ihse.

PRODUCT CATALOG 2022/2023

SECURE KVM SOLUTIONS ■ IP ACCESS ■ MISSION CRITICAL 24/7

IHSE CONTACT

Sales
Email: sales@ihse.de
Phone: +49 7546 9248-42

Order Processing
Email: order@ihse.de
Phone: +49 7546 9248-41

Tech Support
Email: techsupport@ihse.de
Phone: +49 7546 9248-43

At IHSE Group, we are actively shaping the future of KVM. We continuously develop our portfolio, adding components, techniques and even companies like kvm-tec to enhance our current product range. KVM is so much more than keyboard, video and mouse switching and extension. Our mission is to provide users and operators with KVM solutions that significantly improve and enhance their workflows and working environments.

A large number of worldwide organizations use our KVM solutions to deploy mission-critical operations. Applications span many sectors, including Broadcast, ProAV, Esports, Banking, Healthcare, Maritime, Air Traffic Control, Government and many more.

We develop and manufacture all our IHSE solutions in a modern, local production facility at our headquarters in Oberteuringen, Germany. Here we control the entire process, from the initial idea to the refined product. This is complemented by our new subsidiary kvm-tec in Tattendorf, Austria where we focus on sophisticated KVM-over-IP solutions, all contributing to our global, comprehensive KVM system and product portfolio.

Our Team

IHSE has around 150 employees. Together, we thrive on the diversity of our employees from all over the world; gifted professionals from all spheres of life who guide and develop the company internationally.

Our Philosophy

At IHSE, we have “engineers who listen”. The needs and challenges of our customers are the bedrock for our market-oriented solutions. As a result, many of our innovative solutions and products originate from the requirements of customers that go on to become industry staples.

Made in Germany

Production, research and development of IHSE products are all carried out at our site in Germany. As far as possible, we support a local supply chain that helps eliminate production delays and makes our TÜV certified production step by step more sustainable.

Technology for tomorrow

Our modular KVM solutions are state of the art, future-proof and provide great security of investment. You can configure your ideal solution from a range of hundreds of flexible modules to meet your specific individual requirements and budgets. Installations and existing systems can be easily upgraded in the future with new features and interface standards including hybrid and IP-based solutions.

Technology leader

We are a world leading manufacturer of flexible and highly secure KVM (keyboard, video, mouse) extension and switching solutions for collaboration, resource and access management. We constantly strive to improve and expand our existing portfolio and promote innovation throughout our IHSE group.

Global market presence

With IHSE headquarters in Germany and subsidiaries in Austria, the United States, Singapore and China we have created a comprehensive global sales network with round-the-clock support and independent, authorized sales partners all over the world.

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IHSE ACQUIRED KVM-TEC

Kvm-tec is a cutting-edge manufacturer based in Tattendorf in Austria. The company designs and develops KVM-over-IP solutions that incorporate extensive flexibility with cost effective implementation.

Kvm-tec products enable high-performance, low-latency signal transmission via standard IP protocol over existing networks. KVM-over-IP is increasingly deployed in industrial applications, broadcasting, post-production and the public sector

- In house development
- Flexible & customized products
- Complete range over IP
- Personal contact & support
- Always a technology step ahead
- Compatibility kvm-tec product range & other manufacturers

REASONS FOR THE PURCHASE OF KVM-TEC

- IHSE identified kvm-tec as a reputable and responsible company in the KVM-over-IP market
- kvm-tec‘s devices can be improved even further with the support of IHSE‘s extensive experience and know-how
- IHSE‘s established sales channels will help in presenting kvm-tec products to a global market; quickly, widely and with full technical support
- IHSE and kvm-tec technology offers future possibilities of hybrid systems and a one-stop-shop approach
- Design, development and manufacturing synergies will benefit users through enhanced design and production efficiency

WHAT DOES THIS MEAN FOR THE IHSE PORTFOLIO?

- kvm-tec's KVM-over-IP technology complements the existing IHSE product portfolio
- The interoperability of proprietary, IP-based and hybrid platforms will deliver a streamlined, efficient and effective KVM product suite to the market

ADDED VALUE FOR ALL CUSTOMERS

- Existing systems can be seamlessly extended with IP
- Increased flexibility of signal management and infrastructure: homogeneous, hybrid systems
- Advanced and innovative products designed to meet the specific needs and applications of customers
- Generates clear advantages by combining both approaches in one system
- One-stop-shop approach combines both systems from a single supplier
- Combined sales and technical operations deliver improved customer support and satisfaction

WHY KVM OVER IP?

FLEXIBILITY

- Compatible with standard network switches
- Up to 2000 endpoints
- Operates with full HD and 4K in one system
- Redundant capability for reliability
- Uncompressed, low-latency time signal distribution
- Patent pending USB 2.0 implementation

SECURITY

- Dedicated network

COST & ENERGY SAVINGS

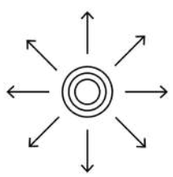
- Excellent price-performance ratio
- Ergonomic workspace solutions
- Additional software features
- Low power consumption
- Flexible and customized products
- Complete range over IP
- Personal contact and support
- Technology advanced

Find more information about kvm-tec and their products by scanning the QR code!

kvm-tec over IP
an ihse. company

KVM technology provides driverless connectivity solutions that extend, convert and switch keyboard, video and mouse signals, together with USB and audio. This allows sharing of peripherals as well as resources. More efficient workflow and ergonomic, space-saving working areas are key benefits gained through the use of KVM solutions. Inherent system resilience and redundancy enhances reliability and helps to protect from cyber-attacks, data and material leakage. Virtual Desktop Infrastructure (VDI) can be combined with native PC/server systems to form hybrid applications fostering collaboration and with the advantage of intuitive interaction and control.

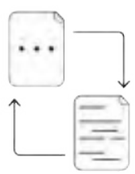
Signal Distribution



Signal Switching

Signal Extension

Signal Conversion



HOW DO COMPANIES BENEFIT FROM KVM?

KVM enhances the workplace

- **Relocation of computers**
  Relocation of computers to remote locations reduces hardware, noise and heat in the user environment.
- **Improved ergonomics**
  Operation of several computers and monitors by a single set of keyboard and mouse.
- **Easy access to varied resources**
  Convenient and instant access to a wide range of connected sources.

KVM increases IT security

- **Access control**
  Operational access to source computers is limited to authorized users.
- **Restricted physical access to hardware**
  Prevents unauthorized removal of data and injection of malware.
- **Prevention of unauthorized external access**
  The KVM system defends against network attack and guards against electronic eavesdropping.

KVM saves costs

- **Increasing the lifespan of computers and equipment**
  Placing sensitive computer equipment in secure and environmentally-controlled server rooms facilitates support and maintenance.
- **Reducing hardware and software overheads**
  Enables multi-user sharing of computers and licensed software tools.
- **Efficient use of space and technical resources**
  Flexible reconfiguration of workstations to meet different tasks at the push of a button. Simultaneous access to content enables collaboration and cooperation even between remote teams.

KVM Extenders

Regular computer interconnection cables do not suffice for distances of more than a few meters. KVM extenders enable users to extend the distances between computers and user workstations (with keyboards, video displays and mice) to distances of up to several kilometers - without compromising signal quality.

KVM extenders enable computer access from remote workstations. This makes it easy to relocate critical computers and servers in secure, environmentally-controlled environments to protect them from heat, dirt, moisture and unauthorized access.

Removing noisy, bulky, heat-producing computers from the operator workplace also creates a more pleasant, less-cluttered working environment. Users' desks simply require basic peripheral devices: monitors, keyboards and pointing devices.

KVM extenders provide great benefits in applications like data centers, hospitals, financial trading floors, post-production suites and in space-restricted environments on ships or ATC towers.

KVM Switches

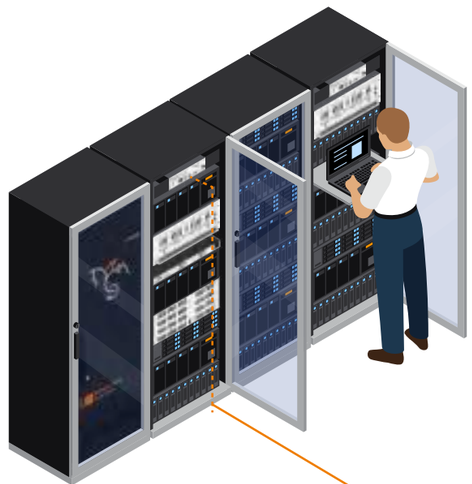
A single KVM switch can connect a large number of users to many source computers. Several sources can be accessed, switched and shared instantly by users. Any connected user console, consisting of keyboard, mouse, monitor or other peripherals, can access any computer within the network. Expensive equipment and software licenses can be shared between multiple users; all accessing the same computers from their individual workstations in real-time. In addition, several matrix switches can be connected to each other acting as one homogeneous system.

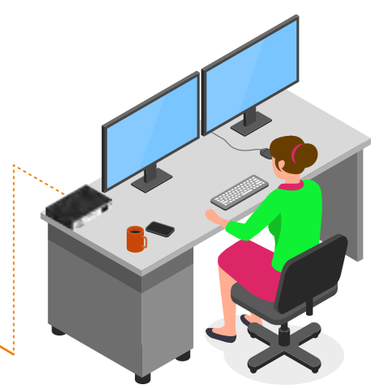
Our KVM matrix switches enable access to, and management of, almost any size of computer installation.

The system supports all relevant computer video formats up to 4K/5K, as well as SDI and USB. For higher resolutions, individual lines can be synchronized together. Switches include comprehensive features such as Multi-Screen Control and cross-conversion between AV signals and transmission media (Cat X and fiber).

Secure IP interfaces provide additional types of access, providing remote access with seamless, location-independent IP access via a browser or client. The KVM matrix system can be used with virtual desktop infrastructure connection to Virtual Machines using protocols like RDP, Remote FX, PCoverIP or HTML5 connections.

For maximum security, the core matrix is completely shielded from the TCP/IP network.





IHSE's headquarter and production site are designed with an absolute focus on sustainability. Positive steps were taken to ensure that the building contributes to, and enhances, the local vicinity. The headquarter also features a unique bio system with ponds to collect and use rainwater surrounded by native wildflower gardens that are managed without chemicals and pesticides. Insect hotels attract wildlife to aid the ecological process and some beehives are producing IHSE honey.

We are proud to comply with the ISO 14001 environmental management standard which is awarded to companies that demonstrate a high level of environmental care and concern through efficient use of resources and reduction of waste. IHSE cares about sustainability and environmental protection, as much as its customers do.

At IHSE

- **Reducing waste**
  IHSE operates a paperless office wherever possible and communicates with external customers and vendors solely by electronic communication. In the rare case that text must be printed, IHSE uses recycled paper.
- **Electric and hybrid drive**
  All company cars are being changed over to electric and hybrid drive. Cost-free recharging stations provide solar-generated electricity.
- **Leasing of e-bikes**
  IHSE actively motivates employees to switch to e-mobility alternatives.
- **Photovoltaic System**
  Environmentally friendly production process. The large, roof-mounted photovoltaic system covers a large part of the company's annual energy demand.
- **Unique biotope**
  The entire flora is composed of native plants. Various species of dragonflies, frogs and even newts have already settled in the IHSE biotope.
- **Insect hotel**
  A nesting aid for wild bees that are considered endangered. Five honey bee hives support the ecological balance and honey will soon be produced from them.

A solution to combining these two principles is the modularity of IHSE devices. Each of the modular devices is built with the premise that customers only buy what they need, eliminating clutter and unnecessary features. Customers also maintain the possibility to easily and flexibly expand their devices at a later date. By doing this, IHSE can provide powerful and state of the art KVM solutions that are a lot more sustainable than comparable products on the market.

IHSE devices are significantly more energy efficient than those of our competitors. Our extenders use only roughly 50% or less the energy than comparable products do. This difference in energy efficiency has many implications that go beyond the mere power consumption of the extenders.

Green KVM

- **Energy efficient design of the devices**
  Through intelligent use of space, IHSE products are designed to allow maximum space efficiency in rack units. Chassis are made of aluminum which does not corrode and is 100 % recyclable.
- **ROHS and REACH regulations**
  All devices comply with ROHS and REACH regulations.
- **Resource-saving products**
  Relocating computers outside the office environment reduces costs of air-conditioning. Locating computers in special server rooms with optimal climate control increases the life of each device and reduces electronic waste.
- **Efficient products**
  IHSE 4K60 devices are designed to use 50 - 60 % less energy.
- **Modularity**
  Significantly less resources and energy can used per device. The possibility for later expansion additionally makes the devices futureproof.
- **Energy efficient products**
  IHSE extenders consume a fraction of the power compared to those of our competitors, generating less heat, resulting in less need for cooling and cooling installations.

DRACO SYSTEM DESIGNER - THE CUSTOMIZATION

Planning and documenting KVM projects online

Draco System Designer is IHSE's online tool for designing complete KVM solutions; from individual extension lines to highly complex matrix applications with accessories etc. At the same time, it supports the user with system viability checks and prevents incorrect configurations through intuitive iteration and guidance. Customized solutions can be easily put together and documented graphically and on line-by-line parts lists. All layout information can be stored, exported and amended at any time as changes are applied.

Advantages in deployment and install

Devices can be assigned with individual names and project-related descriptions. These are used to identify and co-ordinate deployment and help reduce setup time during installation and in servicing the whole system during its lifetime.

Detailed information

All necessary design information, including interfaces, supported resolutions and protocols, power consumption and dimensions is immediately available. Datasheets are linked to the individual components and are a single click away.

The Draco System Designer is undergoing continuous development and enhancement and will evolve to become even more useful in the future.

Our application engineering team is available to customers, supporting this tool and providing consultancy based on decades of experience in architecting KVM solutions and beyond!

We offer several resources for an easy usage of our DSD. Please see our website for "How-to" videos under www.dsd.ihse.com.

If you have any questions or we can show you how to use this tool, simply call our sales team on +49 7546 9248-42.

STEP-BY-STEP-CONFIGURATION

Step 1

Create new project.

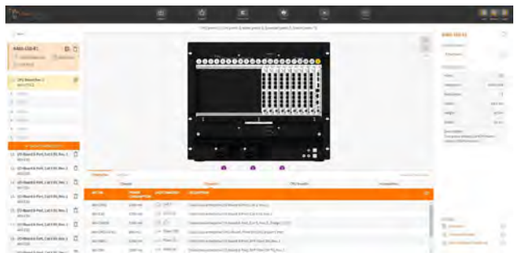
Step 2

Enter project data.

Step 3

Configure extender.

Step 4



Configure matrix switch.

Step 5

Send request for quotation to IHSE sales team. Save your configuration locally.

Step 6

Print.

IHSE EXPLAINS

WHEN TO USE CAT X OR FIBER?

Transport of high-speed data signals utilizes either copper or fiber optic cable at the physical layer. IHSE KVM technology supports both types of cable. Selection should be based on application and content to be handled.
Media conversion from Cat X to fiber and vice versa is possible.

Cat X

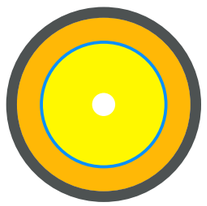
Cat X cable is easy to use and install. It is widely and cheaply available. It is typically used as “last mile access” connection to the desk in almost all premises for telephony, IP networks and KVM. Most common applications do not require runs in excess of 100m or so, and Cat X is an ideal choice. Within the KVM solution world, Cat X is used primarily when extending signals of up to Full HD or 1920 x 1200 resolution within horizontal building deployments.
Copper cables are categorized based on performance. Cat 5e and above are established standards that are suitable for transporting Gigabit or higher data rates over distances of 100 m - 140 m.

Fiber

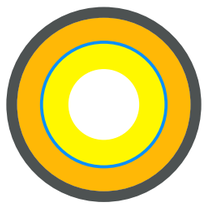
Secure applications and longer distance bridging should use fiber optic cables. With its higher bandwidth fiber outperforms Cat X cables and is preferred for resolutions of 4K60 or greater and for high-framerate signals like 1080 p 240.
Fiber optic cable operates in two modes: multi-mode and single-mode. Multi-mode is used for shorter, mainly in-house, connections. Single-mode is the choice in long distance and for higher bandwidth applications.

Cross sections of the different cables

Cat X



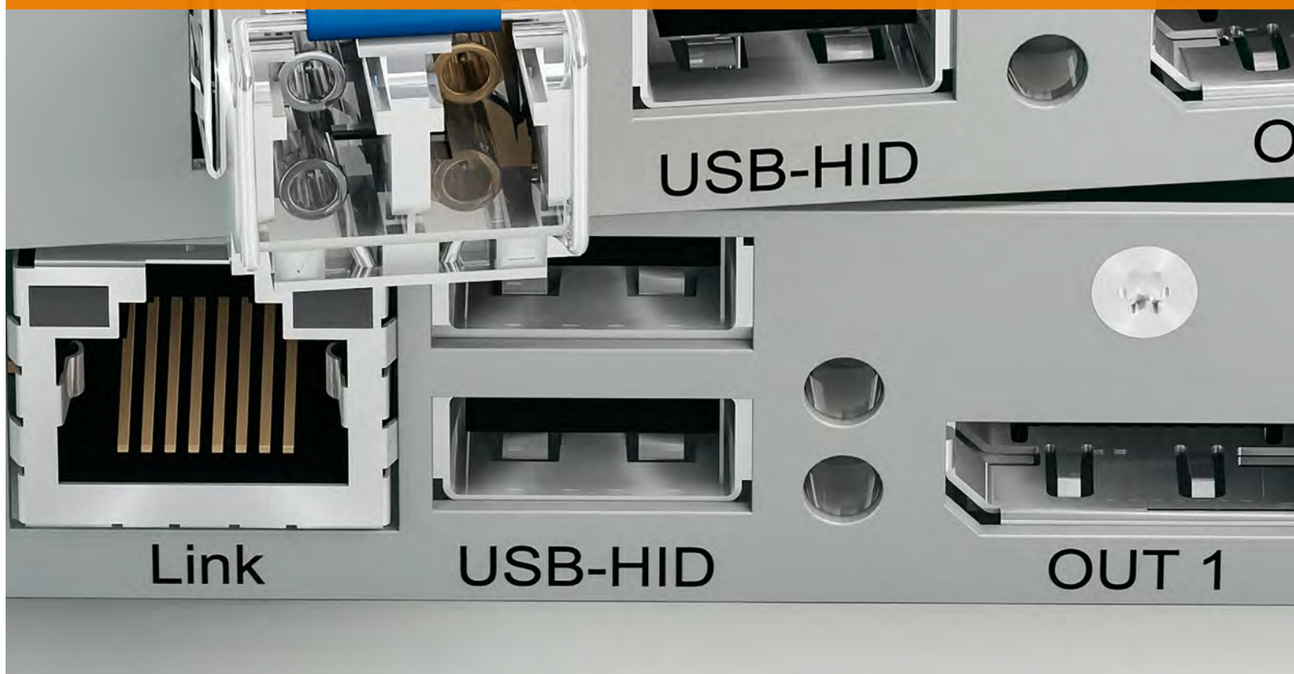
Fiber
single-mode



Fiber
multi-mode

DIGITAL KVM EXTENDERS

Enable computer access from remotely-located workstations and protect critical CPUs and servers from heat, dirt, moisture and unauthorized access.



DIGITAL KVM EXTENDERS

Extenders are crucial for the extension of computer signals over distances that exceed regular cable lengths. The reason being, that when cables exceed a certain distance, the signal quality suffers immensely, resulting in visual artefacts, overall distortion, and delay of the signal.

IHSE extenders enable the extension of signals without a compromise in signal quality and full access (or regulated access) for the users to remotely located computers. Therefore, the use of extenders is indispensable for achieving the best possible signal quality and maximum performance when remotely locating a computer.

Reasons for remotely locating a computer or a workstation can be manifold and cover a wide range of use cases. From increasing the security and safety for the personnel and the computers, to enhancing workflows and ergonomics - the extension of signals can be the best solution in many use cases going beyond the mere displacement of a CPU or the workstation.

Furthermore, the use of extenders and KVM systems can help save a lot of money. Be it by improving workflows and collaboration of the personnel or the safe placement of valuable computers and thereby effectively reducing the median time to repair.

All IHSE extenders can be fully customized to best match the job requirements. The modular construction enables our customers to choose the perfect features and functions from a wide and expanding range of modules for the job at hand. This modularity is key for performance, sustainability, and cost efficiency.

With our personalized configuration tool, Draco System Designer (page 12), and our versatile range of modules (page 32 et seq.) customers can customize the optimally suited IHSE KVM system that can easily be expanded at a later date.

REASONS FOR REMOTELY LOCATING A COMPUTER

- Protection against dust, moisture and vibrations
- Prevention of theft and unauthorized CPU access
- Simplified maintenance, configuration and administration of multiple user computers at a central point
- Centralized installation of software updates (particularly simple in combination with a KVM switch)
- Air conditioning of CPUs increases life cycles and ensures constant performance.
- Pleasant working environment by enhancing space and reducing noise and heat pollution caused by powerful computers
- Saving lots of money by minimizing costly outages, minimizing Mean Time To Repair of the computers and by enhancing users' workflows

1

MODULARITY

The Draco vario KVM extender series is a highly flexible, chassis-based system that allows maximum interface diversity. A variety of main modules accommodates all commonly available computer video standards and resolutions, combined with USB for keyboards and mice. Add-on modules provide additional peripheral signal support on demand (audio, USB, RS232).

2

RELIABILITY

Designed and made in Germany to meet 24/7, 365 days per year continuous operational requirements, Draco vario extenders are the ideal partner in mission-critical environments in which operational uptime is paramount. Optional system health monitoring via SNMP/SYSLOG supports pre-emptive recognition and prevention of failures.

3

SCALABILITY

The modular concept with different size chassis options allows assemblies to be fitted and re-fitted as required and on demand. The slide-in chassis provide hot-swap and hot expansion of individual modules with no downtime. Up to six dual head KVM extenders fit into just 1 RU.

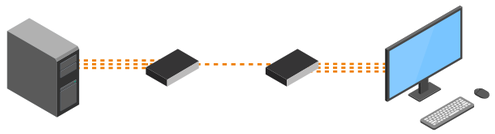
4

REDUNDANCY

All Draco vario chassis are available with power redundancy options for a minimum of downtime. KVM modules offer optional link redundancy with glitch-free manual or automatic fail-over.

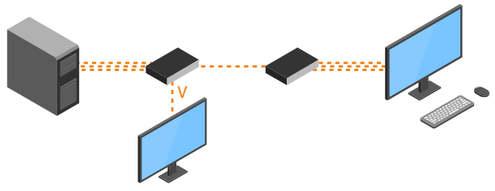
10 USE CASES FOR DRACO VARIO EXTENDERS WITHOUT MATRIX INVOLVEMENT

POINT TO POINT
Extending a single PC to one remote console.



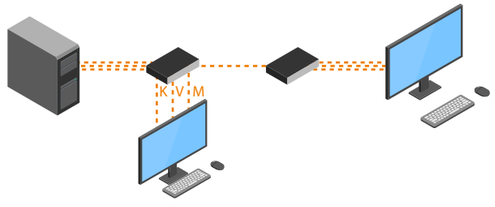
POINT TO POINT
With local video feed-through

Extending a single PC to one remote console.



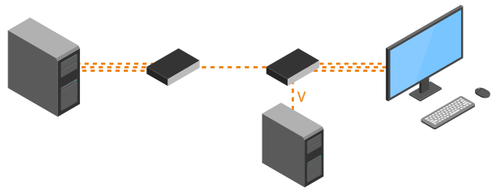
POINT TO POINT
With Dual Access

Extending a single PC to one remote console.



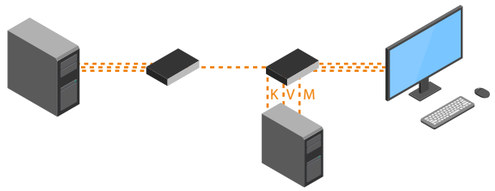
POINT TO POINT
With PC Video in at remote desk

Extending a single PC to one remote console 2:1 video switch.



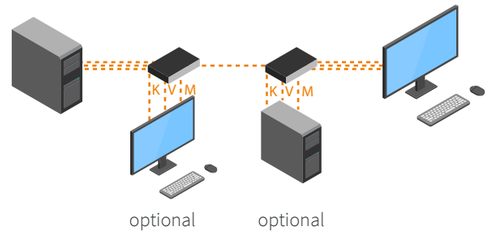
POINT TO POINT
With PC KVM in at remote desk

Extending a single PC to one remote console with 2:1 KVM switch.



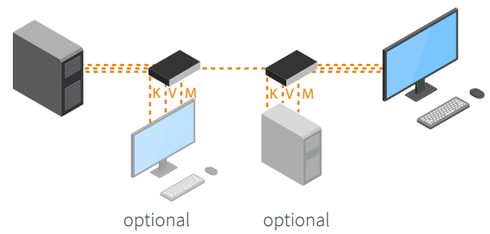
POINT TO POINT
With local feed-through and 2:1 remote switch

extending a single PC to one remote console with 2:1 KVM switch.



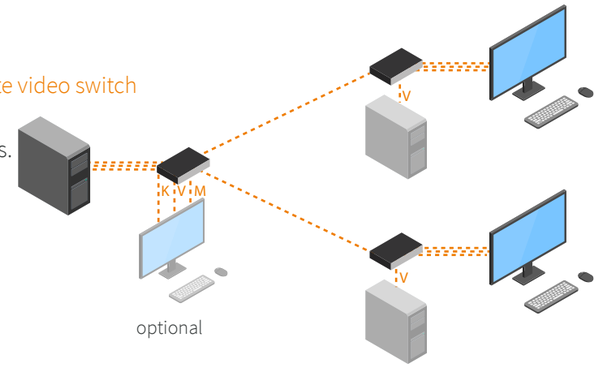
POINT TO POINT
Automatic link fail-over

Extending a single PC to one remote console and link redundancy.



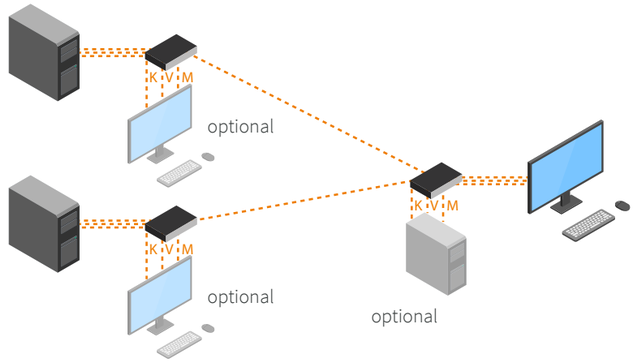
POINT TO MULTI-POINT
With local feed-through and 2:1 remote video switch

Extending a single PC
to two remote consoles sharing access.



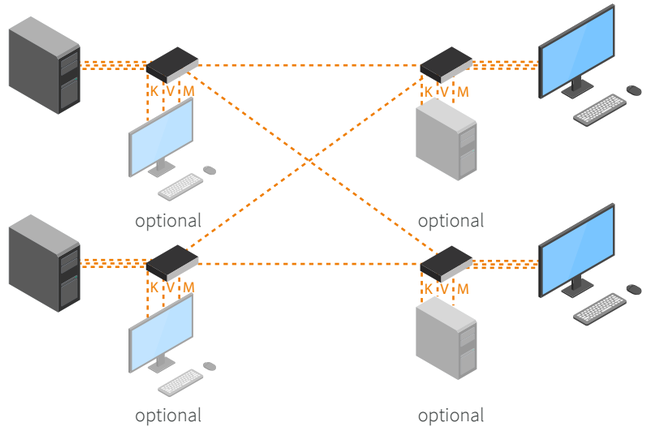
REMOTE 2:1 SWITCH

Operating two single PCs
from one remote console.



2 x 2 MATRIX SWITCH

Operating two single PCs
from two remote consoles.



Accessory for Draco compact
Please see page 138 for more information.

ACCESSORIES

RACK MOUNT HARDWARE AND MOUNTING PLATES FOR WALL AND TABLE MOUNTING OR DIN RAIL MOUNTING	PART NO.
Mounting strip for screw mounting	455-4K

CABLES AND OPTIONAL ACCESSORIES	PART NO.
VESA mounting strap for screws	477-VESA
International power supply 100 - 240V AC/5V DC (spare part for KVM units)	477-5G

RACK MOUNT HARDWARE AND MOUNTING PLATES*	PART NO.
19”/1RU rack mount kit for DVXI or Draco compact	455-4G
19”/1RU Mounting kit for up to 4 DVXI or Draco compact units or PSU 455-PS	455-8G
PSU for up to 3 DVXI or Draco compact extender devices, fitting to 455-8G	455-PS
PSU for DVXI and Draco compact extenders 5V/3A	260-5G

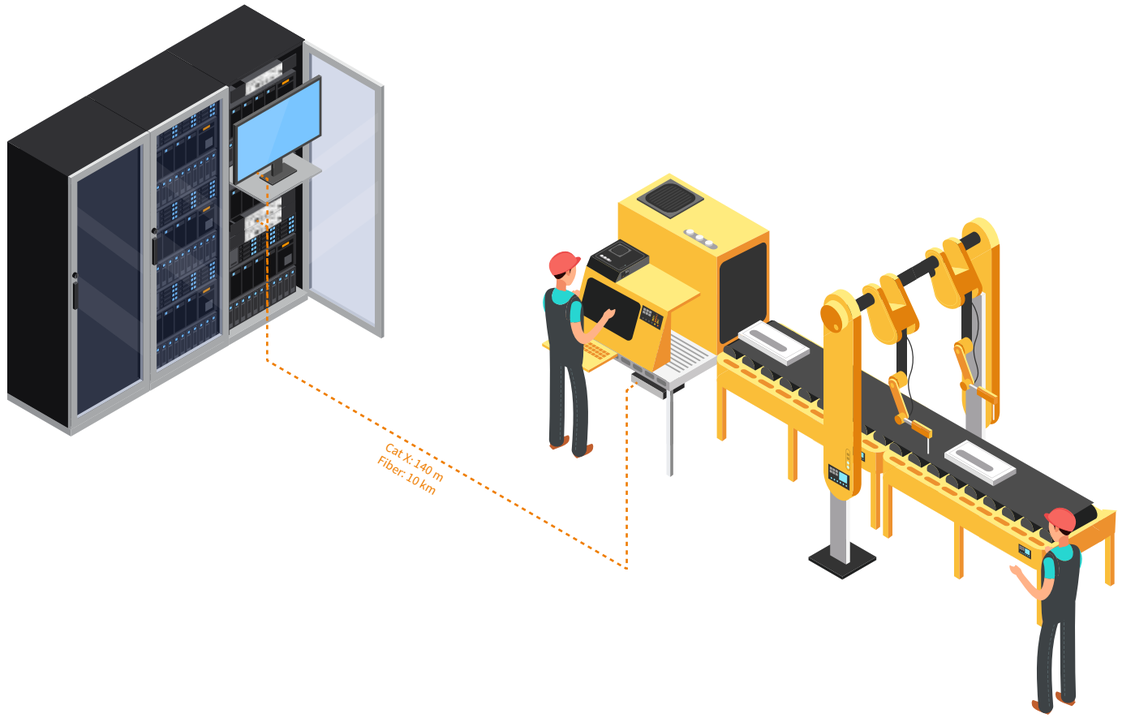
*For dense rackmounting solutions see Draco vario extenders on the following pages.

PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)					
DVI / VGA	✓	✓ / ✓	✓ / -	✓ / -	✓ / -	✓ / -
USB-HID	✓	✓	✓	✓	✓	✓
USB 2.0 36 Mbit/s / USB 2.0 480 Mbit/s	-	-	-	✓	- / ✓	-
RS232 / Audio	-	-	✓ / ✓	✓ / ✓	-	-
Cat X	L477-1SHC	L477-1SHCV	L477-1S4CA	L477-1SECA	L477-1SUC	L477-2S2C
Fiber 1G	L477-1SHS	L477-1SHSV	L477-1S4SA	L477-1SESA	L477-1SUS	L477-2S4S

FEATURES & BENEFITS

- The full power of the Draco series extenders in smallest possible space
- Pair with the Draco vario extender series in space-limited environments
- Plug and play solution for single extension links in industrial applications
- Support for touchscreen applications and other USB peripherals across a single link
- Bi-directional analog stereo audio transmission supporting speakers and microphones
- Allows separation of PCs and operators up to:
  - Cat X: 140 m
  - Fiber: 10 km on single-mode



PART NUMBERS

PROPERTIES	RECEIVER UNIT (CON)				
DVI / VGA	✓ / -	✓ / -	✓ / -	✓ / -	✓ / -
USB-HID	✓	✓	✓	✓	✓
USB 2.0 36 Mbit/s / USB 2.0 480 Mbit/s	-	-	✓ / -	- / ✓	-
RS232 / Audio	-	-	✓ / ✓	✓ / ✓	-
Cat X	R477-1SHC	R477-1S4CA	R477-1SECA	R477-1SUC	R477-2S2C
Fiber 1G	R477-1SHS	R477-1S4SA	R477-1SESA	R477-1SUS	R477-2S4S
Fiber 3G	R477-1SHX	R477-1S4XA	R477-1SEXA	R477-1SUX	R477-2S4X

The Draco vario extender series is based on a modular concept. The various video interfaces paired with USB-HID signal transmission found the basis for extender mainboards. Peripheral interfaces such as USB 2.0, RS232, RS422 and different audio formats line up the so-called add-on modules. Customers can pick and configure their own set of extenders by puzzling these modules together, mounted in Draco vario chassis of different size and architecture. They can be obtained with or without power redundancy.

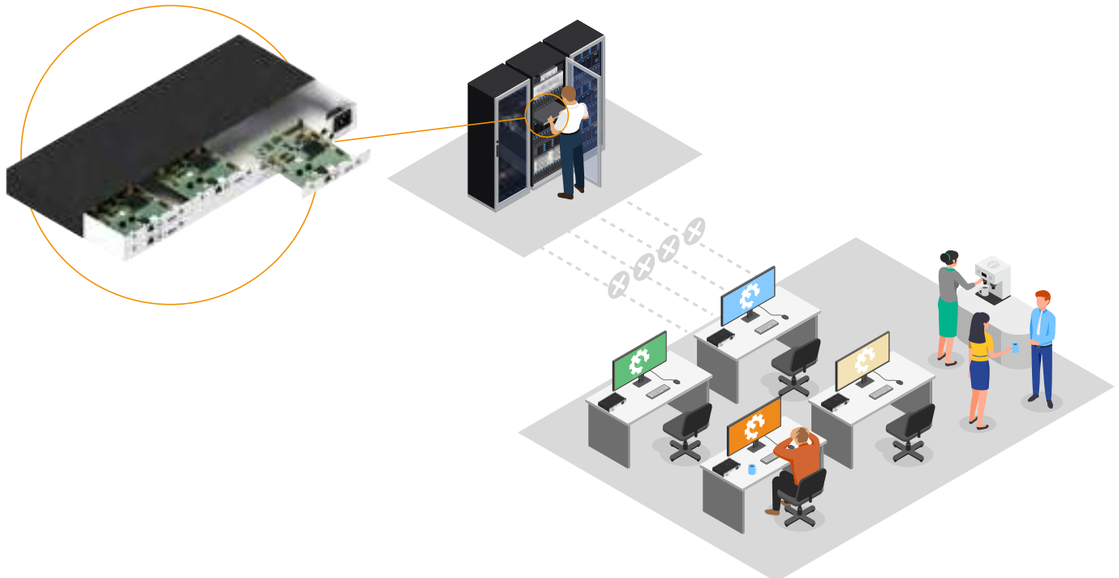
STANDARD OR BUILT-IN CHASSIS

Standard chassis or built-in chassis are available in 2-, 4- and 6-slot versions. They are the most space-saving chassis of the Draco vario product line.
The extender mainboards and add-on modules can be mounted into these chassis following the guidelines of the Draco System Designer – the online configurator on the website www.dsd.ihse.com.

BUILD TO ORDER

Usually the modules are pre-assembled at the IHSE manufacturing facility according to clients order specifications – they are custom build. At any point in time they can be modified for expansion or service reason in the field at customers premises. This ensures future compatibility as well as interface adaption and short meantime to repair. However, as the modules are fix mounted, the chassis need to be unmounted and unassembled for such purpose and might cause downtime to not effected extension components within the chassis.

BUILD-IN CHASSIS



BACKPLANE OR SLIDE-IN CHASSIS

Draco vario slide-in chassis have an internal backplane providing power and a data channel to connected extender modules. Other than the build-in chassis, modules can easily be slided into the chassis where they tightly connect to the backplane.

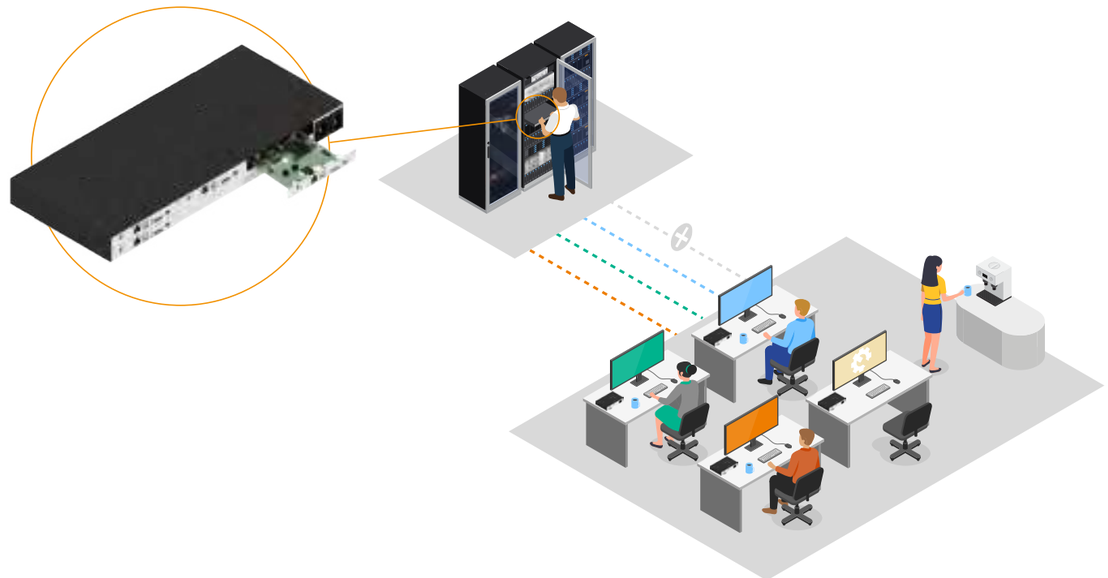
HOT-SWAPABILITY

Once in operation, these modules can easily be removed for service or replacement while other extenders within the same chassis continue operations. A massive reduction of MTTR in case of a failure.

IP MANAGEMENT AND CONTROL

Via the data channel on the backplane, slide-in chassis provide the option for monitoring, configuration and API control of the built-in extender modules via IP Management.
They are available in 2-, 6- and 21-slot chassis.

SLIDE-IN CHASSIS



DESIGN YOUR OWN MODULAR KVM EXTENDER

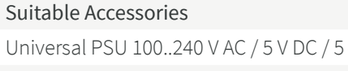
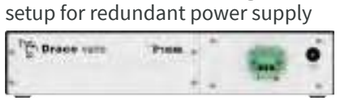
STEP 1: Choose a chassis with accessories:

STEP 2: Choose a main board:

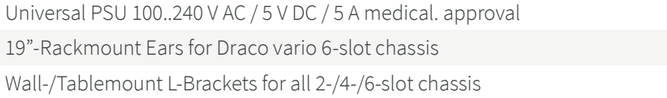
STEP 3: Choose an optional add-on module:

Final assembly:

BUILT-IN CHASSIS

CHASSIS FOR FREE CONFIGURATION	DIMENSIONS	PART NUMBERS
Chassis for 2 modules, external power supply	145 x 147 x 44 mm (5.7 x 5.8 x 1.7 inch)	474-BODY2
		
Chassis for 2 modules, external power supply, setup for redundant power supply	145 x 147 x 44 mm (5.7 x 5.8 x 1.7 inch)	474-BODY2R
		
Suitable Accessories		
Universal PSU 100..240 V AC / 5 V DC / 5 A medical. approval		260-5M
19”-Rackmount Ears for Draco vario 2-slot chassis		474-2RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis		474-BRACKET
Draco vario Body2 and Body2R VESA mounting kit		474-VESA2
Spare ext. PSU for 2-slot chassis		474-PSU2
Mounting plate for 2-/4-/6- slot chassis		474-VPLATE
Mounting plate w/ DIN Rail Snap On for 2-slot chassis		474-VSNAP
Chassis for 2 modules, integrated power supply, setup for redundant power supply	221 x 147 x 44 mm (8.7 x 5.8 x 1.7 inch)	474-BODY2N
		
Suitable Accessories		
Universal PSU 100..240 V AC / 5 V DC / 5 A medical. approval		260-5M
19”-Rackmount Ears for Draco vario 2-slot chassis w/ built-in PSU		474-2NRMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis		474-BRACKET
Spare ext. PSU for 2-slot chassis w/ built-in PSU and 4-slot chassis		474-PSU4
Draco vario Body2N VESA mounting kit		474-VESA2N
Mounting plate for 2-/4-/6-slot chassis		474-VPLATE
Mounting plate w/ DIN Rail Snap On for 2-slot chassis		474-VSNAP
Chassis for 2 modules, integrated 12 V/24 V/48 V DC power supply, setup for redundant power supply	221 x 147 x 44 mm (8.7 x 5.8 x 1.7 inch)	474-BODY2DC-12 474-BODY2DC-24 474-BODY2DC-48
		
Suitable Accessories		
19”-Rackmount Ears for Draco vario 2-slot chassis w/ built-in PSU		474-2NRMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis		474-BRACKET
Spare ext. PSU for 2-slot chassis		474-PSU
Mounting plate for 2-/4-/6-slot chassis		474-VPlate
Mounting plate w/ DIN Rail Snap On for 2-slot chassis		474-VSNAP

BUILT-IN CHASSIS

CHASSIS FOR FREE CONFIGURATION	DIMENSIONS	PART NUMBERS
Chassis for 4 modules, external power supply	239 x 147 x 44 mm (11.5 x 5.8 x 1.7 inch)	474-BODY4
		
Chassis for 4 modules, external power supply, setup for redundant power supply	239 x 147 x 44 mm (11.5 x 5.8 x 1.7 inch)	474-BODY4R
		
Suitable Accessories		
Universal PSU 100..240 V AC / 5 V DC / 5 A medical. approval		260-5M
19”-Rackmount Ears for Draco vario 4-slot chassis		474-4RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis		474-BRACKET
Spare ext. PSU for 2-slot chassis w/ built-in PSU and 4-slot chassis		474-PSU4
Mounting plate for 2-/4-/6-slot chassis		474-VPLATE
Chassis for 6 modules, integrated power supply, setup for redundant power supply	442 x 147 x 44 mm (17.4 x 5.8 x 1.7 inch)	474-BODY6R-R1
		
Suitable Accessories		
Universal PSU 100..240 V AC / 5 V DC / 5 A medical. approval		260-5M
19”-Rackmount Ears for Draco vario 6-slot chassis		474-6RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis		474-BRACKET
Spare ext. PSU for 2-slot chassis w/ built-in PSU and 6-slot chassis		474-PSU6
Mounting plate for 2-/4-/6-slot chassis		474-VPLATE
Chassis for 6 modules, integrated 12 V/24 V/48 V DC power supply, setup for redundant power supply	442 x 147 x 44 mm (17.4 x 5.8 x 1.7 inch)	474-BODY6DC-12 474-BODY6DC-24 474-BODY6DC-48
		
Suitable Accessories		
19”-Rackmount Ears for Draco vario 6-slot chassis		474-6RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis		474-BRACKET
Spare ext. PSU for 6-slot chassis 6R-R1		474-PSU6
Mounting plate for 2-/4-/6-slot chassis		474-VPLATE

SLIDE-IN CHASSIS

CHASSIS FOR FREE CONFIGURATION	DIMENSIONS	PART NUMBERS
Chassis for 2 modules, integrated backplane power supply, setup for redundant power supply (lockable)	221 x 182 x 44 mm (8.7 x 7.2 x 1.7 inch)	474-BODY2BPF
Chassis for 2 modules, integrated backplane power supply, setup for redundant power supply (lockable), pre-installed silent fan	221 x 182 x 44 mm (8.7 x 7.2 x 1.7 inch)	474-BODY2BPF-S

Suitable Accessories	
19”-Rackmount Ears for Draco vario 2-slot chassis w/ built-in PSU	474-2NRMK
Optional fan for Draco vario 6-slot chassis with backplane	474-6FAN
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis	474-BRACKET
Spare ext. PSU for 2-slot chassis w/ backplane, lockable connector	474-PSU2BPF

Chassis for 6 modules, backplane with 2 integrated power supply units on back side, hot swappable extender modules	442 x 270 x 44 mm (17.4 x 10.6 x 1.7 inch)	474-BODY6BP

Chassis for 6 modules, backplane with 2 integrated power supply units on front side, hot swappable extender modules	442 x 270 x 44 mm (17.4 x 10.6 x 1.7 inch)	474-BODY6BPF
Chassis for 6 modules, backplane with 2 integrated power supply units on front side, pre-installed silent fan	442 x 270 x 44 mm (17.4 x 10.6 x 1.7 inch)	474-BODY6BPF-S

Suitable Accessories	
Optional fan for Draco vario 6-slot chassis with backplane	474-6FAN
19”-Rackmount Ears for Draco vario 6-slot chassis	474-6RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis	474-BRACKET

SLIDE-IN CHASSIS

CHASSIS FOR FREE CONFIGURATION	DIMENSIONS	PART NUMBERS
4 RU / 19” rack chassis for 21 modules, integrated, removable power supply, setup for redundant power supply, hot swappable extender modules	482 x 462 x 176 mm (19 x 18.2 x 6.9 inch)	474-BODY21/4U-R1
4RU / RU / 19” rack chassis for 21 modules, two integrated power supply units, hot swappable extender modules	482 x 462 x 176 mm (19 x 18.2 x 6.9 inch)	474-BODY21/4UR-R1

Suitable Accessories	
Spare PSU for 21-slot chassis, slide-in, hot-swap	474-PSU21

CHASSIS WITH INTEGRATED IP MANAGEMENT FUNCTIONALITY

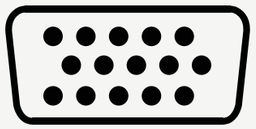
CHASSIS FOR FREE CONFIGURATION	DIMENSIONS	PART NUMBERS
Chassis for 2 modules	221 x 182 x 44 mm (8.7 x 7.2 x 1.7 inch)	474-BODY2BPF-SNMP

Suitable Accessories	
Spare ext. PSU for 2-slot chassis w/ backplane, lockable connector	474-PSU2BPF
19”-Rackmount Ears for Draco vario	474-2NRMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis	474-BRACKET

Chassis for 6 modules	442 x 270 x 44 mm (17.4 x 10.6 x 1.7 inch)	474-BODY6BP-SNMP

Suitable Accessories	
19”-Rackmount Ears for Draco vario 6-slot chassis	474-6RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis	474-BRACKET

VGA



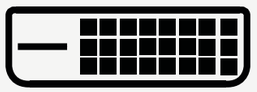
The Video Graphics Array (VGA) connector is a standard connector used for computer video output and its 15-pin connector became ubiquitous on PCs and monitors.

Although newer digital interfaces have become standard in most cases, there are still many devices with VGA in use. Examples can be found in many sectors, including Industrial, Maritime and Military environments and many devices are continually manufactured with VGA.

Transfer rates

VGA can support resolutions of up to 2048 × 1536 px (QXGA) @ 85 Hz (388 MHz). Note that VGA is video only and no sound is transmitted. Extenders will therefore need a dedicated audio module in order to support audio.

DVI



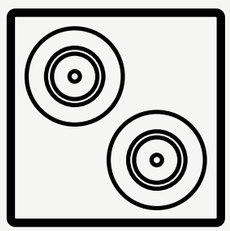
Digital Visual Interface (DVI) can transmit uncompressed digital video and be configured to support multiple modes such as DVI-A (analog only), DVI-D (digital only) or DVI-I (digital and analog).

DVI is backward compatible with displays using analog VGA signals since some of the contacts in the DVI connector carry the analog VGA signals.

Transfer rates

DVI Version	Single Link	Dual Link	Dual Head
Bandwidth	4,95 Gbit/s	9,9 Gbit/s	9,9 Gbit/s
Resolution	1920 x 1200 @ 60 Hz	4096 x 2160 @ 60 Hz	2x 1920 x 1200

SDI

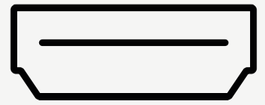


The serial digital interface (SDI) was a common standard for digital video interfaces and often used for broadcast video where it connects to different pieces of equipment such as recorders, monitors, PCs and vision mixers.
It transmits uncompressed and unencrypted digital video signals (optionally including embedded audio and time code).

Transfer rates

SDI enables transfer rates of 1.485 Gbit/s for HDTV applications and up to 2.97 Gbit/s, with SMPTE ST 424:2012.

HDMI



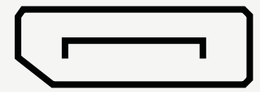
High-Definition Multimedia Interface (HDMI) enables the transmission of uncompressed multimedia data in almost perfect quality.

High-resolution video data, HDTV and UHDTV are forwarded in combination with audio data without interference and in high quality via the HDMI interface. New feature: HDMI KVM extenders are now offered that are compliant with HDCP, enabling distribution of signals protected by the High-Bandwidth Digital Content Protection system.

Transfer rates

HDMI Version	1.3	1.4	2.0	2.1
Bandwidth	3,96 Gbit/s	8,16 Gbit/s	14,4 Gbit/s	42,67 Gbit/s
Resolution	1920 x 1200 @ 60 Hz	3840 x 2180 @ 30 Hz	4K60	7680 x 4320 @ 60 Hz

DisplayPort



In addition to visual signals, DisplayPort cables can also carry audio, USB, and other forms of data simultaneously. To do so DisplayPort relies on packetized data transmission, allowing higher resolution using fewer pins. The interface is backward compatible with other interfaces, such as HDMI and DVI, through the use of either active or passive adapters. DisplayPort is also capable of carrying bi-directional USB signals and Multi Stream Transport (MST). MST supports the extension of two video streams over a single connection cable. Two monitors can then be supplied by daisy chaining.

Transfer rates

DisplayPort Version	1.1	1.2	1.3	1.4	2.0
Bandwidth	5,97 Gbit/s	17,28 Gbit/s	32,4 Gbit/s	25,92 Gbit/s	77,37 Gbit/s
Resolution	4K30	4K60	7680 x 4320	3840 x 2160	7680 x 4320 @ 60 Hz

USB-C

USB-C is the latest and most versatile interface in the USB family and the first interface for high speed data transmission. In addition to its application on mobile devices, it is commonly used on desktop PCs. The key benefit is its multi signal transport capability including DisplayPort, video, audio and high speed data signals.

Therefore, the use of USB-C interfaces can greatly simplify an installation immensely. It is also great for “bring your own device” situations and enabling improved ergonomics at workstations by minimizing clutter.

Please see page 46 for more information about USB-C.

MODULE L474-BVHC and R474-BVHS in CHASSIS 474-BODY2

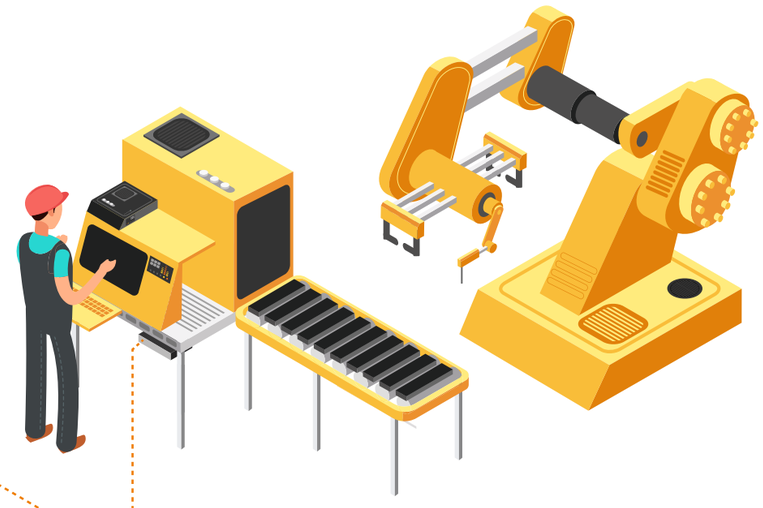
MODULE L474-BSHCV

MODULE L474-BSHSV

FEATURES & BENEFITS

- The ideal solution for integration of VGA sources such as servers and industrial PCs
- Supports VGA and DVI-D signals up to 1920 x 1200 @ 60 Hz 8-bit 4:4:4
- Supports frame rate conversion allowing e.g. 50 Hz input to be displayed on 60 Hz capable LCD monitors
- Video scaling option for instant switching in matrix applications
- Low TCO when upgrading from original VGA to DVI/HDMI signal formats

In many industrial applications machinery lasts over multiple years, often over more than a decade.
And with that also the controlling equipment such as PC-based computers and their peripherals. Fairly often analog video formats are being used, such as VGA. And both, on the PC's end as well as at the displays end. The Draco vario DVI-I extenders therefore are a perfect match as they support the analog video format at both ends. Built-in scaling and frame rate conversion as well as the capability to support also digital video allows to migrate to newer peripherals or PCs without changing the extenders and at no extra cost!



PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)		
DVI / VGA	✓/✓	✓/✓	✓/✓
USB-HID	✓	✓	✓
Redundant	-	✓	-
Cat X	L474-BVHC	L474-BVHCR	L474-BSHCV
Fiber 1G	L474-BVHS	L474-BVHSR	L474-BSHSV
Fiber 3G	-	-	L474-BSHXV

PART NUMBERS

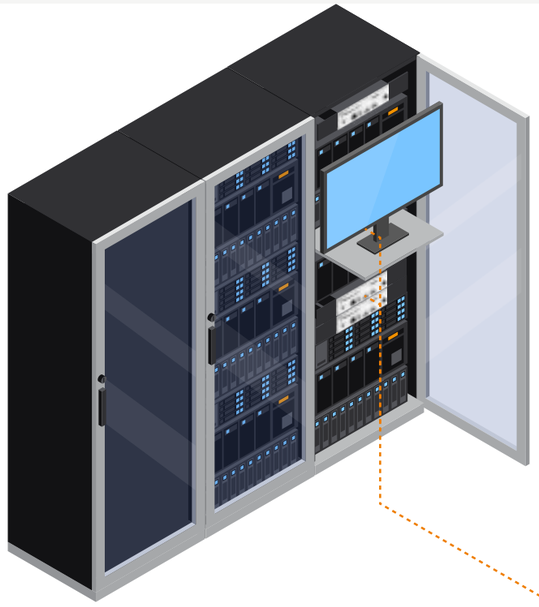
PROPERTIES	RECEIVER UNIT (CON)	
DVI / VGA	✓/✓	✓/✓
USB-HID	✓	✓
Redundant	-	✓
Cat X	R474-BVHC	R474-BVHCR
Fiber 1G	R474-BVHS	R474-BVHSR

MODULE L474-BSHC and R474-BSHS in
CHASSIS 474-BODY2

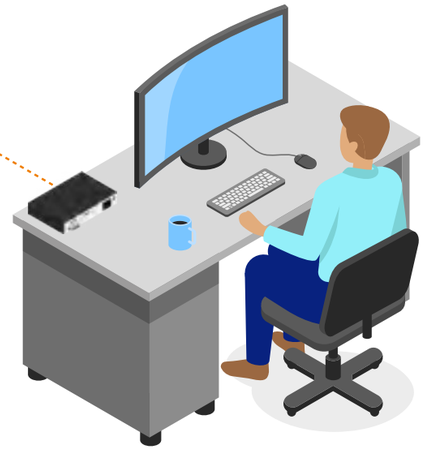
Accessory for DVI-D
Please see page 138 for more information.

FEATURES & BENEFITS

- Support for crystal clear digital video signal transmission (DVI-D) up to 1920 x 1200 @ 60 Hz
- 8-bit color depth color depth at max. resolution
- Compatible with Draco vario DVI-I, HDMI, DisplayPort extender modules allowing signal conversion during transmission
- In combination with the DVI-D Splitter cable a local monitor connection is available at zero extra space
- Very low power consumption for noise-free installation of up to 6 extenders per rack unit



Draco vario DVI-D extenders are the de facto standard in digital extension of KVM signals. Their everlasting reliability paired with crystal clear imaging and basically delay-free control makes them ideal for almost all types of use cases. The shown example allows access and control of the a single source PC using the extender with a local video feed-through built-in to the interconnecting video cable and an additional set of USB interfaces at the local unit. By this, the connected PC can be operated locally or from remote.



PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)	
DVI	✓	✓
USB-HID	✓	✓
Redundant	-	✓
Cat X	L474-BSHC	L474-BSHCR
Fiber 1G	L474-BSHS	L474-BSHSR
Fiber 3G	L474-BSHX	-

PART NUMBERS

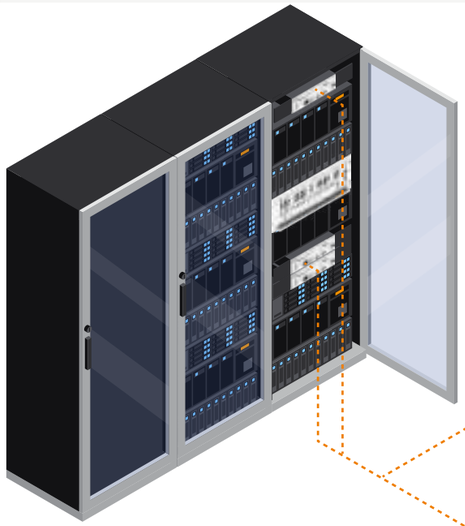
PROPERTIES	RECEIVER UNIT (CON)	
DVI	✓	✓
USB-HID	✓	✓
Redundant	-	✓
Cat X	R474-BSHC	R474-BSHCR
Fiber 1G	R474-BSHS	R474-BSHSR
Fiber 3G	R474-BSHX	-

MODULE L482-BDHC and L482-BDHC-R1 in CHASSIS 474-BODY2

Accessories for Draco vario Dual Link
Please see ihse.com/products/chassis-accessories for more information.

DMS 59 DVI

DMS 59 2x DVI



Cat X: 140 m
Fiber: 10 km

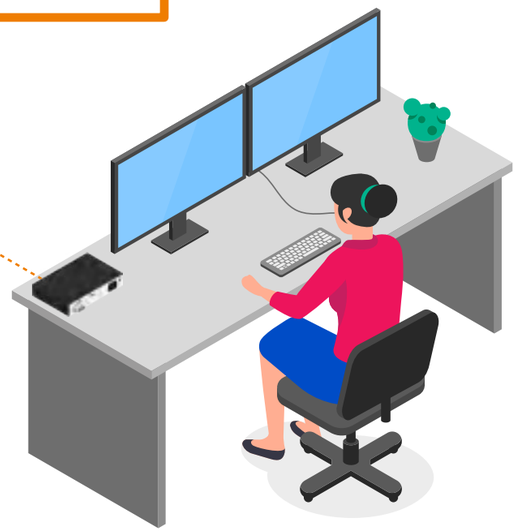
PART NUMBERS DUAL LINK

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
USB-HID	✓	✓	✓	✓
4K resolution @ 30 Hz	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L482-BDHC	L482-BDHCR	R482-BDHC-R1	R482-BDHCR-R1
Fiber 1G	L482-BDHS	L482-BDHSR	R482-BDHS-R1	R482-BDHSR-R1
Fiber 3G	L482-BDHX	L482-BDHXR	R482-BDHX-R1	R482-BDHXR-R1

FEATURES & BENEFITS

- Transmits two Full HD signals across a single link
- Dual purpose extender for either dual link or dual head applications
- Ideal and compact solutions for any dual head application
- Saves space and infrastructure
- Single head CONs can access both video channels of CPUs
- Accessing local unit from single head remotes

In matrix applications in which a mixture of single head and dual head extenders are used, single head consoles can select dual head sources and access both primary and secondary video signals including keyboard, mouse control with simple hotkey selection of primary or secondary image.



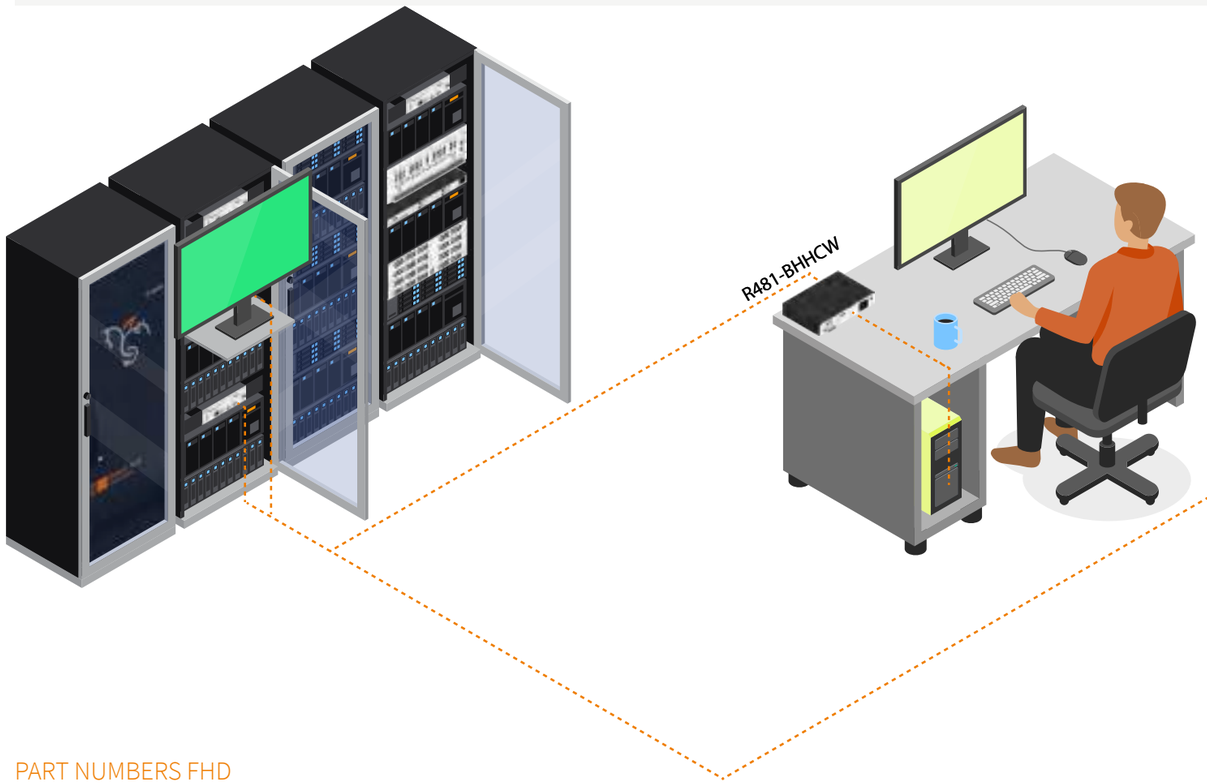
PART NUMBERS DUAL HEAD

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
USB-HID	✓	✓	✓	✓
2x 1920 x 1200	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L482-B2HC	L482-B2HCR	R482-B2HC-R1	R482-B2HCR-R1
Fiber 1G	L482-B2HS	L482-B2HSR	R482-B2HS-R1	R482-B2HSR-R1
Fiber 3G	L482-B2HX	L482-B2HXR	R482-B2HX-R1	R482-B2HXR-R1

MODULE R481-BHHC and L481-BHHCL in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Local feed through port to attach monitor or monitor, keyboard, mouse at local end
- Personal computer input at remote location
- UHD version prepared for HDCP support
- Support for embedded digital audio
- FHD and UHD versions for tailor-made applications at optimized cost



Switching between local workstation and computer in the server room is possible.

PART NUMBERS FHD

PROPERTIES	TRANSMITTER UNIT (CPU)					RECEIVER UNIT (CON)				
USB-HID	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
1920 x 1200	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Local Out/In	-	-	✓	✓	-	-	-	-	-	-
Redundant	-	✓	-	✓	-	-	✓	-	✓	-
Cat X	L481-BHHC	L481-BHHCR	L481-BHHCL	L481-BHHCLR	L481-BHXC	R481-BHHC	R481-BHHCR	R481-BHHCW	R481-BHHCWR	R481-BHXC
Fiber 1G	L481-BHHS	L481-BHHSR	L481-BHHSL	L481-BHHSLR	L481-BHXS	R474-BHHS	R481-BHHSR	R481-BHHSW	R481-BHHSWR	R481-BHXS

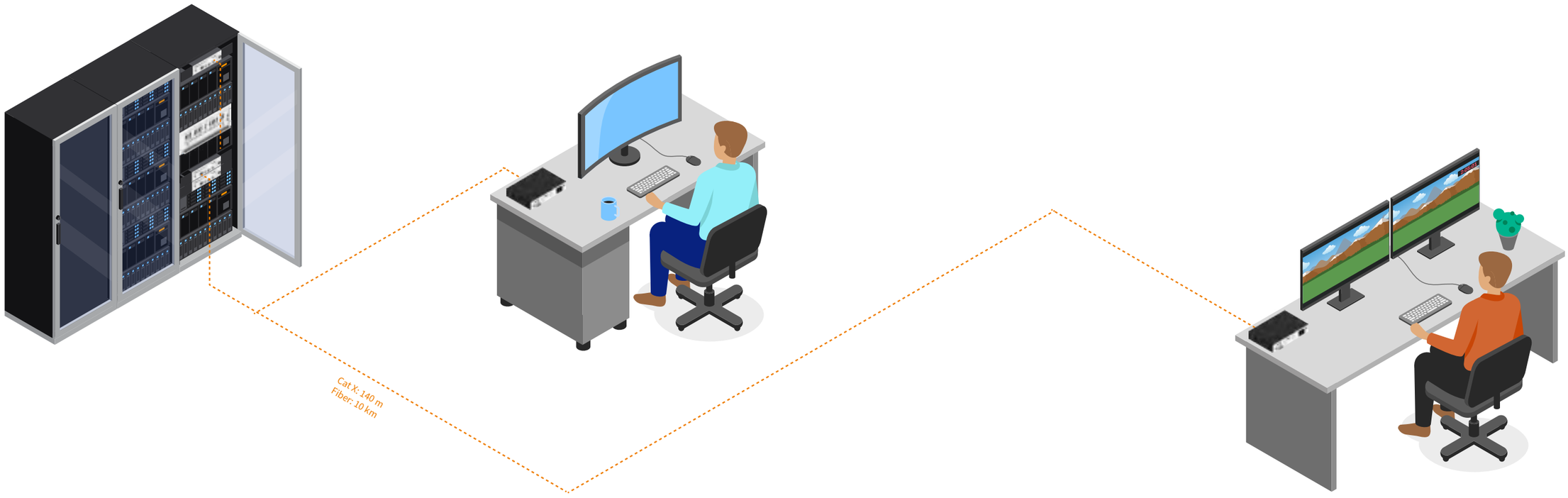
PART NUMBERS UHD 4K30

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
USB-HID	✓	✓	✓	✓
4K UHD	✓	✓	✓	✓
Local Out/In	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L481-BUHCL	L481-BUHCLR	R481-BUHCL	R481-BUHCLR
Fiber 1G	L481-BUHSL	L481-BUHSLR	R481-BUHSL	R481-BUHSLR
Fiber 3G	L481-BUHXL	L481-BUHXLR	R481-BUHXL	R481-BUHXLR

MODULE L483-BDHCR and R483-BDHCR in
CHASSIS 474-BODY2N

FEATURES & BENEFITS

- Available in two versions:
  - DH operation up to 1920 x 1200 per video head
  - SH operation up to 4K30
- Single Head (4K30) versions support ultra wide resolutions of curved screens (e. g. 3440 x 1440)
- Support for embedded digital stereo audio
- Compatible with other Draco vario extender series
- Link redundancy also features
- Support for add-on modules of USB 2.0, RS232 and others



PART NUMBERS

	PROPERTIES	TRANSMITTER UNIT (CPU)	
	USB-HID	✓	✓
	Redundant	-	✓
Full HD	Cat X	L483-BSHC	L483-BSHCR
	Fiber 1G	L483-BSHS	L483-BSHSR
Single Head 4K30	Cat X	L483-BDHC	L483-BDHCR
Dual Head 1920 x 1200	Fiber 1G	L483-BDHS	L483-BDHSR
	Fiber 3G	L483-BDHX	L483-BDHXR

PART NUMBERS

	PROPERTIES	TRANSMITTER UNIT (CPU)	
	USB-HID	✓	✓
	Redundant	-	✓
Full HD	Cat X	R483-BSHC	R483-BSHCR
	Fiber 1G	R483-BSHS	R483-BSHSR
Single Head 4K30	Cat X	R483-BDHC	R483-BDHCR
Dual Head 1920 x 1200	Fiber 1G	R483-BDHS	R483-BDHSR
	Fiber 3G	R483-BDHX	R483-BDHXR

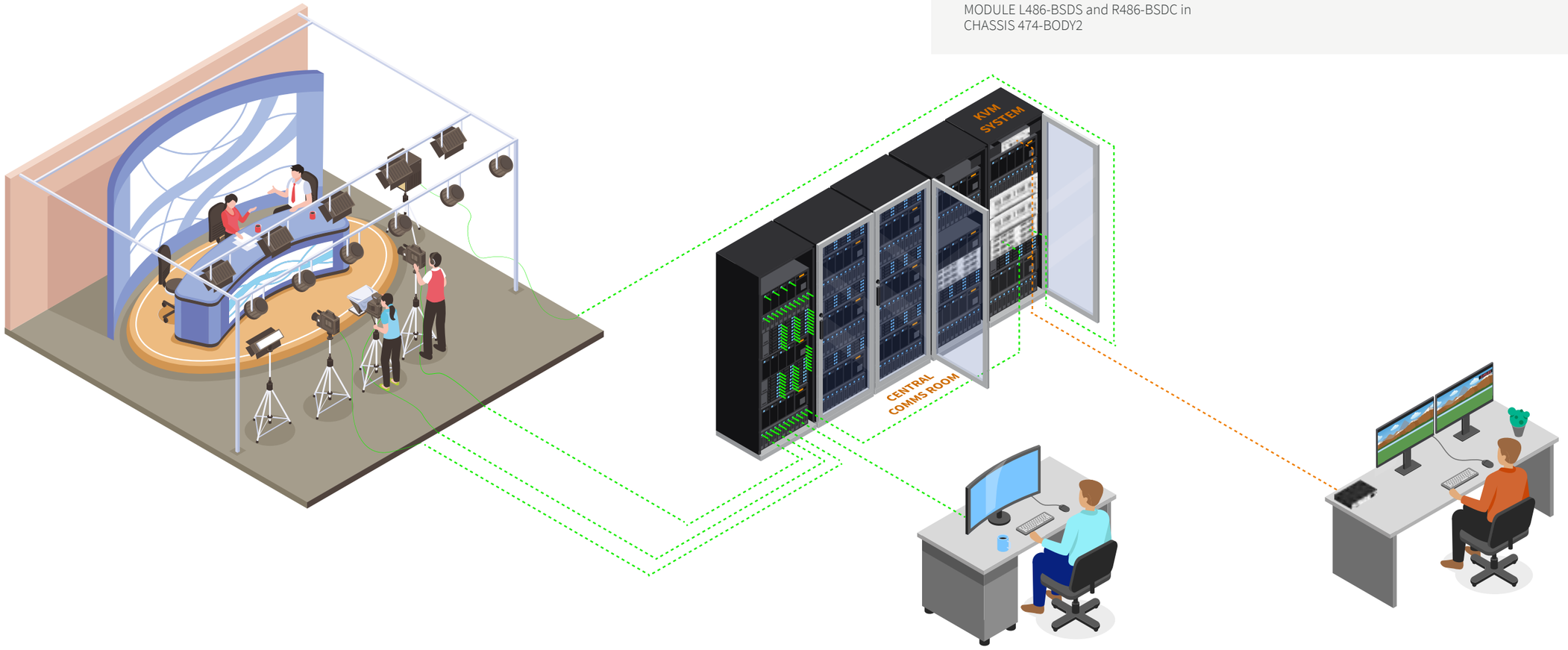
HOMOGENEOUS INTEGRATION OF 3G SIGNALS

The Serial/Standard Digital Interface (SDI) is a serial, digital interface, primarily used for the distribution of uncompressed and unencoded video data using coax cable or fiber cable.

Our SDI extenders enable a seamless integration of SDI signals into KVM, particularly suited to the broadcast sector where SDI signals are an essential part of broadcast and production environments. Our SDI extenders facilitate the output of broadcast signals on standard PC monitors. They enable users to observe broadcast signals without having to utilize specialized and expensive monitors with SDI interfaces.

Broadcasting personnel can observe the signal, switch if needed, control the signal generating computers and contribute to the workflow as necessary.

Draco SDI extenders are not meant to be used for SDI reference signals or to replace native SDI routers.



Draco vario extenders and Draco tera matrix systems are often used in broadcast environments such as SCR, MCR and Playout to optimize the workflow. To easily check the presence of an SDI source the SDI modules (486 series) allow seamless and homogeneous ingest of 3G SDI signals into the KVM systems by displaying them on standard HDMI, DP, DVI or even VGA monitors. But also vice versa any PC originated signal can be output on SDI monitors with up to 1080p resolution.
N. B. this is not being intended as reference monitoring!

MODULE L486-BSDS and R486-BSDC in CHASSIS 474-BODY2

FEATURES & BENEFITS

- Low cost entry into expensive interfaces
- Workflow enhancement
- Enables use of standard peripheral equipment to view SDI signals on a normal PC monitor
- Redundant power supply
- Robust mounting
- Cross-Point-Router

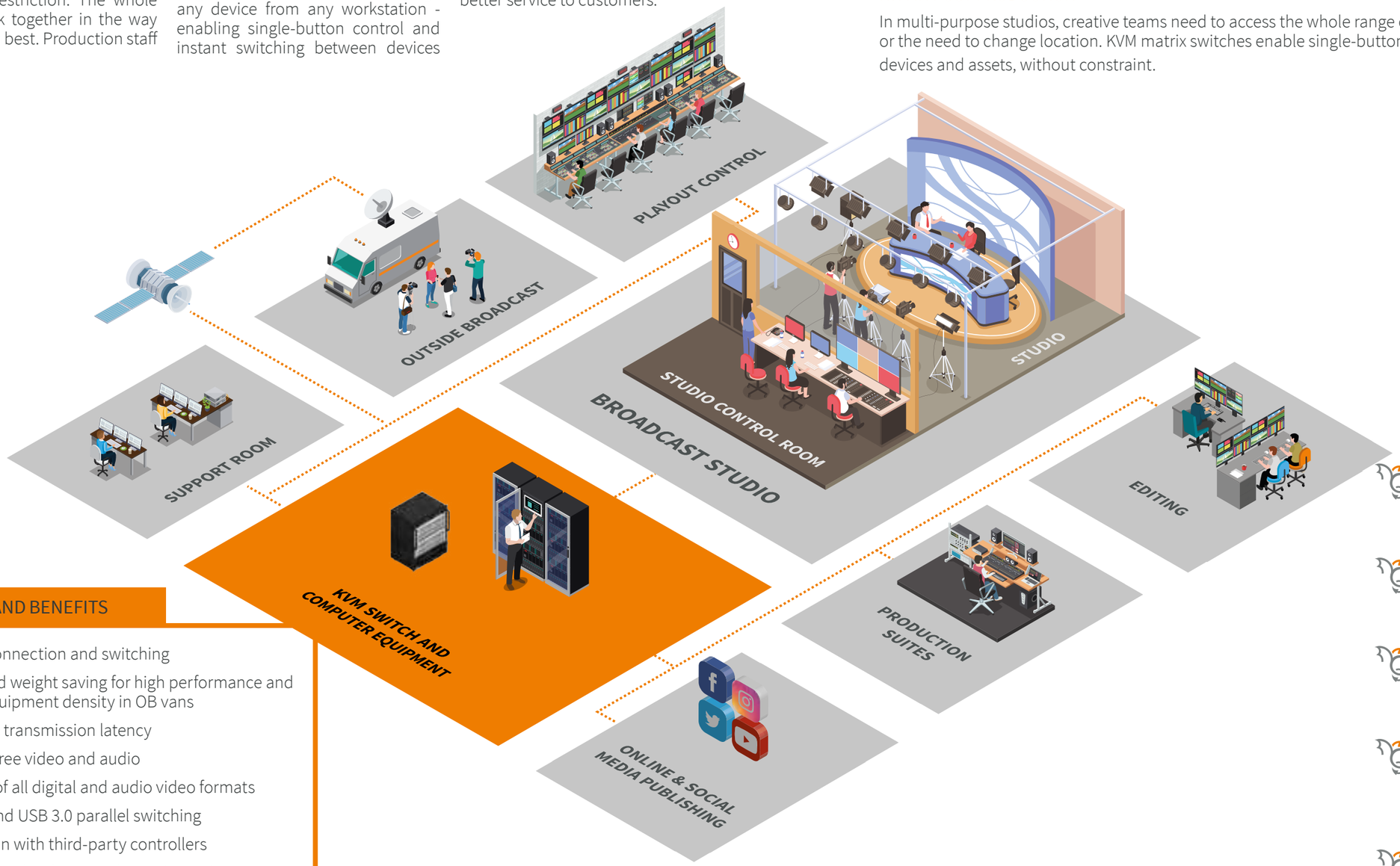
PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
1910 x 1080	✓	✓	✓	✓
Embedded audio	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L486-BSDC	L486-BSDCR	R486-BSDC	R486-BSDCR
Fiber 1G	L486-BSDS	L486-BSDSR	R486-BSDS	R486-BSDSR

ACCESS ANY BROADCAST DEVICE, INSTANTLY

In today's fast-paced broadcast environment, the ability to instantly access essential equipment is crucial to every great transmission.
In studios and galleries, workstations are instantly configured to suit presenters and producers. Studios instantly assigned to any type of program. Support staff and engineers can reach their tools immediately and without restriction. The whole team can work together in the way that suits them best. Production staff and operators are free to work at any station, promoting greater efficiency and a comfortable working environment. In multi-purpose studios, creative teams need to access the whole range of digital workstations, without disruption or the need to change location.

KVM matrix switches allow operators, engineers and producers to manage any device from any workstation - enabling single-button control and instant switching between devices and assets, without constraint. Delivering greater flexibility, increased efficiency and enhanced system security and reliability. Broadcast studios, OB vans and post production facilities around the world rely on Draco tera switches to connect and control vital equipment. This great flexibility also allows OB vehicles to service a greater range of assignments and deliver better service to customers.



FEATURES AND BENEFITS

- Instant connection and switching
- Space and weight saving for high performance and higher equipment density in OB vans
- Near-zero transmission latency
- Artefact-free video and audio
- Support of all digital and audio video formats
- HD-SDI and USB 3.0 parallel switching
- Integration with third-party controllers
- Extensive redundancy and security options
- Modular, expandable, future-proof

KVM IN BROADCAST STUDIOS

In studios and galleries, workstations are instantly configured to suit presenters and producers. Studios instantly assigned to any type of program. Support staff and engineers can reach their tools immediately and without restriction. The whole team can work together in the way that suits them best.

KVM IN OUTSIDE BROADCAST

Production staff and operators are free to work at any station, promoting greater efficiency and a comfortable working environment. Greater flexibility allows OB vehicles to service a greater range of assignments and deliver better service to customers.

KVM IN POST PRODUCTION

In multi-purpose studios, creative teams need to access the whole range of digital workstations, without disruption or the need to change location. KVM matrix switches enable single-button control and instant switching between devices and assets, without constraint.

PRODUCTS IN FOCUS

Draco tera KVM Matrix Switch

Draco vario KVM Extenders

Draco MultiView 4K60

Draco SIRA CPU

Draco SIRA CON

USB Type C (also known as USB-C) is an interface that has many benefits for users and manufacturers, especially its space saving compactness and versatility. These benefits helped it gain popularity and widespread application for example in mobile devices and desktop PCs. USB-C can be used as port for data and power. Therefore, is has the potential to replace USB Type A, HDMI, Audio Jack and power supply input in a single port.

Unfortunately, these benefits can come with severe disadvantages as well. Due to its compactness, the USB-C port can be very fragile and is not ideally suited for permanent connections.

Also, because of the versatility of USB-C and a lack of standardization, users need to take a closer look at what the respective USB-C port is actually able to do: The different speeds and different modes of data transfer can be confusing for the user. In addition to that, USB-C can be with or without power delivery. Users are left with a plethora of different functions and icons.

This results in a variety of options for cables and ports which are already confusing in themselves and on top of that not always labeled properly.

See table below.

		USB 2.0 High Speeds 480 MBit/s	USB 3.0 Super Speed 5 GBit/s	USB 3.1 Gen 2 Super Speed Plus 10 GBit/s
without power delivery	without DisplayPort			
	with DisplayPort			
with power delivery	without DisplayPort			
	with DisplayPort			
Thunderbolt with power delivery, with DisplayPort		-	-	-

Users need to make sure their device is properly suited for the connection with an IHSE USB-C extender. Therefore, please consult the devices' data sheet in advance.

Our devices support:

- Alternate DisplayPort mode (for video and audio)
- USB-HID
- USB 2.0

Reminder: Our devices do not support power delivery via USB-C. As a result, users need to make sure to utilize other power sources.

MODULE L489-BCHE2CR and R489-BCHE2S in CHASSIS 474-BODY2

FEATURES & BENEFITS

- Accessible through one cable
- Simple and clutter-free connection
- Compatible with popular conference room equipment
- Allows sharing of conference and presentation equipment between users
- Support of embedded audio
- Use of DisplayPort protocol
- Maximum resolution up to 4K30

PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)	
USB 2.0 50 Mbit/s / USB 2.0 100 Mbit/s	✓	✓
2-ch stereo audio embedded digital	✓	✓
Redundant	-	✓
Cat X	L489-BCHE2C	L489-BCHE2CR
Fiber 1G	L489-BCHE2S	L489-BCHE2SR
Fiber 3G	L489-BCHE2X	L489-BCHE2XR

KVM TECHNOLOGY ENTERS CONFERENCING FACILITIES

While traditionally conferencing facilities were equipped with so-called PRO-AV technology for extending, routing and switching of mainly audio and video signals, KVM technology today takes over in more and more such applications. And there are good reasons for this change:

INTERACTION WITH CONNECTED DEVICES

KVM technology allows for keyboard and mouse interactivity with connected devices (Laptops, PCs) on top of just routing the audio and video signals.
Via the same peripherals simple and cost-effective control options for signal switching are already built-in. Support for USB devices such as touch screens and standard keyboards and mice create an optimal solution for modern huddle spaces of high quality.

BEST AND RELIABLE PERFORMANCE

High-Performance KVM systems are build mainly for mission critical applications where reliability is key. 24-7 system uptime is a standard ingredient and guarantees interrupt-free conferencing, a key requirement especially for board rooms.
Best video performance up to 4K60 incl. HDCP support without artifacts and frame drops paired with secure signal transmission are outstanding for sensitive environments, too.

MULTI-SITE AND MULTI-VIEW

Interconnecting multi-site conferencing areas via a central switching system allows for resource sharing as well as flexible meeting infrastructure at the same time. In combination with compatible 4K60 capable multiviewers smooth side by side presentations contribute to perfect presentations without sacrificing quality.

INTERFACE FLEXIBILITY

Aa variety of interfaces for video and audio including USB-C, DisplayPort, HDMi, VGA, DVI, SDI and USB are available for best compatibility.

FEATURES AND BENEFITS

- Highest security and liability
  Highly available solutions for conferencing, based on the mission critical 24/7 nature of KVM technology
  High performance and secure signal delivery up to 4K60
- Continous working
  Simple management and control without the need for external media control applications
- Use of standard equipment possible
  Interact with connected sources via keyboard and mouse
  HDCP support for multimedia and TV integration
  Simplified connectivity for mobile devices (USB C)

PRODUCTS IN FOCUS

Draco vario USB-C extender

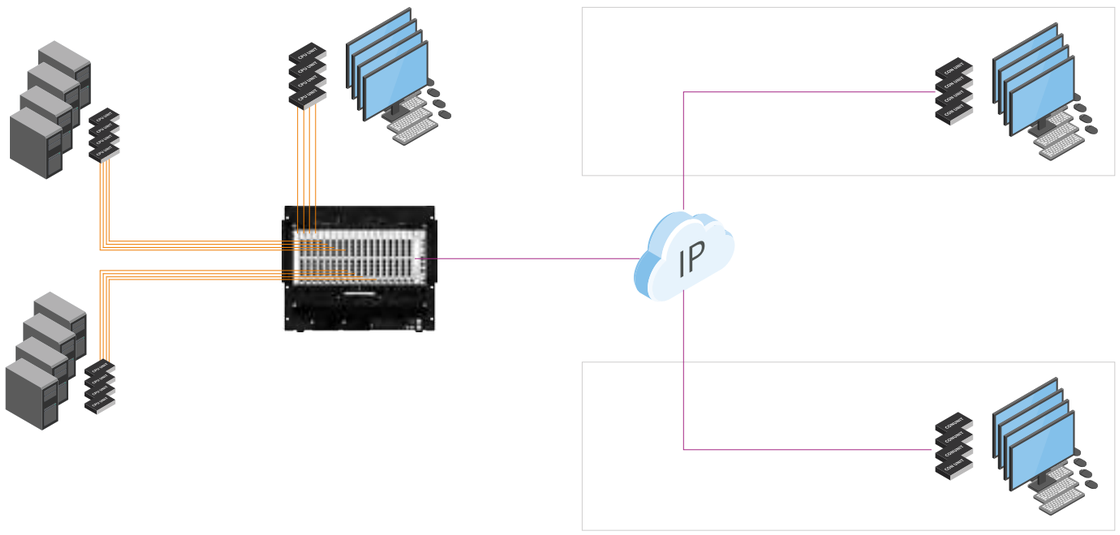
Draco vario HDMI extender

Draco tera compact

MODULE IP-R481-BUHCL in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Space-saving form factor for dense mounting
- Compatible with all Draco vario chassis solutions
- Single head 4K30 support
- Real-time KVM access via 1G IP networks to Draco tera matrix systems
- Compatible to existing Draco tera installs via Draco tera IP Gateway
- Basic requirements to network infrastructure only



PART NUMBERS

PROPERTIES	RECEIVER UNIT (CON)	
USB-HID	✓	✓
4K30	✓	✓
Redundant	-	✓
Cat X	IP-R481-BUHCL	IP-R481-BUHCLR
Fiber 1G	IP-R481-BUHSL	IP-R481-BUHSLR

MODULE IP-R483-B2HCR in
CHASSIS 474-BODY2N

FEATURES & BENEFITS

- Space-saving form factor for dense mounting
- Compatible with all Draco vario chassis solutions
- Single head 4K30 or dual head 1920 x 1200 support
- Real-time KVM access via 1G IP networks to Draco tera matrix systems
- Compatible to existing Draco tera installs via Draco tera IP Gateway
- Basic requirements to network infrastructure only

ACCESS FLEXIBILITY

The Draco vario IP Gateway consoles provide seamless integration into Draco tera KVM matrix applications via IP network infrastructure. Instead of using dedicated Cat X or fiber optic links, the new IP based consoles make use of Gigabit Ethernet topologies, allowing for more flexibility accessing via Draco tera KVM matrix switches attached target computers.
KVM connections with up to 4K30 resolutions single head or 1920 x 1200 dual head are supported across 1G IP connections in real-time.

NETWORK SIMPLICITY DUE TO HYBRID SETUP

Since the core KVM matrix system is still based on easy to setup proprietary connectivity, it is way easier to provide individual consoles flexible IP access. Requirements on the network infrastructure are just sufficient bandwidth and low latency for maintaining highest performance. Complexity such as Multicast, IGMP, Jumbo Frames are not to worry about, thanks to the hybrid KVM architecture.

All that is required is a Draco tera enterprise or Draco tera flex matrix switching system with an IP Gateway interface and 1G/10G network infrastructure.

This hybrid KVM setup with its mix of proprietary and IP connected endpoints.

See page 122 for more information about IP Gateway and typical use cases.

PLEASE NOTE

- Recquires a Draco tera IP Gateway
- Only usable with CPU Units of the Classic Series

PART NUMBERS

PROPERTIES	RECEIVER UNIT (CON)	
USB-HID	✓	✓
UHD	✓	✓
Redundant	-	✓
Cat X	IP-R483-B2HC	IP-R483-B2HCR
Fiber 1G	IP-R483-B2HS	IP-R483-B2HSR

The Draco vario ultra is the first ever KVM extender that uses the “Lightweight Image Coding technology” Lici®. This technology was developed in partnership with the German Fraunhofer Institute for Integrated Circuits. The innovative codec enables the transmission of high-resolution video streams within the available infrastructure and bandwidth capacity at very low latency. All without sacrificing either image quality or dynamic range. Resolutions of 2K, 4K, 8K and even higher are possible, as well as frame rates of up to 60 frames per second.

In addition to that, Lici® also enables the synchronous transmission of signals over a single link. Furthermore, several extenders can be configured in a way that enables the simultaneous arrival of signals, which makes displaying them on videowalls without any dropped frames possible.

Use cases include many demanding visualization scenarios like command-and-control environments like in law enforcement but also installations in museums and art exhibitions with complicated installations like video domes.

Compared to our classic codec used, Lici® also has the benefits a mezzanine compression that is up to mathematically lossless and RGB/YCbCr or raw data compression.

In short – Thanks to the Lici® codec we can offer you the highest standard in KVM there is.

KVM IN ESPORTS PRESENTATION AND BROADCAST WORKFLOWS

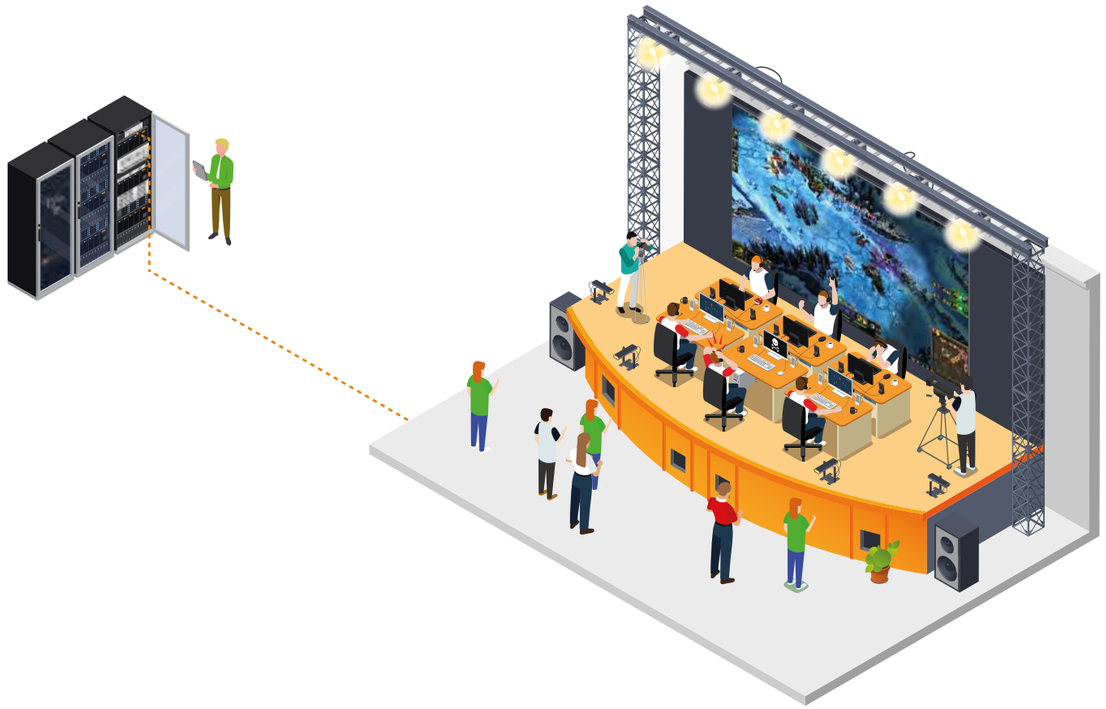
Major esports events are attended by thousands of passionate spectators in major venues and watched by millions online. Live events are served by two video production workflows.

Venue presentation workflow

Live action is relayed to gamers and observers. Massive screens present dynamic images to spectators above the players’ stage.

Broadcast transmission workflow

Presenters and production teams broadcast the story of the game, interpreting and reviewing the actionin quickfire discussion and demonstration.



TECHNOLOGY OF DRACO VARIO ULTRA

KVM extenders with integrated Fraunhofer IIS’s lightweight coding technology

Lici® (Lightweight Image Coding technology)

- Mezzanine compression up to mathematically lossless
- Low latency
- No frame drops
- RGB/YCbCr or raw data compression
- 2K/4K/8K possible or higher frame rates
- Genlock / Source synchronous transmission

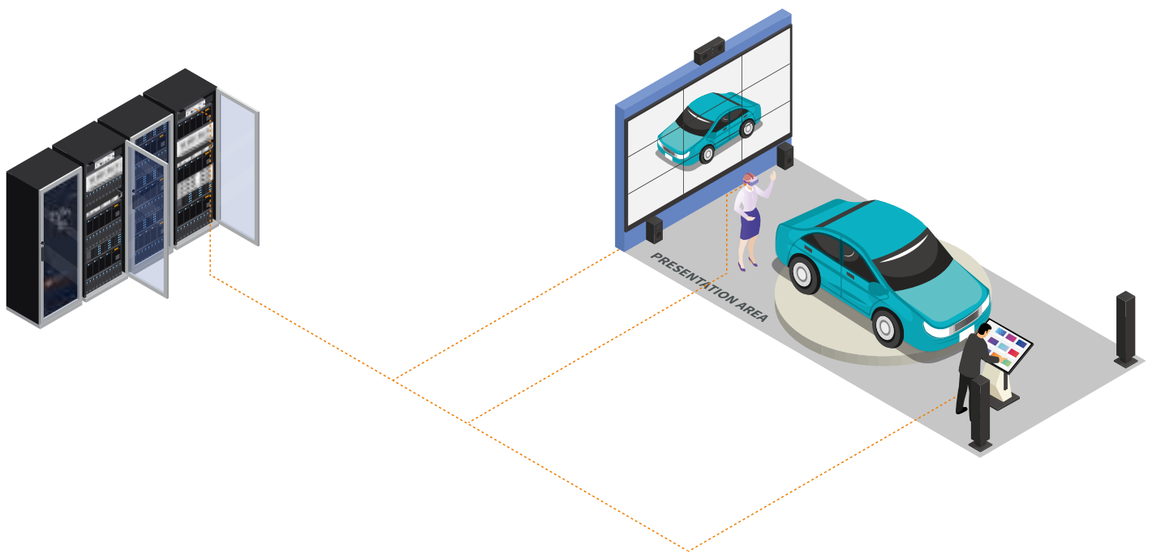
The Draco vario ultra is the first ever KVM extender that uses the Lightweight Image Coding technology Lici® and has been developed in partnership with the Fraunhofer Institute for Integrated Circuits. The innovative codec enables the transmission of high resolution video streams within the available infrastructure and bandwidth capacity at very low latency, without sacrificing either image quality or dynamic range.

AUTOMOTIVE DESIGN WITH SYNCHRONIZED MULTI-IMAGE VIDEO WALL AND VIRTUAL REALITY

Virtual, augmented and mixed reality systems are becoming invaluable in retail, medical, product design, education, entertainment, situational training and many other commercial and enterprise applications.

These installations benefit from KVM extender technology which can distribute signals over long distances, connecting source computers to remote virtual headsets, large video screens and immersive CAVEs.

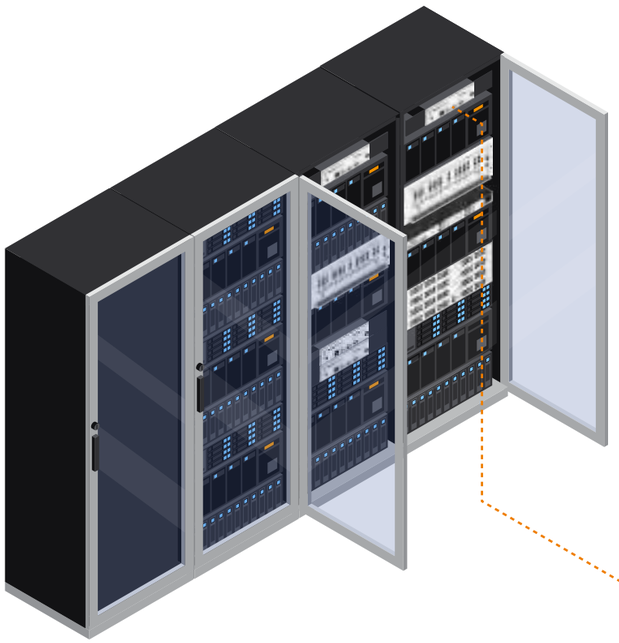
IHSE KVM extenders and switches are designed to operate with minimal delay to transmit the high resolution, fast refresh images that are fundamental to VR, AR and MR systems.



MODULE L494-BVHS in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Full HD
- Transmission with no framedrops (at 60 Hz: full 60 frame per second)
- High quality
- Lossless transmission
- Ideal for all moving image applications



PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)	
USB-HID	✓	✓
1920 x 1200 @ 60 Hz	✓	✓
Redundant	-	✓
Cat X	L494-BVHC	L494-BVHCR
Fiber 1G	L494-BVHS	L494-BVHSR

MODULE L491-BHHS in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Full HD
- Transmission with no framedrops (at 60 Hz: full 60 frame per second)
- High quality
- Lossless transmission
- Ideal for all moving image applications

The Draco vario ultra series allows integration of DVI-I sources such as older PCs or servers with VGA interface in combination with DVI, HDMI or DP remote units. Scaling and framerate conversion ease the integration into full HD workflows and LCDs monitors only supporting 60 Hz refresh.

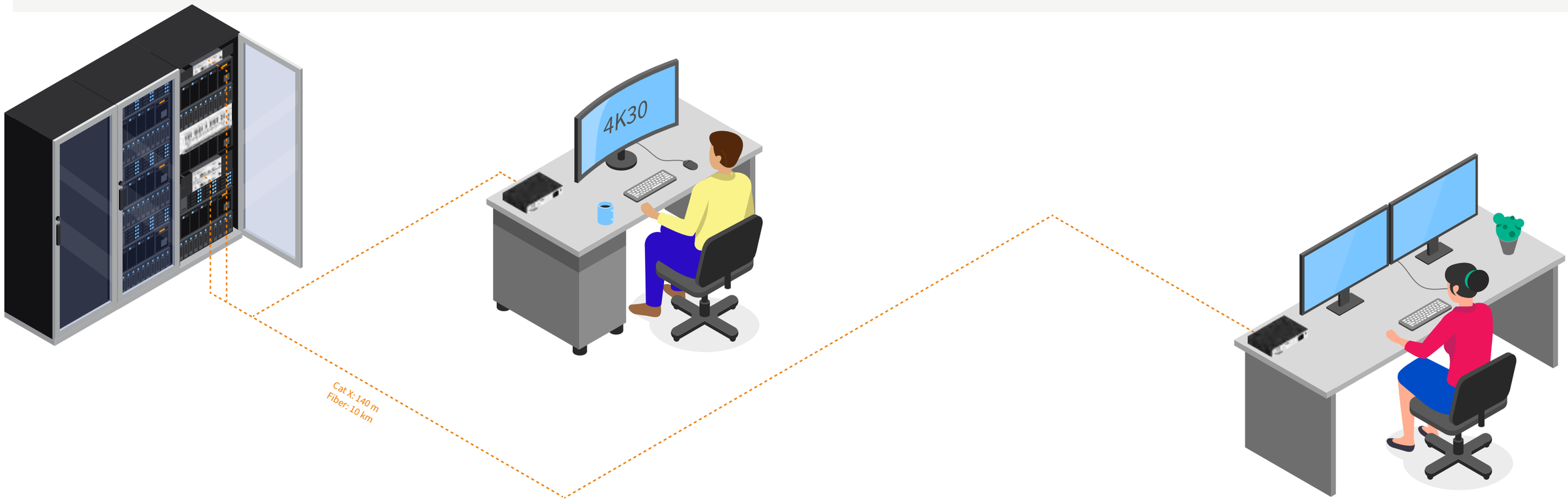
PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)			
USB-HID	✓	✓	✓	✓
1920 x 1200 @ 60 Hz	✓	✓	✓	✓
Local Out/In	-	-	✓	✓
Redundant	-	✓	-	✓
Cat X	L491-BHHC	L491-BHHCR	L491-BHHCL	L491-BHHCLR
Fiber 1G	L491-BHHS	L491-BHHSR	L491-BHHSL	L491-BHHSLR

MODULE L492-BDHC and R492-BDHC-R1 in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Transmits two Full HD signals across a single link
- Ideal and compact solutions for any dual head application
- Saves space and infrastructure
- Single head CONs can access both video channels of CPUs
- Accessing local unit from single head remotes - extremely high quality image transmission
- Full HD and 4K dual head, dual link
- 2560 x 2048 @ 60Hz
- 4096 x 2160 @ 30Hz



PART NUMBERS DUAL LINK

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
USB-HID	✓	✓	✓	✓
4K30	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L492-BDHC	L492-BDHCR	R492-BDHC-R1	R492-BDHCR-R1
Fiber 1G	L492-BDHS	L492-BDHSR	R492-BDHS-R1	R492-BDHSR-R1
Fiber 3G	L492-BDHX	L492-BDHXR	R492-BDHX-R1	R492-BDHXR-R1

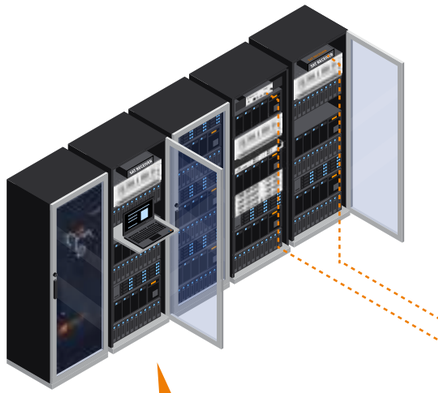
PART NUMBERS DUAL HEAD

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
USB-HID	✓	✓	✓	✓
2x 1920 x 1200	✓	✓	✓	
Redundant	-	✓	-	✓
Cat X	L492-B2HC	L492-B2HCR	R492-B2HC-R1	R492-B2HCR-R1
Fiber 1G	L492-B2HS	L492-B2HSR	R492-B2HS-R1	R492-B2HSR-R1
Fiber 3G	L492-B2HX	L492-B2HXR	R492-B2HX-R1	R492-B2HXR-R1

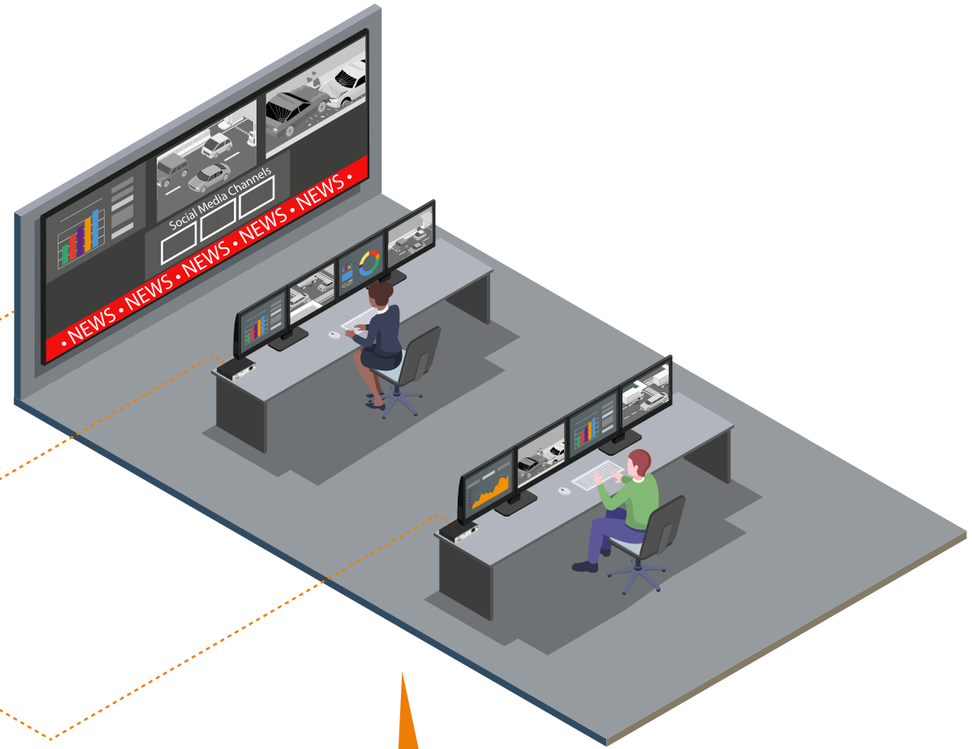
MODULE R491-BUHSLR and L491-BUHSLR in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- High quality transmission of full framerate
- HDCP functionality
- Suitable for playback and forensic analysis of social media and TV images
- Allows integration as DVD players, media receivers and Blue Ray Players
- Ideal for collaboration work for forensic analysis
- Moving image possible
- Ideal for motion picture without any frame drops
- HDCP functionality enables use as DVD, Blue Ray



Centralized cabinets hosting local units of extenders, matrix and source PCs as well as satellite receivers and media players.



Typical controlroom setup with newstickers and social media on the video wall.

PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
USB-HID	✓	✓	✓	✓
4K30	✓	✓	✓	✓
Local Out/In	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L491-BUHCL	L491-BUHCLR	R491-BUHCL	R491-BUHCLR
Fiber 1G	L491-BUHSL	L491-BUHSLR	R491-BUHSL	R491-BUHSLR
Fiber 3G	L491-BUHXL	L491-BUHXLR	R491-BUHXL	R491-BUHXLR

MODULE L495-BHHCXL-R1 and R495-BHHCXL-R1 in
CHASSIS 474-BODY2N

PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)	
USB-HID	✓	✓
4K60	✓	✓
Local Out/In	✓	✓
Redundant	-	✓
Cat X 3G	L495-BHHCXL-R1	L495-BHHCXLR-R1
Fiber 3G	L495-BHHXL-R1	L495-BHHXLR-R1

FEATURES & BENEFITS

- Matrix cross compatibility with 4K60 consoles
- Framerate conversion (CON)
- Offering dual access at CPU end via feed through port
- Switchable local sources at CON device
- 4K60 with 10-bit transmission at 4:2:2 or 8-bit 4:4:4
- Fanless operation on operator side for single head and dual head applications
- No frame drops 4K60 at full frame rate
- HDCP functionality
- Can be combined with add-on modules with audio and data interfaces

Especially for workspaces with silent operation requirements.

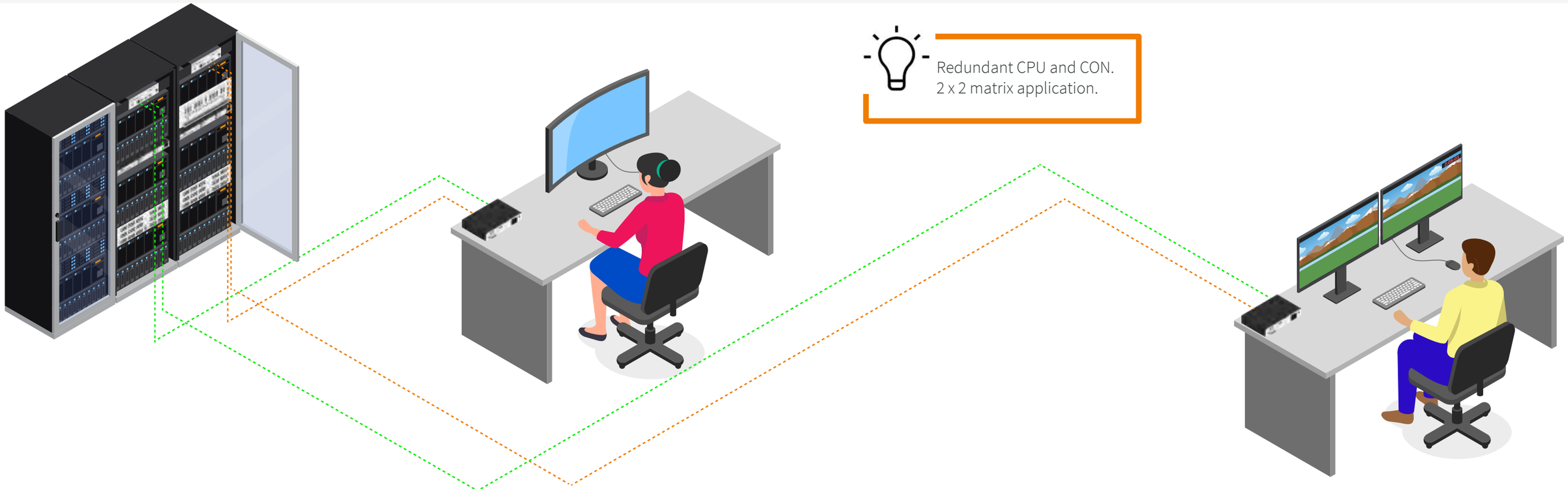
PART NUMBERS

PROPERTIES	RECEIVER UNIT (CON)	
USB-HID	✓	✓
4K60	✓	✓
Local Out/In	✓	✓
Redundant	-	✓
Cat X 3G	R495-BHHCXL-R1	R495-BHHCXLR-R1
Fiber 3G	R495-BHHXL-R1	R495-BHHXLR-R1

MODULE L493-BDHCR and R493-BDHCR in
CHASSIS 474-BODY2N

FEATURES & BENEFITS

- Available in two versions:
  - DH operation up to 1920 x 1200 per video head
  - SH operation up to 4K30 Transmission with no framedrops
- Single Head (4K30) versions support ultra wide resolutions of curved screens (e. g. 3440 x 1440)
- Synchronized transmission
- Low latency
- Backward compatible to Draco vario classic series
- Extremely high quality image transmission
- Suitable for playback and forensic analysis of social media and TV images



Redundant CPU and CON.
2 x 2 matrix application.

PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)	
USB-HID	✓	✓
Single Head 4K30	✓	✓
Dual Head 1920 x 1200	✓	✓
Redundant	-	✓
Cat X	L493-BDHC	L493-BDHCR
Fiber 1G	L493-BDHS	L493-BDHSR
Fiber 3G	L493-BDHX	L493-BDHXR

PART NUMBERS

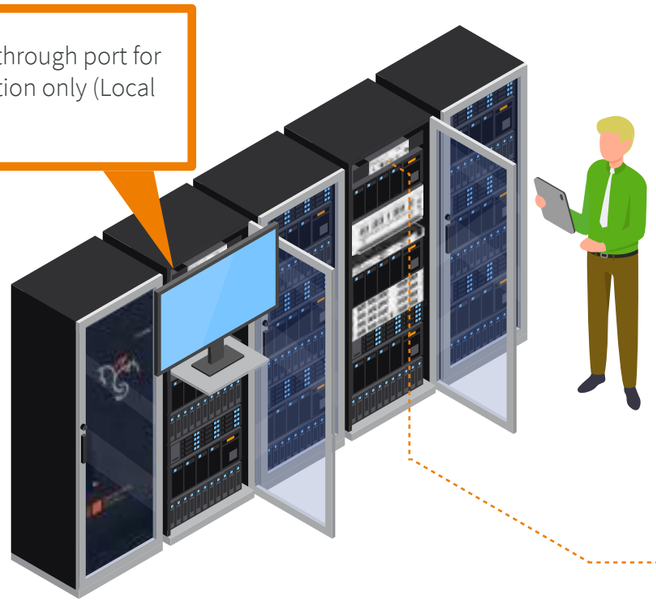
PROPERTIES	RECEIVER UNIT (CON)	
USB-HID	✓	✓
Single Head 4K30	✓	✓
Dual Head 1920 x 1200	✓	✓
Redundant	-	✓
Cat X	R493-BDHC	R493-BDHCR
Fiber 1G	R493-BDHS	R493-BDHSR
Fiber 3G	R493-BDHX	R493-BDHXR

MODULE L490-BPHCXL and R490-BPHCXL in CHASSIS 474-BODY2N

FEATURES & BENEFITS

- 4K60 10-bit 4:4:4
- Transmission with no framedrops
- Synchronized transmission
- Ideal for high resolution simulation design
- Ideal for conferencing facilities
- Cross compatibility with HDMI 2.0 and other Draco vario extenders
- Fanless and slim form factor
- High density capability
- Low power requirement

Local feed through port for administration only (Local Output).



PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)			
USB-HID	✓	✓	✓	✓
4K60	✓	✓	✓	✓
Local Out/In	-	-	✓	✓
Redundant	-	✓	-	✓
Cat X 3G	-	-	L490-BPHCXL	L490-BPHCXLR
Fiber 3G	L490-BPHX	L490-BPHXR	L490-BPHXL	L490-BPHXLR

ATC

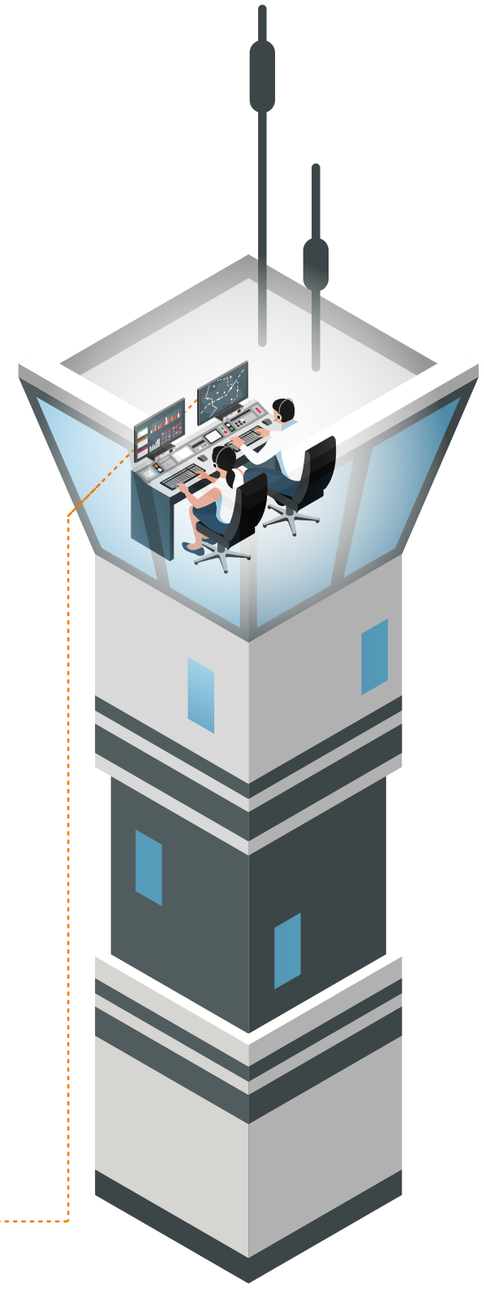
490 series Draco vario ultra DP1.2 extenders are the most compact and highly reliable DP1.2 KVM extenders and also one of the most energy saving ones.

This allows for dense mounting as heat dissipation is fairly low and passive cooling. It makes them the ideal workhorse for space-restricted applications like airport towers with remotely hosted PCs and the capabilities for redundancy.

Optional SNMP monitoring allows managing signal health status and extender health status to maintain a maximum of uptime.

Redundant CONs can be API controlled for supervised manual and automatic switching to backup sources even without a matrix switch.

See our Custom Design variants on page 106.



PART NUMBERS

PROPERTIES	RECEIVER UNIT (CON)			
USB-HID	✓	✓	✓	✓
4K60	✓	✓	✓	✓
Local Out/In	-	-	✓	✓
Redundant	-	✓	-	✓
Cat X 3G	-	-	R490-BPHCXL	R490-BPHCXLR
Fiber 3G	R490-BPHX	R490-BPHXR	R490-BPHXL	R490-BPHXLR

INFORMATION IS ESSENTIAL TO FLIGHT OPERATIONS

Airport operators and flight controllers rely on accurate and up-to-date information to make sure passengers reach their flights on time and ensure aircraft move safely around the skies. The air traffic industry today is also faced with the challenge of improving operational efficiency whilst remaining within budgetary constraints and without compromising safety. Accurate information flow is crucial to the smooth running of aircraft operations. That data must arrive without delay, error or corruption; continuously and with total reliability.

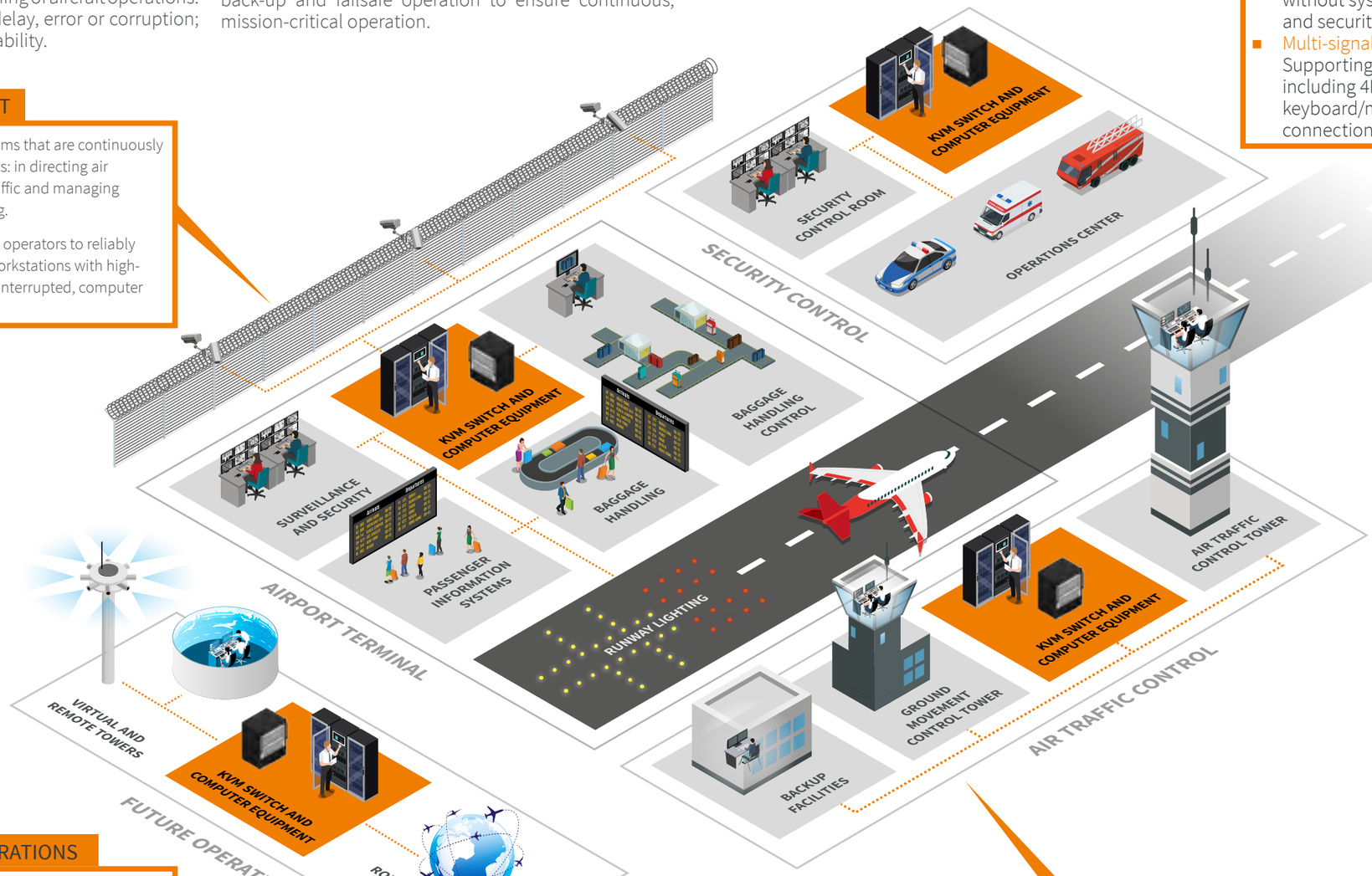
KVM SOLUTIONS FOR AIRPORTS AND AIR TRAFFIC CONTROL

IHSE's high performance KVM extenders and matrix switches bring new levels of functionality and capability to air traffic and airport operations. IHSE systems deliver critical data to control towers, aid ground and air personnel training, assist with baggage handling and inform passengers through terminal information and signage. All with multiple-levels of system redundancy, back-up and failsafe operation to ensure continuous, mission-critical operation.

KVM AROUND THE AIRPORT

Airports operate multiple control rooms that are continuously staffed and critical to airport activities: in directing air movements, coordinating surface traffic and managing passenger flow before and after flying.

KVM technology allows control room operators to reliably perform crucial tasks at dedicated workstations with high-speed data transmission and full, uninterrupted, computer access.



KVM FOR FUTURE AIR OPERATIONS

The air traffic industry is constantly seeking ways to improve operational efficiency whilst ensuring total operational safety and remaining within budgetary constraints.

IHSE's high-performance KVM solutions bring new levels of functionality and capability to air management; maximizing the return on existing assets and enabling seamless incorporation of new techniques and technologies into the operational infrastructure.

FEATURES AND BENEFITS

- Instant switching
  Switching between sources occurs with no latency, ensuring that operators are not faced with blank or frozen screens and do not miss vital information.
- Continuous operation
  Designes for 24/7 continuous operations with hot-swap capability enabling component replacement without system shut-down. Extensive redundancy and security options for total reliability.
- Multi-signal support
  Supporting all current video formats and resolutions, including 4K60 and beyond, alongside audio, keyboard/mouse signals and USB 2.0 and USB 3.0 connection.

KVM IN AIR TRAFFIC CONTROL

Information flow is crucial to air operations. In airports around the world, KVM technology transports real-time data, connecting controllers to essential computer tools to ensure flight safety and efficiency.

IHSE offers comprehensive and reliable solutions to air traffic control and management in digital, remote and virtual towers.

PRODUCTS IN FOCUS

Draco vario KVM Extenders

Draco tera KVM Matrix Switch

Draco MultiView 4K60

THE EXTENSION OF AT LEAST TWO SEPARATE VIDEO STREAMS OVER A SINGLE CONNECTING CABLE

The multi-stream transport protocol is part of the DisplayPort 1.2 specification. It allows multiple screens on a personal workstation to be connected to a computer using just one cable connection. The video signal is passed from the first monitor with built-in multi-stream hub to the second over a daisy-chained link. Both monitors are recognized and operated by the computer separately. Alternatively, the MST video signal can be split by external MST hubs and sent directly to any DisplayPort monitor.

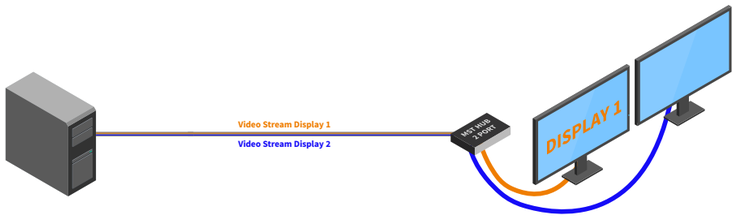
This method combines several signals and transports them over a single medium in order to reduce clutter on desks.

GENERAL FEATURES

- It allows two streams of 4K30 each or four streams of 1080p60 to travel along a single DisplayPort 1.2 or USB-C interface. Up to 63 displays could be supported.
- An MST hub or displays with built-in MST daisy-chain capability is required to break out the embedded individual video streams to the corresponding displays.
- The graphics adapter will recognize the connected peripherals and provide the corresponding multidisplay setup options as if multiple interfaces were directly connected to the graphics card.

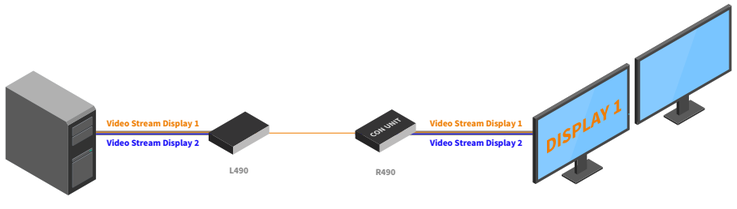
Standard native options

DP 1.2 MultiStream (MST)
Daisy-chain of two streams

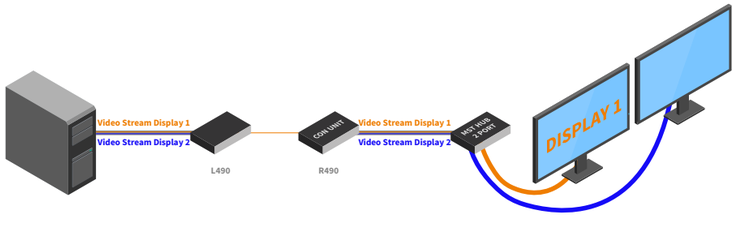


DP 1.2 MultiStream (MST)
MST Hub for two streams

Option with extenders



DP 1.2 MultiStream (MST)
Implementation to L/R490

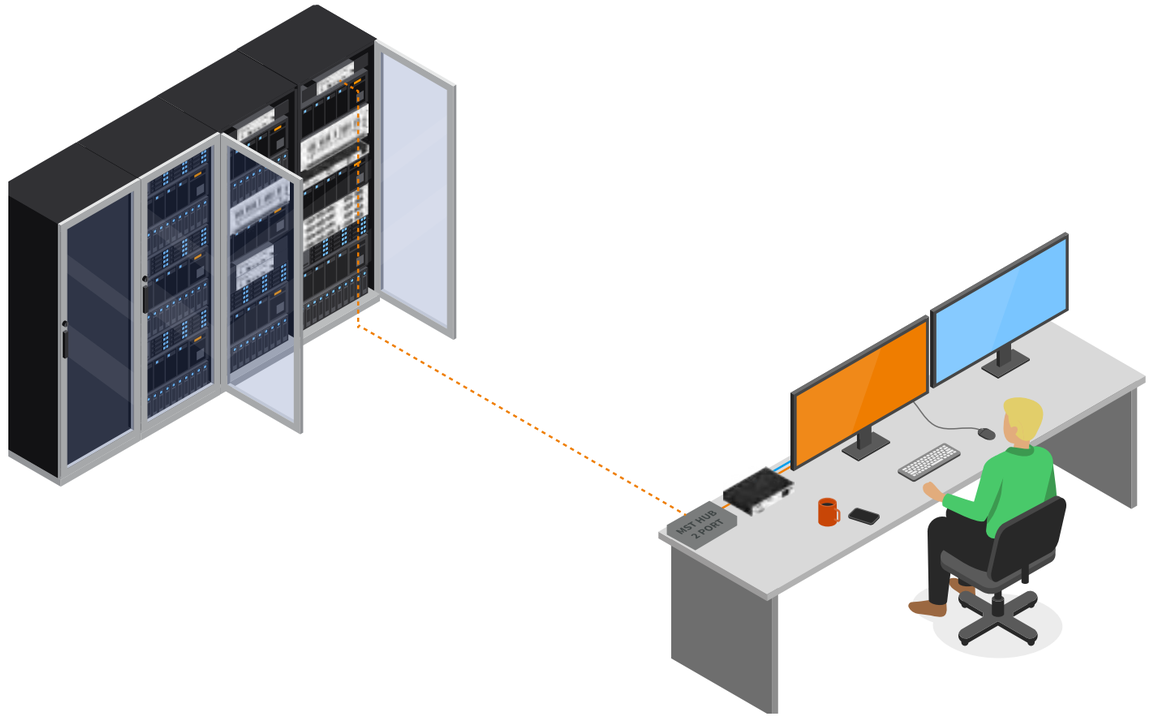


DP 1.2 MultiStream (MST)
Implementation to L/R490

MODULE L490-BPHCX-M and R490-BPHCX-M in CHASSIS 474-BODY2N

FEATURES & BENEFITS

- Transmits up to two streams of 4K30 resolution across a single connection
- Works with Multi-Stream Hubs or Daisy Chain technology integrated monitors
- Cross compatible with Draco vario ultra extenders
- Single stream resolutions up to 4K60
- 8-bit 4:4:4
- Low power requirement allows for dense mounting an fanless operation
- Reduces cable clutter and saves infrastructure requirements



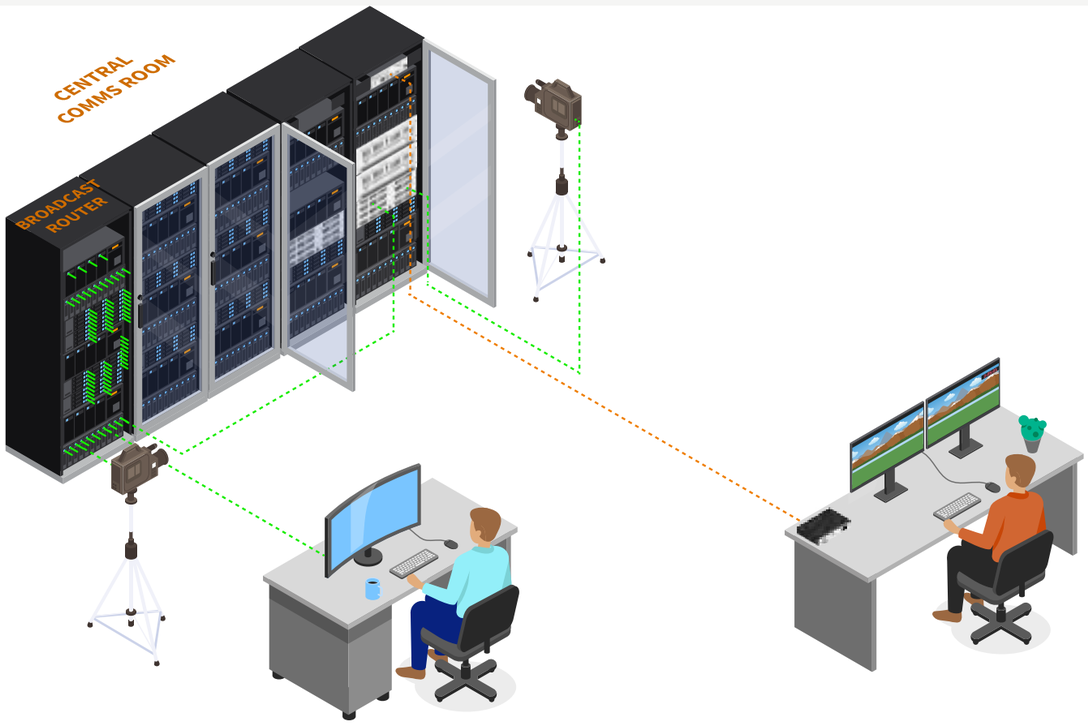
PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
USB-HID	✓	✓	✓	✓
4K60 SST	✓	✓	✓	✓
Max. 2 x 4K30 MST	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L490-BPHCX-M	L490-BPHCXR-M	R490-BPHCX-M	R490-BPHCXR-M
Fiber 3G	L490-BPHX-M	L490-BPHXR-M	R490-BPHX-M	R490-BPHXR-M

MODULE L496-BSDS and R496-BSDC in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Transmission with no framedrops
- Full performance
- Integration into 4K60 applications



PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)		RECEIVER UNIT (CON)	
1920 x 1080	✓	✓	✓	✓
Embedded audio	✓	✓	✓	✓
Redundant	-	✓	-	✓
Cat X	L496-BSDC	L496-BSDCR	R496-BSDC	R496-BSDCR
Fiber 1G	L496-BSDS	L496-BSDSR	R496-BSDS	R496-BSDSR

MODULE L499-BCHE2S and L499-BCHE2CR in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Accessible through one cable
- Simple and clutter-free connection
- Compatible with popular conference room equipment
- Allows sharing of conference and presentation equipment between users
- Support of embedded audio
- Use of DisplayPort protocol
- Maximum resolutions up to 4K30

PART NUMBERS

PROPERTIES	TRANSMITTER UNIT (CPU)	
USB 2.0 50 Mbit/s / USB 2.0 100 Mbit/s	✓	✓
2-ch stereo audio embedded digital	✓	✓
Redundant	-	✓
Cat X	L499-BCHE2C	L499-BCHE2CR
Fiber 1G	L499-BCHE2S	L499-BCHE2SR
Fiber 3G	L499-BCHE2X	L499-BCHE2XR

FUNCTIONS	TRANSMITTER UNIT (CPU)	RECEIVER UNIT (CON)
ANALOG AUDIO		
Analog Audio, RS232 up to 19,3 kBd	 L474-BAX	 R474-BAX
Analog Audio, RS232 up to 115 kBd	 L474-BRX	 R474-BRX
Analog Audio, RS422 up to 115 kBd	 L474-BSX	 R474-BSX
SYMMETRICAL AUDIO		
Symmetrical Audio	 L474-BB2X	 R474-BB2X
DIGITAL AUDIO		
Digital Audio	 L474-BDX	 R474-BDX
COMBINED MODULES - AUDIO		
Analog Audio, Digital Audio, RS232	 L474-BDA	 R474-BDA
2x Analog Audio, RS422 up to 115 kBd	 L474-BSS	 R474-BSS
Digital Audio bidirektional	 L474-BDD	 R474-BDD
USB		
USB 2.0 Hi-Speed	 L474-BXUC	 R474-BXUC
USB 2.0 Hi-Speed	 L474-BXUS	 R474-BXUS
USB 2.0 embedded, Flex Speed	 L474-BXE2	 R474-BXE2
USB 2.0 embedded	 L474-BXE	 R474-BXE
USB-HID	 L474-BXH	 R474-BXH

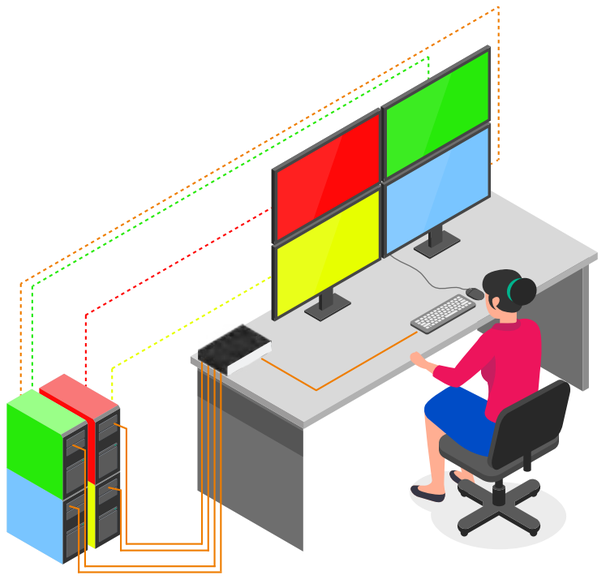
FUNCTIONS	TRANSMITTER UNIT (CPU)	RECEIVER UNIT (CON)
COMBINED MODULES - USB 2.0 FLEX SPEED		
USB 2.0 embedded, Flex Speed, Analog Audio, RS232 to 19,2 kBd	 L474-BAE2	 R474-BAE2
USB 2.0 Flex Speed, Analog Audio, RS422 bis 115 kBd	 L474-BSE2	 R474-BSE2
USB 2.0 embedded, Symmetrical Audio	 L474-BB2E2	 R474-BB2E2
USB 2.0 embedded, Analog Audio, RS232	 L474-BDE2	 R474-BDE2
USB 2.0 embedded, Analog Audio, RS232 up to 115 kBd	 L474-BRE2	 R474-BRE2
COMBINED MODULES - USB 2.0 EMBEDDED		
USB 2.0 embedded, Analog Audio, RS232	 L474-BAE	 R474-BAE
USB 2.0 embedded, Analog Audio, RS422	 L474-BSE	 R474-BSE
USB 2.0 embedded, Digital Audio	L474-BDE	R474-BDE
USB 2.0 embedded, Analog Audio, RS232	L474-BRE	R474-BRE
COMBINED MODULES - USB-HID		
USB-HID, Analog Audio, RS232	L474-BAH	R474-BAH
USB-HID, Analog Audio, RS422	L474-BSH	R474-BSH
USB-HID, Digital Audio	L474-BDH	R474-BDH

FEATURES & BENEFITS

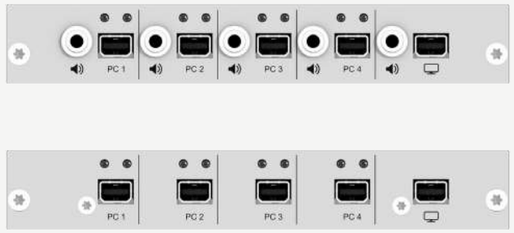
- Instant switching for fast, delay-free switching
- Switching via keyboard or optional push buttons
- Supports MSC 2.0: Multi-Screen Control (switching via mouse movement)
- Compatible with all Draco products and chassis
- Supports USB-HID and USB 2.0
- Space-saving design
- Four port Multi-Screen Control module
- GPIO functionality as an option

The 4-port Multi-Screen Control module reinforces the IHSE concept of highly modular and integrated KVM solutions. It fits into all of the Draco vario chassis in combination with Draco vario extenders to form an integrated solution for managing up to four remotely located source PCs with a single keyboard and mouse. The result is less clutter and gained space on the desktop, contributing to an ergonomic workspace. The 4-port Multi-Screen Control module can directly connect to PCs without needing extenders.

See Draco U-Switch series on page 90.



DESCRIPTION	DEVICE	PART NO.
Draco vario U-Switch module 4 ports USB-HID, USB 2.0		B476-4U4T



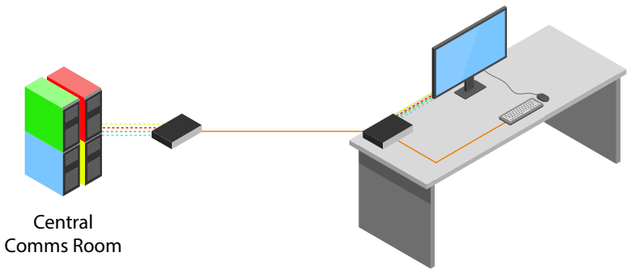
FEATURES & BENEFITS

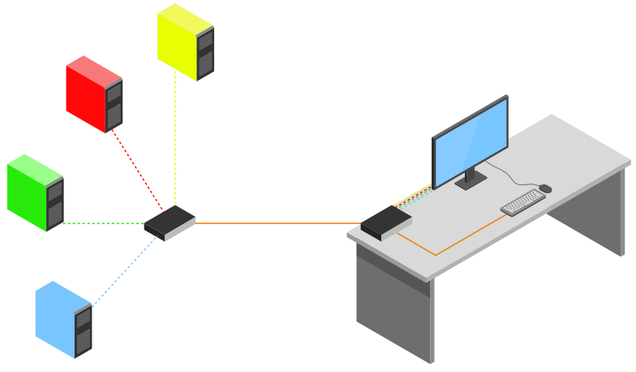
- Manage four remote PCs with single keyboard and mouse
- Removes desktop clutter
- Aids productivity
- Video signals can be switched between the sources
- Supporting DP video signals up to 4K60
- Expandable from single head up to 5 video heads
- Switching via API, hotkey, mouse control and optional push button control with GPIO

The DP-Switch modules in conjunction with the previously shown Multi-Screen module provide full KVM functionality in modularized format easily allow to create single head to quad head applications.

Please see Draco U-Switch on page 90.

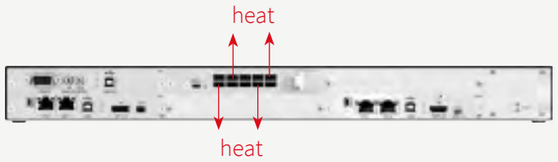
OPTION 1:
Central arrangement of computers





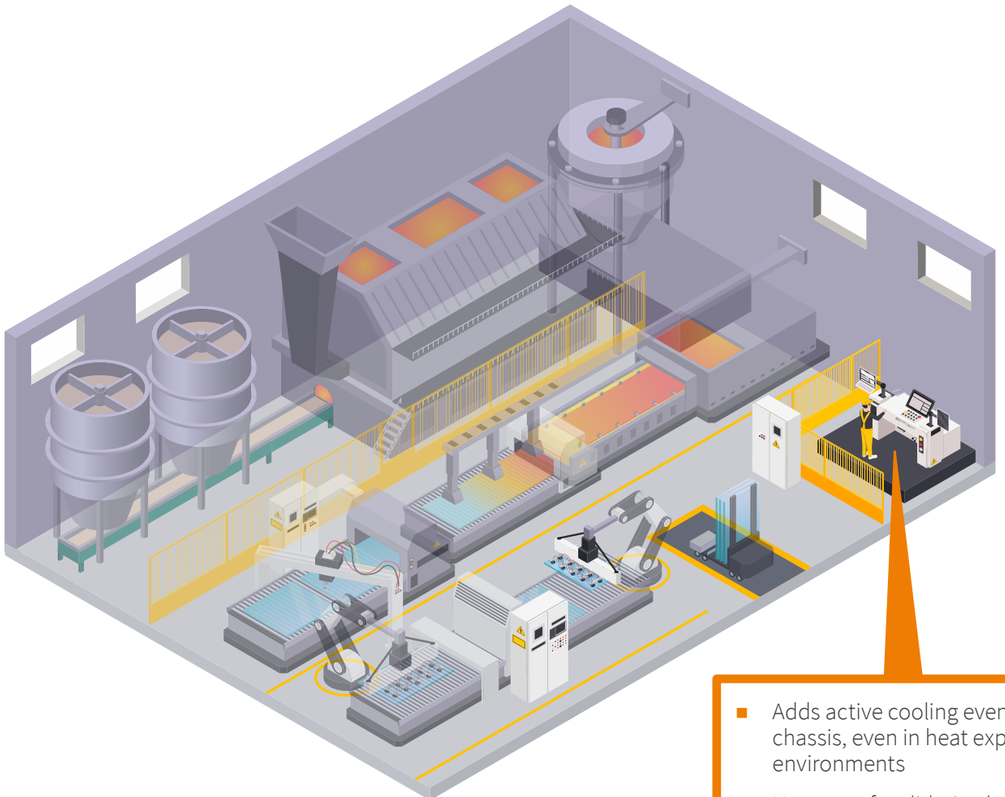
OPTION 2:
Decentral arrangement of computers
4:1 or 4x CON switch

DRACO DP SWITCH BOARD FOR CUSTOMIZED VARIANTS		PART NO.
DisplayPort KVM Switch Board without audio		DPS41-B
DisplayPort KVM Switch Board with audio		DPS41A-B



FEATURES & BENEFITS

- Adds additional forced air cooling
- Hot-swap and retro-fit design
- Fan cartridge module for Draco vario chassis (retrofittable for all Draco vario chassis)
- Allows additional device layout options
- Aids in space-saving KVM configurations
- Hot swappability in slide-in chassis format with no downtime for active extenders



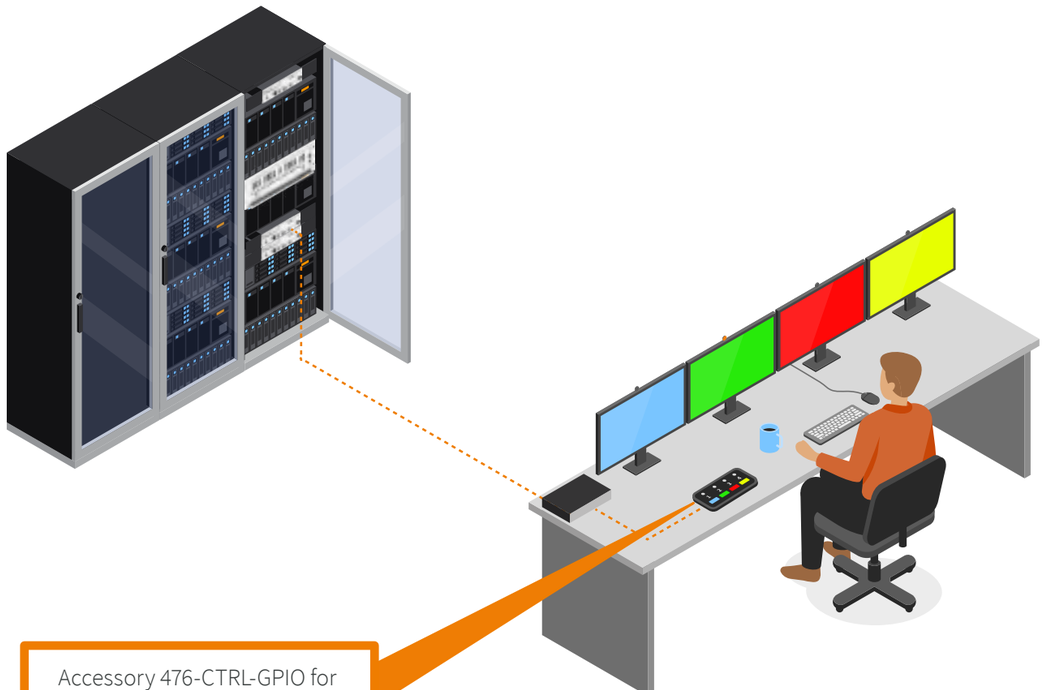
- Adds active cooling even in standard chassis, even in heat exposed environments
- Hot-swap for slide-in chassis
- MTTR less than 1 minute

DESCRIPTION	DEVICE	PART NO.
Draco vario fan cartridge module		474-MODFAN

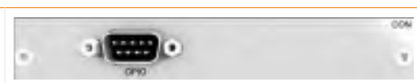
FEATURES & BENEFITS

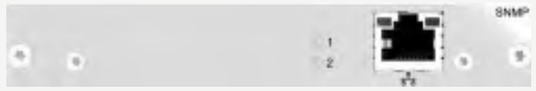
- Compatible with Draco vario chassis, Draco vario CONs and modular Draco U-Switch
- DP-Switch configurable behaviour of the module:
  - 8 GPIO contacts: configurable as inputs or outputs
  - Connector interface DB9M
  - Configuration setting can be read and set via Tera Tool
- 5 V DC output to drive e. g. LEDs
- Enhanced matrix features:
  - Execution of predefined user macros or CON macros
  - Execution of predefined user favorites or CON favorites
  - Execution of predefined HID scan codes (= keystrokes)

Multi-Screen Control with dry contact push button trigger to indicate active screen.



Accessory 476-CTRL-GPIO for optional use.

DESCRIPTION	DEVICE	PART NO.
Draco vario CON add-on module with 8x GPIO		R474-BGX



FEATURES & BENEFITS

- Designed for installation in 474-BODY6BP, 474-BODY6BPF and 474-BODY21/4U-R1 chassis
- Monitoring of function-critical parts of the chassis and integrated modules
- Monitoring of point-to-point connections and device status
- Extender parameters can be monitored via TCP/IP
- MIB file available (description of available status information)
- SNMP configuration via Draco tera Tool including remote firmware update via Draco tera Tool
- Support of syslog monitoring through Draco tera Tool or any existing syslog server

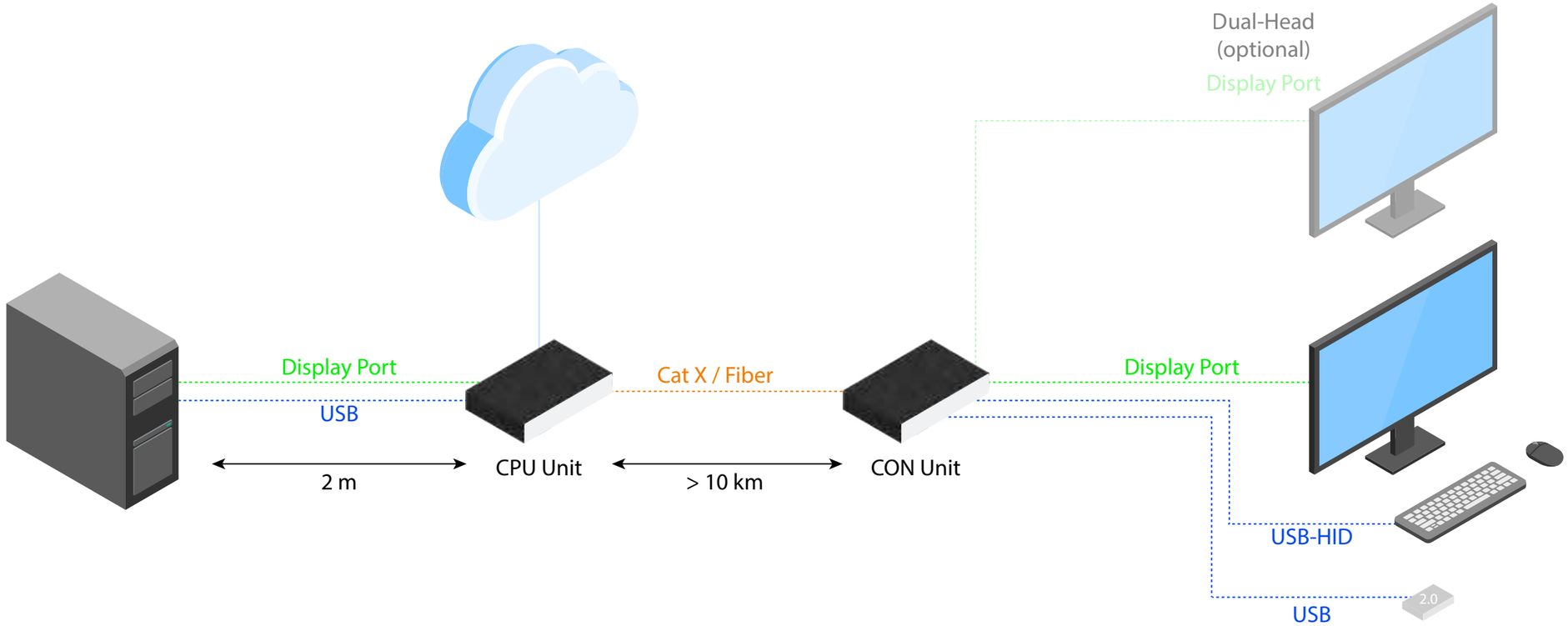
System health monitoring is usually achieved using SNMP (Simple Network Monitoring Protocol) via standard IP networks. Within the Draco eco system SNMP can be enabled through specific modules, extender chassis and the matrices. The SNMP protocol sends vital system information on the status of each device to a central location, where they are visualized and analyzed. A management suite maps the signals and represents the entire system and the status health of each element pictorially. Central Monitoring then enables an administrator to oversee and manage the entire system.

In the event of an equipment fault, an administrator may be notified by an audible alarm or through an email.

A major benefit of SNMP lies in its ability to provide system status information that allows administrators to detect, and attend to issues at an early stage - enabling them to maintain a stable KVM workflow for all users. This helps to achieve 24/7 operation ability.

In the case of an outage or a faulty part the admin can switch a workstation from Main to Backup manually or trigger any kind of counter acting measures automatically, analyze the status and inform a technician to solve the issue. All this with the operator at the workstation accessing alternate sources without any interference in the workflow.

This way Central Monitoring through SNMP enables a far better organization of extenders and matrices, turning them from simple devices into a well manageable and extremely reliable system.



DESCRIPTION	DEVICE	PART NO.
Draco vario SNMPv3-R1 module		474-SNMPv3-R1

INSTALLATION OPTIONS

SNMP module for sliding-in into the chassis 474-BODY6BP (slot 5), 474-BODY6BPF (slot 5), 474-BODY21/4U-R1 (slot 21).

The transmission of the traps is **encrypted** (SNMPv3).

ihse.

4K60 ATC-Switch

All data in your sight. With the new ATC-Switch, IHSE offers a single head/dual head switch with additional multiviewer functionality. The device is ideally suited as a fallback switch for air traffic control, where controllers need to switch between multiple single head or dual head sources in real-time to ensure redundancy. It also enables picture-in-picture displays independent of the monitor used.

ATC-Switch enables the operation of several computers from one workstation. Up to four single head or dual head computers can be connected via DisplayPort. The device supports 4K resolutions at a user-friendly frame rate of 60 Hz.

Connected sources are displayed on one or two monitors depending on the setup. Besides the normal full screen switching function for main, backup and last resort, ATC-Switch also offers processing capabilities for various picture-in-picture layouts.

FAST AND INTUITIVE OPERATION

Users can switch instantly between required layouts or source signals via hotkey or API, which allows them to work in a focused and efficient environment.

Keyboards and mice can be connected via USB-HID. Additional USB 2.0 ports allow the connection of touch screens, graphics tablets and other interactive devices.

MAXIMUM RELIABILITY

ATC-Switch features redundant power supplies and extensive SNMP options for status monitoring of video, power supply, temperature and switching status.

SPACE-SAVING AND COMPATIBLE

The ATC-Switch fits seamlessly into the modular Draco vario design and its compact size of a 1U form factor allows mounting under the desk to save space.

The unit is designed for standalone use but can also be integrated in a larger KVM system. It is fully compatible with Draco vario extenders and the Draco tera KVM matrix family.

PRODUCTS IN USE

Draco MultiView 4K60

More information on page 96.

Draco DisplayPort KVM Switch

More information on page 92.

Symphony of the Seas and Harmony of the Seas

IHSE KVM systems are installed on Royal Caribbean Cruise Lines largest and most prestigious cruise ships. The KVM solutions enable the crew to quickly and easily access important data from workstations around the ships.

The cruise company Royal Caribbean Cruise Line recently expanded its fleet to include the two largest passenger ships in the world: Harmony of the Seas and Symphony of the Seas, each capable of carrying 6,750 passengers, along with 2,100 crew members.

It is essential for crew members to be able to access information quickly and easily. Critical decisions need to be taken in a timely manner to ensure the utmost comfort and safety on board. With eighteen decks and an overall length of 360 meters, moving to a dedicated location somewhere in the ship to use a particular computer system would take time and reduce the efficiency of the crew and their ability to provide the best possible level of service and safety to customers

REAL-TIME ACCES AND FLEXIBILITY FOR THE CREW

Thanks to the KVM solution, crew members have instant access to all the information they need from any convenient workstation - comprising a screen, keyboard and mouse - and can instantly switch between the computers they need to access. This system ensures a high degree of flexibility, convenience and greatly improves crew efficiency.

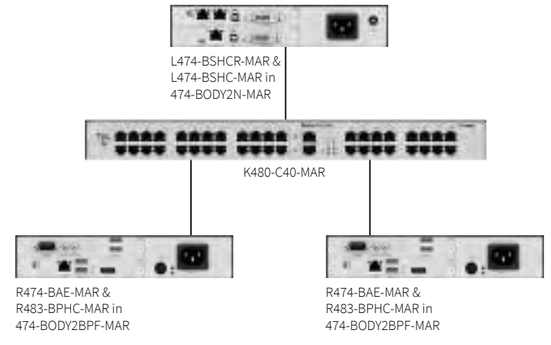
MAXIMUM SAFETY ON THE HIGH SEAS

The KVM system increases safety: data is always available to the crew ensuring that they do not miss any important safety-critical information. Back-up and redundant connections ensure continuous operation of the systems in the event of failure or emergency. Computer systems are located at a long distance from the operators. The KVM system enables the crew to access data from their own workstations and select and instantly change the computer they are using. They work more efficiently and effectively so that the ship can sail safely at sea.

CERTIFICATION

All the Draco elements are tested and maritime approved by Nemko thus setting a high quality standard to the system. Sufficient spare ports are available on the switches to accommodate future growth or changes to the infrastructure, without requiring changes to the wiring of the vessel.

Typical IHSE Maritime Certified Application*



* Further information about IHSE's products with certifications on request at sales@ihse.de.

KVM IN MERCHANT AND SPECIALIZED VESSELS

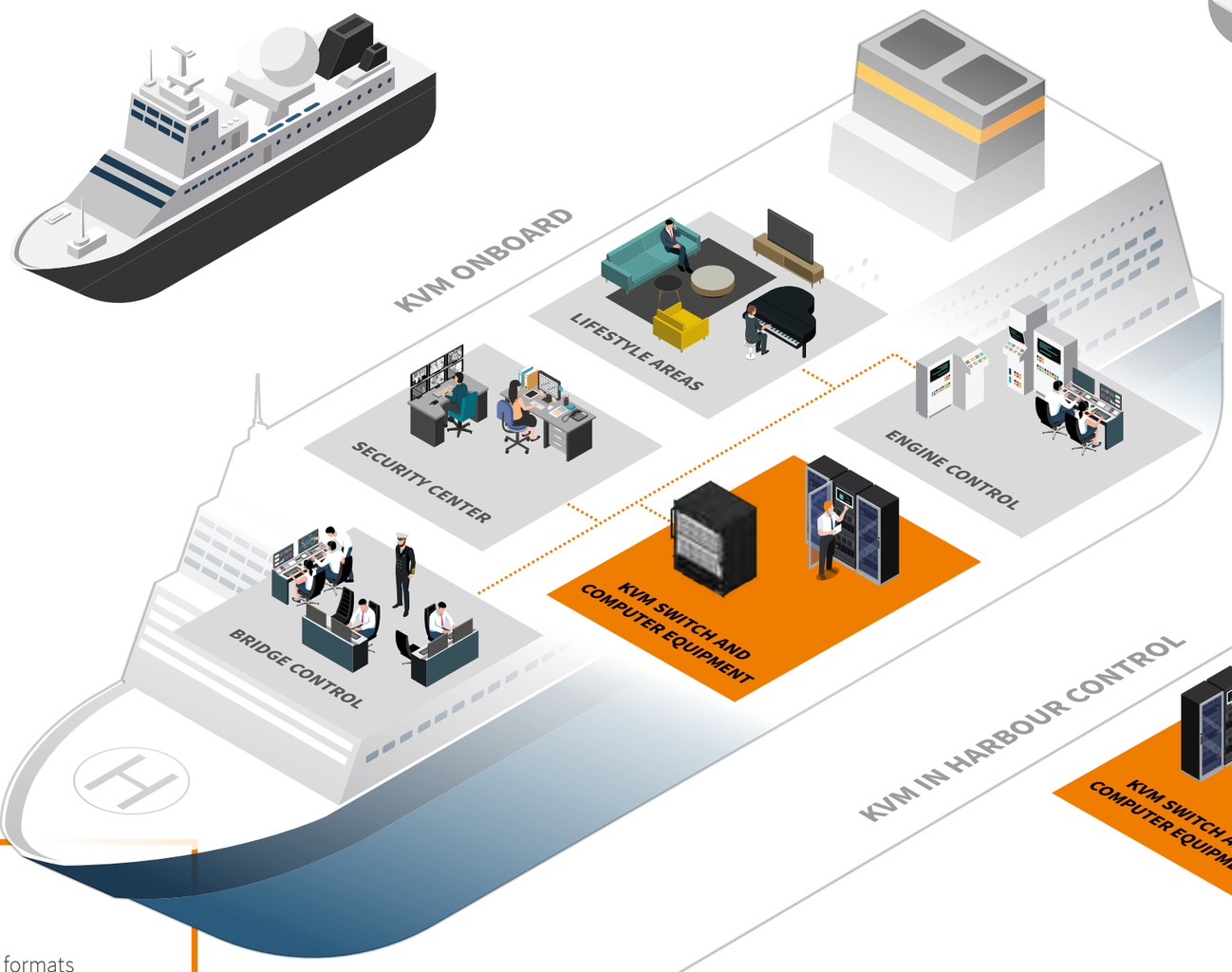
Essential equipment must continue to operate without failure or special attention whilst at sea on long voyages. Rugged reliability and failsafe operation is crucial in systems that operators depend upon: day-in, day-out.

KVM IN COMMERCIAL SHIPPING AND CURISE LINERS

In large vessels KVM extenders and switches provide the connection between operators and their computer-based systems, wherever they are. Computer signals are transmitted up to 10,000 m from the equipment room to the bridge in real-time and independent of the network.

KVM IN PORT CONTROL

In port control centers, up to the second information is critical to the safety and smooth passage of shipping in ports and through congested waterways. Operators and controllers must be able to rely on the systems they use. Inbuilt reliability and redundancy options are essential in providing this assurance.



FEATURES AND BENEFITS

- Instant connection and switching
- Near-zero transmission latency
- Artefact-free video and audio
- Support of all digital and audio video formats
- HD-SDI and USB 3.0 parallel switching
- Integration with third-party controllers
- Extensive redundancy and security options
- Draco tera compact 480 is certified according to IE

ACCESS ANY MARITIME DEVICE, INSTANTLY

In the busy, cramped and often hostile maritime environment, the ability to instantly access essential equipment is crucial to the safety and smooth passage of vessels as they navigate across the world‘s oceans. IHSE Draco tera KVM switches connect operators and engineers with essential systems, remotely, and from any workstation; giving greater flexibility, increased efficiency and enhancing system security and reliability. Whether onboard in remote locations or in critical port control centers.Maritime organisations around the world rely on Draco tera switches; without compromise. In shore-based and ocean-going applications.

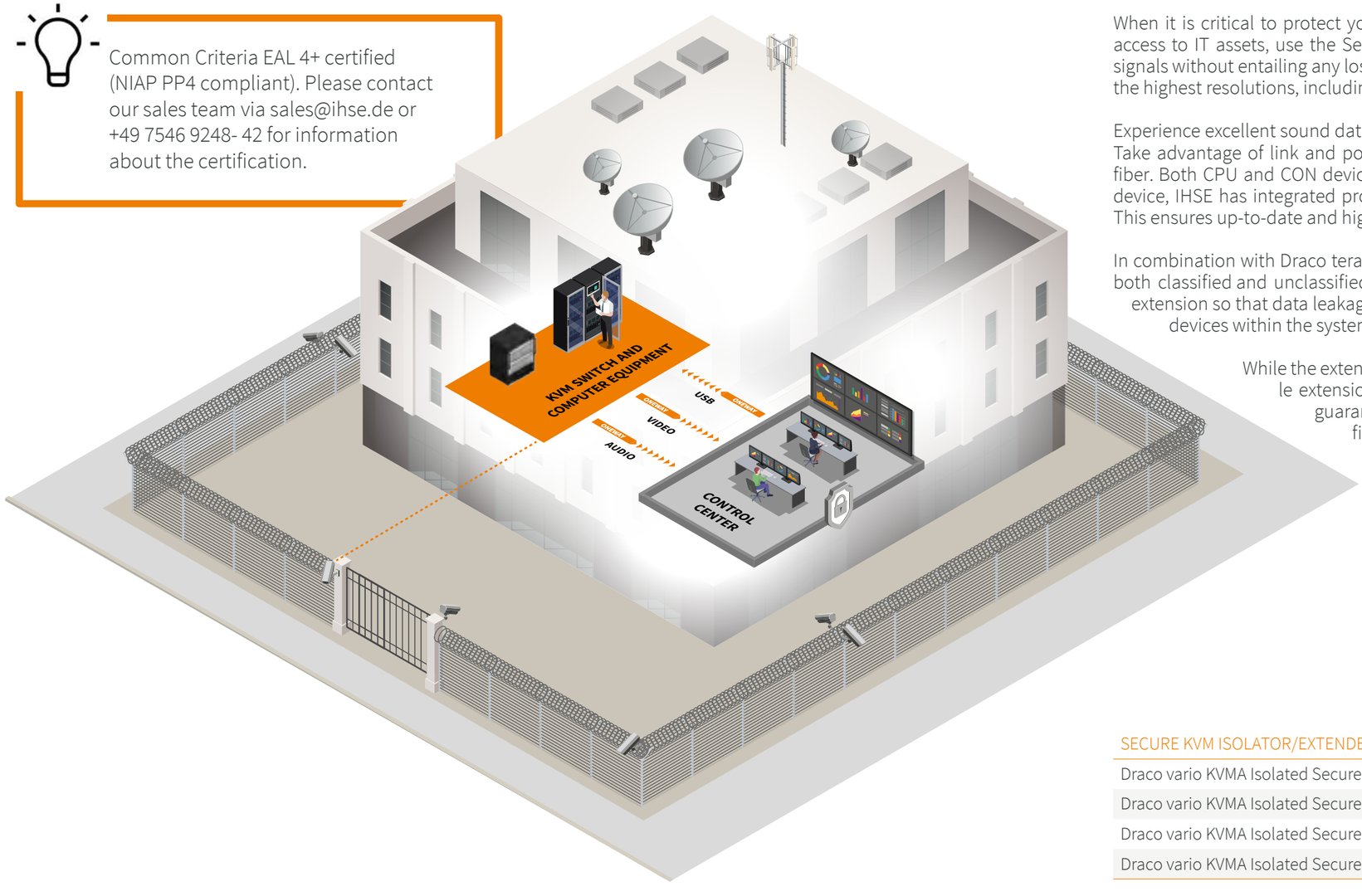
Please contact our sales team for maritime certified equipment, maritime approvals, NIAP PP4.0 or Common Criteria EAL4+ at sales@ihse.de or scan QR code.

PRODUCTS IN FOCUS

Draco tera KVM Matrix Switch

Draco vario KVM Extenders

Common Criteria EAL 4+ certified (NIAP PP4 compliant). Please contact our sales team via sales@ihse.de or +49 7546 9248- 42 for information about the certification.



FEATURES & BENEFITS

- Common Criteria EAL 4+ certified (NIAP PP4 compliant)
- Unidirectional audio
- Signal isolation prevents unwanted data transfer
- Compatible with Draco tera matrices

When it is critical to protect your intellectual property or homeland security while still allowing the most flexible access to IT assets, use the Secure KVM Isolator/Extender DP/HDMI to extend keyboard, video, mouse and audio signals without entailing any loss of quality up to 10 km. Pictures are displayed without delay, brilliantly clear at even the highest resolutions, including full HD and 2K. Even 3D format can be transmitted fast and without difficulty.

Experience excellent sound data with the finest detail by digital audio transmission via DP/HDMI or analog interface. Take advantage of link and power redundancy for most failsafe interconnections via single-mode or multi-mode fiber. Both CPU and CON devices are equipped with signal isolation for compliance with NIAP PSD PP 4.0. In this device, IHSE has integrated proven and reliable certified components from security specialist HighSecLabs (HSL). This ensures up-to-date and highly-effective security against leaking data.

In combination with Draco tera matrix switches and Draco vario extenders, a secure system configuration including both classified and unclassified endpoints can be constructed. Isolation is maintained at both ends of the KVM extension so that data leakage or eavesdropping is prevented, even if there is a mixture of secured and unsecured devices within the system.

While the extender provides the known rich desktop experience of the Draco product family for simple extension or collaboration applications via Draco tera matrix systems, the build-in isolator guarantees the maximum of security as there are unidirectional analog audio with low pass filter, unidirectional USB preventing from unwanted data transfer between connected systems, unidirectional video.

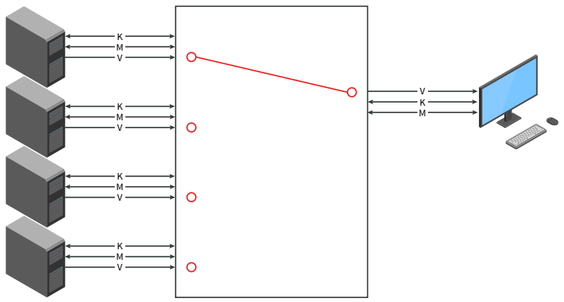
SECURE KVM ISOLATOR/EXTENDER DP/HDMI	Full HD	4K30
Draco vario KVMA Isolated Secure Extender Kit (CPU and CON), Cat X	K487-1PHCA-N	K497-1PHCA-N
Draco vario KVMA Isolated Secure Extender Kit (CPU and CON), Cat X, red.	K487-1PHCRA-N	K497-1PHCRA-N
Draco vario KVMA Isolated Secure Extender Kit (CPU and CON), LWL	K487-1PHSA-N	K497-1PHSA-N
Draco vario KVMA Isolated Secure Extender Kit (CPU and CON), LWL, red.	K487-1PHSAR-N	K497-1PHSAR-N

IHSE EXPLAINS

SINGLE USER SWITCH VS MULTI USER SWITCH - WHAT IS THE DIFFERENCE?

SINGLE USER SWITCH

- Usually shares peripherals up to 4 PCs underneath e. g. a programmers or developers desk, or in a test lab/staging lab
- Available in single and multi videohead applications
- Intended to provide high performance but short range connectivity
- Does not neccessarily offer security features or on-screen display functionality
- Usually provides native connectors for KVM

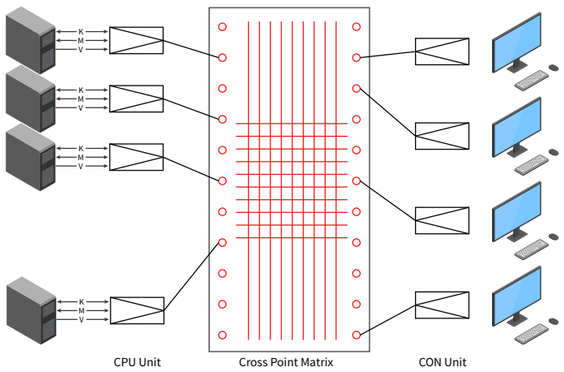


Rackmount Versions:

- Mainly intended for local server management of SMBs
- Often integrated in KVM trays for rack level access
- Normally provide security options and OSD functionality
- High density versions work with Cat X connectivity towards the target PCs
- Usually connect to between 8 - 32 targets

MULTI USER SWITCH

- Cat X and/or fiber connectivity with larger number of target/user console ports
- Additional management software for configuration (online / offline)
- Provide built-in extension technology
- Ideal for control rooms and other collaboration applications



KVM SWITCHES

Enabling access to, and management of, any size of computer installations. Sources can be accessed, switched and shared instantly by users. Any connected user console, consisting of keyboard, mouse, monitor or other peripherals, can access any computer within the network.

KVM SWITCHES OVERVIEW

KVM technology connects to the external interfaces of host systems (PCs, servers) and acts like normal peripherals. KVM switches are completely independent of the computers' operating systems and do not require additional resources for installation on the host. A KVM switch provides the ability to access and operate several computers by multiple operators at a time.

KVM matrix switches reduce hardware clutter (keyboards and mice) at the operators' workstations and significantly improve user ergonomics; a crucial function in confined spaces on ships or air traffic control towers or outside broadcast vans. A switch enables crucial information to be routed, distributed and shared amongst operators and videowalls and accessed immediately by permitted users. This enables greatly improved collaboration amongst operators.

KVM switches offer benefits in the simplicity of handling several computers at single or multiple workstations, easy collaboration between users and resilience, through a range of backup scenarios. KVM switches are crucial in optimizing operational workflows and maximising the efficiency of human resources and time by enabling simultaneous management of individual computers displayed on separate screens.

Using a KVM switch, operators can instantly change between operating scenarios, workflows or information feeds. Quick and easy access to a variety of sources and essential information can radically improve productivity in sectors like broadcasting and production and can make a crucial difference in many demanding scenarios such as air traffic control and security applications.

KVM switches enhance safety by providing high availability of all crucial devices in a KVM system. A variety of redundancy scenarios can be achieved to match installation objectives. Should a source be compromised, operators can instantly switch to a redundant source.

- Access and operate several computers for single or – using a matrix switching system – for multiple operators at a time
- Reduction of hardware clutter (keyboards and mice) at the personnel's workstations and significantly improved ergonomics
- Facilitation of collaboration amongst users
- Improved productivity by easily switching between scenarios, workflows or information feeds for operators
- Safety through a range of backup scenarios and redundancies for continuous 24/7 operations
- Switches support efforts in sustainability
- KVM networks with switches can easily be upgraded and expanded

TABLE OF CONTENTS

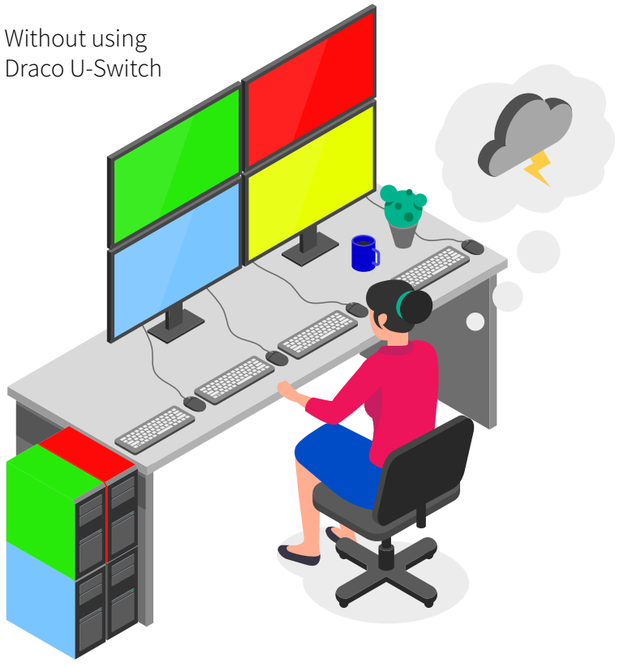
IHSE EXPLAINS

WHAT IS THE FLEX-PORT-TECHNOLOGY?

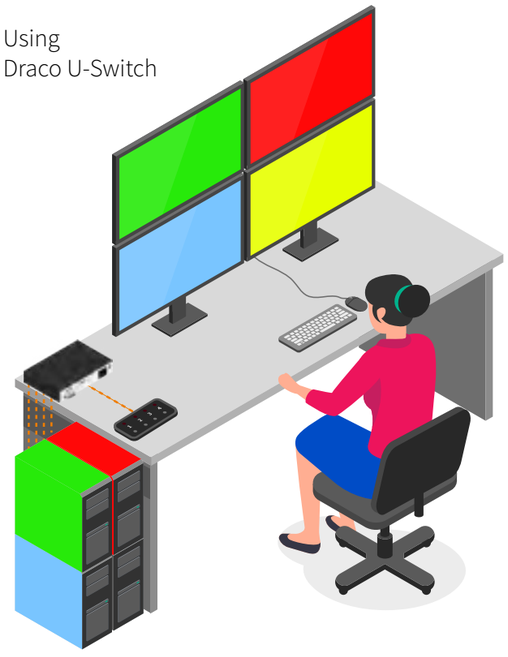
The matrix recognizes the extenders by it's serial number. The port does not matter. You can easily connect the extender to another port of the same matrix. The matrix recognizes the serial number and establishes a KVM connection if applicable.

Connections which existed when the extender has been disconnected from the matrix will be re-established.

Without using
Draco U-Switch



Using
Draco U-Switch



FEATURES & BENEFITS

- Instant switching of CPUs for multi-monitor workstations
- Option for parallel switching of transparent USB 2.0 data and USB-HID
- Switching via keyboard or optional push buttons
- Flexible Multi-Screen Control configuration via Draco tera tool
- Compatible with all Draco products and all USB-HID devices
- Rack mountable, up to 2 U-Switches can be installed in 1 RU of rack space

SIMPLE LAYOUT CONFIGURATION VIA TERA TOOL APP

PART NUMBERS

DEVICES		PART NO.
	Draco U-Switch, 4 port USB-Switch (2 USB-HID devices supported)	K476-4U
	Draco U-Switch, 4 port USB-Switch (4 USB-HID devices supported)	K476-4U2
	Draco U-Switch, 4 port USB-Switch (2 USB-HID and 2 USB 2.0 devices supported) with USB 2.0 switching on the upper board	K476-4U4T
	Draco U-Switch, 8 port USB-Switch (2 USB-HID devices supported)	K476-8U
	Draco U-Switch module (for mounting in Draco vario chassis), 4 port USB-Switch (2 USB-HID and 2 USB 2.0 devices supported)	B476-4U4T

ACCESSORY

Switch unit for switching of 4-port U-Switch devices via push button, 4x LEDs	476-CTRL4

FEATURES & BENEFITS

- Control up to 4 PCs with single head to quad head video with single keyboard and mouse
- Expandable from single head up to 5 video heads supporting DP video signals up to 4K60 resolution, video signals can be switched between the sources
- Switching via API, hotkey, mouse control and optional push button control with GPIO
- Compact (1 RU) and fanless design for the workspace
- Variable/modular concept with optional redundant PSU, expandable (multi head, GPIO, SNMP)
- Ergonomic hot-mouse switching of channels
- Audio support: Board without audio interface supports all audio standards within DP
- Combinable with extenders/matrix systems (series 483 SH/DH and 490)
- Flexible configuration allows hot-expand and hot-swap

PART NUMBERS

DRACO DP SWITCH KIT VARIANTS		PART NO.
DisplayPort KVMA Switch - Single Head	 Dimensions: 145 x 147 x 44 mm (5.7 x 5.8 x 1.7 inch)	DPS41A-SH
DisplayPort KVMA Switch - Dual Head	 Dimensions: 442 x 147 x 44 mm (17.4 x 5.8 x 1.7 inch)	DPS41A-DH
DisplayPort KVMA Switch - Triple Head	 Dimensions: 442 x 147 x 44 mm (17.4 x 5.8 x 1.7 inch)	DPS41A-TH
DisplayPort KVMA Switch - Quad Head	 Dimensions: 442 x 147 x 44 mm (17.4 x 5.8 x 1.7 inch)	DPS41A-QH

DRACO DP SWITCH BOARD FOR CUSTOMIZED VARIANTS		PART NO.
DisplayPort KVM Switch Board without audio		DPS41-B
DisplayPort KVM Switch Board with audio		DPS41A-B

ACCESSORIES	PART NO.
19"-Rackmount Ears for Draco vario 2-slot chassis	474-2RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis	474-BRACKET

MODULAR CONCEPT - STEP-BY-STEP GUIDE

DESIGN YOUR OWN MODULAR DP KVM SWITCH

Customized variants:

- Configuration of the required functionality
- Extension to Multi Head or redundancy at any time due to Draco vario slide-in body
- Step-by-step configuration (Hot-Swap, Hot-Expansion)

What exactly do you need?

- Video heads (1-5)
- Body / IP Management(Y/N)
- GPIO (Y/N)
- Audio (Y/N)

For customized variants please contact our sales team at

sales@ihse.com
+49 7546 9248-72

STEP 1: Choose your chassis

For Single Head video:

2-slot chassis

- with IP management: 474-BODY2BPF-SNMP

- without IP management: 474-BODY2BPF

1x B476-4U4T is always mandatory.

For Single Head up to Penta Head video:

6-slot chassis

- with IP management: 474-BODY6BP-SNMP

- without IP management: 474-BODY6BP

- without IP management: 474-BODY6BPF

1x B476-4U4T is always mandatory.

STEP 2: Choose your chassis accessories

SUITABLE ACCESSORIES	PART NO.
19”-Rackmount Ears for Draco vario 2-slot chassis w/ built-in PSU	474-2NRMK
Optional fan for Draco vario 6-slot chassis with backplane	474-6FAN
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis	474-BRACKET
Spare ext. PSU for 2-slot chassis w/ backplane, lockable connector	474-PSU2BPF

STEP 3: Choose a GPIO control (optional)

DESCRIPTION	DEVICE	PART NO.
GPIO module		R474-BGX

Please see page 77 for a detailed overview.

STEP 4: Choose variations and amount of preferred video switch modules

DESCRIPTION	AMOUNT OF MODULES					PART NO.
4:1 DP video with analog audio	1x	2x	3x	4x	5x	DPS41A-B
4:1 DP video without analog audio	1x	2x	3x	4x	5x	DPS41-B

STEP 5: Choose your extender modules (optional)

SERIES 483

More information on page 40.

SERIES 493

More information on page 62.

SERIES 490

More information on page 64.

SAMPLE CONFIGURATION

Customized solution for a dual head Display-Port switch built-in extender in just one RU

BILL OF MATERIALS

B476-4U4T, DPS41A-B, DPS41-B, L483-BDHC, L474-BAE in chassis 474-BODY6BP-SNMP

PREVIEW MODE USING DRACO MULTIVIEW 4K60

The Draco MultiView 4K60 is an HDMI 2.0 or DisplayPort 1.2 MultiViewer with keyboard and mouse integration and control.

It operates as a normal KVM Switch with four 4K60 inputs and two 4K60 video outputs, both single head and dual head.

In addition, integrated image processing allows the combination of all four inputs into a single video image with intuitive keyboard and mouse control and real-time image processing.

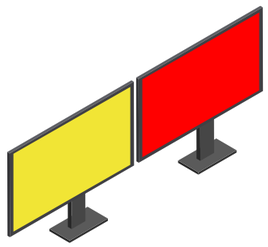
Several pre-programmed picture-in-picture operational modes are included and an additional four free layout options are provided per user profile. These make it an ideal solution for applications in monitoring and control as well as in presentation in conference and boardrooms.

FEATURES & BENEFITS

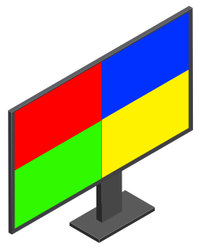
- True 4K60 8-bit 4:4:4 image processing (HDMI 2.0, DP 1.2)
- Low latency (app 1 frame)
- IP management
- Controllable through web interface
- API / GPIO / K/M / OSD control options
- USB 2.0 peripheral support, port-selectable
- Multi-Screen Control for ergonomic operation
- Digital audio, amalgamated audio, analog stereo audio
- Redundant (loadsharing PSUs)
- Compatible with Draco extenders
- Overlay channel indication

MODES OF OPERATION

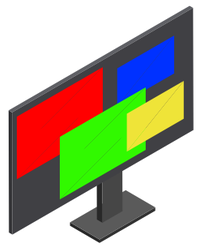
FullScreen Mode



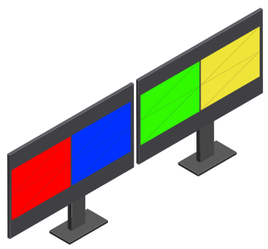
Quad Mode



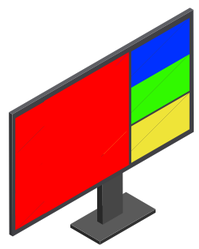
Free Mode



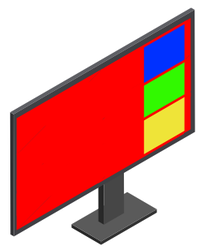
PbP Mode (Picture-by-Picture)



PiP Mode (Picture-in-Picture)



True PiP Mode



PART NUMBERS

	Single Head	Dual Head
DisplayPort	MV42-DPSH	MV42-DPDH
HDMI	MV42-H2SH	MV42-H2DH

FLEXIBLE AND RELIABLE SOLUTION FOR TRANSPORTATION MANAGEMENT AND CONTROL

Control room operational staff must rely on huge amounts of accurate data in order to manage and control today's major, highly complex, transportation networks in centralized control rooms. Operators constantly monitor situations and processes on banks of displays, analyzing data and responding instantly.

Rapid processing and communication of mission-critical data is crucial in this work environment. To keep track of the live status of the network and to respond instantly to unexpected situations, operators and controllers need uninterrupted and immediate access to critical data with the ability to instantly change their focus in new situations.

To complicate things even more, controllers receive data from a steadily increasing number of sources. This is due to new forms of mobility like autonomous driving and an increasing amount of general traffic. These sources all need to be placed at the disposal of the operators, independent of their origin or the signal format.

In order to achieve this, advanced KVM technology is used to provide full and instant access to remote computers and video sources, whatever the type of signal.

FEATURES AND BENEFITS

- Near-zero transmission latency
- Artefact-free video and audio extension
- High resolution
- Instant connection and switching
- Modular design to incorporate future technologies
- SNMP monitoring
- API interface
- Messaging system
- Height control system

THE SMART CITY OF THE FUTURE

Cities of the future will be much smarter, with a greater emphasis on technology to control, monitor and manage urban passenger transport networks. The aim is to provide a safer, more sustainable and efficient experience for passengers and network operators. Achieved through the use of artificial intelligence, data analytics, passenger management, network monitoring and automated routing and other techniques and technologies yet to be devised. Human oversight and supervision of autonomous systems will still be required, with controller intervention necessary in some situations for crisis management and emergencies. IHSE KVM switching technology connects network controllers and supervisors to the banks of computers running automated smart applications. Individual selection of critical data streams ensures that operators can access the most pertinent information at all times and support the systems running the whole transport network.

ESSENTIAL INFORMATION, SIMPLE ACCESS

Operators and network supervisors choose the information they need. Multiple streams of information are accessed using a single keyboard and mouse to minimize desktop clutter and simplify network management tasks in a stressful environment.
Essential data can be shared between operators and displayed on common videowalls using simple and fast switching routines. Every operator has the information needed right in front of them.

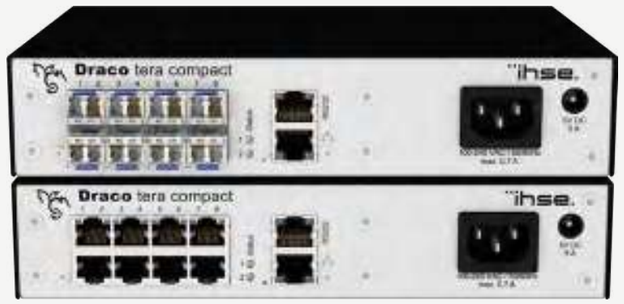
PRODUCTS IN FOCUS

Draco tera KVM Matrix Switch

Draco vario KVM Extenders

Draco MultiView 4K60

Draco SIRA CON



FEATURES & BENEFITS

- Module version integrates nicely side-by-side with extenders
- Space-saving design
- Port connections for Cat X, fiber, coaxial
- Instant switching
- Latency-free video transmission
- Multi signal support: KVM, USB 2.0/3.0, SDI (SD/HD/3G)
- API service for connection with media controllers
- SNMP & syslog monitoring
- Redundant power supply

The 8-port Draco tera compact KVM matrix switch is the smallest true KVM matrix on the market. Despite its size it provides almost the same functional capability as the larger Draco tera series matrix systems. Its eight ports allow any configuration from 1 input to 7 output distribution up to 7:1 switching for video or KVM signals. The universal version allows switching of USB 3.0 @ up to 5 Gbit/s. Setup and configuration is as simple as possible. So too is operation which makes it ideal for meeting room environments without the need for additional media control systems – or smaller workgroups, thereby improving.

PART NUMBERS

KIT VARIANTS	Cat X 1G	Fiber 1G	Fiber 3G	Universal
Draco tera compact 8 ports, universal (chassis version with integrated power supply)	K480-08C	K480-08F	K480-08X	K480-08U

BOARD VARIANTS	Cat X 1G	Fiber 1G	Fiber 3G	Universal
Draco tera compact 8 ports, universal (module version for mounting in Draco vario chassis)	B480-08C	B480-08F	B480-08X	B480-08U

ACCESSORIES	PART NO.
19"-Rackmount Ears for Draco vario 2-slot chassis	474-2RMK
Wall-/Tablemount L-Brackets for all 2-/4-/6-slot chassis	474-BRACKET
Spare ext. PSU for 2-slot chassis w/ built-in PSU and 4-slot chassis	474-PSU4

1 RU up to 40 ports

2 RU up to 80 ports

4 RU up to 160 ports

FEATURES & BENEFITS

- High-density KVM-Matrix platform
- Cat X, fiber and hybrid 1G/3G models
- Scales from 16-port (1 RU) to 160-port (4 RU)
- Custom design for highest flexibility
- Enterprise feature set (SSL, Dual NIC, SNMPv3)
- Field-expandable/repairable
- Supports complete Draco extender line
- Options with integrated Grid/IP Gateway interface
- Multilingual OSD support
- Offline configuration
- Only compact series which is modarly expandable

DRACO TERA FLEX

Draco tera flex KVM matrix switches are the perfect match to Draco vario and Draco vario ultra extenders enhancing workflow and collaboration based on the built-in any-to-any signal routing and distribution capabilities. And topped by the outstanding authentication and access management options the central management controller brings along.

ENTERPRISE FEATURE SET

Deriving not only the full functionality but also modularity and interface flexibility of the Draco tera enterprise product line, Draco tera flex offers cross-connectivity for up to 160 KVM or AV endpoints within just four rack units of space. Depending on the size of the application, Draco tera flex offers perfect fit scalability starting with 1 RU chassis up to 40 ports, 2 RU up to 80 ports and 4 RU up to 160 ports. Even flexible arrangements of Cat X and fiber connectivity can be configured easily.

MODULARITY AND CUSTOM DESIGN

The modular concept additionally offers expansion of the system or complete reconfiguration. Easily expand a setup starting with 24 ports to 40 ports. Starting with a 40 port 4 RU custom design chassis, it expands with applicational needs step by step up to 160 ports. The Draco System Designer dsd.ihse.com is the perfect tool supporting customization and growth. With that Draco tera flex protects initial investments and is future proof.

MANAGEMENT AND CONTROL

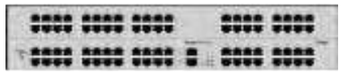
Draco tera switches are designed for “simple connectivity”. This starts with auto-recognition of Draco KVM components at connect and continues with an easy to use inband management for signal routing. All connected endpoints can easily be given individual and speaking names for identification. Signal routing itself can be performed using the built-in OnScreen-Menu or simply key-strokes on a keyboard (hotkeys). Of course Draco tera flex offers an API interface to tie in with any professional media control system or simple scripting.

DEFAULT VARIANTS

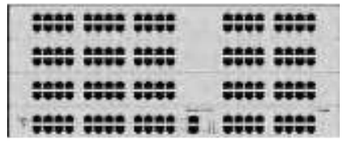
Order Numbers

Draco tera flex Cat X 1G & Cat X 3G

1 RU
Up to 40 ports



2 RU
Up to 80 ports



4 RU
Up to 160 ports

Draco tera flex Fiber 1G & Fiber 3G

1 RU
Up to 40 ports

2 RU
Up to 80 ports

4 RU
Up to 160 ports

DEVICE MODELS	CAT X 1G	CAT X 3G	FIBER 1G	FIBER 3G
Draco tera flex 16 ports	K480-C16	K480-CX16	K480-F16	K480-FX16
Draco tera flex 24 ports	K480-C24	K480-CX24	K480-F24	K480-FX24
Draco tera flex 32 ports	K480-C32	K480-CX32	K480-F32	K480-FX32
Draco tera flex 40 ports	K480-C40	K480-CX40	K480-F40	K480-FX40
Draco tera flex 48 ports	K480-C48	K480-CX48	K480-F48	K480-FX48
Draco tera flex 64 ports	K480-C64	K480-CX64	K480-F64	K480-FX64
Draco tera flex 80 ports	K480-C80	K480-CX80	K480-F80	K480-FX80
Draco tera flex 120 ports	K480-C120	K480-CX120	K480-F120	K480-FX120
Draco tera flex 128 ports	K480-C128	K480-CX128	K480-F128	K480-FX128
Draco tera flex 144 ports	K480-C144	K480-CX144	K480-F144	K480-FX144
Draco tera flex 160 ports	K480-C160	K480-CX160	K480-F160	K480-FX160

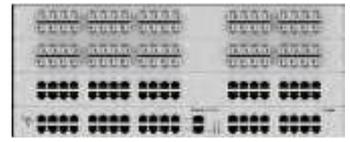
DEFAULT VARIANTS

Order Numbers

Draco tera flex Hybrid 1G & Hybrid 3G

1 RU
Up to 40 ports

2 RU
Up to 80 ports



4 RU
Up to 160 ports

DEVICE MODELS	HYBRID 1G	HYBRID 3G
Draco tera flex 40 ports (24 Cat X, 16 fiber)	K480-C24F16	K480-CX24FX16
Draco tera flex 64 ports (24 Cat X, 40 fiber)	K480-C24F40	K480-CX24FX40
Draco tera flex 64 ports (40 Cat X, 24 fiber)	K480-C40F24	K480-CX40FX24
Draco tera flex 80 ports (40 Cat X, 40 fiber)	K480-C40F40	K480-CX40FX40
Draco tera flex 120 ports (80 Cat X, 40 fiber)	K480-C80F40	K480-CX80FX40
Draco tera flex 160 ports (120 Cat X, 40 fiber)	K480-C120F40	K480-CX120FX40
Draco tera flex 160 ports (80 Cat X, 80 fiber),	K480-C80F80	K480-CX80FX80

Draco tera flex versions with IP Gateway functionality

DEVICE MODELS	CAT X 1G	FIBER 1G
Draco tera flex, 32 ports + IP Gateway, 1 RU	K480-C32G	K480-F32G

MODULAR CONCEPT - STEP-BY-STEP GUIDE - CUSTOM DESIGN

Build your own Draco tera flex according to your needs.

STEP 1: Choose your chassis

Start with two different types of chassis:

Custom Design: up to 80 ports
Dimensions: 90 x 442 x 449 mm

Custom Design: up to 80 ports
Dimensions: 90 x 442 x 449 mm

Custom Design: up to 80 ports
Dimensions: 90 x 442 x 449 mm

Custom Design: up to 160 ports
Dimensions: 177 x 442 x 449 mm

Custom Design: up to 160 ports
Dimensions: 177 x 442 x 449 mm

Custom Design: up to 160 ports
Dimensions: 177 x 442 x 449 mm

STEP 2: Choose your front plate

- Offers almost Draco tera enterprise flexibility and scalability at compact size and price
- All versions with integrated Dual PSU and Dual NIC

Cat X: 24 ports

Cat X: 40 ports

Fiber: 24 ports

Fiber: 40 ports

IP Gateway version: Cat X 32 ports

IP Gateway version: Fiber 32 ports

STEP 3: Choose your I/O modules

- Modules for up to 8 ports with Cat X 1G and 3G and Fiber 1G and 3G
- IP Gateway module fiber 10G

Cat X module

Fiber module

Universal module

IP Gateway

STEP 1: Choose your chassis

CUSTOM DESIGN STARTERKIT 2 RU UP TO 80 PORTS

CAT X	PART NO.
Draco tera flex 40 ports, custom design 2 RU, Cat X 1G	K480-C40-2RU
Draco tera flex 40 ports, custom design 2 RU, Cat X 3G	K480-CX40-2RU
Draco tera flex 32 ports + IP Gateway, custom design 2 RU, Cat X 1G	K480-C32G-2RU

Fiber	PART NO.
Draco tera flex 40 ports, custom design 2 RU, fiber 1G	K480-F40-2RU
Draco tera flex 40 ports, custom design 2 RU, fiber 3G	K480-FX40-2RU
Draco tera flex 32 ports + IP Gateway, custom design 2 RU, fiber 1G	K480-F32G-2RU

Hybrid	PART NO.
Draco tera flex 40 ports, custom design 2 RU, hybrid 1G	K480-C24F16-2RU
Draco tera flex 40 ports, custom design 2 RU, hybrid 3G	K480-CX24FX16-2RU

CUSTOM DESIGN STARTERKIT 4 RU UP TO 160 PORTS

CAT X	PART NO.
Draco tera flex 40 ports, custom design 4 RU, Cat X 1G	K480-C40-4RU
Draco tera flex 40 ports, custom design 4 RU, Cat X 3G	K480-CX40-4RU
Draco tera flex 32 ports + IP Gateway, custom design 4 RU, Cat X 1G	K480-C32G-4RU

FIBER	PART NO.
Draco tera flex 40 ports, custom design 4 RU, fiber 1G	K480-F40-4RU
Draco tera flex 40 ports, custom design 4 RU, fiber 3G	K480-FX40-4RU
Draco tera flex 32 ports + IP Gateway, custom design 4 RU, fiber 1G	K480-F32G-4RU

HYBRID	PART NO.
Draco tera flex 40 ports, custom design 4 RU, hybrid 1G	K480-C24F16-4RU
Draco tera flex 40 ports, custom design 4 RU, hybrid 3G	K480-CX24FX16-4RU

STEP 2: Choose your front plate

CUSTOM DESIGN FRONT PLATES (2. RU)

CAT X	PART NO.
Draco tera flex front plate 24x Cat X 1G/3G, ports 41-64	F480-C24S2
Draco tera flex front plate 40x Cat X 1G/3G, ports 41-80	F480-C40S2
Draco tera flex front plate 32x Cat X 1G/3G plus IP Gateway, ports 41-80	F480-C32GS2

FIBER	PART NO.
Draco tera flex front plate 24x fiber 1G/3G, ports 41-64	F480-F24S2
Draco tera flex front plate 40x fiber 1G/3G, ports 41-80	F480-F40S2
Draco tera flex front plate 32x fiber 1G/3G plus IP Gateway, ports 41-80	F480-F32GS2

CUSTOM DESIGN FRONT PLATES (3. RU)

CAT X	PART NO.
Draco tera flex front plate 24x Cat X 1G/3G, port 81-104	F480-C24S3
Draco tera flex front plate 40x Cat X 1G/3G, port 81-120	F480-C40S3
Draco tera flex front plate 32x Cat X 1G/3G plus IP Gateway, port 81-120	F480-C32GS3

FIBER	PART NO.
Draco tera flex front plate 24x fiber 1G/3G, port 81-104	F480-F24S3
Draco tera flex front plate 40x fiber 1G/3G, port 81-120	F480-F40S3
Draco tera flex front plate 32x fiber 1G/3G plus IP Gateway, port 81-120	F480-F32GS3

CUSTOM DESIGN FRONT PLATES (4. RU)

CAT X	PART NO.
Draco tera flex front plate 24x Cat X 1G/3G, port 121-144	F480-C24S4
Draco tera flex front plate 40x Cat X 1G/3G, port 121-160	F480-F24S4
Draco tera flex front plate 32x Cat X 1G/3G plus IP Gateway, port 121-160	F480-C32GS4

FIBER	PART NO.
Draco tera flex front plate 32x fiber 1G/3G, port 121-144	F480-C40S4
Draco tera flex front plate 40x fiber 1G/3G, port 121-160	F480-F40S4
Draco tera flex front plate 32x fiber 1G/3G plus IP Gateway, port 121-160	F480-F32GS4

STEP 3: Choose your I/O modules

CUSTOM DESIGN I/O MODULES

CAT X	PART NO.
Draco tera flex 8 ports, I/O module, Cat X 1G	F480-C8
Draco tera flex 8 ports, I/O module, Cat X 3G	F480-CX8

FIBER	PART NO.
Draco tera flex 8 ports, I/O module, fiber 1G	F480-F8
Draco tera flex 8 ports, I/O module, fiber 3G	F480-FX8

UNIVERSAL	
Draco tera flex universal module	F480-U8

IP GATEWAY	
Draco tera flex IP Gateway module fiber 10G	F480-G

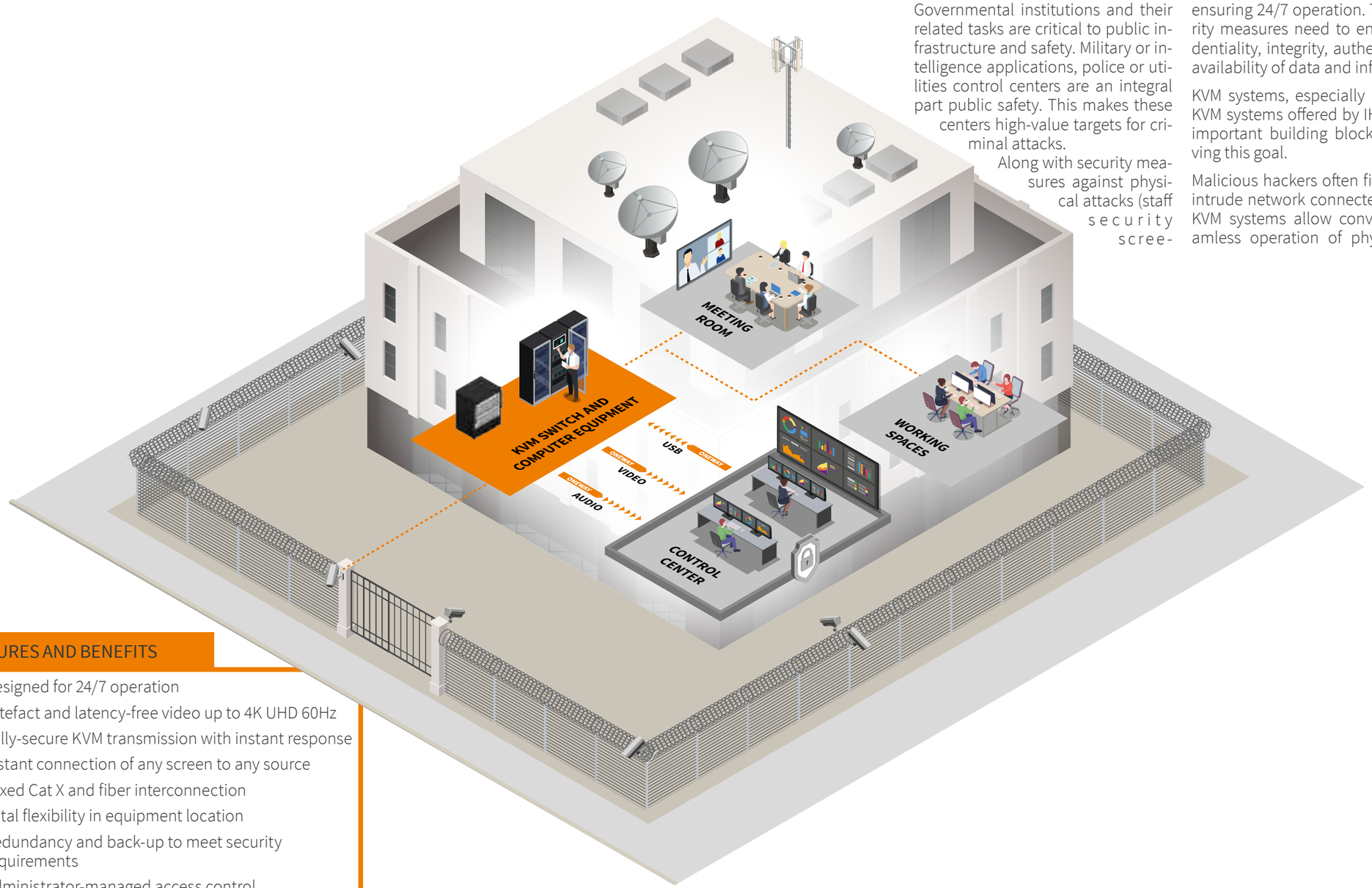
KVM MEETS IP - Draco tera flex IP Gateway

Experience our Draco tera flex IP Gateway for bridging multiple KVM matrices over existing IP networks within buildings, across campuses and between remote corporate offices.

MORE INFORMATION ABOUT IP INTEGRATION ON PAGE 122 ET SEQ.!

In military, government and defence environments, security is paramount. These facilities require highly secure, totally reliable and adaptable information systems. KVM switches are ideally suited to the task of delivering data. The direct KVM connection over fiber cabling ensures data security, preventing eaves dropping and threats from unauthorized sources. IHSE systems also provide access control lists (e. g. red/black separation for security level environment) and enable instant access to hundreds of sources from dedicated output devices. With extensive access configurability it is the proven choice for government and defence installations.

The Draco tera product range is deployed throughout the world in mission-critical installations. Operators can switch between sources to meet the demands of changing conditions, instantly and without loss of signal, allowing them access to the information they need; whenever and wherever they need it.



FEATURES AND BENEFITS

- Designed for 24/7 operation
- Artefact and latency-free video up to 4K UHD 60Hz
- Fully-secure KVM transmission with instant response
- Instant connection of any screen to any source
- Mixed Cat X and fiber interconnection
- Total flexibility in equipment location
- Redundancy and back-up to meet security requirements
- Administrator-managed access control
- In-band and out-of-band control

HOW IHSE KVM SOLUTIONS CONTRIBUTE TO SECURITY IN GOVERNMENTAL APPLICATIONS

Cyber Security has become a key topic for all kinds of organizations as well as private life. KVM systems make a significant contribution to protect key data and processes. IHSE has been tasked to implement their secure KVM system to protect sensitive governmental information from cyber-attacks and leakage.

Governmental institutions and their related tasks are critical to public infrastructure and safety. Military or intelligence applications, police or utilities control centers are an integral part public safety. This makes these centers high-value targets for criminal attacks.

Along with security measures against physical attacks (staff security screening, access control etc.), cyber security will be key for secure 24/7 operation.

In addition to security measures against physical attacks (sta. security screening, access control etc.), KVM technology makes a significant contribution meeting the cybersecurity requirements of such institutions ensuring 24/7 operation. Thus, security measures need to ensure confidentiality, integrity, authenticity and availability of data and information.

KVM systems, especially proprietary KVM systems offered by IHSE, are an important building block for achieving this goal.

Malicious hackers often find ways to intrude network connected systems. KVM systems allow convenient, seamless operation of physically separated systems using separate point-to-point connections thus maintaining integrity and confidentiality of all other systems not immediately affected by the attack and avoiding any data leakage between the systems.

Similarly, ransomware and denial-of-service attacks are confined to individual compromised systems while keeping the remainder of the control center fully operational. IHSE KVM systems themselves can operate completely without network connection, thus making the KVM equipment immune to these kinds of attacks.

In summary, secure IHSE KVM systems are the means of choice for advanced security for future governmental applications, as they are already today for many security sensi-

PRODUCTS IN FOCUS

Secure KVM Isolator/Extender DP/HDMI

Draco tera KVM Matrix Switch

Draco MultiView 4K60

DRACO TERA ENTERPRISE

Draco tera enterprise KVM matrix switches are designed to route and distribute KVM and peripheral signals, such as audio and USB data, and interconnect with Draco vario ultra extenders. They enhance workflow and collaboration based on built-in, any signal to any signal, routing and distribution capabilities. Topped by outstanding authentication and access management options the central management controller provides.

SCALABILITY AND AVAILABILITY

The enterprise series offers a fully modular design that allows expansion of the system to 576 ports in increments of 8-ports. The switches support controller-redundancy with auto-failover for continuous operation (except 160-port version). All active system components can be added or replaced while the system is up and running. This hot-swap ability is a key feature for mission critical environments.

SIGNAL INTEGRITY AND PERFORMANCE

Draco tera matrix switches route each signal on individual signal paths, guaranteeing full bandwidth and full signal performance. Routing of signals is latency free as no overhead protocol is required; it only takes a few nanoseconds for the signals to pass through the switch.

VERSATILITY OF SIGNAL ROUTING

The Draco tera enterprise line is primarily designed to route video signals from full HD to 4K60 and from VGA, DVI, HDMI to DisplayPort. It also offers switching of USB 3.x signals with up to 5 Gbit/s bandwidth using the universal I/O-card and native SDI signals.

MANAGEMENT AND CONTROL

Draco tera switches are designed for ease of operation. This begins with auto-recognition of Draco KVM components and continues with comprehensive in-band management of signal routing. All connected endpoints can be assigned individual names for identification. Signal routing itself can be performed using the on-screen-menu or simple keyboard keystrokes (hotkeys). Draco tera offers an API interface to interface with any professional media control system or simple scripting.

FEATURES & BENEFITS

- High-density KVM matrix platform
- Cat X, fiber and hybrid 1G/3G models
- Scales from 8 ports to 576 ports
- Routing of USB 3.x @ 5 Gbit/s
- Electronic patch panel for Gigabit Ethernet
- Enterprise feature set (SSL, Dual NIC, SNMPv3)
- Field expandable/repairable/hot-swap capability
- Supports complete Draco extender line
- Controller card fail-over functionality
- Compatible with Draco tera flex (matrix grid)
- Multilingual OSD support

MODULAR CONCEPT - STEP-BY-STEP GUIDE

STEP 1: Choose your chassis

DEVICES	PART NO.
Draco tera enterprise for up to 48 ports; Rev. 1; 3 RU; 1x controller module; 1x power supply unit	K480-048-R1
Draco tera enterprise for up to 80 ports; Rev. 1; 4 RU; 1x controller module; 1x power supply unit	K480-080-R1
Draco tera enterprise for up to 160 ports; Rev. 1; 9 RU; 1x controller module; 1x power supply unit	K480-160-R1
Draco tera enterprise for up to 152 ports; Rev. 1; 9 RU; 1x controller module; 2x power supply unit; option for 2nd controller module and 3rd power supply unit	K480-152-R1
Draco tera enterprise for up to 288 ports; Rev. 1; 13 RU; 1x controller module; 2x power supply unit; option for 2nd controller module and 3rd power supply unit	K480-288-R1
Draco tera enterprise for up to 576 ports; Rev. 2; 25 RU; 2x controller module; 2x power supply unit; option for 3rd/4th power supply unit	K480-576-R1A
Draco tera enterprise for up to 576 ports symmetric 288 x288; Rev. 2; 25 RU; 2x controller module; 2x power supply unit; option for 3rd/4th power supply unit	K480-576S-R1A

STEP 1a: For mission critical environments and higher resilience please choose:

AUTO FAIL-OVER CONTROLLER MODULE	PART NO.
Draco tera enterprise controller module incl. Dual TCP/IP, HDMI, USB-HID, RS232 and Genlock	480-CTRL2

Controller module for auto fail-over functionality

POWER SUPPLY UNITS FOR HOT FAIL-OVER REDUNDANCY	PART NO.
Plug-in power supply unit for Draco tera enterprise with 48 ports (spare part or redundancy)	480-RED-048
Plug-in power supply unit for Draco tera enterprise with 80 ports (spare part or redundancy)	480-RED-080
Plug-in power supply unit for Draco tera enterprise with 160/288 ports (spare part or redundancy)	480-RED-288
Plug-in power supply unit for Draco tera enterprise with 576 ports (spare part or redundancy)	480-RED-576-R1

STEP 2: Choose your I/O module

Draco tera I/O card options

The Draco tera enterprise matrix switch can accommodate a wide range of signal formats. I/O cards can be mixed in the same frame allowing maximum flexibility for any switch and routing application.

Cat X

Fiber

Universal for USB 3.0 and SDI

Draco tera enterprise IP Gateway

I/O MODULES	PART NO.
Draco tera enterprise Cat X I/O module (8 ports)	480-C8-R1
Draco tera enterprise Cat X I/O module (8 ports), Cat X (1G)	480-C8BDG
Draco tera enterprise Cat X I/O module (8 ports), Cat X XV (3G)	480-C8X
Draco tera enterprise fiber, I/O module (8 ports) incl. 8x SFPs	480-S8-R1
Draco tera enterprise fiber, I/O module (8 ports), fiber (1G)	480-S8BDG
Draco tera enterprise fiber, I/O module (8 ports) incl. 8x SFPs (3G)	480-S8X
Draco tera enterprise universal I/O module (8 ports) for USB 3.0 and SDI, empty, free configuration	480-UNI16
Draco tera enterprise IP Gateway	480-IPG

KVM MEETS IP - Draco tera enterprise IP Gateway

Experience our Draco tera enterprise IP Gateway for bridging multiple KVM matrices over existing IP networks within buildings, across campuses and between remote corporate offices.

MORE INFORMATION ABOUT IP INTEGRATION ON PAGE 122 ET SEQ.!

STEP 2a: Choose options for Draco tera enterprise universal I/O module 480-UNI16

SFPS	PART NO.
SFP multi-mode, LC duplex, bidirectional, for USB 3.0, 6G, MSA	459-6M
SFP single-mode, LC duplex, bidirectional, 3G-SDI, MSA	459-3FX
SFP SDI, 3G/HD/SD video, Micro-BNC to BNC, MSA	459-3BX
SFP copper, RF45 connector, bidirectional, 1G, MSA	459-1C
SFP, single-mode, LC duplex, bidirectional, 1G, MSA	459-1S
Adapter cable coax, Micro-BNC to BNC (suitable for 459-3BX)	459-BMB

SPARES & ACCESSORIES

BLIND PLATE	
Draco tera blind plate for 1 slot	480-BLND1
Draco tera blind plate for 2 slots	480-BLND2
Draco tera blind plate for 4 slots	480-BLND4
Draco tera blind plate for 8 slots	480-BLND8

FAN TRAY	PART NO.
Fan tray for Draco tera enterprise with 48 ports (spare part)	480-FAN-048
Fan tray for Draco tera enterprise with 80 ports (spare part)	480-FAN-080
Fan tray for Draco tera enterprise with 160 ports (spare part)	480-FAN-160
Fan tray for Draco tera enterprise with 288 ports (spare part)	480-FAN-288
Fan tray for Draco tera enterprise with 576 ports (spare part)	480-FAN-576

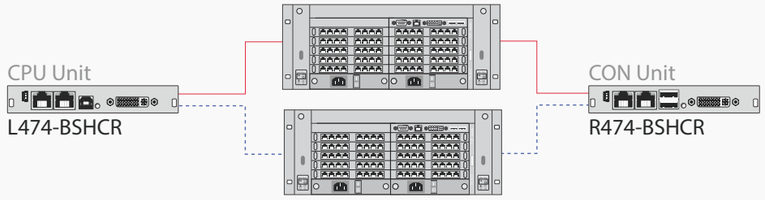
FILTER PADS	PART NO.
Filter pads as consumable supply for Draco tera enterprise with 48 ports (spare part)	480-FLTR-048
Filter pads as consumable supply for Draco tera enterprise with 80 ports (spare part)	480-FLTR-080
Filter pads as consumable supply for Draco tera enterprise with 160 ports (spare part)	480-FLTR-160
Filter pads as consumable supply for Draco tera enterprise with 288 ports (spare part)	480-FLTR-288
Filter pads as consumable supply for Draco tera enterprise with 576 ports (spare part)	480-FLTR-576

FULLY REDUNDANT KVM SYSTEM ARCHITECTURE

Redundancy in KVM extenders enable extender connections between computers and remote user workstations to continue over a secondary link, in case the primary link fails.

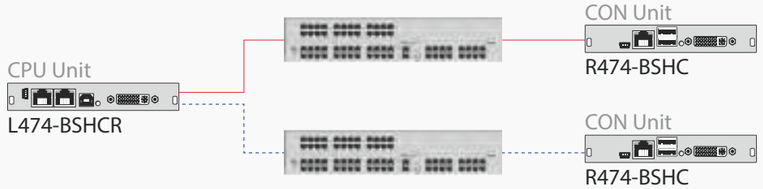
IHSE offers the most comprehensive range of redundant KVM systems. Extenders are available with redundancy at the source end (CPU), workstation end (CON) or both. In the case of an interconnection failure the redundant link ensures continuous and uninterrupted communication between the CON Unit and CPU Unit: transmission faults are automatically detected and indicated. Data flow is instantly switched to the secondary transmission link.

Fully redundant matrix operation



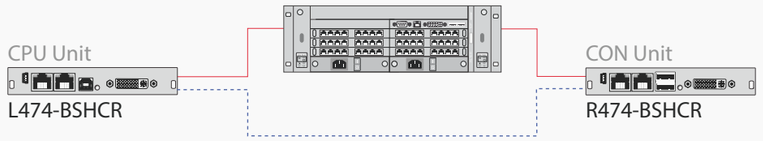
All user stations with redundant CON Units can still reach all redundant CPU Units even if one matrix fails.

Semi redundant matrix operation



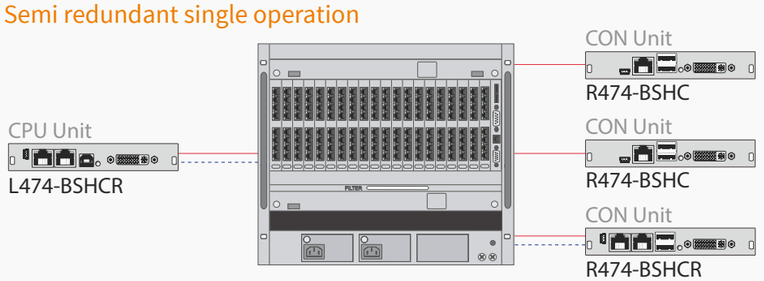
Half of the user stations can still reach all redundant CPU Units even if one matrix fails.

Fallback Scenario



If the matrix fails, all user stations with redundant CON Units are automatically connected point-to-point to a CPU for an emergency setup.

Semi redundant single operation



Both non-redundant and redundant CON Units can access redundant CPU Units. The redundant CON Units can still access the CPU Units even in case losing the primary link.

Like many communication services such as TV or radio broadcasting, telephony or online conferencing, KVM can be transmitted using IP based networks.

A particular advantage of IHSE KVM is the bidirectional interaction capability provided to the operator to access a remotely-connected host.

When designing IP-based systems, system application objectives must be considered. Within the technology there is a differentiation of real-time KVM (high-performance KVM) and remote access KVM (administrative server management).

a) REAL-TIME OR HIGH-PERFORMANCE IP BASED KVM

High-performance IP based KVM applies to the solution that extends and routes KVM signals without any perceivable latency or degradation of video, audio and keyboard and mouse. This is a key requirement for continuous interactive operation. To guarantee real-time operation stable, sufficient, low-latency network bandwidth is a prerequisite as are fast and efficient codecs.

Typically this infrastructure is found in LAN and CAN, and in some in cases WAN, connections.
For single extension links high-performance connection can be achieved over shared networks. Large scale matrix applications and IP-based KVM should ideally be run on a dedicated and separate network. The minimum requirement is a dedicated VLAN.

b) REMOTE ACCESS OR SERVER MANAGEMENT IP KVM

Remote access over IP usually utilizes an existing TCP/IP network, like the ones found in almost every company's or organization's facilities. The objective for this technology is the access of equipment located anywhere by users situated anywhere.

Remote IP KVM performance has evolved to the point at which modern systems achieve a performance level sufficient to provide control room operations when appropriate low latency bandwidth is available.

This includes LAN/CAN and WAN, although since these generally offer lower bandwidth and higher latency, the KVM technology must adapt with more efficient codecs techniques to manage higher-latency networks. In many cases lossy compression and loss of real-time operation must be expected as both codecs and networks add more latency.

Remote access IP KVM systems are mainly used for sporadic, short-term operation rather than continuous applications.

SECURITY

Security is one of the highest priorities on IP networks as unauthorized access attempts and attacks on systems increase. Every endpoint on a network is a potentially vulnerable point of entry for breaches of security. It is a key requirement of IP KVM systems to fully protect against attempts and to remain immune, particularly when the network is used to host controlling devices in mission critical environments.
As part of the security controls KVM systems are best set up and operated in separate networks, with isolation from corporate and other networks.

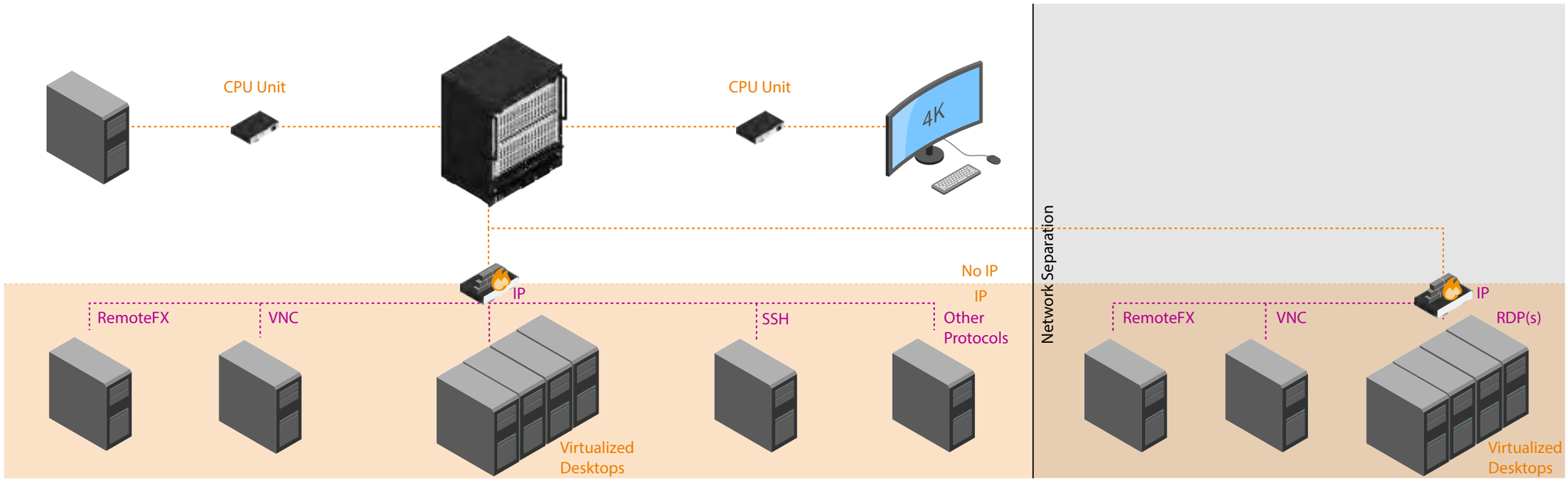
RESILIENCE

The bus architecture of IP networks is a challenge to IP KVM systems with reliance on proof of delivery and its effect on packetized transmission and delay. However, a properly configured and dimensioned network will support IP KVM distribution. Maintaining an IP KVM system over its lifetime requires parallel maintenance of the network infrastructure to ensure correct interaction between the two.

MODULE L488-BIPC and L488-BIPSR in
CHASSIS 474-BODY2N

FEATURES & BENEFITS

- Integration into IP infrastructure without compromising security
- Link redundancy for fail-safe operation in mission-critical applications
- Homogeneous, side-by-side integration of real desktops and virtual desktops via KVM
- USB and audio support
- dual head operation with resolutions of up to 1920 x 1200 @ 60 Hz
- Up to 8 simultaneous sessions
- Secure kiosk mode for HTML5 access



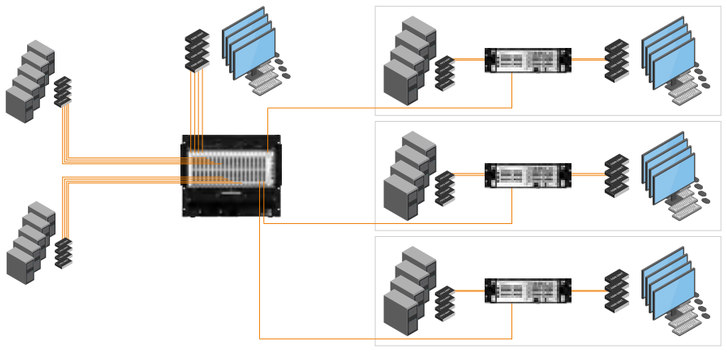
PROPERTIES	DRACO SIRA CPU		DRACO VARIO REMOTE IP CPU	
Cat X	L488-BIPC	L488-BIPCR	L488-BIPEC	L488-BIPECR
Fiber 1G	L488-BIPS	L488-BIPSR	L488-BIPES	L488-BIPESR

FEATURE COMPARISON

DRACO SIRA CPU		DRACO VARIO REMOTE IP CPU
USB 2.0 embedded	↔	USB 2.0 embedded
K/M support	↔	K/M support
4K30 single head or 1920 x 1200 @ 60 Hz dual head	↔	1080p single head
Audio support	↔	Audio support
HTML5, SSH, VMware / Blast, PCoIP, VNC, RDP, RFX, SIRA Client	↔	HTML5, SSH VMware / Blast, PCoIP, VNC, RDP, RFX

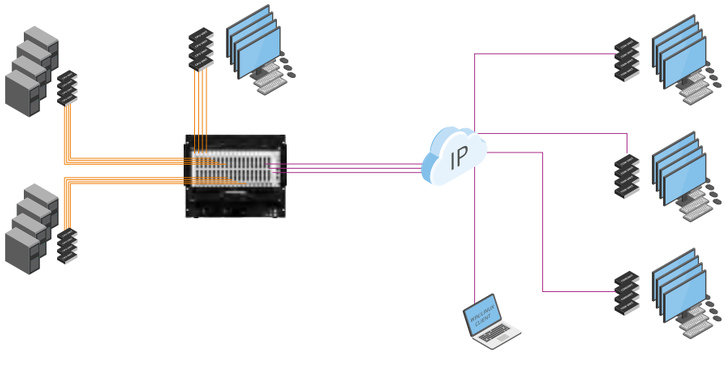
COMPATIBILITY MODE

Works with existing grid cards on layer 1 supporting up to 8 bi-directional KVM channels (1G) and up to 4K30 resolution* between matrices via a 10G fiber connection.



POINT-TO-POINT/MULTI-POINT MODE VIA IP

Works between two matrices using IP protocol supporting up to 8 bi-directional KVM channels (1G) and up to 4K30 resolution* via a 10G IP connection.

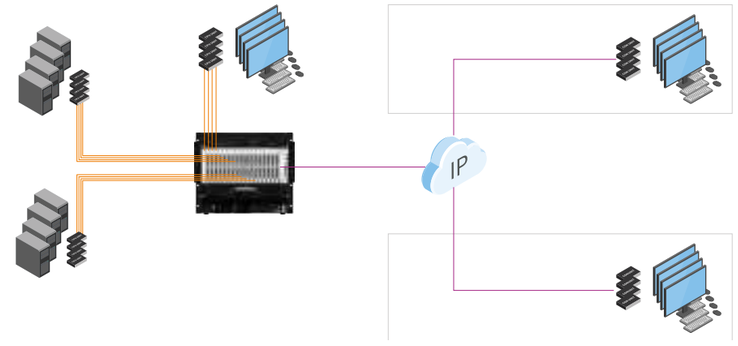


FEATURES & BENEFITS

- Homogeneous matrix interconnection via IP networks
- Supports up to 8 bidirectional KVM cross-connections up to 4K30 resolution*
- Backward compatibility to existing matrix grid technology
- Future-proof design for flexibility

* In combination with corresponding Draco vario extenders.

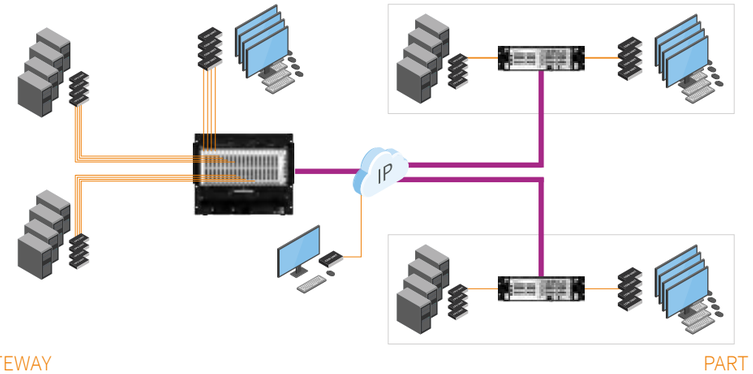
CONSOLE ACCESS VIA IP TO DRACO TERA MATRICES



POINT-TO-POINT/MULTI-POINT MODE WITH INDIVIDUAL DIRECT CONSOLE ACCESS

The IP grid point-to-multipoint mode works between matrices using IP protocol supporting up to 8 bi-directional KVM channels (1G) at up to 4K30 resolution* via a 10G IP connection – a more dynamically routed grid line connectivity.

IP Gateway can also function with partial grid connectivity and partial individual connection to remote CONs. Max. 8 CONs may be connected via 1G IP protocol to the 10G IP Gateway interface.



DRACO TERA IP GATEWAY	PART NO.
Draco tera enterprise IP Gateway	480-IPG
Draco tera flex IP Gateway	F480-G

INTEGRATION OF KVM MATRICES OVER IP NETWORKS

The **Draco tera IP Gateway** provides IHSE KVM users with the ability to bridge multiple KVM matrices over existing IP networks within buildings, across campuses and between remote corporate offices.

It combines the high levels of security and performance of the Draco tera KVM system with the flexibility and ease of connectivity inherent in IP-based network communication. It allows users to access remote computers and interact in real-time with minimal latency and no visible artefacts, with the full confidence of a highly secure KVM system.

Resources can be shared between users across greater distances using available network topologies: LANs, WANs, whilst fully maintaining the significant advantages of direct KVM matrix networks including connection flexibility and simplicity, administrative oversight and switching speed.

The **Draco tera IP Gateway** enhances corporate efficiency and provides new, highly-dependable ways to implement standby and back-up facilities to accommodate essential business continuation strategies. Future applications such as home-office and remote IT support are also planned.

THE BEST OF BOTH WORLDS

The **Draco tera IP Gateway** combines the best of both worlds. Allowing secure, IP-routable site networking of direct KVM matrix systems without compromising operational flexibility, security or maintainability.

SECURITY AND RELIABILITY

In addition to the high level of data security of data transmitted throughout IHSE's KVM switching and extension systems, Secure Core™ technology prevents direct access to the matrix from the IP network. This maintains the integrity of the KVM system and is consistent with the IHSE philosophy of secure separation of core matrix and IP networks as an effective countermeasure to potential cyber attacks.

APPLICATION SCENARIOS

- Intra-building connectivity
- Campus networks
- Intra-city networks
- Inter-city networks

DRACO TERA IP GATEWAY APPLICATIONS

- **Extension of existing proprietary IHSE KVM systems**
  Connection to an existing KVM matrix across an in-house IP network
- **Connection of nearby locations**
  Interconnection of campus buildings over a WAN network
- **Inter-corporate office connection**
  Connection between different sites
- **Remote access (future option)**
  For remote access over IP for home office, IT support and system maintenance access

APPLICATION SETUP

With the **Draco tera IP Gateway**, separate **Draco tera** matrix installations can be easily interconnected to form a single homogeneous system deployed over standard IP network switches. Up to eight bidirectional IP network connections can be deployed per **Draco tera IP Gateway** allowing bidirectional KVM operation with video resolutions of up to 4K30* to other matrices.

Draco tera IP Gateway operates in parallel with the existing Matrix Grid. Matrix Grid utilises copper or fiber cabling to provide direct connection between multiple Draco tera switches, in situations in which suitable direct cabling can be provided and is preferred.

Direct point-to-point connections may be configured between a **Draco tera** matrix and up to eight receiver **Draco vario** CON IP units via IP network connections (future option).

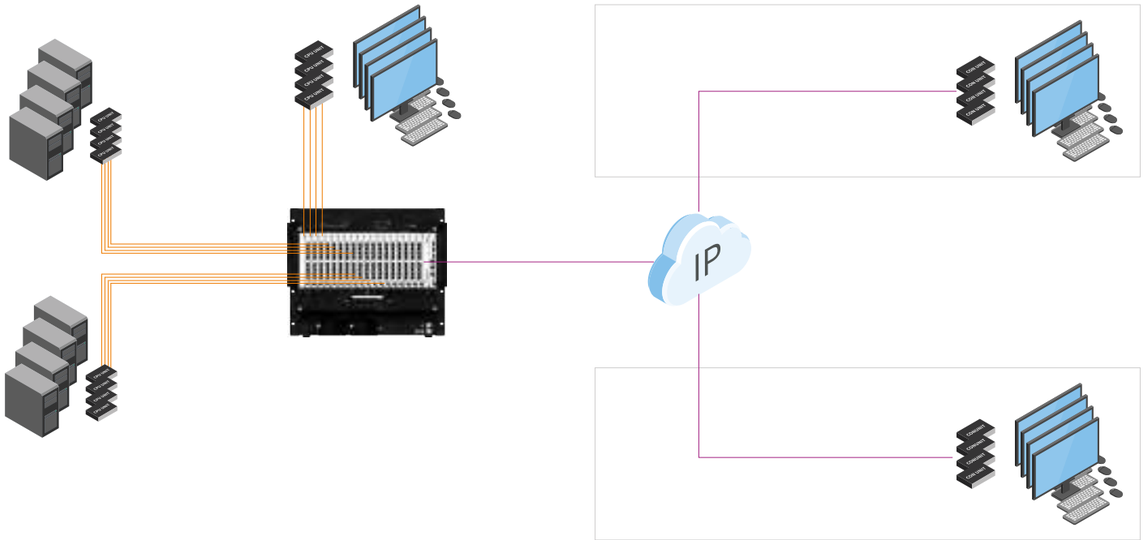
KEY BENEFITS OF DRACO TERA IP GATEWAY

- **Extension of existing KVM systems**
  Existing IHSE infrastructures can be expanded quickly and easily using standard IT infrastructure comprising active network components, switches, routers, layer 3 protocols etc.
- **Flexible planning**
  Initial direct KVM systems can be further expanded as user requirements evolve to include direct and IP connected endpoints, providing future-proof flexibility and assurance to administrators and system designers.
- **Real-time operation**
  Instant switching and connection between sources and users with negligible latency and artefacts for real-time performance.
- **Security and reliability**
  Operation with total security and reliability for 24/7, mission-critical systems, over direct and IP links.
- **Future features**
  Further development of this innovative and flexible platform will enable remote access for applications such as home office and IT support applications.

MODULE IP-R481-BUHCL in
CHASSIS 474-BODY2

FEATURES & BENEFITS

- Space-saving form factor for dense mounting
- Compatible with all Draco vario chassis solutions
- Single head 4K30 support
- Real-time KVM access via 1G IP networks to Draco tera matrix systems
- Compatible to existing Draco tera installs via Draco tera IP Gateway
- Basic requirements to network infrastructure only



PART NUMBERS

PROPERTIES	RECEIVER UNIT (CON)	
USB-HID	✓	✓
4K30	✓	✓
Redundant	-	✓
Cat X	IP-R481-BUHCL	IP-R481-BUHCLR
Fiber 1G	IP-R481-BUHSL	IP-R481-BUHSLR

MODULE IP-R483-B2HCR in
CHASSIS 474-BODY2N

FEATURES & BENEFITS

- Space-saving form factor for dense mounting
- Compatible with all Draco vario chassis solutions
- Single head 4K30 or dual head 1920 x 1200 support
- Real-time KVM access via 1G IP networks to Draco tera matrix systems
- Compatible to existing Draco tera installs via Draco tera IP Gateway
- Basic requirements to network infrastructure only

ACCESS FLEXIBILITY

The Draco vario IP Gateway consoles provide seamless integration into Draco tera KVM matrix applications via IP network infrastructure. Instead of using dedicated Cat X or fiber optic links, the new IP based consoles make use of Gigabit Ethernet topologies, allowing for more flexibility accessing via Draco tera KVM matrix switches attached target computers.
KVM connections with up to 4K30 resolutions single head or 1920 x 1200 dual head are supported across 1G IP connections in real-time.

NETWORK SIMPLICITY DUE TO HYBRID SETUP

Since the core KVM matrix system is still based on easy to setup proprietary connectivity, it is way easier to provide individual consoles flexible IP access. Requirements on the network infrastructure are just sufficient bandwidth and low latency for maintaining highest performance. Complexity such as Multicast, IGMP, Jumbo Frames are not to worry about, thanks to the hybrid KVM architecture.

All that is required is a Draco tera enterprise or Draco tera flex matrix switching system with an IP Gateway interface and 1G/10G network infrastructure.

This hybrid KVM setup with its mix of proprietary and IP connected endpoints.

See page 122 for more information about IP Gateway and typical use cases.

PLEASE NOTE

- Recquires a Draco tera IP Gateway
- Only usable with CPU Units of the Classic Series

PART NUMBERS

PROPERTIES	RECEIVER UNIT (CON)	
USB-HID	✓	✓
UHD	✓	✓
Redundant	-	✓
Cat X	IP-R483-B2HC	IP-R483-B2HCR
Fiber 1G	IP-R483-B2HS	IP-R483-B2HSR

IP MODULES SIRA OFFER A HIGHLY SECURE SOLUTION FOR REMOTE ACCESS TO COMPUTERS

Enterprises are built around people who need to access data, communicate with each other, and perform remote activities. However, many tasks cannot be carried out remotely using traditional packetized IP-connected systems that do not provide sufficient reliability or robust operation. A solution is offered by the IP module Draco SIRA (Secure IP Remote Access). SIRA delivers highly secure, accessible and immediate access to remote computers. Signals passed between the operator and computer retain full integrity, have the highest possible transmission rate, and can be switched by the user on demand. Crucially, SIRA maintains maximum system security.

THE PERFECT ADD-ON FOR DRACO TERA SYSTEMS

KVM technology enables distant separation of operators and equipment whilst allowing sharing of common resources. The SIRA IP gateway adds even more distance and more flexibility in separating operators from each other. SIRA is an ideal complement to existing Draco tera KVM installations. It adds remote, IP-based connection capability over local- and wide-area networks to KVM systems located at greater distances.

FEATURES AND BENEFITS

- Highest security for mission-critical environments
  - 24/7 operation
  - Reliability and redundancy options
  - Maximum resistance to cyber attacks
- Various configuration modes
  - Direct access to single computers and KVM switches
  - IP access via client, browser or dedicated user station
  - No requirments for additional client software
- Contact-free working (social distancing)
  - Backup for evacuation scenarios
  - Fully efficient and secure home office
  - Control distant computers to BIOS level
- High performance
  - Low IP complexity
  - Low bandwidth overhead; low latency
  - Out of band operation

CONCEPT

The Draco SIRA CPU combines the functionality of a Thin Client and a KVM extender (transmitter). This space-saving solution is fully compatible with the Draco vario extender, the Draco enterprise, Draco tera flex and compact matrix switch series.

FUNCTION

The IP module provides seamless KVM connectivity to an IP infrastructure. It supports RDP, RemoteFX, SSH, VNC and HTML5 (kiosk mode) protocols. Other remote access protocols are available on request. A single IP CPU can host up to 8 simultaneous sessions.

SECURITY

The Draco tera KVM matrix system enables the parallel operations of several Draco SIRA CPUs - even with different network connections. It isolates the networks from each other like a firewall and thus allows secure access to "private cloud" and "public cloud" systems from one workstation.

Please contact our sales team for specific requests in an IP application at sales@ihse.de or scan QR code.

PRODUCTS IN FOCUS

Draco SIRA CPU

Draco SIRA CON

Draco SIRA Stand-Alone

Draco SIRA User Station

MODULE R488-BIPC in
CHASSIS 474-BODY2N

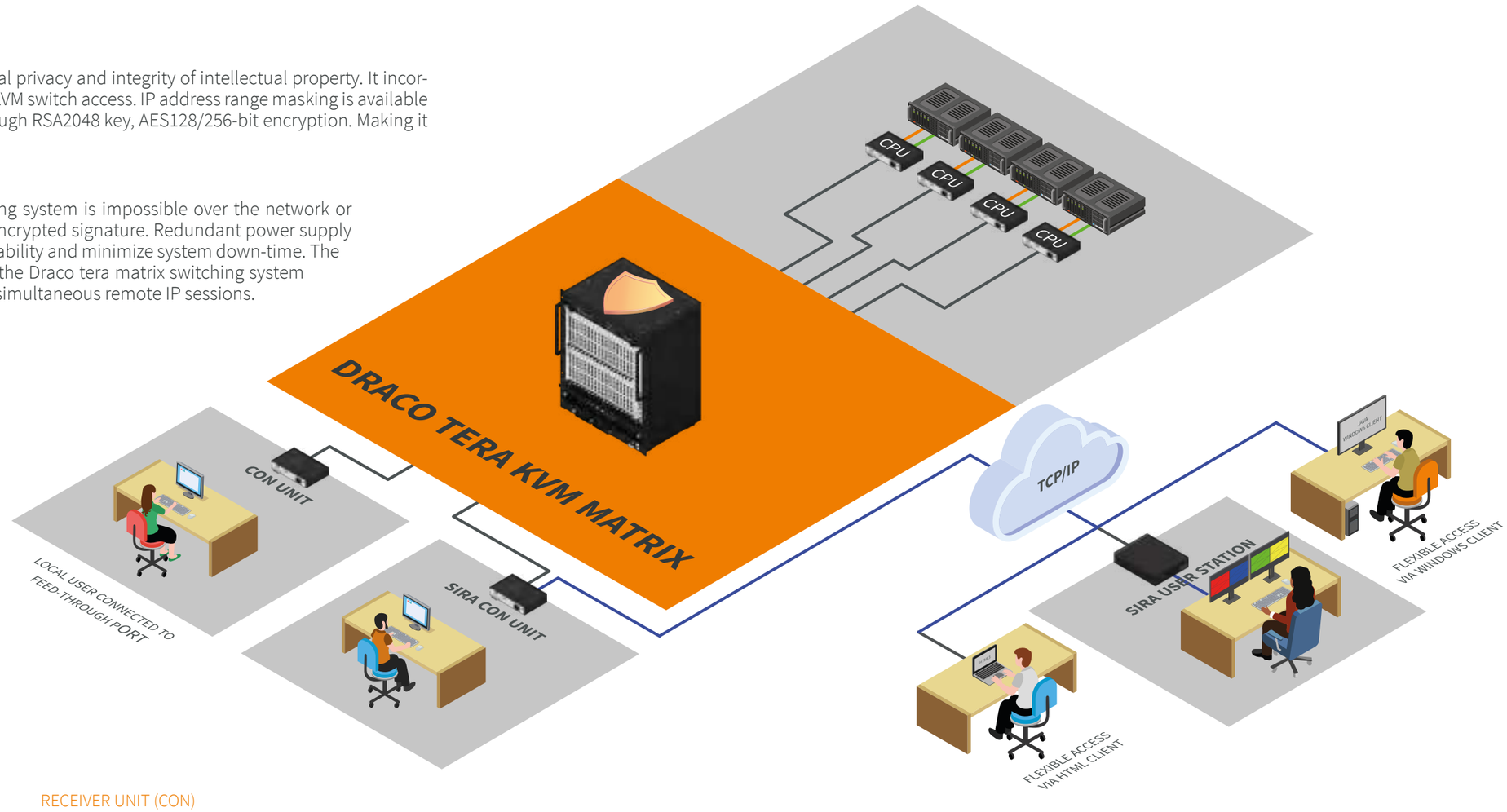
FEATURES & BENEFITS

- Remote access gateway via WAN for service personnel
- High-performance real-time like access via LAN
- HTML 5.0 browser based access provides highest flexibility
- Windows client software for additional features and higher performance
- Appliance based access for personal video wall setup
- Encrypted signal transmission and IP isolation from Secure Core Matrix
- Seamless integration into Draco tera matrices

SIRA SECURITY AND RELIABILITY

SIRA incorporates multiple built-in safety layers to ensure total privacy and integrity of intellectual property. It incorporates 2-layer log-in authentication for SIRA and Draco tera KVM switch access. IP address range masking is available for inbound and outbound connections. Data is secured through RSA2048 key, AES128/256-bit encryption. Making it ideal for remote access applications.

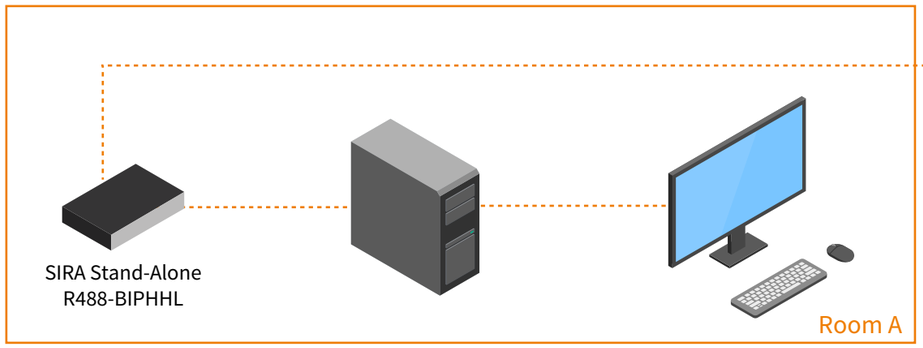
Accessing or manipulating the SIRA firmware-based operating system is impossible over the network or through the user interface, which is further protected by an encrypted signature. Redundant power supply and link port configuration options maximize operational reliability and minimize system down-time. The local feed-through port provides real-time connectivity over the Draco tera matrix switching system to any connected CPU. It shares this connection with up to 8 simultaneous remote IP sessions.



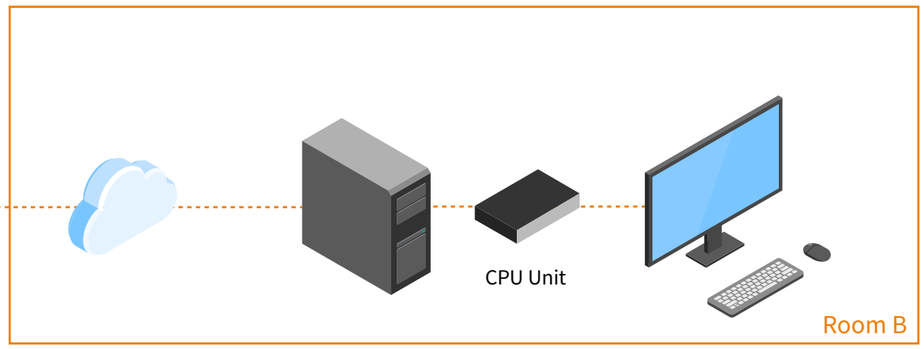
PROPERTIES	RECEIVER UNIT (CON)	
Cat X	R488-BIPC	R488-BIPCR
Fiber 1G	R488-BIPS	R488-BIPSR

FEATURES & BENEFITS

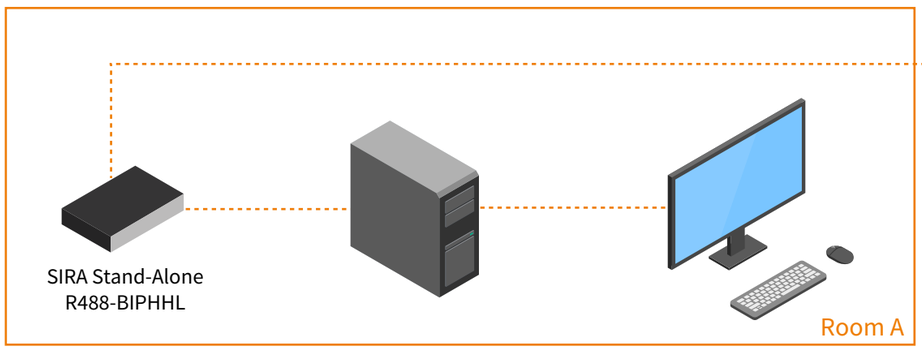
- Stand-Alone version directly connects to PCs or 3rd party KVM
- HDMI input up to 4K30
- USB HID input
- Local console interface
- HDMI embedded audio
- Virtual media support (file transfer to target PC)



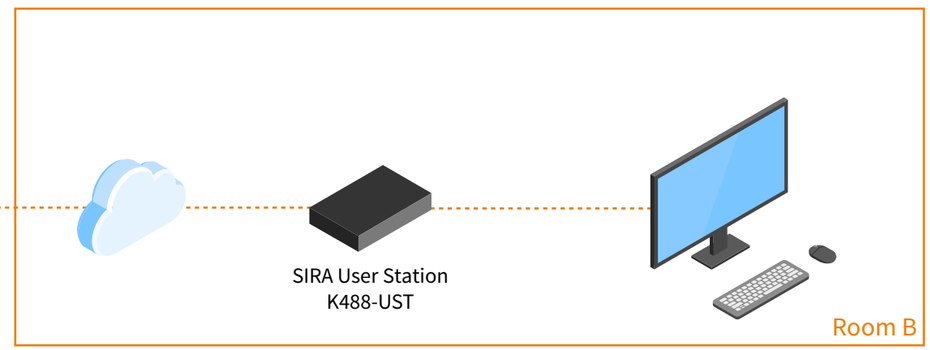
Stand-Alone PC with local user



Remote user via Desktop PC running remote client SW or HTML5 browser.



Stand-Alone PC with local user



Remote user via dedicated SIRA Remote User Station (K488-UST) *

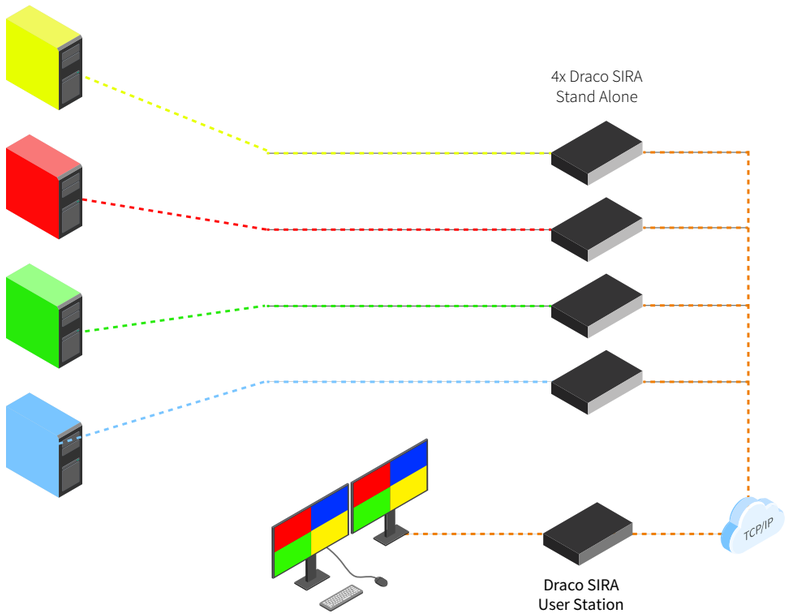
DESCRIPTION	DEVICE	PART NO.
Draco SIRA Stand-Alone		R488-BIPHHL

* See more information about Draco SIRA User Station on the following page 134.

FEATURES & BENEFITS

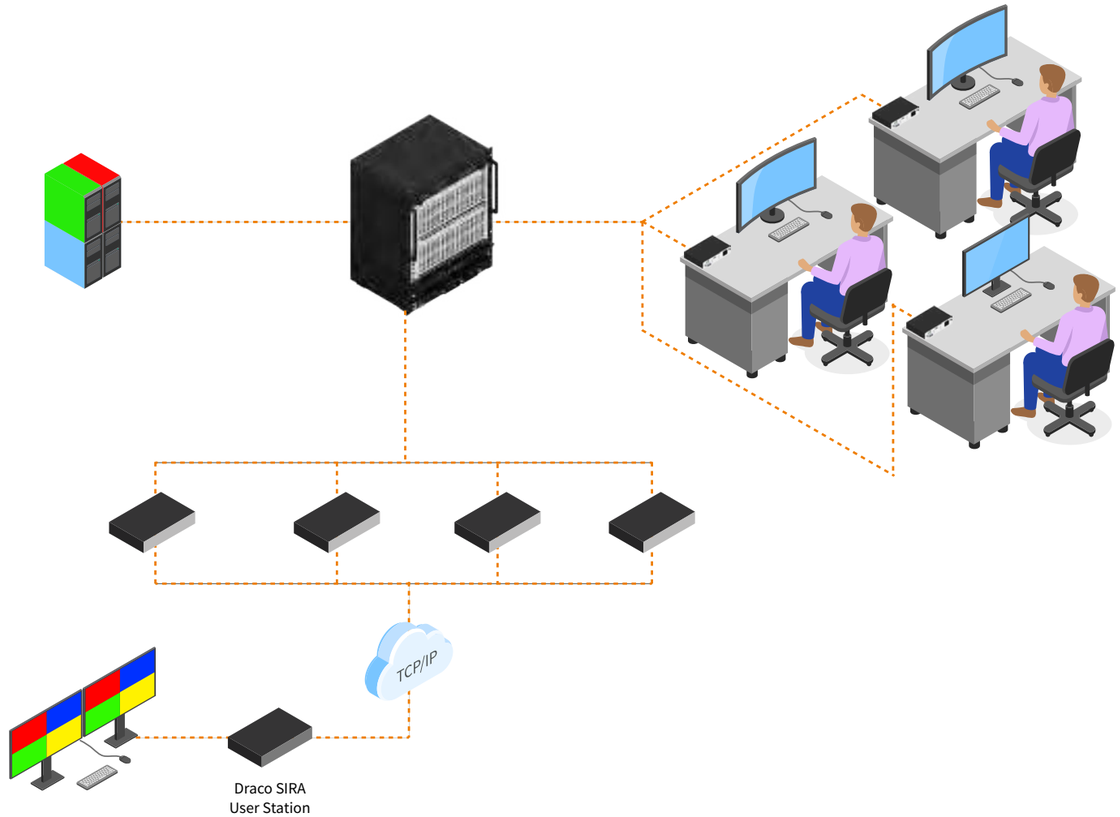
- Provides secure access from remote locations
- Increasing flexibility in accessing the matrices via LAN or WAN
- Supports multiviewing capabilities with freely definable layouts
- Support for up to three 4K monitors forming a personal video wall
- Adjusts video sensing and color calibration settings
- Connects or disconnects a virtual media drive or a smart card reader from the target server, if the target supports virtual media
- Shows several display options, such as scaled video (picture-in-picture modes) or full-screen mode

CENTRALIZED MANAGEMENT OF DECENTRALIZED SOURCES WITH FULL IP INTEGRATION



DESCRIPTION	DEVICE	PART NO.
Draco SIRA User Station		R488-UST

CENTRALIZED MONITORING AND CONTROL VIA MATRIX



IHSE EXPLAINS

HOW DO OUR SYSTEMS PROVIDE MAXIMUM SECURITY?

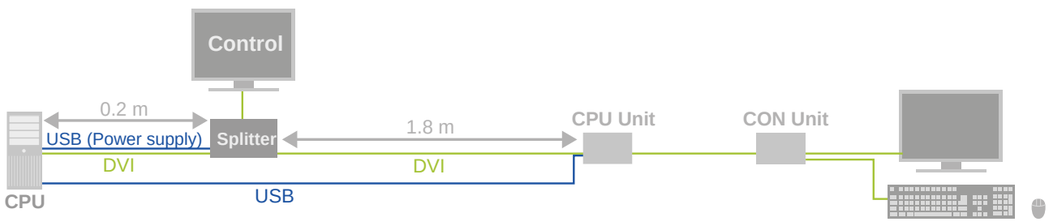
Physical attack	→	Restrict physical access to hardware
Signal interception	→	Protect signal transmission against interception
Signal leakage	→	Protect on-board signals against crosstalk
Human error	→	Restrict user access to the „Need to know“ level
Hardware failure	→	Provide redundant system architecture Provide resilient system components
IP-based systems	→	Provide IP connectivity with secure separation of core matrix and TCP/IP networks as an effective countermeasure to potential cyber attacks
External control (API)	→	In-band control vs. out-of-band control

2-PORT DVI-D SPLITTER CABLE

FEATURES & BENEFITS

- DVI signal output for two display units
- Transmission of EDID information
- Determine which EDID information is transmitted by pressing a button
- Power supply via USB connection
- Space-saving splitter cable solution

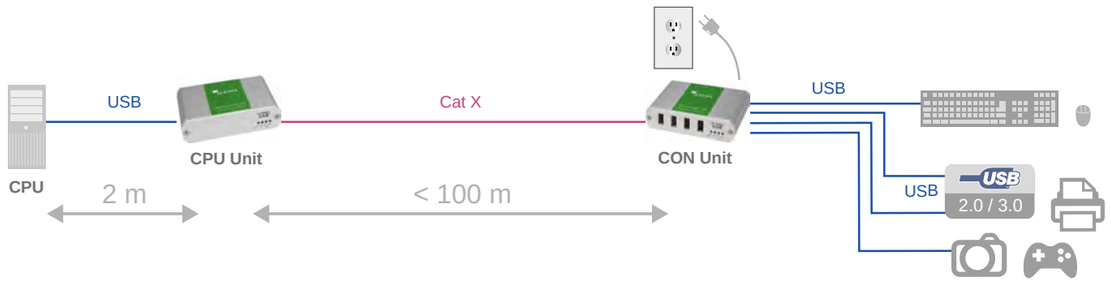
PRODUCT	PART NO.
2 x DVI splitter cable	445-2H



ICRON USB RANGER® 2304

FEATURES & BENEFITS

- Extends USB 2.0 up to 100 m at 480 Mbit/s
- Number of devices can be increased using additional USB hubs
- FCC Class B
- Rugged metal enclosure
- Supports up to 31 devices and hubs
- Uses a single Cat X cable for easy installation
- Includes the Extreme USB® suite of features
- Can be switched with any device with normal KVM card

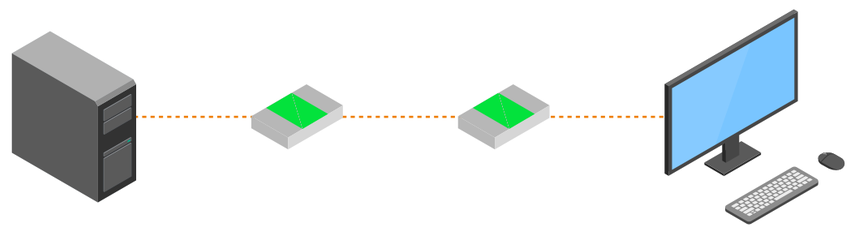


ICRON USB 3-2-1 RAVEN® 3104, 3124

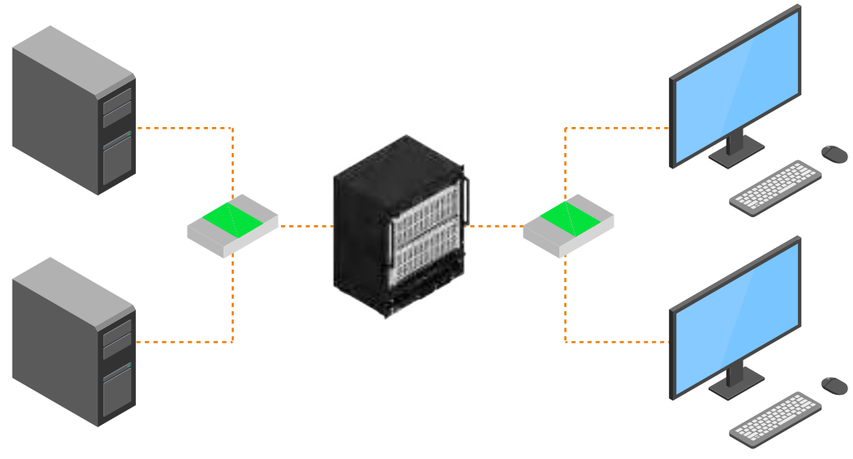
FEATURES & BENEFITS

- USB 3.1 Gen 1 data rate up to 5 Gbit/s
- Supports all USB 3.1, 2.0, 1.1 devices
- Up to 1.2 A (6 W) per USB port
- 100/1000 Mbps Ethernet channel; LAN pass-through
- Point-to-point connection
- Components can be switched with a matrix

POINT-TO-POINT APPLICATION



MATRIX APPLICATION



For use in matrix applications: UNI-16 board with corresponding fiber optic SFPs are required.

ACCESSORIES	PART NO.
Draco tera enterprise universal I/O module (8 ports) for USB 3.0 and SDI, empty, free configuration	480-UNI16
SFP multi-mode, LC duplex, bidirectional, for USB 3.0, 6G, MSA	459-6M

DRACO VIDEO CONVERTERS

FEATURES & BENEFITS

- User friendly OSD
- Multiple input format such as S-Video, Component, Composite, VGA, SDI, HD-SDI, DVI RGB, MDA, CGA, EGA
- 160 preinstalled video modes
- Scaling options up to 1920 x 1080 or 1920 x 1200
- Combinable with extenders and chassis of the Draco vario series
- Homogeneous integration with Draco vario extenders
- Backward compatibility to standard video interfaces with up converstion to digital PC based video

PRODUCT INFORMATION

The Draco Video Converter series allows the continued use of legacy equipment through the conversion of RGB/VGA/Media signals to digital DVI signals. Modern digital displays can be connected to analog VGA sources. The converter automatically recognizes all legacy VGA resolutions up to 1920 x 1200. An internal scaler rescales incoming video to a suitable resolution. Multi interface converters have built-in switching capability. All interfaces can be connected to different sources. So that the relevant input signal can be selected via remote control or hotkey (in combination with Draco vario extenders)

COMPLETE DEVICES	FUNCTIONS	CPU UNIT (LOCAL)	PART NO.
Draco Video Converter VGA-DVI	Converts VGA into DVI		K238-5V
Draco Video Converter Video	Converts VGA, FBAS, Y/C, MDA, CGA or EGA into DVI		K238-5VE
Draco Video Converter SDI	Converts VGA, FBAS, Y/C or (HD-) SDI into DVI		K238-5VS
Draco Video Converter RGB-DVI	Converts VGA or RGB into DVI		K238-5FBNC

MODULE VERSIONS	FUNCTIONS	CPU UNIT (LOCAL)	PART NO.
Draco Video Converter module VGA-DVI	Converts VGA into DVI		C474-BVGA
Draco Video Converter module Video	Converts VGA, FBAS, Y/C, MDA, CGA or EGA into DVI		C474-BVID
Draco Video Converter module SDI	Converts VGA, FBAS, Y/C or (HD-) SDI into DVI		C474-BSDI
Draco Video Converter module RGB-DVI	Converts VGA or RGB into DVI		C474-BBNC

ACCESSORIES	PART NO.
VGA connection cable 1.8 m (VGA to DVI-I)	436-AA
RGB connection cable 2.0 m (5 bay BNC connector)	238-BNC
EGA connection cable 1.8 m (D-Sub 9 socket to D-Sub 9 connector)	238-EGA
Component Video connection cable 1.5 m (3 bay RCA connector)	238-RCA
S-Video connection cable 3.0 m (Mini DIN connector, 4-pole)	238-SV
SDI connection cable 2.0 m (BNC connector to BNC connector)	238-SDI
International power supply 100-240 V AC/5V DC (spare part)	260-5G

DVI TO VGA CONVERTER

FEATURES & BENEFITS

- Supported input signals:
  DVI-D up to 1920 x 1200 @ 60 Hz
- Shipping includes:
  - DVI to VGA converter
  - DVI cable to connect to CPU
  - International PSU
- Power supply included as external power supply units
- Programmable EDID support

PRODUCT INFORMATION

This device converts DVI signals to VGA format. The DVI/VGA Converter can be used with a VGA/KVM switch or to convert a DVI source for a high quality VGA device such as a projector. Received DVI signals are converted 1:1 without modifying the resolution or signal frequency. The receiving device must be able to display the generated signals, e.g. 60 Hz or “reduced blanking“ at highest resolutions of up to 1920 x 1200. Personalized EDID files can be programmed via the DVI interface into the unit.

PRODUCT	PART NO.
DVI to VGA Converter	K469-DV

KVM - A SOLUTION FOR THE FACOTRY OF THE FUTURE

The world is entering a new paradigm, in which the benefits and advantages of teamwork and interaction between different departments within an organization yield spectacular results; in both product design and corporate profitability. The most successful companies, today and in the future, bring together teams of people: to collectively create new prototypes, develop them until they are perfect and then launch them into manufacture and to the end customer. To do so requires a collaborative approach – one that demands tools to link the teams, to enable information to flow, to produce effectively at scale and aid in the control of the whole production environment.

With autonomous production on the rise and increasing digitization in manufacturing, KVM systems can dramatically improve the effectiveness and efficiency of industrial and commercial organizations. Factories of the future need to rely on complex control rooms. In these control rooms operators and network supervisors choose the information they need, to control production and ensure a safe working environment for all employees.

PRODUCTION PROCESS

- Central decision making and problem-solving
- Fully integrated production process overview
- Widespread and timely reporting of output statistics
- Flexibility to expand and change production processes
- Greater security and reliability

FACTORY AUTOMATISATION

- Greater production efficieny
- Rapid production
- Safer and cleaner environments
- Better products, fewer rejects
- Greater analytic understanding of production rates
- Reduced downtime rates
- Fewer production bottlenecks and production delays

KVM IN INDUSTRIAL APPLICATIONS

With a KVM matrix, multiple screens and sources of information can be accessed using a single keyboard and mouse to minimize desktop clutter and simplify the control rooms tasks in a stressful and demanding environment. Data can be shared effortlessly between operators and displayed on common videowalls using simple and fast switching routines to ensure that everyone has the information they need right in front of them.

Industrial and corporate environments are further facing new approaches in collaboration and communication between different divisions like design and fabrication. KVM can connect these departments more efficiently. Enabling research and development, rapid prototyping, systematic testing and final production design to be achieved speedily through enhanced collaboration.

In addition, a KVM system allows operators to access and select between physical computers as well as virtual machines in the same way. This access to virtual machines is another crucial point for industrial and corporate environment with KVM technology making the access to and switching of sources fast and effortless.

Due to their enormous adaptability, our KVM solutions are suitable for every situation, even the challenging environments presented by the heavy engineering and chemical industries. Our systems provide a high level of security, prevent unauthorized access and data abuse. This makes them essential in creating future-proof control rooms.

PRODUCTS IN FOCUS

Draco Video Converters

Draco tera KVM Matrix Switch

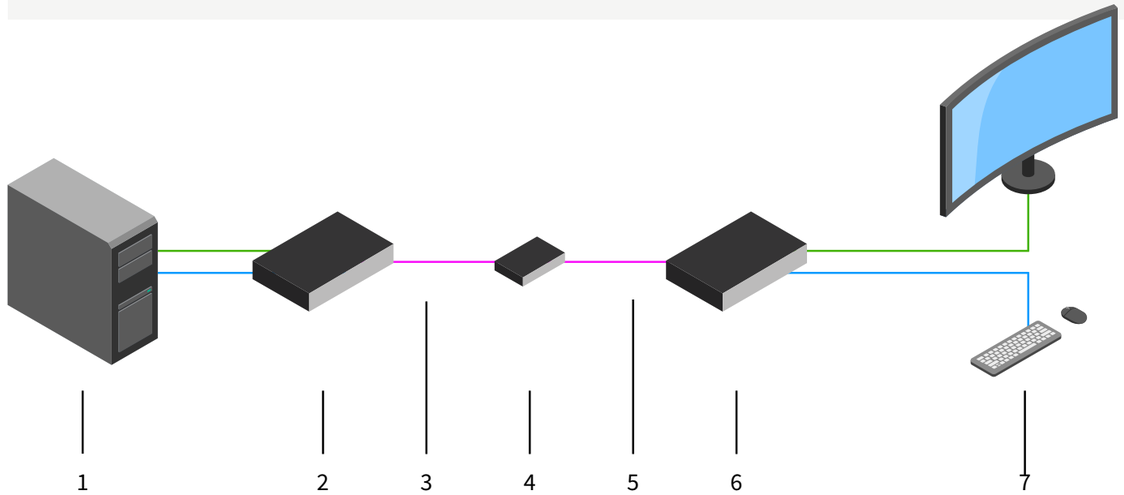
Draco vario KVM Extenders

Draco MultiView 4K60

DRACO VARIO CONVERTERS/REPEATERS

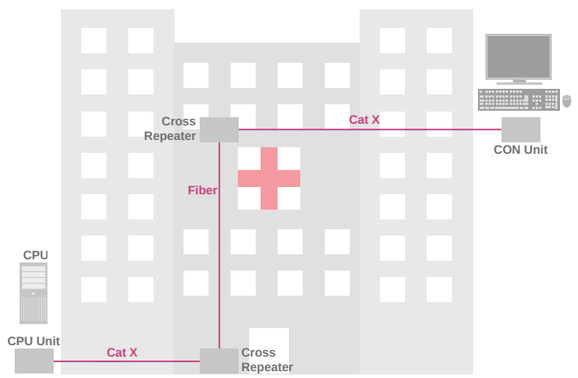
FEATURES & BENEFITS

- Doubling of cable length
- Electrical/optical conversion
- Bidirectional data ports
- No configuration needed
- Compatible with all Draco vario extenders chassis
- Cost effective solution for individual hybrid matrix connections (Cat X ↔ Fiber)



Repeater Function (optional: Media Conversion)

1. Source
2. KVM Extender CPU Unit
3. Interconnect cable (Cat X)
4. Draco vario (Cross) Repeater
5. Interconnect cable (Cat X / fiber)
6. KVM Extender CON Unit
7. Console (monitor, keyboard, mouse)

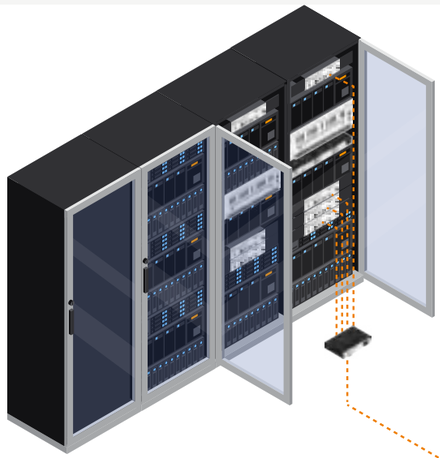


Application: In many large buildings horizontal cabling is laid with Cat X cables and vertical cabling with fiber cables. Cross Repeaters permit this application to be handled perfectly. The Cross Repeater is also suited to interconnection between two buildings.

DRACO CWDM

FEATURES & BENEFITS

- Compatible with Draco extenders and Draco switches
- Multiplex 4, 8 or 18 extender signals over a single CWDM fiber channel
- Minimize cabling cost
- Completely passive - no power supply required
- Ideal for long haul connections with reduced amount of fiber fable



Please contact our sales team for kit versions with SFP or individual orders at sales@ihse.de or scan QR code.

PRODUCT DESCRIPTION	PART NO.
4CH Draco CWDM Multiplexer/Demultiplexer Kit	K470-4CW
8CH Draco CWDM Multiplexer/Demultiplexer Kit	K470-8CW
18CH Draco CWDM Multiplexer/Demultiplexer Kit	K470-18CW
4CH Draco CWDM Multiplexer/Demultiplexer Module Version	B470-4CW
4CH Draco CWDM Multiplexer/Demultiplexer Module Version	B470-4CW

Further information on suitable CWDM SFPs

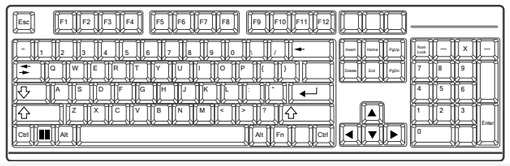
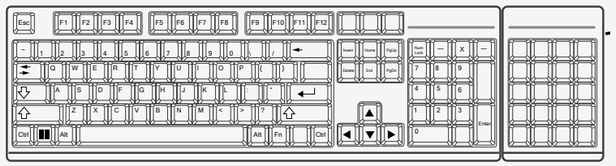
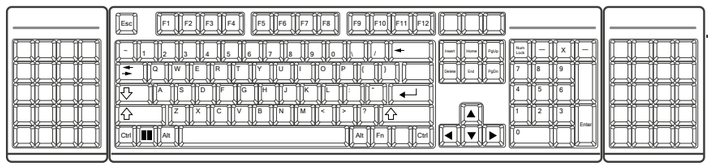
LINK SPEED	PART NUMBER	OPTICAL BUDGET [dB]	WAVELENGTHS*
1G	470-1S-xx-zz	xx: 19, 24, 28, 34, 38, 41	27, 29, ..., 61
3G	470-1X-xx-zz	xx: 13 18, 24	27, 29, ..., 61

*1**27**0, 1**29**0, ..., 1**61**0 nm

FEATURES & BENEFITS

- Individual printing of keypad keys
- Expandable by 50 function keys
- Clutter free connectivity single cable connection for keyboard, video, mouse
- Keypad or programmable keyboard can be used independently of the keyboard with CUTS keyboards
- Dual layer programmable keypads
- Ideal in combination with Draco tera matrices switching complete scenarios with a single key stroke

The programmable keyboard allows clutter-free PC connectivity on an operator's desk. With just a single cable the keyboard connects directly to PCs or KVM equipment. The keyboard itself is completely programmable so each key can be mapped to individual characters or command strings.
The built in USB hub allows further connectivity for a mouse or the custom programmable 25-key keypad. Keypads can be connected to the keyboard either via cable or direct docking into the side of keyboard providing up to 50 programmable keys or 100 freely programmable command stacks.
The keypad can also be used as standalone device independent of the keyboard and can be linked in between a KVM system and a standard keyboard to provide programmable features as described above.

DESCRIPTION	GRAPHIC	PART NO.
Keyboard only		444-KDE/ 444-KUS
Keyboard with one keypad (25/50 macro keys)		444-KDE/ 444-KUS, 1x 444-K25
Keyboard with two keypads (50/100 macro keys)		444-KDE/ 444-KUS, 2x 444-K25

PRODUCT	PART NO.
Keyboard, 105 keys, german layout	444-KDE
Keyboard, 105 keys, US layout	444-KUS
Keypad, 25 keys, no print layout	444-K25
Customized printing for keypad caps	444-K25P

FEATURES & BENEFITS

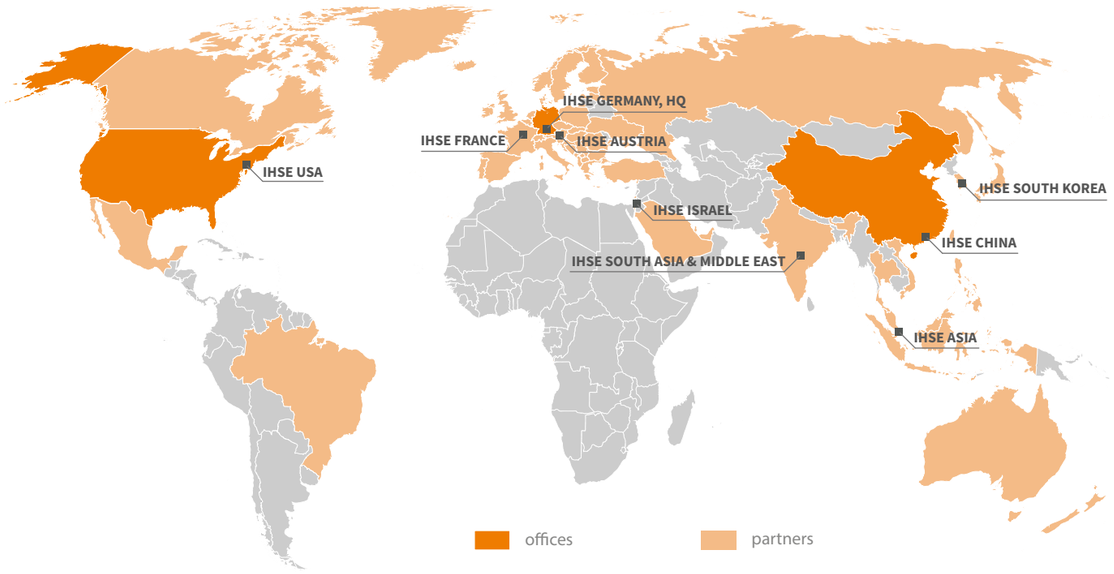
- 1 RU monitor keyboard drawer for 19" rack mounting
- Native resolution 1920 x 1200 pixels (WUXGA)
- 17.1" LED backlight screen
- Interchangaeable compact keyboard with touchpad
- Integrated wide-range power supply (100-240 V AC) with IEC 320 plug
- High quality torque hinges keep the monitor in any position
- USB connection for keyboard and mouse
- Options with integrated KVM extension / matrix connectivity available

The TFT Admin Console is a high quality 19 inch rack drawer with or without integrated Draco extender and matrix technology. It's the ideal solution for space saving administration of individual servers or a connected matrix. The edge-free design provides ergonomic access and control even in harsh environments. For transparent USB connectivity such as memory sticks, the USB port is easily accessible at the front of the tray.

DRACO TFT CONSOLE	ADMIN	REMOTE ADMIN	REMOTE ADMIN+
Part No.	477-KVM-R1	R477-KVSHC-R1	R477-KVSEC-R1
17" TFT Wide LCD Display	✓	✓	✓
Resolution 1920 x 1200 (WUXGA)	✓	✓	✓
Brightness typ. 400cd/M²	✓	✓	✓
Contrast ratio typ. 600:1	✓	✓	✓
On-Screen Menu	✓	✓	✓
Authorizations: CE, FCC, EN 60950-1:2006	✓	✓	✓
KVM Unit (CON Unit)	-	DVI, 2x HID, Cat X, 1 monitor, S-Link	DVI, 2x HID, Cat X, 1 monitor, S-Link + transparent USB 2.0 interface on front panel
Operation with Draco tera compact	-	✓	✓
Operation with Draco tera enterprise	✓	✓	✓

CREATE YOUR OWN KVM PROJECT ...

... OR SIMPLY TAKE SOME NOTES



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IHSE GmbH
Benzstrasse 1
88094 Oberteuringen
Germany
Phone: +49 7546 9248-0
Fax: +49 7546 9248-48
Email: info@ihse.de
Web: www.ihse.com

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Visit our website!

Headquarters Germany

IHSE GmbH
Benzstraße 1
88094 Oberteuringen

Office hours:
Monday - Friday: 9:00 am - 4:00 pm

Phone:
Tel: +49 7546 9248 0
Fax: +49 7546 9248 48

Email:
info@ihse.com

Tech Support:
Tel: +49 7546 9248 43
techsupport@ihse.de

Sales:
Tel: +49 7546 9248 42
sales@ihse.com

Subsidiary USA

IHSE USA
1 Corporate Drive, Suite F
Cranbury, NJ 08512

Office hours: (UTC -5)
Monday - Friday: 8:30 am - 5:30 pm

Phone:
Tel: +1 732 738 878 0
Fax: +1 732 631 012 1

Email:
info@ihseusa.com

Tech Support:
Tel: +1 732 738 878 0
support@ihseusa.com

Sales:
sales@ihseusa.com

Subsidiary Asia

IHSE GmbH Asia Pacific Pte Ltd
158 Kallang Way, #07-13A
Singapore 349245

Office hours: (UTC +8)
Monday - Friday: 9:00 am - 6:00 pm

Phone:
Tel: +65 6841 470 7

Email:
info-apac@ihse.com

Tech Support:
Tel: +65 6841 470 7
techsupport-apac@ihse.com

Sales:
sales-apac@ihse.com

Subsidiary China

IHSE China Co., Ltd.
Room 814, Building 3, Kezhu Road
No. 233 Huangpu District
Guangzhou PRC

Office hours: (UTC +8)
Monday - Friday: 9:00 am - 6:00 pm

Phone:
Tel: +86 189 888 381 11

Email:
info@ihse.com.cn

Tech Support:
Tel: +86 189 888 381 11
techsupport-cn@ihse.com

Sales:
info@ihse.com.cn

Subsidiary Austria

kvm-tec electronic GmbH
Gewerbepark Mitterfeld 1A
2523 Tattendorf
Austria

Office hours: (UTC +8)
Monday - Thursday: 8:00 am - 5:00 pm
Friday: 8:00 am - 3:00 pm

Phone:
Tel: +43 2253 81912 0

Email:
office@kvm-tec.com

Tech Support:
Tel: +43 2253 81912 33
Tel: +43 2253 81912 35
support@kvm-tec.com

Sales:
sales@kvm-tec.com

Regional offices

Paris, France
Tel: +33 678 478 822
info@ihse.com

Shoham, Israel
Tel: +972 3 972 185 3
info@ihse.com

Zwettl, Austria
Tel: +49 173 590 711 9
info@ihse.com

Seoul, South Korea
Tel: +82 103 752 401 3
info@ihseasia.com

South Asia & Middle East
Tel: +91 982 113 918 6
info@ihse.com

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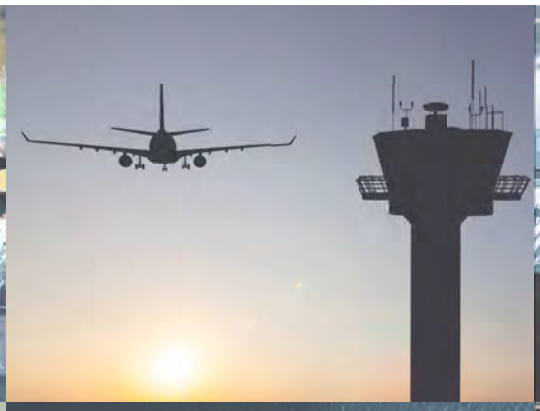


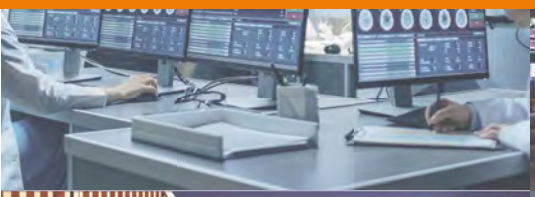
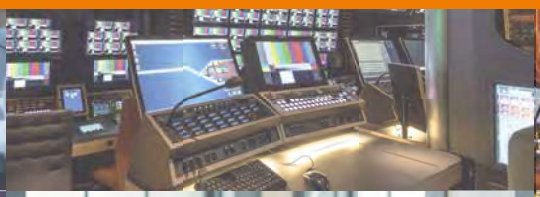
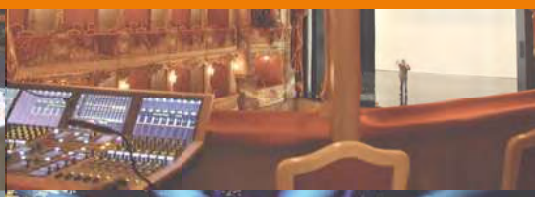
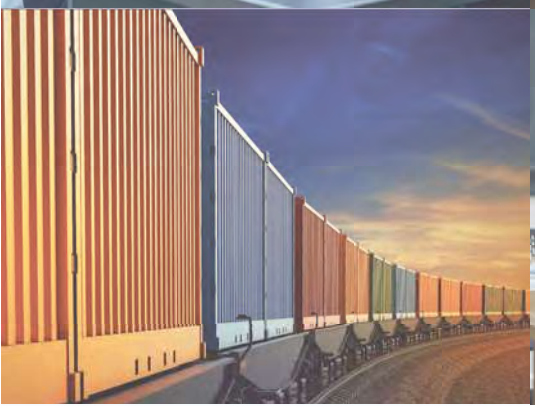

IHSE GmbH
Benzstr. 1
88094 Oberteuringen
Germany
Tel: +49 (7546) 9248-0
info@ihse.de

IHSE USA LLC
1 Corporate Drive
Cranbury, NJ 08512
USA
Tel: +1 (732) 738 8780
info@ihseusa.com

IHSE GmbH Asia Pacific Pte Ltd
158 Kallang Way, #07-13A
Singapore 349245
Tel: +65 (6841) 4707
info-apac@ihse.com

IHSE China Co., Ltd.
Room 814, Building 3, Kezhu Road
No. 233 Huangpu District
Guangzhou PRC
Tel: +86 (189) 888381 11
info@ihse.com.cn

kvm-tec electronic GmbH
Gewerbepark Mitterfeld 1A
2523 Tattendorf
Austria
Tel: +43 (2253) 81 912
office@kvm-tec.com

DESIGNED AND MANUFACTURED IN GERMANY