Configuring the Real Time Clock without Time Server

To set the real time clock without using SNTP, proceed as follows:

- 1. Select **Configuration > Date+Time** in the main menu.
- 2. Set the current date in the **Date** field.
- 3. Set the current Day in the **Day** field.
- 4. Set the current time in the **Time** field.
- 5. Click **RTC** to confirm your settings.

The real time clock is now provided.

6.4 Configuring User Settings

You have the option to configure the following user settings:

6.4.1 User Settings

New users and their user settings and permissions are set in this menu.

admin@CON_010191923 (1852/7752) Configuration	F1:ID F2:Name F3:Next F4:Previous F5:Refresh F6:Find F9:	ihse Compare ESC
User List	User Data	
00001 admin	ID/Priority : <u>1 /999</u> Grou LDAP User/Grou AD Synchronize	up:N up:N
	Name : admin Full Name : Password : ***** Repeat Password : *****	<u>su . n</u>
	Member of Group : not assigned AD group lock	ed : N
	Administrator : Y Super User : Y Power User : Y LDAP/AD Info SNMP User : N	
	Auto Connect : N	
CPU Access Control List		
Full access	Video access No access	New U. New G.
01001 CPU_010190037	100 uccess	New LU New LG
		Edit
		Delete
		Cancel
		Okay
Enter a name to find an item SWITCH_01:1		Draco tera

Fig. 59 OSD Menu Configuration - User Data

The following functions are available:

Button	Function
New U.	Create a new user.
Edit	Edit an existing user.
Delete	Delete an existing user.
Cancel	Reject changes.
Okay	Confirm the changes of an existing user or the creation of a new user account.

The following keyboard commands are available:

Keyboard command	Function
f	Add highlighted CPU Device to Full access list.
V	Add highlighted CPU Device to Video access list.
n	Add highlighted CPU Device to No access list.

Field	Entry	Description				
ID/Priority	Numerical	User ID/User priority.				
Name	Text	For standard users it is the login name (case sensitive, input of minimum 1 character up to 16 characters). Can be used to log in to the OSD.				
		For LDAP Users it is the name (case sensitive, input of minimum 1 character up to 16 characters). Can be used to log in to the OSD.				
		For users synchronized via LDAP, it is the sAMAccountName, automatically retrieved from the LDAP server. Can be used to log in to the OSD.				
Full Name/ Login Name/	Text	For standard users it is the full name (optional input of up to 32 characters). Can be used to log in to the OSD.				
AD CN=		For LDAP Users it is the login name (case sensitive, input of minimum 1 character up to 32 characters). Can be used to log in to the OSD.				
		For users synchronized via LDAP, it is the userPrincipalName, automatically retrieved. Can be used to log in to the OSD.				
Password	Text	For standard users (optional input of up to 16 characters). Can be used to log in to the OSD.				
		For LDAP Users (case sensitive, input of minimum 1 character up to 16 characters). Can be used to log in to the OSD.				
Repeat Password	Text	Repeat user password (case sensitive).				
Member of Group	Selection	Define the assignment to a user group.				
Administrator	Y	Permission for system configuration and all switching operations.				
	N	Function not active (default).				
Super User	Y	Permission to switch any CON Device to any CPU Device in Extended Switching .				
	Ν	Function not active (default).				
Power User	Y	Permission to switch CON Devices to CPU Devices in Extended Switching according to the CON or User ACL , but not in Private Mode.				
	N	Function not active (default).				
SNMP User	Y	Permission to use SNMPv3 (encrypted).				
	Ν	Function not active (default).				
Auto Connect	Y	Re-establish the previous user connection after login				
	Ν	Function not active (default).				
AD group locked	Y	Lock synchronization of group attribute for an Active Directory user. This setting is required for a manual change of user groups for a specific Active Directory user.				
	N	Function not active (default).				

The following parameters can be configured:

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Creating a new Standard User Account

To create a new user, proceed as follows:

- 1. Select **Configuration > User Data** in the main menu.
- 2. Click New U..
- 3. Enter a name.
- 4. Optionally enter a full name and a password.
- 5. Set user permissions for CPU DEVICE access.
- 6. Click **Okay** to confirm the new user settings.

Creating a new LDAP User Account

To change settings, proceed as follows:

- 1. Select **Configuration > User Data** in the main menu.
- 2. Click **New LU** to create a new LDAP user. This user functions as a bind user.
- 3. Enter the name of the bind user from the Active Directory into the field Name.
- 4. Enter the Common Name (CN) of the bind user from the Active Directory into the field Login Name.
- 5. Enter the password of the bind user from the Active Directory into the fields **Password** and **Repeat Password**.
- 6. Click **Okay** to confirm the creation of the user.



A matrix configuration should only include one LDAP user and one LDAP group at the same time. The LDAP user and the LDAP group can be created, changed, or deleted during ongoing operation: No restart of the matrix is required.

Changing a User Account

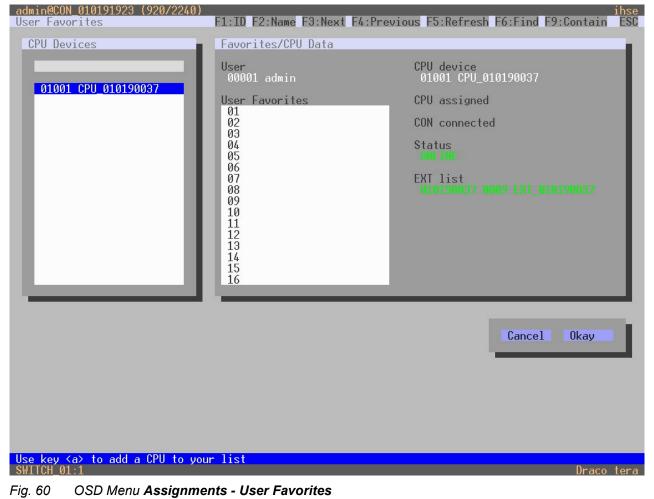
To change user settings, proceed as follows:

- 1. Select **Configuration > User Data** in the main menu.
- 2. Select a user in the User List.
- 3. Click Edit.
- 4. Change the desired settings.
- 5. Click **Okay** to confirm the changes.

6.4.2 User Favorite List

Individual favorite lists of CPU Devices that will be switched frequently can be created for different users in this menu. A favorite list can contain up to 32 different CPU Devices (from firmware V3.05).

The switching of the favorites is done via keyboard commands (see chapter 8.1.1, page 290).



To create a favorites list for your own user, proceed as follows:

- 1. Select **Assignments > User Favorites** in the main menu.
- 2. Select a CPU Device to be moved to the favorites list on the User Favorites list.
- Press a to move a CPU Device to the favorites list.
 To remove a CPU Device from the favorite list, press r.
- 4. Optional: press + or to change the order of the CPU Devices within the favorites list.
- 5. Click **Okay** to confirm the settings.

6.4.3 User Macros

In this menu macro commands for switching, disconnection or user administration can be created. Macro commands are created for each user separately.

A macro can execute up to 16 switching commands successively.

The execution of the macros is done via Hot Key and the F1 to F16 function keys (see chapter 8.1.4, page 293).

	i
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To execute user macros the user has to be logged in to the matrix.

admin@CON 010191923 (1120/1932) Configuration	F1:ID F2:Name F3:N	lext F4:Previous F5:Ret	resh F6:Find F9:	ihse Compare ESC
User List 00001 admin	User Macros Key: F01	Parameter #1	Parameter #2	
Function empty Parameter #1 Parameter #2	not used	not used		Edit Delete Cancel
Enter a name to find an item SWITCH_01:1		_		Okay Draco tera

Fig. 61 OSD Menu Configuration - User List - User Macros

The following parameters can be configured:

Field	Selection	Description
Function (01 to 16)	Connect (P1=CON, P2=CPU)	Set a bidirectional connection from CON Device P1 to CPU Device P2.
	Connect Video (P1=CON, P2=CPU)	Set a Video Only connection from CON Device P1 to CPU Device P2.
	Disconnect (P1=CON)	Disconnect the CON Device P1.
	Logout User	Logout the current user.
	Assign CPU (P1=VCPU, P2=RCPU)	Assign a virtual CPU Device to a real CPU Device.

Field	Selection	Description
Function (01 to 16)	Assign CON (P1=RCON, P2=VCON)	Assign a real CON Device to a virtual CON Device.
	Push (P1=CON)	The user's Full Access connection is forwarded to CON Device P1 and is changed into a Video Only connection.
	Push Video (P1=CON)	The video signal of the current connection (Full Access or Video Only) is forwarded to CON Device P1. The user's connection remains unchanged (Full Access or Video Only).
	Get (P1=CON)	The user's CON Device gets a Full Access connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 is changed into a Video Only connection.
	Get Video (P1=CON)	The user's CON Device gets a Video Only connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 remains unchanged (Full Access or Video Only).
	Login User console P2	Login a certain user P1 at CON Device P2.
P1	CON or CPU Device	Name of CON Device or CPU Device.
P2	CON or CON Device	Name of CON Device or CPU Device.

The macros can also be used to switch to CPU Device groups.

To create a macro for the selected user, proceed as follows:

- 1. Select via **Configuration > User Macros** in the main menu the user for which a user macro has to be created.
- 2. Select in the Key field the function key for which a macro has to be created.
- 3. Select the position in the Key list where a macro command is to be inserted.
- 4. Select a macro command in the Macro Data field.
- 5. Set the necessary parameters **P1** and **P2** (e.g., CON Devices or CPU Devices) for the selected macro command.
- 6. Click **Okay** to confirm your selection.
- 7. Repeat the process for further macro commands if necessary.

6.4.4 User Groups

The matrix allows to bundle the users of a configuration into User Groups. The groups can be used to subdivide the users logically or thematically. As an application example you can group all power users together. The configuration of User Groups at the same times increases the clarity of the configuration.

admin@CON_010191923 (1852/7752) Configuration	1:ID F2:Name F3:N	Next F4:Previous F5:Refre	ihse sh F6:Find F9:Compare ESC
User List	User Data		
00001 admin	ID/Priority Name Full Name Password Repeat Password	: 1 /999	Group : N LDAP User/Group : N AD Synchronized : N
	Member of Group Administrator Super User Power User SNMP User Auto Connect		AD group locked : N
CPU Access Control List			
Full access 01001 CPU_010190037	Video access	No access	New U. New G. New LU New LG Edit Delete Cancel Okay
Enter a name to find an item SWITCH_01:1			Draco tera

Fig. 62 OSD Menu Configuration - User Data

The following functions are available:

Button	Function
New G.	Create a new group.
Edit	Edit an existing user.
Delete	Delete an existing user.
Cancel	Reject changes.
Okay	Apply changes.

The following keyboard commands are available:

Keyboard command	Function
f	Add highlighted CPU Device to Full access list.
V	Add highlighted CPU Device to Video access list.
n	Add highlighted CPU Device to No access list.

Creating and Configuring a Standard User Group

To create and configure a Standard User Group, proceed as follows:

- 1. Select **Configuration > User Data** in the main menu.
- 2. Click New G.
- 3. Enter a group name into the field Name.
- 4. Click **Okay** to confirm the group creation.

Creating and Configuring an LDAP Group

- 1. Select Configuration > User Data in the main menu.
- 2. Click the Groups tab in the working area.
- 3. Click **New LG** to create a new LDAP group.

The group determines which users of the Active Directory server should be synchronized.

- 4. Enter a name into the field **Name**.
- 5. Enter either the Common Name (CN) of a group or the Common Name (CN) of an organizational unit into the field **LDAP OU=/CN=** as shown below:
 - OU= name of the organizational unit
 - CN= name of the group

Note: The field entry must include either OU= or CN=.

6. Click **Okay** to confirm the creation of the group.

The Active Directory synchronization can be used now.



A matrix configuration should only include one LDAP user and one LDAP group at the same time. The LDAP user and the LDAP group can be created, changed, or deleted during ongoing operation: No restart of the matrix is required.

Assigning a User to a Group

To assign a user to a group, proceed as follows:

- 1. Select Configuration > User Data in the main menu.
- 2. Select the user to be assign to a User Group.
- 3. Select the User Group for the assignment in the field **Member of Group** using the cursor up and down keys.
- 4. Click **Okay** to confirm the group creation.

6.5 Configuring Extender Settings

6.5.1 Main Extender Module and EXT Unit Settings

6.5.1.1 Extender Module and EXT Unit Settings

The matrix automatically recognizes every extender module, physically connected to the matrix with a direct cable connection, reads out its serial number and creates EXT Units automatically. This is the Flex Port function of the matrix. Dual-Head extender modules will be recognized as two independent EXT Units.

Add-on modules are not created as independent EXT Units. The data of add-on modules is included in one EXT Unit together with the associated extender module.

All EXT Units are managed in this menu. This includes the creation of new EXT Units and the deletion of existing EXT Units.

NOTICE

The connection of a fixed port extender module (e.g., USB 2.0) to a Flex Port can cause unintended results. EXT Units for USB 2.0 extender modules have to be created manually (see chapter 6.5.2, page 102).

admin@CON_010191923 (3244/4884) Configuration	F1:ID	F2:Name	F3:Next F4:Previous	F5:Ret	fresh f	F6:Find F		ihse ESC
EXT Units	E	XT Data		_				11
010190037 EXT 010190037	ш		10190037 EXT_010190037			assigned PU_010190		L
010191923 EXT_010191923		Fixed :	N Port 1/2 : 9	/0	l	Universal	: N	н.
	l	Horizont Vertical		5 20 6	F	Hotkey Fastkey DE,129 e	: F1 : 00	l
EXT Type		Enable C Enable c Update c Display Horizont	OSD Data PU selection connection info connection info time [sec] al position position		N	_		
Input Signals C	#1 C#	12 OL	ıtput Signals	(C#1 (C#2	New	
HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON		HI Au RS US US US US	/I/VGA-CON (video D-CPU (keyb., mouse idio (analog, digita 232 (serial) B-CPU (embedded) B-CPU (standalone) niversal-CPU ascade-CPU) I	N N N N N N N N N		Edit Delete Cancel Okay	
Enter a name to find an item SWITCH_01:1							Draco	tera

Fig. 63 OSD Menu Configuration - EXT Units

The following functions are available:

Button	Function
New	Create a new EXT Unit.
Edit	Edit an existing EXT Unit.
Delete	Delete an existing EXT Unit.

Button	Function
Cancel	Reject changes.
Okay	Apply changes.

The following parameters can be configured:

Field	Entry	Description			
ID	-	Numerical value of the KVM extender module ID. The ID is provided by the extender module (serial number) and cannot be changed.			
Name	Text	Name of the EXT Unit.			
Fixed	Y	Create an EXT Unit with a fixed port assignment (default)			
	Ν	Function not active (default).			
Port 1/2	Up to 576 ports if using a single matrix or up to				
2032 ports within a ma grid.	within a matrix	 Port 2 0 if there is no redundant port or if the redundant interconnect port of the extender module is currently not connected to the matrix. 1 to 2032 if the redundant interconnect port of the extender module is currently connected to the matrix or to a matrix grid. 			



The settings for the General OSD Data are described in chapter 6.7.2, page 117.

6.5.1.2 Renaming an EXT Unit

To rename an EXT Unit after initially connecting an extender module to the matrix, proceed as follows:

- 1. Select **Configuration > User Data** in the main menu.
- 2. Select the EXT Unit of an extender module to be renamed.
- 3. Click Edit.
- 4. Delete the name in the Name field and enter the new name.
- 5. Click **Okay** to confirm the changes.

6.5.2 Configuring EXT Units for USB 2.0 Extender Modules

To use USB 2.0 extender modules, the respective EXT Unit has to be configured as fixed port in this menu. USB 2.0 EXT Units can be configured for independent switching or can be assigned to already existing CON Devices or CPU Devices.

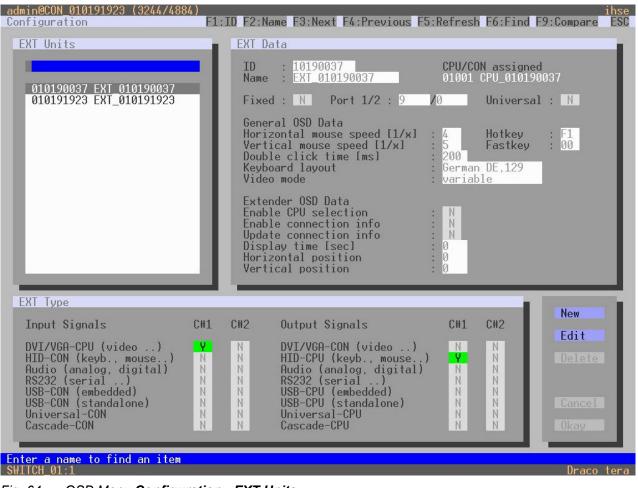


Fig. 64 OSD Menu Configuration - EXT Units

To configure a USB 2.0 EXT Unit, proceed as follows:

- 1. Select **Configuration > EXT Units** in the main menu.
- 2. Click New.

An EXT Unit with an eight-digit ID will be created, starting with digit 9.

- 3. Enter an appropriate name for the EXT Unit in the Name field.
- 4. Enter the port number of the matrix the USB 2.0 extender module is currently connected into the **Port** field.
- 5. To configure the created EXT Unit as a CON Unit:
 - 5.1. Set the USB-CON (standalone) option to Y (C#1 in the Input Signals column).
 - 5.2. Click **Okay** to confirm the setting.
- 6. To configure the created EXT Unit as a CPU Unit:
 - 6.1. Set the USB-CPU (standalone) option to Y (C#1 in the Output Signals column).
 - 6.2. Click **Okay** to confirm the setting.
- 7. Click **Okay** to confirm the settings.
- 8. Restart the I/O board to activate the USB fixed port for the new EXT Unit.

After restart of the I/O board, the parameters and settings of the USB 2.0 extender module are shown in the respective EXT Unit.

- 9. The USB 2.0 CPU/CON EXT Unit has to now be either assigned to an existing CPU/CON Device or a new CPU/CON Device has to be created for the assignment:
 - for a CPU Device see chapter 6.6.1, page 108,
 - for a CON Device see chapter 6.7.3, page 119
- 10. If you use parallel operation within the matrix, set the **Release Time** in the **System Settings > Switch** menu to **10 s** or more (see chapter 6.3.4, page 80).
- 11. Restart all I/O boards on which USB 2.0 EXT Units have been configured or alternatively restart the matrix.

The USB 2.0 EXT Units are now configured and can be used.

Manually created EXT Units are always set as fixed port EXT Units. This configuration is necessary if you want to switch, e.g., USB 2.0 connections via the matrix.

To make a fixed port available again for Flex Port EXT Units after deleting a fixed port EXT Unit, a restart of the I/O board is necessary.

6.5.3 Configuring EXT Units for USB 3.0/USB 2.0 Extender Modules

To use USB 3.0/USB 2.0 extender modules connected to a UNI I/O board, SFP modules based on 6.25 Gbit/s are required. The configuration of EXT Units for USB 2.0/USB 3.0 extender modules is set in this menu.

USB 2.0 extender modules can also be used with UNI I/O boards and SFP modules based on 6.25 Gbit/s or can be connected to fixed ports of I/O boards (see chapter 6.5.1.2, page 101).

a@CON_11:1 (3244/4884) Configuration	F1:	TD F2:Na	me F3:Next F4:Previous F	5:Refresh	E6:Find F	9:Compare	ihse ESC
EXT Units		EXT Da					
1	1	ID Name	: 1099999995 : UNI_109999995	CPU/CO	N assigned		L
1099999991 UNI_109999991 109999992 UNI_109999992 109999993 UNI_109999993		Fixed	: N Port 1/2 : 125	/0	Universal	: N	н.
109999993 UNI_109999994 1099999994 UNI_1099999994 1099999995 UNI_1099999995	1	Horiz Verti Doubl Keybo	al OSD Data ontal mouse speed [1/x] cal mouse speed [1/x] e click time [ms] ard layout mode	4 5 200 German variab		: 00 : 00	l
		Enabl Enabl Updat Displ Horiz	der OSD Data e CPU selection e connection info e connection info ay time [sec] ontal position cal position	N 10 -2 3			
ЕХТ Туре					- 1	New	
Input Signals	C#1	C#2	Output Signals	C#1	C#2	Edit	
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON	N N N N N		DVI/VGA-CON (video) HID-CPU (keyb., mouse Audio (analog, digital) R\$232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU) N N N N N N N N N N N		Delete Cancel Okay	
						Deser	
TEST-A-E160:1(M)						Draco	tera

Fig. 65 OSD Menu Configuration - EXT Units - Uni board - Configuring USB3.0/USB 2.0

To configure an SFP for using with USB 2.0/USB 3.0 extender modules, proceed as follows:

- 1. Select **Configuration > EXT Units** in the main menu.
- 2. Insert the SFP modules into the matrix and connect the extender module according to the required application.

One EXT Unit will be created for each SFP module in the **EXT Units** list. The appropriate names always start with "UNI".

In the sub menu EXT Type, Universal-CON and Universal-CPU are set to Y.

- 3. To configure an EXT Unit as a USB CON Unit:
 - 3.1. Select one of the EXT Units in the **EXT Units** list that are physically connected to a USB CON Unit.
 - 3.2. Set the USB-CON (standalone) option to Y (C#1 in the Input Signals column).
 - 3.3. Set additionally the Universal-CPU option to N (C#1 in the Output Signals column).
 - 3.4. Click **Okay** to confirm the setting.

EVT Tupo

EXT Type					
Input Signals	C#1	C#2	Output Signals	C#1	C#2
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON	N N N Y N		DVI/VGA-CON (video) HID-CPU (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU		

Fig. 66 OSD Menu Configuration - EXT Units - Setting a USB CON EXT Unit

- 4. To configure an EXT Unit as a USB CPU Unit:
 - 4.1. Select one of the EXT Units in the Ext Units list that are physically connected to a USB CPU Unit.
 - 4.2. Set the USB-CPU (standalone) option to Y (C#1 in the Output Signals column).
 - 4.3. Set additionally the Universal-CON option to N (C#1 in the Input Signals column).
 - 4.4. Click **Okay** to confirm the setting.

Input Signals	C#1	C#2	Output Signals	C#1	C#2
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON			DVI/VGA-CON (video) HID-CPU (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU	N N N V V V N	N N N N N N

Fig. 67 OSD Menu Configuration - EXT Units - Setting a USB CPU EXT Unit

- 5. The USB 2.0/USB 3.0 CPU/CON EXT Unit has to now be either assigned to an existing CPU/CON Device or a new CPU/CON Device has to be created for the assignment:
 - for a CPU Device see chapter 6.6.1, page 108,
 - for a CON Device see chapter 6.7.3, page 119

After assigning EXT Units to CON/CPU Devices, the USB 2.0/USB 3.0 CON/CPU Ext Units are configured and can be used.

- 6. If you use parallel operation within the matrix, set the **Release Time** in the **System Settings > Switch** menu to **10 s** or more (see chapter 6.3.4, page 80).
- 7. Restart all I/O boards on which USB 2.0/USB 3.0 EXT Units have been configured or alternatively restart the matrix.



If changing an EXT Unit from a USB CON to a USB CPU, a restart of the I/O board is necessary.

6.5.4 Configuring EXT Units for SDI Usage

For the use of SDI, the matrix is to be configured in this menu. Using SDI requires at least one UNI I/O board and appropriate SFP modules according to the SDI video signal to be used.

a@CON_11:1 (3244/4884) Configuration	E1 · T	D E2·Na	me F3:Next F4:Previous	E5.Pofrosh	E6.Eind E9		ihse ESC
EXT Units	FI.I	EXT Da		FU. REITESH	FO.FINU F7	.compare	L30
1		ID Name	: 1099999995 : UNI_109999995	CPU/CO	N assigned		U
1099999991 UNI_109999991 109999992 UNI_109999992 109999993 UNI_109999993		Fixed	: N Port 1/2 : 125	/0	Universal	: N	
1099999995 UNI_1099999994 1099999995 UNI_1099999995	1	Horiz Verti Doubl	al OSD Data ontal mouse speed [1/x] cal mouse speed [1/x] e click time [ms] ard layout mode	4 5 200 German variab	Fastkey DE,129	: 00 : 00	l
		Enable Enable Update Disple Horize	der OSD Data e CPU selection e connection info e connection info ay time [sec] ontal position cal position	: N : Y : N : 10 : -2 : 3			
EXT Type					- 11	New	
Input Signals	C#1	C#2	Output Signals	C#1	C#2	Edit	
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) R\$232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON	N N N N N N	N N N N N N N N N N N N N N N N N N N	DVI/VGA-CON (video) HID-CPU (keyb., mouse. Audio (analog, digital RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU		N N N N N N	Delete Cancel Okay	
TEST-A-E160:1(M)						Drace	tora
1L31-H-L100.1(M)						Draco	terd

Fig. 68 OSD Menu Configuration - EXT Units - Uni board - Configuring SDI

To configure an SFP for using as an SDI input/output, proceed as follows:

- 1. Select **Configuration > EXT Units** in the main menu.
- 2. Insert the SFP modules into the matrix and connect the extender module according to the required application.

One EXT Unit will be created for each SFP module in the **EXT Units** list. The appropriate names always start with "UNI".

In the sub menu EXT Type, Universal-CON and Universal-CPU are set to Y.

- 3. To configure an EXT Unit as an SDI input:
 - 3.1. Select one of the extender modules in the **EXT Units** list that corresponds to the respective SFP and is intended to be used as input.
 - 3.2. Set the Universal-CPU option to Y (C#1 in the Output Signals column.
 - 3.3. Set additionally the Universal-CON option to N (C#1 in the Input Signals column.
 - 3.4. Click **Okay** to confirm the setting.

EXT Type					
Input Signals	C#1	C#2	Output Signals	C#1	C#2
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON	N N N N N N N		DVI/VGA-CON (video) HID-CPU (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU	N N N > N	

Fig. 69 OSD Menu Configuration - EXT Units - Setting an EXT Unit as an SDI input

- 4. To configure an EXT Unit as an SDI output:
 - 4.1. Select one of the extender modules in the **EXT Units** list that corresponds to the respective SFP and is intended to be used as output.
 - 4.2. Set the Universal-CON option to Y (C#1 in the Input Signals column.
 - 4.3. Set additionally the Universal-CPU option to N (C#1 in the Output Signals column.
 - 4.4. Click Okay to confirm the setting.

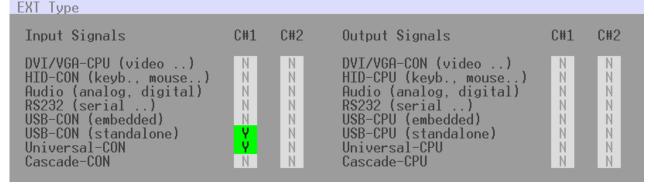


Fig. 70 OSD Menu Configuration - EXT Units - Setting an EXT Unit as an SDI output

- 5. The edited EXT Units for the SDI inputs and outputs has to now be either assigned to an existing CPU/CON Device or a new CPU/CON Device has to be created for the assignment:
 - for a CPU Device see chapter 6.6.1, page 108,
 - for a CON Device see chapter 6.7.3, page 119

After assigning EXT Units to CON/CPU Devices, the SDI inputs and outputs are configured and can be used.

6. Restart all I/O boards on which EXT Units for SDI input/output have been configured or alternatively restart the matrix.

If changing an EXT Unit from a UNI CON to a UNI CPU, a restart of the I/O board is necessary.

6.6 Configuring Source Side Settings

6.6.1 Setting CPU Devices

New CPU Devices are configured in this menu including their assignment to EXT Units.

The assignment helps to describe and switch more complex computer configurations (e.g., Quad-Head with USB 2.0) in the matrix.

admin@CON_010191923 (2140/13496 Configuration CPU Devices) F1:ID F2:Name F3 CPU Data	3:Next F4:Previous	i F5:Refresh F6:Find F9:Compare
01001 CPU_010190037	Member of Swite Remote CPU CPU assigned Allow Private Force Private FIX Color	: 1001 : CPU 010190037 o : not assigned : not assigned : not assigned : N : N	Group : N Switch : N Remote Access : N Virtual Device : N not assigned 2 Step Access : N Exclusive Access : N MSC disabled : N
	Reference EXT available	: N	CPU Colors :on EXT_assigned 010190037 0009 EXT_010190037
New R. New V. New G. Edit Delete	New S. New	SP. New IPC	New SES Cancel Okay
Enter a name to find an item SWITCH_01:1			Draco t

Fig. 71 OSD Menu Configuration - CPU Devices

The following functions are available:

Button	Function
New R.	Create a new real CPU Device.
Edit	Edit an existing CPU Device.
Delete	Delete an existing CPU Device.
Cancel	Reject changes.
Okay	Apply changes.

The following parameters can be configured:

Field	Entry	Description
ID	Text	Ident number of the CPU Device.
Name	Text	Name of the CPU Device.
Member of Group	Selection	Assign the CPU Device to a group.
Member of Switch	Selection	Assign the CPU input to the respective CPU Switch.

Field	Entry	Description
Remote CPU	Selection	Assign an IP CPU Device to the respective IP CPU EXT Unit.
CPU assigned	-	ID and name of the assigned virtual CPU Device, cannot be changed, is retrieved automatically.
Group	Y	Automatically set if the CPU Device is assigned to a CPU DEVICE Group.
	Ν	Function not active (default).
Switch	Y	Automatically set for a CPU Switch (484 Series).
	Ν	Function not active (default).
Remote Access	Y	Automatically set for an IP CPU Device.
	Ν	Function not active (default).
Virtual Device	Y	Automatically set for a virtual CPU Device.
	Ν	Function not active (default).
Allow Private	Y	Allow switching to the respective CPU Device in Private Mode.
	Ν	Function not active (default).
Force Private	Y	Force switching to the respective CPU Device only in Private Mode.
	Ν	Function not active (default).
Fix Color	Selection list	Show a colored frame at the CPU Device. You can select between 7 colors.
Reference	Y	Activate a reference CPU Device that inherits both Device and EXT Unit settings to any CPU Unit that is connected to the matrix for the first time.
		Note : It is recommended to activate the reference setting for one single CPU Device only.
	N	Function not active (default).
2 Step Access	Y	Open a pop-up window after switching to the particular CPU Device. In the background a Video Only connection will be established. A confirmation in the pop-up window is required to establish a Full Access connection to the CPU Device.
	Ν	Function not active (default).
Exclusive Access	Y	Activate an access limitation for the case that a CPU Device is already connected via Full Access connection. When having the same priorities, any additional access to the CPU Device can only be established with a Video Only connection. Having a lower priority any additional connection is not possible. Only when having a higher priority, an additional Full Access connection can be established, and K/M control can be taken over.
	Ν	Function not active (default).
MSC disabled	Y	Deactivate the MSC function.
	Ν	Activate the MSC function.
CPU Colors	Selection list	The CPU Device name will be highlighted according to the color setting for text and background. You can select between 16 colors.

To create a CPU Device, proceed as follows:

- 1. Select **Configuration > CPU Devices** in the main menu.
- 2. Click New R. to create a new real CPU Device or click New V. to create a new virtual CPU Device.
- 3. Enter a CPU Device name into the field Name.
- 4. Click Okay.

The CPU Device is created now.

To assign an EXT Unit to a CPU Device, proceed as follows:

- 1. Select **Configuration > CPU Devices** in the main menu.
- 2. Select the CPU Device you want to assign an EXT Unit.
- 3. Select the EXT Unit for the assignment in the EXT available list.
- 4. Click Okay.

The EXT Unit is assigned to the CPU Device now.

6.6.2 Setting CPU Groups

The KVM matrix allows to bundle the CPU Devices of a configuration into CPU groups. The groups can be used to subdivide the CPU Devices logically or thematically. As an application example you can group all CPU Devices together that are connected to a specific matrix in a matrix grid. The configuration of CPU groups at the same times increases the clarity of the configuration.

CPU Devices	CPU Data ID Name Member of Group Member of Switch Remote CPU CPU assigned Allow Private Force Private FIX Color Reference EXT available		Group : N Switch : N Remote Access : N Virtual Device : N not assigned 2 Step Access : N Exclusive Access : N MSC disabled : N CPU Colors :on EXT assigned 010190037 0009 EXT_010190037
New R. New V. New G. Edit Delete	New S. New S	SP. New IPC	New SES Cancel Okay

The following functions are available:

Button	Function
New G.	Create a new CPU Group.
Edit	Edit an existing CPU Group.
Delete	Delete an existing CPU Group.
Cancel	Reject changes.
Okay	Apply changes.

The following parameters can be configured:

Field	Entry	Description
ID	Text	Ident number of the CPU Group.
Name	Text	Name of the CPU Group.
Member of Group	Selection	Assign the CPU Device to a CPU Group.
Group	Y	Automatically set if the CPU Device is assigned to a CPU Group.
	Ν	Function not active (default).

Further parameters are described in chapter 6.6.1, page 108.

To create a CPU Group, proceed as follows:

- 1. Select **Configuration > CPU Devices** in the main menu.
- 2. Click New G.
- 3. Enter a CPU Group name into the field **Name**.
- 4. Click Okay.

The CPU Group is created now.

To assign a CPU Device to a group, proceed as follows:

- 1. Select **Configuration > CPU Devices** in the main menu.
- 2. Select the CPU Device you want to assign to a CPU group.
- 3. Select the CPU Group for the assignment in the field **Member of Group** using the cursor up and down keys.
- 4. Click Okay.

The CPU Device is assigned to the CPU Group now.

6.6.3 Configuring CPU Switch (484 Series)

The CPU Switch (484 Series) is an 8:1 port concentrator for up to eight sources attached via VGA and USB-HID (K/M).

This CPU Switch can be specifically configured for a use with a KVM matrix. The configuration allows to individually switch the up to eight input signals via OSD.

admin@CON_010191923 (2140/13496) Configuration	F1:ID F2:Name F3:Next	F4:Previous F5:Refresh	i F6:Find F9:Compare	hse ESC
CPU Devices	CPU Data			
	ID : 1001	1	Group : N	
01001 CPU_010190037	Name : CPU	010190037	Switch : N Remote Access : N Virtual Device : N	
	Member of Group : not Member of Switch: not Remote CPU : not CPU assigned :	assigned assigned	ot assigned	L
	Allow Private : N Force Private : N FIX Color : Reference : N	2 Step Acc Exclusive MSC disabl CPU Colors	Access : N ed : N	L
	EXT available	EXT assign 010190037	ed 0009 EXT_010190037	
New R. New V. New G. Edit Delete	New S. New SP.	New IPC New SES		I
Enter a name to find an item SWITCH_01:1			Draco t	era
Fig. 73 OSD Menu Configurati	on - CPU Devices			

The following functions are available:

Button	Function
New S.	Create a new CPU Switch (484 series).
New SP.	Create a CPU EXT Unit for a CPU Switch.
Edit	Edit an existing CPU Device.
Delete	Delete an existing CPU Device.
Cancel	Reject changes.
Okay	Apply changes.

The following parameters can be configured:

Field	Entry	Description
ID	Text	Ident number of the CPU Device.
Name	Text	Name of the CPU Device.
Member of Switch	Selection	Assign the CPU Device input to the respective CPU Switch.
Switch	Y	Automatically set for a CPU Switch (484 Series).
	Ν	Function not active (default).

Further parameters are described in chapter 6.6.1, page 108.

To configure the CPU Switch for an individual switching of the single inputs, proceed as follows:

- 1. Select **Configuration > CPU Devices** in the main menu.
- 2. Click New S..

A new CPU Switch will be created.

- 3. Enter a CPU Switch name into the field Name.
- 4. Assign an EXT Unit to the CPU Switch into the field **EXT assigned**.
- 5. Click New SP..

A new CPU Device (input) for a CPU Switch will be created (Port 1).

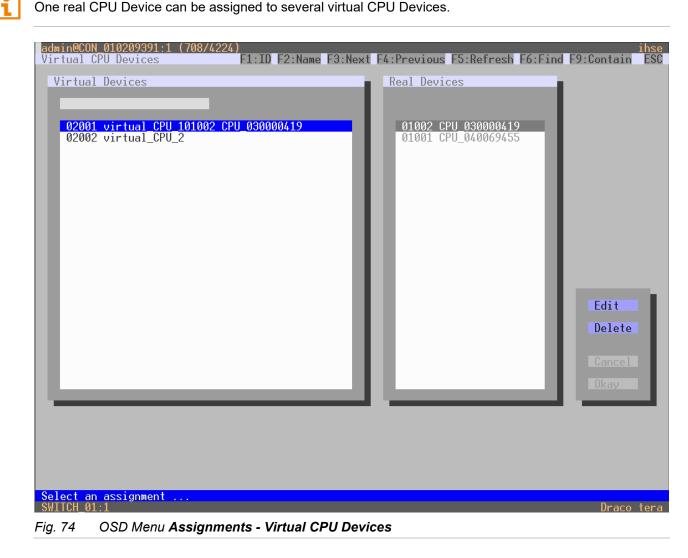
- 6. Assign the created CPU input to a CPU switch in the field Member of Switch.
- 7. Repeat the steps 5. and 6. for each input port in use at the CPU Switch.
- 8. Click Okay.

The CPU Switch is now configured and can be individually switched via OSD.

6.6.4 Assigning Virtual CPU Device

In this menu, either one or more virtual CPU Devices can be assigned to a real CPU Device.

With a virtual CPU Device, the effort of switching several CON Devices to the same CPU Device can be reduced. If several CON Devices are connected to a virtual CPU Device that is assigned to a real CPU Device, you only have to change the real CPU Device once and all CON Devices will receive the video signal of the new real CPU Device.



The following functions are available:

Button	Function
New V.	Create a new virtual CPU Device.
Edit	Edit an existing CPU Device.
Delete	Delete an existing CPU Device.
Cancel	Reject changes.
Okay	Apply changes.

To assign virtual CPU Devices to real CPU Devices, proceed as follows:

- 1. Select Assignments > Virtual CPU Devices in the main menu.
- 2. Select the virtual CPU Device in the **Virtual Devices** list that has to be assigned to a real CPU Device.
- 3. Click Edit.
- 4. Select the real CPU Device in the **Real Devices** list that has to be assigned to the selected virtual CPU Device.
- 5. Click **Okay** to confirm the assignment.

The selected virtual CPU Device is assigned to the real CPU Device.

6.7 Configuring Console Side Settings

Connecting a CON Unit to the matrix creates an EXT Unit in the matrix, reading the serial number of the CON Unit. An EXT Unit has to be assigned to a CON Device. Switching operation is only possible between CON Device and CPU Device. All steps to create switchable CON Devices are described in this chapter. Several real CON Devices can be assigned to a virtual CON Device to reduce operation efforts (see chapter 6.7.6, page 125).

6.7.1 OSD Configuration for Mouse and Keyboard

The OSD configuration for mouse and keyboard is made in this menu. The settings for mouse and keyboard are CON Device-specific and can be set separately for each CON Device.

admin@CON_010191923 (3244/4884 Configuration) F2:Name	F3:Next F4:Previous	F5:Refresh	F6:Find F9:C	ihse Compare ESC
EXT Units	- 12	EXT Data		_		
010190037 EXT_010190037			10190037 EXT_010190037		N assigned CPU_010190037	
010191923 EXT_010191923	188	Fixed :	N Port 1/2 : 9	/0	Universal :	N
	I	Horizon Vertica Double	OSD Data tal mouse speed [1/x] l mouse speed [1/x] click time [ms] d layout ode		Fastkey : DE,129	F1 00
ЕХТ Туре		Enable Enable Update Display Horizon	r OSD Data CPU selection connection info connection info time [sec] tal position l position	N N 0 0 0		
Input Signals	C#1 C	;#2 Oi	utput Signals	C#1	C#2	New
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON	N N N N N	N H N A N R N U N U N U N U	VI/VGA-CON (video) ID-CPU (keyb., mouse. udio (analog, digita] \$232 (serial) SB-CPU (embedded) SB-CPU (standalone) niversal-CPU ascade-CPU) Y		Edit Delete Cancel Okay
Enter a name to find an item SWITCH_01:1						Draco tera

Fig. 75 OSD Menu	Configuration -	EXT Units
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The following parameters can be configured:

Field	Entry	Description
Hor. Speed 1/x	1 to 9	Adjustment of the horizontal mouse speed, 1 = slow, 9 = fast (default: 4).
Ver. Speed 1/x	1 to 9	Adjustment of the vertical mouse speed, 1 = slow, 9 = fast (default: 5).
Double-click	100 to 800	Adjustment of the time slot for a double-click (default: 200 ms).
Keyboard layout	Region	Set the OSD keyboard layout according to the used keyboard (default: German (DE)).
Video Mode	Variable or specific resolution	Resolution that is used when opening OSD.

To change the settings for mouse and keyboard, proceed as follows:

- 1. Select **Configuration > EXT Units** in the main menu.
- 2. Select the CON Unit extender module in the EXT Units list whose OSD settings has to be adjusted.
- 3. Click **Edit** or press Enter to confirm the selection.
- 4. Change the desired settings.
- 5. Click **Okay** to confirm the changes.

6.7.2 Setting Extender OSD

In this menu the parameters for the Extender OSD can be set. The settings for mouse and keyboard are CON Device-specific and can be set separately for each CON Device.

When setting the horizontal OSD position, a prefixed minus describes the orientation to the right edge of the monitor, e.g., -2 means $2 \times 10 = 20$ pixels to this edge. When setting a vertical position, a prefixed minus describes the orientation to the lower edge of the monitor.

If the **Update connection info** function is deactivated, the extender OSD only appears when switching via OSD.

admin@CON_010191923(3244/488/ Configuration		D F2:Nai	me F3:Next F4:Previous	F5:Refresh	F6:Find		ihse ESC
EXT Units	- 1	EXT Da	ta	_		-	1
010100007 EVT 010100007	а.	ID Name	: 10190037 : EXT_010190037		N assigne CPU_01019		ı
010190037 EXT_010190037 010191923 EXT_010191923	ш	Fixed	: N Port 1/2 : 9	/0	Universa	11 : N	
	I	Horizo Vertio Double	al OSD Data ontal mouse speed [1/x] cal mouse speed [1/x] e click time [ms] ard layout mode		Hotkey Fastkey DE,129 De	: F1 : 00	I
EXT Type		Enable Enable Update Displa Horize	der OSD Data e CPU selection e connection info e connection info ay time [sec] ontal position cal position	N N 0 0			
Input Signals	C#1	C#2	Output Signals	C#1	C#2	New	
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON	N N N N N N N	ZZZZZZZ	DVI/VGA-CON (video HID-CPU (keyb., mouse Audio (analog, digita) RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU) Y		Edit Delete Cancel Okay	
Enter a name to find an item SWITCH_01:1						Draco	ter



The following parameters can be configured:

Field	Entry	Description
Enable CPU selection	Y	When executing the key sequence for opening the OSD, a selection list for switching CPU Devices (CPU Device selection list) will be displayed in the center of the monitor. Pressing F7 within the selection list opens the standard OSD.
	N	Function not active (default).
Enable connection	Y	Enable Extender OSD (default: Y).
info	N	Function not active.
Update connection info	Y	Update connection changes during fade-in of Extender OSD (default: Y).
	N	Function not active.
Display time [sec]	0 to 999 seconds	Duration of OSD fade-in (default: 10).
Horizontal Position	-127 to +127 pixels	Horizontal OSD position (default: -2). E.g., value 5 means 5 x 10 px distance to the left border.
Vertical Position	-127 to +127 pixels	Vertical OSD position (default: 3) E.g., value 5 means 5 x 10 px distance to the top border.

To change the Extender OSD settings, proceed as follows:

- 1. Select **Configuration > EXT Units** in the main menu.
- 2. Select the CON Unit extender module in the **EXT Units** list whose OSD settings has to be adjusted.
- 3. Click **Edit** or press Enter to confirm the selection.
- 4. Change the desired settings.
- 5. Click **Okay** to confirm the changes.

6.7.3 Setting CON Devices

New CON Devices are created in this menu including access rights and assignment to EXT Units.

_admin@CON_010191923 (920/2240)		ihseiihseiihseiihseiihseiihseiiitse_iiitse_iiitse_iiits
Configuration	F1:ID F2:Name F3:Next F4:Previous	F5:Refresh F6:Find F9:Compare ESC
CON Devices 03001 CON 010191923 03002 CON 040062140 03003 CON 040112302 03001 CON 040212434	CON Data ID/Priority : 3004 Z0 Name : CON 010191923 Show Macro List: N Allow User ACL : N Force Login : N LOS Frame : N Disable OSD : N CPU Colors :on EXT available	Virtual Device : N Allow CPU Scan : N Force CPU Scan : N Scan Time IsecI: 0 Port Mode : N Redundancy Off : N Reference : N Fix Color :
CPU Access Control List		and the second se
Full access	Video access No acc 01001	New R. CPU_020190418 Edit Delete Cancel Okay
Enter a name to find an item SWITCH 01:1		Draco tera

Fig. 77 OSD Menu Configuration - CON Devices

The following functions are available:

Button	Function
New R.	Create a real CON Device.
New V.	Create a virtual CON Device.
Edit	Edit an existing CON Device.
Delete	Delete an existing CON Device.
Cancel	Reject changes.
Okay	Apply changes.

Field	Entry	Description	
ID	Text	ID of the CON Device.	
Priority	0 to 999	Priority of the CON Device. Note: There is no K/M sharing between CON Devices with a different priority and the release time does not come into account. CON Devices only have Video Only access to a CPU Device if a CON Device with a higher priority is already switched to it.	
Name	Text	Name of the CON Device.	
Show Macro List	Y	Show the macro list instead of the CPU Device selection list.	
	Ν	Function not active (default).	
Allow User ACL	Y	Allow activation of the User ACL at the local CON Device.	
	Ν	Function not active (default).	
Force Login	Y	The user has to login with a username and a password once to enter OSD. Thereafter the user remains logged in until he explicitly logs out or an auto logout is affected. Note: When using the Force Login function, Console ACL are still active. When the Force Login function is activated and a user is logged in, only the user favorites are available. The CON favorites are not accessible.	
	Ν	Function not active (default).	
LOS Frame	Y	 When the video signal between source and the CPU Unit or the connection between matrix and the CON Unit is lost, an orange frame will be displayed. When switching to a CPU Device without video signal, a blank screen will appear surrounded by an orange frame. 	
	N	Function not active (default).	
Disable OSD	Y	Disable OSD access for the respective CON Device.	
	N	Function not active (default).	
CPU Colors	Selection list	The CPU Device name will be highlighted according to the color setting for text and background. You can select between 16 colors.	
Virtual Device	Y	Automatically set for a virtual CON Device.	
	Ν	Function not active (default).	
Allow CPU Scan	Y	Allow a scan mode with an automatic change of the video signal for the favorite list (CPU Devices) of the respective CON Device or a logged in user.	
	Ν	Function not active (default).	
Force CPU Scan	Y	Force a scan mode with an automatic change of the video signal for the favorite list (CPU Devices) of the respective CON Device or a logged in user. Note: An active scanner can be stopped by a mouse or keyboard event. You gain Full Access for the currently switched CPU Device if Force Connect is activated.	
	N	Function not active (default).	
Scan Time [sec]	0 to 99 seconds	Retention period until switching to the next CPU Device.	

The following parameters can be configured:

Field	Entry	Description
Port Mode	Y	The favorite list will be replaced by a port list where the ports from 1-999 can be directly selected at each matrix or Matrix Grid.
		Note: The selection only works for CPU Devices and has to be made according to the switching of favorites.
		When using the Port Mode, CON and User favorites will be deactivated.
	Ν	Function not active (default).
Redundancy Off	Y	Function not active.
	N	Automatically switch to the second link of a connected redundant CON Unit when losing the primary link of a CPU Unit (default).
Reference	Y	Activate a reference CON Device that inherits both Device and EXT Unit to any CON Unit that is connected to the matrix for the first time.
		Note : It is recommended to activate the reference setting for one single CON Device only.
	Ν	Function not active (default).
Fix Color	Selection list	Show a colored frame when being connected to the respective CPU Device. You can select between seven colors. The colored frame of the CPU device is displayed with priority to the one of the CON Device.

To create a CON Device, proceed as follows:

- 1. Select **Configuration > CON Devices** in the main menu.
- 2. Click New R. to create a new real CON Device or click New V. to create a new virtual CON Device.
- 3. Enter a CON Device name into the field Name.
- 4. Click Okay.

The CON Device is created now.

To assign an EXT Unit to a CON Device, proceed as follows:

- 1. Select **Configuration > CON Devices** in the main menu.
- 2. Select the CON Device you want to assign an EXT Unit.
- 3. Select the EXT Unit for the assignment in the **EXT available** list.
- 4. Click Okay.

The CON Device is assigned to the EXT Unit now.

6.7.4 Setting CON Device Favorites

Individual favorite lists of CPU Devices to be switched frequently can be created for all CON Devices in this menu. A favorite list can contain up to 32 different CPU Devices (from firmware V3.05).

The switching of the favorites is done via Hot Key using the keyboard (see chapter 8.1.1, page 290).

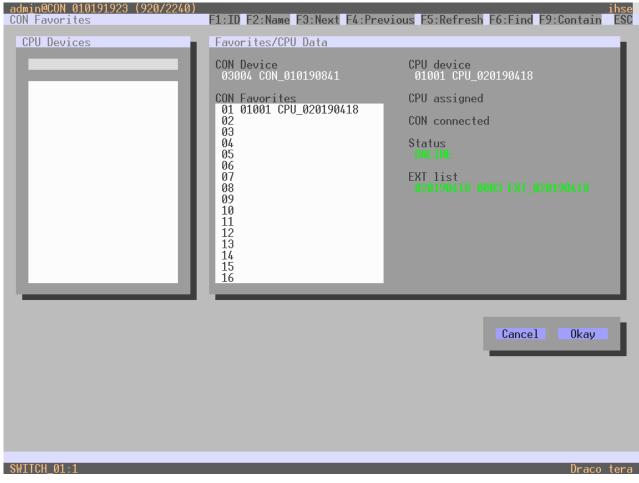


Fig. 78 OSD Menu Assignments - CON Favorites

To create a favorite list for your own CON Device, proceed as follows:

- 1. Select **Assignments > CON Favorites** in the main menu.
- 2. Select a CPU Device to be moved to the favorite list on the CPU Devices list.
- Press a to move a CPU Device to the favorites list.
 To remove a CPU Device from the favorite list, press r.
- 4. Optional: press + or to change the order of the CPU Devices within the favorites list.
- 5. Click **Okay** to confirm the settings.

6.7.5 Setting CON Device Macros

In this menu macro commands for switching, disconnection or user administration can be created. The macro commands are created for each CON Device separately. Up to 32 macros can be configured for each CON Device. A macro can execute up to 16 switching commands successively.

The execution of the macros is done via Hot Key and the function keys F1 to F16 (see chapter 8.1.4, page 293).

The macros can also be used to switch to CPU groups.

admin@CON_010191923 (1120/6540) Configuration	F1:ID F2:Name	F3:Next F4:Previous	F5:Refresh F6:Find F	ihse 9:Compare ESC
CON Devices	CON Macros			
03001 CON_010191923	Key: F01	Parameter #1	Parameter #2	
	-			
Macro Data				Edit
Function empty	not used	not use	ed	Delete
Parameter #1		_		
Parameter #2				
				Cancel
		_	_	Okay
Enter a name to find an item SWITCH_01:1				Draco tera

Fig. 79 OSD Menu Configuration - CON Macros

The following parameters can be configured:

Field	Selection	Description
Function (01 to 16)	Connect (P1=CON, P2=CPU)	Set a bidirectional connection from CON Device P1 to CPU Device P2.
-	Connect Video (P1=CON, P2=CPU)	Set a Video Only connection from CON Device P1 to CPU Device P2.
	Disconnect (P1=CON)	Disconnect the CON Device P1.
	Logout User	Logout the current user.
Assign CPU (P1=VCPU, P2=RCPU)		Assign a virtual CPU Device to a real CPU Device.

Field	Selection	Description
FunctionAssign CON(01 to 16)(P1=RCON, P2=VCON)		Assign a real CON Device to a virtual CON Device.
	Push (P1=CON)	The user's Full Access connection is forwarded to CON Device P1 and is changed into a Video Only connection.
Push Video (P1=CON)		The video signal of the current connection (Full Access or Video Only) is forwarded to CON Device P1. The user's connection remains unchanged (Full Access or Video Only).
	Get (P1=CON)	The user's CON Device gets a Full Access connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 is changed into a Video Only connection.
	Get Video (P1=CON)	The user's CON Device gets a Video Only connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 remains unchanged (Full Access or Video Only).
	Login User console P2	Login a certain user P1 at CON Device P2.
P1	CON or CPU Device	Name of CON Device or CPU Device.
P2	CON or CPU Device	Name of CON Device or CPU Device.

To create a macro for the selected CON Device, proceed as follows:

- 1. Select **Configuration > CON Macros** in the main menu.
- 2. Select the CON Device for which a macro is to be created.
- 3. Select in the **Key** field the function key (F1 to F32) for which a macro should be created.
- 4. Select the respective place on the list (1 to 16) for the key that should be set with a macro key.
- 5. Select for the highlighted position on the list a macro command in the Macro Data field.
- 6. Set the necessary parameters **P1** and **P2** (e.g., CON Devices or CPU Devices) for the selected macro command.
- 7. Confirm your inputs by pressing Enter and repeat the process for further macro commands if necessary.

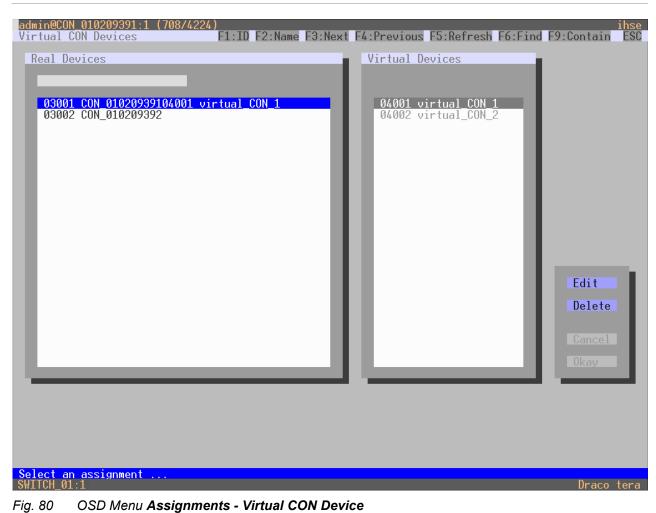
6.7.6 Assigning Virtual CON Devices

In this menu, several real CON Devices can be assigned to a virtual CON Device.

This function reflects changes in permission made to virtual CON Devices onto real CON Devices. Virtual CON Devices can be switched in the same way as real CON Devices. Real CON Devices that are assigned to a virtual CON Device that is connected to a CPU Device will receive the video signal. The last assigned CON Device will also have control of the keyboard and mouse.



A virtual CON Device can be assigned to more than one real CON Devices.



For an assignment, proceed as follows:

- 1. Select Assignments > Virtual CON Devices in the main menu.
- 2. Select the real CON Device in the **Real Devices** list that has to be assigned to a virtual CON Device.
- 3. Click Edit.
- 4. Select the virtual CON Device in the **Virtual Devices** list that has to be assigned to the selected real CON Device.
- 5. Click Okay to confirm the assignment.

The selected virtual CON Device is assigned to the real CON Device.

6.7.7 Enabling Multi-Screen Control

Due to limited options via OSD, we recommend configuring the MSC only via management software to carry out the extended configuration options (from firmware V03.08), see chapter 7.8.11, page 257.

When using MSC, switching up to eight connected sources can be performed at one sink with only one connected mouse and/or keyboard. The sink can consist of up to eight CON Units and accordingly up to eight monitors, or up to sixteen monitors when using Dual-Head extender modules. In a matrix system, MSC can be set up at multiple sinks. The CON Units of a sink with MSC must all be physically connected to the same block of 8 ports on the I/O board. When using one of these I/O boards (480-C8, 480-S8 or 480-V8), the block size is limited to 4 ports (port 1 to 4, or port 5-8).

One of the CON Devices is designated for USB-HID control of the connected sources, below referred to as "Control CON Device". Control CON Devices are referred to the extender modules/EXT Units within the MSC that are connected to keyboard and mouse for operation. If the USB-HID control has to be performed via several USB-HID devices, several CON Devices have to be defined as Control CON Device.

Smooth switching of sources with the mouse is performed by dragging the mouse pointer beyond the respective display to an adjacent display in an arrangement of displays. The displays can be arranged side by side, in a grid layout, or completely freely. Alternatively, switching can be performed via keyboard commands according to the ID number in the MSC setup.

NOTICE

When using CON Units with the possibility to connect a local source in a MSC environment, the local switching will be disabled.

1

When configuring MSC via OSD, the number of supported displays is limited to four.

To configure more than four displays (up to eight with Single-Head and up to sixteen with Dual-Head installation), you have to configure the MSC only via management software.



The connected sources need to support absolute mouse mode. Else a specific mouse driver needs to be installed.

CON Units that have been already configured for MSC can be connected all together to other blocks of 8 ports. In this case any further configuration is not necessary, their functionality will remain as set previously.

Screens : <mark>1x4</mark> Manual : N	Reduce switching to manu	ns or two rows with two s Nal switching with hotkey	
	Disable automatic switch	ing with mouse for multi	head CPUs
Screen #1	Screen #2	Screen #3	Screen #4
CON_010191923	screen not available	screen not available	screen not available
Enabled N Control N Dwner shared Frame Ø sec	Enabled N Control N Owner shared Frame sec	Enabled N Control N Owner shared Frame sec	Enabled N Control N Owner shared Frame sec
			Cancel Okay

Fig. 81 OSD Menu Assignments - Multi-Screen Control

The following parameters can be configured:

Field	Entry	Description
Enable	Y	Activate the respective display for MSC.
	Ν	Function not active (default).
Control	Y	Enable the CON Device for USB-HID control of other CON Devices if access is permitted.
	Ν	Function not active (default).
Owner	Selection	 Shared (default) permits the access from a Control CON Device to all other CON Devices except to another Control CON Device. Name of the own Control CON Device to restrict access to other CON Devices.
Frame	0 to 999 seconds	Time for fading in a red frame at the display with current mouse/keyboard control.

Configure MSC at a CON Device that should be used to control USB-HID in the setup. To change or delete a MSC setup, you have to open the OSD of the defined Control CON Device.

Configuring Multi-Screen Control

To configure MSC, proceed as follows:

- 1. Open the OSD of a CON Unit connected to an I/O board for which the connected CON Units are to be configured for MSC.
- 2. Select **Assignments > Multi-Screen Control** in the main menu.

Only the CON EXT Units connected to the selected I/O board are visible.

- 3. In the **Arrangement** field, select the layout for the CON Device you want to configure (**1 x 4** or **2 x 2**). The fields for the configuration of the individual displays will be arranged accordingly.
- 4. Activate the **Manual** option if the USB-HID switching is to be restricted to keyboard commands (see chapter 8.1.6, page 294). Manual switching allows the use of multi-head consoles.
- 5. Set the **Enable** option to **Y** on all CON Devices to activate the respective display for MSC.
- 6. Set the **Control** function to **Y** on one or more CON Devices to be enabled as Control CON Device.
- Use the Frame function to configure a red frame that shows the display with current mouse control, for the duration of a specified time by flashing briefly. The frame can be activated individually for each screen by using a timer > 0 seconds.
- 8. Click **Okay** to confirm the changes.
- 9. Restart the I/O board.
- 10. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 11. Save the configuration changes into the active configuration.

All Control CON Devices are enabled to control USB-HID of all other CON Devices in the setup except of another Control CON Device. To restrict the access to other CON Devices, see following section.

To configure MSC for further I/O boards via OSD, connect to the I/O board at a CON Device that should be used to control USB-HID in the setup.

Access Restriction when using Multiple Control CON Devices

Dragging the mouse pointer over the display border is only permitted for those displays whose CON Device is enabled for access by the owner of the respective Control CON Device.

To enable access to a display for only one Control CON Device, proceed as follows:

- 1. Click in the Owner field of a Control CON Device and select the name of the Control CON Device.
- Click in the Owner field of all Control CON Device whose display should be accessible and select the name of the respective Control CON Device.

The mouse can now be used to access those displays whose CON Device is permitted for access by the enabled Control CON Device.

- 3. Click **Okay** to confirm the changes.
- 4. Restart the I/O board.
- 5. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 6. Save the configuration changes into the active configuration.

No simultaneous USB HID sharing of multiple Control CON devices.

Example: In a setup of 4 CON Devices, if CON Device 1 and 2 are each Control CON Devices and two other "non-Control CON Devices" are configured, both Control CON Devices can access the displays of CON Device 3 to 4 if they are configured with **Owner = Sharing**.

However, Control CON Device 1 and 2 cannot access the display of a "non-Control CON Device" at the same time. The Control CON Device that first had USB-HID control is reset to its "own" display when the second Control CON Device takes over.

Changing Multi-Screen Control

To change the MSC for a setup of a specific I/O board, proceed as follows:

- 1. Open the OSD of a Control CON Device of the specific I/O board.
- 2. Select Assignments > Multi-Screen Control in the main menu.

Only the CON EXT Units connected to the selected I/O board are visible.

- 3. Make any edits at the configuration.
- 4. Click **Okay** to confirm the changes.
- 5. Restart the I/O board.
- 6. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 7. Save the configuration changes into the active configuration.

Deleting Multi-Screen Control

To delete the MSC for a setup of a specific I/O board, proceed as follows:

- 1. Open the OSD of a Control CON Device of the specific I/O board.
- Select Assignments > Multi-Screen Control in the main menu.
 Only the CON EXT Units connected to the selected I/O board are visible.
- 3. Set the **Enable** option to **N** on all CON Devices.

The MSC is disabled for all CON Devices of the selected I/O board.

- 4. Click **Okay** to confirm the changes.
- 5. Restart the I/O board.
- 6. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 7. Save the configuration changes into the active configuration.

6.8 Configuring Matrix Cascading

This simple method of cascading allows a switchable connection between two matrices via so called **Tie Lines**. The Matrix Cascading does not require **Bundle 4**.

This kind of configuration may become necessary if the number of ports in the entire system has to be increased or if certain important connections should be distributed to several matrices due to reasons of redundancy.

The Tie Lines are unidirectional and can only be used in one direction according to their configuration. For a bidirectional use of the cascading, you have to configure opposite Tie Lines.

To connect Tie Lines to the matrices, you have to create intended **Cascade CON Devices** and **Cascade CPU Devices** that have to be switched within the cascaded environment.

i

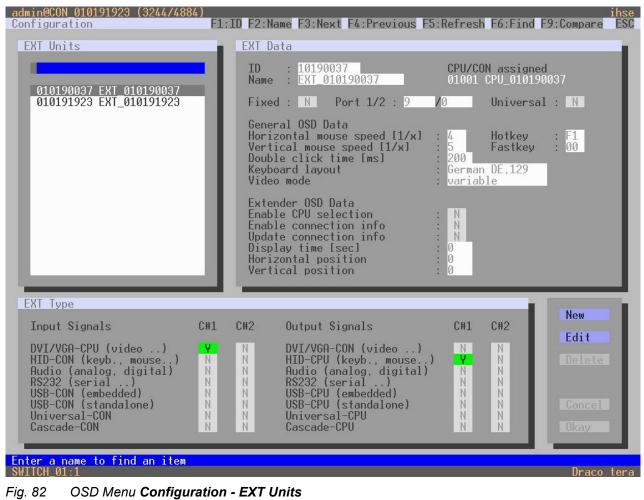
Define a Master Matrix. All further matrices will be configured as Sub Matrices in the configuration process. Ensure that the Tie Lines will only be connected after finishing the configuration.

6.8.1 Directing a Tie Line from the Sub to the Master

To configure settings for using Matrix Cascading and to direct the Tie Line from the Sub to the Master, proceed as follows:

- 1. Open the OSD of the Master Matrix.
- 2. Select Configuration > EXT Units in the main menu of the Master Matrix.
 - 2.1. Click New.

A new EXT Unit will be created.



- 2.2. Enter an appropriate name for the Cascading CPU Unit into the Name field.
- 2.3. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 2.4. Set the Cascade-CPU option to Y (C#1) in the Output Signals column.
- 2.5. Click Okay to confirm the creation of a Cascading CPU Unit.
- 3. Select **Configuration > CPU Devices** in the main menu of the Master Matrix.
 - 3.1. Click New R.

A switchable CPU Device will be created.

admin@CON_010191923 (2140/13496) Configuration	F1:ID F2:Name F3:Next F4:Previo	ihse ous F5:Refresh F6:Find F9:Compare ESC
CPU Devices	CPU Data	
	ID : 1001	Group : N Switch : N
01001 CPU_010190037	Name : CPU_01019003	
	Member of Group : not assigned Member of Switch: not assigned Remote CPU : not assigned CPU assigned :	d
	Allow Private : N Force Private : N FIX Color : Reference : N	2 Step Access : N Exclusive Access : N MSC disabled : N CPU Colors :on
	EXT available	EXT_assigned 010190037 0009 EXT_010190037
New R. New V. New G.	New S. New SP. New IPC	New SES
Edit Delete		Cancel Okay
Enter a name to find an item		
SWITCH_01:1		Draco tera
Fig. 83 OSD Menu Configurati	on - CPU Devices	

- 3.2. Enter an appropriate Cascading CPU Device into the Name field.
- 3.3. Select the previously configured Cascading CPU Unit in the EXT available list.
- 3.4. Press a to move the Cascading CPU Unit to the **EXT assigned** list. The assignment is displayed in the **EXT assigned** list.
- 3.5. Click Okay to confirm the assignment.

- 4. Open the OSD of the Sub Matrix.
- 5. Select **Configuration > EXT Units** in the main menu of the Sub Matrix.
 - 5.1. Click **New**.

A new EXT Unit will be created.

admin@CON_010191923 (3244/4884) Configuration	F1:ID F2:Nam	e F3:Next F4:Previous F	5:Refresh	F6:Find F9	ihse Compare ESC:
EXT Units	EXT Dat	a			_
010190037 EXT_010190037	ID Name	: 10190037 : EXT_010190037	CPU/CO 01001 (∖assigned CPU_0101900:	37
010191923 EXT_010191923	Fixed	: N Port 1/2 : 9	/0	Universal	: N
	Horizo Vertic Double	l OSD Data ntal mouse speed [1/x] al mouse speed [1/x] click time [ms] rd layout mode	4 5 200 German variab]	Fastkey DE,129	: <mark>F1</mark> : 00
ЕХТ Туре	Enable Enable Update Displa Horizo	er OSD Data CPU selection connection info connection info y time [sec] ntal position al position	: N : N : 0 : 0 : 0	_	
Input Signals C	#1 C#2	Output Signals	C#1	C#2	New
HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON	N N N N N N N N	DVI/VGA-CON (video) HID-CPU (keyb., mouse Audio (analog, digital) RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU) Y N N N N N N	N N N N N N N	Edit Delete Cancel Okay
Enter a name to find an item SWITCH_01:1					Draco tera

Fig. 84 OSD Menu Configuration - EXT Units

- 5.2. Enter an appropriate name for the Cascading CON Unit into the Name field.
- 5.3. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 5.4. Set the Cascade-CON option to Y (C#1) in the Input Signals column.
- 5.5. Click **Okay** to confirm the creation of a Cascading CON Unit.

6. Select **Configuration > CON Devices** in the main menu of the Sub Matrix.

6.1. Click New R.

admin@CON_010191923 (920/2240) Configuration	F1:ID F2:Name F3:Next F4:Previous	ihse F5:Refresh F6:Find F9:Compare ESC
CON Devices	CON Data	
03001 CON 010191923 03002 CON_040062140 03003 CON_040112302 03001 CON_040212434	ID/Priority : 3004 /0 Name : CON 010191923 Show Macro List: N Allow User ACL : N Force Login : N LOS Frame : N Disable OSD : N CPU Colors :on	Virtual Device : N Allow CPU Scan : N Force CPU Scan : N Scan Time [sec]: 0 Port Mode : N Redundancy Off : N Reference : N Fix Color :
	EXT available	EXT assigned 010191923 0001 EXT 010191923
CPU Access Control List		New R.
Full access	Video access No acc	
		Edit
		Delete
		Cancel
		UKdy
Enter a name to find an item SWITCH_01:1		Draco tera

A switchable CON Device will be created.

Fig. 85 OSD Menu Configuration - CON Devices

- 6.2. Enter an appropriate name for the Cascading CON Device into the Name field.
- 6.3. Press a to move the Cascading CON Unit to the EXT assigned list. The assignment is displayed in the EXT assigned list.
- 6.4. Click **Okay** to confirm the assignment.

- 7. Select **Configuration > System** in the main menu of the Sub Matrix.
 - 7.1. Set the Sub Matrix option to Y.
 - 7.2. Click Okay to confirm the Sub Matrix option.

The OSD of the Sub Matrix will immediately freeze and will be only accessible by using the keyboard command Hot Key, s, o.

admin@CON_010191923 (1656/752) Configuration	ihse ESC
System Device SWITCH_01 Name Host name for network environment Name of current matrix configuration Name Standard Info Factory settings	
Sub Matrix:NAllow hotkey control in cascaded environmentLoad Default:NLoad always default configurationAuto Save:NSave matrix status automaticallyEnable COM Echo:NEcho all switch commands via COM portsEnable LAN Echo:NEcho all switch commands via LAN portsEnable Redundancy:YEnable automatic switching for redundant extendersSynchronize:NSynchronize matrix with master matrixEcho Only:NSynchronize matrix with echo onlyMaster IP Address:000.000	
Enable Auto ConfigYAssign new extender to a new CPU or CON unitID Real CPU Device1001Start ID for automatic assignment of real CPU devicesID Virt. CPU Device2001Start ID for automatic assignment of virtual CPU devicesID Real CON Device3001Start ID for automatic assignment of real CON devicesID Virt. CON Device4001Start ID for automatic assignment of virtual CON devices	
Invalid IO-Boards : N Keep IO-Boards with invalid firmware online for update Enable old Echos : N Echo internal switch commands with old format Remove IO-Boards : N Remove IO-Boards while missing the secondary controller board Keep Gridlines : N Keep gridlines connected while waiting for grid master	
OSD Data CPU	
Horizontal mouse speed [1/x]: 4Global KeysVertical mouse speed [1/x]: 5Hotkey : F1Double click time [ms] : 200Fastkey : 00Keyboard layout : German DE,129Okay	
SWITCH_01:1 Draco	tera

Fig. 86 OSD Menu Configuration - System

- 8. Restart all I/O boards (see chapter 9.2.2, page 309) on which any Master/Sub CON Units or CPU Units have been configured or alternatively restart the matrix (see chapter 9.2.1, page 308).
- Connect the Tie Lines to the matrices. Ensure that each Cascade CON Device on one matrix is connected to Cascade CPU Device on the other matrix to achieve switch ability between two matrices. The Matrix Cascading is now configured and can be used.

Additional Tie Lines are configured accordingly. The use of cascading is described in in chapter 8.1.1, page 290.

6.8.2 Directing a Tie Line from the Master to the Sub

To configure settings for using Matrix Cascading and to direct the Tie Line from the Master to the Sub, proceed as follows:

- 1. Open the OSD of the Master Matrix.
- 2. Select Configuration > EXT Units in the main menu of the Master Matrix.
 - 2.1. Click New.

A new EXT Unit will be created.

admin@CON_010191923 (3244/488 Configuration) F2:Nam	ne F3:Next F4:Previous F5	:Refresh	F6:Find F		nse ESC
EXT Units	- 11	EXT Dat	ta	_			
010100007 FUT 010100007		ID Name	: 10190037 : EXT_010190037		N assigned CPU_010190		L
010190037 EXT_010190037 010191923 EXT_010191923	18	Fixed	: N Port 1/2 : 9	/0	Universal	. : N	L
	I	Horiza Vertia Double	e click time [ms] ard layout	: 4 5 : 200 : German : variab	Hotkey Fastkey DE,129 le	F1 00	
ЕХТ Туре		Enable Enable Update Displa Horizo	der OSD Data • CPU selection • connection info • connection info ay time [sec] ontal position cal position	: N N : 0 : 0			ļ
Input Signals	C#1 (C#2	Output Signals	C#1	C#2	New	L
DVI/VGA-CPU (video) HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON Cascade-CON			DVI/VGA-CON (video) HID-CPU (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU			Edit Delete Cancel Okay	
Enter a name to find an item SWITCH_01:1	_					Draco te	era

Fig. 87 OSD Menu Configuration - EXT Units

- 2.2. Enter an appropriate name for the Cascading CON Unit into the Name field.
- 2.3. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 2.4. Set the Cascade-CON option to Y (C#1) in the Input Signals column.
- 2.5. Click Okay to confirm the creation of a Cascading CON Unit.

3. Select **Configuration > CON Devices** in the main menu of the Master Matrix.

3.1. Click New R.

admin@CON_010191923 (920/2240) Configuration	F1:ID F2:Name F3:Next F4:Previous F5:Ret	ihse fresh F6:Find F9:Compare ESC
CON Devices		Virtual Device : N Allow CPU Scan : N Force CPU Scan : N Scan Time Isecl: 0 Port Mode : N Redundancy Off : N Reference : N Fix Color : ssigned 1923 0001 EXT_010191923
CPU Access Control List Full access	Video access 01001 CPU_020	0190418 Edit Delete Cancel Okay
SWITCH_01:1		Draco tera

A switchable CON Device will be created.

Fig. 88OSD Menu Configuration - CON Devices

- 3.2. Enter an appropriate name for the Cascading CON Device into the **Name** field.
- 3.3. Select the previously configured Cascading CON Unit in the EXT available list.
- 3.4. Press a to move the Cascading CON Unit to the **EXT assigned** list. The assignment is displayed in the **EXT assigned** list.
- 3.5. Click **Okay** to confirm the assignment.

- 4. Open the OSD of the Sub Matrix.
- 5. Select **Configuration > EXT Units** in the main menu of the Sub Matrix.
 - 5.1. Click **New**.

A new EXT Unit will be created.

admin@CON_010191923 (3244/4884) Configuration	F1:ID F2:Nam	e F3:Next F4:Previous F	5:Refresh	F6:Find F9	i Compare	ihse ESC
EXT Units	EXT Dat	a				
010100077 FVT 010100077	ID Name	: 10190037 : EXT_010190037	CPU/CO 01001 (N assigned CPU_0101900	037	L
010190037 EXT_010190037 010191923 EXT_010191923	Fixed	: N Port 1/2 : 9	/0	Universal	: N	
	Horizo Vertic Double	l OSD Data ntal mouse speed [1/x] al mouse speed [1/x] click time [ms] rd layout mode	: 4 : 5 : 200 : German : variab]		F1 00	l
ЕХТ Туре	Enable Enable Update Displa Horizo	er OSD Data CPU selection connection info connection info y time [sec] ntal position al position	: N N : 0 : 0 : 0			ļ
Input Signals C	#1 C#2	Output Signals	C#1	C#2	New	
HID-CON (keyb., mouse) Audio (analog, digital) RS232 (serial) USB-CON (embedded) USB-CON (standalone) Universal-CON	N N N N N N N N	DVI/VGA-CON (video) HID-CPU (keyb., mouse Audio (analog, digital) RS232 (serial) USB-CPU (embedded) USB-CPU (standalone) Universal-CPU Cascade-CPU) <mark>Y</mark> N N N N N		Edit Delete Cancel Okay	
Enter a name to find an item SWITCH_01:1					Draco t	tera

Fig. 89 OSD Menu Configuration - EXT Units

- 5.2. Enter an appropriate name for the Cascading CPU Unit into the Name field.
- 5.3. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 5.4. Set the Cascade-CPU option to Y (C#1) in the Output Signals column.
- 5.5. Click **Okay** to confirm the creation of a Cascading CPU Unit.

6. Select Configuration > CPU Devices in the main menu of the Sub Matrix.

6.1. Click New R.

admin@CON_010191923 (2140/13496 Configuration		ih us F5:Refresh F6:Find F9:Compare E
CPU Devices	CPU Data	
	ID : <u>1001</u>	Group : N Switch : N
01001 CPU_010190037	Name : CPU_01019003	
	Member of Group : not assigned Member of Switch: not assigned Remote CPU : not assigned CPU assigned :	not assigned
	Allow Private : N Force Private : N FIX Color : Reference : N	2 Step Access : N Exclusive Access : N MSC disabled : N CPU Colors : Accesson
	EXT available	EXT_assigned 010190037 0009 EXT_010190037
New R. New V. New G. Edit Delete	New S. New SP. New IPC	New SES Cancel Okay
Enter a name to find an item SWITCH_01:1		Draco te
Fig. 90 OSD Menu Configura	tion - CPU Devices	

A switchable CPU Device will be created.

6.2. Enter an appropriate name for the Cascading CPU Device into the **Name** field.

- 6.3. Press a to move the Cascading CPU Unit to the **EXT assigned** list. The assignment is displayed in the **Extender assigned** list.
- 6.4. Click **Okay** to confirm the assignment.

- 7. Select Configuration > System in the main menu of the Sub Matrix.
 - 7.1. Set the Sub Matrix option to Y.
 - 7.2. Click Okay to confirm the Sub Matrix option.

The OSD of the Sub Matrix will immediately freeze and will be only accessible by using the keyboard command Hot Key, s, o.

Configuration	ihse ESC
System Device SWITCH_01 Name Host name for network environment Name Standard Info Factory settings	
Sub Matrix:NAllow hotkey control in cascaded environmentLoad Default:NLoad always default configurationAuto Save:NSave matrix status automaticallyEnable COM Echo:NEcho all switch commands via COM portsEnable LAN Echo:NEcho all switch commands via LAN portsEnable Redundancy:YEnable automatic switching for redundant extendersSynchronize:NSynchronize matrix with master matrixEcho Only:NSynchronize matrix with echo onlyMaster IP Address:000.000	
Enable Auto ConfigYAssign new extender to a new CPU or CON unitID Real CPU Device1001Start ID for automatic assignment of real CPU devicesID Virt. CPU Device2001Start ID for automatic assignment of virtual CPU devicesID Real CON Device3001Start ID for automatic assignment of real CON devicesID Virt. CON Device4001Start ID for automatic assignment of virtual CON devices	
Invalid IO-Boards : N Keep IO-Boards with invalid firmware online for update Enable old Echos : N Echo internal switch commands with old format Remove IO-Boards : N Remove IO-Boards while missing the secondary controller board Keep Gridlines : N Keep gridlines connected while waiting for grid master	
OSD Data CPU	1
Horizontal mouse speed [1/x]: 4Global KeysVertical mouse speed [1/x]: 5Hotkey : F1Double click time [ms]: 200Keyboard layout: German DE,129	
SWITCH_01:1 Draco t	tera

Fig. 91 OSD Menu Configuration - System

- 8. Restart all I/O boards (see chapter 9.2.2, page 309) on which any Master/Sub CON Units or CPU Units have been configured or alternatively restart the matrix (see chapter 9.2.1, page 308).
- Connect the Tie Lines to the matrices. Ensure that each Cascade CON Device on one matrix is connected to Cascade CPU Device on the other matrix to achieve switching ability between two matrices.

The Matrix Cascading is now configured and can be used.

Additional Tie Lines are configured accordingly. The use of cascading is described in in chapter 8.1.1, page 290.

6.9 Configuring Matrix Grids

The softv

The merging of matrix configurations within a Matrix Grid is only possibly by using the management software.

In this menu you can configure a Matrix Grid to connect two or more matrices. This kind of configuration may become necessary if the number of ports in the entire system has to be increased or if certain important connections should be distributed to several matrices due to reasons of redundancy.

The connections between two matrices have to be established by so called Grid Lines that are connected between particular I/O ports as connecting links. The Grid Lines can be used bidirectionally and can respectively handle a full access connection of a CON Device to a CPU Device.

The number of Grid Lines in the system specifies, if a CON Device can be switched to a CPU Device in Non-Blocking Access or in Blocking Access and has to be separately determined for each Grid environment.

In this case Non-Blocking Access means that a Grid Line for a cross-matrix switching operation of a CON Device to a CPU Device is available at any time.

Whereas Blocking Access means that for a certain switching operation no Grid Line may be available according to the switching status within the Grid. The result will be that no cross-matrix switching will be possible.

Administration of Settings

Within a Matrix Grid you have to differ between settings that have to be made locally for each matrix and settings that can be made globally so that they are valid for the whole Matrix Grid.

The settings in the following menus have to be made separately for each matrix or within the master matrix to affect all matrices in the Grid:

System, Access, Switch, Network, Date + Time, SNMP, Matrix Grid, Multi-Screen Control



If global settings are made in the respective menus, they will be immediately available on each matrix within the Matrix Grid.

General Preparation

The following requirements have to be fulfilled before starting the Matrix Grid configuration:

- The Matrix Grid function (Bundle 4) must be activated on all matrices to be connected to the Grid by a license key (see chapter 7.13, page 284). Please contact the technical support of the manufacturer if the Bundle 4 is missing.
- Firmware V03.10 must be installed on all matrices to be connected to the Grid, but with the same firmware on each matrix.
- All matrices to be connected to the Grid must be within the same TCP/IP network (see chapter 6.3.5, page 82).
- Port 5556/5566 needed for network communication must not be blocked by a firewall.

Configuring a Matrix Grid

- 1
- After changing the configuration of the Matrix Grid, it is recommended to de-register the primary controller board and to boot the secondary controller board until the boot process is finished.



The following configuration steps have to be repeated for each matrix separately.

To configure a Matrix Grid, proceed as follows:

- 1. Click Configuration > System in the main menu.
- 2. Enter a unique name for each matrix into the **Device** field. Each name only may exist once within the Matrix Grid.
- 3. Enter a unique Grid name into the **Name** field. The Grid name has to be same within all Grid matrices.
- 4. Select Configuration > Matrix Grid in the main menu.

iguration System Device : <mark>SWITCH_01</mark> Name : Standard Info : Factory se	Host name for network environment Name of current matrix configuration ttings
Sub Matrix Load Default Auto Save Enable COM Echo Enable LAN Echo Enable Redundancy Synchronize Echo Only Master IP Address	 N Allow hotkey control in cascaded environment N Load always default configuration N Save matrix status automatically N Echo all switch commands via COM ports N Echo all switch commands via LAN ports Y Enable automatic switching for redundant extenders N Synchronize matrix with master matrix N Synchronize matrix with echo only 600 .000 .000
Enable Auto Config ID Real CPU Device ID Virt. CPU Device ID Real CON Device ID Virt. CON Device	: 3001 Start ID for automatic assignment of real CON devices
Invalid IO-Boards Enable old Echos Remove IO-Boards Keep Gridlines	 N Keep IO-Boards with invalid firmware online for update N Echo internal switch commands with old format N Remove IO-Boards while missing the secondary controller board N Keep gridlines connected while waiting for grid master
OSD Data CPU Horizontal mouse speed	
Vertical mouse speed Double click time [m Keyboard layout	



- 5. Activate the Enable Matrix Grid function.
- 6. Write all device names of the Grid matrices into the Matrix Grid list, starting in the left column.

Based on the listings, a Grid master will be automatically determined for the Matrix-Grid. The more on the top a matrix is listed in the matrix Grid list, the more likely the matrix is considered in the automatic master selection, provided that certain criteria like system availability are fulfilled.

- 7. Activate the single matrices in the Matrix Grid list by enabling the Y (YES) function.
- 8. Enter the number of chassis ports for each matrix (48, 80, 152, 160, 288 or 576).
- 9. Restart all matrices, beginning with the master matrix.

The Matrix Grid can be used now and offers the possibility for a cross-matrix switching of CON Devices to CPU Devices.

admin@C Configu	ON_0: ratio	10190841 on	(3712/2116)	-	-	-	-	-	-	-	ihse ESC
		Grid									- 64
	N		Matrix Grid	n) a m t a		Octivo	Deutee		Donto	
	*	Active N N N N N N N N N N N N N N N N N N N	JEVICE	0 0 0 0 0 0 0 0 0 0 0 0 0 0				Device	that grid	Ports 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
									Cance	1 Oka	y
SWITCH_	01:1									D	raco tera
Fig. 93	M	enu Cor	figuration -	System							

6.10 Saving and Activating a Configuration

NOTICE

By default, the last configuration that has been saved in the permanent matrix memory will be restored after a restart of the matrix.

First starting the matrix, the factory configuration will be copied into the current configuration. There are two possibilities to save configuration changes:

- Save the current configuration permanently in the matrix memory (Save) or
- Save the configuration in up to 8 predefined storage locations, as well as the default configuration in the memory of the matrix (**Save as...**)

6.10.1 Saving the Active Configuration

Admin@DPSWTTCH_0

NOTICE

Changing or saving configurations blocks the matrix memory and leads to a freeze of all OSD menus for a few seconds. The switching connections are not affected by this freeze.

If you select **Auto Save** within the system settings an additional automatic saving of the configuration will be periodically performed (see chapter 6.3.1, page 72).

To save the current configuration permanently in the matrix storage, proceed as follows:

Select Configuration > Save in the main menu.

The current configuration of the matrix is permanently saved to the matrix memory.

Configuration		
0pen		
System Input Output Display Options		
Network Date+Time SNMP		
User		
Save as		
Shut down MV Restart MV Factory Reset		
ing configuration	Draco Mu	

Fig. 94 OSD Menu Configuration - Save

6.10.2 Saving a Predefined Configuration

In this menu, the current configuration can be saved in up to eight storage locations in the permanent memory of the matrix memory (**File #1** to **File #8**).

In addition to the eight memory locations, there is also a standard storage location (Default). A configuration stored here can be loaded automatically every time the matrix is started instead of the last active configuration (see chapter 6.3.1, page 72).

The current configuration is saved to the selected memory location and is immediately displayed in this menu. The configuration previously saved at this memory location is overwritten. However, saving predefined configurations does not replace saving the active configuration (see chapter 6.10.1, page 142).

n@DPSWITCH-01		il
Save as		
Active :	Standard Factory settings	
Default	Standard Factory settings	
File #1	Standard Factory settings	
File #2	Standard Factory settings	
File #3	Standard Factory settings	
File #4	Standard Factory settings	
File #5	Standard Factory settings	
File #6	Standard Factory settings	
File #7	Standard Factory settings	
File #8	Standard Factory settings	

Fig. 95 OSD Menu Configuration - Save as...

Saving position	Name and detailed information
Active	Name and detailed information of the current configuration are shown. This configuration can be saved (function Save , see chapter 6.10.1, page 142).
Default	Name and detailed information of the respective saved configuration are shown. This storage location can be overwritten.
File #1 to File #8	Name and detailed information of the respective saved configuration are shown. These storage locations can be overwritten.

To save the created configuration to a specific memory location, proceed as follows:

- 1. Select Configuration > Save As... in the main menu.
- 2. Select the required storage location (File #1 to File #8) or Default.

The current configuration is saved to this storage location and is shown immediately in the menu. The previously saved configuration saved to this storage location is deleted.

6.10.3 Activating a Predefined Configuration

Previously saved configurations are displayed in this menu. In **Active**, the currently loaded configuration is displayed. To replace the current configuration by another configuration, in addition to the default configuration (**Default**), one out of eight further, customized configurations (**File #1** to **File #8**) can be activated.

NOTICE

Activating a configuration will immediately disconnect and restart the matrix. The selected configuration is loaded on restart and is shown in the menu as active configuration under **Active**. The previously active configuration is overwritten.

The restart of the matrix may take several minutes, and the matrix is not available during the restart.

ard ry settings ard ry settings ard ry settings ard ry settings ard ard ard		
ry settings ard ry settings ard ry settings ard ry settings ard		
ry settings ard ry settings ard ry settings ard		
ry settings ard ry settings ard ry settings ard ry settings ard ry settings		
		Cancel Okay

Fig. 96 OSD Menu Configuration - Open...

To activate a previously saved configuration, proceed as follows:

- 1. Select **Configuration > Open** in the main menu.
- 2. Select the desired configuration.
- 3. Click Okay to activate the selected configuration.

The selected configuration is immediately loaded and displayed in the menu as **Active**. The previously active configuration is overwritten.

7 Configuration via Management Software

NOTICE

Possible loss of configuration changes

By clicking **Apply**, changes are applied to the active configuration and saved in the volatile memory of the matrix. In the event of a sudden power failure, these changes are lost. To save changes permanently:

save the configuration changes into the active configuration (**Remote Save**, see chapter 7.11.1, page 274), save a predefined configuration (**Save as...**) (see chapter 7.11.2, page 275), or perform a restart (see chapter 12.2.1, page 318).

NOTICE

A change in system-relevant parameters (e.g., change in the IP address) is immediately displayed in the management software. To initialize system-relevant configuration changes on the matrix, the matrix must be restarted. The restart of the matrix may take several minutes, and the matrix is not available during the restart.



After changing the configuration of the system, we recommend to de-register the primary controller board and to boot the secondary controller board until the boot process is finished.

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Configurations can be saved as a file that can be stored independent of the matrix. We recommend saving a matrix status every time when a configuration has been changed.

7.1 Configuring in Online Mode

Configurations and system settings can be edited via management software in online mode with an active connection between matrix and management software. Hereby, the following steps are necessary:

1. Click **Connect** to connect the management software with the matrix.

When connecting the first time, the manufacturer-specific configuration (Factory Setting) saved on the matrix is loaded into the management software.

2. Click Activate Edit Mode in the toolbar.

The edit mode is active. A symbol is shown in the status bar.

- 3. Make any edits in the configuration and system settings.
- 4. Click **Apply** to confirm the changes.

The changes are applied immediately as the current configuration running in the volatile memory of the matrix.

- 5. Click **Remote Save** to save the configuration into the active configuration to the matrix.
- 6. Click Deactivate Edit Mode in the toolbar.
- 7. Click Save Status to save the matrix status (backup file).
- 8. Optionally: restart the system (depending on the settings made).

7.2 Configuring in Offline Mode

Configuration and system settings via management software can be changed in offline mode without a direct connection between matrix and management software. Afterwards, the configuration must be uploaded to the matrix. Hereby, the following steps are necessary:

1. Click **Connect** to connect the management software with the matrix.

When connecting the first time, the manufacturer-specific configuration (Factory Setting) saved on the matrix is loaded into the management software.

- Click **Download** in the toolbar to download the configuration.
 A download wizard will appear, and the downloaded configuration will be opened in a new tab.
- 3. Click **Disconnect** in the toolbar to close the connection from the management software to the matrix.
- 4. Make any edits at the configuration and system settings.
- 5. Click **Apply** to confirm the changes.

The changes apply immediately in the downloaded configuration.

6. Click **Upload** in the toolbar to upload the configuration to the matrix and activate it immediately (optional) or later.

It is recommended to save the status after uploading the matrix configuration settings as a backup file.

7.3 Setting Management Software Options

The settings of the management software can be customized and optimized to support the configuration of the matrix. The settings can be set in the offline mode.



To activate changes in the options menu, the management software must be closed and restarted.

7.3.1 Setting Program Default Settings

To avoid the repeated entry of data in the management software, this data can be saved in the default settings.

Options							×
∜ Default Settings	Style	Language	Miscellaneous	Syslog	SNMP		
IP/Hostname User			92.168.100.202 dmin				
Configuration Directo	ory	С	:\Draco Multiview\(Configurat	tion		
Firmware Directory							
Status Directory							
Import/Export Directo	ry	С	:_Matrix\Import_E	xport			
Preset Directory		С	:_Matrix\Presets				
						<u>O</u> k	C <u>a</u> ncel

Fig. 97 Management software menu - Example Extras - Options - Default Settings

Option	Description
IP/Hostname	Default IP address or host name of the matrix for establishing a connection.
User	Default username for establishing a connection.
Configuration Directory	Default directory for configuration files.
Firmware Directory	Default directory for firmware files.
Status Directory	Default directory for status files.
Import/Export Directory	Default directory for import and export files.
Presets Directory	Default directory for macro files.

To activate or set the default settings, proceed as follows:

1. Select **Extras > Options** in the menu bar.

The **Options** menu opens and shows the **Default Settings** tab.

- 2. Enter the appropriate data.
- 3. Click **Ok** to confirm the entries.
- 4. Close the management software and restart it.

7.3.2 Setting Font Size, Tooltip, and Theme

The font size, the theme, and the display of tooltips for the toolbar can be set in this menu.

- 1. Select Extras > Options in the menu bar and open the Style tab.
- 2. Select the desired font size (Normal or Large).
- 3. Tick the **Show Toolbar Button Text** checkbox to display a tooltip when hovering over a in the toolbar.
- 4. Select the color theme for the management software (Default (Dark Gray), Light Gray or Dark).
- 5. Click **Ok** to confirm the changes.
- 6. Close the management software and restart it.

Options						×
∜ Default Settings S	yle Language	Miscellaneous	Syslog	SNMP		
Font Size Show Toolbar Button Te Themes	Light	Gray				
					<u>O</u> k	C <u>a</u> ncel

Fig. 98 Management software menu Extras - Options - Style

7.3.3 Setting the Language of the Management Software

The language within the management software is set in this menu. The charset must match the selected language to ensure correct representation.

- 1. Select **Extras > Options** in the menu bar and open the **Language** tab.
- 2. Select the desired language within the management software and the corresponding charset.
- 3. Click **Ok** to confirm the changes.
- 4. Close the management software and restart it.

Options							×
▲ Default Settings	Style	Language	Miscellaneous	Syslog	SNMP		
Language		Defa	ult 🔹	·			
						<u>O</u> k	C <u>a</u> ncel

Fig. 99 Management software menu Extras - Options - Language



If using only Linux-based matrix systems, it is possible to enter Chinese characters. Therefore, a respective firmware package has to be installed and the Chinese Encoding has to be enabled in the system settings. Please contact the manufacturer's technical support for further information.

7.3.4 Setting Autostart of the Device Finder

Additional options for the matrix can be enabled in this menu.

Options						×
🔧 Default Settings	Style	Language	Miscellaneous	Syslog	SNMP	
Device Finder on sta	rtup					
Name adoption (Ext Unit ↔ Device)						
Show Super Grid Vie	w					
Show power backpla and fan firmware	ine					
Enable single I/O boa update on compact s						
Enable splitted firmw extender) for master switch						
						<u>O</u> k C <u>a</u> ncel

Fig. 100 Management software menu **Extras - Options - Miscellaneous**

5 1	
Option	Description
Device Finder on startup	Start the Device Finder automatically when starting the management software.
Name adoption	Entered name for a CON/CPU Device is also applied to the EXT Unit and vice versa.
Show Super Grid View	Show the Super Grid option in the task area.
Show power backplane and fan firmware	Show the firmware of the fans and the power backplane in the menu Status & Updates > Status- Matrix Firmware .
Enable single I/O board update on compact switch	Option available only for Draco tera compact and Draco tera flex.
Enable splitted firmware update (matrix and extender) for master and sub part of the 576 matrix	Option available only for Draco tera enterprise 576.

The following options can be enabled:

To start the Device Finder automatically when starting the management software, proceed as follows:

- 1. Select Extras > Options in the menu bar and open the Miscellaneous tab.
- 2. Tick the Device Finder on startup checkbox.
- 3. Click **Ok** to confirm the changes.
- 4. Close the management software and restart it.

After restarting the management software, the **Device Finder** appears.

7.4 System Settings

7.4.1 Setting the System Configuration

The system configuration is set in this menu.

			-	
<u>File Edit Device Extras ?</u>				
i 💷 🔚 🂭 💷 🛛				
Open Save Reload Connect Dis	connect Activate Edit Mode Remote S	ave Download Upload Monitoring Flash Update Device Finder System Check Save Status		
20220215.zip Master ×				
View ^	System Settings - System			
Matrix	General Automatic ID Globa	OSD Settings OSD Data (CPU) Synchronization Mode		
Port				Show Help
Grid				Show help
Control	Device	KVM_DV03		
Control		Host name for network environment (recommended characters: a-z, A-Z, 0-9,)		
	Name	IHSE-KVM-Grid		
Extended Switch		Name of current configuration		
Presets		IHSE KVM Matrix-Grid (DV03, DV01)		
Status & Updates	Info			
Status - Matrix Firmware		Description of current configuration		
Status - Extender Firmware	Sub Matrix			
Update - Matrix Firmware		Allow hotkey control in cascaded environment		
Update - Extender Firmware	Load Default			
Activate Configuration		When performing a cold start or a restart of the matrix, the configuration stored in Default will always be activated		
Miscellaneous	Auto Save			
System Settings		Save matrix status automatically		
System	Enable COM Echo			
Access		Echo all switch commands via communication ports		
Switch	Enable LAN Echo	\checkmark		
Network		Echo all switch commands via LAN ports		
Date and Time	Enable Redundancy	\checkmark		
Matrix Grid		Enable automatic switching for redundant extenders		
Extender & Devices	Primary Preferred	\checkmark		
EXT Units		Prefer the primary port for redundant extenders		
CPU Devices	Invalid I/O Boards			
CON Devices		Requires cold start of the matrix, shall/must be OFF during normal operation		
User Settings	Enable Old Echo	Echo internal switch commands with old format		
User Settings	Remove I/O Boards			
Users & Groups	Remove I/O Boards	Remove VO Boards while missing the secondary controller board (576)		
Assignment ^				
Virtual CPU Devices			_	
Virtual CON Devices			Apply	Cancel
Multi-Screen Control	Y			
		Default		

Fig. 101 Management software menu System Settings - System - General

The following parameters can be configured:

System

Field	Entry	Description
Device	Text	Enter the device name of the matrix (default: SWITCH_01). The device name is used as the host name in the network.
Name	Text	Enter the name of the configuration that is used to save the current settings (default: Standard).
Info	Text	Enter additional text to describe the configuration if required (default: Factory settings).
Sub Matrix	Activated	If the matrix is defined as a sub matrix in the OSD, the user will lose control. Control can be recovered by using the keyboard command Hot Key, s, o. The OSD for the matrix that has been defined as sub matrix will be reopened.
	Deactivated	Function not active (default).

Field	Entry	Description
Load Default	Activated	Start the matrix after a restart or a switch-on with the default configuration.
	Deactivated	Start the matrix after a restart or a switch-on with the last saved configuration (default).
Auto Save	Activated	Save the current configuration of the matrix in the flash memory periodically. Note: During the save operation, the matrix will not be operational. Saving takes place every 600 seconds if changes of the configuration or switching operations have been executed in the meantime.
	Deactivated	Function not active (default).
Enable COM Echo	Activated	Send all switching commands performed in the matrix as an echo via serial interface. Note: This function should be enabled when using a media controller via serial interface.
	Deactivated	Function not active (default).
Enable LAN Echo	Activated	 Send all switching commands performed in the matrix as an echo via LAN connection. Note: This function should be enabled when using a media controller via LAN connection or when using stacking with two or more matrices.
	Deactivated	Function not active (default).
Enable Redundancy	Activated	Automatically switch to the second link of a connected redundant CON Unit when losing the primary link of a CPU Unit (default). Note : This function will have to be activated for both matrices in a fully redundant setup.
	Deactivated	Function not active.
Primary Preferred	Activated	 Prefer the primary interconnect port for redundant CON/CPU Units (default). It is recommended to activate this function to ensure the Link is switched back to Link 1 if, e.g., an interconnect cable at interconnection port 1 was temporarily disconnected.
	Deactivated	Function not active.
Invalid IO-Boards	Activated	Keep I/O boards with incorrect or invalid firmware online in the matrix. Note : To keep an I/O board with wrong or damaged firmware online in the matrix, the maintenance mode of the matrix will be activated.
	Deactivated	Shut down I/O boards with incorrect or invalid firmware automatically (default).
Enable old Echo	Activated	Translate the current switching command (implemented since V02.09) internally into the old, already known switching commands and send them as echo.
	Deactivated	Function not active (default).

Field	Entry	Description
Remove IO-Boards	Activated	Note: Only for Draco tera enterprise 576: Shut down I/O boards if the second controller board is not available. Connections will be disconnected.
	Deactivated	Function not active (default).

To set parameters for the system configuration, proceed as follows:

- 1. Click **System Settings > System** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Change the desired settings.
- 4. Click **Apply** to confirm your entries.
- 5. Click **Deactivate Edit Mode** in the toolbar.

7.4.2 Enabling the Automatic Creation of Real CPU and CON Devices

The assignment of EXT Units to real CON or CPU Devices can be made manually or automatically when connecting a new extender module to the matrix.

The settings for automatic creation of CPU and CON Devices and the initial values for the ID numbers of real or virtual CON or CPU Devices are set in this menu.

File Fall Davies Falses 0			– 🗆 X
File Edit Device Extras ?		👎 👎 🔤 🧵 📗	
Open Save Reload Connect Dis		· · · · · · · · · · · · · · · · · · ·	
20220215.zip Master ×			
View ^	System Settings - System		
Matrix Port	General Automatic ID Global	OSD Settings OSD Data (CPU) Synchronization Mode	✓ Show Help
Grid			▼ Show Help
Control	Enable Auto Config	Assign new EXT Unit to a new CPU or CON Device	
Control ^	ID Real CPU Device	1001	
Extended Switch		Start ID for automatic assignment of real CPU Devices	
Presets	ID Virtual CPU Device	2001	
Status & Updates		Start ID of created Virtual CPU Devices	
Status - Matrix Firmware	ID Real CON Device	3001	
Status - Extender Firmware		Start ID for automatic assignment of real CON Devices	
Update - Matrix Firmware	ID Virtual CON Device	4001 Start ID of created Virtual CON Devices	
Update - Extender Firmware Activate Configuration		Start ib of created virtual Coll Devices	
Miscellaneous			
System Settings			
System			
Access			
Switch			
Network			
Date and Time Matrix Grid			
Extender & Devices			
EXT Units			
CPU Devices			
CON Devices			
User Settings			
Users & Groups			
Assignment ^			
Virtual CPU Devices			
Virtual CON Devices			Apply Cancel
Multi-Screen Control	×	Default	

Fig. 102 Management software menu System Settings - System - Automatic ID

Field	Entry	Description
Enable Auto Config	Activated	Enable the automatic creation of a new CPU or CON Device if new extender modules are connected (default). The new CON or CPU Device is assigned to the automatically created EXT Unit of the extender module.
	Deactivated	Function not active
ID Real CPU Device	Numerical	Enter the initial value for automatic assignment of real CPU Devices (default: 1001).
ID Virtual CPU Device	Numerical	Enter the initial value for created virtual CPU Devices (default: 2001).
ID Real CON Device	Numerical	Enter the initial value for automatic assignment of real CON Devices (default: 3001).
ID Virtual CON Device	Numerical	Enter the initial value for created virtual CON Devices (default: 4001).

To set up the automatic creation of CPU Devices or CON Devices, proceed as follows:

- 1. Click **System Settings > System** in the task area.
- 2. Click the **Automatic ID** tab in the working area.
- 3. Click Activate Edit Mode in the toolbar.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm your entries.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.4.3 Setting the Matrix OSD Access

The Hot Key for accessing the command mode and the Fast Key to open the matrix OSD are configured in this menu.

<u>File Edit Device Extras ?</u>			- 🗆 X
Open Save Reload Con	nect <u>D</u> isc	connect Activate Edit Mode Remote Save Download Upload Vpload Device Finder System Check Save Status	
20220215.zip Master ×			
View	~ 4	System Settings - System	
Matrix Port Grid Control		General Automatic ID Global OSD Settings OSD Data (CPU) Synchronization Mode Hot Key Pre-configured Hot Key	☑ Show He
Control	^	Keyboard sequence to access the command mode Fast Key Pre-configured Fast Key	
Extended Switch Presets		Fast Key Pre-configured Fast Key Keyboard sequence to access the command mode and to open the OSD	
Status & Updates	^		
Status - Matrix Firmware Status - Extender Firmware Update - Matrix Firmware Update - Extender Firmware Activate Configuration Miscellaneous			
System Settings	^		
System Access Switch Network Date and Time Matrix Grid			
Extender & Devices	^		
EXT Units CPU Devices CON Devices			
User Settings	^		
Users & Groups			
Assignment	^		
Virtual CPU Devices Virtual CON Devices Multi-Screen Control		x	Apply Cance
		Default	

Fig. 103 Management software menu System Settings - System - Global OSD Settings

The following parameters can be configured:

Field	Entry	Description
Hot Key	Keyboard command	Call the command mode via keyboard sequence.
Fast Key	Keyboard command	Open the OSD via direct access (default: 00). How often the shortcut key has to be pressed depends on the specified key: 1x for function keys or print key, 2x for all other keys.

Settings for Global Hot Key and Fast Key

Field	Entry	Description
Hot Key/Fast Key	00	No global Hot Key/Fast Key defined, no modification of the extender module.
	01 to FE	Overwrite the Hot Key/Fast Key of the extender module with the entered value of the global Hot Key/Fast Key.
	FF	Deactivate the Hot Key/Fast Key of the extender module.

Valid values for the Hot Key and the Fast Key are USB-HID keyboard scan codes according to US keyboard layout.

To set modifier keys for the Hot Key and the Fast Key use the following values:

Entry	Modifier Key
F0	Left Ctrl
F1	Left Shift
F2	Left Alt
F4	Right Ctrl
F5	Right Shift
F6	Right Alt

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Hot Key or Fast Key set in the CON EXT Units have priority over the global settings.

To configure global OSD settings, proceed as follows:

- 1. Click **System Settings > System** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the Global OSD Settings tab in the working area.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm the changes.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.4.4 Setting the Mouse and Keyboard for Usage at the Controller Card

<u>File Edit Device Extras ?</u>			- 🗆 ×
🗁 🖹 💭 💷 🛛	connect Activate Edit Mode Remote Sa	Pownload Upload Download Upload	
20220215.zip Master ×			
View ^	System Settings - System		
Matrix Port Grid	General Automatic ID Global	DSD Settings OSD Data (CPU) Synchronization Mode	✓ Show He
Control	Horizontal Mouse Speed [1/x]	4 🗘	
Control ^ Extended Switch Presets	Vertical Mouse Speed [1/x]	Adjustment of the horizontal mouse speed 5 Adjustment of the vertical mouse speed	
Status & Updates	Double Click Time [ms]	200 C Adjustment of the time slot for a double click	
Status - Matrix Firmware Status - Extender Firmware Update - Matrix Firmware Update - Extender Firmware Activate Configuration Miscellaneous System Settings System Access Switch Network Date and Time Matrix Grid	Keyboard Layout	German (DE, 129)	
Extender & Devices			
EXT Units CPU Devices CON Devices			
User Settings			
Users & Groups			
Assignment 🔨			
Virtual CPU Devices Virtual CON Devices Multi-Screen Control			Apply Cancel
mula-screen control		Default	

Fig. 104 Management software menu System Settings - System - OSD Data (CPU)

The following parameters can be configured:

Field	Entry	Description
Horizontal Mouse Speed [1/x]	1 to 9	Adjust the horizontal mouse speed with 1 = fast, 9 = slow (default: 4).
Vertical Mouse Speed [1/x]	1 to 9	Adjust the vertical mouse speed with 1 = fast, 9 = slow (default: 5).
Double-click Time [ms]	100 to 800	Adjust the time slot for a double-click (default: 200).
Keyboard Layout	Region	Set the OSD keyboard layout according to the keyboard used (default: German (DE)).

To set up the mouse and keyboard for usage at the controller board, proceed as follows:

- 1. Click System Settings > System in the task area.
- 2. Click the OSD Data (CPU) tab in the working area.
- 3. Click Activate Edit Mode in the toolbar.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm your entries.
- 6. Click Deactivate Edit Mode in the toolbar.

7.4.5 Setting the Synchronization Mode

The settings for the synchronization mode are set in this menu.

File Fill Device Fature 0			- 🗆 X
Eile Edit Device Extras ?	connect Activate Edit Mode Remo	ite Save Download Upbad Upbad	
20220215.zip Master ×			
View ^	System Settings - Syst	em	
Matrix	General Automatic ID G	obal OSD Settings OSD Data (CPU) Synchronization Mode	
Port			✓ Show He
Grid			
Control	Enable LAN Echo	\checkmark	
Control ^		Echo all switch commands via LAN ports	
control	Synchronize		
Extended Switch		Synchronize matrix with master matrix	
Presets	Echo Only		
Status & Updates		Synchronize matrix with echo only	
Suus a opuncs	Master IP Address	0.0.0	
Status - Matrix Firmware		Network address of the controller board of the master matrix (only editable via OSD)	
Status - Extender Firmware	Master ID Address 2	0.0.0.0	
Update - Matrix Firmware	Master IP Address 2		
Update - Extender Firmware		Network address of the redundant controller board of the master matrix (only editable via OSD)	
Activate Configuration			
Miscellaneous			
System Settings			
System			
Access			
Switch			
Network			
Date and Time			
Matrix Grid			
Extender & Devices			
EXT Units			
CPU Devices			
CON Devices			
User Settings			
Users & Groups			
Assignment ^			
Virtual CPU Devices			
Virtual CON Devices			Apply Cance
Multi-Screen Control	¥		
		Default	

Fig. 105 Management software menu System Settings - System - Synchronization Mode

Field	Entry	Description
Enable LAN Echo	Activated	Send all switching commands performed in the matrix as an echo via LAN connection. Note: This function should be enabled when using a media controller via LAN connection or when using stacking with two or more matrices.
	Deactivated	Function not active (default).
Synchronize	Activated	Synchronize the sub matrix to the switch status of the master matrix.
	Deactivated	Function not active (default).
Echo Only	Activated	Synchronize the matrix according to the echo of a second matrix. Note: This is a bidirectional synchronization where both matrices have to be configured as Synchronize with the Master IP of the respective other matrix.
	Deactivated	Function not active (default).

Field	Entry	Description
Master IP Address	Byte	Set the network address of the master matrix (default: 000.000.000.000).
Master IP Address 2	Byte	Set the network address of the master matrix (default: 000.000.000.000).

To set up the synchronization of the sub and the master matrix, proceed as follows:

- 1. Click **System Settings > System** in the task area.
- 2. Click the **Synchronization Mode** tab in the working area.
- 3. Click Activate Edit Mode in the toolbar.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm your entries.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.4.6 Setting the Access Configuration

The access configuration is set in this menu.

<u>F</u> ile <u>E</u> dit Device <u>Ex</u> tras	0			- 🗆 ×
Open Save Reload Co	onnect <u>D</u> isco	nnnect Activate Edit Mode Ren	Tess ve Download Upload Upload Wontoring	
20220215.zip Master ×				
View	^ *	System Settings - Acc	ess	
Matrix				Show Hel
Port		Access Settings		
Grid Control		Force User Login		
	_		Require user login to enter OSD	
Control	^	Enable User ACL		
Extended Switch			Enable CPU Access Control List for all users	
Presets		Enable CON ACL	\checkmark	
Status & Updates	~		Enable CPU Access Control List for all CON Devices	
		OR User/CON ACL		
Status - Matrix Firmware			OR-Connective: user and CON Access Control List (extend access)	
Status - Extender Firmware	e	AND User/CON ACL	\checkmark	
Update - Matrix Firmware			AND-Connective: user and CON Access Control List (reduce access)	
Update - Extender Firmwar	re	Enable New User		
Activate Configuration Miscellaneous			Enable CPU access for new users	
Miscellaneous	_	Enable New CON		
System Settings	^		Enable CPU access for new CON Devices	
System		Auto Disconnect		
Access			Disconnect CON from current CPU upon opening the OSD	
Switch		OSD Timeout [sec]	0	
Network			Specify inactivity time to quit OSD automatically (0 = deactivated)	
Date and Time		Auto Logout [min]	-1	
Matrix Grid			Specify inactivity time for automatic user logout (0 = immediate, -1 = unlimited)	
Extender & Devices	~	Keep CPU		
Extender & Devices			Keep CPU connection after Auto Logout	
EXT Units		Show CPU		
CPU Devices			Show CPU connection info on all CON units	
CON Devices				
User Settings	~			
Users & Groups				
Assignment	^			
Virtual CPU Devices				
Virtual CON Devices				Apply Cancel
Multi-Screen Control				
Config reloaded			Default	

Fig. 106 Management software menu System Settings - System - Access

Field	Entry	Description
Force User Login	Activated	The user has to login with a username and a password once to enter OSD. Thereafter the user remains logged in until he explicitly logs out or an auto logout is affected.
		Note: When using the Force User Login function, CON Device ACL (Access Control List) is still active. When the Force User Login function is activated and a user is logged in, only the user favorites are available. The CON favorites are not accessible.
	Deactivated	Function not active (default).
Enable User ACL	Activated	CPU Device access is restricted according to the permissions in the ACL.User login is required.
		• Switching by keyboard Hot Keys requires a prior login.
	Deactivated	Function not active (default).
Enable CON ACL	Activated	CPU Device access is restricted according to the permissions in the respective CON Device ACL. No login required.
	Deactivated	Function not active (default).

Field	Entry	Description
OR User/CON ACL	Activated	The user obtains the sum of access rights from the CON Device and his personal access rights after logging in (extended access).
	Deactivated	Function not active (default).
AND User/CON ACL	Activated	The user obtains the common divisor of access rights from the CON Device and his personal access rights after logging in (reduced access).
	Deactivated	Function not active (default).
Enable New User	Activated	Newly created users automatically receive access to all CPU Devices.
	Deactivated	Function not active (default).
Enable New CON	Activated	Newly created CON Devices automatically receive access to all CPU Devices.
	Deactivated	Function not active (default).
Auto Disconnect	Activated	Upon opening the OSD, the CON Device will be automatically disconnected from the current CPU Device.
	Deactivated	Function not active (default).
OSD Timeout [sec]	0 to 999 seconds	Period of inactivity after which OSD will be closed automatically.Select 0 seconds for no timeout.(Default: 0 seconds).
Auto Logout [min]	0 to 999 minutes	 Period of inactivity of a logged-in user at a CON Device after which he will be automatically logged out. In addition to the logout process, a complete disconnection from the connected CPU Device occurs under Full Access and Private Mode. Select 0 minutes for an automatic user logout when leaving OSD. Using the setting -1 allows the user to be logged in permanently, until a manual logout is executed. The timer is not active as long as the OSD is open (default: 0 minutes).
Keep CPU	Activated	Keep the connection to the CPU Device active in the background after Auto Logout. After a new login there is no need to re-connect to the CPU Device.
	Deactivated	Function not active (default).
Show CPU	Activated	Permanently show the name of the currently connected CPU Device in the Connection Info box.
	Deactivated	Function not active (default).

To set the access configuration, proceed as follows:

- 1. Select **System Settings > Access** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Change the desired settings.
- 4. Click **Apply** to confirm your entries.
- 5. Click **Deactivate Edit Mode** in the toolbar.

7.4.7 Setting the Switch Configuration

This menu enables shared operation of a CPU Device by two or more CON Devices. A CPU Device can be controlled by only one CON Device at a time but can be taken over successively by other CON Devices. Control of a CPU Unit by a CON Unit is relinquished after the expiration of an associated inactivity timer with the controlling CON Device. The mouse or keyboard may also be used to take over control.

To allow a smooth and accurate function of the shared operation, you should use identical mice and keyboards. They should be connected to the same USB-HID ports of each CON Unit. The alternative is using the USB-HID Ghosting (see chapter 8.3.2.2, page 296).



When taking over control within 10 s, any assigned USB 2.0 EXT Unit if available, will not be switched due to security and stability aspects.

The shared operation will be deactivated between CON Devices with a different priority as well as the Release Time.

The switching parameters are set in this menu.

				-		
<u>File Edit Device Extras ?</u>						
Open Save Reload Connect Dis	connect Activate Edit Mode Remote S	ve Download Upload Monitoring Flash Update Device Finder System Check Save Status				
20220215.zip Master ×						
View ^	System Settings - Switch					
Matrix					✓ Show He	lp
Port	Switch Settings					
Grid	Enable Video Sharing	\checkmark				
Control		Allow shared video access to CPU				
Control 🔨	Force Connect	\checkmark				
Extended Switch		Enforce full KVM access to CPU, other consoles retain video				
Presets	Force Disconnect					
Status & Updates		Enforce full KVM access to CPU, other consoles are disconnected				
Status - Matrix Firmware	CPU Auto Connect	Connect to next available CPU, requires keyboard or mouse				
Status - Extender Firmware	CPU Timeout [min]	600				
Update - Matrix Firmware	CF0 filleout [fillin]	Specify inactivity period at currently connected CPU after which CPU will be disconnected automatically (0 = di	eactivated)			
Update - Extender Firmware	Keyboard Connect	√	,			
Activate Configuration	nojboura connect	Enable CPU control request by keyboard activity				
Miscellaneous	Mouse Connect	√				
System Settings		Enable CPU control request by mouse activity				
System	Release Time [sec]	0				
Access		Specify inactivity time to accept CPU control request from another console				
Switch	Macro Single Step					
Network		Execute macros in a single step mode				
Date and Time						
Matrix Grid						
Extender & Devices						
EXT Units						
CPU Devices						
CON Devices						
User Settings						
Users & Groups						
Assignment ^						
Virtual CPU Devices				_		
Virtual CON Devices				A	pply Cancel	
	Y					
Config reloaded		Default				

Fig. 107 Management software menu System Settings - System - Switch

Field	Entry/Status	Description
Enable Video Sharing	Activated	The user can switch to any CPU Device as an observer, including ones that are already assigned to another user (observer without keyboard/mouse access). Note: The switching has to be performed by pressing Space, not Enter. The operator only will be informed if further users connect as an observer to the CPU Device that is connected to his CON Device if the option Update Connection Info is activated for his CON EXT Unit (see chapter 7.8.2, page 238).
	Deactivated	Function not active (default).
Force Connect	Activated	The user can connect to every single CPU Device as an operator, including ones that are related to another user. Note: The previous user is set to Video Only status. To share K/M control, Force Connect has to be activated.
	Deactivated	Function not active (default).
Force Disconnect	Activated	Extension of Force Connect : If the user connects as an operator to a CPU Device already related to another user, the previous user will be disconnected. Note: To share K/M control Force Disconnect has to be deactivated and Enable Video Sharing has to be activated.
	Deactivated	Function not active (default).
CPU Auto Connect	Activated	If a CON Device is not connected to a CPU Device, you can establish an automatic connection to the next available CPU Device by hitting any key or mouse button.
	Deactivated	Function not active (default).
CPU Timeout [min]	0 to 999 minutes	Period of inactivity after which a CON Device will be automatically disconnected from its current CPU Device (default: 0 minutes).
Keyboard Connect	Activated	Activate request of K/M control by keyboard event (key will be lost).
	Deactivated	Function not active (default).
Mouse Connect	Activated	Activate request of K/M control by mouse event.
	Deactivated	Function not active (default).
Release Time [sec]	0 to 999 seconds	 Period of inactivity of a connected CON Device after which K/M control can be requested by other CON Devices connected to the CPU Device. Note: Set "0" for an immediate transfer in real-time. Only one CON Device can have keyboard and mouse control at a time. The other CON Devices that are connected to the same CPU Device have a Video Only status (default: 10 sec.).
Macro Single Step	Activated	Execute macro commands sequentially.
	Deactivated	Function not active (default).

To configure shared operation, proceed as follows:

- 1. Click **System Settings > Switch** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Tick the Enable Video Sharing checkbox.
- 4. Tick the Force Connect checkbox.
- 5. Tick the **Keyboard Connect** checkbox if taking over control by a keyboard event is to be permitted.
- 6. Tick the **Mouse Connect** checkbox if taking over control by a keyboard movement should be possible.
- 7. Define a **Release Time** of inactivity (0 to 999 seconds) after which control can be taken over.
- 8. Click **Apply** to confirm the changes.
- 9. Click Deactivate Edit Mode in the toolbar.

Keyboard Connect and/or Mouse Connect are only effective if Force Connect and/or CPU Auto Connect are activated.

If the **Keyboard Connect** and/or **Mouse Connect** options are enabled, the **Keyboard Connect** and/or **Mouse Connect** will not take effect until the time interval entered in the **Release Time** has elapsed.

7.4.8 Setting the Network Configuration

NOTICE

To initialize system-relevant configuration changes, the matrix must be restarted. Restarting the matrix may take several minutes, and the matrix is not available during the restart.

NOTICE

Consult your system administrator before changing the network parameters. Otherwise, unexpected results and failures can occur in combination with the network.

The parameters for the network configuration are set in this menu.

				– 🗆 X
<u>File Edit Device Extras ?</u>				
Open Save Reload Connect Dis	connect Activate Edit Mode Remote S	e Download Upload Monitoring Flash Update Device Finder	System Check Save Status	
20220215.zip Master ×				
View ^	System Settings - Networ			
Matrix	General Syslog SNMP LD	3		A
Port				✓ Show Help
Grid Control	Dual Interface			
Control		Enable Dual Network Interface (only available in offline mode)		
	Network Settings - Controller B	rd 1 (Online changes require a matrix restart)		
Extended Switch Presets	DHCP			
Status & Updates	IP Address	Dynamic configuration of network parameters via DHCP server 192.168.170.168		
	Subnet Mask	255 . 255 . 255 . 0		
Status - Matrix Firmware Status - Extender Firmware				
Update - Matrix Firmware	Gateway	192 . 168 . 170 . 1		
Update - Extender Firmware	MAC Address	00:21:5F:04:00:24		
Activate Configuration Miscellaneous	Network Settings - Controller B	rd 2 (Online changes require a matrix restart)		
System Settings	DHCP	\checkmark		
	IP Address	Dynamic configuration of network parameters via DHCP server		
System Access		192 . 168 . 100 . 98		
Switch	Subnet Mask	25 . 255 . 255 . 0		
Network Date and Time	Gateway	192 . 168 . 100 . 1		
Matrix Grid	MAC Address	Unknown		
Extender & Devices	Multicast (Online changes requ	a matrix restart)		
EXT Units	Multicast	255 . 255 . 255 . 255		
CPU Devices	Network Services (Online chan	Grid Multicast or Broadcast (255.255.255.255), s require a matrix restart)		
CON Devices	API Service	V		
User Settings 🔨		Enable API service (Port:5555/5565)		
Users & Groups	SSL Support			
Assignment ^		Enable SSL for secure communication		
Virtual CPU Devices	GRID Service	V		*
Virtual CON Devices				Apply Cancel
Multi-Screen Control	v		Default	
			Dordan	

Fig. 108 Management software menu System Settings - Network - General

Field	Status	Description
Dual Interface	Activated	Redundant network connection is deactivated. Note: This option can be changed only in offline mode.
	Deactivated	Redundant network connection is activated (default).

Network Settings - Controller Board

Field	Entry/Status	Description
DHCP	Activated	The network settings are automatically supplied by a DHCP server. Note: If DHCP is activated and there is no physical network connection available, the boot times might increase.
	Deactivated	Function not active (default).
IP Address	Byte	Input of the IP address if DHCP is not active (default: 192.168.100.99).
Subnet Mask	Byte	Input of the subnet mask in the form "255.255.255.0" if DHCP is not active (default: 255.255.255.0).
Gateway	Byte	Input of the gateway address in the form "192.168.1.1" if DHCP is not active.
MAC Address	Byte	Unchangeable, is retrieved automatically.

Multicast

Field	Entry	Description
Multicast	Byte	Input of the Multicast address if there is a Matrix Grid in use within a Multicast group (default is broadcast: 255.255.255.255).

Network Services

Field	Status	Description
API Service	Activated	Activate the LAN interface at the matrix activated for access via management software (API service port 5555/5565) (default).
	Deactivated	Function not active.
SSL Support	Activated	Activate SSL encryption for API, management software (API), management software and Matrix Grid communication.
	Deactivated	Function not active (default).
Grid Service	Activated	Activate Grid interface at the matrix for access via management software (Grid Service Port 5557/5567).
	Deactivated	Function not active (default).

To set parameters for the network configuration, proceed as follows:

- 1. Click System Settings > Network in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Change the desired settings.
- 4. Click **Apply** to confirm your entries.
- 5. Click **Deactivate Edit Mode** in the toolbar.

7.4.9 Setting the Syslog Function

NOTICE

For an activation of the Syslog function or changes of the IP address, a restart of the matrix or the controller board is necessary. Restarting the matrix or the controller board may take several minutes, and the matrix is not available during the restart.

			- 🗆 ×
<u>File</u> <u>E</u> dit Device Extras ?			
Image: Save Reload Image: Connect Disconnect	ect Activate Edit Mode Remote Sav	ve Download Uplad Download	
20220215.zip Master ×			
View ^ 🔺	System Settings - Network		
Matrix	General Syslog SNMP LDA	P	A
Port			✓ Show Help
Grid Control	Syslog Server 1 (Online changes	require a matrix restart)	
	Enable Syslog	V	
		Enable Syslog Messages for status reporting	
Extended Switch Presets	Syslog Server	192 . 168 . 170 . 155	
	Port	514	
	Log Level	Debug 📃 Info 🗸 Notice 🗸 Warning 🗸 Error 🗸	
Status - Matrix Firmware Status - Extender Firmware	Syslog Server 2 (Online changes	require a matrix restart)	
Status - Exterider Firmware	Enable Syslog	√	15
Update - Extender Firmware		Enable Syslog Messages for status reporting	
	Syslog Server	192 . 168 . 170 . 81	
Miscellaneous	Port	514	
System Settings	Log Level	Debug Info V Notice V Warning V Error V	
System			
Access			
Switch Network			
Date and Time			
Matrix Grid			
Extender & Devices			
EXT Units			
CPU Devices			
CON Devices			Apply Cancel
· · · · · · · · · · · · · · · · · · ·		Default	

The parameters for the Syslog function are set in this menu:

Fig. 109 Management software menu System Settings - Network - Syslog

Field	Entry/Status	Description
Enable Syslog	Activated	Activate the Syslog server to query status requests.
	Deactivated	Function not active (default).
Syslog Server	Byte	Enter the IP address of the Syslog servers in the form "192.168.1.1".
Port	Byte	Enter the Syslog port (default: 514).
Log Level	Debug	Activate debug messages in Syslog (default: deactivated). Note: The debug messages are exclusively for matrix diagnostics. Only use this function for concrete debug cases as it is not intended for normal operation.
	Info	Activate information messages in Syslog (default: deactivated).
	Notice	Activate notification messages in Syslog (default: activated).
	Warning	Activate warning messages in Syslog (default: activated).
	Error	Activate error messages in Syslog (default: activated).

To set parameters for the Syslog function, proceed as follows:

- 1. Click System Settings > Network in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **Syslog** tab in the working area.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm the entries.
- 6. Click **Deactivate Edit Mode** in the toolbar.

Setting the Syslog Options

To set or activate the presetting, proceed as follows:

- 1. Click Extras > Options in the menu bar and open the Syslog tab.
- 2. Enter the appropriate data.
- 3. Click **Ok** to confirm the entries.
- 4. Close the management software and restart it.

Options	×
🔧 Default Settings Style Langua	ge Miscellaneous Syslog SNMP
Port	514
Log File Directory	C:_Matrix\Syslog
Log File Name	syslog
Log File Extension	CSV
Daily Log Files	
Maximum Log File Size [KB]	1000
Maximum Number of Log Files	10
Acoustic Notification	Enable acoustic notification for errors
Autostart	Start of syslog in the background when opening the tool
Open Monitoring Tab	Start of monitoring tab when opening the tool
	Configure Severity Mails
	<u>O</u> k C <u>a</u> ncel

Fig. 110 Management software menu Extras - Options - Syslog

The following options are available:

Option	Description
Log File DirectoryDefault directory to store the log files.	
Log File Name	Default name of the log file.
Log File Extension	Default extension for the log file.
Daily Log Files	Log files are stored every 24 hours (daily).

Option	Description
Maximum Log File Size [KB]	Allowed maximum size of log file. When reaching the maximum log file size, a new log file will be created.
Maximum Number of Log Files	Allowed maximum number of log files. When the maximum number of log files is exceeded, the oldest logfile will be overwritten with the new information (log rotate).
Acoustic Notification	Enables acoustic notification for errors.
Autostart	When starting the management software, the Syslog logging will be started in the background.
Open Monitoring Tab	When starting the management software, the monitoring tab will be opened.

Activating I/O Board Diagnosis

For dedicated trouble shooting, Syslog can be enabled for selected I/O board in this menu.

Eile Edit Device Extras <u>?</u>	88	₹ ₹ ₹ ₹ 8	R 🖉 🗎	- 0 X
pen <u>S</u> ave Reload <u>C</u> onnect <u>C</u> 20220215.zip Master ×	<u>D</u> isconnect	Activate Edit Mode Remote Save Download Upload Monitoring Flash Update	Device Finder System Check Save Status	
/iew ^	≜ Sta	us & Updates - Miscellaneous		
Matrix ⊇ort Grid Control	I/O E	Diagnosis License Management FPGA Update Custom UI Update Ad The diagnostic option adds relevant VO board messages of the matrix into the Syslog protoct To use this option, please ensure that the Syslog is activated in the matrix. The log levels corr Section 100 (Section 100 (I and must only be activated for dedicated trouble shooting.	
Control A				Additional selection options
Extended Switch Presets	Slot 01	Name MATXIO8 (GRD)	Activate Diagnosis	
Status & Updates 🔷	02	MATXIO8 (CAT) MATXIO8 (CAT)		
Status - Matrix Firmware	03	MATXIOS (CAT)		
itatus - Extender Firmware	05	MATXIO8 (CAT)		
pdate - Matrix Firmware	06	MATLIO8 (CAT)		
Ipdate - Extender Firmware ctivate Configuration	07	MATLIO8 (CAT)		
liscellaneous	09	MATLIO8 (SFP)		
ystem Settings	10	MATXIO8 (CAT)		
iystem		MATXIO8 (SFP)		
ccess	12	MATXIOB (CAT)		
witch	13	MATXIO8 (CAT) MATXIO8 (CAT)		
letwork ate and Time	15	MATXIOS (CAT)		
latrix Grid	16	MATXIOS (UNI)		
xtender & Devices		MATLIOS (CAT)		
	19	MATXIO8 (CAT)		
XT Units PU Devices XN Devices	20	MATLIO8 (CAT)		
ser Settings				
Jsers & Groups				
ssignment ^				
/irtual CPU Devices /irtual CON Devices				Send Reloa
Multi-Screen Control	٣		Default 04.01	

Fig. 111 Management software menu Status & Updates - Miscellaneous - I/O Board Diagnosis

The following	functions a	re available:
The following	ranouono a	

Button	Function
Send	Send settings to the matrix to activate the Syslog protocol for the selected I/O boards.
Reload	Reload settings.

The following options are available in the **Additional selection options** drop-down menu on the right upper side in the working area:

Option	Description		
Select All	Select all I/O boards.		
Deselect All	Deselect all selected I/O boards.		

To activate the diagnostic option for individual I/O board messages, proceed as follows:

- Click Status & Updates > Miscellaneous in the task area. The I/O Board Diagnostic tab opens in the working area.
- 2. Click Activate Edit Mode in the toolbar.
- Select the desired I/O boards to activate the additional diagnosis.
 Messages of the selected I/O boards will be added to the Syslog protocol.
- 4. Click **Send** to send the settings to the matrix.
- 5. Click Deactivate Edit Mode in the toolbar.

Settings made in this menu will not be saved in the configuration. When restarting the matrix, these settings have to be set again if necessary.

7.4.10 Setting the SNMP Function

The SNMP function allows all function-critical and safety-critical elements of the matrix to be monitored and queried. This function complies with the RFC 1157 conformal standard. Two SNMP servers can be used at the same time.

Enabling the SNMP function, the unencrypted SNMP monitoring (SNMPv2) is activated. An SNMPv3 User for encrypted SNMP monitoring (SNMPv3) can be set in the user settings (see chapter 7.5.1, page 182) and the login data for an SNMPv3 User at the SNMP server can be set in the default settings (see section on page 176).

NOTICE

When using SNMP monitoring, for reasons of access security, the use of a dedicated network according to the IT-Grundschutz-Kompendium (IT Baseline Protection) is recommended. The read only community for the MIB file is **kvm**.

NOTICE

For an activation of the SNMP agent function or the SNMP server function, a restart of the matrix or the controller board is necessary. Restarting the matrix or the controller board may take several minutes, and the matrix is not available during the restart.

 \times File Edit Device Extras ? _w/_ 듣 🔡 💭 💷 . Υ. Ö Q ✓ in o Open... Save Reload Connect Disconnect Activate Edit Mode Remote Save Download... Upload... Monitoring Flash Update... Device Finder... System Check... Save Status. 20220215.zip | Master × View ~ System Settings - Net General Syslog SNMP LDAP Matrix Port ✓ Show Help Grid SNMP Agent (Online changes require a matrix restart) Control SNMP Agent Control ^ Enable SNMP Agent for GET requests and traps Extended Switch Port 161 Presets Configured SNMPv3 User <not configured> Status & Updates ^ SNMPv3 User can be configured in User Settings Status - Matrix Firmware Read-Only Community String kvm Status - Extender Firmware Read-Only Community String SNMP Trap (Online changes require a matrix restart) Update - Matrix Firmware Update - Extender Firmware Trap Receiver 1 Trap Receiver 2 Activate Configuration Miscellaneous Enable Traps $\sqrt{}$ System Settings 192 . 168 . 170 . 155 ^ SNMP Server 162 System Port Access Select All Switch \checkmark Status Switch Command Network Date and Time Temperature \checkmark Fan Tray 1 $\sqrt{}$ Matrix Grid Insert I/O Board \checkmark Fan Trav 2 $\sqrt{}$ Extender & Devices Remove I/O Board \checkmark Power Supply 1 $\sqrt{}$ EXT Units Invalid I/O Board \checkmark \checkmark Power Supply 2 CPU Device: Insert Extender \checkmark Power Supply 3 \checkmark CON Devices Remove Extender J Power Supply 4 J User Settings ~ Users & Groups Assignment ^ Apply Cancel Virtual CPU Devices

The settings for the SNMP monitoring are set in this menu:

Fig. 112 Management software menu System Settings - Network - SNMP

The following parameters can be configured:

SNMP Agent

Traps	Description			
SNMP AgentPermission for an active query of the SNMP agent for traps is grant This activation is a prerequisite for using the SNMP server.				
Port	The SNMP port is called up automatically (default: 161).			
Configured SNMPv3Name of the SNMP user (default: snmp).User				
Read-Only Community String	The read-only community string for the MIB file is kvm .			

SNMP Trap

i

The SNMP agent must be activated to enable SNMP traps.

Traps	Description			
Enable Traps	Sending of trap messages from the SNMP agent to the SNMP server.			
SNMP Server	IP address of the SNMP server in the form "192.168.1.1".			
Port	SNMP port (default: 162).			
Select All	Select all traps.			
Status	Notification about matrix status.			
Temperature	Notification about temperature within the matrix.			
Insert I/O Board	Notification about insertion of a new I/O board into a slot.			
Remove I/O Board	Notification about removal of an I/O board out of a slot.			
Invalid I/O Board	Notification about a wrong firmware installed on the I/O board.			
Insert Extender	 Notification about a newly connected extender module to the matrix, notification about a switched-on extender module. 			
	 Notification about a newly established link between extender module and matrix. 			
Remove Extender	Notification about a removed extender module from the matrix.			
	Notification about a switched off extender module.			
	Notification about an interrupted link between extender module and matrix.			
Switch Command	Notification about a performed switching operation at the matrix.			
Fan Tray 1	Notification about the fan 1 status (interface view of the matrix: left side (K048/K080) or bottom (K152-K576).			
Fan Tray 2	Notification about the fan 1 status (interface view of the matrix: right side (K048/K080) or top (K152-K576).			
Power Supply 1	Notification about the status of power supply unit 1.			
Power Supply 2	Notification about the status of power supply unit 2.			
Power Supply 3	Notification about the status of power supply unit 3.			
Power Supply 4	Notification about the status of power supply unit 4.			
* Only for Draco tera e	nterprise matrices.			

Activating the SNMP Agent

To activate the SNMP agent, proceed as follows:

- 1. Click System Settings > Network in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **SNMP** tab in the working area.
- 4. Tick the **SNMP Agent** checkbox within the **SNMP Agent** area.

By activating this option, the permission for an active query of the SNMP agent is granted.

- 5. Click **Apply** to confirm the changes.
- 6. Click **Deactivate Edit Mode** in the toolbar.

Activating SNMP Traps

To activate active reporting of the SNMP traps, proceed as follows:

- 1. Click System Settings > Network in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **SNMP** tab in the working area.
- 4. Tick the Enable Traps checkbox within the SNMP Trap area.
- 5. Enter the IP address of the SNMP server under SNMP Server.
- 6. Tick the checkboxes of the desired traps to activate them.
- 7. Click **Apply** to confirm the changes.
- 8. Click **Deactivate Edit Mode** in the toolbar.

Setting up SNMP Options

Presets for an SNMPv3 user can be set up for the computer on which the management software is operated are set in this menu.

To set or activate the presetting, proceed as follows:

- 1. Click Extras > Options in the menu bar and open the SNMP tab.
- 2. Enter the appropriate data.
- 3. Click **Ok** to confirm the entries.
- 4. Close the management software and restart it.

Options	×
🔨 Default Settings 🛛 Style	Language Miscellaneous Syslog SNMP
Port	162
Log File Directory	\\WINSERVER\USRDIR\$\User\Desktop\Tera tool\snmp
Log File Name	snmp
Log File Extension	CSV
Daily Log Files	
Maximum Log File Size [KB]	1000
Maximum Number of Log File	5 10
Acoustic Notification	Enable acoustic notification for errors
Autostart	Start of SNMP in the background when opening the tool
Open Monitoring Tab	Start of monitoring tab when opening the tool
	Configure Severity Mails Manage SNMPv3 Users
	<u>O</u> k C <u>a</u> ncel

Fig. 113 Management software menu Extras - Options - SNMP

The following options are available:

Option	Description			
Port	SNMP port (default: 162).			
Log File Directory	Default directory to store the log files.			
Log File Name	Default name of the log file.			
Log File Extension	Default extension for the log file.			
Daily Log Files	Log files are stored every 24 hours (daily).			
Maximum Log File Size [KB]	Allowed maximum size of log file. When reaching the maximum log file size, a new log file will be created.			
Maximum Number of Log Files	Allowed maximum number of log files. When the maximum number of log files is exceeded, the oldest logfile will be overwritten with the new information (log rotate).			
Acoustic Notification	Enables acoustic notification for errors.			
Autostart	When starting the management software, the SNMP logging will be started in the background.			
Open Monitoring Tab	When starting the management software, the monitoring tab will be opened.			

Creating an SNMPv3 User for the SNMP Server

In the following menu, the login data for an SNMPv3 user can be set up for the computer on which the management software is operated (SNMP server). The SNMP server authenticates itself with the agent using this login data.

NOTICE

Failed SNMP logging

If the login data differs between the matrix (set up in the **User** menu) and the SNMP server, no SNMP traps are transmitted.

Ensure the login data (username and password) in both settings are identical (see chapter 7.5.1, page 182).

To configure the login data for an SNMPv3 User at the SNMP server, proceed as follows:

- 1. Click Extras > Options in the menu bar and open the SNMP tab.
- 2. Click Manage SNMPv3 Users.

A list appears with already created SNMPv3 users.

3. Click Add User.

A dialog window appears.

- 4. Enter the required data and click **Ok** to confirm the entries.
- 5. Click **Close** to close the users list.
- 6. Click **Ok** in the **SNMP** tab to confirm your settings.
- 7. Close the management software and restart it.

Manage S	NMPv3	Users				\times
Userna	ame	Auth Protocol	Auth Passw	ord Priv P	rotocol F	Priv Password
	Add U	ser			>	<
	User	name				
	Auth	entication Protoc	col SHA		•	•
	Authentication Password					
	Priva	icy Protocol	DES		•	·
	Priva	icy Password				
				<u>O</u> k	C <u>a</u> ncel	
				User R	emove sele	ected Users
			<u>C</u> lose			

Fig. 114 Management software menu Extras - Options - SNMP - Manage SNMPv3 Users - Add User

The following parameters are required to create a new SNMPv3 user on the SNMP server:

Option	Description
Username	SNMPv3 username.
Authentication Protocol	Only SHA protocol, no selection available.
Authentication Password	Authentication password for the SNMPv3 user (case sensitive, input of minimum 8 characters up to 16 characters).
Privacy Protocol	Only DES protocol, no selection available.
Privacy Password	Must be identical to the password of the authentication password.

7.4.11 Setting the LDAP Configuration (Active Directory)

NOTICE

To initialize the LDAP configuration changes, the matrix must be restarted. Restarting the matrix may take several minutes, and the matrix is not available during the restart.

The KVM matrix can be synchronized with the directory service Active Directory regarding user authentication. This allows the user to login at the KVM matrix using login information from the Active Directory service and to contact the Active Directory Server for each authentication that does in fact the proper authentication.

The connection between KVM matrix and the Active Directory server is established via OpenLDAP and periodically synchronized every 5 minutes.

The search of users to be synchronized and automatically added to the KVM matrix configuration can either be based on a **group** or **organizational unit (OU)**. In both cases a user requires to be at least assigned to one group:

- In case of the group, all users belonging to a previously defined group on the active directory server are added to the KVM matrix and synchronized. In this alternative, the organizational structure of the organizational units (OUs) is added as matrix user group to the KVM matrix configuration. This means that the organizational unit (OU) that includes the user can be found as a matrix user group in the KVM matrix configuration after the synchronization. A user can be member of up to 8 groups.
- In case of the organizational unit, all users belonging to groups that are located directly under this
 organizational unit are added and synchronized. The groups can also include subgroups. The structure
 of the groups is added to the KVM matrix configuration as user group. Each group will be represented
 in the KVM matrix as a user group after the synchronization. Groups that are located in sub
 organizational units will be ignored.

The general LDAP settings for the synchronization with the directory service Active Directory are set in this menu.

File Fill Davies Fritze 0						- 🗆 X
Eile Edit Device Extras 2 Image: Save Reload Connect Disconnect	Activate Edit Mode Remote Save	Download Vpload V	Monitoring Flash Update	Device Finder System Chec	k Save Status	
20220215.zip Master X						
View 🔨 🔺 Syst	tem Settings - Network					
Port Grid	eral Syslog SNMP LDAP P (Online changes require a m					▲ ✓ Show Help
Control ^ LDAF		\checkmark				
	TLS/SSL	Enable LDAP Enable authentication with Acti	ive Directory Server			
Status & Updates A LDAF	P Server	10 . 1 . 10 . 103				
Status - Matrix Firmware Port Status - Extender Firmware Confi Update - Matrix Firmware Update - Extender Firmware Activate Configuration Miscellaneous Base System Settings	igured LDAP User DN a DN	389 LDAP Bind User LDAP User can be configured Bind LDAP User with Base DN dc=company,dc=homeoffic Example: ou=user,dc=mydoma	ce			
Access Switch Network Date and Time Matrix Grid						
Extender & Devices						
EXT Units CPU Devices CON Devices						Ŧ
User Settings						Apply Cancel
Users & Groups						
					Default	

Fig. 115 Management software menu System Settings - Network - LDAP

The following parameters can be configured:

Field	Entry/Status	Description
LDAP	Activated	LDAP for the request of information from a user administration is active.
	Deactivated	Function not active (default).
Use TLS/SSL	Activated	Enable a secured transmission (transport layer security) for the Active Directory access.
	Deactivated	Function not active (default).
LDAP Server	Byte	Enter the IP address for the LDAP-Servers in the form "192.168.1.1".
Port	Byte	Enter the LDAP port (Default: 389/636).
Configured LDAP User	Text	Name of the configured LDAP user.
LDAP Base DN	Text	Enter the LDAP Base DN according to the existing structure of the user directory.



A matrix configuration should only include one LDAP user and one LDAP group at the same time. The LDAP user and the LDAP group can be created, changed, or deleted during ongoing operation: no restart of the matrix is required.

To configure and enable the synchronization to the Active Directory server, there are three steps required:

- Configuring the LDAP settings.
- Creating an LDAP User (see page 184).
- Creating an LDAP Group (see page 195).

To configure the LDAP settings, proceed as follows:

- 1. Click **System Settings > Network** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **LDAP** tab in the working area.
- 4. Tick the LDAP checkbox.
- 5. Optionally tick the Use TLS/SSL checkbox to activate this function.
- 6. Enter the respective IP address and port number into the field **LDAP Server** (default port number: 389 (636 for SSL)).
- 7. Enter the LDAP **Base DN** into the respective field (e.g., dc=example, dc=com).
- 8. Click **Apply** to confirm the settings.
- 9. Restart the matrix.

Changes done in step 4 to 8 only come into effect after a restart of the matrix.

- 10. Create an LDAP User settings (see page 184).
- 11. Create an LDAP Group (see page 195).

7.4.12 Setting the Date and Time

The parameters for the system configuration are set in this menu, based on Simple Network Time Protocol (SNTP):

<u>File E</u> dit Device E <u>x</u> tras <u>?</u>	2			- 🗆 X
		Activate Edit Mode Re	emote Save Download Upload Montoring Flash Update Device Finder System Check Save Status	
20220215.zip Master ×				
View	^ *	System Settings - Da	ate and Time	
Matrix				Show Hell
Port Grid		SNTP (Online changes re	equire a matrix restart)	
Control		SNTP	$\overline{\mathbf{V}}$	
Control	~		Enable network time server synchronisation	
Extended Switch		SNTP Server	10 . 1 . 10 . 30	
Presets		Time Zone	(GMT +01:00) Amsterdam, Berlin, Bern, Rome, Stockholm, Vienna 😽	
Status & Updates	~	Real Time Clock		
Status - Matrix Firmware Status - Extender Firmware Update - Matrix Firmware Update - Extender Firmware Activate Configuration Miscellaneous	3	Date And Time	Thu 2022-01-20 • 09:57:06 Get Local Time Date and time of real time clock Get local time of this computer	
System Settings	^			
System Access Switch Network Date and Time Matrix Grid				
Extender & Devices	^			
EXT Units CPU Devices CON Devices				
User Settings	^			
Users & Groups				
Assignment	~			
Virtual CPU Devices Virtual CON Devices Multi-Screen Control	Ţ			Apply Cancel
			Default	

Fig. 116 Management software menu System Settings - Date and Time

The following parameters can be configured:

SNTP

Field	Entry/Status	Description
SNTP	Activated	Enable the network time server synchronization.
	Deactivated	Function not active (default).
SNTP Server	Byte	Enter the SNTP server IP address (default: 000.000.000.000).
Time Zone	Region	Set your specific time zone (default: GMT + 00).

Real Time Clock

Field	Description			
Date*	Date and time of the real time clock.			
Get Local Time	Get local time of this computer.			
* Date format according to the English notation.				

Configuring the Time Server

To configure a time server, proceed as follows:

- 1. Click **System Settings > Date and Time** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Tick the SNTP checkbox to enable the SNTP option.
- 4. Enter the IP address of your SNTP server into the SNTP Server field.
- 5. Select your time zone in the **Time Zone** field.
- 6. Click **Apply** to confirm your settings.
- 7. Restart the matrix.

After the restart, the system time is now provided by the SNTP server.

8. Click Deactivate Edit Mode in the toolbar.

Configuring the Real Time Clock without Time Server

To set the real time clock without using SNTP, proceed as follows:

- 1. Click **System Settings > Date and Time** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Set the current date in the **Date and Time** section.
- Set the current time in the **Date and Time** section. The entered time is set immediately in the settings.
- 5. Option: if you want to receive the time from your currently used computer, click Get Local Time.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.5 Configuring User Settings

7.5.1 Setting the User Access

New users and their user settings and permissions are set in this menu.

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20210210.zip Master ×																	
View	~	Use	r Settin	gs - Users & Grou	ps												
Matrix		User	s Grou	ps													
Port					Y	-											
Grid		#	ID	Name		-	ID	34			Administrator		AD	Synchronized			
Control		01	00001	USER_00001		×' '	Name	USER_	00034		Super User		AD	Group Locked			
Control	^	02	00003	USER_00003		1	AD CN=				Power User						
Extended Switch		03	00008	USER_00008			Password				SNMPv3 User						
Presets		04	00010	USER_00010			Priority		0.0		LDAP Login						
Status & Updates	^	05	00011	USER_00011		'	rionty		· •		-						
Status - Matrix Firmware		06	00012	USER_00012							Auto Connect						
Status - Extender Firmware		07	00013	USER_00013		c	CPU Acces	s Control Favor	tes Macros								
Update - Matrix Firmware		08	00015	USER_00015				Full Acce	e		Video Access			No Ac			
Update - Extender Firmware		09	00016	USER_00016			ID N	ame	15	ID	Name		ID	Name			
Activate Configuration Miscellaneous		10	00017	USER_00017				PU_01002			Name		1001	CPU_01001			
		11	00018	USER_00018				PU_01003					1004	CPU_01004			
System Settings	^	12	00019	USER_00019				PU_01039					1005	CPU_01005			
System		13	00020	USER_00020		1.11		PU_01052					1006	CPU_01006			
Access Switch		14	00021	USER_00021				0_0.002					1007	CPU_01007			
Network		15	00022	USER_00022									1008	CPU_01008			
Date and Time		16	00023	USER_00023									1009	CPU_01009			
Matrix Grid		17	00025	USER_00025									1010	CPU_01010			
Extender & Devices	^	18	00026	USER_00026									1011	CPU_01011			
EXT Units		19	00027	USER_00027									1012	CPU_01012			
CPU Devices		20	00028	USER_00028									1013	CPU_01013			
CON Devices		21	00029	USER_00029									1014	CPU_01014			
User Settings	~	22	00030	USER_00030									1015	CPU_01015			
-		23	00031	USER_00031									1016	CPU_01016			
Users & Groups		24	00032	USER_00032									1017	- CPU_01017			
Assignment	^	25	00033	USER_00033									1018	CPU_01018			
Virtual CPU Devices		26	00034	USER_00034									1019	CPU_01019			
Virtual CON Devices		27	00035	USER_00035										_			
Multi-Screen Control		28	00036	USER_00036		v			Use keyboard ke	eys F, V, N to cha	nge the access control lists.	Use right hand mor	use click to	select action.			
		As	sign Settii	ngs to Copy Setti	ngs from							New	User	Delete User	Apply	<u>C</u>	ance
											D	efault					

Fig. 117 Management software menu User Settings - Users & Groups - Users

NOTICE

Failed SNMP logging

If the login data of the SNMPv3 user differs between the matrix and the SNMP server, no SNMP loggings are transmitted.

Ensure the login data (username and password) in both settings are identical (see section on page 176).

Field	Entry/Status	Description				
ID	Numerical	Ident number of the user				
Name	Text	For standard users it is the login name (case sensitive, input of minimum 1 character up to 16 characters). Can be used to log in to the OSD.				
		For LDAP Users it is the name (case sensitive, input of minimum 1 character up to 16 characters). Can be used to log in to the OSD.				
		For users synchronized via LDAP, it is the sAMAccountName, automatically retrieved from the LDAP server. Can be used to log in to the OSD.				
Full Name/ Login Name/	Text	For standard users it is the full name (optional input of up to 32 characters). Can be used to log in to the OSD.				
AD CN=		For LDAP Users it is the login name (case sensitive, input of minimum 1 character up to 32 characters). Can be used to log in to the OSD.				
		For users synchronized via LDAP, it is the userPrincipalName, automatically retrieved. Can be used to log in to the OSD.				
Password	Text	For standard users (optional input of up to 16 characters). Can be used to log in to the OSD.				
		For LDAP Users (case sensitive, input of minimum 1 character up to 16 characters). Can be used to log in to the OSD.				
Priority	Value	Priority of the user				
Administrator	Activated	Permission for system configuration and all switching operations				
	Deactivated	Function not active (default).				
Super User	Activated	Permission to switch any CON Device to any CPU Device in Extended Switching				
	Deactivated	Function not active (default).				
Power User	Activated	Permission to switch CON Devices to CPU Devices in Extended Switching according to the CON Device ACL or User ACL, but not in Private Mode				
	Deactivated	Function not active				
SNMPv3 User	Activated	Permission to use SNMPv3 (encrypted)				
	Deactivated	SNMPv3 is not enabled				
LDAP Login	Activated	Bind User for accessing the Active Directory				
	Deactivated	Function not active (default).				
Auto Connect	Activated	Re-establish the previous user connection after login				
	Deactivated	Function not active				

The following parameters can be configured:

Field	Entry/Status	Description
AD Synchronized	Activated	Enable synchronization with the Active Directory Note: LDAP Login has to be activated to use the synchronization
	Deactivated	Function not active
AD Group Locked	Activated	Lock synchronization of group attribute for an Active Directory user. This setting is required for a manual change of user groups for a specific Active Directory user.
	Deactivated	Function not active (default).

7.5.1.1 Creating a new Standard User Account

To create a new user, proceed as follows:

- 1. Click User Settings > Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click New User.

A selection dialog appears.

- 4. Select a template of an existing user if applicable (Choose template) in the selection box.
- 5. Click Ok.
- 6. Enter a name.
- 7. Optionally enter a full name and a password.
- 8. Enter general access permissions.
- 9. Set user permissions for CPU Device access (paste function).
- 10. Set user favorites for OSD access.
- 11. Click **Apply** to confirm the new user settings.
- 12. Click Deactivate Edit Mode in the toolbar.

7.5.1.2 Creating a new LDAP User Account

- 1. Click **User Settings > Users & Groups** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click New User.

A selection dialog appears.

- 4. Select Create a LDAP User in the selection box to create a new LDAP user (bind user).
- 5. Click **Ok**.
- 6. Enter the name of the bind user from the Active Directory into the field Name.
- 7. Enter the Common Name (CN) of the bind user from the Active Directory into the field Login Name.
- 8. Enter the password of the bind user from the Active Directory into the field **Password**.
- 9. Click **Apply** to confirm the creation of the user.
- 10. Click **Deactivate Edit Mode** in the toolbar.



A matrix configuration should only include one LDAP user and one LDAP group at the same time. The LDAP user and the LDAP group can be created, changed, or deleted during ongoing operation: No restart of the matrix is required.

7.5.1.3 Changing a User Account

To change user settings, proceed as follows:

- 1. Click User Settings > Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a user in the Users list.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm the changes.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.5.1.4 Configuring User Access Rights

To configure user access rights for CPU Devices, proceed as follows:

- 1. Click User Settings > Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a user in the **Users** list.
- 4. By clicking with the right mouse button once on a CPU Device in one of the respective access lists (Full Access, Video Access, and No Access), a context menu for selection appears in which the respective CPU Device can be moved, and the access rights can be changed. Alternatively, press f, v, or n to set the respective access rights.
- 5. Click **Apply** to confirm the changes.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.5.2 Setting User Favorites

Individual favorite lists of CPU Devices that will be switched frequently can be created for different users in this menu. A favorite list can contain up to 32 different CPU Devices (from firmware V3.05).

The switching of the favorites is done via keyboard command (see chapter 8.1.1, page 290).

	_	nnect	Deactiva	te Edit Mode Remote Save Dow	vnload U	Jpload	Monitoring	Flash Update Device Finder System Che	eck Sav	e Status							
10210210.zip Master ×	~	ller	ar Sattir	ngs - Users & Groups											Edit Mo	ode ar	tivat
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Control		#	ID	Name		Name		USER 00034		Super l	lser			AD Group Locke	d 🗌		
ontrol	~	01	00001	USER_00001	1			00211_00004						Ab droup Look			
xtended Switch		02	00003	USER_00003		AD CN	=			Power							
resets		03	00008	USER_00008		Passv	vord			SNMPv	3 User						
		04	00010	USER_00010		Priorit	y	0 🗘		LDAP L	ogin						
tatus & Updates	^	05	00011	USER_00011						Auto Co	onnect						
tatus - Matrix Firmware			-		_												
tatus - Extender Firmware Ipdate - Matrix Firmware		07	00013	USER_00013		CPU A	ccess Contro	ol Favorites Macros									
pdate - Matrix Firmware pdate - Extender Firmware		08	00015	USER_00015				CPU Device available					Favor	te CPU Devices			
tivate Configuration		09	00016	USER_00016		ID	Name				#	ID	Name				
scellaneous		10	00017	USER_00017		1001	CPU_010	01			01	1006	CPU_01006	5			
ystem Settings	~	11	00018	USER_00018		1002	CPU_010	02			02	1011	CPU_0101*				
		12	00019	USER_00019		1003	CPU_010	03			03	1013	CPU_01013	3			
ystem ccess		13	00020	USER_00020		1004	CPU_010	004			04						
witch		14	00021	USER_00021		1005	CPU_010	05			05						
etwork		15	00022	USER_00022		1007	CPU_010	007		**	06						
ate and Time		16	00023	USER_00023		1008	CPU_010	008		Þ	07						
atrix Grid		17	00025	USER_00025		1009	CPU_010	009		P	08						
xtender & Devices	^	18	00026	USER_00026		1010	CPU_010)10			09						
XT Units		19	00027	USER_00027		1012	CPU_010)12		•	10						
PU Devices		20	00028	USER_00028		1014	CPU_010			••	11						2
ON Devices		21	00029	USER_00029		1015	CPU_010)15			12						
ser Settings	~	22	00030	USER_00030		1016	CPU_010				13						
Isers & Groups		23	00031	USER_00031		1017	CPU_010				14						
		24	00032	USER_00032		1018	CPU_010				15						
ssignment	^	25	00033	USER_00033	_	1019	CPU_010				16						
rtual CPU Devices		26	00034	USER_00034		1020	CPU_010				17						
rtual CON Devices		27	00035	USER_00035		1021	CPU_010	21					Use keys	+ and - to move CP	U		
ulti-Screen Control			00036	USER 00036									-		_		
		As	sign Setti	ngs to Copy Settings fro	m								<u>N</u> ew Use	Delete Use	er <u>A</u> p	ply	<u>C</u> an

Fig. 118 Management software menu User Settings - Users & Groups - Users - Favorites

Creating a Favorites List for Users

To create a favorites list for any user, proceed as follows:

- 1. Click User Settings> Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the respective user for the favorites list in the Users list.
- 4. Click the **Favorites** tab in the working area.
- Select the CPU Devices in the CPU Device available list that should be added to the favorites list (Favorite CPU Devices). By pressing and holding down Ctrl at the same time, more than one CPU Device can be highlighted.
- 6. Click ▶ to move the highlighted CPU Devices to the favorites list. By clicking ▶, all CPU Devices from the **CPU Device available** list will be moved to the favorites list (**Favorite CPU Devices**).
- 7. To remove highlighted CPU Devices from the favorites list, click ◀. By clicking ◀, all CPU Devices will be removed from the favorites list.
- Click or to change the order of the CPU Devices within the favorites list. Or press or to change the order of the CPU Devices within the favorites list.
- 9. Click **Apply** to confirm the changes.
- 10. Click Deactivate Edit Mode in the toolbar.

7.5.3 Setting User Macros

In this menu macro commands for switching, disconnection or user administration can be created. Macro commands are created for each user separately. A macro can execute up to 16 commands successively. The execution of the macros is done via Hot Key and the F1 to F16 function keys (see chapter 8.1.4, page 293).

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To execute user macros the user has to be logged in to the matrix.

												-	□ ×
Elle Edit Device Extras 2	ct <u>D</u> iscon		Deactivate Edit Mod	e Remote Save	Download Up	foad Monitoring	Flash Update Device Finder	System Check.	Save Status				
20210210.zip Master ×													
View	^	User	r Settings - Us	ers & Groups								Edit Mod	e activated
Matrix		Users	Groups										
Port					T	10	19		Administrator			1	
Grid Control		#	ID Name		1	ID						V	
	_	01	00001 USER_	00001	A	Name	USER_00019		Super User		AD Group Locked		
Control	^	02	00003 USER_	00003		AD CN=			Power User				
Extended Switch		03	00008 USER_	00008		Password			SNMPv3 User				
Presets		04	00010 USER_	00010		Priority	0 🗘		LDAP Login				
Status & Updates	^	05	00011 USER_	00011		, nong	•••		Auto Connect				
Status - Matrix Firmware		06	00012 USER_	00012					Auto Connect				
Status - Extender Firmware		07	00013 USER_	00013		CPU Access Contr	ol Favorites Macros						
Update - Matrix Firmware		08	00015 USER_	00015			F1 F2 F3 F4 F5	F6 F7 F8 F9	F10 F11 F12 F13 F14 F15	F 16			
Update - Extender Firmware Activate Configuration		09	00016 USER_	00016		Key F1	• • • • • • • • • • • • • • • • • • •		S10 S11 S12 S13 S14 S15				
Miscellaneous		10	00017 USER_		_	#	Function		P1			P2	
System Settings	~	11	00018 USER_	-	_	01	Tuncaon	~				12	
, ,		12	00019 USER_		_	02		4					
System Access			00020 USER_			03 Connect (P	1=CON, P2=CPU)						
Switch			00021 USER_			Connect Vic	leo (P1=CON, P2=CPU) vate (P1=CON, P2=CPU)						
Network			00022 USER_			05 Disconnect							
Date and Time			00023 USER_			06 Logout Use							
Matrix Grid			00025 USER_				J (P1=VCPU, P2=RCPU)						
Extender & Devices	^		00026 USER_			08 Push (P1=0	I (P1=RCON, P2=VCON)						
EXT Units			00027 USER_			09 Push Video							
CPU Devices			00028 USER_			10 Get (P1=CC	N)						
CON Devices			00029 USER_			11 Get Video (F	°1=CON)	v					
User Settings	^		00030 USER_			12							
Users & Groups			00031 USER_			13							
Assignment	^		00032 USER_			14							
			00033 USER_ 00034 USER			15							
Virtual CPU Devices			00034 USER_ 00035 USER_										•
Virtual CON Devices Multi-Screen Control			00035 USER_ 00036 USER						📄 Сору К	ey Macros	💼 Paste Key Macros	Telete	Key Macros
200001001100			ign Settings to	Copy Settings	from					New	/User Delete User	Apply	<u>C</u> ancel
			.g settinge to	sep) coungo							201010 0001	2000	<u>_</u>
										efault			

Fig. 119 Management software menu User Settings - Users & Groups - Users - Macros

Field	Selection	Description			
Function (01 to 16)	Connect (P1=CON, P2=CPU)	Set a bidirectional connection from CON Device P1 to CPU Device P2			
	Connect Video (P1=CON, P2=CPU)	Set a Video Only connection from CON Device P1 to CPU Device P2			
	Disconnect (P1=CON)	Disconnect the CON Device P1			
	Logout User	Logout the current user			
	Assign CPU (P1=VCPU, P2=RCPU)	Assign a virtual CPU Device to a real CPU Device			

The following parameters can be configured:

Field	Selection	Description					
	Assign CON (P1=RCON, P2=VCON)	Assign a real CON Device to a virtual CON Device					
	Push (P1=CON)	The user's Full Access connection is forwarded to CON Device P1 and is changed into a Video Only connection.					
	Push Video (P1=CON)	The video signal of the current connection (Full Access or Video Only) is forwarded to CON Device P1. The user's connection remains unchanged (Full Access or Video Only).					
	Get (P1=CON)	The user's CON Device gets a Full Access connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 is changed into a Video Only connection.					
	Get Video (P1=CON)	The user's CON Device gets a Video Only connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 remains unchanged (Full Access or Video Only).					
	Login User console P2	Login a certain user P1 at CON Device P2					
P1	CON or CPU Device	Name of CON Device or CPU Device					
P2	CON or CPU Device	Name of CON Device or CPU Device					

To create a macro for the selected user, proceed as follows:

- 1. Click User Settings > Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the user for which macros are to be created.
- 4. Open the Macros tab.
- 5. Select in the Key field the function key for which a macro has to be created.
- 6. Double-click in the **Function** column to display a list of all available commands that should be part of the macro.
- 7. Select the desired command in the selection list.
- 8. Select in the **P1** and **P2** columns the respective parameters for the macro functions (e.g., corresponding CON Devices and CPU Devices).
- 9. Click **Apply** to confirm the changes.
- 10. Click Deactivate Edit Mode in the toolbar.

For an efficient macro configuration, the following context functions are available:

- When clicking on the Macros tab, macros can be assigned to other users by using the Assign Settings to... function (see description on page 190) and can be copied from other users by using the Copy Settings from... function (see description on page 192).
- When clicking on the macro list, macros of the selected key can be copied into the cache by using the Copy Key Macros function. You can paste the macros from the cache into another key by using the Paste Key Macros function and you can reset all macros of the selected key by using the Delete Key Macros function.

7.5.4 Setting Access Rights for Logging in to the OSD

Users can be blocked from logging in for certain CON Devices.

Den Save Reload Conne	ct <u>D</u> isco	_	Deactiva	te Edit Mode Remote Save	Download	Upload	Monitoring Flash Update Device Finder System Che	ck Save	štatus					
20220215.zip Master ×	admi	n@192	2.168.100	.112 ×										
View	^	Use	er Settir	ngs - Users & Groups									Edit Mode ac	tivate
Matrix		Use	rs Grou	ips										
Port					T								-	
Grid Control		#	ID	Name		ID	74		dministra			AD Synchronized	\checkmark	
		41	00052	USER_00052	*	Name	USER_00074	S	uper Use	r		AD Group Locked		
Control	^	42	00053	USER_00053		AD CN	-	P	ower Use	er				
Extended Switch		43	00055	USER_00055		Passv	rord	S	NMPv3 U	ser				
Presets		44	00056	USER_00056		Priorit	v 0 \$		DAP Logi					
Status & Updates	^	45	00057	USER_00057		FIIIII	• •		, i					
Status - Matrix Firmware		46	00059	USER_00059				A	uto Conn	ect				
Status - Extender Firmware		47	00060	USER_00060		CPU A	ccess Control Favorites Macros Login Lock							
Jpdate - Matrix Firmware		48	00061	USER_00061		_	Allowed Login					Locked Login		
Jpdate - Extender Firmware		49	00062	USER_00062		ID	Name			ID	Name	Locked Login		
ctivate Configuration liscellaneous		50	00063	USER_00063		5001	CON_05001			3014	CON_03014			
		51	00064	USER_00064		5002	CON 05002			3015	CON 03015			
system Settings	^	52	00065	USER_00065		5002	CON_05003			3016	CON_03016			
System		53	00066	USER_00066		5003	CON 05004			0	0014_03010			
Access		54	00067	USER_00067		5005	CON_05005			0				
Switch Network		55	00068	USER_00068		5005	CON_05006		••	0				
Date and Time		56	00069	USER_00069		5007	CON_05007			0				
Matrix Grid		57	00070	USER_00070		5008	CON 05008		•	0				
Extender & Devices	~	58	00071	USER_00071		5009	CON_05009			0				
EXT Units		59	00072	USER_00072		5010	CON 05010		4	0				
EXT Units CPU Devices		60	00073	USER_00073		5010	CON_05011	-		0				
CON Devices		61	00074	USER_00074		5012	CON_05012		44	0				
Jser Settings	~	62	00076	USER_00076		5012	CON_05013			0				
		63	00077	USER_00077		5014	CON_05014			0				
Jsers & Groups		64	00078	USER_00078		5015	CON_05015			0				
Assignment	^	65	00079	USER_00079		5016	CON_05016			0				
/irtual CPU Devices		66	00080	USER_00080		3003	CON_03003			0				
/irtual CON Devices		67	00081	USER_00081	v			٧		-				
Iulti-Screen Control		40	sign Setti	ngs to Copy Settings	from						New User	Delete User	Apply	Cance

Fig. 120 Management software menu User Settings - Users & Groups - Users - Login Lock

To lock the login to the OSD of specified CON Devices, proceed as follows:

- 1. Click User Settings> Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the appropriate user from the **Users** list for whom the login for the OSD should be restricted.
- 4. Click the **Login Lock** tab in the working area.
- Select the CON Devices in the Allowed Login list that should be added to the list of locked CON Devices, (Locked Login). By pressing and holding down Ctrl at the same time, more than one CON Device can be highlighted.
- 6. Click ▶ to move the highlighted CON Devices to Locked Login list. By clicking ▶, all CON Devices from the Allowed Login list will be moved to the Locked Login list.
- 7. To remove highlighted CON Devices from the Locked Login list, click ◀. By clicking ◀, all CON Devices will be removed from the Locked Login list.
- 8. Click **Apply** to confirm the changes.
- 9. Click Deactivate Edit Mode in the toolbar.

7.5.5 Assigning/Copying Settings of Users

7.5.5.1 Assigning Settings to other Users

To assign settings of a user to other users, proceed as follows:

- 1. Click User Settings> Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **Favorites** tab in the working area.
- 4. Select the user whose settings are to be assign to another user.
- Click Assign Settings to below the user list. A query to select the settings appears.
- 6. Tick the checkboxes for the desired settings.
- 7. Click Next >.

Assign Settings to	×
Steps	Select Settings
 Select Settings Assign Settings to 	 Priority Super User Power User SNMPv3 User Auto Connect AD Group Locked CPU Access Control Favorites Macros Login Lock Select All
	< <u>B</u> ack Next > Einish Cancel

Fig. 121 Management software menu Users & Groups - Users - Assign Settings to - Select Settings

A query to start the assignment appears.

- 8. Select the user in the **Available to assign settings to** list to which the settings are to be assigned. By pressing and holding down **Ctrl** at the same time, more than one user can be highlighted.
- 9. Click ▶ to move the highlighted user to the Assign settings to list. By clicking ▶, all users will be moved to the Assign settings to list.
- 11. Click Finish.

The settings are immediately assigned to the selected users.

12. Click Deactivate Edit Mode in the toolbar.

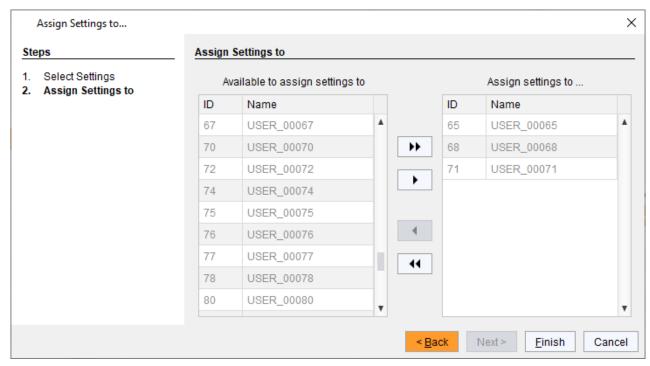


Fig. 122 Management software menu Users & Groups - Users - Assign Settings to- Assign Settings

7.5.5.2 Copying Settings from another User

To copy settings from a user to another user, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the user to copy the settings to. By pressing and holding down Ctrl at the same time, more than one user can be highlighted.
- 4. Click Copy Settings from below the user list.

A query to select the settings appears.

- 5. Tick the checkboxes to select the desired settings to be copied.
- 6. Click Next >.

Copy Settings from	×
Steps	Select Settings
 Select Settings Copy Settings from 	 Priority Super User Power User SNMPv3 User Auto Connect AD Group Locked CPU Access Control Favorites Macros Login Lock Select All
	< <u>B</u> ack Next > <u>F</u> inish Cancel

Fig. 123 Management software menu Users & Groups - Users - Select Settings

A query to start the assignment appears.

- 7. Select the user in the selection list from which the settings are to be copied.
- 8. Click Finish.

The settings are immediately copied to the selected user.

Copy Settings from		×
Steps	Copy Settings from	
 Select Settings Copy Settings from 	Copy from 00001 USER_00001 ✓ 00001 USER_00003 00003 USER_00003 00008 USER_00008 00010 USER_00010 00011 USER_00010 00011 USER_00012 00012 USER_00012 00013 USER_00013 00015 USER_00015 Image: Colored	
	< <u>B</u> ack Next > <u>F</u> inish Cance	<u>!</u>

Fig. 124 Management software menu Users & Groups - Users - Copy Settings

7.5.6 Setting the User Groups

The KVM matrix allows to bundle the users of a configuration into User Groups. The groups can be used to subdivide the users logically or thematically. As an application example you can group all power users together. The configuration of User Groups at the same time increases the clarity of the configuration.

en <u>S</u> ave Reload <u>C</u> on 0220215.zip Master ×	nect <u>D</u> isco	onnect	Activate Edit Mode	Remote Save	Downloa	d U	toload	Monitoring	Flash Update	Device Finder	System Che	ck Sav	e Status					
ïew	~ *	Use	er Settings - Us	ers & Grou	ps													
latrix		Use	rs Groups															
ort						r												
brid		#	ID	Name		0 1	ID		21			L	DAP Log	in				
control		01	8 00009	GROUP 0	0009		Name	•	GROUP_000	21		A	D Synch	ronize	\checkmark			
ontrol	^	02	E 200011	GROUP_0			AD OI	J=										
tended Switch		03	E 👪 00017	GROUP_0		١.												
resets		04	8 00021	GROUP_0			User/	Assignment	CPU Access	Control								
tatus & Updates	~	05	E 👪 00036	GROUP_0		11			User/Group a	ailable						User/Group assigned		
tatus - Matrix Firmware		06	± 🎎 00042	GROUP_0				ID	Name				#		ID	Name		
atus - Mainx Firmware atus - Extender Firmware		07	± 200047	GROUP_0	0047		4	00011	GROUP_00011				01	-	00022	USER_00022		
date - Matrix Firmware		08	H 🎎 00051	GROUP_0	0051		4	00017	GROUP_00017				02	4	00023	USER_00023		
date - Extender Firmware		09	1 2 2 00054	GROUP_0	0054		426	00036	GROUP_00036				03	-	00024	USER_00024		
tivate Configuration		10	D 20058	GROUP_0	0058		400	00042	GROUP_00042				04		00025	USER_00025		
scellaneous	_	11	H 🎎 00075	GROUP_0	0075		420	00047	GROUP_00047				05	-	00026	USER_00026		
stem Settings	^	12	D0086	GROUP_0	0086	11	400	00051	GROUP_00051				06		00027	USER_00027		
stem			Ū			11	4	00054	GROUP_00054			••	07	-	00028	USER_00028		
cess							444	00058	GROUP_00058				08	-	00029	USER_00029		
/itch							4	00075	GROUP_00075			- F	09	-	00030	USER_00030		
twork te and Time							444	00086	GROUP_00086				10	-	00031	USER_00031		
trix Grid													11	-	00032	USER_00032		
ender & Devices	~											44	12	-	00033	USER_00033		
													13	-	00034	USER_00034		
T Units PU Devices													14	-	00035	USER_00035		
O Devices													15	-	00096	USER_00096		
er Settings	~												16		00097	USER_00097		
ers & Groups																		
signment	~																	
tual CPU Devices						Ŧ					v							
tual CON Devices														New G	roup	Delete Group	Apply	Са

Fig. 125 Management software menu User Settings - Users & Groups - Groups - User Assignment

Creating a Standard User Group

To create and configure a User Group, proceed as follows:

- 1. Click User Settings > Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **Groups** tab in the working area.
- 4. Click New Group.
- 5. Enter a group name into the field **Name**.
- 6. Click **Apply** to confirm the group creation.
- 7. Click Deactivate Edit Mode in the toolbar.

Creating an LDAP Group

- 1. Click User Settings > Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **Groups** tab in the working area.
- 4. Click **New Group** to create a new LDAP group.

A selection window appears.

5. Select **Create a LDAP Group** in the selection box.

The group determines which users of the Active Directory server should be synchronized.

- 6. Enter a name into the field **Name**.
- 7. Enter either the Common Name (CN) of a right group or the Common Name (OU) of an organizational unit into the field **LDAP OU=/CN=** as shown below:
 - OU= name of the organizational unit
 - CN= name of the right group
- 8. Click **Apply** to confirm the creation of the group.
 - The Active Directory synchronization can be used now.
- 9. Click Deactivate Edit Mode in the toolbar.

A matrix configuration should only include one LDAP user and one LDAP group at the same time. The LDAP user and the LDAP group can be created, changed, or deleted during ongoing operation: No restart of the matrix is required.

Assigning a User to a Group

To assign a user to a group, proceed as follows:

- 1. Click User Settings > Users & Groups in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **Groups** tab in the working area.
- 4. Select the User Group to be assigned with a user.
- 5. Select a user in the list **User/Group available** that should be assigned to the User Group. By pressing and holding down **Ctrl** at the same time, more than one user can be highlighted.
- 6. Click ▶ to move the highlighted user to the User Group list (**User/Group assigned**). By clicking ▶, all users from the list **User/Group available** will be moved to the list **User/Group assigned**.
- 7. To remove highlighted users from the User Group list, click ◀. By clicking ◀, all Users will be removed from the User Group list.
- 8. Click **Apply** to confirm the group creation.
- 9. Click Deactivate Edit Mode in the toolbar.

The user is assigned to the User Group now.

7.6 Configuring Extender Settings

7.6.1 Main Extender Module and EXT Unit Settings

7.6.1.1 Extender Module and EXT Unit Settings

The matrix automatically recognizes every extender module, physically connected to the matrix with a direct cable connection, reads out its serial number and creates EXT Units automatically. This is the Flex Port function of the matrix. Dual-Head extender modules will be recognized as two independent EXT Units.

Add-on modules are not created as independent EXT Units. The data of add-on modules is included in one EXT Unit together with the associated extender module.

All EXT Units are managed in this menu. This includes the creation of new EXT Units and the deletion of existing EXT Units.

NOTICE

The connection of a fixed port EXT Unit (e.g., USB 2.0) to a Flex Port can cause unintended results. EXT Units for USB 2.0 extender modules have to be created manually (see chapter 7.6.5, page 208).

en <u>S</u> ave Reload <u>Connec</u> 0220215.zip Master X	t <u>D</u> isco	onnect	Activate Edit M	ode Remote Save	Download.	. Upload	Monitoring Flash	Update Device Fi	inder System Check Save State	IS		
	~ 4	Ext	ender & Dev	vices - EXT Unit								
latrix							Ţ	_				
ort		#	ID 🔺	Name	Port	Red. Port		(ID	40166854	CPU Assigned	01500 CPU_0150	0
rid		38	040040265	EXT 040040265	0		CON	Name	EXT_040166854			
ontrol		39	040058534	EXT_040058534	0	0	CPU	Port	71	Redundant Port	72	
ontrol	^	40	040069452	EXT_040069452	0	-	CPU	Fixed				
tended Switch		41	040069453	EXT_040069453	0	-	CPU	HDCP Active				
esets		42	040069455	EXT_040069455	0	-	CPU	Location				
atus & Updates	~	43	040076855	EXT_040076855	153	-	CPU	Location	Device: TEST-A-E160		Device: TEST-A-	F160
atua Matrix Firmunara	_	44	040076860	EXT 040076860	145	-	CPU	Link 1	I/O board: 9	Link 2	I/O board:	9
tatus - Matrix Firmware tatus - Extender Firmware		45	040113350	EXT_040113350	0	0	CON	LIIKI	I/O board port: 7 Matrix port: 71	LIIIK Z	I/O board port:	8 72
odate - Matrix Firmware		46	040131237	EXT 040131237	0	-	CPU		Matrix port: /1		Matrix port:	12
odate - Extender Firmware		47	040131238	EXT_040131238	0	-	CPU	Extender Type	Firmware Version Paramete	rs USB-HID Ghosting ED	DID Server Settings	Log
ctivate Configuration		48	040131239	EXT_040131239	0	-	CPU					
scellaneous	_	49	040131240	EXT_040131240	0	-	CPU	Type IF	P CPU		Standard View	Expert V
stem Settings	^	50	040131241	EXT_040131241	0	-	CPU	-	Name	Basic F	Part A	Part B
rstem		51	040131242	EXT_040131242	0	-	CPU	DVI/HDMI/VGA (v	rideo)	\checkmark		
cess		52	040131243	EXT_040131243	0	-	CPU	HID (keyboard, n	nouse)	\checkmark		
witch		53	040131245	EXT_040131245	0	-	CPU	Analog Audio				
etwork ate and Time		54	040131246	EXT_040131246	0	-	CPU	Digital Audio				
atrix Grid		55	040131932	EXT_040131932	132	0	CON	RS232/RS422 (s	serial)			
tender & Devices	~	56	040137566	EXT_040137566	0	-	IP CPU	USB-CPU (embe	edded)			\checkmark
		57	040166854	EXT_040166854	71	72	IP CPU	USB-CPU (stand	dalone)			
XT Units PU Devices		58	040167519	EXT_040167519	0	0	IP CPU	Universal-CPU				
ON Devices		59	040230552	EXT_040230552	0	-	CON	Cascade-CPU		\checkmark		
ser Settings	~	60	040230555	EXT_040230555	0	-	CPU					
-		61	040233583	EXT_040233583	0	-	CON					
sers & Groups		62	09000097	EXT_090000097	97	-	USB 2.0 CON					
signment	^	63	090000248	EXT_090000248	248	-	USB 2.0 CPU 🔻					
tual CPU Devices			•				•					

Fig. 126 Management software menu Extender & Devices - EXT Units

The following parameters are recognized automatically (exceptions for USB 2.0 units and cascading units):

Field	Entry/Status	Description
ID	Text	Numerical value of the KVM extender module ID. The ID is provided by the extender module (serial number) and cannot be changed.
Name	Text	Name of the EXT Unit.

Field	Entry/Status	Description
Port	0 or 1 to 2032 Up to 576 ports if using a single matrix or up to 2032 ports within a matrix grid.	 0 if the primary interconnect port of the extender module is currently not connected to the matrix. 1 to 2032 if the primary interconnect port of the extender module is currently connected to a matrix within a matrix grid.
Fixed	Activated	EXT Unit was created as a fixed port extender module (e.g., USB 2.0 CON Unit, USB 2.0 CPU Unit).
	Deactivated	Function not active (default).
HDCP Active	Activated	HDCP is active on the respective extender module (retrieved automatically).
	Deactivated	Function not active (default).
CPU/CON Assigned	-	Assigned CPU Device or CON Device.
Redundant Port	-, 0 or 1 to 2032 Up to 576 ports if using a single matrix or up to 2032 ports within a matrix grid.	 0 if there is no redundant port or if the redundant interconnect port of the extender module is currently not connected to the matrix. 1 to 2032 if the redundant interconnect port of the extender module is currently connected to the matrix or to a matrix grid. - if the extender module does not have a redundant interconnect port.

7.6.1.2 Extender Module Type

To display the type data of an extender module, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Select the EXT Unit of the extender module whose type is to be displayed.

The extender module type is displayed on the right side of the working area.

- The **Basic** column stands for the extender module of the selected EXT Unit.
- The Part A and Part B columns stand for the add-on module of the selected EXT Unit.

pen <u>S</u> ave Reload <u>C</u> onn 20220215.zip Master X	ect <u>D</u> isc	onnect	Activate Edit M	ode Remote Save	Download.	. Upload	Monitoring Flash	h Update Device Fi	inder System Check Save Stat	us		
View	~	Ext	ender & Dev	vices - EXT Unit	s							
Matrix							Ţ	ID	10196925	CPU Assign	ed 01016 CPU 01	016
Port		#	ID	Name	Port	Red. Port	Туре	4		CFU ASSign		010
Grid		38	040069453	EXT_040069453	0	-	CPU	Name	EXT_010196925			
Control	_	39	010172819	EXT_010172819	0	-	CPU	Port	70	Redundant F	Port 0	
ontrol	^	40	090000097	EXT_090000097	97	-	USB 2.0 CON	Fixed				
extended Switch		41	010189131	EXT_010189131	133	-	CON	HDCP Active				
Presets		42	010135474	EXT_010135474	134	-	CON	Location				
tatus & Updates	^	43	090000248	EXT_090000248	248	-	USB 2.0 CPU		Device: TEST-A-E160			
Status - Matrix Firmware		44	010237332	EXT_010237332	0	0	CPU	Link 1	I/O board: 9	Link 2		
Status - Extender Firmware		45	040166854	EXT_040166854	71	72	IP CPU		I/O board port: 6 Matrix port: 70			
Jpdate - Matrix Firmware		46	010209391	EXT_010209391	0	0	CON					
Jpdate - Extender Firmware		47	010209392	EXT_010209392	0	0	CON	Extender Type	Firmware Version Paramete	rs USB-HID Ghosting	EDID	
Activate Configuration Additional Action		48	040113350	EXT_040113350	0	0	CON					
	_	49	010195808	EXT_010195808	0	0	CON	Type C	PU		Standard View	Expert Vi
System Settings	^	50	040000927	EXT_040000927	0	0	CON		Name	Basic	Part A	Part B
System		51	010000101	EXT_010000101	0	-	CON	DVI/HDMI/VGA (v	video)	\checkmark		
ccess		52	040230552	EXT_040230552	0	-	CON	HID (keyboard, r	mouse)	\checkmark		
Switch Jetwork		53	020201214	EXT_020201214	0	0	IP CPU	Analog Audio				
Date and Time		54	040167519	EXT_040167519	0	0	IP CPU	Digital Audio				
latrix Grid		55	010190934	EXT_010190934	69	0	CPU	RS232/RS422 (serial)			
xtender & Devices	~	56	010196925	EXT_010196925			CPU	USB-CPU (emb	edded)			
		57	040040265	EXT_040040265	0	-	CON	USB-CPU (stand	dalone)			
EXT Units CPU Devices		58	040137566	EXT_040137566	0	-	IP CPU	Universal-CPU				
CON Devices		59	010209378	EXT_010209378	17	0	CPU	Cascade-CPU				
Iser Settings	~	60	040058534	EXT_040058534	0	0	CPU					
-		61	020190617	EXT_020190617	0	0	CON					
Jsers & Groups		62	040230555	EXT_040230555	0	-	CPU					
ssignment	^	63	040233583	EXT_040233583	0	-	CON					
irtual CPU Devices			•				•					
irtual CON Devices		As	sign Settings to	o Copy Setting	gs from	Resta	art Extender			New Unit E	elete Unit Apr	ly <u>C</u> and

Fig. 127 Management software menu Extender & Devices - EXT Units - Expert View - Extender Type

7.6.1.3 Extender Module Firmware Version

To display the firmware version of an extender module, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Select the EXT Unit of an extender module to be displayed.
- 3. Click the Firmware Version tab on the right side of the working area.

The Firmware Version overview is displayed on the right side of the working area.

pen Save Reload Conn	ect <u>D</u> isc	onnect	Activate Edit M	ode Remote Save	Townload.	Upload	Monitoring Flash	Update	Device Fi	inder System Check	Save Status			
20220215.zip Master ×														
View	~ 4	Ext	ender & Dev	vices - EXT Units	5									
Matrix							T	ID		40131932		CON Assigned	03004 CON_03004	
Port		#	ID 🔺	Name	Port	Red. Port	Туре	4				CONASSIgned	03004 0014_03004	
Grid		38	040040265	EXT_040040265	0	-	CON	Nar	ne	EXT_040131932				
Control		39	040058534	EXT_040058534	0	0	CPU	Por	t	132		Redundant Port	0	
Control	^	40	040069452	EXT_040069452	0	-	CPU	Fixe	d					
Extended Switch		41	040069453	EXT_040069453	0	-	CPU	HDO	P Active					
Presets		42	040069455	EXT_040069455	0	-	CPU	Loc	ation					
Status & Updates	~	43	040076855	EXT_040076855	153	-	CPU			Device: TEST-A-	F160			
Status - Matrix Firmware		44	040076860	EXT_040076860	145	-	CPU	Lini	(1	I/O board:	17	Link 2		
Status - Extender Firmware		45	040113350	EXT_040113350	0	0	CON			I/O board port: Matrix port:	4 132	LIIKZ		
Jpdate - Matrix Firmware		46	040131237	EXT_040131237	0	-	CPU			Indiin pore.	102			
Jpdate - Extender Firmware		47	040131238	EXT_040131238	0	-	CPU	Exte	nder Type	Firmware Version	General OSD Data	Extender OSD Dat	ta Parameters	
Activate Configuration		48	040131239	EXT_040131239	0	-	CPU	#		Name	т	ype	Version	
Miscellaneous	_	49	040131240	EXT_040131240	0	-	CPU	01	EXTHRCO	N	EXR		F01.46.211004	
System Settings	^	50	040131241	EXT_040131241	0	-	CPU	02	HIDCON		HID		F04.03.210521	
System		51	040131242	EXT_040131242	0	-	CPU	03	EXTMSD		MSD		B02.51.200422	
Access		52	040131243	EXT_040131243	0	-	CPU	04	ANASER		SAX		B04.10.101026	
Switch		53	040131245	EXT_040131245	0	-	CPU	05	HIDCPU		HID		F04.03.210521	
Network Date and Time		54	040131246	EXT_040131246	0	-	CPU							
Matrix Grid		55	040131932	EXT_040131932	132	0	CON							
Extender & Devices	~	56	040137566	EXT_040137566	0	-	IP CPU							
		57	040166854	EXT_040166854	71	72	IP CPU							
EXT Units		58	040167519	EXT_040167519	0	0	IP CPU					#4 ² 2*		
CPU Devices CON Devices		59	040230552	EXT_040230552	0	-	CON			0			0	
	_	60	040230555	EXT_040230555	0	-	CPU			1G			0	
User Settings	^	61	040233583	EXT_040233583	0	-	CON			U	UN UN		0	
Users & Groups		62	09000097	EXT_090000097	97	-	USB 2.0 CON							
Assignment	^	63	090000248	EXT_090000248	248	-	USB 2.0 CPU 🗸							
Virtual CPU Devices			•				•							
							irt Extender					ew Unit Delete		

Fig. 128 Management software menu Extender & Devices - EXT Units - Firmware Version

Add-on modules are shown together with the associated extender module in one EXT Unit.

7.6.2 Renaming an EXT Unit

To rename an EXT Unit after initially connecting an extender module to the matrix, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of an extender module to be renamed.
- 4. Delete the name in the Name field and enter the new name.
- 5. Click **Apply** to confirm the changes.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.6.3 Managing Extender Parameters

Extender module related parameters can be read out, can be displayed, and can be changed in this menu. The behavior of the parameters depends on the individual extender modules. Please refer to the manual of the respective extender module to get information about what the displayed parameters mean.

ben <u>S</u> ave Reload <u>Conn</u> 20220215.zip Master X			Deactivate Edit	Mode Remote Save	Download.	Upload	Monitoring	Flas	h Update Device F	Finder System Che	ck Save Status	3		
ïew	^	-		vices - EXT Units									Edit Mo	de activa
latrix								Y	ID	10190934		CDU Assissed	04045 0011 074	(51.0)
ort		#	ID 🔺	Name	Port	Red. Port	Туре		ID			CPU Assigned	01015 CPU_07.1	(DH)
rid		02	010135474	CON_06	0	-	CON		Name	CPU_07.1				
ontrol		03	010145665	CON_MV_1.2	0	-	CON		Port	69		Redundant Port	0	
ontrol	~	04	010146604	CPU_06	0	-	CPU		Fixed					
tended Switch		05	010155403	CON_MV_3.4	0	-	CON		HDCP Active					
resets		06	010155408	CON_MV_3.1	89	-	CON		Location					
atus & Updates	~	07	010155411	CON_MV_4.1	0	-	CON		Location	Device: TEST-	E1CO			
		08	010155412	CON_MV_2.4	0		CON		Link 1	I/O board:	9	Link 2		
atus - Matrix Firmware atus - Extender Firmware		09	010155415	CON_MV_2.3	0	-	CON		LINK 1	I/O board por		LINK 2		
odate - Matrix Firmware		10	010155418	CON_MV_3.2	90	-	CON			Matrix port:	69			
pdate - Extender Firmware		11	010155419	CON_MV_4.3	0	-	CON		Extender Type	Firmware Version	Parameters	USB-HID Ghosting ED	DID	
ctivate Configuration		12	010155420	CON_MV_4.2	0	-	CON		- -	T T	XII		Press 🍸 (Read) to lo	
scellaneous		13	010155422	CON_MV_3.3	91	-	CON		Open Save As		Reset Assig		rress 👔 (Read) to io	ad Paramet
stem Settings	^	14	010155423	CON_MV_1.4	0	-	CON							
/stem		15	010155425	CON_MV_2.2	0	-	CON							
cess		16	010155426	CON_MV_2.1	0	-	CON							
witch		17	010172819	CPU_05	0	-	CPU							
etwork		18	010182231	CON_MV_4.4	0	-	CON							
ate and Time atrix Grid		19	010189131	CON_05	0	-	CON							
		20	010190934	CPU_07.1	69	0	CPU							
ttender & Devices	^	21	010195692	CON_MV_1.1	0	-	CON							
XT Units		22	010195694	CON_MV_1.3	0	-	CON							
PU Devices		23	010195808	CON_10	0	0	CON							
ON Devices		24	010196925	CPU_07.2	70	0	CPU							
ser Settings	^	25	010207759	CON_01	0	0	CON		Attentio	n! Reading and writ	ing the Parame	ters results in a short inte	errupt of the connectiv	on.
sers & Groups			-							and with	and the taraffic	tere i source in a short inte	apt of the confident	
signment	~	Ass	sign Settings to	Copy Setting	s from	Restart	Extender					New Unit De	lete Unit Acc	ly <u>C</u> ar

Fig. 129 Management software menu Extender & Devices - EXT Units - Read parameters

The following functions are available in the **Parameters** tab:

Button	Function
Open	Open locally saved parameters.
Save As	Save the parameters locally (file Config.txt).
Read	Read the parameters of the extender module.
Transmit	Transmit the parameters to the extender module and activate.
Reset	Reset the parameters of the extender module to factory settings.
Assign	Assign the parameters to several extender modules at the same time.



Reading and writing parameters will result in an interrupt of the connection.

7.6.3.1 Reading Parameters

To read out and display parameters of an extender module, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of the extender module whose parameters are to be displayed.
- 4. Click the **Parameter** tab on the right side of the working area.
- 5. Click **Read** in the symbol bar of the tab.

A query to read the parameters appears.

6. Click Yes to confirm the reading.

The parameters of the extender module are read out and displayed on the right side of the working area. At the same time, the connection will be disconnected for a few seconds.

en <u>S</u> ave Reload <u>C</u> o	nnect <u>D</u> isc	connect	Deactivate Edit	Mode Remote Save	Download.	Upload	Monitoring Fla	ash Update Device	C. Finder	System Che		ZIP Status				
0220215.zip Master ×	~	A												E dia		
iew	^	EXT	ender & Dev	vices - EXT Units			Ŧ	_						Edit	Mode ad	ctivat
latrix 'ort		#	ID 🔺	Name	Port	Red. Port		, ID	40131	932			CON Assigned	03004 CON_0	4	
irid			040070000	010_101_01	140	Trea. For	1990	Name	CON_	04						
ontrol		45	040113350	CON_09	65	0	CON	Port	132				Redundant Port	0		
ontrol	~	46	040131237	CPU_Raspi_07	0	-	CPU	Fixed								
		47	040131238	CPU_Raspi_08	0	-	CPU									
xtended Switch resets		48	040131239	CPU_Raspi_09	0	-	CPU	HDCP Active								
	~	49	040131240	CPU_Raspi_06	0	-	CPU	Location								
tatus & Updates	^	50	040131241	CPU_Raspi_05	0	-	CPU		Devic I/O b	e: TEST-A	A-E160 17					
tatus - Matrix Firmware		51	040131242	CPU_Raspi_04	0	-	CPU	Link 1		oard port			Link 2			
tatus - Extender Firmware pdate - Matrix Firmware		52	040131243	CPU_Raspi_03	0	-	CPU		Matri	x port:	132					
pdate - Matrix Firmware pdate - Extender Firmwar	e	53	040131245	CPU_Raspi_01	0	-	CPU	Extender Type	Firmwa	re Version	Genera	al OSD Data	Extender OSD Dat	a Parameters		
ctivate Configuration		54	040131246	CPU_Raspi_10	0	-	CPU	_					Extender 000 Dat	a r drameters		
iscellaneous		55	040131932	CON_04	132	0	CON	Open Save As.	Read	↑ Transmit	Reset	1 Assign				
ystem Settings	^	56	040137566	IP-CPU_B_CATx	0	-	IP CPU	Local Switchin			10001	/ congritte				
/stem			040166854	IP-CPU_D_Fiber	71	72	IP CPU	Private Mode								
ccess		58	040167519	IP-CPU_C_Fiber	0	0	IP CPU	USB 2.0 embed	dded							
witch		59	040230552	SRF_CON_1	0	-	CON	USB Audio Off								
etwork		60	040230555	EXT_040230555	0	-	CPU	Mic Amplifier								
ate and Time		61	040233583	EXT_040233583	0	-	CON	Output Setting	S							
atrix Grid		62	040301838	EXT_040301838	0	0	CON	1080p50Hz								
xtender & Devices	^	63	040301839	EXT_040301839	0	0	CPU	EXT OSD Off								
XT Units		64	09000097	USB2.0_CON	97	-	USB 2.0 CO	LOS Frame								
PU Devices		65	090000248	USB2.0_CPU	248	-	USB 2.0 CP	Redundant Fra	ime		Width	з 🗘	Duration	0 🗘	Color	blu
ON Devices		66	109999991	UNI_109999991	121	-	UNI CON	Last Frame								
ser Settings	~	67	109999992	UNI_109999992	122	-	UNI CPU	LOS Timer								
sers & Groups		68	109999993	UNI_109999993	123	-	UNI USB CC	Manual EDID								
		69	109999994	UNI_109999994	124	-	UNI USB CF									
ssignment	^	70	109999995	UNI 109999995	125		UNI	Attentio	on! Readir	ng and writ	ing the Pa	arameters re	sults in a short inter	rupt of the conne	ection.	
rtual CPU Devices rtual CON Devices		As	sign Settings to	Copy Setting	s from	Restart	Extender						New Unit Del	lete Unit	Apply	<u>C</u> ar

Fig. 130 Management software menu Extender & Devices - EXT Units - Displayed parameters

7.6.3.2 Changing Parameters

To change parameters of an extender module, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Units of the extender module whose parameters are to be displayed.
- 4. Click the **Parameter** tab on the right side of the working area.
- Click **Read** in the symbol bar of the tab.
 A query to read the parameters appears.
- 6. Click **Yes** to confirm the reading.

The parameters of the extender module are read out and displayed on the right side of the working area. At the same time, the connection will be disconnected for a few seconds.

- 7. Change the parameters.
- 8. Click Transmit.

A query for transmission appears.

9. Click **Yes** to transmit the modified parameters to the extender module.

The progress of the parameter transmission is displayed.

10. Click **Close** when the parameter transmission is completed (green).

Parameters Transmission		
Progress	100%	
2021-02-04T09:29:08.395	Parameters transmission started	
2021-02-04T09:29:12.726	Parameters transmission to EXT_010190938 completed	
2021-02-04T09:30:46.571	Restart extender	
2021-02-04T09:31:26.872	Refresh Parameters information	
2021-02-04T09:31:28.904	Parameters transmission completed	Ŧ
	Close	

Fig. 131 Management software menu Extender & Devices - EXT Units - Transmission finished

The parameter transmission is finished.

11. Click **Deactivate Edit Mode** in the toolbar.

7.6.3.3 Assigning Parameters

To assign parameters of an extender module to another one, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Units of the extender module whose parameters are to be displayed.
- 4. Click the **Parameter** tab on the right side of the working area.
- 5. Click **Read** in the symbol bar of the tab.

A query to read the parameters appears.

6. Click Yes to confirm the reading.

The parameters of the extender module are read out and displayed on the right side of the working area. At the same time, the connection will be disconnected for a few seconds.

7. Click Assign.

A query to assign the parameters appears.

- 8. Select the EXT Units of those extender modules the currently displayed parameters should be assign to. By pressing and holding down Ctrl at the same time, more than one EXT Unit can be highlighted.
- 9. Click ▶ to move the highlighted EXT Units to the Assign settings to list. By clicking ▶, all EXT Units will be moved to the Assign settings to list.
- 10. To remove highlighted EXT Units from the **Assign settings to** list, click **4**. By clicking **4**, all EXT Units will be removed from the **Assign settings to** list.

11. Click Next >.

Steps		Assign Parameters to										
1. Assign 2. Confirm	Parameters to	Availabl	e to assign settings	to	Ass	sign settings to						
3. Transn	nit Parameters to	ID	Name		ID	Name						
Extend	er	10155408	CON_MV_3.1		40131932	CON_04	4					
		10155418	CON_MV_3.2	Þ								
		10155422	CON_MV_3.3									
		10155403	CON_MV_3.4	-								
		10155411	CON_MV_4.1									
		10155420	CON_MV_4.2	•								
		10155419	CON_MV_4.3									
		10182231	CON_MV_4.4									
		10207759	CON_01	•								

Fig. 132 Management software menu Extender & Devices - EXT Units - Select EXT Units

A query to start the assignment appears.

- 12. Tick the Confirm to continue checkbox to confirm the start of the assignment.
- 13. Click **Next >** to start of the assignment.

	Assign		×
Ste	eps	Confirm	
1. 2. 3.	Assign Parameters to Confirm Transmit Parameters to Extender	Reading and writing the Parameters results in a short interrupt of the connection for all the selected extenders. Pressing the button Next will immediately start the update. Confirm to continue	
		< <u>B</u> ack Next > <u>F</u> inish Can	cel

Fig. 133 Management software menu Extender & Devices - EXT Units - Start parameter assignment

The progress of the parameter assignment is displayed.

14. Click Finish when the parameter assignment is completed (green).

	Assign									
Ste	ps	Transmit Parameters to Exten	der							
1. 2.	Assign Parameters to Confirm	Progress 100%								
3.	Transmit Parameters to	2021-02-18T11:13:25.221	Estimated transmission time: < 1 minute							
	Extender	2021-02-18T11:13:25.221	Parameters transmission started							
		2021-02-18T11:13:27.357	Parameters transmission to CON_04 completed							
		2021-02-18T11:13:27.357	Restart extender							
		2021-02-18T11:14:07.611	Refresh Parameters information							
		2021-02-18T11:14:09.655	Parameters transmission completed							
			Save Log Messages							
			< <u>B</u> ack Next > <u>F</u> inish Cance							

Fig. 134 Management software menu Extender & Devices - EXT Units - Assignment finished

The parameter assignment is finished.

15. Click **Deactivate Edit Mode** in the toolbar.

7.6.4 Assigning/Copying Settings to other CON EXT Units

Assigning Settings to other EXT Units

To assign settings of an extender module to another one, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON EXT Unit whose settings are to be assign to another CON EXT Unit.
- 4. Click Assign Settings to below the EXT Units list.

A query to select the settings appears.

- 5. Tick the checkboxes to select the desired settings.
- 6. Click Next >.

Assign Settings to	×
Steps	Select Settings
 Select Settings Assign Settings to 	
	 ✓ General OSD Data ✓ Extender OSD Data
	✓ Select All
5' 105 Marson (< <u>Back</u> Next > <u>Finish</u> Cancel

Fig. 135 Management software menu Extender & Devices - EXT Units - Assign Settings - Select Settings

A query to start the assignment appears.

- 7. Select the CON EXT Unit in the **Available to assign settings to** list to assign the settings to. By pressing and holding down **Ctrl** at the same time, more than one CON EXT Unit can be highlighted.
- 8. Click ▶ to move the highlighted CON EXT Unit(s) to the **Assign settings to** list. By clicking ▶, all CON EXT Units will be moved to the **Assign settings to** list.
- 9. To remove highlighted EXT Units from the **Assign settings to** list, click **∢**. By clicking **∢**, all CON EXT Units will be removed from the **Assign settings to** list.
- 10. Click Finish.

The settings are immediately assigned to the selected CON EXT Units.

11. Click **Deactivate Edit Mode** in the toolbar.

	Assign Settings to							×
Ste	ps	Assign Settin	gs to					
1. 2.	Select Settings Assign Settings to	Availabl	e to assign settings	to		Ass	sign settings to	
2.	Assign Settings to	ID	Name			ID	Name	
		10155411	CON_MV_4.1	*		10207759	CON_01	
		10155420	CON_MV_4.2		*	40015300	CON_02	
		10155419	CON_MV_4.3					
		10182231	CON_MV_4.4					
		10218839	CON_03					
		40131932	CON_04		•			
		10135474	CON_06		••			
		10209391	CON_07					
		10209392	CON_08					•
					< <u>B</u> a	ck Next >	⊳ <u>F</u> inish	Cancel

Fig. 136 Management software menu Extender & Devices - EXT Units - Assign Settings - Assign Settings to

Copying Settings from an EXT Unit

To copy settings from a CON EXT Unit to another one, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON EXT Units to copy the settings to. By pressing and holding down Ctrl at the same time, more than one CON EXT Unit can be highlighted.
- 4. Click Copy Settings from below the CON EXT Units list.

A query to select the settings appears.

- 5. Tick the checkboxes to select the desired settings.
- 6. Click Next >.

	Copy Settings from		×
Ste	eps	Select Settings	_
1. 2.	Select Settings Copy Settings from		
		 ✓ General OSD Data ✓ Extender OSD Data 	
		Select All	
		< <u>B</u> ack Next> Einish Cance	I

Fig. 137 Management software menu Extender & Devices - EXT Units - Select Settings

A query to start the assignment appears.

- 7. Select the CON EXT Unit in the selection list from which the settings are to be copied.
- 8. Click Finish.

The settings are immediately copied to the selected CON EXT Units.

Copy Settings from		×
Steps	Copy Settings from	
 Select Settings Copy Settings from 	Copy from 010207759 CON_01 010182231 CON_MV_4.4 010218839 CON_03 040131932 CON_04 010207759 CON_01 040015300 CON_02 010135474 CON_06 010209391 CON_07 010209392 CON_08 040113350 CON_09 010195808 CON_10 040000927 CON_11 010000101 CON_12	
	< <u>B</u> ack Next >	<u>Finish</u> Cancel

Fig. 138 Management software menu Extender & Devices - EXT Units - Copy Settings

7.6.5 Configuring EXT Units for USB 2.0 Extender Modules

To use USB 2.0 extender modules, the respective EXT Unit has to be configured as fixed port in this menu. USB 2.0 EXT Units can be configured for independent switching or can be assigned to already existing CON Devices or CPU Devices.

- 📑 (5) 💷		•		Ţ		- ^		K 🖌 🔮			
en <u>S</u> ave Reload <u>C</u> onnect <u>D</u> is	sconnect	Activate Edit M	lode Remote Save	Download	Upload	Monitoring Flas	h Update Device F	inder System Check Save S	Status		
0220215.zip Master ×											
iew 🔨	A Ext	ender & De	vices - EXT Unit	5							
latrix						Ţ	ID	90000097	CONA	ssigned 03105 CON	02105
ort	#	ID 🔺	Name	Port	Red. Port	Туре	4		CONTAC	saigned to too con	_03103
rid	38	040040265	EXT_040040265	0	-	CON	Name	EXT_09000097			
ontrol	39	040058534	EXT_040058534	0	0	CPU	Port	97			
ontrol ^	40	040069452	EXT_040069452	0	-	CPU	Fixed	\checkmark			
tended Switch	41	040069453	EXT_040069453	0	-	CPU	HDCP Active				
resets	42	040069455	EXT_040069455	0	-	CPU	Location				
tatus & Updates 🔷	43	040076855	EXT_040076855	153	-	CPU		Device: TEST-A-E160			
tatus - Matrix Firmware	44	040076860	EXT_040076860	145	-	CPU	Link 1	I/O board: 13			
tatus - Extender Firmware	45	040113350	EXT_040113350	0	0	CON		I/O board port: 1 Matrix port: 97			
pdate - Matrix Firmware	46	040131237	EXT_040131237	0	-	CPU					
pdate - Extender Firmware	47	040131238	EXT_040131238	0	-	CPU	Extender Type	Firmware Version Genera	al OSD Data Extende	er OSD Data Parameter	s
						0.0					
	48	040131239	EXT_040131239	0	-	CPU		100 0 0 0 0 0 0			
ctivate Configuration liscellaneous	48 49	040131239 040131240	EXT_040131239 EXT_040131240	0	-			JSB 2.0 CON		Standard Vie	w Expert Vi
iscellaneous			_			CPU		JSB 2.0 CON	Basic	Standard Vie Part A	w Expert V
iscellaneous ystem Settings ^	49	040131240	EXT_040131240	0	-	CPU CPU		Name	Basic		
iscellaneous ystem Settings > stem ccess	49 50	040131240 040131241	EXT_040131240 EXT_040131241 EXT_040131242	0 0 0 0	-	CPU CPU CPU	Type U	Name video)		Part A	Part B
iscellaneous ystem Settings > stem ccess witch	49 50 51	040131240 040131241 040131242	EXT_040131240 EXT_040131241 EXT_040131242	0 0 0 0 0 0	-	CPU CPU CPU CPU	Type U DVI/HDMI/VGA (Name video)		Part A	Part B
liscellaneous	49 50 51 52	040131240 040131241 040131242 040131243	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243	0 0 0 0 0 0	•	CPU CPU CPU CPU CPU	Type U DVI/HDMI/VGA (v HID (keyboard, r	Name video)		Part A	Part B
iscellaneous vstem Settings	49 50 51 52 53	040131240 040131241 040131242 040131243 040131245	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245	0 0 0 0 0 0 0 0	-	CPU CPU CPU CPU CPU CPU	Type U DVI/HDMI/VGA (t HID (keyboard, r Analog Audio	Name video) mouse)		Part A	Part B
Iiscellaneous ystem ystem ccess witch letwork	49 50 51 52 53 54	040131240 040131241 040131242 040131243 040131245 040131246	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245 EXT_040131246	0 0 0 0 0 0 0 0	- - - - -	CPU CPU CPU CPU CPU CPU CPU	Type U DVI/HDMI/VGA (k HID (keyboard, r Analog Audio Digital Audio	Name Video) mouse) serial)		Part A	Part B
iscellaneous ystem Settings ystem ccess witch letwork ate and Time latrix Grid xtender & Devices ^	49 50 51 52 53 54 55	040131240 040131241 040131242 040131243 040131245 040131246 040131246	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245 EXT_040131246 EXT_040131932	0 0 0 0 0 0 0 0 132	- - - - -	CPU CPU CPU CPU CPU CPU CPU CPU CON	Type U DVI/HDMI/VGA (HID (keyboard, r Analog Audio Digital Audio RS232/RS422 (s	Name video) mouse) serial) oedded)		Part A	Part B
Iscellaneous ystem ccess witch letwork ate and Time latrix Grid	49 50 51 52 53 54 55 56	040131240 040131241 040131242 040131243 040131245 040131246 040131932 040137566	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245 EXT_040131246 EXT_040131932 EXT_040137566	0 0 0 0 0 0 0 0 132 0	- - - - - 0 -	CPU CPU CPU CPU CPU CPU CPU CON IP CPU	Type U DVI/HDMI/VGA (M HID (keyboard, r Analog Audio Digital Audio RS232/RS422 (USB-CON (emb	Name video) mouse) serial) oedded)		Part A	Part B
iscellaneous vistem Settings vistem ccess witch ate and Time atrix Grid XT Units PU Devices	49 50 51 52 53 54 55 56 56 57	040131240 040131241 040131242 040131243 040131245 040131246 040131932 040137566 04016854	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245 EXT_040131246 EXT_040131932 EXT_040137566 EXT_040166854	0 0 0 0 0 132 0 71	- - - - 0 - 72	CPU CPU CPU CPU CPU CPU CPU CON IP CPU IP CPU	Type U DVI/HDMI/VGA (HID (keyboard, r Analog Audio Digital Audio RS232/RS422 (: USB-CON (emb USB-CON (stan	Name video) mouse) serial) oedded)		Part A	Part B
iscellaneous stem Settings stem ccess witch etwork ate and Time atrix Grid xt Units PU Devices ON Devices	49 50 51 52 53 54 55 56 57 58	040131240 040131241 040131242 040131243 040131245 040131245 040131932 040137566 040166854 040167519	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245 EXT_040131246 EXT_040131932 EXT_040137566 EXT_040165654 EXT_040167519	0 0 0 0 132 0 71 0	- - - - - 0 - 72 0	CPU CPU CPU CPU CPU CPU CPU CON IP CPU IP CPU IP CPU	Type U DVI/HDMI/VGA (HID (keyboard, r Analog Audio Digital Audio RS232/RS422 (USB-CON (emb USB-CON (stan Universal-CON	Name video) mouse) serial) oedded)		Part A	Part B
iscellaneous ystem Settings ystem ccess witch letwork ater and Time latrix Grid XT Units PU Devices ON Devices ser Settings ^	49 50 51 52 53 54 55 56 57 58 59	040131240 040131241 040131242 040131243 040131245 040131245 040131932 040137566 040166854 040167519 040230552	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245 EXT_040131246 EXT_040131932 EXT_040137666 EXT_04016854 EXT_040167519 EXT_040230552	0 0 0 0 0 132 0 71 0 0	- - - - - 0 - 72 0 -	CPU CPU CPU CPU CPU CPU CPU CON IP CPU IP CPU CON	Type U DVI/HDMI/VGA (HID (keyboard, r Analog Audio Digital Audio RS232/RS422 (USB-CON (emb USB-CON (stan Universal-CON	Name video) mouse) serial) oedded)		Part A	Part B
iscellaneous stem Settings stem ccess witch etwork ate and Time atrix Grid xt Units PU Devices ON Devices	49 50 51 52 53 54 55 56 57 58 59 60	040131240 040131241 040131242 040131243 040131245 040131246 040131246 040131932 040137566 040166854 040167519 040230555	EXT_040131240 EXT_040131241 EXT_040131242 EXT_040131243 EXT_040131245 EXT_040131246 EXT_040131246 EXT_0401319366 EXT_0401319366 EXT_040166854 EXT_040167519 EXT_040230552	0 0 0 0 132 0 71 0 0 0	- - - - - - - - - - - - - - - - - - -	CPU CPU CPU CPU CPU CPU CPU CON IP CPU IP CPU CON CON CPU	Type U DVI/HDMI/VGA (HID (keyboard, r Analog Audio Digital Audio RS232/RS422 (USB-CON (emb USB-CON (stan Universal-CON	Name video) mouse) serial) oedded)		Part A	Part B
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Fig. 139 Management software menu Extender & Devices - EXT Units - Extender Type - USB 2.0

To configure a USB 2.0 EXT Unit, proceed as follows:

- 1. Select Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click New Unit.

A selection dialog appears.

4. Select Choose template in the selection box if you want to use a template for a USB 2.0 CON Unit or a USB 2.0 CPU Unit.

An EXT Unit with an eight-digit ID will be created, starting with digit 9.

- 5. Enter an appropriate name for the EXT Unit in the **Name** field.
- 6. Enter the port number of the matrix physically connected to the USB 2.0 extender module into the **Port** field.
- 7. Click **Apply** to confirm the settings.

A dialog appears to restart the I/O board.

8. Click Yes to restart the I/O board to activate the USB fixed port for the new EXT Unit.

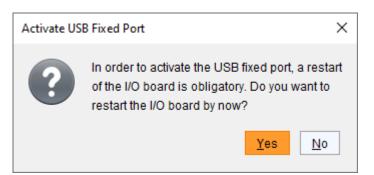


Fig. 140 Management software dialog Activate USB Fixed Port

After restart of the I/O board, the parameters and settings of the USB 2.0 extender module are shown in the working area of the respective EXT Unit.

- 9. The USB 2.0 CPU/CON EXT Unit has to now be either assigned to an existing CPU/CON Device or a new CPU/CON Device has to be created for the assignment:
 - for a CPU Device see chapter 7.7.3, page 223,
 - for a CON Device see chapter 7.8.3, page 240
- 10. If you use parallel operation within the matrix, set the **Release Time** in the **System Settings > Switch** menu to **10 s** or more (see chapter 7.4.7, page 163).
- 11. Restart all I/O boards on which USB 2.0 EXT Units have been configured or alternatively restart the matrix.

The USB 2.0 EXT Units are now configured and can be used.

Manually created EXT Units are always set as fixed port EXT Units. This configuration is necessary if you want to switch, e.g., USB 2.0 connections via the matrix.

To make a fixed port available again for Flex Port EXT Units after deleting a fixed port EXT Unit, a restart of the I/O board is necessary.

7.6.6 Configuring EXT Units for USB 3.0/USB 2.0 Extender Modules

To use USB 3.0/USB 2.0 extender modules connected to a UNI I/O board, SFP modules based on 6.25 Gbit/s are required. The configuration of EXT Units for USB 2.0/USB 3.0 extender modules is set in this menu.

USB 2.0 extender modules can also be used with UNI I/O boards and SFP modules based on 6.25 Gbit/s or can be connected to fixed ports of I/O boards (see chapter 7.6.5, page 208).

n Save Reload Conn	ect <u>D</u> isc	connect	Deactivate Edit	t Mode Remote Save	Download	Upload	Monitoring F	•	e Finder System Check	Save Status		
220215.zip Master ×												
ew	~	Ext	ender & De	vices - EXT Units							1	Edit Mode activat
atrix							T	ID	109999994	6	PU/CON Assig	
ort		#	ID	Name	Port	Red. Port	Туре	1		C C	PU/CON ASSIg	
id		45	040166854	IP-CPU_D_Fiber	71	72	IP CPU	Name	UNI_109999994			
ontrol		46	010209391	CON_07	0	0	CON	Port	124			
ntrol	^	47	010209392	CON_08	0	0	CON	Fixed				
tended Switch		48	040113350	CON_09	0	0	CON	HDCP Active				
esets		49	010195808	CON_10	0	0	CON	Location				
atus & Updates	~	50	040000927	CON_11	0	0	CON	Locution	Device: TEST-A-El			
		51	010000101	CON_12	0	-	CON	Link 4		6		
atus - Matrix Firmware atus - Extender Firmware		52	040230552	SRF_CON_1	87	-	CON	Link 1	I/O board port: 4			
date - Matrix Firmware		53	020201214	IP-CPU_E_v2_DH	0	0	IP CPU		Matrix port: 1	24		
date - Extender Firmware		54	040167519	IP-CPU C Fiber	0	0	IP CPU	Extender Type	Firmware Version			
ivate Configuration		55	010190934	CPU 07.1	69	0	CPU					
scellaneous		56	010196925	CPU_07.2	70	0	CPU	Type U	JNI USB CPU 🗸		Standar	rd View Expert V
stem Settings	^	57	040040265	SRF_CON_2	0	-	CON	I	Name	Basic	Part A	Part B
stem		58	040137566	IP-CPU B CATX	0	-	IP CPU	DVI/HDMI/VGA (Basic	FaitA	Faitb
cess		59	010209378	VuWall_TRx	0	0	CPU	HID (keyboard, r				
vitch		60	040058534		0	0	CPU	Analog Audio	nouse)			
etwork		61	020190617	24km_CON_R483	0	0	CON	Digital Audio				
ate and Time atrix Grid		62	040230555	EXT_040230555	86	-	CPU	RS232/RS422 (corial)			
	_	63	040233583	EXT_040233583	88	-	CON			\checkmark		
tender & Devices	^	64	040301838	EXT 040301838	158	0	CON	USB-CPU (emb		√ √		
(T Units		65	040301839	EXT_040301839	150	0	CPU	Universal-CPU	uarone)	V		
PU Devices		66	109999991	UNI_109999991	121	-	UNICON	Cascade-CPU		V		
ON Devices		67	109999992	UNI_109999992	122	-	UNI CPU	Cascade-OPU				
er Settings	^	68	109999993	UNI 109999993	123	-	UNI USB C					
ers & Groups		69	1099999994	UNI_109999994	124	-	UNI USB C					
signment	^	70	109999995	UNI_109999995	125	-	UNI					
tual CPU Devices tual CON Devices Iti-Screen Control		As	sign Settings to	o Copy Settings	s from	Restart	t Extender			<u>N</u> ew U	Init Delete Unit	<u>Apply</u>

Fig. 141 Management software menu Extender & Devices - EXT Units - Expert View - Extender Type

To configure an SFP for using with USB 2.0/USB 3.0 extender modules, proceed as follows:

- 1. Select **Configuration > EXT Units** in the main menu.
- 2. Insert the SFP modules into the matrix and connect the extender module according to the required application.

One EXT UNIT will be created for each SFP module in the **EXT Units** list. The appropriate names always start with "UNI".

- 3. To configure an EXT Unit as a CON Unit:
 - 3.1. Select one of the EXT Units in the **EXT Units** list that are physically connected to a USB CON Unit.
 - 3.2. Select the item UNI CON USB in the Type selection box of the Extender Type tab.
 - 3.3. Click **Apply** to confirm the setting.
 - 3.4. Click **Yes** to restart the I/O board upon request in the dialog.

- 4. To configure an EXT Unit as a CPU Unit:
 - 4.1. Select one of the EXT Units in the Ext Units list that are physically connected to a USB CPU Unit.
 - 4.2. Select the item UNI CPU USB in the Type selection box of the Extender Type tab.
 - 4.3. Click **Apply** to confirm the setting.
 - 4.4. Click **Yes** to restart the I/O board upon request in the dialog.
- 5. The USB 2.0/USB 3.0 CPU/CON EXT Unit has to now be either assigned to an existing CPU/CON Device or a new CPU/CON Device has to be created for the assignment:
 - for a CPU Device see chapter 7.7.3, page 223,
 - for a CON Device see chapter 7.8.3, page 240

After assigning EXT Units to CON/CPU Devices, the USB 2.0/USB 3.0 CON/CPU Ext Units are configured and can be used.

6. If you use parallel operation within the matrix, set the **Release Time** in the **System Settings > Switch** menu to **10 s** or more (see chapter 7.4.7, page 163).

If changing an EXT Unit from a USB CON to a USB CPU, a restart of the I/O board is necessary.

7.6.7 Configuring EXT Units for SDI Usage

For the use of SDI, the matrix is to be configured in this menu. Using SDI requires at least one UNI I/O board and appropriate SFP modules according to the SDI video signal to be used.

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	nnect <u>D</u> isc	onnect	Deactivate Edi	t Mode Remote Save	Download	Upload	Monitoring Fl	ash Update Device	e Finder System Check Sav	ve Status		
20220215.zip Master ×	_											
/iew	^	Ext	ender & De	vices - EXT Units							Edit Mo	ode activate
Matrix							T	ID	109999991	CPU/C	ON Assig	
Port		#	ID	Name	Port	Red. Port		Name	UNI 109999991			
Grid Control		45	040166854	IP-CPU_D_Fiber	71	72	IP CPU		_			
	_	46	010209391	CON_07	0	0	CON	Port	121			
Control	^	47	010209392	CON_08	0	0	CON	Fixed				
Extended Switch		48	040113350	CON_09	0	0	CON	HDCP Active				
Presets		49	010195808	CON_10	0	0	CON	Location				
Status & Updates	^	50	040000927	CON_11	0	0	CON		Device: TEST-A-E160			
Status - Matrix Firmware		51	010000101	CON_12	0	-	CON	Link 1	I/O board: 16			
Status - Extender Firmware		52	040230552	SRF_CON_1	87	-	CON		I/O board port: 1 Matrix port: 121			
Update - Matrix Firmware		53	020201214	IP-CPU_E_v2_DH	0	0	IP CPU					
Update - Extender Firmware Activate Configuration	e	54	040167519	IP-CPU_C_Fiber	0	0	IP CPU	Extender Type	Firmware Version			
		55	010190934	CPU_07.1	69	0	CPU					
Miscellaneous		56	010196925	CPU_07.2	70	0	CPU	Type U	JNI CON 🗸		Standard View	Expert Vie
System Settings	^	57	040040265	SRF_CON_2	0	-	CON		Name	Basic	Part A	Part B
System		58	040137566	IP-CPU_B_CATx	0	-	IP CPU	DVI/HDMI/VGA (V	video)			
Access		59	010209378	VuWall_TRx	0	0	CPU	HID (keyboard, r	mouse)			
Switch		60	040058534	24km_CPU_L483	0	0	CPU	Analog Audio				
Network Date and Time		61	020190617	24km_CON_R483	0	0	CON	Digital Audio				
Matrix Grid		62	040230555	EXT_040230555	86	-	CPU	RS232/RS422 (serial)			
Extender & Devices	~	63	040233583	EXT_040233583	88	-	CON	USB-CON (emb	edded)			
		64	040301838	EXT_040301838	158	0	CON	USB-CON (stan	dalone)			
EXT Units		65	040301839	EXT_040301839	150	0	CPU	Universal-CON		\checkmark		
CPU Devices CON Devices		66	109999991	UNI_109999991	121	-	UNI CON	Cascade-CON				
		67	109999992	UNI_109999992	122	-	UNI CPU					
Jser Settings	^	68	109999993	UNI_109999993	123	-	UNI USB C					
Users & Groups		69	109999994	UNI_109999994	124	-	UNI USB C					
Assignment	^	70	109999995	UNI_109999995	125	-	UNI 🗸					
rirtual CPU Devices rirtual CON Devices Iulti-Screen Control		Ass	◄ sign Settings to	o Copy Settings	from	Restart	Extender			New Unit	Delete Unit	oly <u>C</u> ano

Fig. 142 Management software menu Extender & Devices - EXT Units - Expert View - Extender Type

To configure an SFP for using as an SDI input/output, proceed as follows:

- 1. Select **Configuration > EXT Units** in the main menu.
- 2. Insert the SFP modules into the matrix and connect the extender module according to the required application.

One EXT UNIT will be created for each SFP module in the **EXT Units** list. The appropriate names always start with "UNI".

- 3. To configure an EXT Unit as an SDI input:
 - 3.1. Select one of the extender modules in the **EXT Units** list that are physically connected to a USB CON Unit.
 - 3.2. Select the UNI CPU item in the Type selection box of the Extender Type tab.
 - 3.3. Click **Apply** to confirm the setting.
 - 3.4. Click **Yes** to restart the I/O board upon request in the dialog.

- 4. To configure an EXT Unit as an SDI output:
 - 4.1. Select one of the extender modules in the **Ext Units** list that are physically connected to a USB CPU Unit.
 - 4.2. Select the UNI CON item in the Type selection box of the Extender Type tab.
 - 4.3. Click **Apply** to confirm the setting.
 - 4.4. Click **Yes** to restart the I/O board upon request in the dialog.
- 5. The edited EXT Units for the SDI inputs and outputs has to now be either assigned to an existing CPU/CON Device or a new CPU/CON Device has to be created for the assignment:
 - for a CPU Device see chapter 7.7.3, page 223,
 - for a **CON Device** see chapter 7.8.3, page 240

After assigning EXT Units to CON/CPU Devices, the SDI inputs and outputs are configured and can be used.

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If changing a UNI Unit from a UNI CON to a USB CPU, a restart of the I/O board is necessary.

7.7 Configuring the CPU-Side Settings

7.7.1 Managing the Extender Module USB-HID Ghosting

This function allows specific keyboard and mice descriptors (device descriptions) to be permanently stored in the CPU Unit. This eliminates the need to register and deregister the keyboard and mouse on an operating system each time there is a shared use of a source by two or more consoles within a matrix.

Next to the use of keyboard commands (see chapter 8.3.2.2, page 296), the activation and management of the USB-HID Ghosting information can also be handled centrally via matrix to reach all connected extender modules at the same time.

General Preparation

To use the USB-HID Ghosting management via management software, it is required that USB-HID Ghosting has been already activated at a CPU Unit via keyboard command or the USB-HID Ghosting information is already available as a file with the file extension .dhg.

Several general options are available. For these options, select the menu **Extender & Devices > EXT Units** in the task area, select a CPU EXT Unit and select the **USB-HID Ghosting** tab in the working area.

																_		<
File Edit Device Extras 2								i	0		~	ł						-
Open Save Reload Connect		ct Deactivate Edi	t Mode Remote Save	Downloa	d Upload	. Monitoring	Flash	•	Device Find	der Syst	em Check	Save Status						
20220215.zip Master ×	admin@"	192.168.100.112	×															
View	^ E	xtender & De	vices - EXT Unit	;												Edit M	ode activate	d
Matrix							T	ID		1023320)1			CPU Assigne	ed	01002 CPU_010233201		
Port		ŧ ID	Name	Port	Red. Port			Name		EXT_01								
Grid Control		1 012348765	EXT_012348765	14	0	CON					0233201							
	_	2 010203250	EXT_010203250	15		CON		Port		47								
		3 040121361	EXT_040121361	44	0	CPU		Fixed										
Extended Switch		4 040131933 5 010233201	EXT_040131933	16 47	0	CON CPU		HDCP	Active									
Presets	0	6 010233201	EXT_010233201 EXT_010190938		48	CPU		Locat	ion									
Status & Updates	~ 0	010130330	EXT_010180850	0	40	CI U				Device: I/O box		LEX_048E						
Status - Matrix Firmware								Link 1			ara: ard port	6 : 7						
Status - Extender Firmware Update - Matrix Firmware										Matrix	port:	47						
Update - Extender Firmware								Extend	ier Type	Firmware	Version	Parameters	USB-H	ID Ghosting	EDIE	2		
Activate Configuration								-		1.000	Ŧ							
Miscellaneous									Save As	Read		Activate Deac						
System Settings	^							Gener	al									
System								USB-H	IID-Ghosti	ng	Active							
Access								USB-1	уре		Keyboard	d + Mouse						
Switch								Keybo	ard									
Network Date and Time								Vendo	or ID		0x413C							
Matrix Grid								Vendo	or Name		DELL							
Extender & Devices	~							Produ	ict ID		0x2106							
								Produ	ict Name		Dell Quie	tKey Keyboard	d					
EXT Units CPU Devices								USB	ersion/		01.01							
CON Devices								HID V	ersion		01.01							
User Settings	~							Mous	е									
Users & Groups								Vendo	or ID		0x413C							
								Vendo	or Name		PixArt							
Assignment	^							Produ	ict ID		0x301A							
Virtual CPU Devices								Drodu	ict Namo			16 LISB Ontice	ol Morreo					٧
Virtual CON Devices Multi-Screen Control									Attentio	n! Reading	and writi	ng the USB-HIC) Ghosting	j results in a	short i	interrupt of the connection.		
		Assign Settings t	o Copy Setting	is from	Rest	art Extender								Nev	v Unit	Delete Unit	pply <u>C</u> ance	\$I
													Defau	ult	1.1			

Fig. 143 Management software menu Extender & Devices - EXT Units - USB-HID Ghosting

Button	Function
Open	Open the locally saved USB-HID Ghosting
Save As	Save the USB-HID Ghosting locally (file EXT_ID-Nr.dhg)
Read	Read the USB-HID Ghosting of the extender module
Transmit	Transmit the USB-HID Ghosting to the extender module and activate

The following functions are available in the USB-HID Ghosting tab:

Button	Function
Activate	Activate the USB-HID Ghosting
Deactivate	Deactivate the USB-HID Ghosting
Reset	Reset the USB-HID Ghosting of the extender module to factory settings
Assign	Assign the USB-HID Ghosting to several extender modules at the same time



During reading and writing USB-HID Ghosting information, there will be a short interrupt of the USB-HID and video signal.

7.7.1.1 Reading USB-HID Ghosting

To read out and display the USB-HID Ghosting of CPU extender modules, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of the CPU extender module with active USB-HID Ghosting to be displayed.
- 4. Click the USB-HID Ghosting tab on the right side of the working area.
- 5. Click **Read** in the symbol bar of the tab.

A query to read the USB-HID Ghosting appears.

6. Click Yes to confirm the reading.

The current USB-HID Ghosting information of the CPU extender module is read out and displayed on the right side of the working area. At the same time, the connection will be disconnected for a few seconds.

7.7.1.2 Loading a USB-HID Ghosting Template

To load a USB-HID Ghosting template (file extension .dhg) for a further distribution proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of the CPU extender module to transmit the USB-HID Ghosting to.
- 4. Click the **USB-HID Ghosting** tab on the right side of the working area.
- 5. Click **Open** in the symbol bar of the tab.
- 6. Go to the respective template with the file extension .dhg and click Select.
- Click **Transmit** in the symbol bar of the tab. A query for transmission appears.
- 8. Click **Yes** to transmit the loaded USB-HID Ghosting to the CPU extender module. The progress of the parameter transmission is displayed.
- 9. Click Close when the USB-HID Ghosting transmission is completed (green).

Progress	100%	
2021-03-08T09:05:41.846	USB-HID Ghosting transmission started	4
2021-03-08T09:05:44.415	USB-HID Ghosting transmission to CPU_02 completed	
2021-03-08T09:05:44.415	Restart extender	
2021-03-08T09:06:24.734	Refresh USB-HID Ghosting information	
2021-03-08T09:06:27.455	USB-HID Ghosting transmission completed	1

Fig. 144 Management software menu Extender & Devices - EXT Units - Transmission finished

10. Click Deactivate Edit Mode in the toolbar.

7.7.1.3 Assigning USB-HID Ghosting

To assign any manually activated USB-HID Ghosting of an extender module to any connected extender module, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of the CPU extender module with active USB-HID Ghosting to be displayed.
- 4. Click the USB-HID Ghosting tab on the right side of the working area.
- 5. Click **Read** in the symbol bar of the tab.

A query to read the USB-HID Ghosting appears.

6. Click Yes to confirm the reading.

The current USB-HID Ghosting information of the CPU extender module is read out and displayed on the right side of the working area. At the same time, the connection will be disconnected for a few seconds.

7. Click **Assign** in the symbol bar of the tab.

A query to assign the USB-HID Ghosting appears.

- Select those EXT Units in the Available to assign settings to field that are intended to receive the USB-HID Ghosting information. By pressing and holding down Ctrl at the same time, more than one EXT Unit can be highlighted.
- 9. Click ▶ to move the highlighted EXT Units to the Assign settings to list. By clicking ▶, all EXT Units will be moved to the Assign settings to list.
- 10. To remove highlighted EXT Units from the **Assign settings to** list, click **4**. By clicking **4**, all EXT Units will be removed from the **Assign settings to** list.
- 11. Click Next >.

	Assign						×
Ste	ps	Assign USB-H	IID Ghosting to				
1.	Assign USB-HID Ghosting to	Availabl	e to assign settings to	o	Ass	sign settings to	
2.	Confirm	ID	Name		ID	Name	
3.	Transmit USB-HID Ghosting to Extender	40076855	CPU_VGA_02	*	40069452	CPU_03	
		40069453	CPU_04	++]		
		40166854	IP-CPU_D_Fiber		1		
		20201214	IP-CPU_E_v2_DH				
		40167519	IP-CPU_C_Fiber				
				•			
					1		
				*			
				< <u>E</u>	ack Next :	• <u>F</u> inish	Cancel

Fig. 145 Management software menu Extender & Devices - EXT Units - Assign to

A query to start the assignment appears.

12. Tick the **Confirm to continue** checkbox to confirm the start of the assignment.

13. Click **Next >** to start of the assignment.

Assign		\times
Steps	Confirm	
 Assign USB-HID Ghosting to 		
2. Confirm 3. Transmit USB-HID Ghosting to Extender	Reading and writing the USB-HID Ghosting results in a short interrupt of the connection for all the selected extenders. Pressing the button Next will immediately start the update. Confirm to continue	
	< <u>B</u> ack Next > Einish Can	cel

Fig. 146 Management software menu Extender & Devices - EXT Units - Confirm assignment

The progress of the USB-HID Ghosting assignment is displayed.



Assign		
Steps 1. Assign USB-HID Ghosting to	Transmit USB-HID Ghosting to Progress	Extender 100%
 Confirm Transmit USB-HID Ghosting to Extender 	2021-03-08T08:42:06.910 2021-03-08T08:42:06.910 2021-03-08T08:42:09.483 2021-03-08T08:42:09.483 2021-03-08T08:42:49.735 2021-03-08T08:42:52.096	Estimated transmission time: < 1 minute USB-HID Ghosting transmission started USB-HID Ghosting transmission to CPU_03 completed Restart extender Refresh USB-HID Ghosting information USB-HID Ghosting transmission completed
		Save Log Messages < Back

Fig. 147 Management software menu Extender & Devices - EXT Units - Assignment finished

The USB-HID Ghosting assignment is finished.

15. Click Deactivate Edit Mode in the toolbar.

Further options:

- To locally store existing USB-HID Ghosting information of a selected CPU EXT Unit, click **Save As...** in the symbol bar of the tab.
- To delete existing USB-HID Ghosting information of a selected CPU EXT Unit, click **Reset** in the symbol bar of the tab.

7.7.2 Managing the Extender Module EDID

By default, the extender modules transmit the factory preset EDID to the sources. This information is suitable in most cases. The EDID can be retrieved and uploaded as a binary file to the CPU Unit.

Next to the use of keyboard commands (see chapter 8.3.2.1, page 296), the activation and management of the EDID can also be handled centrally via matrix to reach all connected extender modules at the same time.

General Preparation

To use the EDID management via management software it is required that the EDID has been already transmitted at a CPU Unit via keyboard command or the EDID is already available as a file with the extension .bin.

Several general options are available. For these options, select the menu **Extender & Devices > EXT Units** in the task area, select the EXT Unit of an extender module and select the **EDID** tab (**EDID 2** for Dual-Head) in the working area.

🗕 🖹 💭 💶			-		-		_wA		2	✓		
en <u>S</u> ave Reload <u>C</u> onne	ect <u>D</u> isco	onnect	Deactivate Edit	Mode Remote Save	Download.	Upload	Monitoring Fla	-	Finder	System Check Save Status		
0220215.zip Master ×												
iew	~ 4	Ext	ender & Dev	vices - EXT Units								Edit Mode activa
latrix							T					
Port		#	ID	Name	Port 🔺	Red. Port		ID	403018	839	CPU Assigned	01033 CPU_040301839
rid		40	040166854	IP-CPU_D_Fiber	71	72	IP CPU	Name	EXT_0	40301839		
Control		41	040230555	EXT_040230555	86	-	CPU	Port	150		Redundant Port	0
ontrol	^	42	040230552	SRF_CON_1	87	-	CON	Fixed				
xtended Switch		43	040233583	EXT_040233583	88	-	CON	HDCP Active				
Presets		44	010155408	CON MV 3.1	89	-	CON	Location				
itatus & Updates	~	45	010155418	CON_MV_3.2	90	-	CON	Location				
	_	46	010155422	CON_MV_3.3	91	-	CON	1.00	I/O bo	e: TEST-A-E160 pard: 19		
Status - Matrix Firmware Status - Extender Firmware		47	010155403	CON_MV_3.4	92	-	CON	Link 1		pard port: 6	Link 2	
Ipdate - Matrix Firmware		48	010155411	CON_MV_4.1	93	-	CON		Matri	x port: 150		
Ipdate - Extender Firmware		49	010155420	CON_MV_4.2	94	-	CON	Extender Type	Firmwa	re Version Parameters	USB-HID Ghosting ED	DID EDID 2
ctivate Configuration		50	010155419	CON_MV_4.3	95	-	CON	🖌 🗎	17	TXI		
liscellaneous	_	51	010182231	CON_MV_4.4	96	-	CON	Open Save As	-	Transmit Reset Assign.		
system Settings	^	52	090000097	USB2.0_CON	97	-	USB 2.0 CC	General				
ystem		53	010207759	CON_01	129	0	CON	Manufacturer N	lame	DVI		
ccess		54	040015300	CON_02	130	-	CON	Product Code		Extender		
Switch		55	010218839	CON_03	131	-	CON	Serial Number		220		
letwork Date and Time		56	040131932	CON_04	132	0	CON	Week of Manuf	acture	40		
latrix Grid		57	010189131	CON_05	133	-	CON	Year of Manufa	cture	2020		
xtender & Devices	~	58	010135474	CON_06	134	-	CON	EDID Version		1.3		
Atender & Devices	~	59	040301838	EXT_040301838	149	0	CON	EDID Checksun		Valid		
XT Units		60	040301839	EXT_040301839	150	0	CPU	Extended		valid		
CPU Devices CON Devices		61	040069452	CPU_03	219	-	CPU	Pixel Clock [Mh	zl	14850.00		
		62	040069453	CPU_04	223	-	CPU	H. Active Pixels	-	1920		
lser Settings	^	63	010172819	CPU_05	231	-	CPU					
Jsers & Groups		64	090000248	USB2.0_CPU	248	-	USB 2.0 CF	V. Active Pixels	5	1080		
Assignment	^	65	010237332	SRF_CPU_1	400	0	CPU 🔻	1 Attentio	n! Readin	ig and writing the EDID resu	ilts in a short interrupt of	the connection.
irtual CPU Devices			•				•					
irtual CON Devices		As	sign Settings to	o Copy Setting	s from	Restart	Extender				New Unit Delete	Unit <u>Apply</u> Can

Fig. 148 Management software menu Extender & Devices - EXT Units - EDID

Button	Function					
Open	Open the locally saved EDID.					
Save As	Save the EDID locally (file extension .bin).					
Read	Read the EDID of the extender module.					
Transmit	Transmit the EDID to the extender module and activate the EDID.					
Reset	Reset the EDID of the extender module to factory settings.					
Assign	Assign the EDID to several extender modules at the same time.					

7.7.2.1 Reading an EDID

To read out and display the EDID of an extender module, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of the extender module whose EDID is to be displayed.
- 4. Click the **EDID** tab on the right side of the working area.
- 5. Click **Read** in the symbol bar of the tab.

A query to read out the EDID appears.

6. Click Yes to confirm the reading.

The transmitted EDID of the extender module is read out and displayed on the right side of the working area. At the same time, the connection will be disconnected for a few seconds.

7.7.2.2 Loading an EDID Template

To load a EDID template (file extension .bin) for a further distribution, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the **EDID** tab on the right side of the working area.
- 4. Select the EXT Unit of a CPU extender module to transmit the EDID to.
- 5. Click **Open** in the symbol bar of the tab.
- 6. Go to the respective template with the file extension .bin and click Select.
- Click **Transmit** in the symbol bar of the tab. A query for transmission appears.
- 8. Click **Yes** to transmit the loaded EDID to the CPU extender module.

The progress of the parameter transmission is displayed.

9. Click Close when the EDID transmission is completed (green).

EDID Transmission								
Progress	100%							
2021-03-08T11:02:22.325	EDID transmission started	4						
2021-03-08T11:02:24.672	EDID transmission of CPU_02 completed							
2021-03-08T11:02:24.672	Restart extender							
2021-03-08T11:03:04.959	Refresh EDID information							
2021-03-08T11:03:07.034	EDID transmission completed							
	Close							

Fig. 149 Management software menu Extender & Devices - EXT Units - Transmission finished

10. Click **Deactivate Edit Mode** in the toolbar.

Further options:

- To locally store existing EDID of a CPU extender module whose EXT Unit is selected, click **Save As...** in the symbol bar of the tab.
- To set existing the EDID of a CPU extender module whose EXT Unit is selected back to factory settings, click **Reset** in the symbol bar of the tab.

7.7.2.3 Assigning an EDID

To assign any manually transmitted EDID of an extender module to another one, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of the extender module with the already transmitted EDID.
- 4. Click the **EDID** tab on the right side of the working area.
- 5. Read out and display the EDID (see description in section before).
- 6. Click **Assign** in the symbol bar of the tab.

A query to assign the EDID appears.

- Select the EXT Units of those extender modules in the Available to assign settings to field that are intended to receive the EDID. By pressing and holding down Ctrl at the same time, more than one EXT Unit can be highlighted.
- 8. Click ▶ to move the highlighted EXT Units to the **Assign settings to** list. By clicking ▶, all EXT Units will be moved to the **Assign settings to** list.
- 9. To remove highlighted EXT Units from the **Assign settings to** list, click **4**. By clicking **4**, all EXT Units will be removed from the **Assign settings to** list.

10. Click Next >.

Assign							×
Steps	Assign EDID	to					
1. Assign EDID to 2. Confirm	Availab	le to assign settir	igs to			Assign setting	s to
3. Transmit EDID to Extender	ID	Name			ID	Name	
	40069455	CPU_01					
				**			
				•			
				44			
			•				•
				< <u>B</u> ac	k	Next > <u>F</u> inis	sh Cancel
							

Fig. 150 Management software menu Extender & Devices - EXT Units - Assign EDID to

A query to start the assignment appears.

11. Tick the **Confirm to continue** checkbox to confirm the start of the assignment.

12. Click **Next >**to start of the assignment.

Assign		\times
Steps	Confirm	
 Assign EDID to Confirm Transmit EDID to Extender 	Reading and writing the EDID results in a short interrupt	
	of the connection for all the selected extenders. Pressing the button Next will immediately start the update.	
	Confirm to continue 🔽	
	< <u>Back</u> Next> <u>Finish</u> Car	icel

Fig. 151 Management software menu Extender & Devices - EXT Units - Confirm assignment

The progress of the USB-HID Ghosting assignment is displayed.

13. Click Finish when the USB-HID Ghosting assignment is completed (green).

Assign				×
Steps		Transmit EDID to Extender		
1. Assign 2. Confirr	EDID to n	Progress	100%	
3. Transr	nit EDID to Extender	2021-03-08T10:32:59.479 2021-03-08T10:32:59.479 2021-03-08T10:33:01.824 2021-03-08T10:33:01.824 2021-03-08T10:33:42.105 2021-03-08T10:33:44.182	Estimated transmission time: < 1 minute EDID transmission started EDID transmission of CPU_01 completed Restart extender Refresh EDID information EDID transmission completed	
				Save Log Messages
			< Back Next >	<u>F</u> inish Cancel

Fig. 152 Management software menu Extender & Devices - EXT Units - Assignment finished

The EDID assignment is finished.

14. Click **Deactivate Edit Mode** in the toolbar.

7.7.3 Setting CPU Devices

New CPU Devices are configured in this menu including their assignment to EXT Units.

The assignment helps to describe and switch more complex computer configurations (e.g., Quad-Head with USB 2.0) in the matrix. To run a CPU Device via a matrix, one or more CPU EXT Units must be assigned.

Physically connected extender modules can be replaced without losing the assignment of EXT Units and their CPU/CON Devices (see chapter 13.1.7, page 331)

Eile <u>E</u> dit Device E <u>x</u> tras <u>?</u>]
🖻 💾 💭 💷		1	•			*	. 🔍	✓		1						
	Discon	nect [Deactivate Edit Mo	de Remote Save Downlo	ad	Upload Monitoring	Flash Update Device Finder Sy	stem Che	ck Save	Status						
0220215.zip Master ×																
liew	^	Exter	ider & Devic	es - CPU Devices										Edit Mo	ode a	ctivat
Aatrix		CPU	CPU Groups	IP Session Config												
Port				T		ID	1012	c	PU Assigne	he						
Grid Control		# 1	C	Name	• ;											
Control	~	01	01001	CPU_01001	4	Name	CPU_01012		ON Connec	cted	03006 C					
	^	02	01002	CPU_01002		Virtual Device		CI	PU Colors			✓ on	~			
Extended Switch		03	01003	CPU_01003		Allow Private	\checkmark	Đ	cclusive Ac	ccess						
Presets	_	04	01004	CPU_01004		Force Private		м	SC Disable	ed						
Status & Updates	^	05	01005	CPU_01005		Fix Frame Color	🗸	A	ccess Dial	og						
Status - Matrix Firmware		06	01006	CPU_01006		Reference	(no reference set)	Di	splay Time	e [sec]	25	â				
Status - Extender Firmware		07	01007	CPU_01007							8					
Update - Matrix Firmware Update - Extender Firmware		08	01008	CPU_01008		2 Step Access		De	elay [sec]		8	~				
Activate Configuration		09	01009	CPU_01009		Extender Assignment	CON Access Control User A	ccess C	ontrol Mo	onitor A	rrangement					
Miscellaneous		10	01010	CPU_01010			Extender available					Extender assi	aned			
System Settings	^	11	01011 01012	CPU_01011 CPU_01012		ID Name Po	t Red. Port			#	ID	Name	Port	Red. Port		
System		13	01200	CPU_01200						01	40076855	EXT_040076855	153	-	4	4
Access		14	01200	CPU_01014	н					02						
Switch		15	01013	CPU_01013						03						
Network		16	01091	CPU_01091						04						
Date and Time Matrix Grid		17	01092	CPU_01092					- FF	05						- 28
		18	01093	CPU_01093					- F	06						
Extender & Devices	^	19	01094	CPU_01094						07						
EXT Units			01600	CPU_01600						08						
CPU Devices CON Devices		21	01300	CPU_01300					4							
		22	01400	CPU_01400												3
Jser Settings	^		01500	CPU_01500												
Users & Groups		24	01015	CPU_01015												
Assignment	^	25	01016	CPU_01016												
/irtual CPU Devices		26	01030	CPU_01030												
virtual CON Devices		27	01105	CPU_01105											,	
Iulti-Screen Control		28	01019	CPU_01019	v			•				Use keys + and - to m	ove exten	der		
		Ass	ign Settings to	. Copy Settings from	m	Configure IP CI	PU Extender Replacement				1	vew Device De	lete Devi	ce Ap	ply	Can

Fig. 153 Management software Menu Extender & Devices - CPU Devices - Extender Assignment

Field	Entry/Status	Description
ID	Text	Ident number of the CPU Device.
Name	Text	Name of the CPU Device.
Virtual Device	Activated	The CPU Device was created as a virtual CPU Device.
	Deactivated	Function not active (default).
Allow Private	Activated	Allow switching to the respective CPU Device in Private Mode.
	Deactivated	Function not active (default).
Force Private	Activated	Force switching to the respective CPU Device only in Private Mode.
	Deactivated	Function not active (default).
Fix Frame Color	Selection list	Activate a colored frame when switching to the respective CPU Device. You can select between 7 colors.

The following parameters can be configured:

Field	Entry/Status	Description
Reference	Activated	Activate a reference CPU Device that inherits both CPU Device and EXT Unit settings to any CPU Unit that is connected to the matrix for the first time.
		Note : It is recommended to activate the reference setting for one single CPU Device only.
	Deactivated	Function not active (default).
2 Step Access	Activated	Open a pop-up window after switching to the particular CPU Device. In the background a Video Only connection will be established. A confirmation in the pop-up window is required to establish a Full Access connection to the CPU Device.
	Deactivated	Function not active (default).
CPU Assigned	-	ID and name of the assigned virtual CPU Device, cannot be changed, is retrieved automatically.
CON Connected	-	ID and name of the connected CON Device, cannot be changed, is retrieved automatically.
CPU Colors	Selection list	The CPU Device name will be highlighted according to the color setting for text and background. You can select between 16 colors.
Exclusive Access	Activated	Activate an access limitation for the case that a CPU Device is already connected via Full Access connection. When having the same priorities, any additional access to the CPU Device can only be established with a Video Only connection. Having a lower priority any additional connection is not possible. Only when having a higher priority, an additional Full Access connection can be established, and K/M control can be taken over.
	Deactivated	Function not active (default).
MSC Disabled	Activated	MSC function deactivated.
	Deactivated	MSC function activated.
Access Dialog	Activated	When a user tries to connect to another CPU Device, the current user of the CON Device gets a message.
	Deactivated	Function not active (default).
Display Time [sec]	-99 to +99 seconds	Time of displaying the dialog: With positive value +1 to +99, the CPU Device is accessed after the set time has expired. With negative value -99 to 0 there is no access to the CPU Device after the set time has expired.
Delay [sec]	0 to 99 seconds	Time until next positive request.

7.7.3.1 Creating a new CPU Device

To create a new CPU Device, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click New Device.

A selection dialog appears.

- Select a real CPU Device (Create a standard CPU) or a virtual CPU Device (Create a virtual CPU) or a template of an existing CPU Device (Choose template) in the Choose template selection box.
 Note: A template is only available if there is at least one existing CPU Device.
- 5. Click OK.

A new CPU Device will be created.

- 6. Determine all parameters that are relevant for the CPU Device.
- 7. Click **Apply** to confirm the creation of the CPU Device.
- 8. Click Deactivate Edit Mode in the toolbar.

7.7.3.2 Changing a CPU Device

To change settings of a CPU Device, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a CPU Device in the CPU Device list.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm the changes.
- 6. Click Deactivate Edit Mode in the toolbar.

7.7.3.3 Assigning a CPU Device to an EXT Unit

To assign an EXT Unit to a CPU Device, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the new CPU Device in the CPU Devices list.
- 4. Click the CPU Access Control tab on the right side of the working area.
- 5. Select an EXT Unit in the **Extender available** list that you want to assign to the CPU Device. By pressing and holding down Ctrl at the same time, more than one EXT Unit can be highlighted.
- Click ▶ to move the highlighted EXT Units to the Extender assigned list. By clicking ▶, all available EXT Units from the Extender available list will be moved to the Extender assigned list.
 The assignments are displayed in the Extender assigned list.
- Click or to change the order of the EXT Units within the Extender assigned list.
 Or press + or to change the order of the EXT Units within the Extender assigned list.
- 8. Click **Apply** to confirm the assignment.
- 9. Click **Deactivate Edit Mode** in the toolbar.

7.7.3.4 Unassign an EXT Unit from a CPU Device

To remove an EXT Unit assignment, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a CPU Device in the CPU Devices list.
- 4. Select one or more EXT Units in the Extender assigned list.
- 5. To remove highlighted EXT Units from the **Extender assigned** list, click **∢**. By clicking **∢**, all CPU Devices will be removed from the **Extender assigned** list.
- 6. Click **Apply** to confirm the removal.
- 7. Click Deactivate Edit Mode in the toolbar.

7.7.3.5 Assigning Settings to other CPU Devices

To assign settings of a CPU Device to other CPU Devices, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CPU Device whose settings are to be assign to another CPU Devices.
- 4. Click Assign Settings to below the CPU Device list.

A query to select the settings appears.

- 5. Tick the checkboxes to select the desired settings.
- 6. Click Next >.

Assign Settings	; to		×	(
Steps		Select Settings		_
 Select Settin Assign Settin 		 Force ✓ Fix Fra Refera CPU 0 2 Step Exclus 	Colors o Access sive Access Disabled ss Dialog	
		< <u>B</u> ack	Next > Einish Cancel	

Fig. 154 Management software menu Extender & Devices - CPU Devices - Select Settings

A query to start the assignment appears.

- Select the CPU Device in the Available to assign settings to list to which the settings are to be assigned. By pressing and holding down Ctrl at the same time, more than one CPU Device can be highlighted.
- 8. Click ▶ to move the highlighted CPU Device to the Assign settings to list. By clicking ▶, all CPU Devices will be moved to the Assign settings to list.
- 9. To remove highlighted CPU Devices from the **Assign settings to** list, click **4**. By clicking **4**, CPU Devices will be removed from the **Assign settings to** list.
- 10. Click Finish.

The settings are immediately assigned to the selected CPU Devices.

11. Click **Deactivate Edit Mode** in the toolbar.

	Assign Settings to						×
Ste	ps	Assign S	ettings to				
1. 2.	Select Settings Assign Settings to	Ava	ailable to assign settir	igs to		Assign settings to	·
2.	Assign settings to	ID	Name		ID	Name	
		1001	CPU_01001	*	1003	CPU_01003	
		1002	CPU_01002	••			
		1004	CPU_01004				
		1005	CPU_01005				
		1006	CPU_01006		_		
		1007	CPU_01007	•			
		1008	CPU_01008				
		1009	CPU_01009				
		1010	CPU_01010				•
				<	Back 1	Next > <u>Finish</u>	Cancel

Fig. 155 Management software menu Extender & Devices - CPU Devices - Assign Settings

7.7.3.6 Copying Settings from another CPU Device

To copy settings from a CPU Device to another CPU Device, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CPU Device to copy the settings to. By pressing and holding down Ctrl at the same time, more than one CPU Device can be highlighted.
- 4. Click Copy Settings from below the CPU Device list.

A query to select the settings appears.

- 5. Tick the checkboxes to select the desired settings.
- 6. Click Next >.

Copy Settings from	×
Steps	Select Settings
 Select Settings Copy Settings from 	 Allow Private Force Private Fix Frame Color Reference 2 Step Access Z Exclusive Access CPU Colors MSC Disabled Access Dialog Select All
	< <u>B</u> ack Next > <u>F</u> inish Cancel

Fig. 156 Management software menu Extender & Devices - CON Devices - Select Settings

A query to start the assignment appears.

7. Select the CPU Device in the selection list from which the settings are to be copied.

8. Click Finish.

The settings are immediately copied to the selected CPU Devices.

Copy Settings from		×
Steps	Copy Settings from	
 Select Settings Copy Settings from 	Copy from 01001 CPU_01001 01001 CPU_01001 01002 CPU_01002 01003 CPU_01003 01004 CPU_01004 01005 CPU_01005 01006 CPU_01006 01007 CPU_01007 01008 CPU_01008 01009 CPU_01009 01010 CPU_01010 01011 CPU_01011 01001 CPU_01001	×
	< <u>B</u> ack Next >	inish Cancel

Fig. 157 Management software menu Extender & Devices - CPU Devices - Copy Settings

7.7.4 Setting CON Device Access Rights for CPU Devices

i 🕒 📑 👘						-~~-	i Q		/			
en <u>S</u> ave Reload <u>C</u> onne	ct <u>D</u> isco	nnect	Deactivate Edit Mode	e Remote Save Downloa	d Upload	Monitoring	Flash Update Device Finde	r System	Check Save Status			
0220215.zip Master ×												
ïew	^	Exte	nder & Device	s - CPU Devices								Edit Mode activ
latrix		CPU	CPU Groups I	P Session Config								
Port				٣								
rid		#	ID	Name	ID I		1012		CPU Assigned			
ontrol		01	01001	CPU_01001			CPU_01012		CON Connected	03006 CON_030	06	
ontrol	^	02	01002	CPU_01002	Virtual	Device			CPU Colors	💙 on		~
xtended Switch		03	01003	CPU_01003	Allow	Private	√		Exclusive Access			
resets		04	01004	CPU_01004	Force	Private			MSC Disabled			
tatus & Updates	^	05	01005	CPU_01005		me Color	•		Access Dialog			
tatus - Matrix Firmware		06	01006	CPU_01006								
tatus - Extender Firmware		07	01007	CPU_01007	Refere		(no reference set)		Display Time [sec]	25 🗘		
Ipdate - Matrix Firmware		08	01008	CPU_01008	2 Step	Access			Delay [sec]	8 🗘		
pdate - Extender Firmware		09	01009	CPU_01009	Extend	er Assignment	CON Access Control L	lser Acces	s Control Monitor Arr	rangement		
ctivate Configuration iscellaneous		10	01010	CPU_01010						-		
	~	11	01011	CPU_01011			II Access		Video Acce	255		No Access
ystem Settings	~	12	01012	CPU_01012	ID 3003	Name CON_03003	,	ID 5001	Name CON_05001		ID 3105	Name CON_03105
ystem		13	01200	CPU_01200	3003	CON_03004		5001	CON_05002		3013	CON_03013
ccess witch		14	01014	CPU_01014	3004	CON_03001		5002	CON_05002		3013	CON_03014
letwork		15	01013	CPU_01013	3002	CON_03002		5004	CON_05004		3014	
ate and Time		16	01091	CPU_01091	3002	CON_03005		5004	CON_05005		3010	0011_00010
latrix Grid		17	01092	CPU_01092	3006	CON_03006		5006	CON_05006			
xtender & Devices	^	18	01093	CPU_01093	3007	CON_03007		5007	CON_05007			
XT Units		19	01094	CPU_01094	3008	CON_03008		5008	CON_05008			
PU Devices			01600	CPU_01600	3009	CON_03009		5009	CON_05009			
ON Devices		21	01300	CPU_01300	3010	CON_03010		5010	CON_05010			
ser Settings	^		01400	CPU_01400	3010	CON_03011		5011	CON_05011			
Jsers & Groups			O 1500 O	CPU_01500	3012	CON_03012		5012	CON_05012			
		24	01015	CPU_01015	3015	CON_03015		5013	CON_05013			
ssignment	^	25	01016	CPU_01016				5014	CON_05014			
irtual CPU Devices		26	01030	CPU_01030				5015	CON_05015			
irtual CON Devices Iulti-Screen Control		27	01105	CPU_01105			No. In the second second			•		
unit-Screen Control		28	01019	CPU_01019			Use keyboard keys I	·, V, N to ch	ange the access control I	iists. Use right hand moi	use click to	select action.
		As	sign Settings to	Copy Settings from	L (Configure IP CF	PU Extender Replace	ement		<u>N</u> ew Dev	ice	Delete Device Apply Ca

Fig. 158 Management software Menu Extender & Devices - CPU Devices - CON Access Control

To configure CON Devices access rights for CPU Devices, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select CPU Device in the **CPU Devices** list, which should get access rights by a CON Device.
- 4. Click the CON Access Control tab.
- By clicking with the right mouse button once on a CON Device in one of the respective access lists (Full Access, Video Access, and No Access), a context menu for selection appears for changing the respective CON Device access rights. Alternatively, press f, v, or n to set the respective access rights.
- 6. Click **Apply** to confirm the changes.
- 7. Click **Deactivate Edit Mode** in the toolbar.

7.7.5 Assigning Virtual CPU Devices

In this menu, either one or more Virtual CPU Devices can be assigned to a real CPU Device.

With a virtual CPU Device, the effort of switching several CON Devices to the same CPU Device can be reduced. If several CON Devices are connected to a virtual CPU Device that is assigned to a real CPU Device, you only have to change the real CPU Device once and all CON Devices will receive the video signal of the new real CPU Device.



One real CPU Device can be assigned to several virtual CPU Device.

NOTICE

If the **Auto Send** checkbox is ticked in the lower left corner of the workspace, the switching operations will be performed immediately without user confirmation by clicking **Send**.

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Fig. 159 Management software menu Assignment - Virtual CON Devices

The following functions are available:

Button	Function
Send	Send assignments to the matrix
Reload	Reload changes



The selection boxes in the **Real CPU Device** column contain a filter function for an easy selection of a single CPU Device from a larger pool of CPU Devices.

For an assignment, proceed as follows:

- 1. Click Assignment > Virtual CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a virtual CPU Device in the Virtual CPU Device list.
- 4. Double-click in the **Real CPU Device** column to display a list of all available real CPU Devices.
- 5. Select a real CPU Device in the selection list.
- 6. Click **Send** to send the assignment to the matrix.
- 7. Click Deactivate Edit Mode in the toolbar.

The management software offers the option to switch directly from the **Assignment** menu to the definition menu to check specific settings for the respective real CPU Device or virtual CPU Device.

Click with the right mouse button on the respective real CPU Device or virtual CPU Device and select
 Open CPU Device in the context menu.

The definition menu for the CPU Device settings is opened (see chapter 7.7.3, page 223).

7.7.6 Setting CPU Groups

The KVM matrix allows to bundle the CPU Devices of a configuration into CPU groups. The groups can be used to subdivide the CPU Devices logically or thematically. As an application example you can group all CPU Devices together that are connected to a specific matrix within a matrix grid. The configuration of CPU groups at the same time increases the clarity of the configuration.

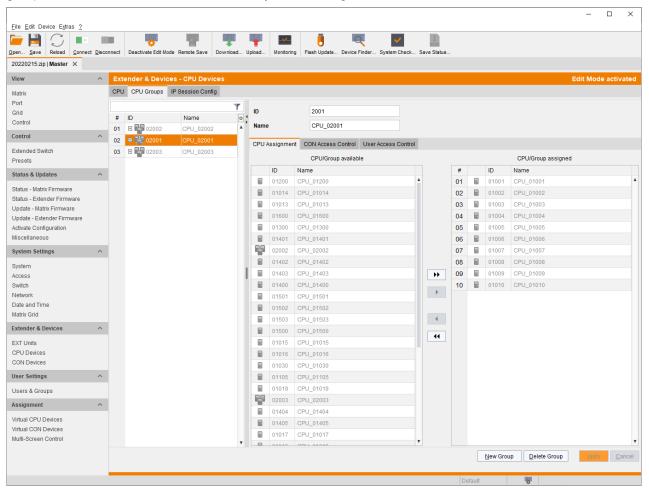


Fig. 160 Management software Menu Extender & Devices - CPU Devices - CPU Groups

7.7.6.1 Creating a new CPU Group

To create a CPU Group, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the CPU Groups tab in the working area.
- 4. Click New Group.

A selection dialog appears.

- Select a standard Group (Create a standard Group) or a LDAP Group (Create a LDAP Group) or a template of an existing Group (Choose template) in the Choose template selection box.
 Note: A template is only available if there is at least one existing Group.
- 6. Click OK.
- 7. Enter a group name into the field Name.
- 8. Click **Apply** to confirm the creation of the group.
- 9. Click **Deactivate Edit Mode** in the toolbar.

7.7.6.2 Assigning a CPU Device to a CPU Group

To assign a CPU Device to a CPU Group, proceed as follows:

- 1. Click **Extender & Devices > CPU Devices** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the CPU Groups tab in the working area.
- 4. Select the CPU Group to be assigned with a CPU Device.
- 5. Select a CPU Device in the list **CPU/Group available** that you want to assign to the CPU Group. By pressing and holding down **Ctrl** at the same time, more than one CPU Device can be highlighted.
- 6. Click ▶ to move the highlighted CPU Devices to the **CPU/Group assigned** list. By clicking ▶, all CPU Devices from the **CPU Device available** list will be moved to the **CPU/Group assigned** list.
- 7. To remove highlighted CPU Devices from the **CPU/Group assigned** list, click ◀. If clicking ◀, all CPU Devices will be removed from the **CPU/Group assigned** list.
- 8. Click **Apply** to assign the CPU Device to the CPU Group.
- 9. Click Deactivate Edit Mode in the toolbar.

7.7.6.3 Configuring CON Access Rights for CPU Groups

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Fig. 161 Management software Menu Extender & Devices - CPU Devices - CON Access Control

To configure CON access rights for CPU groups, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click the CPU Group tab in the working area.
- 4. Select a CPU Group in the CPU Group list.
- By clicking with the right mouse button once on a CON Device in one of the respective access lists (Full Access, Video Access, and No Access), a context menu for selection appears for changing the respective CON Device access rights. Alternatively, press f, v, or n to set the respective access rights.
- 6. Click **Apply** to confirm the changes.
- 7. Click Deactivate Edit Mode in the toolbar.

7.8 Configuring CON-Side Settings

Connecting a CON Unit to the matrix creates an EXT Unit in the matrix, reading the serial number of the CON Unit. An EXT Unit has to be assigned to a CON Device. Switching operation is only possible between CON Device and CPU Device. All steps to create switchable CON Devices are described in this chapter. Several real CON Devices can be assigned to a virtual CON Device to reduce operation efforts (see chapter 7.8.7, page 248).

7.8.1 Configuring Mouse and Keyboard used in the Extender OSD

The OSD configuration for mouse and keyboard is made in this menu.

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ontrol	^	40	040069452	EXT_040069452	0	-	CPU	Fixed					
xtended Switch		41	040069453	EXT_040069453	0	-	CPU	HDCP Active					
resets		42	040069455	EXT_040069455	0	-	CPU	Location					
tatus & Updates	^	43	040076855	EXT_040076855	153	-	CPU		Device: TEST-	A-E160			
Status - Matrix Firmware		44	040076860	EXT_040076860	145	-	CPU	Link 1	I/O board: I/O board port	17	Link 2		
Status - Extender Firmware		45	040113350	EXT_040113350	0	0	CON		Matrix port:	132			
Jpdate - Matrix Firmware		46	040131237	EXT_040131237	0	-	CPU						
Jpdate - Extender Firmware		47	040131238	EXT_040131238	0	-	CPU	Extender Type	Firmware Version	General OSD Data	Extender OSD Dat	a Parameters	
ctivate Configuration liscellaneous		48	040131239	EXT_040131239	0	-	CPU	Horizontal Mou	no Encod [4/y]	4 🗘			
	_	49	040131240	EXT_040131240	0	-	CPU	Horizontal Mou	se speed [1/x]				
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Access		52	040131243	EXT_040131243	0	-	CPU	Keyboard Layo	ut	German (DE, 129)	~		
Switch Network		53	040131245	EXT_040131245	0	-	CPU	Video Mode		Variable	~		
Date and Time		54	040131246	EXT_040131246	0	-	CPU						
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xtender & Devices	~	56	040137566	EXT_040137566	0	-	IP CPU	Fast Key		Pre-configured Fast F	Key 🐱		
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		61	040233583	EXT_040233583	0	-	CON						
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Fig. 162 Management software menu Extender & Devices - EXT Units - General OSD Data

The following parameters can be configured:

Field	Entry/Status	Description
Horizontal Mouse Speed [1/x]	1 to 9	Adjust the horizontal mouse speed, 1 = slow, 9 = fast (default: 4).
Vertical Mouse Speed [1/x]	1 to 9	Adjust the vertical mouse speed, 1 = slow, 9 = fast (default: 5).
Double Click Time [ms]	100 to 800	Adjust the time slot for a double-click (default: 200 ms).
Keyboard Layout	Region	Set the OSD keyboard layout according to the used keyboard (default: German (DE)).

Field	Entry/Status	Description
Video Mode	Variable or specific resolution	Set the resolution that is used when opening the OSD.
Hot Key	Keyboard command	Call the command mode via keyboard sequence.
Fast Key	Keyboard command	Open the OSD via direct access. How often the shortcut key has to be pressed depends on the specified key: 1x for function keys or print key, 2x for all other keys.

i

The settings for mouse and keyboard are CON Device-specific and can be set separately for each CON Device.

Changing Settings for Mouse and Keyboard

To change the settings for mouse and keyboard, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON EXT Unit in the **EXT Units** list whose extender module OSD settings has to be adjusted.
- 4. Click the General OSD Data tab.
- 5. Change the desired settings.
- 6. Click **Apply** to confirm your entries.
- 7. Click **Deactivate Edit Mode** in the toolbar.

7.8.2 Setting Extender OSD

In this menu the parameters for the Extender OSD can be set. These are local settings that can be made individually for each CON Device.



When setting the horizontal OSD position, a prefixed minus describes the orientation to the right edge of the monitor, e.g., -2 means $2 \times 10 = 20$ pixels to this edge. When setting a vertical position, a prefixed minus describes the orientation to the lower edge of the monitor.

If the **Update Connection Info** function is deactivated, the Extender OSD only appears when switching via OSD.

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ontrol	40	040069452	EXT_040069452	0	-	CPU	Fixed					
xtended Switch	41	040069453	EXT_040069453	0	-	CPU	HDCP Active					
resets	42	040069455	EXT_040069455	0	-	CPU	Location					
tatus & Updates 🔷 🔨	43	040076855	EXT_040076855	153	-	CPU		Device: TEST-A	-E160			
tatus - Matrix Firmware	44	040076860	EXT_040076860	145	-	CPU	Link 1	I/O board:	17	Link 2		
itatus - Extender Firmware	45	040113350	EXT_040113350	0	0	CON		I/O board port Matrix port:	132			
Ipdate - Matrix Firmware	46	040131237	EXT_040131237	0	-	CPU						
Ipdate - Extender Firmware	47	040131238	EXT_040131238	0	-	CPU	Extender Type	Firmware Version	General OSD Data	Extender OSD Dat	ta Parameters	
ctivate Configuration liscellaneous	48	040131239	EXT_040131239	0	-	CPU	Enable Connect	tion Info				
	49	040131240	EXT_040131240	0	-	CPU	Update Connec	tion Info	\checkmark			
ystem Settings	50	040131241	EXT_040131241	0	-	CPU	Enable CPU Sel	ection	\checkmark			
ystem	51	040131242	EXT_040131242	0	-	CPU						
ccess	52	040131243	EXT_040131243	0	-	CPU	Display Time [s	ecj	8			
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ate and Time	54	040131246	EXT_040131246	0	-	CPU	Vertical Positio	n [10 px]	3 🛟			
latrix Grid	55	040131932	EXT_040131932	132	0	CON	OSD Position P	resets	Custom 🗸			
xtender & Devices	56	040137566	EXT_040137566	0	-	IP CPU						
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ON Devices	59	040230552	EXT_040230552	0	-	CON						
ser Settings	60	040230555	EXT_040230555	0	-	CPU						
	61	040233583	EXT_040233583	0	-	CON	E					
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ssignment ^	63	090000248	EXT_090000248	248	-	USB 2.0 CPU 🔻						
irtual CPU Devices		•				•						

Fig. 163 Management software menu Extender & Devices - EXT Units - Extender OSD Data

Field	Entry/Status	Description			
Enable Connection	Activated	Enable Extender OSD (default)			
Info	Deactivated	Function not active			
Update Connection Info	Activated	Every change of the connection status is shown by fade-in of the extender OSD (e.g., sharing situation)			
	Deactivated	Function not active (default).			
Enable CPU Selection	Activated	When executing the key sequence for opening the OSD, a selection list for switching CPU Devices will be displayed in the center of the monitor. Pressing F7 within the selection list opens the OSD menu.			
	Deactivated	Function not active (default).			

The following parameters can be configured:

Field	Entry/Status	Description
Display Time [sec]	0 to 999 seconds	Duration of OSD fade-in (default: 10)
Horizontal Position [10 px]	-127 to +127 pixels	Horizontal OSD position (default: -2). E.g., value 5 means 5 x 10 px distance to the left border.
Vertical Position [10 px]	-127 to +127 pixels	Vertical OSD position (default: 3) E.g., value 5 means 5 x 10 px distance to the top border.
OSD Position Preset	Selection list	Presets for OSD positioning Centered, Top Left, Top Right, Bottom Left, Bottom Right, Custom

Changing the Extender OSD Settings

To change the extender OSD settings, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit of the CON extender module whose OSD settings have to be changed.
- 4. Click the Extender OSD Data tab.
- 5. Change the desired settings.
- 6. Click Apply to confirm your entries.
- 7. Click Deactivate Edit Mode in the toolbar.

For an efficient extender OSD configuration, OSD settings can be assigned to extender modules (see description on page 205) or can be copied from an extender module (see description on page 206).

7.8.3 Setting CON Devices

New CON Devices are created in this menu including access rights and assignment to EXT Units. To run a CON Device via a matrix, one or more CON EXT Units must be assigned.

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Extended Switch	08	05008	CON_05008		Allow User ACL	\checkmark	Scan Tim	e [sec]	3	\$				
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Status - Matrix Firmware	11	05011	CON_05011		LOS Frame		Redunda							
Status - Extender Firmware	12	05012	CON_05012		Show Macro List		Referenc	e	(no re	ference set)				
Jpdate - Matrix Firmware	13	05013	CON_05013		OSD Disabled		CPU Colo	rs		✓ on	~			
Jpdate - Extender Firmware	14	05014	CON_05014		Video Off	\checkmark	Fix Frame	Color		~				
	15	05015	CON_05015		Show Disconnect	v								
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Fig. 164 Management software menu Extender & Devices - CON Devices - Extender Assignments

Field	Entry/Status	Description
ID	Text	Ident number of the CON Device.
Name	Text	Name of the CON Device.
Priority	0 to 999	Priority of the CON Device. Note: There is no K/M sharing between CON Devices with a different priority and the release time does not come into account. CON Devices only have Video Only access to a CPU Device if a CON Device with a higher priority is already switched to it.
Virtual Device	Activated	The CON Device was created as a virtual CON Device.
	Deactivated	Function not active (default).
Allow User ACL	Activated	Allow activation of the User ACL at the local CON Device.
	Deactivated	Function not active (default).

Field	Entry/Status	Description
Force Login	Activated	The user has to login with a username and a password once to enter OSD. Thereafter the user remains logged in until he explicitly logs out or an auto logout is affected.
		Note: When using the Force Login function, Console ACL are still active. When the Force Login function is activated and a user is logged in, only the user favorites are available. The CON favorites are not accessible.
	Deactivated	Function not active (default).
LOS Frame	Activated	• When the video signal between source and the CPU Unit or the connection between matrix and the CON Unit is lost, an orange frame will be displayed.
		• When switching to a CPU Unit without video signal, a blank screen will appear surrounded by an orange frame.
	Deactivated	Function not active (default).
Show Macro List	Activated	Show the macro list instead of the CPU Device selection list.
	Deactivated	Function not active (default).
OSD Disabled	Activated	Disable OSD access for the respective CON Device (executing macros and favorite switching is still possible)
	Deactivated	Function not active (default).
Video Off	Activated	Switch off the video signal after 60 sec without connection to the CPU Device so that the monitor can go into stand-by mode.
	Deactivated	Function not active (default).
Show Disconnect	Activated	Show a message if the connection to the CPU Device is lost.
	Deactivated	Function not active (default).
CON Assigned	-	ID and name of the assigned virtual CPU Device, cannot be changed, is retrieved automatically.
CPU Connected	-	ID and name of the connected CON Device, cannot be changed, is retrieved automatically.
Allow CPU Scan	Activated	Allow a scan mode with an automatic change of the video signal for the favorite list (CPU Devices) of the respective CON Device or a logged in user.
	Deactivated	Function not active (default).
Force CPU Scan	Activated	Force a scan mode with an automatic change of the video signal for the favorite list (CPU Devices) of the respective CON Device or a logged in user. Note: An active scanner can be stopped by a mouse or keyboard event. You gain Full Access for the currently switched
		CPU Device if Force Connect is activated.
	Deactivated	Function not active (default).
Scan Time [sec]	0 to 99 seconds	Retention period until switching to the next CPU Device.

Field	Entry/Status	Description
Port Mode	Activated	The favorite list will be replaced by a port list where the ports from 1 to 999 can be directly selected at each matrix or Matrix Grid. Note: The selection only works for CPU Devices and has to be made according to the switching of favorites. When using the Port Mode, CON and User favorites will be deactivated.
	Deactivated	Function not active (default).
Redundancy Off	Activated	Function is not active.
	Deactivated	Automatically switch to the second link of a connected redundant CON Unit when losing the primary link of a CPU Unit (default).
Reference	Activated	Activate a reference CON Device that inherits both Device and EXT Unit settings to any CON Unit that is connected to the matrix for the first time. Note : It is recommended to activate the reference setting for one single CON Device only.
	Deactivated	Function not active (default).
CPU Colors	Selection list	The CPU Device name will be highlighted according to the color setting for text and background. You can select between 16 colors.
Fix Frame Color	Selection list	Show a colored frame at the CPU Device. You can select between 7 colors. The colored frame of the CPU device is displayed with priority to the one of the CON Device.

7.8.3.1 Creating a CON Device

To create a CON Device, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click New Device.

A selection dialog appears.

- Select a real CON Device (Create a real Console) or a virtual CON Device (Create a virtual Console) or a template of an existing CPU Device (Choose template) in the Choose template selection box.
 Note: A template can only be used if there is at least on existing CON Device.
- 5. Click OK.

A new CON Device will be created.

- 6. Determine all parameters that are relevant for the CON Device.
- 7. Click **Apply** to confirm the creation.
- 8. Click Deactivate Edit Mode in the toolbar.

7.8.3.2 Changing a CON Device

To change settings of a CON Device, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a CON Device in the CON Device list.
- 4. Change the desired settings.
- 5. Click **Apply** to confirm the changes.
- 6. Click **Deactivate Edit Mode** in the toolbar.

7.8.3.3 Assigning a CON Device to an EXT Unit

To assign an EXT Unit to a CON Device, proceed as follows:

- 1. Click **Extender & Devices > CON Devices** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device in the CON Devices list that has to be assigned to an EXT Unit.
- 4. Select the EXT Unit in the **Extender available** list that should be assigned to the CON Device.
- 5. Click ▶ to move the highlighted EXT Unit to the **Extender assigned** list. By clicking ▶, all CON Devices from the **Extender available** list will be moved to the **Extender assigned** list.
- Optional: Click or to change the order of the CON Devices within the Extender assigned list.
 Or press + or to change the order of the CON Devices within the Extender assigned list.
- 7. Click **Apply** to confirm the assignment.
- 8. Click **Deactivate Edit Mode** in the toolbar.

7.8.3.4 Unassign an EXT Unit from a CON Device

To remove an EXT Unit assignment, proceed as follows:

- 1. Click **Extender & Devices > CON Devices** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a CON Device in the CON Devices list.
- 4. Select one or more EXT Units in the **Extender assigned** list.
- 5. To remove highlighted EXT Units from the **Extender assigned** list, click **∢**. By clicking **∢**, all CON Devices will be removed from the **Extender assigned** list.
- 6. Click **Apply** to confirm the removal.
- 7. Click **Deactivate Edit Mode** in the toolbar.

7.8.4 Setting CPU Device Access Rights for CON Devices

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		105 CON_03105			CPU_01010		v		1502	CPU_01502 ↔ CPU_01500	
signment ^		013 CON_03013				Use keyboard ke	ys F, V, N to cha	inge the access control li	sts. Use right hand mouse click		
tual CPU Devices		gn Settings to Copy	Settings from		ender Replace		Message to		New Device	Delete Device Apply	Can

Fig. 165 Management software Menu Extender & Devices - CON Devices - CPU Access Control

To configure CPU Device access rights of CON Devices, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device in the CON Devices list to be modified.
- 4. Click the CPU Access Control tab.
- By clicking with the right mouse button once on a CPU Device in one of the respective access lists (Full Access, Video Access, and No Access), a context menu for selection appears for changing the respective CPU Device access rights. Alternatively, press f, v, or n to set the respective access rights.
- 6. Click **Apply** to confirm the changes.
- 7. Click **Deactivate Edit Mode** in the toolbar.

7.8.5 Setting CON Device Favorites

Individual favorite lists of CPU Devices to be switched frequently can be created for all CON Devices in this menu. A favorite list can contain up to 32 different CPU Devices (from firmware V3.05).

The switching of the favorites is done via keyboard commands (see chapter 8.1.1, page 290).

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Control	^	03	03003	CON_03003		Virtu	al Device			Force (PU Scan						
Extended Switch		04	03004	CON_03004		Allow	User ACL	\checkmark		Scan T	ime [sec]		C	\$			
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Status - Matrix Firmware		07	03007	CON_03007													
Status - Extender Firmware		08	03008	CON_03008			/ Macro List			Refere			(CON	I_03044)			
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		12	03012	CON_03012		Exter	del Assignmen		Tavontes	macros							
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System		14	03014	CON_03014		ID	Name						ID	Name			
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Vetwork		16	03016	CON_03016		1023	CPU_0102	23				02	1027	CPU_01027			
Date and Time		17	03017	CON_03017								03	1029	CPU_01029			
Matrix Grid		18	03018	CON_03018							- FF	04	1030	CPU_01030			-
Extender & Devices	^	19	03019	CON_03019							Þ	05					
EXT Units		20	03020	CON_03020							,	06					
CPU Devices		21	03021	CON_03021								07					
CON Devices		22	03022	CON_03022							•	08					
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Fig. 166 Management software menu Extender & Devices - CON Devices - Favorites

To create a favorite list for any CON Device, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device for which a favorites list is to be created.
- 4. Click the Favorites tab.
- Select the CPU Devices in the CPU Device available list that should be added to the favorites list (Favorite CPU Devices). By pressing and holding down Ctrl at the same time, more than one CPU Device can be highlighted.
- 6. Click ▶ to move the highlighted CPU Devices to the favorites list. By clicking ▶, all CPU Devices from the **CPU Device available** list will be moved to the favorites list (**Favorite CPU Devices**).
- Optional: Click or to change the order of the CPU Devices within the favorites list.
 Or press + or to change the order of the CPU Devices within the favorites list.
- 9. Click **Apply** to confirm the changes.
- 10. Click **Deactivate Edit Mode** in the toolbar.



For an efficient favorite configuration, favorite settings can be assigned to CON Devices (see description on page 251) or can be copied from a CON Device (see description on page 253).

7.8.6 Setting CON Device Macros

In this menu macro commands for switching, disconnection or user administration can be created. The macro commands are created for each CON Device separately.

A macro can execute up to 16 switching commands successively.

The execution of the macros is done by entering a keyboard command by pressing the Hot Key and the function keys F1 to F16 (see chapter 8.1.4, page 293).



The macros can also be used to switch to CPU groups.

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		04	05004	CON_05004		Virtual Device		Force CPU S				
Extended Switch Presets		04	05004	CON_05004		Allow User ACL	\checkmark	Scan Time [s	sec] 3 🗘			
		06	05006	CON_05006		Force Login		Port Mode				
Status & Updates	^	07	05007	CON_05007		LOS Frame		Redundancy	Off			
Status - Matrix Firmware		08	05008	CON_05008		Show Macro List		Reference	(no referen	ice set)		
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Jpdate - Extender Firmware		10	05010	CON_05010		Video Off	V	Fix Frame Co		~		
Activate Configuration		11	05011	CON_05011				Fix Frame Co		•		
Miscellaneous		12	05012	CON 05012		Show Disconnect	\checkmark					
System Settings	~	13	05013	CON_05013		Extender Assignmen	t CPU Access Cont	ol Favorites Macros Logi	n Lock			
System		14	05014	CON_05014	1		F1 F2 F3 F4	F5 F6 F7 F8 F9 F10 F11 F12	F13 F14 F15 F16			
Access		15	05015	CON_05015		Key F1	✓ S1 S2 S3 S4	S5 S6 S7 S8 S9 S10 S11 S12				
Switch		16	05016	CON_05016		#	Function		P1		2	
Network		17	03003	CON_03003		01 Connect (P1=0		03001 CON_0300		01001 CPU_01001	2	
Date and Time Matrix Grid		18	03004	CON_03004		02 Connect (P1=0		03002 CON 0300		01002 CPU 01002		
		19	03001	CON_03001		03 Connect (P1=0		03003 CON_0300		01003 CPU_01003		
xtender & Devices	^	20	03002	CON_03002		04 Connect (P1=0		03004 CON_0300		01004 CPU_01004		
EXT Units		21	03005	CON_03005		05 Connect (P1=0		03005 CON_0300		01005 CPU_01005		
CPU Devices		22	03006	CON_03006		06 Connect (P1=0		03006 CON_0300		01006 CPU_01006		
CON Devices		23	03007	CON_03007		07	5614,12-61-67	00000 0011_0000		01000 010_01000		
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ssignment	^	26	03010	CON_03010	-	10						
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Fig. 167 Management software menu Extender & Devices - CON Devices - Macros

The following	The following parameters can be configured.							
Field	Selection	Description						
Function (01 to 16)	Connect (P1=CON, P2=CPU)	Set a bidirectional connection from CON Device P1 to CPU Device P2						
	Connect Video (P1=CON, P2=CPU)	Set a Video Only connection from CON Device P1 to CPU Device P2						
	Disconnect (P1=CON)	Disconnect the CON Device P1						

The following parameters can be configured:

Field	Selection	Description
Function	Logout User	Logout the current user
(01 to 16)	Assign CPU (P1=VCPU, P2=RCPU)	Assign a virtual CPU Device to a real CPU Device
	Assign CON (P1=RCON, P2=VCON)	Assign a real CON Device to a virtual CON Device
	Push (P1=CON)	The user's Full Access connection is forwarded to CON Device P1 and is changed into a Video Only connection.
	Push Video (P1=CON)	The video signal of the current connection (Full Access or Video Only) is forwarded to CON Device P1. The user's connection remains unchanged (Full Access or Video Only).
	Get (P1=CON)	The user's CON Device gets a Full Access connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 is changed into a Video Only connection.
	Get Video (P1=CON)	The user's CON Device gets a Video Only connection to the CPU Device that is currently connected to CON Device P1. The connection of CON Device P1 remains unchanged (Full Access or Video Only).
	Login User console P2	Login a certain user P1 at CON Device P2
P1	CON or CPU Device	Name of CON Device or CPU Device
P2	CON or CPU Device	Name of CON Device or CPU Device

To create a macro for the selected CON Device, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device for which a CON Device macro is to be created.
- 4. Click the Macros tab.
- 5. Select in the Key field the function key (F1 to F32) for which a macro is to be created.
- 6. Select in the **Function** column the commands that should be part of the macro. The selection list will be opened by a double-click on the empty fields.
- 7. Select the respective parameters for the macro functions (e.g., corresponding CON Devices or CPU Devices) in the **P1** and **P2** columns.
- 8. Click **Apply** to confirm your entries.
- 9. Click Deactivate Edit Mode in the toolbar.

For an efficient macro configuration, the following context functions are available:

- When clicking on the Macros tab, macros can be assigned to other CON Devices by using the Assign Settings to... function (see description on page 251) and can be copied from other CON Devices by using the Copy Settings from... function (see description on page 253).
- When clicking on the macro list, macros of the selected key can be copied into the cache by using the Copy Key Macros function. You can paste the macros from the cache into another key by using the Paste Key Macros function and you can reset all macros of the selected key by using the Delete Key Macros function.

7.8.7 Setting Access Rights for Logging in to a CON Device

Users can be blocked from logging in for certain CON Devices.

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Grid	05	05005	CON_05005	⊾ Nam	e	CON_03006	CPU	Connected		12 CPU_01012	
Control	06	05006	CON_05006	Prior	ity	0 🗘	Allow	CPU Scan	1		
Control ^	07	05007	CON_05007	Virtu	al Device		Force	CPU Scan			
Extended Switch	08	05008	CON_05008	Alloy	V User ACL	\checkmark	Scan	Time [sec]		3 🗘	
Presets	09	05009	CON_05009		e Login		Port			•	
Status & Updates	10	05010	 CON_05010		-						
Status - Matrix Firmware	11	05011	 CON_05011	LOS	Frame		Redu	ndancy Off			
Status - Matrix Firmware Status - Extender Firmware	12	05012	 CON_05012	Show	v Macro List		Refer	ence	🗌 (r	no reference set)	
Update - Matrix Firmware	13	05013	CON_05013	OSD	Disabled		CPU	Colors		🗸 on 🗸	
Update - Extender Firmware	14	05014	 CON_05014	Vide	o Off	\checkmark	Fix Fr	ame Color		~	
Activate Configuration	15	05015	CON_05015	Show	v Disconnect	v					
Miscellaneous	16	05016	 CON_05016						_		
System Settings	17	03003	 CON_03003	Exten	der Assignmen	t CPU Access Control	Favorites Macros	Login Lock	GPIC		
System	18	03004	CON 03004			Allowed Login				Locked Log	in
Access	19	03001	 CON 03001	ID	Name				ID	Name	
Switch	20	03002	CON_03002	1	USER_000	101			3	USER_00003	
Network	21	03005	CON 03005	2	USER_000	02			5	USER_00005	
Date and Time Matrix Grid	22	03006	CON_03006	4	USER_000	104		•			
	23	03007	CON 03007	6	USER_000						
Extender & Devices	24	03008	CON 03008	7	USER_000	107					
EXT Units	25	03009	CON_03009	8	USER_000						
CPU Devices	26	03010	CON_03010	10	USER_000						
CON Devices	27	03011	CON_03011	12	USER_000						
User Settings	28	03012	CON 03012	13	USER 000						
Users & Groups	20	03105	CON_03105	14	USER_000						
Assignment ^	30	03013	CON_03013	15	USER_000						
				¥ 19	UCED 000			v			
Virtual CPU Devices	24	02044	OOM 02044								

Fig. 168 Management software menu Extender & Devices - CON Devices - Login Lock

To lock the login to the OSD of specified CON Devices, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device for which the login should be locked in the CON Device list.
- 4. Click the Login Lock tab in the working area.
- 5. Select the Users in the **Allowed Login** list that should be added to the list of locked Users (**Locked Login**). By pressing and holding down **Ctrl** at the same time, more than one User can be highlighted.
- 6. Click ▶ to move the highlighted User to the Locked Login list. By clicking ▶, all Users from the Allowed Login list will be moved to the Locked Login list.
- 7. To remove highlighted Users from the **Locked Login** list, click **4**. By clicking **4**, all Users will be removed from the **Locked Login** list.
- 8. Click **Apply** to confirm the changes.
- 9. Click **Deactivate Edit Mode** in the toolbar.

7.8.8 Setting Functions for an External Switching Solution

Functions for an external switching solution connected to a GPIO add-on module are set in this menu.

File Edit Device Extras ?			P				ë	Q	~	712					
pen Save Reload Connect D	sconnect	Deactivate Edit Mode		wnload	Upload	Monitoring	-	. Device Finder	. System Check						
20220215.zip Master × 📃 ad	Imin@19:	2.168.100.112 ×													
View ^	A Ext	ender & Devices	- CON Device	s									Edit N	lode act	livate
Matrix				T.		1					_		_		
Port	#	ID Name			ID		3006		CON A	ssigned					
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Control	02	03002 CON_0102	203250		Priority		0 🗘		Allow	CPU Scan					
Control ^	03	03003 CON_040	131933		Virtual D	evice			Force	CPU Scan					
Extended Switch	04	03004 CON_SG_	1		Allow Us				Scan T	lime [sec]	0	•			
Presets	05	03005 CON_SG_	2						Port M			v			
Status & Updates	06	03006 CON_0102	230842		Force Lo										
Status - Matrix Firmware					LOS Frar	ne			Redun	dancy Off					
Status - Extender Firmware				1	Show Ma	acro List			Refere	ence	(no refe	rence set)			
Update - Matrix Firmware					OSD Disa	abled			CPU C	olors		✓ on	~		
Update - Extender Firmware					Video Of	f			Fix Fra	me Color		~			
Activate Configuration					Show Dis	sconnect									
Miscellaneous				1.1											
System Settings				E	Extender	Assignment	CPU Access	Control Fav	orites Macros	Login Lock	GPIO				
System				F	Pins		F	unction				Parameter			
Access						SC Switch (def		<u></u>		~					
Switch					02	3C Switch (def	ault)	- 0							
Network Date and Time					03	ivorites acros									
Matrix Grid					04	evs									
Extender & Devices					05 MS	C Switch (def	ault)								
					06 MS	C Switch (def	ault)								
EXT Units					07 MS	C Switch (def	ault)								
CPU Devices CON Devices					08 MS	C Switch (def	ault)								
					09 MS	C Switch (def	ault)								
User Settings					10 MS	C Switch (def	ault)								
Users & Groups					11 MS	C Switch (def	ault)								
					12 MS	C Switch (def	ault)								
Assignment ^															
Virtual CPU Devices									a a a a a ta	NI NI				oply (Cance
		Assign Settings to	Copy Setti	ngs from		Extender Repl	acement	Send OSD Me	ssage to	N	ew Device	Delete Device		een :	

Fig. 169 Management software menu Extender & Devices - CON Devices - GPIO

To set favorites for an external switching solution, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device of the extender module with GPIO add-on module to define the functions of the pins.
- 4. Click the **GPIO** tab in the working area.
- Double-click in the Function column of the pin to be defined.
 A selection menu is opened.
- 6. Select Favorites as function for the pin.
- Double-click in the **Parameter** column of the selected pin. A selection menu is opened.
- 8. Select the favorite CPU Device from the Favorite CPU Devices list.
- 9. Click Apply to confirm the changes.
- 10. Click Deactivate Edit Mode in the toolbar.



Defining a macro for a pin is done analogously.

To set keys for an external switching solution, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device of the extender module with GPIO add-on module to define the functions of the pins.
- 4. Click the **GPIO** tab in the working area.
- 5. Double-click in the **Function** column of the pin to be defined. A selection menu is opened.
- 6. Select **Key** as function for the pin.
- 7. Double-click in the **Parameter** column of the selected pin.

A menu is opened.

- 8. If required, click the arrow under **Keyboard Layout** and select the desired keyboard layout in the opened selection list.
- 9. Tick the checkbox for the desired key under **Modification Keys** or click the arrow under **Key Code** and select the desired key in the opened selection list.
- 10. Click **Ok** to confirm the settings.

USB HID Keyboard S	can Codes		×
Keyboard Layout			
DE_DE_129			~
Modification Keys			
Left Control	Left Shift	Left Alt	Left Window Key
Right Control	Right Shift	Right Alt	Right Window Key
Key Code			
			~
			<u>O</u> k C <u>a</u> ncel

Fig. 170 Management software menu Extender & Devices - CON Devices - GPIO

11. Click **Apply** to confirm the settings.

12. Click **Deactivate Edit Mode** in the toolbar.

7.8.9 Assigning/Copying Settings of CON Devices

7.8.9.1 Assigning Settings to other CON Devices

To assign settings of a CON Device to other CON Devices, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device whose settings are to be assign to another CON Devices.
- 4. Click Assign Settings to below the CON Device list.

A query to select the settings appears.

- 5. Tick the checkboxes to select the desired settings.
- 6. Click Next >.

Fig. 171 Management software menu Extender & Devices - CON Devices - Select Settings

A query to start the assignment appears.

- Select the CON Device in the Available to assign settings to list to which the settings are to be assigned. By pressing and holding down Ctrl at the same time, more than one CON Device can be highlighted.
- 8. Click ▶ to move the highlighted CON Device to the **Assign settings to** list. By clicking ▶, all CON Devices will be moved to the **Assign settings to** list.
- 9. To remove highlighted CON Devices from the **Assign settings to** list, click **∢**. By clicking **∢**, CON Devices will be removed from the **Assign settings to** list.
- 10. Click Finish.

The settings are immediately assigned to the selected CON Devices.

11. Click **Deactivate Edit Mode** in the toolbar.

Select Settings		Settings to ailable to assign setting		Assign settings to				
Assign Settings to	ID	Name	-	ID	Name			
	5001	CON_05001	*					
	5002	CON_05002						
	5003	CON_05003						
	5004	CON_05004						
	5005	CON_05005						
	5006	CON_05006						
	5007	CON_05007	•	•				
	5008	CON_05008		•				
	5009	CON_05009						
	5010	CON_05010						
	5011	CON_05011		•				
	5012	CON_05012		•				
	5013	CON_05013						
	5014	CON_05014						
	5015	CON_05015						
	5016	CON_05016						
	3003	CON_03003						
	3004	CON_03004						
	3001	CON_03001	v					

Fig. 172 Management software menu Extender & Devices - CON Devices - Assign Settings

7.8.9.2 Copying Settings from another CON Device

To copy settings from a CON Device to another CON Device, proceed as follows:

- 1. Click Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CON Device to copy the settings to. By pressing and holding down Ctrl at the same time, more than one CON Device can be highlighted.
- 4. Click Copy Settings from below the CON Device list.

A query to select the settings appears.

- 5. Tick the checkboxes to select the desired settings.
- 6. Click Next >.

Copy Settings from	×
Steps	Select Settings
 Select Settings Copy Settings from 	Priority ✓ Allow User ACL Force Login ✓ LOS Frame Show Macro List OSD Disabled Video Off Show Disconnect ✓ Allow CPU Scan Force CPU Scan Scan Time [sec] Port Mode Reference CPU Colors Fix Frame Color CPU Access Control Favorites Macros ✓ Login Lock GPIO
	< <u>B</u> ack Next > <u>F</u> inish Cancel

Fig. 173 Management software menu Extender & Devices - CON Devices - Select Settings

A query to start the assignment appears.

- 7. Select the CON Device in the selection list from which the settings are to be copied.
- 8. Click Finish.

The settings are immediately copied to the selected CON Devices.

	Copy Settings from		×
Ste	eps	Copy Settings from	
1. 2.	Select Settings Copy Settings from	Copy from 05001 CON_05001	
_		05008 CON_05008 05009 CON_05009 05010 CON_05010 05011 CON_05011 05012 CON_05012 05013 CON_05013 05014 CON_05014 05015 CON_05016 03003 CON_03003 03004 CON_03004 03001 CON_03001 ▼	
		< <u>B</u> ack Next > <u>Finish</u> Cano	el

Fig. 174 Management software menu Extender & Devices - CON Devices - Copy Settings

7.8.10 Assigning Virtual CON Devices

In this menu, several real CON Devices can be assigned to a virtual CON Device.

This function reflects changes in permission made to virtual CON Devices onto real CON Devices. Virtual CON Devices can be switched in the same way as real CON Devices. Real CON Devices that are assigned to a virtual CON Device that is connected to a CPU Device will receive the video signal. The last assigned CON Device will also have control of the keyboard and mouse.

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A virtual CON Device can be assigned to more than one real CON Devices.

NOTICE

If the **Auto Send** checkbox is ticked in the lower left corner of the workspace, the switching operations will be performed immediately without user confirmation by clicking **Send**.

File File Davies Free 0												-	
Elle Edit Device Extras 2	t <u>D</u> iscor	nnect I	Deactivate Edit Mode Remote Save	Download Uploa	ad Monitoring	Flash Update	Device Finder	. System	Check Save Status				
20210210.zip Master ×													
View	^	Assig	gnment - Virtual CON Devi	es								Edit Mode	activated
Matrix													Ţ
Port				Real CON Devi	ice					Virtual CON Dev	ice		
Grid		ID		Nam	ie			ID		Name			
Control		03001	CON_03001					04001	CON_04001				^
Control	^	03002	CON_03002										
Extended Switch		03003	CON_03003										
Presets		03004	CON_03004										
Status & Updates	~	03005	CON_03005										
Status - Matrix Firmware		03006	CON_03006										
Status - Matrix Firmware Status - Extender Firmware		03007	CON_03007										
Update - Matrix Firmware		03008	CON_03008										
Update - Extender Firmware		03009	CON_03009										
Activate Configuration		03010	CON_03010										
Miscellaneous		03011	CON_03011										
System Settings	^	03012	CON_03012										
System		03013	CON_03013										
Access		03014	CON_03014										
Switch		03015	CON_03015										
Network		03016	CON_03016										
Date and Time Matrix Grid		03017	CON_03017										T~
		03018	CON_03018										
Extender & Devices	^	03019	CON_03019						04001 CON_04001 04002 VCON_04002				
EXT Units		03020	CON_03020						Children Front _ Children				
CPU Devices CON Devices		03021	CON_03021										
		03022	CON_03022										
User Settings	^	03023	CON_03023										
Users & Groups		03024	CON_03024										
Assignment	~	03025	CON_03025										
Virtual CPU Devices		03026	CON_03026										
Virtual CON Devices		03027	CON_03027										
Multi-Screen Control		03028	CON_03028										
		✓ Aut	o Send									Send	Reload
										Default	7		

Fig. 175 Management software menu Assignment - Virtual CON Devices

The following functions are available:

Button	Function
Send	Send assignments to the matrix
Reload	Reload changes



The selection boxes in the **Virtual CON Device** column contain a filter function for an easy selection of a single CON Device from a larger pool of CON Devices.

Configuring EXT Unit Assignments

To assign a real CON Device to a virtual CON Device, proceed as follows:

- 1. Click Assignment > Virtual CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the required real CON Device in the Real CON Device list.
- 4. Double-click in the Virtual CON Device column to display a list of all available virtual CON Devices.
- 5. Select the required virtual CON Device in the selection list.
- 6. Click **Send** to send the assignment to the matrix.
- 7. Click **Deactivate Edit Mode** in the toolbar.

The management software offers the option to switch directly from the **Assignment** menu to the definition menu to check specific settings for the respective real CON Device or virtual CON Device.

Click with the right mouse button on the respective real CON Device or virtual CON Device and select
 Open CON Device in the context menu.

The definition menu for the CON Device settings is opened (see chapter 7.8.1, page 236).

7.8.11 Configuring Multi-Screen Control

When using MSC, switching up to eight connected sources can be performed at one sink with only one connected mouse or keyboard. The sink can consist of up to eight CON Units and accordingly up to eight monitors, or up to sixteen monitors when using Dual-Head extender modules. In a matrix system, MSC can be set up at multiple sinks. The CON Units of a sink with MSC must all be physically connected to the same block of 8 ports on the I/O board. When using one of these I/O boards (480-C8, 480-S8 or 480-V8), the block size is limited to 4 ports (port 1 to 4, or port 5-8).

One of the CON Devices is designated for USB-HID control of the connected sources, below referred to as "Control CON Device". Control CON Devices are referred to the extender modules within the MSC that are connected to keyboard and mouse for operation. If the USB-HID control has to be performed via several USB-HID devices, several CON Devices have to be defined as Control CON Device.

Smooth switching of sources with the mouse is performed by dragging the mouse pointer beyond the respective display to an adjacent display in an arrangement of displays. The displays can be arranged side by side, in a grid layout, or completely free. Alternatively, switching can be performed via keyboard commands according to the ID number in the MSC setup.

NOTICE

When using CON Units with the possibility to connect a local source in a MSC environment, the local switching will be disabled.



The connected sources need to support absolute mouse mode. Else a specific mouse driver needs to be installed.



CON Units that have been already configured for MSC can be connected all together to other blocks of 8 ports at another I/O board. In this case any further configuration is not necessary, their functionality will remain as set previously.

<u>File Edit Device Extras ?</u>														- 0	×
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Open Save Reload Connec	t <u>D</u> isconn	ect Deact	ivate Edit Mode	Remote Sav	e Download Upload	Monitor	ing Flash Up	late Device Finder Syste	m Check	Save Statu	\$				
20210210.zip Master ×															
View	^	Assignm	ent - Multi-	Screen C		-								Edit Mode ad	tivated
Matrix					T	Manu	al								
Port Grid		# Block	Enabled	Control	Screens			educe switching to manual sv isable automatic switching wit			CDUa				
Control		01 12.1	X	X	MultiViewer 3.1, MultiVi	Arran		Free V	ur mouse to	munifedu	Crus				
Control		02 12.2 03 27	X	X	MultiViewer 4.1, MultiVi	Anu		elect an arrangement							
		03 27 04 34.1	X	X	[n/a], [n/a], [n/a], CON_: MultiViewer 1.1, MultiVi					Available	Screens				
Extended Switch Presets		05 34.2	X	X	MultiViewer 2.1, MultiVi										
Status & Updates	~							4							
Status - Matrix Firmware								1 2 3							
Status - Extender Firmware											single monitors into the grid and em according to your configura				
Update - Matrix Firmware											y monitor by moving it out of the				
Update - Extender Firmware Activate Configuration											, , ,	-			
Miscellaneous						ID	Device Nan	e Extender Name	Port (R	ed. Port)	Dualhead Extender	Enabled	Control	Owner	Fram
System Settings	~					1	ıltiViewer 3.1		89			V	V	Shared	3
System						2	ıltiViewer 3.2	x CON_MV_3.2	90			v		Shared	3
Access						3	ıltiViewer 3.3	CON_MV_3.3	91			V		05009 MultiView	. 3
Switch						4	iltiViewer 3.4	CON_MV_3.4	92			V	1	05009 MultiView	. 3
Network															
Date and Time Matrix Grid															
Extender & Devices	~														
EXT Units	_														
CPU Devices															
CON Devices															
User Settings	^														
Users & Groups															
Assignment	~						1								
Virtual CPU Devices	_	4			Þ		-								
Virtual CON Devices														Apply	<u>C</u> ancel
Multi-Screen Control						_									
											Default	0			

Fig. 176 Management software menu Assignment - Multi-Screen Control

Field	Entry/Status	Description
Dual-Head Extender	Activated	Enable configuring two displays for the Dual-Head extender module
	Deactivated	Function not active (default).
Enable	Activated	Activate the respective display for MSC.
	Deactivated	Function not active (default).
Control	Activated	Enable the CON Device for USB-HID control of other CON Devices if access is permitted.
	Deactivated	Function not active (default).
Owner	Selection	 Shared (default) permits the access from a Control CON Device to all other CON Devices except to another Control CON Device. Name of the own Control CON Device to restrict access to other CON Devices.
Frame	0 to 999 seconds	Set the keyboard/mouse inactivity timer after which a red frame is faded in at the display with current mouse/keyboard control. This frame remains active for a fixed period of time and disappears thereafter.

The following parameters can be configured:

Configuring Multi-Screen Control

To configure more than four CON Devices for MSC, the free layout has to be used.

If the horizontal or block layout is used for up to four CON Devices, the CON Units have to be connected to the ports 1 - 4 or 5 - 8 of the respective I/O board. E.g., if connecting four CON Units to ports 1, 2, 5, and 6 of an I/O board, configuring MSC for these CON Devices will not be possible.

To configure the MSC, proceed as follows:

- 1. Click **Assignment > Multi-Screen Control** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- Select the block of four or eight ports in the list of the working area that should be configured for MSC.
 Only blocks of four or eight ports that contain at least one CON Unit are shown.
- 4. Tick the **Manual** checkbox if the USB-HID switching is to be restricted to keyboard commands (see chapter 8.1.6, page 294). Manual switching allows the use of multi-head consoles.
- 5. In the **Arrangement** field, select the layout for the CON Devices you want to configure. Select as follows:
 - Horizontal: horizontal arrangement for a maximum of four CON Units
 - Block: block arrangement for a maximum of four CON Units
 - Free: free arrangement for a maximum of eight CON Units (The free arrangement allows a flexible positioning of the screens for diverse applications.) Move the displays from the **Available Screens** field to the arrangement field.

The fields for the configuration of the individual displays will be arranged accordingly.

6. If the CON Unit to be configured is a Dual-Head extender module, tick the **Dual-Head Extender** checkbox to activate the option.

An additional display appears in the Available Screens field.

7. Tick the **Enable** checkboxes for all CON Devices to be enabled for MSC.

Enabled Control CON Devices are shown as light blue screens in the arrangement field.

8. Tick the **Control** checkbox for one or more CON Devices to be enabled as Control CON Device.

Enabled Control CON Devices are shown as dark blue screens in the arrangement field.

- Use the Frame function to configure a red frame that shows the display with current mouse control, for the duration of a specified time by flashing briefly. The frame can be activated individually for each screen by using a timer > 0 seconds.
 - 9.1. Double-click in the respective CON Device in the Frame column.
 - 9.2. Select the keyboard/mouse inactivity time, after which the red frame should be faded in at the display with current mouse/keyboard control.
- 10. Click **Apply** to confirm the settings.

A dialog appears querying a restart of the I/O board.

- 11. Click Yes to restart the I/O board.
- 12. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 13. Click Remote Save in the toolbar.
- 14. Click Deactivate Edit Mode in the toolbar.

All Control CON Devices are enabled to control USB-HID of all other CON Devices in the setup except of another Control CON Device. To restrict the access to other CON Devices, see following section.

Access Restriction when using Multiple Control CON Devices

Dragging the mouse pointer over the display border is only permitted for those displays whose CON Device is enabled for access by the owner of the respective Control CON Device.

To enable access to a display for only one Control CON Device, proceed as follows:

- 1. To enable a Control CON Device for access for a CON Device, double-click on the corresponding selection box within the **Owner** column and select the name of the respective Control CON Device.
- Double-click on the corresponding selection box within the **Owner** column of all Control CON Device whose display should be accessible and select the name of the respective Control CON Device. The mouse can now be used to access those displays whose CON Device is enabled for access by the assigned Control CON Device.
- 3. Click Apply to confirm the settings.

A dialog appears querying a restart of the I/O board.

- 4. Click Yes to restart the I/O board.
- 5. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 6. Click **Remote Save** in the toolbar.
- 7. Click Deactivate Edit Mode in the toolbar.

No simultaneous USB HID sharing of multiple Control CON devices

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Example: In a setup of 8 CON Devices, if CON Device 1 and 2 are each Control CON Devices and six other "non-Control CON Devices" are configured, both Control CON Devices can access the displays of CON Device 3 to 8 if they are configured with **Owner = Sharing**.

However, Control CON Device 1 and 2 cannot access the display of a "non-Control CON Device" at the same time. The Control CON Device that first had USB-HID control is reset to its "own" display when the second Control CON Device takes over.

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Changing Multi-Screen Control

Changes of the MSC are permitted only if the USB-HID control is switched to the Control CON Device.

To change the MSC for a setup, proceed as follows:

- 1. Switch the USB-HID control to the Control CON Device.
- 2. Click **Assignment > Multi-Screen Control** in the task area.
- 3. Click Activate Edit Mode in the toolbar.
- 4. Select the setup in the list of the working area the MSC should be changed.
- 5. Make any edits at the configuration and system settings.
- 6. Click Apply to confirm the changes.

A dialog appears querying a restart of the I/O board.

- 7. Click Yes to restart the I/O board.
- 8. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 9. Click Remote Save in the toolbar.
- 10. Click Deactivate Edit Mode in the toolbar.

Deleting Multi-Screen Control

Changes of the MSC are permitted only if the USB-HID control is switched to the Control CON Device.

To delete the MSC for a setup, proceed as follows:

- 1. Switch the USB-HID control to the Control CON Device.
- 2. Click Assignment > Multi-Screen Control in the task area.
- 3. Click Activate Edit Mode in the toolbar.
- 4. Select the setup in the list of the working area for which the MSC should be deleted.
- Click the Enable checkboxes for all CON Devices to remove the checkmarks.
 The disabled Control CON Devices are shown as gray screens in the arrangement field and the MSC is disabled.
- 6. Click the Control checkbox for all CON Devices to remove the checkmarks.
- 7. Click **Apply** to confirm the changes.

A dialog appears querying a restart of the I/O board.

- 8. Click Yes to restart the I/O board.
- 9. Wait until the boot process of the matrix is finished and the status LED 1 flashes green.
- 10. Click Remote Save in the toolbar.
- 11. Click **Deactivate Edit Mode** in the toolbar.

Configuring Multi-Head sources for Multi-Screen Control

NOTICE

A Multi-Head configuration for Apple Mac sources is not supported due to limitations of the macOS.

For the use of Multi-Head sources, an additional configuration of the CPU Devices is mandatory. The configuration of CPU Devices, which are connected to Single-Head sources is not mandatory.

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	ct <u>D</u> isco	nnect	Deactivate Edit Mode	Remote Save Download	Upload	Monitoring	Flash Update Device Fin	der System Ch	neck Save Status				
20210210.zip Master ×	~			s - CPU Devices									
	~~~	_	CPU Groups IF									Edit Mo	ode activate
Matrix Port		CFU	CPO Gloups in	-									
Grid				Y	ID		1019		CPU Assigned				
Control			ID	Name		ne	CPU_05 R		CON Connected				
Control	~	01	01001	Raspi_01 FHD									
Extended Switch		02	01002	Raspi_02 FHD		tual Device			CPU Colors	💙 on	<b>*</b>		
Extended Switch Presets		03	01003	Raspi_03 FHD	Allo	w Private	1		Exclusive Access				
		04	01004	Raspi_04 FHD	For	ce Private			MSC Disabled				
Status & Updates	^	05	01005	Raspi_05 WQHD	Fix	Frame Color		~					
Status - Matrix Firmware		06	01006	Raspi_06 WQHD Raspi_07 UHD	Ref	erence	(no reference set)						
Status - Extender Firmware Update - Matrix Firmware		08	01007	Raspi_07 UHD	2 St	tep Access							
Update - Extender Firmware		09	01008	Raspi_08 UHD									
Activate Configuration		10	01009	Raspi_10 UHD	Exte	ender Assignme	ent CON Access Contro	User Acces	s Control Monitor Ar	rrangement			
Miscellaneous		10	01010	CPU_11 FHD [VGA]	Total	Desktop Resol	ution: Width 3840	Height	t 1080	Multiplier			
System Settings	^	12	01012	CPU_12 FHD [VGA]	rotur	Deartop nead	3040	ricigii	1000	manaprici			
System		13	01200	IP-CPU 1	#	Name	Resolution 1	Offset X	Offset Y	Resolution 2	Offset X	Offset Y	Dual-He
Access		14	01014	VuWall_TRx UHD	01	CPU_06	1920 x 1080	1920	0	0 x 0	0	0	
Switch		15	01013	CPU_05 L									
Network		16	01091	MacMini1 [10.07]									
Date and Time Matrix Grid		17	01092	MacMini2 [10.07]									
		18	01093	MacMini3 [10.11]									
Extender & Devices	^	19	01094	MacMini4 [10.12]									
EXT Units		20	_	IP-CPU 5			CPU 06						
CPU Devices CON Devices		21	01300	IP-CPU 2			010_00						
		22	D 01400	IP-CPU 3									
User Settings	^			IP-CPU 4									
Users & Groups		24	01105	USB2.0 CPU 05									
Assignment	^	25	01019	CPU_05 R									
/irtual CPU Devices /irtual CON Devices llulti-Screen Control					4								
		As	sign Settings to	Copy Settings from	Config	gure IP CPU				New De	vice Delete D	Device Apr	ply <u>C</u> anc

Fig. 177 Management software menu Extender & Devices - CPU Devices - Monitor Arrangement

For an additional configuration of the CPU Devices for the use of Multi-Head sources, proceed as follows.

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CPU Device to be configured.
- 4. Click the Monitor Arrangement tab.
- Enter the resolution of the total desktop area into the fields Total Desktop Resolution. For instance, if there are 4 graphic card outputs with a resolution of 1920x1080 each, you have to enter 7680 under Width and 1080 under Height.
- Select the individual resolution of the graphic card output from the selection list in the field Resolution 1 (e.g., 1920x1080). This is the graphic card output the CPU Device is connected to.
- 7. Enter the respective pixel coordinates that particular screen in the MSC arrangement into the fields **Offset X** and **Offset Y**.

Note: Offset: X=0/Y=0 defines the upper left corner.

For instance, you have to enter 1920 for a shift of 1920 pixels to the right into the field Offset X.

The corresponding screen will be positioned accordingly within the light blue grid.

- 8. If the CPU Device to be configured is a Dual-Head extender module, tick the **Dual-Head Extender** checkbox to activate the option. Enter the resolution of the 2nd graphic card output and the offset information in the field **Resolution 2**.
- 9. For some operating systems it is necessary to activate the option **Multiplier**. This is mandatory if you cannot reach all areas of the desktop with your mouse cursor.
- 10. Click **Apply** to confirm the settings.
  - A dialog appears to restart the extender module.
- 11. Click **Yes** to restart the extender module to with the new configuration.

The CPU Device is now configured for the Multi-Head operation.

Restart Exte	nder X	
?	In order to activate the Monitor Arrangement changes, a restart of the Extender is obligatory. Do you want to restart the Extender by now?"	
	<u>Y</u> es <u>N</u> o	

Fig. 178 Management software dialog Monitor Arrangement - Restart Extender

12. Click **Deactivate Edit Mode** in the toolbar.

# 7.9 Configuring Matrix Cascading

This simple method of cascading allows a switchable connection between two matrices via so called **Tie Lines**. The Matrix Cascading does not require **Bundle 4**.

This kind of configuration may become necessary if the number of ports in the entire system has to be increased or if certain important connections should be distributed to several matrices due to reasons of redundancy.

The Tie Lines are unidirectional and can only be used in one direction according to their configuration. For a bidirectional use of the cascading, you have to configure opposite Tie Lines.

To connect Tie Lines to the matrices, you first have to create intended **Cascade CON Devices** and **Cascade CPU Devices** that have to be switched within the cascaded environment.

Ensure that the Tie Lines will only be connected after finishing the configuration.

#### Activating the Sub Matrix Option

- 1. Connect to the defined Sub Matrix and click Activate Edit Mode in the toolbar.
- 2. Click System Settings > System in the task area of the Sub Matrix.
- 3. Tick the Sub Matrix checkbox in the working area.
- 4. Click Apply to confirm the Sub Matrix option.

The OSD of the Sub Matrix will immediately freeze and will be only accessible by using the keyboard command Hot Key, s, o.

5.	Click Deactivate	Edit	Mode in	the	toolbar.
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			– 🗆 ×
<u>File Edit Device Extras ?</u>			
Open Save Reload Connect Dis	connect Deactivate Edit Mode Remote	Save Download Upload Monitoring Flash Update Device Finder System Check Save Status	
20220215.zip   Master ×			
View ^	System Settings - System		Edit Mode activated
Matrix Port	General Automatic ID Global	OSD Settings OSD Data (CPU) Synchronization Mode	▲ ✓ Show Help
Grid			
Control	Device	KVM_DV03	
Control ^		Host name for network environment (recommended characters: a-z, A-Z, 0-9,)	
Extended Switch	Name	IHSE-KVM-Grid	
Presets		Name of current configuration	
	Info	IHSE KVM Matrix-Grid (DV03, DV01)	
Status & Updates ^			
Status - Matrix Firmware		Description of current configuration	
Status - Extender Firmware	Sub Matrix		
Update - Matrix Firmware		Allow hotkey control in cascaded environment	
Update - Extender Firmware	Load Default		
Activate Configuration		When performing a cold start or a restart of the matrix, the configuration stored in Default will always be activated	
Miscellaneous	Auto Save		
System Settings		Save matrix status automatically	
System	Enable COM Echo		
Access		Echo all switch commands via communication ports	
Switch	Enable LAN Echo	$\checkmark$	
Network		Echo all switch commands via LAN ports	
Date and Time	Enable Redundancy	V	
Matrix Grid		Enable automatic switching for redundant extenders	
Extender & Devices	Primary Preferred	V	
Extender & Devices		Prefer the primary port for redundant extenders	
EXT Units	Invalid I/O Boards		
CPU Devices		Requires cold start of the matrix, shall/must be OFF during normal operation	
CON Devices	Enable Old Echo		
User Settings		Echo internal switch commands with old format	
Users & Groups	Remove I/O Boards	Deren, MA Derende	
Assignment ^			Apply Cancel
Virtual CPU Devices	*		
		Default 😽	

Fig. 179 Management software menu System Settings > System

## 7.9.1 Directing a Tie Line from the Sub to the Master

To configure settings for using Matrix Cascading and to direct the Tie Line from the Sub to the Master, proceed as follows:

- 1. Connect to the Master Matrix.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click Extender & Devices > EXT Units in the task area.
  - 3.1. Click New Unit.

A selection dialog appears.

- 3.2. Select Cascading CPU Unit in the Choose template selection box.
- 3.3. Click OK.

A new Cascading CPU Unit will be created.

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en <u>S</u> ave Reload <u>C</u> onn	ect <u>D</u> isc	onnect	Deactivate Edi	t Mode Remote Save	Download	Upload	Monitoring Flas	sh Update Device F	inder System Check Save Status.				
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/iew	^	Ext	ender & De	vices - EXT Units	;							Edit Mode a	ctivat
Matrix							Y	ID	9000008	CPU/CON Assig			
Port		#	ID	Name	Port	Red. Por		÷		or o			
Grid		78	040173693	EXT_040173693	0		CON	▲ Name	Casc_EXT_CPU_01				
Control		79	040173692	EXT_040173692	0	-	CON	Port	17				
Control	^	80	040173706	EXT_040173706	438	-	CPU	Fixed					
Extended Switch		81	040173708	EXT_040173708	439	-	CPU	Location					
Presets		82	040173695	EXT_040173695	0		CON		Device: KVM_DV03				
Status & Updates	^	83	010308980	EXT_010308980	116	-	CPU	Link 1	I/O board: 3 I/O board port: 1				
Status - Matrix Firmware		84	040171288	EXT_040171288	48	-	CPU		Matrix port: 17				
Status - Extender Firmware		85	010308979	EXT_010308979	108	-	CPU		-				
Update - Matrix Firmware		86	010309567	EXT_010309567	107		CON	Extender Type	Firmware Version				
Update - Extender Firmware Activate Configuration		87	040164611	EXT_040164611	403	-	CON	Туре	Casc. CPU		Stand	ard View Ex	(pert Vi
Miscellaneous		88	040164291	EXT_040164291	445	-	CPU						
System Settings	~	89	040164608	EXT_040164608	33		CON		Name	Basic	Part A	Part	
		90	040164609	EXT_040164609	34		CON	DVI/HDMI/VGA					
System		91	040164610	EXT_040164610	35	-	CON	HID (keyboard	, mouse)				
Access Switch		92	040164288	EXT_040164288	25	-	CPU	Analog Audio					
Network		93	040164289	EXT_040164289	26		CPU	Digital Audio					
Date and Time		94	040164290	EXT_040164290	27		CPU	RS232/RS422					
Matrix Grid		95	040227285	EXT_040227285	106	-	CON	USB-CPU (em					
Extender & Devices	^	96	040173703	EXT_040173703	0		CON	USB-CPU (sta			_		
EXT Units		97	040173699	EXT_040173699	41		CON	Universal-CPU					
CPU Devices		98 99	040262339	EXT_040262339	448 337	-	CPU	Cascade-CPU		$\checkmark$			
CON Devices				EXT_040237622 EXT_040172444	337		CPU						
User Settings	~	100	040172444	EXT_040172444 EXT_040172443	32		CPU						
Users & Groups		101		EXT_040172443	413	0	CON						
	^	102	090000008	Casc_EXT_CPU_(		0	Casc. CPU						
Assignment	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		040185821	EXT_040185821	43		CON						
/irtual CPU Devices			040173701	EXT_040103021	42		CON						
/irtual CON Devices		105		2.1_040173701	72			*					
Multi-Screen Control		As	Isign Settings t	o Copy Setting	s from	Restart	► Extender			New U	Init Delete Unit	Apply	

Fig. 180 Management software menu Extender & Devices - EXT Units - Cascading CPU Unit

- 3.4. Enter an appropriate name for the Cascading CPU Unit into the Name field.
- 3.5. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 3.6. Click Apply to confirm the creation of a Cascading CPU Unit.

- 4. Click Extender & Devices > CPU Devices in the task area of the Master Matrix.
  - 4.1. Click New Device.

A switchable CPU Device will be created.

4.2. Enter an appropriate name for the Cascading CPU Device into the **Name** field.

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en <u>S</u> ave Reload <u>C</u> onne	ect <u>D</u> isc	onnect	Deactivate Edit Mo	de Remote Save Downlo	bad U	Jpload Monitori	-	late Device Find	ler System Cl	heck	Save Stat	us							
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latrix		CPU	CPU Groups	IP Session Config															
ort					T														
Grid		#	ID	Name	0	ID	1069			CP	U Assigne	d							
ontrol		53	08053	CPU_08053		Name	Case	_CPU_01		co	N Connec	ted							
ontrol	^	54	01054	CPU_01054		Virtual Device				CP	U Colors			~	on	~			
xtended Switch		55	01055	CPU_01055		Allow Private				Fxc	clusive Ac	ress							
resets		56	01034	CPU_01034		Force Private													
tatus & Updates	~	57	01057	CPU_01057						MS	C Disable	u							
Status - Matrix Firmware		58	01058	CPU_01058		Fix Frame Colo	or		~										
status - Matrix Firmware Status - Extender Firmware		59	01045	CPU_01045		Reference	(no	o reference set)											
Jpdate - Matrix Firmware		60	01046	CPU_01046		2 Step Access	;												
Jpdate - Extender Firmware		61	01047	CPU_01047															
ctivate Configuration		62	01053	CPU_01053		Extender Assig	nment CON	Access Contro	User Acces	ss Co	ntrol Mo	nitor Ar	rangem	ent					
liscellaneous		63	08054	CPU_08054			Extend	der available							Extend	er assigned			
system Settings	^	64	08055	CPU_08055			Name	Port	Red. Port			#	ID	Name	Port	Red. Port			
System		65	08056	CPU_08056	-11		Casc_EXT_CF	_	-	^		01							
ccess		66	08057	CPU_08057		40233349	EXT_0402333	49 0				02							
witch		67	08058	CPU_08058								03							
letwork		68	08059	CPU_08059								04							
Date and Time Natrix Grid		69	01059	CPU_01059							**	05							
		70	01060	CPU_01060							•	06							
xtender & Devices	^	71	01061	CPU_01061								07							
EXT Units		72	01062	CPU_01062							4	08							
CPU Devices		73	01063	CPU_01063															
CON Devices		74	01064	CPU_01064							44								
Jser Settings	^	75	01065	CPU_01065															
Jsers & Groups		76	01066	CPU_01066															
ssignment	~	77	08044	CPU_08044															
		78	01067	CPU_01067															
intual CPU Devices		79	01068	CPU_01068														Ŧ	
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														140.00					<u>_</u>

Fig. 181 Management software menu Extender & Devices > CPU Devices - Cascading CPU Device

- 4.3. Select the previously configured Cascading CPU Unit in the Extender available list.
- 4.4. Click ▶ to move the highlighted Cascading CPU Unit to the Extender assigned list. The assignment is displayed in the Extender assigned list.
- 4.5. Click Apply to confirm the assignment.

- 5. Connect to the Sub Matrix.
- 6. Click Activate Edit Mode in the toolbar.
- 7. Click Extender & Devices > EXT Units in the task area.
  - 7.1. Click New Unit.

A selection dialog appears.

- 7.2. Select Cascading CON Unit in the Choose template selection box.
- 7.3. Click OK.

A new Cascading CON Unit will be created.

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/iew	^	Ext	ender & De	vices - EXT Units							Edit	t Mode activat
Matrix							Ť	ID	9000008	CPU/CON Assig		
Port		#	ID	Name	Port	Red. Port		*	-	<b>_</b>		
Grid		80	040173706	EXT_040173706	438	-	CPU	Name	Casc_EXT_CON_01			
Control		81	040173708	EXT_040173708	439		CPU	Port	13			
Control	^	82	040173695	EXT_040173695	0		CON	Fixed	$\checkmark$			
Extended Switch		83	010308980	EXT_010308980	116	-	CPU	Location				
Presets		84	040171288	EXT_040171288	48	-	CPU					
Status & Updates	~	85	010308979	EXT_010308979	108		CPU	Link 1				
Status - Matrix Firmware		86	010309567	EXT_010309567	107		CON					
Status - Extender Firmware		87	040164611	EXT_040164611	403	-	CON					
Jpdate - Matrix Firmware		88	040164291	EXT_040164291	445		CPU	Extender Type	Firmware Version General G	OSD Data		
Jpdate - Extender Firmware		89	040164608	EXT_040164608	33	-	CON					
ctivate Configuration		90	040164609	EXT_040164609	34		CON	Туре	Casc. CON		Standard Vi	iew Expert Vi
liscellaneous		91	040164610	EXT_040164610	35	-	CON		Name	Basic	Part A	Part B
System Settings	^	92	040164288	EXT_040164288	25		CPU	DVI/HDMI/VGA	video)			
System		93	040164289	EXT_040164289	26	-	CPU	HID (keyboard,	mouse)			
Access		94	040164290	EXT_040164290	27		CPU	Analog Audio				
Switch		95	040227285	EXT_040227285	106	-	CON	Digital Audio				
Vetwork		96	040173703	EXT_040173703	0		CON	RS232/RS422	(serial)			
Date and Time Matrix Grid		97	040173699	EXT_040173699	41	-	CON	USB-CON (emi	oedded)			
		98	040262339	EXT_040262339	448	-	CPU	USB-CON (star				
Extender & Devices	^	99	040237622	EXT_040237622	337	-	CPU	Universal-CON				
EXT Units		100	040172444	EXT_040172444	32		CPU	Cascade-CON		√		
CPU Devices		101	040172443	EXT_040172443	30	-	CPU					
CON Devices		102	040237184	EXT_040237184	413	0	CON					
Jser Settings	^	103	09000008	Casc_EXT_CON_0	1 13	-	Casc. CON					
Jsers & Groups		104	040185821	EXT_040185821	43	-	CON					
ssignment	^	105	040173701	EXT_040173701	42	-	CON					
		106	090000423	EXT_090000423	423	-	USB 2.0 CON					
irtual CPU Devices		107	010308982	EXT_010308982	270	-	CPU					
/irtual CON Devices Iulti-Screen Control			4	-								
un-ociden Control			sign Settings to	o Copy Settings			xtender			New Unit	Delete Unit	

Fig. 182 Management software menu Extender & Devices > EXT Units - Cascading CON Unit

- 7.4. Enter an appropriate name for the Cascading CON Unit into the **Name** field.
- 7.5. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 7.6. Click Apply to confirm the creation of a Cascading CON Unit.

- 8. Click Extender & Devices > CON Devices in the task area of the Sub Matrix.
  - 8.1. Click New Device.

A switchable CON Device will be created.

8.2. Enter an appropriate name for the Cascading CON Device into the Name field.

pen Save Reload Conne	ct Disc	nnect	Deactiva	te Edit Mode Remote Save	Download U	More More	nitoring Fi	ash Update [	Device Finde	er System Ct	heck	Save Stat	15								
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/iew	^	Ext	ender 8	Devices - CON Dev	ices														Edit Mod	le acti	ivat
Matrix					T	ID		3071			CON	Assigne	d								
Port		#	ID	Name		1															
Grid		49	09049	CON_09049	*	Name		Casc_CON				Connect									
Control		50	03050	CON_03050		Priority		0 \$	:		Allow	W CPU S	an								
Control	^	51	03051	CON_03051		Virtual Dev	vice				Forc	e CPU S	can								
Extended Switch		52	03052	CON_03052		Allow Use	r ACL				Sca	n Time (s	ec]	(	•						
Presets		53	03053	CON_03053		Force Log	in					Mode									
itatus & Updates	~	54	03054	CON_03054																	
Status - Matrix Firmware		55	03055	CON_03055		LOS Fram	-					undancy									
Status - Extender Firmware		56	03056	CON_03056		Show Mac	ro List				Refe	rence		(COI	N_03044	4)					
Jpdate - Matrix Firmware		57	03057	CON_03057		OSD Disat	oled				CPU	Colors	-		~ ₀	on	~				
Jpdate - Extender Firmware		58	03058	CON_03058							Fix F	rame Co	lor			•	•				
ctivate Configuration		59	03045	CON_03045																	
liscellaneous		60	03046	CON_03046		Extender A	ssignment	CPU Acces	s Control	Favorites	Macro	S									
System Settings	^	61	03047	CON_03047				Extender ava	ilable							Extende	er assigned				
System		62	04001	CON_04001		ID	Name		Port	Red. Port			# ID	- I	Name	Port	Red. Port				
ccess		63	03048	CON_03048		40163308	EXT_04	0163308	0	-	*		01								
Switch		64	03049	CON_03049		10309561	EXT_01	0309561	0	-			02								
Vetwork Date and Time		65	03059	CON_03059		10309564	EXT_01	0309564	0				03								
Jate and Time		66	03060	CON_03060		40173692	EXT_04	0173692	0			**	04								2
xtender & Devices		67	03061	CON_03061		40173703	EXT_04	0173703	0	-			05								
	^	68	03062	CON_03062		9000008	Casc_E	XT_CON_01	13	-		•	06								-
EXT Units		69	03063	CON_03063		40236694	EXT_04	0236694	0				07								
CPU Devices		70	03064	CON_03064		40173697	EXT_04	0173697	0	-			08								
CON Devices		71	03065	CON_03065								44									
Jser Settings	^	72	03066	CON_03066								44									3
Jsers & Groups		73	03067	CON_03067																	
ssignment	^	74	03069	CON_03069																	
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irtual CPU Devices irtual CON Devices		76	03070	CON_03070																۳	
Iulti-Screen Control		77	03071	Casc_CON_01	v						v				Use k	eys + and	- to move ex	dender			
		As	sign Setti	ngs to Copy Setting	s from										New D	Device	Delete D	Device	Apply		Can

Fig. 183 Management software menu Extender & Devices > CON Devices - Cascading CON Device

- 8.3. Select the previously configured Cascading CON Unit in the Extender available list.
- 8.4. Click ▶ to move the highlighted Cascading CON Unit to the Extender assigned list. The assignment is displayed in the Extender assigned list.
- 8.5. Click **Apply** to confirm the assignment.
- 9. Click Deactivate Edit Mode in the toolbar.

The OSD of the Sub Matrix will immediately freeze and will be only accessible by using the keyboard command Hot Key, s, o.

- 10. Restart all I/O boards on which any Master/Sub CON Units or CPU Units have been configured (see chapter 12.2.3, page 320) or alternatively restart the matrix (see chapter 12.2.1, page 318).
- Connect the Tie Lines to the matrices. Ensure that each Cascade CON Device on one matrix is connected to Cascade CPU Device on the other matrix to achieve switching ability between two matrices.

The Matrix Cascading is now configured and can be used.

Additional Tie Lines are configured accordingly. The use of cascading is described in in chapter 8.1.1, page 290.

## 7.9.2 Directing a Tie Line from the Master to the Sub

To configure settings for using Matrix Cascading and to direct the Tie Line from the Master to the Sub, proceed as follows:

- 1. Connect to the Master Matrix.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click Extender & Devices > EXT Units in the task area.
  - 3.1. Click New Unit.

A selection dialog appears.

- 3.2. Select Cascading CON Unit in the Choose template selection box.
- 3.3. Click OK.

A new Cascading CON Unit will be created.

Den Save Reload Conne	ct <u>D</u> isco	nnect	Deactivate Edit	t Mode Remote Save	Download	Upload		Update Device Fi	der System Check Save Statu	s		
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liew	^	Ext	tender & De	vices - EXT Units								Edit Mode activ
Matrix							T	ID	9000008	CPU/CON Assi		
fort		#	ID	Name	Port	Red. Por	t Type	1		]		
rid		80	040173706	EXT_040173706	438	-	CPU	Name	Casc_EXT_CON_01			
ontrol		81	040173708	EXT_040173708	439		CPU	Port	13			
ontrol	^	82	040173695	EXT_040173695	0		CON	Fixed	$\checkmark$			
xtended Switch		83	010308980	EXT_010308980	116	-	CPU	Location				
resets		84	040171288	EXT_040171288	48		CPU					
tatus & Updates	~	85	010308979	EXT_010308979	108		CPU	Link 1				
itatus - Matrix Firmware		86	010309567	EXT_010309567	107		CON					
itatus - Mainx Pirniware		87	040164611	EXT_040164611	403	-	CON					
pdate - Matrix Firmware		88	040164291	EXT_040164291	445		CPU	Extender Type	Firmware Version General	DSD Data		
pdate - Extender Firmware		89	040164608	EXT_040164608	33	-	CON					
ctivate Configuration		90	040164609	EXT_040164609	34	-	CON	Туре	Casc. CON		Standa	rd View Experi
liscellaneous		91	040164610	EXT_040164610	35	-	CON		Name	Basic	Part A	Part B
ystem Settings	^	92	040164288	EXT_040164288	25		CPU	DVI/HDMI/VGA	(video)			
ystem		93	040164289	EXT_040164289	26	-	CPU	HID (keyboard,	mouse)			
ccess		94	040164290	EXT_040164290	27	-	CPU	Analog Audio				
witch		95	040227285	EXT_040227285	106	-	CON	Digital Audio				
etwork		96	040173703	EXT_040173703	0		CON	RS232/RS422	(serial )			
late and Time		97	040173699	EXT_040173699	41	-	CON	USB-CON (em				
latrix Grid		98	040262339	EXT_040262339	448	-	CPU	USB-CON (sta				
xtender & Devices	^	99	040237622	EXT_040237622	337	-	CPU	Universal-CON				
XT Units		100	040172444	EXT_040172444	32		CPU	Cascade-CON		1		
PU Devices		101	040172443	EXT_040172443	30	-	CPU					
ON Devices		102	040237184	EXT_040237184	413	0	CON					
ser Settings	^	103	09000008	Casc_EXT_CON_0	1 13	-	Casc. CON					
Jsers & Groups		104	040185821	EXT_040185821	43	-	CON					
ssignment	^	105	040173701	EXT_040173701	42	-	CON					
			090000423	EXT_090000423	423	-	USB 2.0 CON					
intual CPU Devices		107	010308982	EXT_010308982	270	-	CPU					
irtual CON Devices ulti-Screen Control			4	-			· · · · · · · · · · · · · · · · · · ·					
ulu-Screen Control		۵	sign Settings to	o Copy Setting:	s from	Restart	Extender			New	/ Unit Delete Unit	Apply C
			in ooungo u	oop, osturiy.		reordit				<u>14</u> 64	Doroto Olin	Chbbil

Fig. 184 Management software menu Extender & Devices - EXT Units - Cascading CON Unit

- 3.4. Enter an appropriate name for the Cascading CON Unit into the Name field.
- 3.5. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 3.6. Click Apply to confirm the creation of a Cascading CON Unit.

- 4. Click Extender & Devices > CON Devices in the task area of the Master Matrix.
  - 4.1. Click New Device.

A switchable CON Device will be created.

4.2. Enter an appropriate name for the Cascading CON Device into the Name field.

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xtended Switch		52	03052	CON_03052		Allow User A	ci				Sca	n Time (s	ec]		0 🗘					
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tatus - Matrix Firmware		55	03055	CON_03055		LOS Frame					Red	undancy	Off							
tatus - Matrix Firmware tatus - Extender Firmware		56	03056	CON_03056		Show Macro	List				Refe	erence		(C)	ON_0304	4)				
pdate - Matrix Firmware		57	03057	CON_03057		OSD Disable	d				CPU	Colors			~	on	~			
pdate - Extender Firmware		58	03058	CON_03058							Fix F	rame Co	lor				~			
ctivate Configuration		59	03045	CON_03045																
iscellaneous		60	03046	CON_03046		Extender Ass	ignment	CPU Acces	s Control	Favorites	Macro	S								
ystem Settings	^	61	03047	CON_03047				Extender ava	ilable							Extend	er assigned			
ystem		62	04001	CON_04001		ID	Name		Port	Red. Port			#	ID	Name	Port	Red. Port			
ccess		63	03048	CON_03048		40163308	EXT_04	0163308	0	-			01							
witch		64	03049	CON_03049		10309561	EXT_010	0309561	0	-			02							
etwork		65	03059	CON_03059		10309564	EXT_010	0309564	0	-			03							
ate and Time		66	03060	CON_03060		40173692	EXT_040	0173692	0			••	04							
atrix Grid		67	03061	CON_03061		40173703	EXT_04	0173703	0	-			05							
ctender & Devices	^	68	03062	CON_03062		9000008		KT_CON_01	13	-		•	06							
XT Units		69	03063	CON_03063		40236694	EXT 040	0236694	0	-			07							
PU Devices		70	03064	CON_03064		40173697	EXT 040	0173697	0	-		4	08							
ON Devices		71	03065	CON_03065																
ser Settings	^	72	03066	CON_03066								44								
Isers & Groups		73	03067	CON_03067																
	~	74	03069	CON_03069																
ssignment	~	75	03068	CON_03068																
irtual CPU Devices		76	03070	 CON_03070															*	
rtual CON Devices		77	03071	Casc_CON_01	Ŧ										Use	keys + an	d - to move exten	der		
ulti-Screen Control																				-
		As	sign Setti	ngs to Copy Settings from											New	Device	<u>D</u> elete Dev	ice <u>Apr</u>	ріу	Car

Fig. 185 Management software menu Extender & Devices > CON Devices - Cascading CON Device

- 4.3. Select the previously configured Cascading CON Unit in the Extender available list.
- 4.4. Click ▶ to move the highlighted Cascading CON Unit to the Extender assigned list.The assignment is displayed in the Extender assigned list.
- 4.5. Click Apply to confirm the assignment.

- 5. Connect to the Sub Matrix.
- 6. Click Activate Edit Mode in the toolbar.
- 7. Click Extender & Devices > EXT Units in the task area.
  - 7.1. Click New Unit.

A selection dialog appears.

- 7.2. Select Cascading CPU Unit in the Choose template selection box.
- 7.3. Click OK.

A new Cascading CPU Unit will be created.

pen Save Reload Conn 20210210.zip   Master ×	ect <u>D</u> isco	onnect	Deactivate Edi	t Mode Remote Save	Download	Upload	Monitoring Fla	ash Update Device Fi	der System Check Save Status			
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ontrol	~	79	040173692	EXT_040173692	0		CON					
		80	040173706	EXT_040173706	438	-	CPU	Fixed	$\checkmark$			
Extended Switch Presets		81	040173708	EXT_040173708	439	-	CPU	Location				
		82	040173695	EXT_040173695	0		CON		Device: KVM_DV03 I/O board: 3			
Status & Updates	^	83 84	010308980	EXT_010308980 EXT_040171288	116 48	-	CPU	Link 1	I/O board port: 1			
Status - Matrix Firmware		84	010308979		48	-	CPU		Matrix port: 17			
Status - Extender Firmware		86	010309567	EXT_010308979 EXT_010309567	107	-	CON	Extender Type	Firmware Version			
Jpdate - Matrix Firmware Jpdate - Extender Firmware		87	040164611	EXT_010309507	403	-	CON					
ctivate Configuration		88	040164291	EXT_040164011	405		CPU	Туре	Casc. CPU		Standard	View Expert Vi
liscellaneous		89	040164608	EXT_040164608	33		CON		Name	Basic	Part A	Part B
system Settings	~	90	040164609	EXT_040164609	34		CON	DVI/HDMI/VGA		Basic	PartA	Parte
System		91	040164610	EXT_040164610	35	-	CON	HID (keyboard,				
Access		92	040164288	EXT_040164288	25		CPU	Analog Audio	110000)			
Switch		93	040164289	EXT_040164289	26		CPU	Digital Audio				
Network		94	040164290	EXT_040164290	27		CPU	RS232/RS422	(serial )			
Date and Time Jatrix Grid		95	040227285	EXT_040227285	106	-	CON	USB-CPU (em				
		96	040173703	EXT_040173703	0	-	CON	USB-CPU (star				
Extender & Devices	^	97	040173699	EXT_040173699	41	-	CON	Universal-CPU				
EXT Units		98	040262339	EXT_040262339	448	-	CPU	Cascade-CPU		V		
CPU Devices		99	040237622	EXT_040237622	337	-	CPU					
CON Devices		100	040172444	EXT_040172444	32		CPU					
Jser Settings	^	101	040172443	EXT_040172443	30	-	CPU					
Jsers & Groups		102	040237184	EXT_040237184	413	0	CON					
ssignment	^	103	09000008	Casc_EXT_CPU_01	17	-	Casc. CPU					
/irtual CPU Devices		104	040185821	EXT_040185821	43		CON					
/irtual CON Devices		105	040173701	EXT_040173701	42		CON	v				
Iulti-Screen Control			•				•					
		As	sign Settings t	o Copy Settings	from	Restart 8	Extender			<u>N</u> ew U	nit Delete Unit	Apply Can

Fig. 186 Management software menu Extender & Devices - EXT Units - Cascading CPU Unit

- 7.4. Enter an appropriate name for the Cascading CPU Unit into the Name field.
- 7.5. Enter a port number into the **Port** field according to the required connection of the Tie Line.
- 7.6. Click Apply to confirm the creation of a Cascading CPU Unit.

- 8. Click Extender & Devices > CPU Devices in the task area of the Sub Matrix.
  - 8.1. Click New Device.

A switchable CPU Device will be created.

8.2. Enter an appropriate name for the Cascading CPU Device into the **Name** field.

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ontrol	^	54	01054	CPU_01054		Virtual Devi	ce			CPU	l Colors			~	on	~		
xtended Switch		55	01055	CPU_01055		Allow Priva	te			Excl	lusive Ac	cess						
resets		56	01034	CPU_01034		Force Priva	te			MSC	C Disable	1						
tatus & Updates	~	57	01057	CPU_01057		Fix Frame C			~									
atus - Matrix Firmware		58	01058	CPU_01058														
itatus - Extender Firmware		59	01045	CPU_01045		Reference		(no reference set)										
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ctivate Configuration liscellaneous		62	01053	CPU_01053			-	ender available							Extend	ler assigned		
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ystem Settings	^	64	08055	CPU_08055		90000008	Case EXT		Red. Port			# 01	IU	Name	Pon	Red. Port		
ystem		65	08056	CPU_08056			EXT 04023					02						
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etwork		68	08059	CPU_08058 CPU_08059								03						
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XT Units		71	01061	CPU_01061 CPU_01062								07						
PU Devices		72	01062	CPU_01062 CPU_01063							•	00						
ON Devices		74	01063	CPU_01063							44							
ser Settings	~	74	01064	CPU_01064 CPU_01065							44							
		75	01065	CPU_01065														
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Fig. 187 Management software menu Extender & Devices > CPU Devices - Cascading CPU Device

- 8.3. Select the previously configured Cascading CPU Unit in the Extender available list.
- 8.4. Click ▶ to move the highlighted Cascading CPU Unit to the Extender assigned list. The assignment is displayed in the Extender assigned list.
- 8.5. Click **Apply** to confirm the assignment.
- 9. Click **Deactivate Edit Mode** in the toolbar.
- 10. Restart all I/O boards (see chapter 12.2.3, page 320) on which any Master/Sub CON Units or CPU Units have been configured or alternatively restart the matrix (see chapter 12.2.1, page 318).
- Connect the Tie Lines to the matrices. Ensure that each Cascade CON Device on one matrix is connected to Cascade CPU Device on the other matrix to achieve switching ability between two matrices.

The Matrix Cascading is now configured and can be used.

Additional Tie Lines are configured accordingly. The use of cascading is described in in chapter 8.1.1, page 290.

# 7.10 Configuring Matrix Grid

A Matrix Grid to connect two or more matrices can be configured in this menu. This kind of configuration may become necessary if the number of ports in the entire system has to be increased or if certain important connections should be distributed to several matrices due to reasons of redundancy.

The connections between two matrices have to be established by so called Grid Lines that are connected between particular I/O ports as connecting links. The Grid Lines can be used bidirectionally and can respectively handle a full access connection of a CON Device to a CPU Device.

The number of Grid Lines in the system specifies, if a CON Device can be switched to a CPU Device in Non-Blocking Access or in Blocking Access and has to be separately determined for each Grid environment.

In this case Non-Blocking Access means that a Grid Line for a cross-matrix switching operation of a CON Device to a CPU Device is available at any time.

Whereas Blocking Access means that for a certain switching operation no Grid Line may be available according to the switching status within the Grid. The result will be that no cross-matrix switching will be possible.

## Administration of Settings

Within a Matrix Grid you have to differ between settings that have to be made locally for each matrix and settings that can be made globally so that they are valid for the whole Matrix Grid.

The settings in the following menus have to be made separately for each matrix or within the master matrix to affect all matrices in the Grid:

## System, Access, Switch, Network, Date + Time, SNMP, Matrix Grid, Multi-Screen Control

If global settings are made in the respective menus, they will be immediately available on each matrix within the Matrix Grid.

## **General Preparation**

The following requirements have to be fulfilled before starting the Matrix Grid configuration:

- First configure all matrices that have to be added to the grid the first time.
- Then install Grid Lines for all matrices that have to be added to the grid the first time
- Ensure that for both the existing matrices in the Matrix Grid and the new matrix a suitable configuration file is available.
- The Matrix Grid function (Bundle 4) must be activated on all matrices to be connected to the Grid by a license key (see chapter 7.13, page 274). Please contact the technical support of the manufacturer if the Bundle 4 is missing.
- Firmware V03.10 must be installed on all matrices to be connected to the Grid, but with the same firmware on each matrix.
- All matrices to be connected to the Grid must be within the same TCP/IP network (see chapter 7.4.8, page 166).
- Port 5556/5566 needed for network communication must not be blocked by a firewall.

en <u>S</u> ave Reload <u>Connect Disco</u>	nnect Deactivate	e Edit Mode	Remote S	ave Download Upload	Monitoring Flash Upo	late Dev	ce Finder.	. Syster	n Check Save Status.						
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ort	Matrix Grid Co	nfiguration	n	Start Grid	Wizard (online)										
rid		-	•		vizara (onnic)										
ontrol	Matrix Grid En	abled		$\checkmark$											
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esets	Matrix 01 Matrix 02	V V	V	TEST-A-E160 TEST-B-E048	0.0.00	V	V		0.0.0.0				48	V	Connect
tus & Updates ^	Matrix 02	V	1	TEST-C-C048	192.168.170.57	1	1		0.0.0.0				40		Connect
tus - Matrix Firmware	Matrix 03	V	V	TEST-D-C008	192.168.170.59	V	1		0.0.0.0				8		Connect
tus - Extender Firmware	Matrix 05	V		TEST-E-C080	0000				0.0.0.0				80		Connect
date - Matrix Firmware	Matrix 06	V		TEST-F-F024C016F	0.0.0				0.0.0.0				40		Connect
date - Extender Firmware	Matrix 07	1	1	TEST-G-C016XV	192.168.170.250	$\checkmark$	1		0.0.0.0				48		Connec
ivate Configuration scellaneous	Matrix 08				0.0.0.0				0.0.0.0				0		Connect
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ess .	Matrix 12				0.0.0.0				0.0.0.0				0		Connect
itch twork	Matrix 13				0.0.0.0				0.0.0.0				0		Connect
te and Time	Matrix 14				0.0.0.0				0.0.0.0				0		Connect
trix Grid	Matrix 15				0.0.0.0				0.0.0.0				0		Connect
ender & Devices ^	Matrix 16				0.0.0.0				0.0.0.0				0		Connect
T Units	Matrix 17				0.0.0.0				0.0.0.0				0		Connect
U Devices	Matrix 18				0.0.0.0				0.0.0.0				0		Connect
N Devices	Matrix 19				0.0.0.0				0.0.0.0				0		Connect
er Settings	Matrix 20				0.0.0.0				0.0.0.0				0		Connect
ers & Groups	Matrix 21				0.0.0.0				0.0.0.0				0		Connect
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signment ^	Matrix 23				0.0.0.0				0.0.0.0				0		Connect
tual CPU Devices	Matrix 24				0.0.0.0				0.0.0.0				0		Connect
tual CON Devices	Matrix 25				0.0.0.0				0.0.0.0				0		Connect

Fig. 188 Management software menu System Settings - Matrix Grid

To use the Matrix Grid, proceed as follows:

- 1. Click **System Settings > Matrix Grid** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click Start Grid Wizard (online) in the working area.

The wizard will guide through the configuration of Matrix Grids.

# 7.11 Saving and Activating Configurations

### NOTICE

By default, the last configuration that has been saved in the permanent matrix memory will be restored after a restart of the matrix.

First starting the matrix, the factory configuration will be copied into the current configuration. There are three possibilities to save configuration changes:

- Save the current configuration permanently in the matrix memory (**Remote Save**)
- Save configuration on a local memory (Save or Save as)
- Upload the configuration in up to 8 predefined storage locations, as well as the default configuration in the memory of the matrix (**Upload**)

# 7.11.1 Saving the Current Configuration to the Matrix

By default, the last configuration that has been saved in this way will be restored after a restart of the matrix.

To save the current configuration permanently in the matrix memory, proceed as follows:

1. Click Remote Save in the toolbar.

A query to save the configuration appears.

2. Click Yes to confirm the saving.

The previously active configuration is overwritten and saved in the permanent memory of the matrix.

Save Remot	e Changes?	×
?	Do you really want to save the changes on the Matr	ix
	Yes No	

Fig. 189 Management software dialog Save Remote Changes

## 7.11.2 Saving of Configurations Locally

Configurations can be saved as a file that can be stored independent of the matrix with the following content:

- Control (Extended Switch, Presets)
- System Settings (System, Access, Switch, Network. Date and Time, Matrix Grid)
- Extender & Devices (EXT Units, CPU Devices, CON Devices)
- User Settings (Users & Groups)
- Assignment (Virtual CPU Devices, Virtual CON Devices)

To save a configuration file locally, proceed as follows:

- 1. Click File > Save or File > Save As in the menu bar.
- 2. Enter a name for the configuration.
- 3. Select the directory of the configuration on your storage medium where the configuration is to be saved.

Configurations are always saved with the file extension .dtc.

C:_Matrix\	Configurations			×
Look <u>I</u> n: 📋	Configurations	♥ 🕋 1		Ø
File <u>N</u> ame:	Configuration_01			
Files of <u>T</u> ype:	(*.dtc)			~
			Save	Cancel

Fig. 190 Management software menu File - Save As...

Local saved configurations files can be opened in the management software (see chapter 7.11.3, page 276), be uploaded to the matrix (see chapter 7.11.4, page 277) and be used as active configuration (see chapter 7.11.5, page 279) in the system.

# 7.11.3 Opening a Locally Saved Configuration

To open a locally saved configuration, proceed as follows:

- 1. Click **Open...** in the toolbar.
- 2. Go to the location of the configuration file to be opened.
- 3. Click the configuration file to be opened.
- 4. Click **Open** to open the configuration file.

C:_Matrix\	Configurations	×
Look <u>I</u> n:	Configurations 🗸	
Configura	tion_01.dtc	
File <u>N</u> ame:	Configuration_01.dtc	
Files of <u>T</u> ype:	(*.dtc)	~
		Open Cancel
Eig 101 Man	agamant softwara manu Onan	

Fig. 191 Management software menu **Open** 

The configuration can also be opened via drag & drop. To do this, click on the configuration file, hold down the left mouse button and drag the configuration file into the management software.

## 7.11.4 Uploading a Predefined Configuration to the Matrix

Using the function **Upload**, the configuration can be saved within eight storage locations in the matrix (**File#1** to **File#8**). However, it does not replace the buffering of configuration (see chapter 7.11.1, page 274).

Additionally, a configuration can also be saved as default configuration that can be automatically loaded with each start (for activation of this function see chapter 7.4.1, page 151.

To upload an opened configuration to the matrix, proceed as follows:

1. Click **Upload** in the toolbar.

An access window appears.

- 2. Enter the IP address of the matrix.
- 3. Enter the username and password of the administrator.
- 4. Click Next >.

teps	Connect			
Connect     Select Configuration Slot	Hostname / IP Address		192.168.100.99	
	User		admin	
	Password		****	
		< <u>B</u> ack	Next > Einish C	Canc

Fig. 192 Management software menu Upload - Connect

- 5. Under Select Configuration Slot, select the storage slot for the configuration (default or config01 to config08).
- 6. Option: to activate the uploaded configuration immediately, tick the **Activate configuration after upload** checkbox.

### NOTICE

If you tick the **Activate configuration after upload** checkbox, the matrix will be restarted immediately after the save process has been completed. The restart of the matrix may take several minutes, and the matrix is not available during the restart.

7. Click **Finish** to save the configuration to the selected storage location.

A message appears to inform about successful upload.

Connect Select Configuration Slot		File	Name	Info	IP Address	Version
Select configuration slot	01	Default (default)	Basic	kein Grid	DHCP	V04.00
	02	File #1 (config01)	Standard	Factory settings	192.168.100.99	V03.08
	03	File #2 (config02)	Test_tera_4	Grid mit 6 Matrizen	DHCP	V04.00
	04	File #3 (config03)	Standard	Factory settings	192.168.100.99	V03.08
	05	File #4 (config04)	Standard	Factory settings	192.168.100.99	V03.08
	06	File #5 (config05)	Standard	Factory settings	192.168.100.99	V03.08
	07	File #6 (config06)	Standard	Factory settings	192.168.100.99	V03.08
	08	File #7 (config07)	Standard	Factory settings	192.168.100.99	V03.08
	09	File #8 (config08)	Test_tera_1	Grid mit 7 Matrizen, 1xLAN	DHCP	V04.00

Fig. 193 Management software menu Upload - Select Configuration Slot

# 7.11.5 Activating a Predefined Configuration

Previously saved configurations are loaded in this menu. In **Active Configuration**, the name and detailed information of the currently loaded configuration is displayed. The selection of the configuration to be loaded can be made between eight customizable configurations and the default settings.

## NOTICE

Activating a configuration will disconnect and restart the matrix. The selected configuration is loaded on restart and is shown in the menu as active configuration under **Active Configuration** in the working area. The previously active configuration is overwritten.

The restart of the matrix may take several minutes, and the matrix is not available during the restart.

To activate an uploaded configuration, proceed as follows:

- 1. Click **Status & Updates > Activate Configuration** during online-mode in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the configuration to be activated.

		nnect	Activate Edit Mode Re	mote Save	Download Upload	Isati Update Device Finder System Check Save Status		
20210210.zip Master ×	~	Stat	us & Updates - A	ctivate 0	onfiguration			
Matrix Port Grid			e Configuration:		Test_tera_1 Grid mit 7 Matrizen,1xL4	N		
Control			File		Name	Info	IP Address	Version
ontrol	^	01	Default (default)	Bas		Test-Matrix	DHCP	V03.06
Extended Switch			File #1 (config01)		rest-Matrix 5	einzel Matrix, ohne Grid, Enterprise 160 Port	DHCP	V03.06
Presets			File #2 (config02)		rest-Grid-2	Grid-2 mit 3 Matrizen [E160,C080,C008]	DHCP	V03.08
Status & Updates	^		File #3 (config03)		portTestGrid2	Grid 2 mit 4 Matrizen [E160,C008,2xC080] (sehr große Konfig)	DHCP	V04.00
Status - Matrix Firmware		05	File #4 (config04)	TES	T-Grid_5a	Grid mit 5 Matrizen [E160,E048,C048,C008,C080]	DHCP	V04.00
Status - Extender Firmware		06	File #5 (config05)	TES	T-Grid_5b	Grid mit 6 Matrizen [E160,E048,C048,C008,C080,C040]	DHCP	V04.00
Jpdate - Matrix Firmware		07	File #6 (config06)	Tes	tGrid-5_V0303	Firmware V03.03 Grid mit 5 Matrizen	DHCP	V03.03
Ipdate - Extender Firmware		08	File #7 (config07)	Tes	t_tera_4	Grid mit 6 Matrizen	DHCP	V04.00
ctivate Configuration liscellaneous		09	File #8 (config08)	Tes	t_tera_1	Grid mit 7 Matrizen, 1xLAN	DHCP	V04.00
System Access Switch Network Date and Time								
latrix Grid								
	^							
Extender & Devices EXT Units CPU Devices	^							
xtender & Devices EXT Units CPU Devices CON Devices	^							
xtender & Devices EXT Units EPU Devices EXD Devices (ser Settings								
xtender & Devices XT Units IPU Devices ON Devices ser Settings Isers & Groups								
Matrix Grid Extender & Devices EXT Units CPU Devices CON Devices User Settings Users & Groups Assignment Virtual CON Devices Virtual CON Devices	^							

#### Fig. 194 Management software menu Status & Updates - Activate Configuration

4. Click **Activate** to activate the selected configuration.

A query to restart the matrix appears.

5. Click **Yes** to confirm the activation of the selected configuration.

The connection is disconnected, and the matrix is restarted. The selected configuration is loaded on restart and is shown in the menu as active configuration under **Active Configuration** in the working area. The previously active configuration is overwritten.

6. Click Deactivate Edit Mode in the toolbar.

## 7.11.6 Downloading a Predefined Configuration from the Matrix

Configurations saved in the matrix can be downloaded for offline editing in this menu.

To download a configuration from the matrix, proceed as follows:

1. Click **Download** in the toolbar.

An access window appears.

- 2. Enter the IP address of the matrix.
- 3. Enter the username and password of the administrator.
- 4. Click Next > to display the selection of storage location.

Download			×
Steps	Connect		
<ol> <li>Connect</li> <li>Select Configuration</li> </ol>	Hostname / IP Address		192.168.100.99
	User		admin
	Password		****
		< <u>B</u> ack	Next > Einish Cancel

Fig. 195 Management software menu Download - Connect

- 5. Under **Select Configuration**, select the storage location of the desired configuration (**default** or **config01** to **config08**).
- 6. Click Finish to download the desired configuration to the management software.

ect t Configuration	01 02	File Default (default)	Name Basic	Info kein Grid	IP Address	Version
			Basic	kein Grid	DHCP	V04.00
	02	File #1 (config04)				104.00
		File #1 (config01)	Standard	Factory settings	192.168.100.99	V03.08
	03	File #2 (config02)	Test_tera_1	Grid mit 7 Matrizen, 1xLAN	DHCP	V04.00
	04	File #3 (config03)	Standard	Factory settings	192.168.100.99	V03.08
	05	File #4 (config04)	Standard	Factory settings	192.168.100.99	V03.08
	06	File #5 (config05)	Standard	Factory settings	192.168.100.99	V03.08
	07	File #6 (config06)	Standard	Factory settings	192.168.100.99	V03.08
	08	File #7 (config07)	Standard	Factory settings	192.168.100.99	V03.08
	09	File #8 (config08)	Test_tera_4	Grid mit 6 Matrizen	DHCP	V04.00
		06 07 08	06         File #5 (config05)           07         File #6 (config06)           08         File #7 (config07)	O6File #5 (config05)StandardO7File #6 (config06)StandardO8File #7 (config07)StandardO9File #8 (config08)Test_tera_4.	O6File #5 (config05)StandardFactory settingsO7File #6 (config06)StandardFactory settingsO8File #7 (config07)StandardFactory settingsO9File #8 (config08)Test_tera_4.Grid mit 6 Matrizen	O6         File #5 (config05)         Standard         Factory settings         192.168.100.99           07         File #6 (config06)         Standard         Factory settings         192.168.100.99           08         File #7 (config07)         Standard         Factory settings         192.168.100.99           09         File #8 (config08)         Test_tera_4.         Grid mit 6 Matrizen         DHCP

Fig. 196 Management software menu **Download - Select Configuration** 

# 7.12 Export and Import Options

The matrix offers the ability to read out available configuration lists (e.g., extender modules, CPU Devices, CON Devices, users, etc.) for export and import via management software.



Exported configuration lists are always saved in .csv format that allows offline editing with common spreadsheet applications.

## 7.12.1 Export Options

Configuration lists are exported in this menu.

Export	×
Steps	Select Type
<ol> <li>Select Type</li> <li>Export Configuration to CSV File</li> </ol>	Select Type
	- Rock Nexts Finish Concel
	< <u>B</u> ack Next > <u>F</u> inish Cancel

Fig. 197 Management software menu File - Export - Select Type

To export, proceed as follows:

- 1. Click File > Export in the menu bar.
- 2. After opening the menu, select the configuration type to be exported.
- 3. Click Next >.
- 4. Go to the location of the configuration file to be exported.
- 5. Enter the name for the configuration file to be exported.
- 6. Click **Finish** to confirm the export.

Export				×
Steps         1. Select Type         2. Export Configuration to CSV File		Configuration to CSV File	<ul> <li></li></ul>	
	User Mac	v		
	File <u>N</u> ame:	Extenders		
	Files of <u>T</u> ype:	(*.CSV)		~
			< <u>B</u> ack Next > <u>Finish</u>	Cancel

Fig. 198 Management software menu File - Export - Export Configuration to CSV File

# 7.12.2 Import Options

1

Importing configuration lists is only possible in offline configurations.

Configuration lists are imported in this menu.

Import	×
Steps	Select Type
<ol> <li>Select Type</li> <li>Import Config from CSV File</li> </ol>	<ul> <li>EXT Unit</li> <li>IP Session Config</li> <li>CPU Device</li> <li>CPU Device Groups</li> <li>CON Device</li> <li>CON Device Access Control</li> <li>CON Device Favorites</li> <li>CON Device Macros</li> <li>User</li> <li>User Groups</li> <li>User Access Control</li> <li>User Access Control</li> <li>User Favorites</li> <li>User Favorites</li> <li>User Favorites</li> <li>User Favorites</li> </ul>
	Multi-Screen Control < <u>Back</u> Next > <u>Finish</u> Cancel

Fig. 199 Management software menu File - Import - Select Type

To import configurations, proceed as follows:

- 1. Open a locally saved configuration or create a new configuration.
- 2. Click File > Import in the menu bar of the offline or new configuration.
- 3. After opening the menu, select the configuration type to be imported.
- 4. Click Next >.
- 5. Go to the location of the configuration file to be imported.
- 6. Select the configuration file to be imported.
- 7. Click **Finish** to confirm the import.

Import		×
Steps	Import Extender Config from CSV File	
<ol> <li>Select Type</li> <li>Import Config from CSV File</li> </ol>	Look In: Matrix   Extenders.csv   User Macros.csv   Users.csv   File Name: Extenders.csv	
	< <u>B</u> ack Next > <u>F</u> inish Can	icel

Fig. 200 Management software menu File - Import - Import Config to CSV File

# 7.13 License Management

i

In this menu the matrix can be upgraded with new function bundles by installation of license keys.

To obtain license	kove to i	unarado matriv	functione	contact vo	ur dictributor
	<b>NEVS (U)</b>	upulaue maink	TUTICUOTIS.		

Eile Edit Device Extras 2							- 0	×
				Q 🗸	The second secon			
Open Save Reload Connect Disc		ave Download Upload	-	ice Finder System Check.	Save Status			
20220215.zip ×								
View ^	Status & Updates - Miscel	laneous						
Matrix	I/O Board Diagnosis License M	lanagement FPGA Update	Custom UI Update Additio	nal				
Port Grid							✓ :	Show Help
Control	Serial Number							
Control ^	S/N Backplane	000000000						
Extended Switch	Active Licenses							
Presets	Presets (Tool only)							
Status & Updates ^	Extended Switch (Tool only)							
Status - Matrix Firmware	API	$\checkmark$						
Status - Extender Firmware Update - Matrix Firmware	SNMP	$\checkmark$						
Update - Extender Firmware	Syslog	$\checkmark$						
Activate Configuration Miscellaneous	Matrix Grid	$\checkmark$						
System Settings	Multi-Screen Control	$\checkmark$						
	Activate License							
System Access	License Key							
Switch		Adivate						
Network Date and Time								
Matrix Grid								
Extender & Devices								
EXT Units								
CPU Devices CON Devices								
User Settings								
Users & Groups								
Assignment ^								
Virtual CPU Devices								
Virtual CPU Devices Virtual CON Devices								
	,							
					Default	04.00		



To activate a function bundle, proceed as follows:

- 1. Click Status & Updates > Miscellaneous in the task area.
- 2. Click the Miscellaneous tab.
- 3. Enter your license key in the working area under Activate License in the License Key field.
- 4. To activate the license key, click Activate.

The new functions will be immediately enabled, a restart of the matrix will not be necessary.

# 7.14 Saving, Opening, and Uploading a locally saved Configuration Status

# 7.14.1 Saving a Status

When a status is saved, the following information contained in the matrix configuration at the time of saving is saved to a .zip file:

- View (Matrix, Port, Grid, Control)
- Control (Extended Switch, Presets)
- Status & Updates (current Matrix and Extender Module Firmware, stored configurations, etc.)
- System settings (System, Access, Switch, Network. Date and Time, Matrix Grid)
- Extender & Devices (EXT Units, CPU Devices, CON Devices)
- User Settings (Users & Groups)
- Assignment (Virtual CPU Devices, Virtual CON Devices)
- Type of matrix
- Current matrix and extender module firmware
- Connected ports
- Switching status
- Configurations with all users, macros, access rights, etc.

The current configuration will be saved as config.dtc, configurations stored in the slots **Default**, or **File#1** to **File#8** are saved as default.dtc, or config01.dtc to config08.dtc.)

To save a matrix status, proceed as follows:

- Click Save Status in the toolbar to read out the overall status of the device and store it locally. A dialog appears.
- 2. Choose the status option to be saved.
- 3. Click Next >.

Save Status	×
Steps	Saving Option
<ol> <li>Saving Option</li> <li>Choose Directory</li> <li>Anonymization</li> <li>Save EXT Units Settings</li> <li>Save Log Files</li> <li>Save Status</li> </ol>	<ul> <li>Save Status of all matrices in the grid</li> <li>Save current matrix status</li> </ul>
	< <u>B</u> ack Next > Einish Cancel

Fig. 202 Management software menu Save Status - Saving Option

- 4. Go to the directory you want to save the status file.
- 5. Click Next >.

Save Status		×
Steps1. Saving Option2. Choose Directory3. Anonymization4. Save EXT Units Settings5. Save Log Files6. Save Status	Choose Directory           Look In:	
	File Name:         20220205 zip           Files of Type:         (*.zip)	~
		< <u>Back</u> Next > <u>Finish</u> Cancel

Fig. 203 Management software menu Save Status - Choose Directory

6. Tick the **Anonymize** checkbox to anonymize your personal data when saving the status file if necessary (not recommended for trouble shooting).

If you want to use the status file as a backup, do not tick the **Anonymize** checkbox.

7. Click Next >.

Save Status	×
Steps	Anonymization
<ol> <li>Saving Option</li> <li>Choose Directory</li> <li>Anonymization</li> <li>Save EXT Units Settings</li> <li>Save Log Files</li> <li>Save Status</li> </ol>	The option anonymizes your personal data in the configuration. (EXT Units, CPU Devices, CON Devices, User) Anonymize I
	< <u>Back</u> Next> Einish Cancel

Fig. 204 Management software menu Save Status - Anonymization

8. Tick the Save EXT Units Settings checkbox to save the EXT Unit settings.

#### 9. Click Next >.

Save Status	×		
Steps	Save EXT Units Settings		
<ol> <li>Saving Option</li> <li>Choose Directory</li> </ol>	The option stores the EDID, USB-HID Ghosting and config parameters for all connected EXT Units.		
3. Anonymization     4. Save EXT Units Settings     5. Save Log Files	Save EXT Units Settings		
6. Save Status	Do not execute during operation as each EXT Unit will go into service mode for several seconds.		
	< <u>B</u> ack Next > <u>Finish</u> Cancel		

Fig. 205 Management software menu Save Status - Save EXT Unit Settings

10. Tick the Save Log Files checkbox to save the controller board and I/O board log files.

### 11. Click Next >.

Save Status	×				
Steps	Save Log Files				
<ol> <li>Saving Option</li> <li>Choose Directory</li> <li>Anonymization</li> </ol>	The option stores the log files of CPU board and I/O boards. Activating the function extends the <b>Save Status</b> process by several minutes.				
<ol> <li>Save EXT Units Settings</li> <li>Save Log Files</li> <li>Save Status</li> </ol>	Save Log Files				
	< <u>B</u> ack Next> <u>F</u> inish Cancel				

Fig. 206 Management software menu Save Status - Save EXT Unit Settings

12. Wait until all steps show green checkmarks and the "**Saving status successful**" message is displayed.

### 13. Click **Finish** to complete the status saving process.

Save Status				×
Steps	Save Status			
<ol> <li>Saving Option</li> <li>Choose Directory</li> <li>Anonymization</li> <li>Save EXT Units Settings</li> <li>Save Status</li> </ol>	Step 1: Step 2: Step 3: Step 4: Step 5: Step 6:	Receiving system information Saving firmware Saving port status Saving extender settings Saving miscellaneous files Saving configuration	* * * * * *	
		< Back	Next >	Finish Cancel
		< Dack	INEXL >	<u>Emisi</u> Cancer

Fig. 207 Management software menu Save Status - Save Status

# 7.14.2 Opening a Locally Saved Configuration Status

To load a locally saved status, proceed as follows:

- 1. Click Device > Load Status... in the menu bar.
- 2. Go to the storage location of the status file to be opened.
- 3. Click the status file to be opened.
- 4. Click **Open** to open the status file.

The saved configuration status is opened showing the latest current configuration that was saved as config.dtc.

C:_Matrix\	Status Files	×
Look <u>I</u> n:	Status Files 🔹 👔	
20210224	113534.zip	
File <u>N</u> ame:	20210224113534.zip	
Files of <u>T</u> ype:	(*.zip)	~
		Open Cancel
Fig. 208 Mana	agement software menu <b>Device - Load Status</b>	

The status can also be opened via drag & drop. To do so, open the file browser, go to the storage location of the status file, click on the status file, hold down the left mouse button and drag and drop the status file into the management software.

### 7.14.3 Uploading a Locally Saved Configuration Status

To load a locally saved status, proceed as follows:

- 1. Open a locally saved status or drag & drop the required configuration file of the .zip file into the management software.
- 2. Perform the uploading process (see chapter 7.11.4, page 277).

Uploading the opened status will save the config.dtc as current configuration to the matrix. If you want to upload further configurations saved in the zipped status file, proceed as follows:

- i
- ➡ Extract the zipped status file.
- Click the **Open** button, navigate to the storage location of the extracted configuration files, select the file to be uploaded and click the **Open** button in the dialog.
- Click the Upload button and proceed as described above.

# 8 Operation via Keyboard

# 8.1 Switching Operation via Keyboard



Fastest switching time can be achieved by using identical mice, keyboards, and monitors. This contributes to a smooth and seamless direct switching of the matrix.

## 8.1.1 Addressing of Master and Sub Matrices

The matrix can be cascaded over two levels.

- Send the commands (including opening the OSD) to the master or the sub matrix.
- When in command mode, select whether commands should be handled in the master or the sub matrix.

The matrix can be cascaded over two levels.

- Send the commands (including opening the OSD) to the master or the sub matrix.
- When in command mode, select whether commands should be handled in the master or the sub matrix.

#### **OSD Access**

- To get access to the OSD of the master matrix, enter Hot Key, m (optional), o.
- To get access to the OSD of the sub matrix, enter Hot Key, s, o.

#### **Cross-Matrix Switching**

To do a cross-matrix switching, proceed as follows:

- 1. Enter Hot Key, m, o to open the OSD of the master matrix.
- 2. Select the CPU Device configured as Tie Line in the CPU selection list and press Enter to switch onto.
- 3. Enter Hot Key, s, o to open the OSD of the master matrix.
- 4. Select the target CPU Device in the CPU selection list of the sub matrix.

The selected master matrix/sub matrix mode is permanently activated until the other mode will be manually activated. This means that if you press s, all prospective commands will be sent to the sub matrix, but not if the command mode is left in the meantime. E.g., if you press Hot Key, s, F1, the defined macro is sent to the sub matrix.

### 8.1.2 Direct Switching via Favorites

The direct switching by favorites on a keyboard is the fastest possibility for a user to switch at his sink between different sources. This offers the option to switch video, keyboard, and mouse, or Video Only.

#### Direct Switching of Video, Keyboard and Mouse in Full Access Mode

1. Press the Hot Key to start the command mode.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing.

- 2. Enter the index number of the new CPU Device from the user's favorites list.
- 3. Press Enter to confirm.

At the same time the command mode is closed, and the sink is connected to the new CPU Device with complete KVM control.

Example: switching to CPU Device with favorite index number 7 in Full Access:

#### Hot Key, 7, Enter

### **Direct Switching in Private Mode**

1. Press the Hot Key to start the command mode.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing.

- 2. Enter the index number of the new CPU Device from the user's favorites list.
- 3. Press Left Shift + Enter at the same time to confirm.

At the same time the command mode is closed, and the sink is connected to the new CPU Device with complete control in **Private Mode**.

Example: switching to CPU Device with favorite index number 3 in **Private Mode**:

Hot Key, 3, Left Shift + Enter

### Direct Switching in Video Only Mode

1. Press the Hot Key to start the command mode.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing.

- 2. Enter the index number of the new CPU Device from the user's favorites list.
- 3. Press Space to confirm.

At the same time command mode is closed, and the sink (console) is connected to the new CPU Device with Video Only.

Example: switching to CPU Device with favorite index number 1 in Video Only

Hot Key, 1, Space

### Switching to previous CPU Devices



If you switch to a source that was previously connected with Video Access only, you will be connected to this source with full KVM access.



You can only switch to valid, unused sources using Hot Keys. The options **Force Connect** and **Force Disconnect** as well as the restrictions of the User ACL and CON ACL are taken into account. Hot Keys are only supported if neither **Enable User Login** nor the **Enable User ACL** is selected, and the user is logged in the OSD.

1. Press the Hot Key to start the command mode.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing.

2. Press p.

At the same time command mode is closed, and the sink (console) is connected to the previous source with full KVM access.

### **Disconnecting the current Connection**

1. Press the Hot Key to start the command mode.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing.

2. Press Backspace.

The command mode is closed, and the sink (console) is disconnected from the previous connected source.

### 8.1.3 Instant Switching via Favorites



Optimal results can be achieved by using identical resolutions as far as possible. This contributes to a smooth and seamless function of the scan mode.

Switching via favorites enables fast displaying of different video signals by switching between associated CPU Devices registered as favorites without continuously using the Hot Key.

1. Press the Hot Key to start the command mode.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing.

- 2. Press Left Shift and hold it down.
- 3. Enter the index number of a CPU Devices from the favorites list with the keyboard.

The video signal of the respective source is immediately displayed after entering the index number.

4. Press Esc to leave the instant switching mode.

If you do not enter Esc in between 10 seconds after the last input of an index number, your CON Device will be switched to the associated CPU Device in Video Only Mode.

### 8.1.4 Switching via Macros using Function Keys F1 to F16

In the command mode you can retrieve the macros 1 to 32 with the F1 to F16 function keys on the connected standard keyboard instead of the special macro keyboard.

Executing macros 17 to 32 is realized by the simultaneous use of Left Shift.

The stored command sequence for the appropriate function key is executed and the command mode is left immediately.

It is not necessary to press Enter to confirm the selection of macros.

### 8.1.5 Switching a CON Unit to a Local Source

KVM CON Unit extender modules connected to a local source can be locally switched via the matrix. Switching is performed between the local source and the KVM connection and can be executed via keyboard commands or OSD (see chapter 9.1.6, page 307).

If you switch to the local source, the KVM connection will be automatically disconnected.



When using CON Units with the possibility to connect a local source in a MSC environment, the local switching will be disabled.

The following keyboard commands are available to switch to the local source:

Keyboard command	Function
Hot Key, k, 1, Enter	Switch to interconnection port 1.
Hot Key, k, 2, Enter	Switch to interconnection port 2 (only with redundant CON Units).
Hot Key, I, Enter	Switch to the local source.

# 8.1.6 Switching via Multi-Screen Control

The MSC function contains a switching of the USB-HID control between different statically connected sources within a CON Device and can be performed via keyboard (configuration see chapter 7.8.11, page 257) or mouse (see chapter 10, page 312).

To perform a switching operation via keyboard command, proceed as follows:

1. Press the Hot Key to start the command mode.

The Caps Lock and Scroll Lock LEDs on the keyboard are flashing.

- 2. Press the number of the specific source or display.
- 3. Press Enter to confirm.

At the same time the command mode is closed, the switching operation will be performed, and keyboard and mouse are connected to the specified source or display.

When using the numeric keypad for switching, a confirmation of the switching operation by pressing Enter is not necessary.

The following keyboard commands are available for switching operations (e.g., using the numeric keypad):

Keyboard command	Function
Hot Key, NUM0	Switch the USB-HID control to the CPU Device connected to the user's CON Device.
Hot Key, Num1	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 1.
Hot Key, Num2	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 2.
Hot Key, Num3	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 3.
Hot Key, Num4	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 4.

# 8.2 Operation via External Switching Solution

Via 4-button external switching solution (dry contact) with a GPIO interface, connected to an add-on module of an extender module, several operation functions are available, depending on the settings for the buttons of the external switching solution (macros, favorites, or keys). Settings see chapter 7.8.8, page 249.

# 8.3 Summary of Keyboard Commands

In the following you find a summary of keyboard commands that can activate extender module and matrix functions after executing the Hot Key.

Keyboard commands are fixed to the position of the keys on the keyboard. Keyboard mapping tables may vary for country-specific layouts.

Note the key position of a freely defined Hot Key when changing the keyboard layout, e.g., from QWERTZ to AZERTY. E.g., if defining 2x a as Hot Key on a German or US keyboard layout, the French keyboard layout (AZERTY) requires then 2x q as Hot Key to be pressed instead.

### 8.3.1 Command Mode and OSD

### 8.3.1.1 Changing, Resetting, and Deleting the Hot Key and the Fast Key

### Hot Key

Keyboard command	Function
Hot Key, c, new Hot Key code, Enter	Change the Hot Key according to the predefined Hot Key Code table.
Hot Key, c, 0, new Hot Key, Enter	Define a freely selectable Hot Key.
Right Shift + Del within 5 s after switching on the CON Unit or plugging in a keyboard	Reset the Hot Key back to default settings.

### Fast Key

Keyboard command	Function
Hot Key, f, Hot Key Code, Enter	Define a Fast Key according to the predefined Hot Key Code table to open the OSD directly.
Hot Key, f, o, new Hot Key, Enter	Define a freely selectable Fast Key to open the OSD directly.
Hot Key, f, 0, Del, Enter	Delete the Fast Key.

### Hot Key Code

Hot Key Code	Hot Key
0	Freely selectable, ESC, Del, and Enter
2	2x Scroll
3	2x Left Shift
4	2x Left Ctrl
5	2x Left Alt
6	2x Right Shift
7	2x Right Ctrl
8	2x Right Alt

### 8.3.1.2 Starting and Exiting the Command Mode

Keyboard command	Function
2x Left Shift	Start the command mode (Hot Key, factory setting).
Esc	Exit the command mode.

### 8.3.1.3 Opening and Exiting the OSD

Keyboard command	Function	
Hot Key, o	Open the OSD.	
Fast Key	Open the OSD.	
Hot Key, s, o	Open OSD of the sub matrix in a cascaded environment.	
Esc	Exit the OSD in the main menu or go back one step in the menu structure.	
Left Shift + Esc	Exit the OSD within the menus.	
Left Ctrl + Esc	Exit the OSD within the menus.	

### 8.3.1.4 Switching the USB-HID Control

Keyboard command	Function
Hot Key, Num0	Switch the USB-HID control to the CPU Device connected to the user's CON Device.
Hot Key, Num1	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 1.
Hot Key, Num2	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 2.
Hot Key, Num3	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 3.
Hot Key, Num4	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 4.

# 8.3.2 Managing of the EDID and USB-HID Ghosting

### 8.3.2.1 EDID

Keyboard command	Function
Hot Key, a	Download the EDID of a monitor connected to the CON Unit into the associated CPU Unit.

### 8.3.2.2 USB-HID Ghosting

Keyboard command	Function
Hot Key, h, w, Enter	Write the device descriptions of the input devices connected to the CON Unit into the CPU Unit. Activate the emulation of these device descriptions in the CPU Unit.
Hot Key, h, e, Enter	Activate the emulation of already stored device descriptions in the CPU Unit.
Hot Key, h, d, Enter	Deactivate the emulation of active device descriptions in the CPU Unit. The input devices connected to the CON Unit will be now passed transparently to the source.
Hot Key, h, r, Enter	Deactivate the emulation of active device descriptions in the CPU Unit. Deletes the descriptions out of the CPU Unit. The input devices connected to the CON Unit will be now passed transparently to the source.

# 8.3.3 Switching

### 8.3.3.1 Switching of Sources for CON Units with local Input

Keyboard command	Function
Hot Key, k, 1, Enter	Switch to the extender module interconnection port 1.
Hot Key, I, Enter	Switch to the local source.

### 8.3.3.2 Switching of Video Channels in Dual-Head Mode

Keyboard command	Function	
Hot Key, d, 1, Enter	Switch to video channel 1 of a Dual-Head CPU Unit.	
Hot Key, d, 2, Enter	Switch to video channel 2 of a Dual-Head CPU Unit.	

### 8.3.3.3 Switching of two different CPU Units via redundant CON Unit

Keyboard command	Function
Hot Key, k, 1, Enter	Switch to the extender module interconnection port 1.
Hot Key, k, 2, Enter	Switch to the extender module interconnection port 2.

### 8.3.3.4 Switching Devices

Keyboard Command	Description
Hot Key, Backspace	Close the current connection of the own CON Device.
Hot Key, p	Switch back to the previous connected source with a KVM connection.
Hot Key, 116, Enter	Switch to a source stored in the favorite list with a KVM connection (Video Only
(Space or Left Shift + Enter)	or Private Mode connection).

# 8.3.3.5 Executing Macros

Keyboard Command	Description
Hot Key, F1F16	Execute a predefined macro (macro 1 to 16).
Hot Key, Left Shift + F17 F32	Execute a predefined macro (macro 17 to 32).

# 8.4 Overview of Keyboard Commands

In the following you find a summary of keyboard commands that can be used to configure and activate extender module and matrix functions.

## 8.4.1 Extender Module

# 8.4.1.1 Keyboard Commands for Configuration

Keyboard command	Function
Hot Key, c, new Hot Key code, Enter	Change the Hot Key according to the predefined Hot Key Code table.
Hot Key, c, 0, new Hot Key, Enter	Define a freely selectable Hot Key.
Right Shift + Del within 5 s after switching on the CON Unit or plugging in a keyboard	Reset the Hot Key back to default settings.
Hot Key, f, Hot Key Code, Enter	Define a Fast Key according to the predefined Hot Key Code table to open the OSD directly.
Hot Key, f, o, new Hot Key, Enter	Define a freely selectable Fast Key to open the OSD directly.
Hot Key, f, 0, Del, Enter	Delete the Fast Key.

### 8.4.1.2 Keyboard Commands for Operation

Keyboard command	Function
Hot Key, a	Download the EDID of a monitor connected to the CON Unit into the CPU Unit.
Hot Key, h, w, Enter	Write the device descriptions of the input devices connected to the CON Unit into the CPU Unit. Activate the emulation of these device descriptions in the CPU Unit.
Hot Key, h, e, Enter	Activate the emulation of already stored device descriptions in the CPU Unit.
Hot Key, h, d, Enter	Deactivate the emulation of active device descriptions in the CPU Unit. The input devices connected to the CON Unit will be now passed transparently to the source.
Hot Key, h, r, Enter	Deactivate the emulation of active device descriptions in the CPU Unit. Deletes the descriptions out of the CPU Unit. The input devices connected to the CON Unit will be now passed transparently to the source.
Hot Key, k, 1, Enter	Switch to the extender module interconnection port 1.
Hot Key, k, 2, Enter	Switch to the extender module interconnection port 2.
Hot Key, I, Enter	Switch to local source (only CON Units with port for a local input).
Hot Key, d, 1, Enter	Switch to video channel 1 of a Dual-Head CPU Unit.
Hot Key, d, 2, Enter	Switch to video channel 2 of a Dual-Head CPU Unit.

# 8.4.2 Matrix

# 8.4.2.1 Keyboard Commands for Operation

Keyboard command	Function		
2x Left Shift	Start the command mode (Hot Key, factory setting).		
Esc	Exit the command mode.		
Hot Key, o	Open the OSD.		
Fast Key	Open the OSD.		
Hot Key, m, o	Open the OSD of the master matrix in a cascaded environment.		
Hot Key, s, o	Open the OSD of the sub matrix in a cascaded environment.		
Esc	Exit the OSD in the main menu or go back one step in the menu structure.		
Esc	Exit the OSD in the main menu or go back one step in the menu structure.		
Left Shift + Esc	Exit the OSD within the menus.		
Left Ctrl + Esc			
Hot Key, Backspace	Close the current connection of the own CON Device.		
Hot Key, p	Switch back to the previous connected CPU Device with a KVM connection.		
Hot Key, 1 16, Enter	Switch to a CPU Device stored in the Favorite List with a KVM connection (video		
(Space or Left Shift + Enter)	only or Private-Mode connection).		
Hot Key, F1 F16	Execute a predefined macro (macro 1-16).		
Hot Key, Left Shift + F17 F32	Execute a predefined macro (macro 17-32).		
Hot Key, Num0	Switch the USB-HID control to the CPU Device connected to the user's CON Device.		
Hot Key, Num1	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 1.		
Hot Key, Num2	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 2.		
Hot Key, Num3	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 3.		
Hot Key, Num4	Switch the USB-HID control to the CPU Device connected to the CON Device with monitor display 4.		

# 9 Operation via OSD

# 9.1 Switching via OSD

## 9.1.1 Switching

U Devices 11 CPUs CPU_010190037	С	ON/CPU Data ON device		
	C C S E	3001 CON_010191923 ON assigned PU connected tatus NLINE XT list 10191923 CC01 EXT_010191923	CPU device 01001 CPU_010190037 CPU assigned CON connected Status ONLINE EXT list CI8190037 0009 EXT_010190837	
Video only	Video only	access with keyboard & mou	use disabled	
Full access	Full access in standard mode with video sharing enabled			
Private access	Full acces	Il access in private mode with video sharing disabled		
Disconnect	Disconnect	nect your CON device		
CPU Scanner	Start the	CPU scanner to scan your fa	avorites	

Fig. 209 OSD Menu Switch

The following keyboard commands are available to select the connection type:

Keyboard command	Function	
Space	Set a video only connection.	
Enter	Set a KVM connection with full access.	
Shift + Enter	Set a KVM connection in Private Mode (video sharing disabled).	
Backspace	Disconnect the own CON Device from the CPU Device.	

To switch the CON Device to any available CPU Device, proceed as follows:

- 1. Click **Switch** in the main menu.
- 2. Select in the **CPU Devices** list on the left-hand side that CPU Device that should be connected to the CON Device.
- 3. Press the appropriate keyboard command to confirm the desired connection type.



Switching operations from the own CON Device can only be performed to CPU Devices that are available in the **CPU Devices** list.



Listed CPU Devices highlighted in red color are currently connected in Private Mode and are blocked by the connected CON Device.



Press F8 to expand the current view to show inactive CPU Devices.

#### Switching via CPU Device Selection List

The matrix offers the ability to execute KVM switching operations by means of a CPU Device selection list next to the OSD in full screen.

To use the CPU Devices selection list, proceed as follows:

- Tick the Enable CPU Selection checkbox in the Configuration > EXT Units menu for those CON Devices where the CPU Device selection list should be available.
- 2. Press Hot Key + o or the Fast Key to open the OSD.

The extender OSD opens showing the CPU Device selection list.

Press F8 to hide inactive CPU Devices to provide a clearer overview.

- 3. Select the desired CPU Device the CON Device should be switched.
- Press the respective key to execute the desired switching operation. To prevent a switching operation and access the OSD menu, press F7. To close the selection list, press Esc.

CPU_010231843		F1:ID
CPU_02	Video only	F2:Name
	Full access	F3:Next F4:Previous
	<pre><fnter></fnter></pre>	F5:Refresh
	Private access	F6:Find
	<pre><shift>+<enter></enter></shift></pre>	F7:Menu
	Disconnect	F8:Show
	<backspace></backspace>	F9:Compare
	CPU Scanner	F10:Login

Fig. 210 Example view CPU selection list

The following keyboard commands are available to select the connection type:

Keyboard command	Function	
Space	Set a video only connection.	
Enter	Set a KVM connection with full access.	
Shift + Enter	Set a KVM connection in Private Mode (video sharing disabled).	
Backspace	Disconnect the own CON Device from the CPU Device.	

#### Activating the Automatic Scan Mode for CPU Devices

The matrix offers the ability to use a scan mode based on the favorite list of each CON Device or user. The scan mode allows the matrix to switch in sequence between the CPU Devices in the favorite list within a predefined time. All scans are performed in Video Only mode.

To configure the automatic scan mode, refer to chapter 6.7.3, page 119.

To activate the scan mode, proceed as follows:

- 1. Define a favorite list for the respective CON Device (see chapter 6.7.4, page 122) or users (see chapter 6.4.2, page 95).
- 2. Press Hot Key + o or the Fast Key to open the OSD.

The extender OSD opens with the CPU Device selection list.

- 3. Select one of the CPU Devices in the CPU Device selection list that are defined in your favorite list.
- 4. Confirm your selection by clicking CPU Scanner. The scan will automatically start.

If you have enabled the **Force CPU Scan** option (see chapter 6.7.3, page 119), the scan will automatically start after switching the respective CON Device to any CPU Device from the favorite list without the need to click **CPU Scanner**.

### 9.1.2 Extended Switching



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At least power user rights are required according to the CON Device ACL or User ACL.

Press F8 to hide inactive CPU Devices to provide a clearer overview. Press F8 again to expand the current view to show inactive CPU Devices.

admin@CON_010190841 (1044/213 Extended Switch	36) F1:ID F2:Name F3:Next F4:Previou	ihse us F5:Refresh F6:Find F9:Compare ESC
CON Devices	CON/CPU Data	
03004 CON_010190841	CON device 03004 CON_010190841	CPU device
03004 CON 010170041 03002 CON_040062140 03003 CON_040112302	CON assigned	CPU assigned
03001 CON_040212434	CPU connected	CON connected
	Status ONLINE	Status
	EXT list 010190841 0001 EXT_010190841	EXT list
<enter></enter>	the CON device for extended switch nect the CON device	ing
SWITCH_01:1		Draco tera
Fig. 211 OSD Menu Extende	d Switch	

The following information is shown in this menu:

Field	Description
CON device	Real CON Device with assigned CON EXT Unit.
CON assigned	Virtual CON Device that is assigned to the real CON Device.
CPU connected	Currently connected CPU Device.
CON status	Current connection status (CON Device).
EXT list	List of all available physical EXT Units.
CPU device	Assigned physical EXT Unit.
CPU assigned	Real CPU Device that is assigned to a virtual CPU Device.
CON connected	Currently connected CON Device.
CPU status	Current connection status (CPU Device).
EXT list	List of all available physical EXT Units

The following keyboard commands are available for switching operations after selecting a CON Device and pressing Enter:

Keyboard command	Function
Space	Set a Video Only connection.
Enter	Set a KVM connection.
Shift + Enter	Set a KVM connection in Private Mode (video sharing disabled).
Backspace	Disconnect the own CON Device from CPU Device.

To switch any CON Device to any available CPU Device, proceed as follows:

- 1. Click **Switch** in the main menu.
- 2. Select in the CON Devices list on the left-hand side that one that should be switched to a CPU Device.
- 3. Press Enter.

The connection types and their corresponding keyboard commands are listed in the lower working area.

- 4. Select in the **CPU Devices** list on the left hand side that one that should be connected to the open **CON Device**.
- 5. Press the appropriate keyboard command to confirm the desired connection type.



Switching operations from the user's CON Device can only be performed on CPU Devices that are available in the **CPU Devices** list.

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# 9.1.3 USB 2.0 Switching

Switching of USB 2.0 extender modules basically works like switching of KVM extender modules. The following scenarios to switch USB 2.0 extender modules are possible.

- 1. An EXT Unit with USB 2.0 will be created and assigned to an already existing device with existing KVM EXT Units (see chapter 6.6.1, page 108 or chapter 6.7.3, page 119).
- 2. A separate device for the EXT Unit with USB 2.0 will be created without assigning a KVM EXT Unit to that device. This possibility offers a separate switching of the USB 2.0 signal (see chapter 6.6.1, page 108 or chapter 6.7.3, page 119).

Switching of USB 2.0 signals uses Extended Switching functionality (see chapter 9.1.2, page 302). When using parallel operation within the matrix, set the **Release Time** in the **System Settings > Switch** menu to 10 s or more (see chapter 6.3.4, page 80). Otherwise, the connection of the USB 2.0 extender module will not be established due to security and stability reasons.

# 9.1.4 Switching via Macro List

Next to executing macros via function keys F1 to F16, they can also be executed via Macro List in the OSD. At the same time this specific list offers the possibility to see the content of the various macros including the single commands before executing them. There are displayed 16 of the total 32 macros per page.

5	5	1 3	•	1.5
CON_010191923 (168/100) Macro List				ihse ESC
Key Macro				_
F01 CF ( CON_040212434 , CPU	_020190418)			
F02				
F03				
F04				
F05				
F06				
F07				
F08				
F09				
F10				
F11				
F12				
F13				
F14				
F15				
F16				
				D I
SWITCH_01:1				Draco tera

Fig. 212 OSD Menu Macro List

- 1. Click Macro List in the main menu.
- 2. Ensure CON or user macros have been already configured.
- 3. Select the respective macro in the list that you want to execute.
- Press Page Down and select the macro afterwards if you want to execute a macro 17-32 (Shift + F1 to F16).
- 5. Press Enter to execute the macro. The macro will be immediately executed.



If the Macro List should be directly displayed upon opening OSD, activate the option **Show Macro List** in the menu **Configuration > CON Devices** for the respective CON Devices.

## 9.1.5 Switching of single EXT Units within Devices

You can independently switch CON Devices and CPU Devices with single EXT Units within configurations consisting of CON Devices and CPU Devices with multiple EXT Units.

J Devices	CON/CPU Data	
11 CPUs	CON device 03001 CON_010191923	CPU device 01001 CPU_010190037
CPU_010190037	CON assigned	CPU assigned
	CPU connected	CON connected
	Status CNL TNE	Status ONCINE
	EXT list 010191923 0001 EXT_010191923	EXT list 010190037 0009 EXT_010190037
Video oplu	010191923 0001 EXT_010191923	010190037 0009 EXT_010190037
Video only <space></space>	Video only access with keyboard & mouse	<b>010190037 0009 EXT_010190037</b> disabled
Video only (SPACE> Full access (ENTER)	010191923 0001 EXT_010191923	<b>010190037 0009 EXT_010190037</b> disabled
<space> Full access <enter> Private access</enter></space>	Video only access with keyboard & mouse	010190037 0009 EXT_010190037 disabled sharing enabled
<pre></pre>	Video only access with keyboard & mouse Full access in standard mode with video	010190037 0009 EXT_010190037 disabled sharing enabled

SWITCH_01:1

Fig. 213 OSD Menu Switch

To switch a CON Device with a single EXT Unit to a CPU Device with multiple EXT Units, proceed as follows:

- 1. Click Switch in the main menu.
- Select the respective CPU Device in the CPU Devices list containing the EXT Unit you want to have access to.
- 3. Press F7 on the keyboard. The standard will change into the switching mode for CON Devices with a single EXT Unit.
- 4. Select the EXT Unit you want to switch within your CON Device.
- 5. Press Tab to access the EXT Unit list of the selected CPU Device.
- 6. Select the CPU EXT Unit you want to switch to.
- 7. Press Space to execute the switching operation.

Switching of single EXT Units from a Device is only possible in **Video Only** mode. Single EXT Units of a Device that are already switched will be highlighted with "!".

# 9.1.6 Switching a CON Unit to a local Source

switching will be disabled.

CON Units connected to a local source can be locally switched via the matrix. Switching is performed between the local source and the KVM connection and can be executed via OSD or keyboard command (see chapter 8.1.5, page 293).

When using CON Units with the possibility to connect a local source in a MSC environment, the local

If you switch to the local source, the KVM connection will be automatically disconnected.

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CON_010182248:1 ( Switch	1364/4340) F1:ID F2:Name	F3:Next F4:Previous F	5:Refresh F6	5:Find F7:EXT E	8:Show F9:Compare	ihse ESC
CPU Devices		CON/CPU Data	_			
A11 CPUs		CON device 03003 CON_010182248		CPU device		
T DE STA LUPE	_	CON assigned		CPU assigned		
	- 88	CPU connected		CON connected		
	- 8	Status		Status		
	- 8	EXT list		EXT list		
Video only	Video on	ly access with keyboard	d & mouse di	sabled		
Full access	Full acce	ess in standard mode w	ith video sh			
Private acces		ess în private mode wi				
Disconnect	Disconneo	ct your CON device				
CPU Scanner	Start the	e CPU scanner to scan y	your favorit	tes		
Select a CPU devi SWITCH_01:1	ice				Draco	tera

Fig. 214 OSD Menu Switch - Local Source

To switch to a local source, proceed as follows:

1. Press Hot Key + o or the Fast Key to open the OSD.

All available CPU Devices are listed in the start menu.

Switch to the local source in the Local CPU list.
 The switching operation to the local source will be performed immediately.



The local source will be only shown in the OSD if the connected CON Unit includes the option for a local connection.



As an alternative, keyboard commands are available to switch to the local source (see chapter 8.1.5, page 293).

# 9.2 Restarting and Powering down Functions via OSD

### NOTICE

### Possible damage of boards or the matrix

The file system check phase when the matrix is restarted (indicated with 2x white LEDs) is a very sensitive process.

If the matrix is switched off while restarting, the respective boards may be damaged in its function.

➡ DO NOT power off the matrix while the file system is being checked.

### NOTICE

### Possible loss of the current configuration

If the matrix is restarted or shut down (indicated with 1x off/1x yellow LEDs), the current configuration is saved.

If the matrix is powered off while shutting down or restarting, the matrix may restart with factory settings.

➡ DO NOT power off the matrix while shutting down or restarting.

# 9.2.1 Restarting the Matrix

To perform a restart of the matrix, proceed as follows:

Select Configuration > Restart Matrix in the main menu.

The current configuration is saved in the permanent memory of the matrix and matrix will be restarted with the current configuration.

admin@CO Configura	N_010191923 (216/0) ation			ihse ESC
Res	tart Matrix		_	
		Restart matrix with current configuration ?		L
			Cancel Okay	i,
SWITCH_0	1:1		Draco	) tera
Fig. 215	OSD Menu Config	uration - Restart Matrix		

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# 9.2.2 Restarting an I/O Board

To perform a restart of an I/O board to which the user's CON Unit is connected, proceed as follows:

Select Configuration > Restart IO Board in the main menu.

The I/O board will be restarted.

	191923 (216/0)	ihse ESC
Configuration		ESC
Restart I	IO Board	
	Restart your IO board ?	
	Cancel Okay	
SWITCH_01:1	D	raco tera
Fig. 216 OSD	D Menu Configuration - Restart I/O Board	

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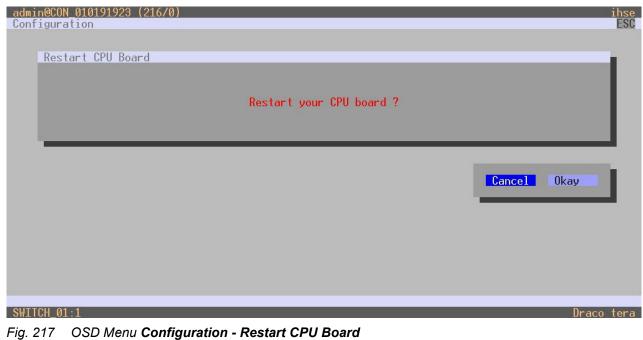
To restart I/O boards with CPU extender modules, use the restart option of the management software (see chapter 12.2.3, page 320)

# 9.2.3 Restarting the Controller Board

To perform a restart of the controller board, proceed as follows:

Select Configuration > Restart CPU Board in the main menu.

The current configuration of the controller board is saved in the permanent memory of the matrix and the controller board will be restarted with the current configuration.



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# 9.2.4 Powering Down the Matrix

To shut down the system, proceed as follows:

- 1. Select **Configuration > Shut down Matrix** in the main menu.
- 2. Click **Okay** to confirm the selection.

The current configuration of the matrix is saved in the permanent memory of the matrix and the matrix will be shut down.

admin@CON_010191923 (216/0) Configuration	ihse ESC
Shut down Matrix	
Shut down the matrix with current configuration ?	
Cancel Okay	
SWITCH_01:1 Draco	tera

Fig. 218 OSD Menu Configuration - Shut down Matrix

# 9.2.5 Powering Down the I/O Board

To shut down the I/O board, proceed as follows:

- 1. Select Configuration > Shut down IO Board in the main menu.
- 2. Click **Okay** to confirm the selection.

The current configuration of the I/O boards is saved in the permanent memory of the matrix and the I/O board will be shut down.

admin@CON_010191923 (216/0) Configuration	ihse ESC
Shut down IO Board	
Shut down your IO board ?	
Cancel Okay	
SWITCH_01:1 Draco	tera

Fig. 219 OSD Menu Configuration - Shut down I/O Board

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**Operation via Mouse with Multi-Screen Control** 

The MSC function cannot be guaranteed when using wireless keyboards and mice.

To perform a switching operation by movement of the mouse pointer, proceed as follows:

- 1. Move the mouse pointer to that edge of the display which borders vertically or horizontally to the adjacent display.
- 2. Move the mouse pointer beyond the edge of the display.

The USB-HID control will be switched seamlessly allowing full control of the associated source. The mouse pointer appears on the target display.



The switching operation can also be performed via keyboard (see chapter 8.1.6, page 294).

# 11 Operation via Serial Interface

The Matrix offers the option to switch via a serial interface (RS232).

Detailed information for the corresponding switching commands is available in form of an API (application programming interface) upon request.

# 12 Operation via Management Software

# 12.1 Switching Operation via Management Software

## 12.1.1 Extended Switching



Switching operations can only be performed in online mode. That means an active network connection is required between the matrix and the management software.

At least power user rights are required according to the CON Device ACL or User ACL.

You have two options to perform switching operations for the matrix via management software:

### Possibility 1

All connected CON Devices and the associated CPU Device connections are shown in columns in the working area in this menu.

- 1. Click **Control > Extended Switch** in the task area.
- 2. Click Activate Edit Mode in the toolbar.

Elle Edit Device Extras 2						- 🗆 X
🍋 📑 💭 💷			🐺 🖷   🗣	l 🐺 🔤 🧵		
	ect <u>D</u> isco	onnect D	eactivate Edit Mode Remote Save Downloa	id Upload   Monitoring   Flash Update Device Fin	der System Check Save Status	
20210210.zip   Master ×		_				
View	^	Contr	ol - Extended Switch			Edit Mode activated
Matrix Port			00110		20110	Ť
Grid		ID	CON Device Name	Full Access	CPU Device Video Access	Private Access
Control		03001	CON_03001	T UII ACCESS	Video Access	1 IIVale Access
Control	~	03002	CON 03002			
		03003	CON_03003	01004 CPU_01004		
Extended Switch Presets		03004	 CON_03004	01006 CPU_01006		
Status & Updates	~	03005	CON_03005	01007 CPU_01007		
	~	03006	CON_03006	01008 CPU_01008		
Status - Matrix Firmware		03007	CON_03007	01009 CPU_01009		
Status - Extender Firmware Update - Matrix Firmware		03008	CON_03008	01054 CPU_01054		
Update - Extender Firmware		03009	CON_03009		1	✓
Activate Configuration		03010	CON_03010			A
Miscellaneous		03011	CON_03011	01013 CPU_01013	01001 CPU_01001 01002 CPU_01002	
System Settings	^	03012	CON_03012	01015 CPU_01015	01003 CPU 01003	
System		03013	CON_03013	01014 CPU_01014	01004 CPU_01004	
Access		03014	CON_03014		01005 CPU_01005	
Switch		03015	CON_03015		01006 CPU_01006 01007 CPU_01007	
Network		03016	CON_03016		01008 CPU_01008	
Date and Time Matrix Grid		03017	CON_03017	01018 CPU_01018	01009 CPU_01009	
		03018	CON_03018	01020 CPU_01020	01010 CPU_01010	
Extender & Devices	^	03019	CON_03019	01021 CPU_01021	01011 CPU_01011	Ŧ
EXT Units		03020	CON_03020	01066 CPU_01066		
CPU Devices CON Devices		03021	CON_03021			
		03022	CON_03022			
User Settings	^	03023	CON_03023	01025 CPU_01025		
Users & Groups		03024	CON_03024	01026 CPU_01026		
Assignment	^	03025	CON_03025			
Virtual CPU Devices		03026	CON_03026	01023 CPU_01023		
Virtual CON Devices		03027	CON_03027	01029 CPU_01029		
Multi-Screen Control		03028	CON 03028			Cond Boost Delived
			Devices w/o Extender Assignment			Send Reset Reload
			inactive Devices			
					Default	

Fig. 220 Management software menu Control - Extended Switch

The following functions are available to perform a switching operation:

Button	Function
Send	Send effected switching operations to the matrix
Reset	Disconnect all existing connections within the matrix
Reload	Reload switching status

To perform a switching operation, proceed as follows:

- To set a KVM connection between a CON Device and a CPU Device, double-click on the corresponding selection box within the Full Access column and select the requested CPU Device.
- To set a video connection between a CON Device and a CPU Device, double-click on the corresponding selection box within the Video Access column and select the requested CPU Device.
- To set a **Private Mode** connection between a CON Device and a CPU Device, double-click on the corresponding selection box within the **Private Access** column and select the requested CPU Device.

If a CPU Device does not have access rights, it will not appear in the list.

If the **Auto Send** checkbox is ticked in the lower left corner of the workspace, the switching operations will be performed immediately without user confirmation by clicking **Send**.

If the **Hide Devices w/o Extender Assignment** function in the left lower corner of the work area is ticked, only CON Devices and CPU Devices that are assigned to EXT Units are shown.

#### Possibility 2

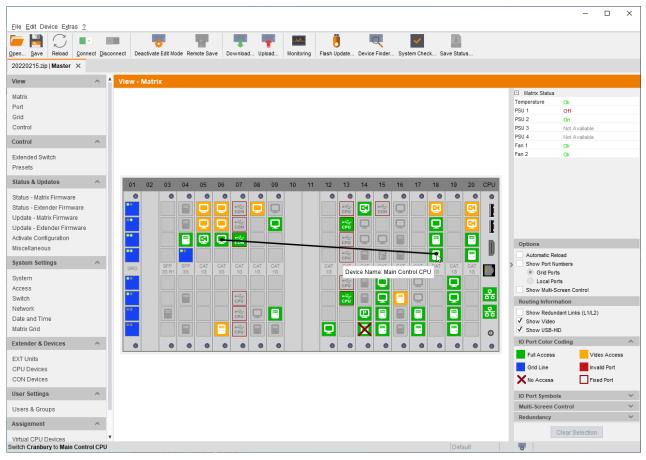


Fig. 221 Management software menu View - Matrix

The following symbols may be shown in the connection overview:

Symbol	Description
	CON Device is connected via <b>Shared Access</b> with at least one further CON Device to the same CPU Device. The CON Device has Full Access at the moment.
	CON Device is connected via <b>Shared Access</b> with at least one further CON Device to the same CPU Device. The CON Device has a Video Access connection at the moment.

To perform switching operations between CON and CPU Devices proceed as follows:

- 1. Click **View > Matrix** in the task area or select **View > Port** when using a Matrix Grid.
- 2. Move the mouse cursor to the port that has to be switched.
- 3. Hold down the left mouse button and move the cursor to the port that has to be connected to the initial port. The current cursor movement will be displayed by a black auxiliary line.
- 4. Release the left mouse button.

A selection menu to select the available switching type (Full Access, Video Access or Private Mode) will be opened.

5. Select the desired switching type.

The switching operation will be immediately executed. At the same time all EXT Units that are assigned to the involved devices will be switched.



If a port is shown with a red cross on **Matrix View**, the CON Device does not have access rights to the CPU Device connected to that port.

To disconnect existing connection between CON Device and CPU Device, proceed as follows:

- 1. Click with the right mouse button on the port that is to be disconnected.
- 2. Click the Disconnect function in the context menu.

The connected ports will be immediately disconnected. At the same time all further connections of the extender modules assigned to the involved devices will be disconnected.

### 12.1.2 USB 2.0 Switching

Switching of USB 2.0 extender modules basically works like switching of KVM extender modules. The following scenarios to switch USB 2.0 extender modules are possible.

- 1. An EXT Unit with USB 2.0 will be created and assigned to an already existing device with existing KVM EXT Units (see chapter 7.7.3.3, page 225 or chapter 7.8.3.3, page 243).
- 2. A separate device for the EXT Unit with USB 2.0 will be created without assigning a KVM EXT Unit to that device. This possibility offers a separate switching of the USB 2.0 signal (see chapter 7.7.3.1, page 224 or chapter 7.8.3.1, page 242).



Switching of USB 2.0 signals uses Extended Switching functionality (see chapter 12.1.1, page 313). When using parallel operation within the matrix, set the **Release Time** in the **System Settings > Switch** menu to 10 s or more (see chapter 7.4.7, page 163). Otherwise, the connection of the USB 2.0 extender module will not be established due to security and stability reasons.

## 12.1.3 Predefining Macros

Predefined macros to switch the matrix without loading a new configuration can be created and activated in this menu. This is a function of the management software, not of the matrix. The predefined macros are locally saved on your computer.

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Fig. 222 Management software menu Control - Presets

### **Creating a new Switch Macro**

To create a new switch macro, proceed as follows:

- 1. Click **Control > Presets** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- Click (New) in the right column of the working area to open a new switch macro.

You are asked if the existing connections should be taken over for the new switch macro.

- 4. Click on a device in the corresponding columns (**Full Access**, **Video Only** or **Private Mode**) to drop down the appropriate selection to set the desired switching operations or use the function for a disconnect (**Disconnect CPU**).
- Click (Save) in the right column of the working area to save the created switch macro.
   A save dialog appears.
- 6. Enter a name for the new switch macro.
- Click **Ok** in the save dialog to confirm the new preset.
   The new switch macro is listed in the right column.
- 8. Click Activate Edit Mode in the toolbar.

### **Copying a Switch Macro**

To copy a switch macro, proceed as follows:

- 1. Click **Control > Presets** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Click with the right mouse button on a selected switch macro in the right column to copy the current switch macro and click the **Save as...** option in the context menu.
- 4. Click Activate Edit Mode in the toolbar.

### **Deleting a Switch Macro**

To delete a switch macro, proceed as follows:

- 1. Click **Control > Presets** in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select a switch macro to be deleted.
- 4. Click X (**Delete**) in the right column of the working area to delete the current switch macro or click with the right mouse button on a selected switch macro and click the **Delete...** option in the context menu.
- 5. Click Activate Edit Mode in the toolbar.

### Loading a Switch Macro

To load a predefined switching, proceed as follows:

- 1. Click Control > Presets in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the switch macro in the right column of the working area that has to be loaded.
- 4. Click Send on the lower right of the working area to activate the selected switch macro.
- 5. Click Activate Edit Mode in the toolbar.

A predefined switch macro can only be activated in online mode.

When loading presets, only those switching operations that are compliant with the hardware and the configuration of the currently used matrix are taken into account.

# 12.2 Restarting and Powering down Functions via Management Software

NOTICE

#### Possible damage of boards or the matrix

The file system check phase when the matrix is restarted (indicated with 2x white LEDs) is a very sensitive process.

If the matrix is switched off while restarting, the respective boards may be damaged in its function.

➡ DO NOT power off the matrix while the file system is being checked.

### NOTICE

### Possible loss of the current configuration

If the matrix is restarted or shut down (indicated with 1x off/1x yellow LEDs), the current configuration is saved.

If the matrix is powered off while shutting down or restarting, the matrix may restart with factory settings.

➡ DO NOT power off the matrix while shutting down or restarting.

### 12.2.1 Restarting the Matrix

To perform a restart of the matrix, proceed as follows:

1. Click Device > Advanced Service > Restart Device in the menu bar.

An access window appears.

- 2. Enter the username and password of the administrator.
- 3. Click Ok.

Authentication required	×
User	admin
Password	****
	<u>Ok</u> C <u>a</u> ncel

Fig. 223 Management software dialog Log in administrator

A query to restart the matrix appears.

4. Click **Yes** to restart the matrix.

Restart Matri	x? (192.168.100.95)	×
?	Do you really want to restart the M	atrix?
	<u>Y</u> es	<u>N</u> o

Fig. 224 Management software dialog Restart Matrix

The current configuration is saved in the permanent memory of the matrix and the matrix will be restarted.

## 12.2.2 Restarting the Controller Board

To perform a restart of the controller board, proceed as follows:

- 1. Click **View > Matrix** in the task area.
- 2. Click with the right mouse button on the symbol of a network port of the controller board to be restarted. A context menu appears.
- 3. Click the Restart CPU Board function in the context menu.

**Note:** The controller board will be restarted immediately without user confirmation. The symbols of the network ports are red for a short time in the overview. When the symbols of the network ports are green again, the restart of the controller board was successful.

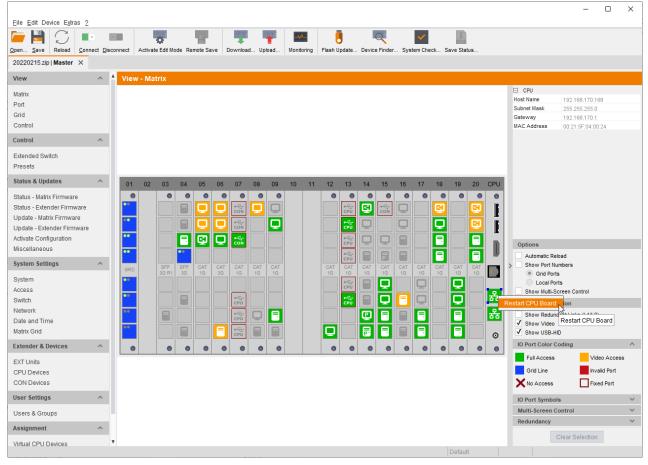


Fig. 225 Management software View - Matrix - Restart Controller Board

### 12.2.3 Restarting an I/O Board

To perform a restart of the I/O board, proceed as follows:

- 1. Click **View > Matrix** in the task area.
- 2. Click with the right mouse button on the symbol of the extender module of the I/O board to be restarted. A context menu appears.
- 3. Click the Restart I/O Board function in the context menu.

**Note:** The I/O board will be restarted immediately without user confirmation. The I/O board will disappear for a short time in the overview. When the I/O board is visible again, the restart of the I/O board was successful.

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Fig. 226 Management software View - Matrix - Restart I/O Board

# 12.2.4 Restarting an Extender Module

There are two possibilities to restart an extender module.

### Possibility 1

To perform a restart of an extender module, proceed as follows:

- 1. Select View > Matrix in the task area.
- 2. Click with the right mouse button on the symbol of the extender to be restarted.

A context menu appears.

3. Select the **Restart Extender** function in the context menu.

**Note:** The extender module will be restarted immediately without user confirmation. The extender module symbol will disappear for a short time in the overview. When the symbol is visible again, the restart of the extender module was successful.

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Fig. 227 Management software View - Matrix - Restart Extender

### Possibility 2

To perform a restart of an extender module, proceed as follows:

- 1. Select Extender & Devices > EXT Units in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the EXT Unit in the EXT Units list whose extender module has to be restarted.
- 4. Click **Restart Extender** in the lower part of the working area.

A query for the restart appears.

5. Click **Yes** to restart the extender module.

The EXT Unit will disappear from the list for a short time. When the EXT Unit is visible again, the restart of the extender module was successful.

6. Click **Deactivate Edit Mode** in the toolbar.

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aetwork Date and Time	54	040131246	EXT_040131246	0	-	CPU	Digital Audio				
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CON Devices ser Settings	62 63	090000248	EXT_090000248	248	-	USB 2.0 CPU 🔻					
ON Devices ser Settings ^				248	-	USB 2.0 CPU					

Fig. 228 Management software menu Extender & Devices - EXT Units

### 12.2.5 Powering Down the Matrix

To shut down the matrix, proceed as follows:

- Select Device > Advanced Service > Shut down Matrix in the menu bar. An access window appears.
- 2. Enter the username and password of the administrator.
- 3. Click Ok.

Authentication required	×
User	admin
Password	****
	Ok Cancel

Fig. 229 Management software dialog Log in administrator

A query to shut down the matrix appears.

4. Click Yes to start the shutdown.

Shut down	Matrix ?	×
?	Do you really want to shut down the Matrix	(?
	<u>Y</u> es <u>N</u> o	

Fig. 230 Management software dialog Shut down Matrix

The current configuration is saved in the permanent memory of the matrix and the matrix will be shut down.

After shutting down, a notification to power off the matrix appears.

Shutdown I	Matrix	×
i	The Matrix has been shut down. Switch off the Matrix at the power switch	n.
	OK	

Fig. 231 Management software notification Switch off Matrix

# 13 Maintenance

# 13.1 Maintening the Hardware

### NOTICE

### Possible damage to the mechanical and electronic components

The chassis does not contain any components that require maintenance. If the chassis is nevertheless opened and damaged in the opening process, the manufacturer's warranty is voided.

The chassis, the controller boards, and I/O boards as well as the accessories can be damaged by cleaning with damp or aggressive cleaning agents. If the chassis is nevertheless cleaned with damp or aggressive cleaning agents and damaged in the cleaning process, the manufacturer's warranty will be voided.

- ➡ DO NOT open the device.
- ➡ In case of failure, contact the supplier or manufacturer.
- Remove dust deposits from the device with a dry, antistatic cloth.



For a 24/7 operation it is recommended that a stock of critical spare parts is maintained, including a chassis.

The matrix contains various components and assemblies that are hot swappable and can be removed and exchanged or maintained during operation. The exchangeable components within the matrix are described from chapter 13.1.1 to 13.1.6.

### 13.1.1 Replacing a Matrix

### 13.1.1.1 Creating a Backup File

#### Preconditions

- The computer running the management software is connected to the matrix via TCP/IP port.
- The management software is running.
- The matrix is connected via management software.

### **Creating a Backup File**

To create and save a backup file locally, please see chapter 7.14.1, page 285.

### 13.1.1.2 Physical Replacing a Matrix

To physically replace the matrix from the rack, please proceed as follows:

- 1. Switch off the matrix to be replaced.
- 2. Disconnect the power supply cables from the matrix.
- 3. Disconnect the network cable from the matrix.
- 4. Disconnect the interconnect cables of the extender module from the matrix.
- 5. Remove the 4 rack mount screws from the chassis of the matrix.
- 6. Remove the matrix out of the rack.
- 7. Place the new matrix into the rack.
- 8. Tighten the 4 rack screws at the chassis of the new matrix.
- 9. Connect the interconnect cables of the extender modules to the new matrix.
- 10. Connect the network cable to the new matrix.
- 11. Connect the power supply cables to the new matrix.
- 12. Power on the new matrix.

## 13.1.1.3 Opening and Uploading the Backup Data

## Preconditions

- The computer running the management software is connected to the matrix via TCP/IP port.
- The management software is running.
- The matrix is connected via management software.

## Opening a locally saved Backup File

To load a locally saved backup file, please see chapter 7.14.2, page 289.

#### **Uploading a Configuration**

To upload an opened locally saved backup file, please see chapter 7.14.3, page 289.

# 13.1.2 Replacing a Controller Board

# NOTICE

#### Damaged controller board due to by switching off the matrix during replacement process

When replacing a controller board, the new one will automatically receive the current matrix configuration. Therefore, it is necessary to perform a correct de-registration of the controller board to be replaced and a correct registration of the new controller board. Switching off the matrix during the replacement process may cause a disfunction or a damage of the controller board.

- Observe the steps described in this chapter.
- Wait until the old board has been de-registered and the new board has been registered.
- Do NOT switch off the matrix while replacing the controller board replacement.



Fig. 232 Interface side - Draco tera controller board 480-CTRL2

1 Controller board status LED 1

3 Locking pin

2 Controller board status LED 2

To replace a controller board, proceed as follows:

1. Pull the locking pin slowly out of the controller board up to the stop.

Wait until the LED 1 illuminates solid green and the LED 2 flashes red (de-registration confirmed, see chapter 3.6.1.1, page 28).

- 2. Remove all cables from the controller board.
- 3. Pull the controller board out of the corresponding slot by using the locking pin.
- 4. Push a new or maintained controller board into the slot.
- 5. Push the locking pin completely in.

A successful registration of the controller board will be shown by a permanent green flashing of status LED 1.

6. Connect all cables to the controller board according to the replaced board.

# 13.1.3 Replacing an I/O-Board

## NOTICE

## Damaged I/O board due to by switching off the matrix during replacement process

When replacing an I/O board, the new one will automatically receive the current configuration of the replaced I/O board. Therefore, it is necessary to perform a correct de-registration of the I/O board to be replaced and a correct registration of the new I/O board. Switching off the matrix during the replacement process may cause a disfunction or a damage of the I/O board.

- Observe the steps described in this chapter.
- ➡ Wait until the old board has been de-registered and the new board has been registered.
- ➡ Do NOT switch off the matrix while replacing the I/O board replacement.

The replacement of I/O boards is described using the Cat X I/O board as an example.



Fig. 233 Interface side - Draco tera Cat X I/O board

- 1 Controller board status LED 1
- 3 Locking pin
- 2 Controller board status LED 2

To replace an I/O board, proceed as follows:

1. Pull the locking pin slowly out of the I/O board up to the stop.

Wait until the LED 1 illuminates solid green and the LED 2 flashes red (de-registration confirmed, see chapter 3.6.2.1, page 30).

- 2. Remove all cables from the I/O board.
- 3. Pull the I/O board out of the corresponding slot by using the locking pin.
- 4. Push a new or maintained I/O board into the slot.
- 5. Push the locking pin completely in.

A successful registration of the I/O board will be shown by a permanent green flashing LED 1.

6. Connect all cables to the I/O board according to the replaced board.

# 13.1.4 Replacing Power Supply Units

# 13.1.4.1 Power Supply Unit for Draco tera 80/48 Port

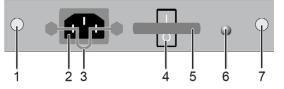


Fig. 234 Power supply unit for Draco tera 40/80 port

- 1 Locking screw
- 2 IEC Port
- 3 Hanger for the power cable
- 4 On/Off switch

- 5 Handle to pull out/push in
- 6 LED for power supply voltage
- 7 Locking screw

To replace the power supply unit, proceed as follows:

- 1. Remove the power cord cable.
- 2. Loosen the locking screws.
- 3. Pull the power supply unit out of the corresponding slot, using the handle.
- 4. Before inserting a new power supply, make sure that the on/off switch is in the I position.
- 5. Push a new or maintained power supply unit into the slot until it clicks into place.
- 6. Tighten the screw.
- 7. Connect the power cord cable to the power supply unit. The power supply unit will be recognized by the system and can be used afterwards.

# 13.1.4.2 Power Supply Unit for Draco tera 288/160/152 Port

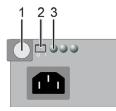


Fig. 235 Power supply unit for Draco tera 288/160/152 port

1 Bracket with locking screw

3 LED for power supply voltage

2 On/Off switch

To replace the power supply unit, proceed as follows:

- 1. Remove the power cord cable.
- 2. Loosen the locking screw.
- 3. Turn the unlocked bracket down.
- 4. Pull the power supply unit out of the corresponding slot, using the bracket.
- 5. Before inserting a new power supply, make sure that the on/off switch is in the I position.
- 6. Push a new or maintained power supply unit into the slot until it clicks into place.
- 7. Turn the bracket down and tighten the screw.
- 8. Connect the power cord cable to the power supply unit. The power supply unit will be recognized by the system and can be used afterwards.

### 13.1.4.3 Power Supply Unit for Draco tera 576 Port, Revision 1

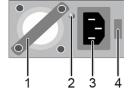


Fig. 236 Power supply unit for Draco tera 576 port, revision 1

1 Handle to pull out/push in

3 IEC Port

2 LED for power supply voltage

4 Locking lever

To replace the power supply unit, proceed as follows:

- 1. Remove the power cord cable.
- 2. Move the locking lever to the left and hold it.
- 3. Pull the power supply unit out of the corresponding slot, using the handle.
- 4. Push a new or maintained power supply unit into the slot until it clicks into place.

When it clicks into place, the locking lever moves back in the original position.

5. Connect the power cord cable to the power supply unit. The power supply unit will be recognized by the system and can be used afterwards.

## 13.1.4.4 Power Supply Unit for Draco tera 576 Port, Revision 2

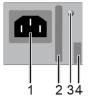


Fig. 237 Power supply unit for Draco tera 576 port, revision 2

- 1 IEC Port
- 2 Handle to pull out/push in

- 3 LED for power supply voltage
- 4 Locking lever

To replace the power supply unit, proceed as follows:

- 1. Remove the power cord cable.
- 2. Move the locking lever to the left and hold it.
- 3. Pull the power supply unit out of the corresponding slot, using the handle.
- 4. Push a new or maintained power supply unit into the slot until it clicks into place. When it clicks into place, the locking lever moves back in the original position.
- 5. Connect the power cord cable to the power supply unit. The power supply unit will be recognized by the system and can be used afterwards.

**FAN TRAY** 

HS

OK

-5

# 13.1.5 Replacing Fan Trays

# NOTICE

# Risk of electrostatic discharge

Static electricity can harm delicate components.

Wear an ESD wrist strap before exchanging any part or electric component. You can use the grounding screws for connecting the ESD wrist strap.

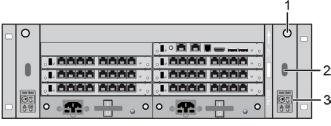


Fig. 238 Example - K048 Right fan tray with detailed view

- 1 Locking screw
- 2 Handle
- 3 Fan tray indication and remove soft button
- 4 Remove switch
- 5 Hot-Swap LED

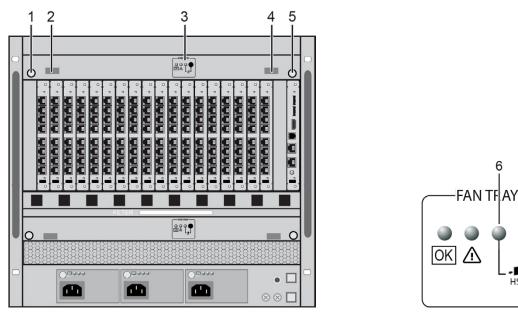


Fig. 239 Example - K160 Upper fan tray with detailed view

- 1 Locking screw
- 2 Handle
- 3 Fan tray indication and remove button
- 4 Handle

- 5 Locking screw
- 6 Hot-Swap LED
- 7 Remove switch

## Hot-Swap LED

Pos.	LED	Description
1	Off	In use
	Flashing blue	Preparing for extraction
	O Blue	Ready to remove

To exchange a fan tray, proceed as follows:

- 1. Unlock the locking screws.
- 2. Press the remove button.

The Hot-Swap LED starts flashing. When the Hot-Swap LED illuminates solid, the fan tray is ready to be removed.

- 3. Hold the handles and pull out the fan tray.
- 4. Push a new or maintained fan tray into the slot.
- 5. Lock the fan tray accordingly.

The fan tray will be recognized by the system and can be used afterwards.

# 13.1.6 Replacing Air Filters

## NOTICE

#### **Risk of overheating**

Accumulated dust in the filter pads can decrease the air flow in the chassis. Therefore, the temperature of the matrix can be overheated.

- Check the filter pads regularly for accumulated dust.
- ➡ Clean the filter pads with low pressure compressed air or suction.
- Do NOT exceed an inspection cycle of 6 months.
   Depending on the ambient air, the inspection has to be done in a shorter cycle.
- ➡ Replace filter pads or filter trays at regular intervals of no more than one year.

The air filter can be removed by pulling the air filter's handle. To re-install, push the air filter into the guide rails at each side of the shelf regarding the labeled orientation mark until the spring mounted ball lock engage.

# 13.1.7 Replacing Extender Modules



The physical replacement have to be performed before unassigning an extender module and assigning another extender module.

The replacement of extender modules for CON/CPU Devices is described using a CPU Device as an example.

To unassign an extender module and assign a new extender module, proceed as follows:

- 1. Click Extender & Devices > CPU Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the CPU Device whose assigned extender module has to be replaced.
- 4. Click Extender Replacement below the CPU Device list.

An unassign/assign dialog appears.

- 5. Select the extender module to be replaced in the Extender Assigned list.
- 6. To remove the highlighted extender module from the Extender Assigned list, click 4.
- 7. Click Next >.

Extender Replacement			>
Steps	Unassi	gn Extender	
<ol> <li>Unassign Extender</li> <li>Assign Extender</li> </ol>			n step you can remove the assignment of an extender from a device ant to replace an extender by a spare part.
		Extender Availab	ble Extender Assigned
	ID	Name	ID Name
			▲ ▶ 40113350 CON_09 ▲
			< <u>B</u> ack Next > <u>F</u> inish Cancel

Fig. 240 Management software Menu Extender & Devices - CPU Devices - Extender Replacement -Unassign Extender

A query to start the assignment appears.

- 8. Select the extender module in the **Extender Available** list that has to be assign to the selected CPU Device.
- 9. Click > to move the highlighted extender module to the Extender Assigned list.
- 10. Click Finish.

Ste	eps	Assign Exten	der				
l. 2,	Unassign Extender Assign Extender		g configuration step yo cases you want to us		-		o a device,
		E	xtender Available			Extender Assign	ed
		ID	Name		ID	Name	
		40131245	CPU_Raspi_01	••			
		10146604	CPU_06	 			
		40131243	CPU_Raspi_03	•			
		40131242	CPU_Raspi_04				
		40131241	CPU_Raspi_05	4			
		40131240	CPU_Raspi_06				
		40131237	CPU_Raspi_07	- 44 -			
		40131238	CPU_Raspi_08				

Fig. 241 Management software Menu Extender & Devices - CPU Devices - Extender Replacement -Assign Extender

The extender module is assigned to the selected CPU Device.

11. Click **Deactivate Edit Mode** in the toolbar.

# 13.2 Maintening the Matrix via OSD

# 13.2.1 Extender OSD

All extender modules used with the matrix are provided with their own OSD to display the connection status of the CON Device.



Fig. 242 OSD Connection Info - Example view

The following information is shown in the OSD menu:

Field	Description				
CON	Name of CON D	evice			
CPU	Name and ID of currently connected CPU Device with color coding.				
	Green	The connection to the selected CPU Device is established in Full Access or Private Mode.			
	Yellow	The connection to the selected CPU Device is established in Video only.			
	Red	The connection to the selected CPU Device cannot be established.			
	be switched off e Grid operation. I	easons for any incomplete or non-established connection can extender modules or insufficiently available Grid lines in Matrix n case of not having a grid line available to establish a additional message <b>No more grid lines available</b> will appear.			
ACCESS	Full Access	The CON Device has a KVM connection to the displayed CPU Device.			
	Video Access	The CON Device has a video only connection to the displayed CPU Device.			
	Private Mode	The CON Device has a Private Mode connection to the displayed CPU Device.			
	not connected	The CON Device is not connected to a CPU Device.			
SHARED	current CPU Dev	ws the number of CON Devices that are connected to the vice of the CON Device (e.g., 3 devices). If the field remains CON Devices are connected to the current CPU Device.			



The name of the CON Device with K/M control will be displayed on those CON Devices that do not have current K/M control. The CON Device is displayed in yellow color under **Access**.

# 13.2.2 Querying a Status for Diagnosis via OSD

Several statuses can be queried for diagnosis:

	i
Status	
Network SNMP	
SNMP Firmware	
LTLIMAGLE	
Trace	
ITCH_01:1	Draco t

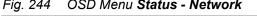
Fig. 243 OSD Menu Status

### 13.2.2.1 Network Status

The current network configuration is displayed in this menu.

Select Status > Network in the main menu to query the network configuration.

Network Interface		
Dual Interface DHCP IP Address Subnet Mask Gateway MAC ID	: N0 Primary Port Secondary Port : YES N0 : 192.168.178.074 000.000.000 : 255.255.255.000 000.000.000 : 192.168.178.001 000.000.000 : 00:21:5F:04:03:7E 00:21:5F:04:03:7F	
Multicast	255.255.255	
Network Services		
API Service Grid Service SSL Services	: YES NO Enable API Service port (5555/5565) : YES NO Enable Grid Service port (5557/5567) : NO NO Enable SSL for API and Grid communication	
Syslog #1 Syslog Server	: NO Enable Syslog Server #1 : 000.000.000.000:514	
Syslog #2 Syslog Server	: NO Enable Syslog Server #2 : 000.000.000.000:514	
LDAP LDAP Server LDAP Base DN	: NO Enable authentication with Active Directory Server : 000.000.000.000:389 :	
Log Levels		
Trace Syslog #1 Syslog #2	: DEB NO INF NO NOT YES WAR YES ERR YES : DEB NO INF NO NOT YES WAR YES ERR YES : DEB NO INF NO NOT YES WAR YES ERR YES	
		_





For information about the network parameters, please refer to chapter 6.3.5, page 82.

Draco tera

## 13.2.2.2 SNMP Status

The current SNMP status is displayed in this menu.

➡ Select Status > SNMP in the main menu to query the SNMP status.

SNMP Agent Enable	:	NO Enable SNMP Agent	(license key required)	
SNMP Server	1			
Enable Traps	:	NO Server #1	NO Server #2	
Server Address	:	000.000.000.000	000.000.000.000	
Status Temperature	:	NO NO	NO NO	
Insert Board Remove Board Invalid Board	1	NO NO NO	NO NO NO	
Insert Extender Remove Extender			NO NO	
Switch Command	:	NO	NO	
Fan Tray #1 Fan Tray #2	:	NO NO	NO NO	
Power Supply #1 Power Supply #2 Power Supply #3 Power Supply #4		NO NO	NO NO NO NO	

#### SWITCH_01:1

Fig. 245 OSD Menu Status - SNMP

The procedure for activating the SNMP agent or configuring an SNMP server is described in chapter 6.3.7, page 87.

#### 13.2.2.3 Firmware Status

The current firmware status is displayed in this menu.

Select **Status > Firmware** in the main menu to query the firmware status.

CON_01019 Status	01923 (256/548) il	hse ESC
Utartao		
Fire	nware	
\$10	ot Firmware	
01	00 MATL040c CPU 1 F04.00 01.12.20	
	ATLCAT 108 8 F04.00 01.12.20 AZ MATLCAT 108 8 F04.00 01.12.20 33 WATLCAT 108 8 F04.00 01.12.20 	
SWITCH_0	L:1 Draco ti	era
	OSD Menu Status - Firmware	

Draco tera

#### 13.2.2.4 Trace

The trace function is used for diagnostic purposes. All recorded events for activities and switching operations of the matrix are displayed in this menu.

N_010191923 (256/0) atus	ih: E
race	
ate Time Message 020/08/15 14:31:59.00 NOT scrHandleOpen(): PORT=1	
020/08/15 14:31:55.00 NOT scrHandleDpen(): PORT=1 020/08/15 14:31:56.00 NOT scrHandleTimeout(): PORT=1 SETHOSTID 020/08/15 14:31:56.00 WAR picRetVersion(): PORT=1 ID=5 empty 020/08/15 14:31:51.00 NOT scrUpdateRx(): PORT=1 ID=4 empty 020/08/15 14:31:51.00 NOT scrUpdateRx(): PORT=1 RX=0N 020/08/15 14:31:51.00 NOT catUpdatePortStatus(): PORT=1 REQ=RXON 020/08/15 14:31:51.00 NOT catUpdatePortStatus(): PORT=1 SYNC=1 020/08/15 14:31:51.00 NOT catUpdatePortStatus(): PORT=1 CAT=1 020/08/15 14:26:17.00 NOT catUpdatePortStatus(): PORT=1 CAT=1 020/08/15 14:26:17.00 NOT catUpdatePortStatus(): PORT=1 CAT=1	
020/08/15 14:31:56 00 WOR pic.RefVersion(): PORT=1 TD=5 emptu	
020/08/15 14:31:56:00 WAR picketVersion(): PORT=1 TD=6 empty	
20/08/15 14:31:51 00 NOT scribdateBX(): PORT=1 BX=0N	
020/08/15 14:31:51.00 NOT catUpdatePortStatus() PORT=1 REO=RXON	
020/08/15 14:31:51.00 NOT catUbdatePortStatus(): PORT=1 SYNC=1	
020/08/15 14:26:17.00 NOT catUpdatePortStatus(): PORT=1 CAT=1	
020/00/13 14:20:10.00 NUT SCFUD0dterATT: FURI-1 RA-UFF	
020/08/15 14:26:16.00 WAR catErrorHandler(): PORT=1 restart	
020/08/15 14:26:10.00 NOT scrUpdateRX(): PORT=1 RX=0N	
020/08/15 14:26:10.00 NOT catUpdatePortStatus(): PORT=1 REQ=RXON	
020/08/15 14:26:10.00 NOT catUpdatePortStatus(): PORT=1 SYNC=1	
020/08/15 14:26:16.00 WAR catErrorHandler(): PURT=1 stopped 020/08/15 14:26:16.00 WAR catErrorHandler(): PORT=1 restart 020/08/15 14:26:10.00 NOT catUpdateRX(): PORT=1 RX=0N 020/08/15 14:26:10.00 NOT catUpdatePortStatus(): PORT=1 REO=RXON 020/08/15 14:26:00.00 NOT catUpdatePortStatus(): PORT=1 SYNC=1 020/08/15 14:26:07.00 NOT scrUpdateRX(): PORT=1 RX=0FF 020/08/15 14:26:07.00 NOT scrUpdateRX(): PORT=1 RX=0FF 020/08/15 14:26:07.00 NOT scrUpdateRX(): PORT=1 RX=0N 020/08/15 14:26:07.00 NOT catUpdatePortStatus(): PORT=1 REO=RXOFF 020/08/15 14:26:07.00 NOT catUpdatePortStatus(): PORT=1 REO=RXON 020/08/15 14:26:07.00 NOT catUpdatePortStatus(): PORT=1 REO=RXON 020/08/15 14:26:07.00 NOT catUpdatePortStatus(): PORT=1 REO=RXON 020/08/15 14:26:07.00 NOT catUpdatePortStatus(): PORT=1 SYNC=1 020/08/15 14:26:07.00 NOT catUpdatePortStatus(): PORT=1 SYN	
020/08/15 14:26:07.00 WAR catUpdatePortStatus(): PORT=1 REQ=RXOFF	
020/08/15 14:26:07.00 NOT scrUpdateRX(): PORT=1 RX=0N	
020/08/15 14:26:07.00 NOT catUpdatePortStatus(): PORT=1 REQ=RXON	
020/08/15 14:26:0/.00 NOI catUpdatePortStatus(): PORI=1 SYNC=1	
020/08/15 14:26:07.00 NUL catUpdatePortStatus(): PURL=1 CAL=1	
020/08/15 14:26:07.00 NUL scrUpdateRX(): PURI=1 RX=UFF	
020/08/15 14:26:06.00 WHR catErrorHandler(): PURI=1 restart	
020/08/15 14:26:07.00 NOT scrUpdateRX(): PORT=1 RX=0FF 020/08/15 14:26:06.00 WAR catErrorHandler(): PORT=1 restart 020/08/15 14:26:00.00 NOT scrUpdateRX(): PORT=1 RX=0N 020/08/15 14:26:00.00 NOT catUpdatePortStatus(): PORT=1 REO=RXON	
020/08/15 14:26:00.00 NUL catupdatePortStatus(): PORT-1 REU=RAUN	
020/08/15 14:26:00.00 NOT catUpdatePortStatus(): PORT=1 SYNC=1 020/08/15 14:25:57.00 NOT scrUpdateRX(): PORT=1 RX=OFF 020/08/15 14:25:57.00 WAR catUpdatePortStatus(): PORT=1 REQ=RXOFF 020/08/15 14:25:57.00 NOT scrUpdateRX(): PORT=1 RX=ON 020/08/15 14:25:57.00 NOT catUpdatePortStatus(): PORT=1 REQ=RXON	
020/00/15 14:23:37.00 NOT SCEUDATERA(): FURT-1 RA-UFF 020/00/15 14:25:57 00 NOT still 1+1-0-14+1-(). DODT-1 DEO-DVOFF	
020/00/15 14:23:37.00 WHR Calupdateror(status(): FURI-1 REV-RAUFF 020/00/15 11:25:57 00 NOT combaterDV(): DDT-1 DV-0N	
020/00/13 14.23.37.00 NOT scruptdateA(). FURT-1 RA-UN 020/02/15 14.25.57 00 NOT scruptdateDevtStatus(). DDDT-1 DE0-DV0N	
020/00/15 14.25.57.00 NOT catUpdateron (Status(), PORT-1 REQ-RAUN 020/08/15 16.25.57 00 NOT catUpdatePortStatus(), PORT-1 SUMP-1	
020/08/15 14:25:57.00 NOT catUpdatePortStatus(): PORT=1 SYNC=1 020/08/15 14:25:57.00 NOT catUpdatePortStatus(): PORT=1 CAT=1 020/08/15 14:25:57.00 NOT scrUpdateRX(): PORT=1 RX=OFF	
020/08/15 14.25.57 00 NOT scribdateRX() - PORTEL RX-PET	
azorodi i 14.20.01.00 hor ser opdatem (7. Fort 1 hr off	

#### SWITCH_01:1



The following information is shown in this menu:

Field	Description
Date	Date stamp
Time	Time stamp
Message	Detailed description of the event

To display the recorded events of an I/O board, proceed as follows:

- 1. Open the OSD of a CON Unit of that I/O board you want to display the recorded events.
- 2. Select **Status > Trace** in the main menu.

The recorded events of the I/O board the CON Unit is connected are displayed.



The procedure for activating the SNMP agent or configuring an SNMP server is described in chapter 6.3.7, page 87.

#### 13.2.2.5 Redundancy Function

Extender modules with redundant ports for interconnect cables can be simultaneously operated with both ports at a single matrix or a matrix Grid (from firmware version V04.00).

The ports labeled with **Link 1** at the extender modules is meant for the primary interconnection. If the interconnection on CON Unit or CPU Unit side is interrupted due to any problem, the interconnection will be automatically re-established through the second port labeled with **Link 2**.

For this kind of redundancy function, there is no need for any configuration of the matrix or the extender modules.

If needed, you can manually switch between **Link 1** and **Link 2** at the CON Unit (see chapter 9.1.6, page 307).

U Devices	CON/CPU Data	
11 CPUs	CON device 03003 CON_010182248	CPU device
lecal CPU	CON assigned	CPU assigned
	CPU connected	CON connected
	Status	Status
	EXT list	EXT list
Video only	EXT list	248
Video only (SPACE> Full access	@18182248 0007 EX1_010182	248 mouse disabled
	Video only access with keyboard &	Rouse disabled video sharing enabled
(SPACE) Full access (ENTER)	Video only access with keyboard & Full access in standard mode with	Rouse disabled video sharing enabled

Click Switch in the main menu.

Fig. 248 OSD Menu Switch

When using redundant extender modules, the respectively active connector is shown in this view under **EXT list** in the field **CON/CPU Data**. If the first connector (**Link 1**) is active, it will be highlighted with :1 behind the respective extender module. If the second connector (**Link 2**) is active, this will be highlighted with :2.

# 13.2.3 Resetting the Matrix to the Factory Settings

NOTICE
If you perform a (factory) reset, all current settings and all configurations stored in the matrix will be lost. This also applies to the network parameters (reset to default IP-address) and the admin password.
NOTICE
If a firmware update has been carried out since the delivery, the latest installed firmware version is retained.
To perform a reset of the matrix to the factory settings, proceed as follows:
1. Select <b>Configuration &gt; Factory Reset</b> in the main menu.
2. Click <b>Okay</b> to confirm the factory reset.
The current configuration in the memory of the matrix is deleted and the matrix is reset to the factory settings.
admin@CON_010191923 (216/0) ihse Configuration ESC
Factory Reset Reset matrix to factory settings ? This will delete all configuration data !
Cancel Okay
SWITCH_01:1 Draco tera

Fig. 249 OSD Menu Factory Reset

# 13.3 Maintening the Matrix via Management Software

# 13.3.1 Sending an OSD Message to CON Devices



In case a maintenance for a CPU/CON Device is required in operation mode, the respective user can be informed by an OSD message on the monitor of its CON Device. Sending a message is described using a CON Device selection as an example.

To send a message to a user/CON Device, proceed as follows:

- 1. Click Extender & Devices > CON Devices in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- Click Send OSD Message to... below the CON Devices list A dialog to create a message appears.
- 4. Enter your message in the Message field (maximum 62 characters).
- 5. Select the value in **Display Time [sec]** to set the display time of the message.
- 6. Click Next >.

Send OSD Message to			×
Steps	Message		
Message     Select CON Devices	Message	Your CPU Device will be restarted in 5 minutes.	
	Display Time [sec]	10 🗘	
		(0 = unlimited. Message box can be closed by opening the OSD)	
		< <u>B</u> ack Next≻ Einish Cano	;el

Fig. 250 Management software menu Extender & Devices - CON Devices - Send OSD Message to... -Message

- 7. Select the CON Device **Available** list which should receive the message. By pressing and holding down **Ctrl** at the same time, more than one CON Device can be highlighted.
- 8. Click ▶ to move the highlighted CON Device(s) to the **Send message to…** list. By clicking ▶, all CON Devices will be moved to the **Send message to…** list.
- 9. To remove highlighted CON Device(s) from the **Send message to…** list, click **∢**. By clicking **∢**, all CON Device(s) will be removed from the **Send message to…** list.

## 10. Click Finish.

Send OSD Message to						
eps	Select C	ON Devices				
Message Select CON Devices		Available			Send message to	D
Sciences	ID	Name		ID	Name	
	3004	CON_04		3001	CON_01	
	3005	CON_05		▶ 3002	CON_02	
	3006	CON_06		3008	CON_08	
	3007	CON_07		3009	CON_09	
	3010	CON_10				
	3011	CON_11		•		
	3012	CON_12				
	3105	USB2.0 CON 05				
	3013	SRF_CON_1				
	2044	005 001 0	•			

Fig. 251 Management software menu Extender & Devices - CON Devices - Send OSD Message to... -Select CON Devices

The message is immediately sent to all selected CON Device(s).

11. Click **Deactivate Edit Mode** in the toolbar.

# 13.3.2 Querying a Status via Management Software

# 13.3.2.1 Device Status

The connections to the matrix are displayed in this menu.

➡ Click View > Matrix in the task area to display the current connections.

					– 🗆 X
File Edit Device Extras 2	Deactivate Edit Mode Remote Save	Download Upload Monitoring	Flash Update Device Finder System Check	Save Status	
20220215.zip   Master ×	ew - Matrix				
Matrix Port Grid Control Control ^ Extended Switch Presets	- Wisterija				Matrix Status Temperature Ok PSU 1 Off PSU 2 On PSU 3 Not Available PSU 4 Not Available Fan 1 Ok Fan 2 Ok
Status & Updates  Status - Matrix Firmware Update - Matrix Firmware Update - Matrix Firmware Update - Extender Firmware Adviate Configuration			12 13 14 15 16 17 1	8 19 20 CPU 9 9 9 9 9 9 9 9 9 10 9 9 10 10 10	
Miscellaneous					
System Settings  System  System  System  Switch  Network  Date and Time  Matrix Grid					Options Automatic Reload Show Port Numbers Grid Ports Cocal Ports Show Multi-Screen Control Routing Information
Extender & Devices		сри		• •	<ul> <li>✓ Show Redundant Links (L1/L2)</li> <li>✓ Show Video</li> </ul>
EXT Units CPU Devices CON Devices User Settings	• • • •	0 0 0	0000000	• • • •	Show USB-HID IO Port Color Coding Ful Access Grid Line Invalid Port No Access Fixed Port
Users & Groups					No Access Fixed Port
Assignment ^ Virtual CPU Devices Virtual CON Devices Multi-Screen Control V					Multi-Screen Control         Y           Redundancy         Y           Clear Selection         Y
				Default	

Fig. 252 Management software menu View - Matrix

If a port is currently selected, the port is shown with four static blue squares. All other ports are transparent, except those connected to the currently selected port.

A selection can be cleared by clicking **Clear Selection** in the lower of the panel on the right side of the working area.

#### **Colors for Controller Board Network Ports**

Network port color	Description
器 Grey	Port is connected
器 Red	Port is not connected or not available

i

# Colors Coding for I/O Board Ports

Port color	Description
Grey	Port not connected
Yellow	Port with video connection
Green	Port with KVM connection
Red	Faulty port
Blue	Port connected to another matrix via Grid Line
X Red cross	CON Device to be connected does not have access rights to the respective CPU Device at this port.
Red frame	Fixed port (e.g., for USB 2.0 connections).

# Colors Coding for Multi-Screen Control

Por	t color	Description
	Blue	CON Device with connected keyboard and mouse in the MSC setting.
	Light blue	CON Device without connected keyboard and mouse in the MSC setting.
	Blue frame	Frame around the CON Units that are contained in an MSC setting (Screen Cluster).
	Rose	Not available, e.g., if one EXT Unit is set on position 2 and all other EXT Units are set on position 1 in the extender assignment.
	Red	Invalid if link 1 and link 2 of a redundant extender module are connected within the same block.

# Symbols for I/O Board Ports

Symbol	Description
=.	Port is connected to a CPU Unit.
	Port is connected to a CPU Unit that is switched to a CON Unit in Private Mode (see chapter 13.2.1, page 333).
<b>Ū</b>	Port is connected to a CON Unit.
<b>S</b>	Port is connected to a CON Unit with Shared Access to a CPU Unit.
P	Port is connected to a CON Unit that is connected to a CPU Unit in Private Mode (see chapter 13.2.1, page 333).
eres CPU	Port is connected to a USB 2.0 CPU Unit.
CON	Port is connected to a USB 2.0 CON Unit.
CSC CON	Port is configured as Cascade-CON port for cascading of matrices.
CSC CPU	Port is configured as Cascade-CPU port for cascading of matrices.
UNI	Port is a UNI port of an I/O board that can be used for USB 3.0 or SDI switching.
UNI CON	UNI port is configured as CON port to connect USB 3.0 CON extender modules, for example.
UNI CPU	UNI port is configured as CPU port i to connect USB 3.0 CPU extender modules, for example.

# **Redundancy Markings**

Symbol	Description
L1	Redundant extender module connected with interconnection port 1.
L2	Redundant extender module connected with interconnection port 2.
Light green label	Active link, switched to this interconnection port.

#### Information panel on the right side of the working area

 Click a port with the left mouse button to show the EXT Unit and CPU/CON Device information of the currently selected port in the panel on the right side of the working area.

#### The following information is available:

## Port

Port color	Description	
Extender Name	Name of the Ext Unit connected to the selected port.	
Extender Type	Inder Type     Type of the selected Ext Unit.	
Port	Number of the selected port.	
Slot (global)	Slot of the matrix.	

#### Device

Field	Description
Device ID	ID number of the associated CON Device or CPU Device.
Device Name	Name of connected CON Device or CPU Device.
Extender 18	Up to 8 assigned EXT Units per CPU/CON Device.

# Connections

Field	Description
Connections	Listing of assigned connections to selected port (Full Access or Video Access).

#### Port's Context Menu

 Click a port with the right mouse button to open the context menu with additional functions for the currently selected port.

The following context functions are available:

Field	Description	
Open Extender	Open the menu for definition of the currently selected EXT Unit.	
Open Device	Open the menu for definition of the currently selected CON/CPU Device.	
Extended Switch	Open the menu for execution of switching operations.	
Disconnect	Disconnect the switching between CON Device and CPU Device	
Restart Extender	Restart the extender module.	
Restart I/O Board	Restart the I/O board.	
Factory Reset I/O Board	Reset the I/O board.	

#### 13.3.2.2 Port Status Matrix Grid

In this menu the connections and the switching status between the various CON and CPU Devices are shown within the Matrix Grid.

The port view is divided into the different Grid matrices. As a result, each matrix is displayed in an optimized view of 24 ports per line to be able to show also a larger number of ports.

Click View > Port in the task area to display the current connections.

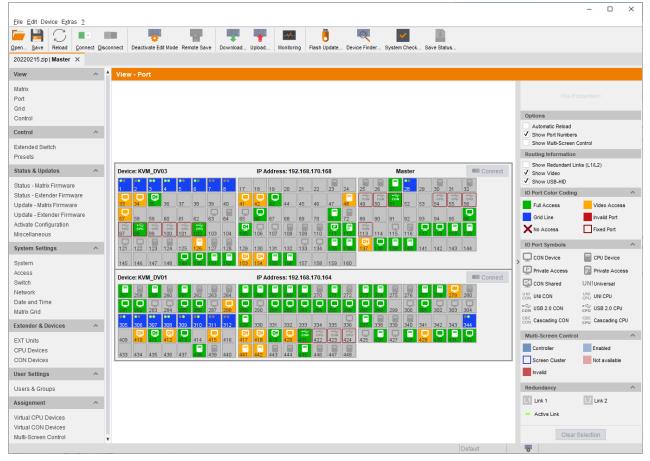


Fig. 253 Management software menu View - Matrix

Functions, colors, and symbols used in the Grid Port View are identical to those in the port status of the Matrix View see chapter 13.3.2.1, page 342.

#### 13.3.2.3 Network Status

The current network status is displayed in this menu.

◆ Click System Settings > Network in the task area to query the network configuration.

Eile Edit Device Extras 2								~	ë	1	Q.		<b>v</b>						
pen <u>S</u> ave Reload <u>C</u> onne	ect <u>D</u> isconne	ct Deactivat	e Edit Mode R	emote Sav	e Downloa	d Uploa	d Mon	itoring I	lash Updat	e Device	e Finder.	Syste	m Check	Save Sta	tus				
20220215.zip   Master ×																			
/iew	~ 1	/iew - Matri	ix																
latrix Port Srid Control Control	^															CPU Host Name Subnet Mas Gateway MAC Addre	k 255. 192	2.168.170.168 5.255.255.0 2.168.170.1 21:5F:04:00:24	
Extended Switch Presets																			
Status & Updates	^	01 02	03 04	05	06 07	08	09 10	11	12 1	3 14	15	16	17 1	8 19	20 CPL				
Status - Matrix Firmware Status - Extender Firmware Update - Matrix Firmware Update - Extender Firmware Activate Configuration Miscellaneous		•• ••		Q Q	· (가지 이 (가지 ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) (											Options			
System Settings	~		SFP SFP	CAT	CAT CAT	CAT	CAT		CAT CA		CAT	CAT					atic Reload Port Numbers		
System Access Switch Network Date and Time Matrix Grid		GRD	3G R1 3G		CAI CAI 16 16 16 16 16 16 16 16 16 16 16 16 16	1G								AT CAT G IG		● Gi La Show Routing I Show Show	rid Ports ocal Ports Multi-Screen ( Information Redundant Lin Video	Control	
Extender & Devices	~				• •		•		•	• •	•	•	•	• •	• •	10.0-+0	olor Coding	3	
EXT Units CPU Devices CON Devices																Full Ar	ine	Video Acco Invalid Port	t
User Settings	^															IO Port S	ymbols		
Jsers & Groups																	een Contro	bl	
ssignment	^															Redunda	-		
/irtual CPU Devices																	Clear	Selection	

Fig. 254 Management software menu View - Matrix

Click a network port of the controller board with the left mouse button.

The corresponding network status will be displayed in the panel on the right side of the working area. The available information can be faded in or hidden by pressing the left mouse button on the "plus" or "minus" icon.

The following information is available:

Port color	Description
Host Name	IP address if DHCP is not active.
Subnet Mask	Subnet mask if DHCP is not active.
Gateway	Gateway address if DHCP is not active.
MAC Address	MAC address.

#### 13.3.2.4 Matrix Firmware Status

The firmware status of the extender modules is displayed in this menu.

Click Status & Updates > Status - Matrix Firmware in the task area to query the current firmware status of the extender modules.

Ipen Save Reload Con 20210210.zip   Master ×		connect	Activate Edit Mode Remote Save Dow	nload Upload Monitorin	g Flash Update Device Finder	System Check Save Status			
View	~	A Stat	us & Updates - Status Matrix F	irmwara					
		Firm		mmware					
Matrix Port				Turne	Ports	Ordel Number	Versien	Status	
Grid		SIOU	Name	Туре	40	Serial Number 40258690	Version	Status	
Control			CHASSIS		40	40258690		Available	
Control	^		FAN	FAN	1		F03.01.201208	Available	
Extended Switch			FAN	FAN	1		F03.01.201208		
Extended Switch Presets			PWRCTRL	PWR	1		F03.00.201208		
Status & Updates	~	00	E MATL040C	CPU	1	40258691	F04.00.210303	Ready	
	~		MATLPXP	PXP	1	10200001	F01.02.200507	110003	
Status - Matrix Firmware			MATLOS	SYS	1		F01.08.210222		
Status - Extender Firmware Jpdate - Matrix Firmware		01	MATLIOS (CAT)	108	8	40258692	F04.00.210303	Ready	
Jpdate - Extender Firmware			MATLOSD	OSD	8		G02.00.201216		
Activate Configuration			MATLOS	SYS	- 1		F01.08.210222		
Miscellaneous		02	E MATLIO8 (CAT)	108	8	000000000	F04.00.210303	Ready	
System Settings	^		MATLVOSC	OSD	8		F01.14.201209		
System			MATLOS	SYS	1		F01.08.210222		
Access		03	E MATLIOS (CAT)	108	8	40258694	F04.00.210303	Ready	
Switch			MATLOSD	OSD	8		G02.00.201216		
Network			MATLOS	SYS	1		F01.08.210222		
Date and Time Matrix Grid		04	🗆 🎹 MATLIO8 (SFP)	108	8	40258695	F04.00.210303	Ready	
	_		MATLOSD	OSD	8		G02.00.201216		
xtender & Devices	^		MATLOS	SYS	1		F01.08.210222		
EXT Units		05	E MATLIOS (SFP)	108	8	000000000	F04.00.210303	Ready	
CPU Devices			MATLVOSD	OSD	8		F02.01.201022		
CON Devices			MATLOS	SYS	1		F01.08.210222		
Jser Settings	^	06	🖽 🏭 MATLIO8 (SFP)	108	8	40258695	F04.00.210303	Ready	
Jsers & Groups			MATLOSD	OSD	8		G02.00.201216		
Assignment	~		MATLOS	SYS	1		F01.08.210222		
/irtual CPU Devices		07	🖽 🌉 MATLIO8 (SFP)	108	8	000000000	F04.00.210303	Ready	
/intual CPU Devices /intual CON Devices			MATLVOSD	OSD	8		F02.01.201022		
Multi-Screen Control			MATLOS	SYS	1		F01.08.210222		

Fig. 255 Management software menu Status & Updates - Status - Matrix Firmware

The following information is displayed in the working area:

Column	Description
Slot	Slot number of the I/O board or CPU extender module
Name	Name of the chassis or I/O board
	Name of the chassis firmware or I/O board firmware
Туре	Type of the chassis firmware or I/O board firmware
Ports	Number of ports
Serial Number	Serial number of the I/O board or CPU extender module
Version	Installed firmware version
Status	Status of the chassis or I/O board

The tree view can be expanded and collapsed by clicking with the left mouse button once on the **+** and **-** symbols in the **Name** column to show and hide detailed information.

By clicking with the left mouse button once on the **+** and **-** symbol in the upper right corner of the working area, you can expand and collapse all information in the tree view.

#### 13.3.2.5 Extender Module Firmware Status

The firmware status of the extender modules with its name, type, and version is displayed in this menu.

Click Status & Updates > Status - Extender Firmware in the task area to query the current firmware status of the extender modules.

									-	×
Eile Edit Device Extras 2	ect <u>D</u> isco	nnect	Activate	Edit Mode Remote Save	Download Upload	te Device Finder Sys	stem Check 3	ja zave Save Status		
20210210.zip   Master ×										
View	^	Sta	tus & U	pdates - Status Ext	ender Firmware					
Matrix Port Grid Control		Ext	ender Vie	xtender Firmware on I/O			-			
Control	~	#			Name	Port	Туре	Device	Version	
Extended Switch			⊡ <u></u> II	EST-A-E160	TEST-A-E160	05	0.01111117	0.011 0.0		
Presets		01		40113350 10195808	CON_09 CON_10	65	CON UNIT	_		
Status & Updates	~	02		10195808	EXTHRCON	00	EXR	CON_10	B01.37.191128	
		-			HIDCON		HID		F04.03.201112	
Status - Matrix Firmware Status - Extender Firmware					EXTMSD		MSD		B02.51.200422	
Update - Matrix Firmware		03	Ŧ	40000927	CON_11	67	CON UNIT	CON 11	DOLOTILOUTLE	
Update - Extender Firmware		04	Đ	10000101	CON_12	68	CON UNIT			
Activate Configuration		05	Đ	40167519	IP-CPU_03_Fiber	70		IP-CPU C Fiber		
Miscellaneous		06		40166854	IP-CPU_04_Fiber	72		IP-CPU D Fiber		
System Settings	^	07	œ	10155408	CON_MV_3.1	89	CON UNIT	MultiViewer 3.1		
System		08	Đ	10155418	CON_MV_3.2	90	CON UNIT	MultiViewer 3.2x		
Access		09	œ	10155422	CON_MV_3.3	91	CON UNIT	MultiViewer 3.3		
Switch		10		10155403	CON_MV_3.4	92	CON UNIT	MultiViewer 3.4		
Network Date and Time		11	œ	10155411	CON_MV_4.1	93	CON UNIT	MultiViewer 4.1		
Matrix Grid		12	Œ	10155420	CON_MV_4.2	94	CON UNIT	MultiViewer 4.2		
Extender & Devices	~	13		10155419	CON_MV_4.3	95	CON UNIT	MultiViewer 4.3		
		14	œ	10182231	CON_MV_4.4	96	CON UNIT	MultiViewer 4.4		
EXT Units CPU Devices		15	Ħ	20201214	IP-CPU_05_v2_DH	104	CPU UNIT	IP-CPUv2		
CON Devices		16	Ð	40076860	CPU_VGA_01	137	CPU UNIT	CPU_11 FHD [VGA]		
User Settings	~	17	Ð	40076855	CPU_VGA_02	145	CPU UNIT	CPU_12 FHD [VGA]		
-		18	Ŧ	10207759	CON_01	153	CON UNIT	CON_01		
Users & Groups		19	Ŧ	10218839	CON_03	154	CON UNIT	CON_03		
Assignment	^	E	xtender fir	mware version conflict						
Virtual CPU Devices		N	lanual upda	ate of EXTMSD / EXTIMSD re	commended					
Virtual CON Devices		v	/rong mod	ule type (CPU/CON mismatcl	1)					
Multi-Screen Control			- ndefined ty							
								Default		

Fig. 256 Management software menu Status & Updates - Status Extender Firmware - Firmware

The following information is displayed in the working area:

Column	Description
ID	Numerical value of the extender module ID
Name	Name of the EXT Unit and the extender module firmware
Port	Port number of the matrix, the extender module is physically connected
Туре	Type of the CON/CPU Unit and firmware
Device	Name of the CON Device/CPU Device the EXT Unit is assigned to
Version	Installed firmware version

li

Firmware types to be updated or firmware conflicts are highlighted in color:

- Extender firmware version conflict
- Manual update of EXTMSD/EXTIMSD recommended*
- Wrong module (CPU/CON mismatch)
- Undefined type

* Only for firmware versions older than V2.25 (EXTMSD) and V1.13 (EXTIMSD) and only if instructed by the manufacturer's technical support or if the release notes indicate dependencies between extender module firmware files. EXT*MSD requires manual update via the Mini-USB service port at the extender modules.

The tree view can be expanded and collapsed by clicking with the left mouse button once on the + and - symbols in the **ID** column to show and hide detailed information.

By clicking with the left mouse button once on the + and - symbol in the upper right corner of the working area, you can expand and collapse all information in the tree view.

#### 13.3.2.6 Extender Module Firmware Status on I/O Board

The extender modules firmware currently stored in the memory on the I/O board via extender module firmware update in Parallel Mode is displayed with its name, type, and version in this menu. The firmware can be passed to the extender modules, if necessary, using the update step of the Parallel Mode (see page 365).

- 1. Click **Status & Updates > Status Extender Firmware** in the task area to query the current firmware status of the extender modules.
- 2. Click the Extender Firmware Status on I/O Board tab in the working area.

Elle Edit Device Extras 2	Disconnect	Activate Edit Mode Remote Save	Monitoring Flash Update Device Finder System Cher	k Save Status
20210210.zip   Master ×				
View	^ St	atus & Updates - Status Extender Firmware		
Matrix	Fin	mware Extender Firmware on I/O Board		
Port	Slo	t Name	Туре	Mem Usage / Version
Grid		IIII TEST-A-E160		
Control	01	MATXIO8 (GRD)	108	15.78 MB of 15.88 MB free
Control	^ 02	🗆 🔳 MATXIO8 (CAT)	108	63.41 MB of 63.50 MB free
Extended Switch		HIDCON	HID	F04.03.201112
Presets		HIDCPU	HID	F04.03.201112
Status & Updates	~ 03	I MATXIO8 (CAT)	IO8	63.41 MB of 63.50 MB free
Status - Matrix Firmware	04	I MATXIO8 (CAT)	108	63.41 MB of 63.50 MB free
itatus - Extender Firmware	05	I MATXIO8 (CAT)	108	63.41 MB of 63.50 MB free
Jpdate - Matrix Firmware	06	🖽 💼 MATXIO8 (CAT)	108	63.41 MB of 63.50 MB free
lpdate - Extender Firmware	07	E MATLIOS (CAT)	108	3025.25 MB of 3283.58 MB free
ctivate Configuration		HIDCON	HID	F04.03.201112
liscellaneous		HIDCPU	HID	F04.03.201112
system Settings	^ 08	MATXIO8 (UNI)	108	15.78 MB of 15.88 MB free
lystem	09	H MATLIO8 (SFP)	108	2867.99 MB of 3283.58 MB free
ccess	10	I III MATXIO8 (SFP)	108	15.78 MB of 15.88 MB free
witch	11	I MATXIO8 (SFP)	108	15.78 MB of 15.88 MB free
letwork late and Time	12	H MATXIO8 (CAT)	108	63.34 MB of 63.50 MB free
latrix Grid	13	H MATXIO8 (CAT)	108	63.38 MB of 63.50 MB free
	15	I MATXIO8 (CAT)	108	15.78 MB of 15.88 MB free
xtender & Devices	16	MATLIOS (CAT)	108	3029.68 MB of 3283.58 MB free
XT Units	18	I MATXIO8 (CAT)	108	63.39 MB of 63.50 MB free
PU Devices ON Devices	19	I MATXIO8 (CAT)	108	63.39 MB of 63.50 MB free
	20	MATLIOS (CAT)	108	2873.96 MB of 3283.58 MB free
ser Settings	^	■ ### TEST-C-C048		
sers & Groups	27	I MATXIO8 (CAT)	108	15.79 MB of 15.88 MB free
ssignment	^ 28	I MATXIO8 (CAT)	108	15.76 MB of 15.88 MB free
irtual CPU Devices	29	I MATXIO8 (CAT)	108	15.80 MB of 15.88 MB free
intual CON Devices	30	I MATXIO8 (CAT)	108	15.76 MB of 15.88 MB free
lulti-Screen Control	31	I MATXIO8 (CAT)	108	15.80 MB of 15.88 MB free
	32	I MATXIO8 (CAT)	108	15.80 MB of 15.88 MB free
		E IIII TEST-D-C008		

#### Fig. 257 Management software menu Status & Updates - Status Extender Firmware - Extender Firmware on IO Board

The following information is displayed in the working area:

Column	Description
Slot	Slot number of the I/O board.
Name	Name of the I/O board and the extender module firmware.
Туре	Type of the I/O board and the extender module firmware.
Mem Usage/Version	<ul><li>Free memory on the I/O board (in MB).</li><li>Firmware version of the I/O board.</li></ul>

The tree view can be expanded and collapsed by clicking with the left mouse button once on the **+** and **-** symbols in the **Name** column to show and hide detailed information.

By clicking with the left mouse button once on the + and - symbol in the upper right corner of the working area, you can expand and collapse all information in the tree view.

#### 13.3.2.7 Syslog Monitoring

The Syslog function offers a complete logging of the matrix activities, switching operations and surveillance of the function of critical components like fans or power supply units in this menu. During logging the activities are written continuously into log files and stored locally.

Logging of system activities depends on the settings. With enabled option, the logging starts when the tool is opened (see page 169) or when the **Monitoring** menu is opened. Logging remains active when the tab is closed, but ends when the management software is closed.

#### NOTICE

Syslog messages are transmitted via UDP. Therefore, port 514 within the used network should not be blocked, e.g., by a firewall.



The procedure for activating the Syslog function is described in chapter 7.4.9, page 168.

en Save Reload Connect D 0210210.zip   Master × Moni	isconnect Activate Edit Mode Remote	e Save Dow	nload Upload M	onitoring Flash Update	Device Finder System	Check Save S	Status	
lonitoring	<ul> <li>Monitoring - Syslog</li> </ul>							
yslog	Filter Find							
NMP	Date		Facility	Severity	Host	Message		Filter
	From 23.02.21 🗘 12:59:		kern 🔺	emergency 🔺				
	To 23.02.21 🗘 12:59:		user mail	alert	4 M	David ID		Clea
	•		daemon	error	App Name	Proc ID		Msg ID
			auth 🔻	warn 🔻				
	Date	Facility	Severity	Host	App Name	Proc ID	Msg ID	Message
	2021-02-23T12:59:09.872	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=444B38 HOST=192.168.170.181
	2021-02-23T12:59:09.867	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=444B38 closing socket
	2021-02-23T12:59:09.273	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=43829C HOST=192.168.170.181
	2021-02-23T12:59:09.267	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=42BA00 HOST=192.168.170.181
	2021-02-23T12:59:09.262	local0	WARN	TEST-A-E160	WAR	-	CPU1	lanManage(): SOCKET=43829C closing socket
	2021-02-23T12:59:09.257	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=42BA00 closing socket
	2021-02-23T12:59:05.267	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swConnectGridPort(): PORT=159
	2021-02-23T12:59:05.261	local0	INFO	TEST-A-E160	INF	-	CPU1	swConnectPort(): PORT=159
	2021-02-23T12:59:05.249	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swHandleInsertExtender(): PORT=159 EXT=10135474:1
	2021-02-23T12:59:04.257	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=43829C HOST=192.168.170.18
	2021-02-23T12:59:04.251	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=42BA00 HOST=192.168.170.181
	2021-02-23T12:59:04.246	local0	WARN	TEST-A-E160	WAR	-	CPU1	lanManage(): SOCKET=43829C closing socket
	2021-02-23T12:59:04.241	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=42BA00 closing socket
	2021-02-23T12:59:00.749	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swConnectGridPort(): PORT=160
	2021-02-23T12:59:00.743	local0	INFO	TEST-A-E160	INF	-	CPU1	swConnectPort(): PORT=160
	2021-02-23T12:59:00.731	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swHandleInsertExtender(): PORT=160 EXT=40131242:1
	2021-02-23T12:58:59.240	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=43829C HOST=192.168.170.18
	2021-02-23T12:58:59.234	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=42BA00 HOST=192.168.170.181
	2021-02-23T12:58:59.228	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=43829C closing socket
	2021-02-23T12:58:59.224	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=42BA00 closing socket
	2021-02-23T12:58:57.713	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swConnectGridPort(): PORT=157
	2021-02-23T12:58:57.706	local0	INFO	TEST-A-E160	INF	-	CPU1	swConnectPort(): PORT=157
	2021-02-23T12:58:57.692	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swHandleInsertExtender(): PORT=157 EXT=40015300:1
	2021-02-23712-58-56 /51	0ecol	NOTICE	TEST_R_E048	NOT	-	CPUH	ewHandleSatGridEvtKVMO: CON=2004 EXT=40131032 KVM=
								Save trace Clear trace Pa

Fig. 258 Management software menu Monitoring - Syslog

To open the Syslog monitoring, proceed as follows:

➡ Click Monitoring in the toolbar.

The logged Syslog messages are displayed in the working area.

#### **Filter Function**

To filter relevant messages from the multitude of logged activities of the matrix, the extender modules and the chassis, the Syslog monitoring offers several filter options.

To set and activate a filter, proceed as follows:

- 1. Tick the respective checkbox(es) to set the desired filter option(s).
- 2. Click Filter to apply the filter settings.
- 3. Click Clear to reset the filter settings.

The following filter options are available:

Option	Description
Date	Messages for a defined date range will be filtered.
Facility	Messages for a defined facility will be filtered.
Severity	Messages for a defined severity will be filtered.
Host	Messages for a defined host will be filtered.
Message	Messages with defined text parts will be filtered.
wessaye	messages with defined text parts will be liftered.



Filter options are not valid within the locally stored log files.

#### **Recording Function**

Several options are available for the messages displayed in the Syslog file.

- To save the displayed messages (filtered or unfiltered), click Save trace.
   The messages are saved in a Syslog file (extension .csv).
- To clear the view with the displayed messages, click Clear trace.
   The recorded messages will be kept.
- To pause the display of messages, click Pause.
   During the pause, the messages will be recorded continuously.
- To display the messages recorded in the background during the pause, click Pause again. All messages recorded in the background will be displayed immediately.

## **Find Function**

The find function can be used to find specific Syslog messages from a variety of logged activities and relevant messages from the matrix, extender modules, and chassis.

	sconnect Activate Edit Mode Remot	e Save Down	nload Upload	Monitoring Flash Update (	Device Finder System C	heck Save S	tatus							
Monitoring	Monitoring - Syslog													
yslog NMP	Filter Find Find Message: API													
	Date	Facility	Severity	Host	App Name	Proc ID	Msg ID	Message						
	2021-02-23T12:59:09.883	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=4513D4 closing socket						
	2021-02-23T12:59:09.877	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	lanApiAccept(): API SOCKET=45DC70 HOST=192.168.170.181 con						
	2021-02-23T12:59:09.872	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	lanApiAccept(): API SOCKET=444B38 HOST=192.168.170.181 con						
	2021-02-23T12:59:09.867	local0	WARN	TEST-A-E160	WAR	-	CPU1	lanManage(): SOCKET=444B38 closing socket						
	2021-02-23T12:59:09.273	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=43829C HOST=192.168.170.181 cor						
	2021-02-23T12:59:09.267	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=42BA00 HOST=192.168.170.181 cor						
	2021-02-23T12:59:09.262	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=43829C closing socket						
	2021-02-23T12:59:09.257	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=42BA00 closing socket						
	2021-02-23T12:59:05.267	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swConnectGridPort(): PORT=159						
	2021-02-23T12:59:05.261	local0	INFO	TEST-A-E160	INF	-	CPU1	swConnectPort(): PORT=159						
	2021-02-23T12:59:05.249	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swHandleInsertExtender(): PORT=159 EXT=10135474:1						
	2021-02-23T12:59:04.257	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=43829C HOST=192.168.170.181 cor						
	2021-02-23T12:59:04.251	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=42BA00 HOST=192.168.170.181 con						
	2021-02-23T12:59:04.246	local0	WARN	TEST-A-E160	WAR	-	CPU1	lanManage(): SOCKET=43829C closing socket						
	2021-02-23T12:59:04.241	local0	WARN	TEST-A-E160	WAR	-	CPU1	lanManage(): SOCKET=42BA00 closing socket						
	2021-02-23T12:59:00.749	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swConnectGridPort(): PORT=160						
	2021-02-23T12:59:00.743	local0	INFO	TEST-A-E160	INF	-	CPU1	swConnectPort(): PORT=160						
	2021-02-23T12:59:00.731	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swHandleInsertExtender(): PORT=160 EXT=40131242:1						
	2021-02-23T12:58:59.240	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=43829C HOST=192.168.170.181 cor						
	2021-02-23T12:58:59.234	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	IanApiAccept(): API SOCKET=42BA00 HOST=192.168.170.181 cor						
	2021-02-23T12:58:59.228	local0	WARN	TEST-A-E160	WAR	-	CPU1	lanManage(): SOCKET=43829C closing socket						
	2021-02-23T12:58:59.224	local0	WARN	TEST-A-E160	WAR	-	CPU1	IanManage(): SOCKET=42BA00 closing socket						
	2021-02-23T12:58:57.713	local0	NOTICE	TEST-A-E160	NOT	-	CPU1	swConnectGridPort(): PORT=157						
	4													

Fig. 259 Management software menu Monitoring - Syslog - Example for search result

To find specific Syslog messages, proceed as follows:

- 1. Click **Monitoring** in the toolbar.
- 2. Click the Find tab in the working area.

The recorded Syslog messages are displayed in the working area.

- 3. Enter a search term in the Find Message search field.
- 4. Click Find Next.

The first message with the entered search term is highlighted.

5. Click **Find Next** again to find another message with this search term. The next message with the entered search term is highlighted.



Possible search terms would be, e.g., the port ID (e.g., Port=160), API, etc. To go back to the previous search result, click **Find Previous**.

## 13.3.2.8 SNMP Monitoring

The SNMP function allows all function-critical and safety-critical elements of the matrix, the extender modules, and the chassis to be monitored and queried. This function complies with the RFC 1157 conformal standard.

#### NOTICE

When using SNMP monitoring, for reasons of access security, the use of a dedicated network according to the IT-Grundschutz-Kompendium (IT Baseline Protection) is recommended. The read only community for the MIB file is **kvm**.

The procedure for activating the SNMP agent or configuring an SNMP server is described in chapter 7.4.10, page 172.

- 1 1-	tt Disconnect Activate Edit Mode Remot	e Save Download Upload.	Monitoring Flash Up	date Device Finder System Check S	Save Status		
lonitoring	Monitoring - SNMP						
yslog	Filter Find						
NMP	Date	Severity	Host	Type of Trap Message		1	Filter
	From 23.02.21 🗘 12:59			Temperature			
	To 23.02.21 🗘 12:59	29 C Warning					Clear
	Date	Uptime	Host	Type of Trap	Message		SNMP-Version
	2021-02-23T12:58:25.676	2:34:28.64	192.168.170.57	Status and speed of fan tray #1	Status: OK; Speed: 4 (Min: 0, Max 15)		1
	2021-02-23T12:58:25.027	2:34:29.03	192.168.170.59	authenticationFailure			1
	2021-02-23T12:58:23.425	2:34:26.39	192.168.170.57	authenticationFailure			1
	2021-02-23T12:58:21.500	2:34:24.71	192.168.170.104	Status and speed of fan tray #2	Status: OK; Speed: 4 (Min: 0, Max 15)		1
	2021-02-23T12:58:21.484	2:34:24.71	192.168.170.104	Status and speed of fan tray #1	Status: OK; Speed: 4 (Min: 0, Max 15)		1
	2021-02-23T12:58:20.999	2:34:25.01	192.168.170.59	authenticationFailure			1
	2021-02-23T12:58:19.396	2:34:22.37	192.168.170.57	authenticationFailure			1
	2021-02-23T12:58:16.976	2:34:20.99	192.168.170.59	authenticationFailure			1
	2021-02-23T12:58:15.374	2:34:18.35	192.168.170.57	authenticationFailure			1
	2021-02-23T12:58:14.755	3:04:16.97	192.168.170.114	Last slot inserted	Slot: 9; Extender: 40131237		3
	2021-02-23T12:58:14.670	3:04:16.89	192.168.170.114	Last slot inserted	Slot: 8; Extender: 40131238		3
	2021-02-23T12:58:14.586	3:04:16.81	192.168.170.114	Last slot inserted	Slot: 6; Extender: 40131239		3
	2021-02-23T12:58:14.507	3:04:16.73	192.168.170.114	Last slot inserted	Slot: 5; Extender: 40131246		3
	2021-02-23T12:58:13.768	2:34:16.73	192.168.170.57	Temperature of the matrix	Temperature: 65°C		1
	2021-02-23T12:58:13.418	3:04:15.64	192.168.170.114	Last slot inserted	Slot: 15; Extender: 40131243		3
	2021-02-23T12:58:13.333	3:04:15.56	192.168.170.114	Last slot inserted	Slot: 12; Extender: 40131241		3
	2021-02-23T12:58:13.248	3:04:15.48	192.168.170.114	Last slot inserted	Slot: 11; Extender: 40131240		3
	2021-02-23T12:58:12.978	2:34:16.99	192.168.170.59	authenticationFailure			1
	2021-02-23T12:58:11.339	2:34:14.57	192.168.170.104	Temperature of the matrix	Temperature: 65°C		1
	2021-02-23T12:58:11.339	2:34:14.31	192.168.170.57	authenticationFailure			1
	2021-02-23T12:58:08.931	2:34:12.95	192.168.170.59	authenticationFailure			1
	2021-02-23T12:58:07.313	2:34:10.29	192.168.170.57	authenticationFailure			1
	2021-02-23T12:58:04.893	2:34:08.91	192.168.170.59	authenticationFailure			1
	2021-02-23T12:58:03.290	2:34:06.27	192.168.170.57	authenticationFailure			1
	2021-02-23T12:58:03.090	3:04:04.31	192.168.170.114	Last slot removed	Slot: 9; Extender: 40131237		3
						Save trace Clear trac	ce Paus

Fig. 260 Management software menu Monitoring - SNMP

To open the SNMP monitoring, proceed as follows:

- 1. Click Monitoring in the toolbar.
- 2. Click **SNMP** in the task area.

The logged SNMP messages are displayed in the working area.

## **Filter Function**

To filter relevant messages from the multitude of logged activities of the matrix, the extender modules and the chassis, the SNMP monitoring offers several filter options.

To set and activate a filter, proceed as follows:

- 1. Tick the respective checkbox(es) to set the desired filter option(s).
- 2. Click Filter to apply the filter settings.
- 3. Click Clear to reset the filter settings.

The following filter options are available:

Option	Description		
Date	Messages for a defined date range will be filtered.		
Facility	Messages for a defined facility will be filtered.		
Severity	Messages for a defined severity will be filtered.		
Host	Messages for a defined host will be filtered.		
Message	Messages with defined text parts will be filtered.		



Filter options are not valid within the locally stored log files.

#### **Recording Function**

Several options are available for the messages displayed in the SNMP log.

- To save the displayed messages (filtered or unfiltered), click Save trace.
   The messages are saved in a SNMP file (extension .csv).
- To clear the view with the displayed messages, click Clear trace.
   The recorded messages will be kept.
- To pause the display of messages, click Pause.
   During the pause, the messages will be recorded continuously.
- To display the messages recorded in the background during the pause, click Pause again.
   All messages recorded in the background will be displayed immediately.

#### **Find Function**

The find function can be used to find specific SNMP messages from a variety of logged activities and relevant messages from the matrix, extender modules, and chassis.

	Disconnect Activate Edt Mode Remot	e Save Download Uplo	ad Monitoring Flash Up	date Device Finder System Check S	ave Status	
0210210.zip Master × Mon	nitoring × Monitoring - SNMP					
	Filter Find					
yslog NMP	THOU THU					
	Find Message: Temperature					Find Next
						Find Previou
	Date	Uptime	Host	Type of Trap	Message	SNMP-Versio
	2021-02-23T12:58:25.027	2:34:29.03	192.168.170.59	authenticationFailure		1
	2021-02-23T12:58:23.425	2:34:26.39	192.168.170.57	authenticationFailure		1
	2021-02-23T12:58:21.500	2:34:24.71	192.168.170.104	Status and speed of fan tray #2	Status: OK; Speed: 4 (Min: 0, Max 15)	1
	2021-02-23T12:58:21.484	2:34:24.71	192.168.170.104	Status and speed of fan tray #1	Status: OK; Speed: 4 (Min: 0, Max 15)	1
	2021-02-23T12:58:20.999	2:34:25.01	192.168.170.59	authenticationFailure		1
	2021-02-23T12:58:19.396	2:34:22.37	192.168.170.57	authenticationFailure		1
	2021-02-23T12:58:16.976	2:34:20.99	192.168.170.59	authenticationFailure		1
	2021-02-23T12:58:15.374	2:34:18.35	192.168.170.57	authenticationFailure		1
	2021-02-23T12:58:14.755	3:04:16.97	192.168.170.114	Last slot inserted	Slot: 9; Extender: 40131237	3
	2021-02-23T12:58:14.670	3:04:16.89	192.168.170.114	Last slot inserted	Slot: 8; Extender: 40131238	3
	2021-02-23T12:58:14.586	3:04:16.81	192.168.170.114	Last slot inserted	Slot: 6; Extender: 40131239	3
	2021-02-23T12:58:14.507	3:04:16.73	192.168.170.114	Last slot inserted	Slot: 5; Extender: 40131246	3
	2021-02-23T12:58:13.768	2:34:16.73	192.168.170.57	Temperature of the matrix	Temperature: 65°C	
	2021-02-23T12:58:13.418	3:04:15.64	192.168.170.114	Last slot inserted	Slot: 15; Extender: 40131243	3
	2021-02-23T12:58:13.333	3:04:15.56	192.168.170.114	Last slot inserted	Slot: 12; Extender: 40131241	3
	2021-02-23T12:58:13.248	3:04:15.48	192.168.170.114	Last slot inserted	Slot: 11; Extender: 40131240	3
	2021-02-23T12:58:12.978	2:34:16.99	192.168.170.59	authenticationFailure		1
	2021-02-23T12:58:11.339	2:34:14.57	192.168.170.104	Temperature of the matrix	Temperature: 65°C	1
	2021-02-23T12:58:11.339	2:34:14.31	192.168.170.57	authenticationFailure		1
	2021-02-23T12:58:08.931	2:34:12.95	192.168.170.59	authenticationFailure		1
	2021-02-23T12:58:07.313	2:34:10.29	192.168.170.57	authenticationFailure		1
	2021-02-23T12:58:04.893	2:34:08.91	192.168.170.59	authenticationFailure		1
	2021-02-23T12:58:03.290	2:34:06.27	192.168.170.57	authenticationFailure		1
	2021-02-23T12:58:03.090	3:04:04.31	192.168.170.114	Last slot removed	Slot: 9; Extender: 40131237	3
	2021-02-23T12:58:03.074	3:04:04.31	192.168.170.114	Last slot removed	Slot: 8; Extender: 40131238	3
						Save trace Clear trace Paus

Fig. 261 Management software menu Monitoring - SNMP - Example for search result

To find specific SNMP messages, proceed as follows:

- 1. Click Monitoring in the toolbar.
- 2. Click the Find tab in the working area.

The recorded SNMP messages are displayed in the working area.

- 3. Enter a search term in the Find Message search field.
- 4. Click Find Next.

The first message with the entered search term is highlighted.

5. Click **Find Next** again to find another message with this search term. The next message with the entered search term is highlighted.



Possible search terms would be, e.g., temperature, fan, or the serial number of an extender module (e.g., 40131237). To go back to the previous search result, click **Find Previous**.

#### 13.3.2.9 Redundancy Function

Extender modules with redundant ports for interconnect cables can be simultaneously operated with both ports at a single matrix or a matrix Grid (from firmware version V04.00).

The ports labeled with **Link 1** at the extender modules is meant for the primary interconnection. If the interconnection on CON Unit or CPU Unit side is interrupted due to any problem, the interconnection will be automatically re-established through the second port labeled with **Link 2**.

For this kind of redundancy function, there is no need for any configuration of the matrix or the extender modules.

If needed, manually switching between link 1 and link 2 at the CON Unit is possible (see chapter 9.1.6, page 307).

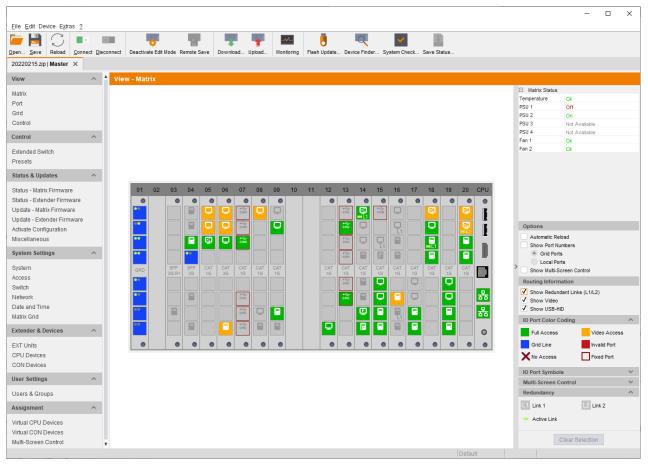


Fig. 262 Management software menu View - Matrix

To check the connection status of the redundant extender modules, proceed as follows:

- 1. Click View > Matrix in the task area.
- 2. Tick the **Show Redundant Links (L1/L2)** checkbox under **Routing Information** on the right side of the working area.
- 3. Expand the **Redundancy** menu in the panel on the right side of the working area to receive the respective legend information.
- 4. Redundant ports are highlighted in the matrix view with L1 and L2. The respectively active link is highlighted with a light green label.

### 13.3.2.10 System Check

The system check offers a diagnostic function for checking the device configuration. The feature indicates non-optimal as well as incorrect settings and displays issues instructions. The system check is only used to check plausibility and does not make any active configuration changes.

The following configuration parts are checked:

- Matrix Firmware
- Extender Module Firmware
- Multi-Screen Control
- EXT Units
- CPU Devices
- CON Devices
- Users
- Macros
- System Configuration
- Matrix Grid

The following notification levels can be shown:

Level	Description			
Info	Information about system parts.			
Ok	System checks completed without any abnormalities.			
Warning	System checks revealed abnormalities in the configuration that point to incomplete parts of the configuration, firmware differences, duplications, or unconnected extender modules, but without being system critical.			
Error	System checks revealed errors in the configuration that can have both functional and system critical influences on the system.			

## NOTICE

If the messages Warning or **Error** are generated by the system check function, the respective problem will be described, and an issue instruction will be provided.

## NOTICE

The system check of the matrix may take several minutes. The KVM system and the management software can be used without restrictions during this time.

To start the system check, proceed as follows:

1. Click System Check in the tool bar.

A query appears to check the system.

2. Click Yes to start the system check.

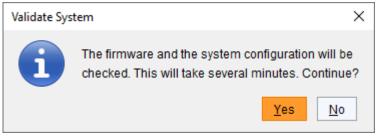


Fig. 263 Management software dialog Validate System

#### A report is displayed after the system check.

System Check - TEST-F	-F024C016F		
System Check			
The System Check helps your personal check of th		ossible sources of error within the configuration. Test results are listed as recommendations in order to suppo n.	) ri
Matrix Firmware	Warning	Matrix OSD firmware version conflict	
		⇒ Check matrix OSD firmware in Status - Matrix Firmware.	
Extender Firmware	Warning	Extender firmware version conflict	
		⇒ Check extender firmware in Status - Extender Firmware.	
Extender Firmware	Warning	Extender (ID = <u>10195808</u> , Name = CON_10, Port = 66) includes an old FPGA firmware which does not supp the ENAREDFRM parameter	)
		⇒ Check extender firmware in Status - Extender Firmware.	
Extender Firmware	Warning	Extender (ID = <u>40000927</u> , Name = CON_11, Port = 67) includes an old FPGA firmware which does not supp the ENAREDFRM parameter	)
		⇒ Check extender firmware in Status - Extender Firmware.	
Macros	Info	442 / 8192 active macros	
System Configuration	Warning	Invalid I/O Boards is activated	
		⇒ Must be OFF during operation, enable during matrix updates only	
Multi-Screen Control	Ok		
Ports	Ok		
		Close	

Fig. 264 Management software report System Check

#### 13.3.2.11 Network Check

The network check checks the firewall settings for the ports available in the network.

NOTICE

Available ports are shown in green. If a port is not available, the corresponding entry appears in red, and instructions are displayed.

To start the network check, proceed as follows:

1. Click Extras > Network Check in the menu bar.

A query appears with an input field for the IP address of the matrix to be queried.

- 2. Enter the IP address of the matrix.
- 3. Click Start network check to start the network check.

The availability of the ports is shown after a short moment.

Network Check		×
Hostname / IP Address	192.168.100.99	
	Start network check	
2021-02-25T10:13:24.744 2021-02-25T10:13:38.865	API port (5555/5565) - available Syslog port (514) - available	e
		Save Log Messages <u>C</u> lose

Fig. 265 Management software report Network Check - Available ports

### 13.3.3 Updating the Matrix Firmware

#### NOTICE

- To process successful firmware updates and avoid failures:
- Only use computers to update the matrices that are not integrated into the KVM system.
- Ensure that the computer used for the update is not set into standby mode or sleep mode during the update.
- Save your configuration locally before starting the update.
- ➡ Proceed an update via direct LAN connection for reasons of network stability.

#### NOTICE

Ensure that all USB 2.0 extender modules are only connected to the provided ports (fixed ports) before you start the matrix update. Non-compliance may affect the stability of the update.

The firmware update of MATLOS.tfw has to be performed step by step. After each firmware update, the matrix has to be restarted.

E.g., if you want to update your current firmware MATLOS version F01.05 to F01.08, proceed as follows:

- ➡ Then update with version F01.06 and restart the matrix.
- ➡ Then update with version F01.07 and restart the matrix.
- Then update with version F01.08 and restart the matrix.

If required, the update files can be requested from the TechSupport.

The firmware of the matrix can be updated in this menu.

pen <u>S</u> ave Reload <u>C</u> onr	ect <u>D</u> isc	onnect	Activate Edit Mode Remote Sav	e Download Uplo	ad Monitoring	date Device Finder System Cf	theck Save Status	
20210210.zip Master ×								
/iew	~	Sta	tus & Updates - Update M	latrix Firmware				Edit Mode activat
Matrix								Additional selection optio
Port		Slot	Name	Туре	Current Version	Update Version	Status	Update
Grid			CHASSIS				Available	
Super Grid			FAN1	FAN	F03.01.200818			
Control			FAN2	FAN	F03.01.200818			
Control	^		PWRCTRL	PWR	F03.00.200113			
Extended Switch		00	🖽 🌻 MATL160	CPU	F04.00.210215	F04.00.210219	Ready	<b>v</b>
resets			MATLPXP	PXP	F01.02.200507			
tatus & Updates	~		MATLOS	SYS	F01.08.201218			
Status - Matrix Firmware		01	🗉 💼 MATXIO8 (CAT)	108	F04.00.210215	F04.00.210219	Ready	V
tatus - Extender Firmware			MATXOSD	OSD	F03.48.200506			
lpdate - Matrix Firmware		02	🗉 💼 MATXIO8 (CAT)	108	F04.00.210215	F04.00.210219	Ready	V
lpdate - Extender Firmware			MATXOSD	OSD	F03.48.200506			
ctivate Configuration		03	🗉 💼 MATXIO8 (CAT)	108	B04.00.210215	F04.00.210219	Ready	V
liscellaneous			MATXOSD	OSD	F03.48.200506			
ystem Settings	^	04	🗉 🏢 MATXIO8 (SFP)	108	F04.00.210217	F04.00.210219	Ready	<b>v</b>
ystem			MATXVOSD	OSD	B04.03.200218			
ccess		09	E RIMATLIO8 (CAT)	108	F04.00.210215	F04.00.210219	Ready	V
witch			MATLOSD	OSD	F01.02.200506			
letwork late and Time			MATLOS	SYS	F01.08.201218			
latrix Grid		10	E 🛄 MATLIO8 (SFP)	108	F04.00.210215	F04.00.210219	Ready	V
xtender & Devices	~		MATLOSD	OSD	F01.02.200506			
			MATLOS	SYS	F01.08.201218			
XT Units PU Devices ON Devices		19	E MATXIOR (CAT)	108	F04 00 210215	F04 00 210219	Ready	J
ser Settings	^							
Isers & Groups								
ssignment	^							
irtual CPU Devices irtual CON Devices			Overwrite active firmware				S:\Firmware\Testversion\E	DracoTeraWATAPP\F04.00_Update Relo

Fig. 266 Management software menu Status & Updates - Update Matrix Firmware

The following information is displayed in the working area:

Option	Description					
Name	Name of the chassis or I/O board					
	Name of the chassis firmware or I/O board firmware					
Type         Type of the chassis firmware or I/O board firmware						
Current Version	Installed firmware version					
Update Version	Firmware version available for the update					
Status	Module availability					
Update	Selected/deselected for firmware update The deselection is only available if the <b>Enable single I/O board update on</b> <b>compact switch</b> option is activated in the default settings.					

The following options are available in the **Additional selection options** drop-down menu on the right upper side in the working area:

Option	Description
Expand Tree View	Expand the tree view to show detailed information. This allows to select or deselect individual firmware to be updated.
Collapse Tree View	Collapse the tree view to hide detailed information. An individual selection of firmware to be updated is not possible.
Select All	Select all available firmware to be updated
Deselect All	Deselect all selected firmware

#### Preparation

If the Syslog function has not been set yet, we recommend activating the Syslog function (see chapter 7.4.9, page 168) before updating the firmware to log the update in case of update errors.

We recommend using a central location for firmware files, e.g., by using the management software's option menu under **Extras > Options > Default Settings > Firmware Directory**.

#### Performing the Update

NOTICE

#### Possible damage of boards or the matrix

A running update process (indicated with 2x white LEDs) is a very sensitive process.

If the matrix is switched off while an update process is running, the respective boards and the matrix will be damaged in their function.

➡ DO NOT power off the matrix while an update process is running.

To update the matrix firmware, proceed as follows:

1. Click Status & Updates > Update - Matrix Firmware in the task area.

All updateable components of the matrix will be automatically selected and highlighted in green.

- Deselect updateable components of the matrix if not all components should be updated. A query dialog appears, asking which update variant should be executed.
- 3. Click **Update** in the lower part of the working area to start the update. A query to save the matrix status appears.

4. Click Save Matrix Status to save the matrix status locally or click Skip if the status is already saved.

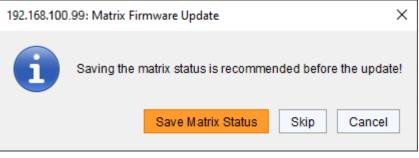


Fig. 267 Management software dialog Save matrix status

- 5. The progress of the update is displayed in the working area. After the update, a query to restart the matrix appears.
- 6. Click **Yes** to restart the matrix.

Restarting the matrix may take several minutes, and the matrix is not available during the restart.

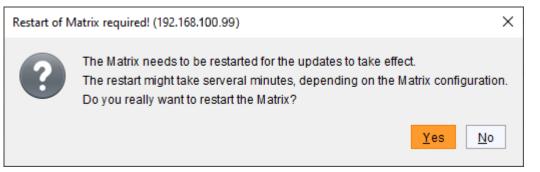


Fig. 268 Management software dialog Restart matrix

The updated firmware is displayed in the working area.

### 13.3.4 Updating the Extender Module Firmware

#### 13.3.4.1 Updating the Extender Module Firmware via Management Software

To update connected extender modules via management software, the extender modules have to be connected to the matrix with interconnection port 1. The firmware of the extender modules can be updated via management software, except for the xxxMSD firmware type that has to be updated via Mini-USB service port if necessary.

The firmware type is part of the file name such as the MSD firmware the file extension .pfw, e.g., EXTMSD.pfw.

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An update of the xxxMSD firmware is usually not necessary. In rare cases, an update may only be necessary to expand the functionality of certain extender modules for specific requirements. In this case, please contact the manufacturer's technical support in advance.



If required, the update files can be requested from the manufacturer's technical support.

Please refer to the user manual of the respective extender module if a manually firmware update of extender modules has to be performed.

#### Preparation

If the Syslog function has not been set yet, we recommend activating the Syslog function (see chapter 7.4.9, page 168) before updating the firmware to log the update in case of update errors.

 $\checkmark$ 

We recommend using a central location for firmware files, e.g., by using the management software's option menu under **Extras > Options > Default Settings > Firmware Directory**.

#### NOTICE

#### Possible failures when updating the extender module firmware

In case the xxxMSD firmware part of one or more extender modules require an update, there may be dependencies between the new contents of xxxMSD firmware files and other extender module firmware files. In this case, installing other firmware files before updating xxxMSD firmware files could lead to failed updates.

To process successful firmware updates:

- Please check the release notes of the firmware package for dependencies between the extender module firmware files.
- If you got information from the manufacturer's technical support that an update of xxxMSD firmware files of certain extender modules is required, please update these firmware files via Mini-USB service port of the respective extender module (see chapter 13.3.4.2, page 370).

There are two possibilities to update the extender modules via matrix:

#### • Parallel Mode:

By default, used for parallel updates of several extender modules. The extender modules of all selected I/O boards are updated in parallel. Advantage: The Parallel Mode offers the fastest method for updating the extender modules.

#### • Sequential Mode:

Option to update extender modules sequentially, extender module by extender module, after the update of the previous extender module is completed.

Advantage: The Sequential Mode offers the possibility to select/deselect individual firmware to be updated.



We recommend updating the firmware of the extender modules via the Parallel Mode.

#### × File Edit Device Extras 2 Open... Save Reload Connect Disconnect . --+ Q _**^**_ Ü ✓ ŧ Activate Edit Mode Remote Save Download... Upload.. Monitoring Flash Update... Device Finder... System Check... Save Status admin@192.168.100.157 × View Status & Up Matrix Parallel Mode (recommended) Parallel update of extenders, executed separately on each I/O board Port Sequential Mode Sequential update mode in order to update specific extenders Grid Step 1: Upload Firmware Step 2: Update Firmware Control Control Firmware File S:\Firmware\Publicversion\DracoTera\2021\FW_00820400_Defaulti20201112_Extende Browse... Extended Switch Available Firmware Files Presets Name Туре Version Selected Status & Updates ~ 01 EXTCPU F03.31.200113 V 02 EXTCON EXT F03.28.190509 V Status - Matrix Firmware Status - Extender Firmware 03 EXTDLCON Update - Matrix Firmware 04 EXTRCPU EXR F02.26.191128 $\checkmark$ Update - Extender Firmware 05 EXTHRCON F01.37.191128 EXR Activate Configuration 06 EXTHRCPU EXR F01.25.191128 V Miscellaneous 07 HIDCPU HID F04.03.210122 System Settings ~ System Upload Progress 0% Upload Access Switch Upload Messages Network Date and Time Matrix Grid Extender & Devices EXT Units CPU Devices CON Devices User Settings ~ Save Upload Log Users & Groups Assignment $\sim$ Virtual CPU Devices Virtual CON Devices Multi-Screen Control

#### Performing the Update in Parallel Mode (Standard Update)

Fig. 269 Management software menu Status & Updates - Update Extender Firmware - Parallel Mode -Upload

#### Uploading the Extender Module Firmware to the Memory on the I/O Board

To upload the extender module firmware to be currently stored in the memory on the I/O board to be passed to the extender modules, if necessary, proceed as follows:

1. Click Status & Updates > Update - Extender Firmware in the task area.

The **Parallel Mode** for the standard update will be selected by default and the **Upload Firmware** tab will be opened.

- Before the actual update process, all firmware files have to be uploaded to the respective I/O boards to which the extender modules to be updated are connected. If a newer firmware is available, appropriate I/O boards will be automatically selected for the upload in the **Selected** column and highlighted in green.
- 3. Click **Upload** to start the upload and distribution of the update files.

By performing the upload process, no update files will be installed. The update process can be performed later. If there are not all extender module firmware files selected, the upload of the extender module firmware files will be performed in sequence.

A query to update the extender module firmware appears finishing the upload process successful.

4. Click Yes if you want to directly start the actual update process.

The Update Firmware tab will open immediately.



Fig. 270 Management software dialog Status & Updates - Update Extender Firmware -Parallel Mode - Update

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# Updating the Extender Module Firmware by passing the Extender Module Firmware from the Memory of the I/O Board

When updating an identical or an older firmware version than the version currently installed, the **Enable Downgrade** checkbox in the upper part of the working area must be ticked.

To update the extender module firmware via standard update, proceed as follows:

1. Click **Update** to start the update.

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Just before the update process, all I/O boards will be set into the **Service Mode** and retrieved gradually after finishing the respective updates. During Service Mode, all matrix functions are disabled on the I/O boards on which an update is currently performed. An OSD picture indicates the activation of the Service Mode and is displayed on all monitors connected to those CON Units that are connected to the matrix.

- 2. The progress of the update is displayed in the working area.
- 3. Check the update messages in the message field after the update if the updates for all extender modules have been installed correctly.

					– 🗆 ×
<u>File Edit Device Extras 2</u>					
Open Save Reload Conner	ct <u>D</u> isco	Activate Edit Mode Remot	Save Download Upload Monitoring Flash Update Device Finder System Check Save Status.		
admin@192.168.100.155	×				
View	^ *	Status & Updates - Upda	e Extender Firmware		
Matrix Port Grid Control		Parallel Mode (recomm     Sequential Mode     Step 1: Upload Firmware     Ste	ended) Parallel update of extenders, executed separately on each I/O board Sequential update mode in order to update specific extenders 22 Update Firmware		
Control	~	Enable Downgrade			
Extended Switch Presets		Enable this	checkbox when downgrading the firmware or updating the currently installed firmware again.		
Status & Updates	^	Update Progress	Update finished Update		
Status - Matrix Firmware Status - Extender Firmware Update - Matrix Firmware Update - Extender Firmware Activate Configuration Miscellaneous System Settlings System Access Switch Network Date and Time Matrix Grid	^	Update Messages 2021-03-12715-1659651 2021-03-127151700.653 2021-03-127151700.653 2021-03-127151700.669 2021-03-127151700.669 2021-03-1271512423.546 2021-03-127152423.546 2021-03-12715243.546 2021-03-127152503.748	Check extender version before update Extender version checked Extender update started Estimated update time: 9 minutes Update on Ports 9-16 completed Update on Ports 4-148 completed Wait for extender initialization Verify extender update Update successful		
EXT Units CPU Devices	^				
CON Devices User Settings	~		Save Update Log		
user settings	· · ·			Default	

Fig. 271 Management software menu Status & Updates - Update Extender Firmware - Parallel Mode -Update

#### Performing the Update in Sequential Mode (Expert Update)

In the Sequential Mode, individual firmware to be updated can be selected/deselected in this menu.

2pen Save Reload Con admin@192.168.100.155	nect <u>D</u> isc	onnect	Activate Edit Mode Remote		Ionitoring Fla	ash Update [	Device Finder System Chec	* Save Status			
View	~ A	Sta	tus & Updates - Updat	e Extender Firmware							
Matrix Port Grid		(	Parallel Mode (recomm Sequential Mode								
Control	_	#	ID	Name	Port	Туре	Device	Current Version	Update Version	Additional select Update	ion option
Control	^	<i>#</i> 01		EXT_010203250	11		CON_010203250	Current version	Opuale version	V	
Extended Switch		01	10203230	EXTCON		EXT	0011_010203250	F03.28.190509	F03.28.190509		
resets				HIDCON		HID		F04.03.201112	F04.03.210122	<b>v</b>	
tatus & Updates	^			EXTMSD		MSD		B02.45.180606	104.03.210122		
tatus - Matrix Firmware		02	40131933	EXT_040131933	16		CON_040131933	502.40.100000		<b>v</b>	
tatus - Extender Firmware		02	40101000	EXTHRCON	10	EXR	0011_040101000	F01.35.190902	F01.37.191128	▼	
Update - Matrix Firmware Update - Extender Firmware				HIDCON		HID		F04.03.201112	F04.03.210122	▼	
				EXTMSD		MSD		B02.51.200422			
ctivate Configuration liscellaneous				HIDCPU		HID		F04.03.201112	F04.03.210122	<b>v</b>	
ystem Settings	~	03	40188132	EXT_040188132	41		CON_040188132			√	
ystem setungs	^			FXTDLCON		EXT	_	S03.00.201203			
lystem				HIDCON		HID		F04.03.201112	F04.03.210122	<b>v</b>	
locess Switch				EZTDLMSD		MSD		B02.03.201211			
letwork		04	□ 12348765	EXT_012348765	42	CON UNIT	CON_012348765			<b>v</b>	
Date and Time Iatrix Grid		2021	-03-15T12:13:27.567	Analyzing of firmware complete							
xtender & Devices XT Units	^										
PU Devices ON Devices											
ser Settings	^										
Isers & Groups											
ssignment	^	E	xtender firmware version conf	lict				S:\Firmware\Publicve	rsion\DracoTera\2021\FW_0	0820400_Default\202	Browse
		N	anual update of EXTMSD / EX	TIMSD recommended						Update	Relo
intual CPU Devices		_									110100

Fig. 272 Management software menu Status & Updates - Update Extender Firmware - Sequential Mode

The following information is displayed in the working area:

Option	Description				
ID	Numerical value of the extender module ID				
Name         Name of the EXT Unit and the extender module firmware					
Port	Port number of the matrix, the extender module is physically connected				
Туре	Type of the CON/CPU Unit and firmware type				
Device	Name of the CON Device/CPU Device the EXT Unit is assigned to				
Current Version	Installed firmware version				
Update Version	Firmware version available for the update				
Update	Select/deselect for firmware update				

Firmware types to be updated or firmware conflicts are highlighted in color:

- Extender firmware version conflict
- Manual update of EXTMSD/EXTIMSD recommended*
- Wrong module (CPU/CON mismatch)
- Undefined type

* Only for firmware versions older than V2.25 (EXTMSD) and V1.13 (EXTIMSD) and only if instructed by the manufacturer's technical support or if the release notes indicate dependencies between extender module firmware files. EXT*MSD requires manual update via the Mini-USB service port at the extender modules.

Option	Description
Expand Tree View	Expand the tree view to show detailed information. This allows to select or deselect individual firmware to be updated.
Collapse Tree View	Collapse the tree view to hide detailed information. An individual selection of firmware to be updated is not possible.
Select All	Select all available firmware to be updated
Deselect All	Select all selected firmware

To update the extender module firmware via sequential update, proceed as follows:

- 1. Click Status & Updates > Update Extender Firmware in the task area.
- 2. Click Activate Edit Mode in the toolbar.
- 3. Select the **Sequential Mode** option in the upper part of the working area.

All updateable firmware will be automatically selected and highlighted in green.

4. Click **Update** in the lower part of the working area to start the update.

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In Sequential Mode the extender module that is being updated is set into the Service Mode, all others continue to run and can be used. The I/O boards are not affected and continue to run. An OSD picture indicates the activation of the Service Mode and is displayed on the monitor connected to the CON Unit that is currently updated.

After update completion of the respective extender module, the Service Mode of the extender module will be quit.

5. After the update, check the messages in the message box to ensure that the updates for all extender modules were installed correctly.

Image: Save         Reload         Conn           20en         Save         Reload         Conn           admin@192.168.100.155         Image: Save         Save         Save         Save	ect <u>D</u> isc	onnect	Activate Edit Mode Re	mote Save Download Upload I	Aonitoring Fla	ash Update [	Device Finder System Chec	k Save Status		
View	^	Sta	tus & Updates - Up	odate Extender Firmware						
Matrix Port Grid			<ul> <li>Parallel Mode (reco</li> <li>Sequential Mode</li> </ul>	mmended) Parallel update of ex Sequential update m			-			
Control										Additional selection options
Control	^	#	ID	Name	Port	Туре	Device	Current Version	Update Version	Update
Extended Switch		01	10203250	EXT_010203250	11	CON UNIT	CON_010203250			
Presets				EXTCON		EXT		F03.28.190509	F03.28.190509	
Status & Updates	~			HIDCON		HID		F04.03.210122	F04.03.210122	
status a opuates	~			EXTMSD		MSD		B02.45.180606		
Status - Matrix Firmware		02	40131933	EXT_040131933	16	CON UNIT	CON_040131933			
Status - Extender Firmware				EXTHRCON		EXR		F01.37.191128	F01.37.191128	
Jpdate - Matrix Firmware Jpdate - Extender Firmware				HIDCON		HID		F04.03.210122	F04.03.210122	
Activate Configuration				EXTMSD		MSD		B02.51.200422		
Miscellaneous				HIDCPU		HID		F04.03.210122	F04.03.210122	
System Settings	~	03	40188132	EXT_040188132	41	CON UNIT	CON_040188132			
				FXTDLCON		EXT		S03.00.201203		
System				HIDCON		HID		F04.03.210122	F04.03.210122	
Access Switch				EZTDLMSD		MSD		B02.03.201211		
Network		04	12348765	EXT_012348765	42	CON UNIT	CON_012348765			
Date and Time		2021	-03-15T12:18:49.775	Firmware update HIDCON on E	dender EXT. (	M0131033 (P	ort: 16) finished			
Matrix Grid			-03-15T12:19:02.661	Firmware update HIDCPU on Ex	-					
Extender & Devices	~	2021	-03-15T12:19:23.526	Firmware update HIDCON on E	tender EXT_0	040188132 (P	ort: 41) finished			
EVE LI-M-			-03-15T12:19:44.619	Firmware update HIDCON on E						
EXT Units CPU Devices			-03-15T12:20:05.627 -03-15T12:20:20.854	Firmware update HIDCON on Ex	-					
CON Devices			-03-15112:20:20.854 -03-15T12:20:36.079	Firmware update HIDCPU on Ex	-					
		2021-03-15T12-20-36.079 Firmware update HIDCPU on Extender EXT_010195232 (Port: 46) finished 2021-03-15T12-20-51.255 Firmware update HIDCPU on Extender EXT_010233201 (Port: 47) finished								
User Settings	^	2021	-03-15T12:21:06.621							
Users & Groups		2021	-03-15T12:21:48.797	Update successful						
Assignment	^	E	xtender firmware version	conflict				S:\Firmware\Publicve	rsion\DracoTera\2021\FW_0	0820400_Default\202 Browse
Virtual CPU Devices		h	lanual update of EXTMSD	/EXTIMSD recommended						Update Reload
Virtual CON Devices		V	Wrong module type (CPU/	CON mismatch)						
Multi-Screen Control			Indefined type							

Fig. 273 Management software menu Status & Updates - Update Extender Firmware - Sequential Mode

6. Click Deactivate Edit Mode in the toolbar.

#### 13.3.4.2 Updating the Extender Module Firmware via Mini-USB

For a parallel flash update of several extender modules, proceed as follows:

- Using mini-USB cables, connect as many extender modules to USB ports on your computer running the management software as USB ports are available.
- ➡ Run the management software as often as extender modules are connected.
- Proceed as described below and select a different extender module to be updated in each running management software.

To perform a firmware update of extender modules using the management software, proceed as follows.

- 1. Run the management software.
- 2. Click Flash Update in the toolbar.
- 3. Click Extender Update via Mini-USB flash drive.

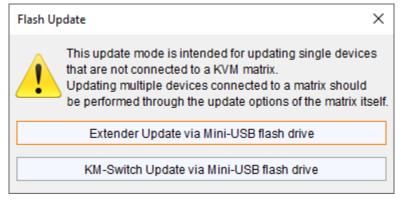


Fig. 274 Management software Flash Update

The update dialog appears.

- 4. Connect the extender module to your computer running the management software using a Mini-USB cable.
- 5. Power up the extender module.
- 6. Click Search Extender.

Extender Update via Mini-USB fla	ash drive			×			
Steps         1. Select Extender         2. Identify Extender Type         3. Update Extender         4. Firmware Check	Select Extender         1. Power up the extender and connect it to your computer via mini-USB connector.         2. Then press the Search Extender key.         3. Select the detected extender.         Search Extender key.						
	#	Drive	Name	Description			
				< <u>B</u> ack Next > Einish Cancel			

Fig. 275 Management software Flash Update - Search Extender

The flash drive of the connected extender module is displayed in the drive overview.

7. Select the flash drive of the extender module to be updated.

#### 8. Click Next >.

	JSB flash drive			
iteps Select Extender Identify Extender Type Update Extender Firmware Check	2. Then		to your computer via mini-USB conner Search Extender	ctor.
	# 01 FA	Drive	Name 10179097 (F:)	Description USB-Laufwerk
	4			< Back Next≻ Finish Car

Fig. 276 Management software Flash Update - Select Extender

The identification of the extender module type automatically starts.

After successful identification, the extender module specific firmware is displayed in the **Status Log** area.

9. Click **Next >** after successful identification.

Cancel

Fig. 277 Management software Flash Update - Identify Extender Type

10. Click **Browse...** to go to the location the update files are saved.

Extender Update via Mini-USB f	lash drive					×
Steps         1. Select Extender         2. Identify Extender Type         3. Update Extender         4. Firmware Check	2. Start the update	).		quiring any update will be	automatically highlighted.	
	Firmware File (*.efv # Na	S:\Firmwame	Type	Current Version	Update Version	Browse Selected
	Update Progress			0%		Update
					< <u>B</u> ack Next>	Einish Cancel

Fig. 278 Management software Flash Update - Update Extender - Select files

11. Select the update files and click **Select** in the selection dialog.

The firmware available for the extender module is displayed.

Firmware requiring any update will be automatically highlighted.

12. Click Update to start the update process.

After the update of an MSD firmware, the extender module will automatically be restarted.

Extender Update via Mini-USB fla <u>Steps</u> 1. Select Extender 2. Identify Extender Type 3. Update Extender 4. Firmware Check	<u>Updat</u> 1. S	e Extender	e file (*.efw). Modules	s requiring any update will	be automatically highlighted.	×
	Firmv	are File (*.efw)	S:\Firmware\Public	version\DracoTera\2021\F	FW_00870400_Default\202103	329_Extender Browse
	#	Name	е Туре	Current Version	Update Version	Selected
	01	EXTRCPU	EXR	B02.22.180308	F02.26.191128	V
	02	HIDCPU	HID	B04.01.190206	F04.03.210122	$\checkmark$
	03	EXTMSD	MSD	B02.45.180606	B02.51.200422	$\checkmark$
		e Progress	.110 Firmware	( files loaded	1%	Update
					< <u>B</u> ack Next	t > Einish Cancel

Fig. 279 Management software Flash Update - Update Extender - Load files

A green highlighted message appears when the firmware update has been completed.

#### 13. Click **Next >** to verify the update.

<ul> <li>Select Extender</li> <li>Identify Extender Type</li> <li>Update Extender</li> <li>Firmware Check</li> </ul>	1. S	e Extender elect the firmware tart the update.	e file (*.efw). Modules	s requiring any update will t	be automatically highlighted.		
		are File (*.efw)			V_00870400_Default\2021032	_	Browse.
	#	Name		Current Version	Update Version	Selec	
	01	EXTRCPU	EXR	B02.22.180308	F02.26.191128	V	
	02	HIDCPU	HID	B04.01.190206 B02.45.180606	F04.03.210122 B02.51.200422	√ √	
	Update	e Progress		100	9%		Updat
	2021	-03-31T14:34:41	.187 Update o	f EXTMSD completed			
	0004	-03-31T14:34:54	.037 Extender	restarted			
				Update of EXTRCPU completed			
	2021	-03-31T14:35:05					
	2021 2021	-03-31T14:35:26	.720 Update o	f HIDCPU completed			
	2021 2021 2021		.720 Update o .944 Finished		payt to varify the undate		

Fig. 280 Management software Flash Update - Update Extender - Firmware update completed

- 14. Click Next >.
- 15. Manually power off the extender module.
- 16. Power on the extender module.

The extender module restarts, and validation begins automatically. The completion of the validation is displayed in the **Status Log** area.

Extender Update via Mini-US	B flash drive		×
Steps	Firmware Check		
Select Extender     Identify Extender Type     Update Extender     Firmware Check	1. Extender has to be manua Status Log	lly power cycled by user. Extender verification will automatically start.	
	2021-03-31T14:36:39.425	Extender is switched off. Please reconnect power supply	
	2021-03-31T14:37:22.395	Restart successful	
	2021-03-31T14:37:24.270	Start firmware verification	
	2021-03-31T14:37:25.303	EXTRCPU update successful	
	2021-03-31T14:37:25.303	HIDCPU update successful	
	2021-03-31T14:37:25.303	EXTMSD update successful	
	2021-03-31T14:37:25.303	Firmware verification completed	
		< <u>B</u> ack Next> E	inish Cancel

Fig. 281 Management software Flash Update - Firmware Check - Firmware verification completed

17. Click Finish.

The firmware update of the extender module is completed.

A dialog appears offering to update another extender module.

18. Click **Yes** to update another extender module or click **No** and **Finish** to quit the Update dialog.

Extender Update via Mini-USB fla	sh drive			×
Steps	Firmware Check			
Select Extender     Identify Extender Type     Update Extender     Firmware Check	1. Extender has to be man Status Log	ually power cycled by user. Extender ver	ification will automatically start.	
	2021-03-31T14:36:39.425	Extender is switched off. Please re	connect power supply	
	2021-03-31T14:37:22.395	Restart successful		
	2021-03-31T14:37:24.270	Start firmware verification		
	2021-03-31T14:37:25.303	EXTRCPU update successful		
	2021-03-31T14:37:25.303	HIDCPU update successful		
	2021-03-31T14:37:25.303	EXTMSD update successful		
	2021-03-31T14:37:25.303	Firmware verification completed		
		Extender Update	×	
		Do you want to update and	ther extender?	
			< <u>B</u> ack Next > Einish	Cancel

Fig. 282 Management software Flash Update - Firmware Check - Complete firmware update

### 13.3.5 Resetting the Matrix and the Boards

#### 13.3.5.1 Resetting the Matrix to the Factory Settings

#### NOTICE

If you perform a (factory) reset, all current settings and all configurations stored in the matrix will be lost. This also applies to the network parameters (reset to default IP-address) and the admin password.

#### NOTICE

If a firmware update has been carried out since the delivery, the latest installed firmware version is retained.

To perform a reset of the matrix, proceed as follows:

1. Select Device > Advanced Service > Factory Reset > Factory Reset in the menu bar.

An access window appears.

- 2. Enter the username and password of the administrator.
- 3. Click Ok.

Authentication required	×
User	admin
Password	****
	<u>O</u> k C <u>a</u> ncel

Fig. 283 Management software dialog Log in administrator

A query to reset the matrix appears.

4. Click **Yes** to reset the device.

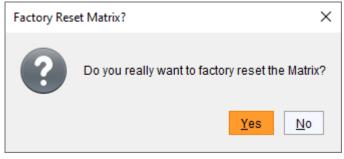


Fig. 284 Management software dialog Factory Reset Matrix

The matrix is reset to factory settings.

#### 13.3.5.2 Resetting an I/O Board to the Factory Settings

#### NOTICE

If you perform a (factory) reset, all current settings and all configurations of the I/O board will be lost.

#### NOTICE

If a firmware update has been carried out since the delivery, the latest installed firmware version is retained.

To perform a reset of an I/O board, proceed as follows:

- 1. Select **View > Matrix** in the task area.
- Click with the right mouse button on the symbol of an extender module of the I/O board to be reset. A context menu appears.
- 3. Select the Factory Reset I/O Board function in the context menu.

**Note:** The I/O board will be restarted immediately without user confirmation. The I/O board will disappear for a short time in the overview. When the I/O board and the extender modules are visible again, the reset of the I/O board was successful.

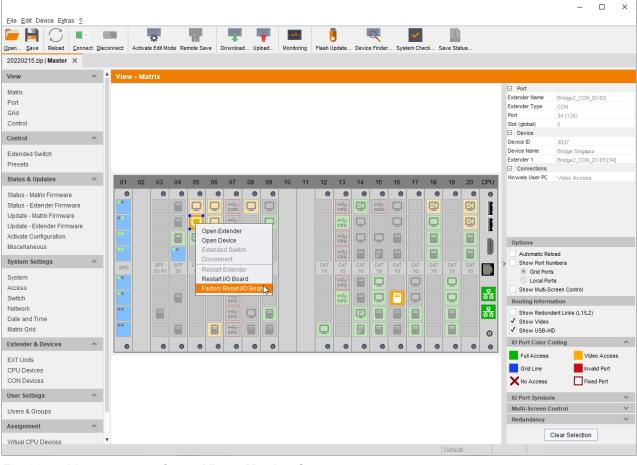


Fig. 285 Management software View - Matrix - Context menu

## 14 Troubleshooting

The following chapters provide help in case of problems with the matrix. The content of this help is based on an already functioning extender module. Before operating your extender modules with the matrix, please make sure that the extender modules work via a direct point-to-point connection. A Cat X or fiber optic coupler can be used to support this. In case of problems in this regard, please refer to the manuals of the respective extender modules if necessary.

## 14.1 External Failure

Diagnosis	Possible reason	Measure
The matrix cannot be started anymore.	Fuse at the standard appliance outlet.	➡ Check the fuse.

## 14.2 Video Interference

Diagnosis	Possible reason	Measure
Opening of the OSD is not possible.	No OSD jumper set.	➡ Set jumper 11 on the CON Unit.
Incorrect video display.	Cable connection disturbed.	<ul> <li>Check the connection, length, and quality of the interconnect cable to the units.</li> </ul>

## 14.3 Malfunction of Fans

Diagnosis	Possible reason	Measure
Fans only run under full load.	Communication to fan tray is not working.	<ul> <li>Remove and reinstall the fan tray.</li> <li>Swap both fan trays to the other slot.</li> <li>Restart the matrix.</li> </ul>
Fans do not run, and the LED <b>OK</b> is on.	Fans defective.	<ul> <li>Contact your distributor.</li> </ul>
Fans do not run, and the LED <b>OK</b> is off.	Power supply.	Check power supply and power connection.

## 14.4 Malfunction of Power Supply Units

Diagnosis	Possible reason	Measure
The matrix cannot be started.	Power supply units are not locked correctly.	<ul> <li>Check lock and plug-in of the power supply units.</li> </ul>
	No power voltage available.	<ul> <li>Check if the power supply cables are connected correctly.</li> </ul>
	Power supply units are not switched on.	Check the switch on the power supply units.

## 14.5 Network Error

Diagnosis	Possible reason	Measure
Network settings are not assumed after editing.	Restart of the matrix not yet completed.	<ul> <li>Restart the matrix.</li> </ul>

## 14.6 Failure at the Matrix

Diagnosis	Possible reason	Measure
Serial control is not impossible or only restrictedly possible.	Computer and matrix are operating at different Baud rates.	<ul> <li>Change the Baud rate in the matrix and computer (see chapter 15.1.3, page 380).</li> </ul>
Port definition as USB 2.0 invalid.	Restart of the matrix not yet completed.	➡ Restart the matrix.
No OSD access possible.	Wrong Hot Key.	<ul> <li>Reset the Hot Key if necessary (see chapter 4.1, from page 47).</li> </ul>

## 14.7 Failure at the Interconnection Port

### 14.7.1 Error Indication at the 1G Cat X Port

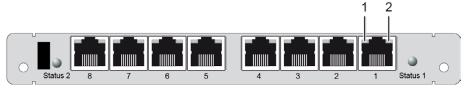


Fig. 286 Interface side - Link Connection LEDs, Draco tera I/O board, 1G Cat X

Diagnosis	Possible reason	Measure
LED 2 is flashing orange, and LED 1 is off.	Connections CON Unit, matrix, and CPU Unit.	<ul> <li>Check connecting cables and ports (cable break, CPU/CON Unit offline).</li> <li>Connect a 3G extender module only to a 3G port.</li> <li>Contact your distributor, if necessary.</li> </ul>

### 14.7.2 Error Indication at the 3G Cat X Port

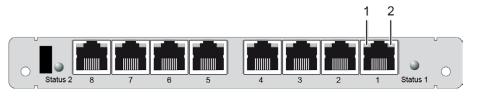


Fig. 287 Interface side - Link Connection LEDs, Draco tera I/O board, 3G Cat X

Diagnosis	Possible reason	Measure
LED 2 is flashing red, and LED 1 is off.	Connections CON Unit, matrix, and CPU Unit.	<ul> <li>Check connecting cables and ports (cable break, CPU/CON Unit offline).</li> <li>Connect a 1G extender module only to a 1G port.</li> <li>Contact your distributor, if necessary.</li> </ul>

### 14.7.3 Error Indication at the Fiber Port

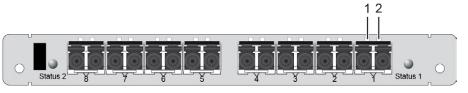


Fig. 288 Interface side - Link Connection LEDs, Draco tera I/O board, 1G and 3G fiber

Diagnosis	Possible reason	Measure
LED 1 or LED 2 flashing red	Connections CON Unit, matrix, and CPU Unit.	<ul> <li>Check connecting cables and ports (cable break, CPU/CON Unit offline).</li> </ul>
		<ul> <li>Connect a 1G extender module only to a 1G port.</li> </ul>
		<ul> <li>Connect a 3G extender module only to a 3G port.</li> </ul>
		<ul> <li>Contact your distributor, if necessary.</li> </ul>

## 14.8 Blank Screen

Diagnosis	Possible reason	Measure		
The LEDs of the power supply units are off.	Power supply voltage.	Check the connection to the power network.		
Monitors remains dark after switching	Switching to a port without connected source.	<ul> <li>Switch to a port with a connected source.</li> </ul>		
operation	Connections CON Unit, matrix, and CPU Unit.	<ul> <li>Check connecting cables and ports (no cable, cable break, CPU/CON Unit offline, CPU/CON Unit connected to the wrong port, see chapter 14.7, from page 378).</li> </ul>		



For further measures see user manual of the respective extender module series.

## 15 Specifications

### 15.1 Interfaces

#### 15.1.1 Controller Board

#### 15.1.1.1 RJ45 (Network)

The devices offer a 1000BASE-T interface to establish a network connection to a computer. All four wire pairs are used in both directions. The cabling is suitable for a full duplex operation.

#### 15.1.2 HDMI (for 480-CTRL)

The HDMI output is used to display an on-screen configuration menu on a connected monitor.

Parameters	Values
Resolution with frame rate	1920 px x 1080 px @ 60 Hz
Color depth/color component	6 bit (4:4:4)
Effective data rate	Max. 2.7 Gbit/s

#### 15.1.3 RS-232 (Serial)

Communication takes place with a transmission speed of up to 115.2 kBd, regardless of the file format. The transmission takes place with eight data bits and a stop bit, but without a parity bit. Limited hardware handshake (DSR) is possible.

#### 15.1.4 I/O Boards

#### 15.1.4.1 RJ45 (Interconnect 1G)

Cat X devices offer a 1000BASE-T interface to establish an interconnection between Cat X devices. All four wire pairs are used in both directions. The cabling is suitable for a full duplex operation.

#### 15.1.4.2 RJ45 (Interconnect 3G)

Cat X devices offer a 2,5GBASE-T interface to establish an interconnection between Cat X devices. All four wire pairs are used in both directions. The cabling is suitable for a full duplex operation.

#### 15.1.4.3 Fiber SFP Type LC (Interconnect)

The communication of fiber devices is performed via Gigabit SFPs that are connected to suitable fibers fitted with connectors type LC (see (chapter 15.2.2, page 382).

#### NOTICE

The correct function of the device can only be guaranteed with SFPs provided by the manufacturer.

#### NOTICE

SFP modules can be damaged by electrostatic discharge (ESD).

➡ Please consider ESD handling specifications.

## 15.2 Interconnect Cable

### 15.2.1 Cat X

#### NOTICE

#### **Transmission problems**

Routing over an active network component, such as an Ethernet Hub, Router or Matrix, is not allowed. Operation with several patch fields is possible.

- ➡ Establish a point-to-point connection.
- Avoid routing Cat X cables along power cables.

#### NOTICE

#### Exceeding the limit of the device class

The use of unshielded Cat X cables with higher electromagnetic emissions/radiation can exceed the limit values for the specified device class.

Correctly install shielded Cat X cable throughout interconnection, to maintain regulatory EMC compliance.

#### NOTICE

#### Exceeding limit values for electromagnetic radiation

The limit values for the electromagnetic radiation of the device are complied with if ferrites are mounted on both sides of all Cat X cables near the device. With installed ferrites, the devices meet the EU guidelines for electromagnetic compatibility. The operation of the devices without mounted ferrites leads to a loss of conformity with the EU directives.

Mount ferrites on both sides of all Cat X cables near the device to maintain regulatory EMC compliance.

#### Type of Interconnect Cable

The KVM extender modules require interconnect cabling specified for Gigabit Ethernet (1000BASE-T). The use of solid core (AWG24), shielded, Cat 5e (or better) is recommended.

Type of cable	Specification
Cat X installation cable AWG24	S/UTP (Cat 5e) cable according to EIA/TIA-568, standard 568-A or 568-B. Four pairs of wires AWG24. We recommend using standard 568-A, but standard 568-B is also supported.
Cat X patch cable AWG26/8	S/UTP (Cat 5e) cable according to EIA/TIA-568, standard 568-A or 568-B. Four pairs of wires AWG26/8. We recommend using standard 568-A, but standard 568-B is also supported.

The use of flexible cables (patch cables) type AWG26/8 is possible; however, the maximum possible extension distance is halved.

#### Maximum Transmission Range for Video and USB-HID Signals (End-to-End Connection)

Type of cable	Maximum transmission range
Cat X installation cable AWG24	140 m (460 ft)
Cat X patch cable AWG26/8	70 m (230 ft)

### 15.2.2 Fiber

### NOTICE

#### **Transmission problems**

Routing over an active network component, such as an Ethernet Hub, Router or Matrix, is not allowed. Operation with several patch fields is possible.

- ➡ Establish a point-to-point connection.
- ➡ Avoid routing Cat X cables along power cables.

#### Type of Interconnect Cable*

Type of cable	Specification
Single-mode 9 µm	<ul> <li>Two fibers 9 µm</li> <li>I-V(ZN)H 2E9 (in-house patch cable)</li> <li>I-V(ZN)HH 2E9 (in-house breakout cable)</li> <li>I/AD(ZN)H 4E9 (in-house or outdoor breakout cable, resistant)</li> <li>A/DQ(ZN)B2Y 4G9 (outdoor cable, with protection against rodents)</li> </ul>
Multi-mode 50 µm	<ul> <li>Two fibers 50 µm</li> <li>I-V(ZN)H 2G50 (in-house patch cable)</li> <li>I/AD(ZN)H 4G50 (in-house or outdoor breakout cable, resistant)</li> </ul>

* Cable notations according to VDE

#### Maximum Transmission Range for Video and USB-HID Signals (End-to-End Connection)

Type of cable	Maximum transmission range
Single-mode 9 µm	10,000 m (32,808 ft)
Single-mode 9 µm XV	5,000 m (16,404 ft)
Multi-mode 50 µm (OM3)	1,000 m (3,280 ft)
Multi-mode 50 µm	400 m (1,312 ft)

## i

Using single-mode SFPs with multi-mode fibers, the ranges can be increased.

#### **Type of Connector**

Connector	Туре
Plug-in connector	LC-Connector

## 15.3 Connector Pinouts

### 15.3.1 Controller Board

#### 15.3.1.1 USB, Type A

Connector	Pin	Signal	Color	
1234	1	+5 V (DC)	Red	
	2	D -	White	
	3	D +	Green	
	4	GND	Black	

#### 15.3.1.2 HDMI

Connector	Pin	Signal	Pin	Signal
19, 17, 1	1	TMDS data 2+	11	TMDS clock GND
<b>_</b>	2	TMDS data 2 GND	12	TMDS clock-
18, 16, 2	3	TMDS data 2-	13	CEC
	4	TMDS data 1+	14	Not connected
	5	TMDS data 1 GND	15	DDC Input (SCL)
	6	TMDS data 1-	16	DDC Output (SDA)
	7	TMDS data 0+	17	DDC/CEC/HEC GND
	8	TMDS data 0 GND	18	+5 V (DC) high impedance
	9	TMDS data 0-	19	Hot Plug recognition
	10	TMDS clock+	-	-

#### 15.3.1.3 RJ45 (Network)

Connector	Pin	Signal	Pin	Signal
	1	D1+	5	Not connected
	2	D1-	6	D2-
	3	D2+	7	Not connected
81	4	Not connected	8	Not connected

### 15.3.1.4 RJ10 (Serial), DCE

Connector	Pin	Signal	Pin	Signal
14	1	TxD	3	Not connected
	2	RxD	4	GND

### 15.3.2 I/O Boards

### 15.3.2.1 RJ45 (Interconnect)

Connector	Pin	Signal	Pin	Signal
	1	D1+	5	D3-
	2	D1-	6	D2-
	3	D2+	7	D4+
81	4	D3+	8	D4-

#### 15.3.2.2 Fiber SFP Type LC

Connector	Diode	Signal
	1	Data OUT
	2	Data IN

### 15.3.2.3 HD-BNC (SDI CPU)

Connector	Diode	Signal
	1	GND
	2	Data IN
	3	GND
	4	Data OUT

### 15.3.2.4 HD-BNC (SDI CON)

Connector	Diode	Signal
	1	GND
	2	Data OUT
	3	GND
	4	Data OUT

## 15.4 Power Supply, Current Draw and Power Consumption

### 15.4.1 Draco tera enterprise Chassis

The following table contains the current draw and power consumption for the empty chassis with one included controller board.

Product type	Current draw	Power consumption	Max. voltage	Frequency
K480-048-R1	4,300 mA	63 W	90 to 264 V	47-63 Hz
K480-080-R1	6,634 mA	96 W	100 to 240 V	50/60 Hz
K480-152-R1	17,467 mA	241 W	100 to 240 V	50/60 Hz
K480-160-R1	17,467 mA	241 W	100 to 240 V	50/60 Hz
K480-288-R1	17,467 mA	241 W	100 to 240 V	50/60 Hz
K480-576-R1	23,267 mA	304 W	100 to 240 V	50/60 Hz
K480-576S-R1	23,267 mA	304 W	100 to 240 V	50/60 Hz
K480-576-R2**	tbd	tbd	tbd	tbd
K480-576S-R2**	tbd	tbd	tbd	tbd
* Available on dema	and from Q2/2022.		·	

The following table contains the maximum current draw and power consumption of matrices in relation to the mandatory/delivered/maximum amount of powered power supply units.

	With mandat supply units	2 C	With delivered supply units			
Product type	Current draw	Power con- sumption	Current draw	Power con- sumption	Current draw	Power con- sumption
K480-048-R1	25,000 mA	362 W	25,000 mA	362 W	50,000 mA	723 W
K480-080-R1	25,000 mA	362 W	25,000 mA	362 W	50,000 mA	723 W
K480-152-R1	51,000 mA	690 W	100,000 mA	1,380 W	150,000 mA	2,070 W
K480-160-R1	51,000 mA	690 W	100,000 mA	1,380 W	150,000 mA	2,070 W
K480-288-R1	73,000 mA	984 W	141,666 mA	1,968 W	212,500 mA	2,952 W
K480-576-R1*	175,000 mA	2,283 W	350,000 mA	2,283 W	350,000 mA	4,566 W
K480-576S-R1*	175,000 mA	2,283 W	350,000 mA	2,283 W	350,000 mA	4,566 W
K480-576-R2*/**	tbd	tbd	tbd	tbd	tbd	tbd
K480-576S-R2*/**	tbd	tbd	tbd	tbd	tbd	tbd

* It is mandatory to operate all matrices K480-576 with minimum 2 power supply units.

** Available on demand from Q2/2022.



The redundancy of the power supplies is lost if too many cards with high current draw/power consumption are used in the chassis. For limitations see the Draco System Designer under <a href="https://dsd.ihse.com/designer">https://dsd.ihse.com/designer</a>

### 15.4.2 Draco tera enterprise I/O and Controller Boards

Product type	Maximum current draw	Power consumption per board in chassis K048 to K576-R1*
480-C8R1	1.000 mA	17 to 23 W
480-C8X	1.700 mA	27 to 32 W
480-C8BDG	1.000 mA	17 to 23 W
480-S8R1	1.000 mA	17 to 23 W
480-S8X	1.000 mA	17 to 23 W
480-S8BDG	1.000 mA	17 to 23 W
480-UNI16	1.350 mA	22 to 27 W
480-GRD-S8-R1	800 mA	14 to 20 W
480-CTRL2	800 mA	14 to 20 W
480-576-SC**	20 mA	3 to 10 W

* Values will probably differ with the new power supply unit of 480-576-R2.

** Available on demand from Q2/2022.

## 15.5 Environmental Conditions and Emissions

Parameter	Value				
Operating Temperature	5 to 45 °C (41 to 113 °F)				
Storage Temperature	-25 to 60 °C (-13 to 140 °F)				
Relative Humidity	Max. 80% non-condensing				
Operating Altitude	Max. 2.500 m (7,500 ft)				
Heat Dissipation	Corresponds to power consumption in V	Corresponds to power consumption in Watt (W)			
Sound Pressure Level	K480-048-R1	max. 58 dBA per fan			
(SPL)	K480-080-R1	max. 46 dBA per fan			
	152-R1				
	160-R1	-			
	288-R1	max. 65 dBA per fan			
	K480-576-R1/576S-R1				
	K480-576-R2/576S-R2	1			

## 15.6 Dimensions

## 15.6.1 Draco tera enterprise Chassis

Product/ Packaging	Dimension	Dimension incl. accessories and shipping box
K480-048-R1	483 x 133 x 230 mm (19.0" x 5.2" x 9.1")	640 x 570 x 316 mm (25.2" x 22.4" x 12.4")
K480-080-R1	483 x 178 x 230 mm (19.0" x 7.0" x 9.1")	640 x 570 x 360 mm (25.2" x 22.4" x 14.2")
K480-152-R1	483 x 400 x 330 mm (19.0" x 15.7" x 13.0")	650 x 680 x 540 mm (25.6" x 26.8" x 21.3")
K480-160-R1	483 x 400 x 330 mm (19.0" x 15.7" x 13.0")	650 x 680 x 540 mm (25.6" x 26.8" x 21.3")
K480-288-R1	483 x 578 x 330 mm (19.0" x 22.8" x 13.0")	650 x 680 x 760 mm (25.6" x 26.8" x 29.9")
K480-576-R1	483 x 1108 x 435 mm (19.0" x 43.6" x 17.1")	800 x 1200 x 950 mm (31.5" x 47.4" x 37.4")
K480-576S-R1	483 x 1108 x 435 mm (19.0" x 43.6" x 17.1")	800 x 1200 x 950 mm (31.5" x 47.4" x 37.4")
K480-576-R2*	483 x 1108 x 435 mm (19.0" x 43.6" x 17.1")	800 x 1200 x 950 mm (31.5" x 47.4" x 37.4")
K480-576S-R2*	483 x 1108 x 435 mm (19.0" x 43.6" x 17.1")	800 x 1200 x 950 mm (31.5" x 47.4" x 37.4")

## 15.6.2 Draco tera enterprise Boards

Product		Dimension incl. accessories and shipping box
Boards	205 x 170 x 20 mm	250 x 191 x 38 mm

## 15.7 Weight

### 15.7.1 Draco tera enterprise Chassis

Product	Weight of chassis with minimum equipment*	Max. weight of fully equipped chassis	Weight of fully equipped chassis incl. accessories and shipping box
K480-048-R1	5.1 kg (11.2 lb)	9.2 kg (20.3 lb)	12.6 kg (27.8 lb)
K480-080-R1	9.8 kg (21.6 lb)	15.4 kg (34 lb)	18.8 kg (41.4 lb)
K480-152-R1	23 kg (50.7 lb)	32.4 kg (71.4 lb)	35.8 kg (78.9 lb)
K480-160-R1	22.8 kg (50.3 lb)	32.3 kg (71.2 lb)	35.7 kg (78.7 lb)
K480-288-R1	27.7 kg (61.1 lb)	43.3 kg (95.5 lb)	46.7 kg (103 lb)
K480-576-R1	57.1 kg (125.9 lb)	87.8 kg (193.6 lb)	95.7 kg (211 lb)
K480-576S-R1	57.1 kg (125.9 lb)	87.8 kg (193.6 lb)	95.7 kg (211 lb)
K480-576-R2**	57.1 kg (125.9 lb)	87.7 kg (193.4 lb)	95.6 kg (210.8 lb)
K480-576S-R2**	57.1 kg (125.9 lb)	87.7 kg (193.4 lb)	95.6 kg (210.8 lb)

* Minimum equipment, see chapter 3.3.1, page 20.

** Available on demand from Q2/2022.

## 15.7.2 Draco tera enterprise I/O and Controller Boards

Product	Max. weight	Weight incl. shipping box
480-C8R1	230 g	280 g
480-C8X	230 g	280 g
480-C8BDG	230 g	280 g
480-S8R1	366 g	416 g
480-S8X	366 g	416 g
480-S8BDG	366 g	416 g
480-UNI16	314 g	364 g
480-GRD-S8-R1	205 g	255 g
480-CTRL2	204 g	254 g
480-576-SC	170 g	220 g

## 15.8 MTBF

The following table contains the mean time between failure (MTBF) in power-on hours (POH). The estimate is based on the FIT rates of the parts included. FIT rates are based on normalized environmental conditions of T =  $60^{\circ}$ C and activation energy (E_a) of 0.7 eV. Calculations are based on 90% confidence limit.

We estimate that inside the housing, temperature will be 15°C higher than the ambient temperature. Therefore, the MTBF calculation refers to an ambient temperature of 45°C. The humidity is limited to 60%.

Under these standard conditions, the MTBF for the components of the Draco tera enterprise matrices are estimated as follows:

Component	MTBF
Draco tera chassis K480-48-R1	350,000 POH
Draco tera chassis K480-80-R1	320,000 POH
Draco tera chassis K480-152-R1/160-R1	310,000 POH
Draco tera chassis K480-288-R1	260,000 POH
Draco tera chassis K480-576-R1	72,000 POH
Draco tera chassis K480-576S-R1	50,000 POH
Draco tera chassis K480-576-R2*	tbd
Draco tera chassis K480-576S-R2*	tbd
Draco tera Controller Board CTRL2	480,000 POH
Draco tera I/O Board Cat X	410,000 POH
Draco tera I/O Board SFP	500,000 POH
Draco tera power supply unit K480-048-R1/080-R1	130,000 POH
Draco tera power supply unit K480-152-R1/160-R1/288-R1	200,000 POH
Draco tera power supply unit K480-576-R1/576S-R1	500,000 POH
Draco tera power supply unit K480-576-R2/576S-R2*	tbd
* Available on demand from Q2/2022.	·

## 16 Technical Support

Prior to contacting support, please ensure you have read this manual, and then installed and set-up your matrix as recommended.

### 16.1 Support Checklist

To efficiently handle your request, it is necessary that you complete a support request checklist (<u>Download</u>). Please ensure that you have the following information available before you call:

- Company, name, phone number and email,
- Type and serial number of the device (see bottom of the device),
- Date and number of sales receipt and name of distributor, if necessary,
- Issue date of the existing manual,
- Nature, circumstances, and duration of the problem,
- Components included in the system (such as graphic source, OS, graphic card, monitor, USB-HID/USB 2.0 devices, interconnect cable) including manufacturer and model number,
- Results from any testing you have done.

## 16.2 Shipping Checklist

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- 1. To return your device, you need an RMA number (Return-Material-Authorization). Therefore, please contact your distributor.
- 2. Package your devices carefully. Add all pieces which you received originally. Preferably use the original box.
- 3. Note your RMA number visibly on your shipment.

Devices that are sent in without an RMA number will not be accepted. The shipment will be sent back without being opened; postage unpaid.

## 17 Certificates/Directives

## 17.1 North American Regulatory Compliance

This equipment has been found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Shielded cables must be used with this equipment to maintain compliance with radio frequency energy emission regulations and ensure a suitably high level of immunity to electromagnetic disturbances.

All power supplies are certified to the relevant major international safety standards.

## 17.2 WEEE

The manufacturer complies with the EU Directive 2012/19/EU on the prevention of waste electrical and electronic equipment (WEEE).

The device labels carry a respective marking.

## 17.3 Product Safety

The product safety of the following devices is proven by the compliance to the listed standards.

Туре	Standards
K480-288	• EN 60950-1/A12:2011
K480-160	• IEC 60950-1/A1:2010
K480-080	• UL 60950-1-2007
K480-040	<ul> <li>CAN/CSA-C22.2 No. 60950-1:2007</li> </ul>

The compliance to the standards is verified and confirmed by TÜV Süd, Germany.



# 18 Glossary

The following terms are commonly used in this manual or in video and KVM technology.

Term	Description
Auto Disconnect	Matrix function that allows an automatic disconnect between a CON Device and a CPU Device if the OSD is opened via this CON Device.
Auto Logout	Matrix function that describes the duration of inactivity after the user has been logged out from the OSD at this CON Device.
Cat X	Interface to connect any Cat 5e (Cat 6, Cat 7) cable.
CON Device	Logical object that summarizes several EXT Units of physical extender modules (CON Units) to switch more complex sink systems via matrix.
CON Timeout	Matrix function that allows an automatic disconnect of the own CON Device from the connected CPU Device after a predefined time.
CON Unit	Decoder extender module to connect to the console (monitor(s), keyboard, and mouse; optionally also with USB 2.0 devices).
Console	Monitor, keyboard, mouse, media control, external switching solution, etc.
Console ACL	Console Access Control List is a list that shows the respective switching rights for the various CON Devices.
CPU Auto Connect	Matrix function that allows an automatic connection establishment between the own CON Device and a random CPU Device that is available.
CPU Device	Logical object that summarizes several EXT Units of physical extender modules (CPU Units) to switch more complex source systems via matrix.
CPU Timeout	Matrix function that allows the user to disconnect after a predefined period of inactivity from the respective CPU Device.
CPU Unit	Encoder extender module to connect to a source.
DDC	Display Data Channel (DDC) is a serial communication interface between monitor and source. It allows a data exchange via monitor cable and an automatic installation and configuration of a monitor driver by the operating system.
Dual Access	A system to operate a source from two sinks (consoles).
Dual-Head	A system with two video connections
EXT Unit	Logical object for representing and managing an extender module physically connected directly to the matrix. Add-on modules, if applicable, are included in the EXT Unit of the respective extender module. Dual-Head extender modules will be managed as two independent EXT Units.
Fiber	Interface to connect single-mode or multi-mode fiber cables.
Force Connect	Matrix function that allows to switch with the own CON Device to a CPU Device that is already used and in doing so to take keyboard and mouse control. The connected CON Device so far loses K/M control but keeps video control.
Force Disconnect	Matrix function that allows to switch with the own CON Device to a CPU Device that is already used and in doing so to take KVM control. The connected CON Device so far loses complete KVM control.
HDMI	An interface for an all-digital transmission of audio and video data.
KVM	Keyboard, video, and mouse.
Keyboard Connect	Matrix function that allows taking over the keyboard control of an inactive CON Device.
Macro Keys	Programmable keys that can execute a stringing together of commands to the matrix.

Term	Description
Mouse Connect	Matrix function that allows taking the mouse control of an inactive CON Device.
MTBF	Mean Time Between Failure (MTBF) is measured in power-on hours.
Multi-mode	50 μm multi-mode fiber cable.
MSC	Control of USB-HID of up to eight sources at one sink with only one connected mouse or keyboard. The sink can consist of up to eight monitors, or up to sixteen monitors when operating Dual-Head Sources. In a matrix system, Multi-Screen Control (MSC) can be set up at multiple sinks.
Non-Blocking Access	Matrix configuration where no user can be disturbed by an activity of another user.
OSD	The On-Screen-Display is used to display information or to operate a device.
OSD Timeout	Matrix function that closes the OSD automatically after a predefined period of inactivity.
РОН	Power-on hours corresponds to the average operating time
Quad-Head	A system with four video connections
Release Time	Matrix function that allows a CON Device that is connected with the same CPU Device to release the K/M control after a predefined time.
Service Mode	Defined maintenance condition that allows updating of extender modules that are connected to the matrix.
SFP	SFPs (Small Form Factor Pluggable) are pluggable interface modules for Gigabit connections. SFP modules are available for Cat X and fiber interconnect cables.
Single-Head	A system with one video connection
Single-mode	9 μm single-mode fiber cable
Tie Line	Communication connection to and between extender modules in a network environment.
USB-HID	<ul> <li>USB-HID devices (Human Interface Device) allow for data input. There is no need for a special driver during installation; "New USB-HID device found" is reported.</li> <li>Typical USB-HID devices include keyboards, mice, graphics tablets and touch screens. Storage, video, and audio devices are <b>not</b> HID.</li> </ul>
User ACL	User Access Control List is a list that shows the respective switching rights for the various users.
Video Sharing	Matrix function that allows switching from the user's CON Device to any CPU Device with video.

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# 20 Change log

This table offers an overview of the most important changes available through firmware updates, such as new functions, changed configuration or operation.

Edition	Date	Firmware version	Software version	Chapter	New functions/changes
REV01.01	2022-08-15	Latest version, see chapter 1.1	V5.1.0.0 2022-01-17	3.5.1.6, 15.3.2.4	Changed: figure, figure legend and part number Added: pinout
REV01.00	2022-02-28	Latest version, see chapter 1.1	V5.1.0.0 2022-01-17		Initial user manual, completely reworked, see Release Notes