Guntermann & Drunck
GmbH

G&D

KVM Expertise

>>> Solutions for control rooms

Leading the way in digital KVM

G&D

KVM Extenders | Switches | Matrix Switches

Leading the way in digital KVM

Guntermann & Drunck is regarded as a leading manufacturer of digital and analogue KVM equipment used in control rooms for industrial process control, in air traffic control, broadcast studios and on ships.

With a broad portfolio of powerful devices to extend, switch and distribute keyboard, video and mouse signals and many years of experience in equipping control rooms, users can benefit from G&D's solutions and their real added value.

G&D is considered a top performer regarding:

- Failure safety, redundancies and preventive monitoring
- Reliable 24/7 operation during live operation
- Highest quality requirements regarding long operating times and life of products
- Broad range of functions that provide even more flexibility and usability

G&D offers the largest KVM product portfolio at the market. All G&D products as well as their variants are compatible with each other and can be combined. G&D KVM solutions
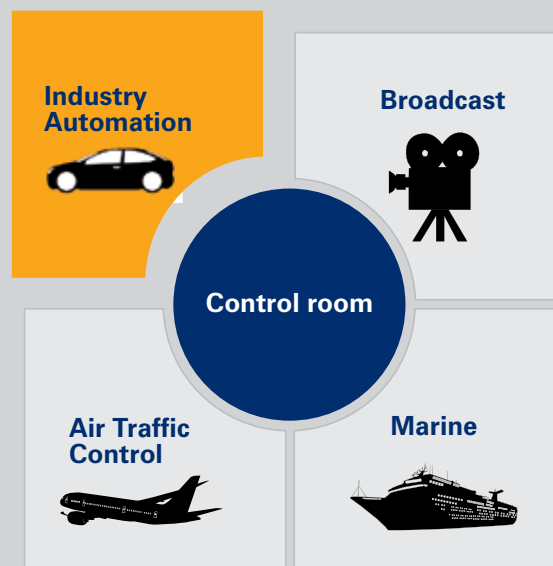
optimise your IT equipment and increase productivity for man and machine. If you need the best possible KVM equipment, then ask for G&D.

Industry Automation

Broadcast

Control room

Air Traffic Control

Marine

Intelligent solutions

KVM Extenders
- DL-Vision
- DL-Compact
- FIBREVision
- DVIVision
- LWLVision
- CATVision

KVM Switches
- DVIMUX-DL
- DL-MUX
- DVIMUX
- DisplayPortMUX
- MiniMUX
- TradeSwitch

KVM Matrix Switches
- ControlCenter-Digital
- DVICenter
- CATCenter

Monitoring & SNMP
- Preventives Monitoring
- SNMP Trap & Agent
- DevCon-Center

Versatile functions
- CrossDisplay-Switching
- Channel grouping
- Stacking
- Screen-Freeze function

KVM in the chemical industry ▶
Centralising computers moving them out of control rooms

In the chemical industry, safety is extremely important. Several control centres monitor all production processes and systems, record their values and analyze them. If necessary, the team working in the control room must be able to react within seconds. Thus, control rooms in the chemical industry are always a sensitive area. Critical processes and sensitive data need to be monitored continuously. Powerful computers are essential and constitute the backbone of each control room application.

By applying KVM equipment, computers can be easily moved out of control rooms to be placed in separate, air-conditioned technology rooms. Extenders and matrix switch systems make the remote computers available at the workstations in the control room.

Customer benefits:

➤ Computers are stored in secured equipment rooms where sensitive data is protected

➤ Removing computers from workplaces facilitates the administration and configuration of computers from one central console
➤ Employees in control rooms have remote access to their computers
➤ With a matrix switch system, different users can access multiple computers, access rights can be assigned individually
➤ Employees need only one set of keyboard/mouse to access all computers thus saving space and peripheral devices at workstations
➤ Users are able to work more efficiently without being distracted by the noise and waste heat of powerful processors and are no longer disturbed by maintenance staff

G&D KVM equipment seamlessly adapts with any IT installations in control rooms in the chemical industry. Being a hidden supporter in the background, KVM lets you monitor complex processes and facilitates maintaining the large number of computers required for the sophisticated tasks in this industry.

ControlCenter
DIGITAL

■ MODULAR
■ POWERFUL
■ SAFE

ControlCenter-Digital - the modular matrix switch

Adapts with your application

➤ Completely modular KVM matrix switch lets users operate multiple computers via multiple different workstations

➤ Modular design consisting of replaceable input/output cards, switch card, controller card, three redundant power packs and two fan boards

➤ Signals transmitted via CAT cables and optical fibres even when combined

➤ Comprehensive switchable signals: Keyboard, video, mouse, USB 2.0, audio, RS232

➤ Expansion levels with 288, 160 and 80 dynamic ports with variable port assignment and automatic device recognition

➤ Can be combined with all computer modules and user modules of the DVICenter series

➤ Even large IT installations with up to 4096 computers possible (matrix switch cascadable to up to three levels)

➤ Maximum flexibility thanks to high level of adaptation and compatibility to DVICenter

Want to know more about the ControlCenter-Digital?

KVM for energy suppliers ▶
Reliable products for 24/7 operation

Every day, energy suppliers provide power, gas and heat to millions of people. Here, everything needs to work without any interruptions – 24/7, 365 days a year. In addition to securing the voltage level and the load distribution, employees in the control room are responsible for monitoring all resources. Complex control centres and data management systems require many computers and various peripherals.

With the help of KVM equipment such as KVM matrix switches, it is possible to remove complex computer installations from the workstations and place them in a separate, specially equipped technology room. The distance to the remote computers is bridged by computer modules and user modules connected to the central matrix via CAT cables or optical fibres. By applying these user modules, users operate their computers as if they were placed at their workstations.

In control rooms of energy suppliers, KVM products are used to separate humans and computers. Despite this separation, users are still able to operate their computers remotely. And yet performance, colours and images remain stable and reliable. Any data is transmitted over existing cablings.

Advantages for more safety

➢ Remote access to computers independently network
➢ Absolutely reliable video quality of transmitted data
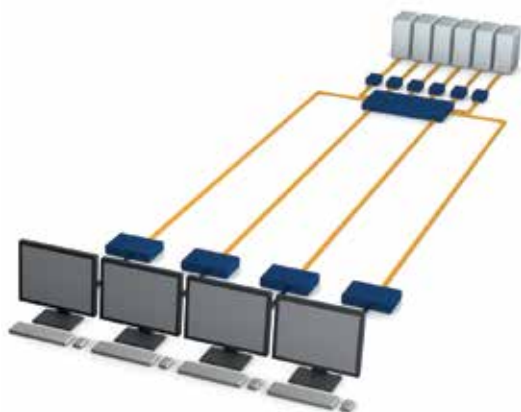➢ Seamless integration of existing systems

Diagram of a matrix switch installation.

Always on the safe side with Monitoring & SNMP

G&D KVM matrix switches provide a monitoring feature to detect and view system statuses. Via network, system administrators can access every device over a web interface providing an overview of the system status and the connected peripherals.

Whenever defined statuses are changed or thresholds (e.g. temperature) are exceeded, the web interface of the particular device shows a warning message.

Any monitoring values can also be sent (SNMP trap) or queried (SNMP GET). Now the admin can react accordingly and doesn't miss any important status changes. The system provides statistics on top values so that any critical values can be recognised in advance.

Among others, the following status values of the central module can be queried via SNMP-GET: status, power supply, temperature, network interfaces, fan speed, current, voltage. Of course, values such as status, power supply, connection of keyboard/mouse and the video signal of the connected computers and console devices are monitored as well.

Syslog messages can be viewed and sent to the syslog server installed for this purpose.

Take a look at our references.

KVM in the paper industry ▶
Optimised working conditions in control rooms

Producing paper requires up to 60 steps that need to be constantly monitored. Due to the rough production environment, valuable computer equipment needs to be stored in clean and cool technology rooms.

From here, KVM extender systems like DVIVision extend the computer signals to the workplaces. KVM extenders consist of a transmitter, the computer module, and a receiver, the user module (for example DVIVision-CPU and DVIVision-CON). The computer module is placed close to the computer and picks up the standard interfaces keyboard, video, mouse as well as audio, USB and RS232. The counterpart of the computer module – the user module DVIVision-CON – is placed in the control room of the paper mill. From here, users can access the remote computer.
Cabling is done over existing cable structures.

When several computers are removed from the office using KVM extenders, TradeSwitches to extend keyboard/mouse signals are the ideal solution to create a multi-monitor console.

With a KM switch, users can operate up to eight computers with only one set of keyboard/mouse. Video signals are not processed. From their multi-monitor workstations, users are able to monitor multiple processes on different screens and, if necessary, react within seconds.

Switching between computers is carried out over hotkeys, buttons or via the new, user-friendly CrossDisplay-Switching. This feature allows users to switch between computers connected to the TradeSwitch simply by moving the mouse. The mouse acts as if on a "virtual desktop" and can be moved seamlessly across the connected

displays. Moving the cursor from the active to another display, the keyboard-mouse focus automatically switches to the connected computer.

Advantages of applying KVM
- ➤ Operating computers without any delays
- ➤ Monitoring all processes and sequences in real-time
- ➤ Reducing maintenance costs since all computers can be accessed from one central location
- ➤ Reducing downtimes by placing the equipment in clean server racks
- ➤ Facilitating operation through simple plug and play devices
- ➤ Real-time monitoring of system statuses always possible; defined thresholds warn users before any issues can lead to unscheduled system downtime.

Diagram of CrossDisplay-Switching.

Remaining flexible with CrossDisplay-Switching

➤ Easy switching via mouse in addition to computer switching over hotkey and OSD
➤ Switching between computers connected to the TradeSwitch by moving the mouse
➤ Intuitive operation speeds up processes
➤ Multi-monitor consoles can be operated with one keyboard and one mouse
➤ fast and standardized operation across the entire system

Find out more about CrossDisplay-Switching.

Adapts with your application

incl. CrossDisplay-Switching

TradeSwitch – Operating multiple computers over only one set of keyboard/Mouse

➤ Operation of up to 8 computers over only one set of keyboard/mouse
➤ Switches the following signals:Keyboard/mouse (USB & PS/2), audio and USB 2.0
➤ Bypass of video signals
➤ Switching over hotkeys, buttons or **CrossDisplay-Switching**
➤ CrossDisplay-Switching is available for the following KM switches: TradeSwitch2-USB, TradeSwitch4-USB & TradeSwitch8-USB
➤ Highlights active channel using LEDs
➤ External switching over RS232 possible

KVM in the automotive industry ▶
Improving working conditions for humans and computers

In the automotive industry, high quality is a basic requirement. All production steps are closely monitored, evaluated and analysed. Production down-times or, even worse, system failures can have fatal consequences. All processes are monitored, analysed and optimised from a central control room. Here, safety and continuity are extremely important.

KVM carries out an important task in the automotive industry. In the control room of factories producing cars, KVM products are the „invisible" supporters in the background – always there and always ready to use. Wherever many processes have to be controlled and monitored at the same time, many computers are required.
KVM optimizes the work in the control room by helping remove computers into separate technology rooms. The computers are accessed remotely – without any delays or loss of quality, as if the computers

were still placed in the same room. This creates optimal conditions for employees and machines. Now the control room staff can continue their work without being exposed to the heat emissions and loud background noises of the computers.

The remote computers are connected to a matrix switch, a DVICenter DP64, for example. The computer signals are extended via the existing cable infrastructure (CAT5) over distances up to 300 m. With DVI-FiberLink modules, optical fibres can be used to transmit data. Now the system range of consoles or remote control rooms can be expanded to up to 10,000 m. IT administrators are able to assign every user with individual user rights and configurations. And if a computer should be assigned to a certain employee, the computer signals can be extended as 1:1 connection using a KVM extender system, e.g. a DVIVision.

FIBREVision

DVIMUX

DVICenter

Powerful KVM equipment for every control room

➤ **KVM extender FIBREVision** – Extend computer signals over optical fibres. Computer access from remote workstations (max. distance: 10,000 m)

➤ **KVM switch DVIMUX** – Switch to operate up to eight computers from one workstation

➤ **KVM matrix switch DVICenter** – Access many computers from different consoles; all common computer signals can be integrated

Our references from the automotive industry.

Take your IT to a new level – with the DVICenter

➤ Optimal solutions for control rooms where users operate multiple computers from simultaneous workstations

➤ A large variety of connectable components and supported signals incl. DisplayPort and VGA

➤ System transmits a total length of 560 m over CAT cables (when cascaded) or 10,000 m over optical fibres

➤ Variants with 64, 32 or 16 dynamic ports that can be configured as computer port or as user port

➤ Brilliant video resolutions up to 1920 × 1200 @ 60Hz incl. full HD

➤ Flexibility, growth and usability through:

   ➤ Channel grouping: In addition to combining multiple computers to a console, the ControlCenter-Digital also supports multi-monitor consoles for computers with multiple video outputs. For more convenient operation, multiple channels can be combined as port groups. In addition to multiple image sources, you can include other signals like keyboard, mouse, audio, USB and RS232 in these groups. **The ports you want to group don't have to be next to each other.** This ensures that future requirements like adding new signals to the group are carried out quickly and easily without the need for re-plugging any cables.

➤ By **cascading** devices, the system can connect even more computers. For this, the central modules are interconnected. The DVICenter can be cascaded into three levels, the distance between two devices can be up to 140 m (CAT cables), when fully cascaded up to 560 m

➤ **Stacking:** The stacking function enhances the system's flexibility even further. The feature increases the number of ports by combining up to ten ControlCenter-Digital devices via bus port. The ports of the stacked switches are switched in parallel to the master system. Now you can create multi-monitor consoles and assign consoles with USB or RS232 channels.

➤ **USB-Pinning:** When grouping multiple ControlCenter-Digital ports as a multi-channel configuration, USB pinning enables you to hold the USB transmission on the current computer even when switching to another channel. In this case USB transmission is not interrupted but finished.

KVM in medical applications ▶

Improving the working conditions of medical staff

In the medical field, IT installations are required in practices, clinics for special diagnostics or simulation rooms. Regardless of the individual characteristics or requirements, they all have one thing in common: The medical staff requires a user-friendly and ergonomic environment to be able to focus on their tasks and make the right decisions.

KVM products have many advantages: The staff has full access to the medical applications and thus can carry out its important work without the need for computers to be installed directly under desks. The employees are not disturbed by the noise of computer fans or dust, which keeps the working environment hygienically clean. Since the computers are placed in a remote equipment room, they are always ready to be maintained without disturbing doctors in their work.
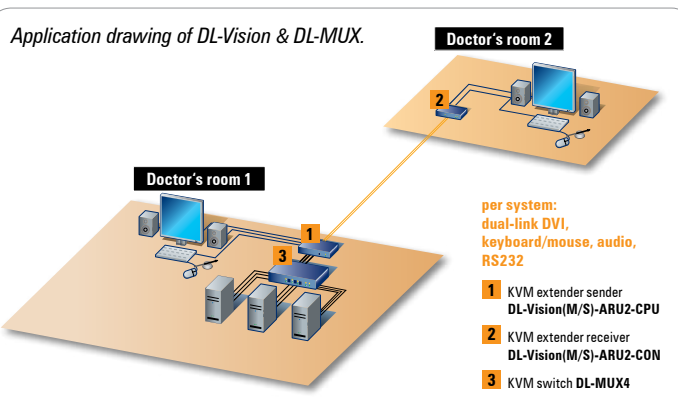
Hospitals usually require an endless amount of IT equipment. Multiple data streams are recorded continuously. Special applications need to run on different computers. Here, aspects like the image quality for diagnostic procedures are extremely important. X-rays or MRI scans require large screens with high resolutions. The remote computers are each connected to a KVM extender, e.g. a DL-Vision. With the help of a transmitter and a receiver, optical fibres transmit uncompressed data streams to the remote console over distances up to 10,000 m. High resolutions of up to 2560 x 1600 @ 60 Hz ensure crystal clear images to support diagnostic procedures. The extender's receiving module, the DL-Vision-CON, is placed at the remote workstation. With a DL-MUX KVM switch, users can switch between the connected computers. Thus, medical specialists always have access to any relevant information.

The work of the medical staff is also supported by KVM matrix switches, e.g. the DVICenter DP64.

Each specialist has remote access to the necessary data. Some data streams need to be accessed by different doctors at the same time. Matrix switches support multi-user operation meaning multiple users can access the same system. This approach does not only minimize delays but increases the efficiency as well. Now doctors in clinics can call each other and access results or X rays at the same time without having to schedule a meeting.

The choice of technology to be used depends on the degree of the relevant findings. For more information, please contact our technical sales team.

Application drawing of DL-Vision & DL-MUX.

Doctor's room 2

Doctor's room 1

per system:
dual-link DVI,
keyboard/mouse, audio,
RS232

1 KVM extender sender
DL-Vision(M/S)-ARU2-CPU

2 KVM extender receiver
DL-Vision(M/S)-ARU2-CON

3 KVM switch **DL-MUX4**

How KVM improves medical IT installations

- Full control of all processes even from remote locations
- Remote access to information, programs and examination applications makes work more efficient
- User-friendly and ergonomic workplaces without wasted heat and noise from computers let users focus on their work
- IT administrators have easy access to maintain computers
- Saves space by removing computers into server racks
- Clean rooms are not polluted by computer emissions
- No dust from computer fans, the working environment remains hygienic and sterile

Versatile and compatible

G&D offers the largest compatible KVM portfolio at the market. All products as well as their variants can be combined. G&D KVM products are compatible with all common computer signals and types.
Enjoy the perfect combination of a properly installed system and its powerful functions.

Versatile products

- Computer modules to connect DisplayPort, VGA, DVI single-link Video
- Computer modules that support two channel video
- Computer and user modules to transmit RS232 and USB 2.0
- Modules to create multi-monitor workstations

Enjoy full flexibility

- DynamicPort technology offers you full flexibility: You don't need to define the number of computer modules and user modules in advance. With its auto-recognition of ports, the matrix recognizes whether you connect a computer module or a user module.
- Adapts with every demand: thanks to different expansion levels with 64, 32 or 16 dynamic ports each, you can implement small or large installations
- The system that grows with you and your applications: Do you need to connect more computers to the matrix? By cascading your system, you can get the required number of ports in no time.
- Optimal video quality for medical applications – with resolutions up to 1920×1200 @60Hz (incl.full HD). Medical applications are displayed with crystal clear images
- The system lets you bridge distances up to 280 m from the workplace (up to 560 m when fully cascaded). Thus workplaces can be installed in different rooms.
- With special fibre optics units, the distance between workplaces and computers can be up to 10,0000 m.

DVICenter – customer benefits

- Maximum flexibility with compatible and versatile products
- Highest performance thanks to cutting edge chips
- Reliable, high-quality equipment, optimal functions and easy to operate quality products made in Germany
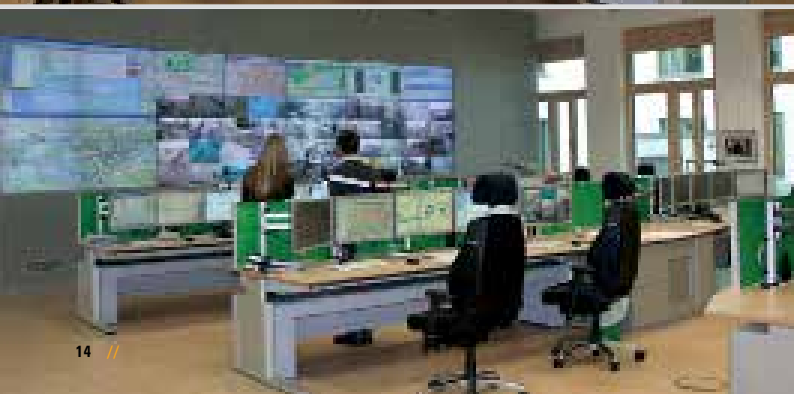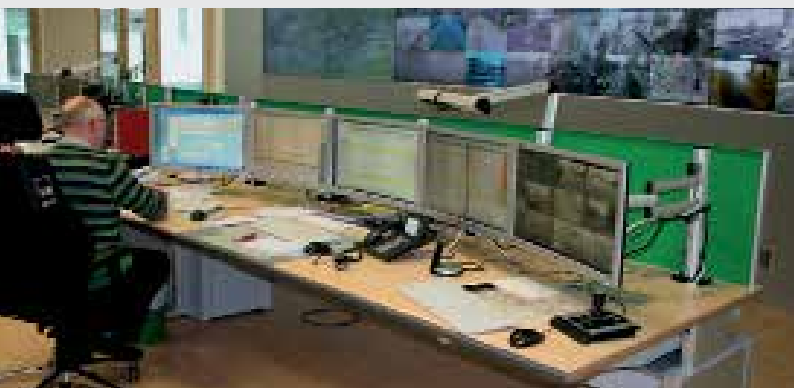
KVM in traffic control ▶

If you've ever placed your computer outside of your office, you might be aware of the noise produced by powerful equipment. Being constantly exposed to noise and heat emissions affects the work of every employee.

Every day, employees in traffic control rooms monitor hundreds of warning signals and cameras, collect and analyse important data and use it to keep the traffic flowing. Control rooms in traffic control regulate the traffic in big cities and show alternative routes.

The monitored video sources in the control room couldn't be any more complex. That's why the user stations need to be ergonomic and provide an ideal overview. Hence, computers and users shouldn't be placed in the same room. Yet every user must be able to access and operate all computers. The required equipment is installed in an access-protected room and can be accessed with the help of a KVM matrix switch, e.g. the ControlCenter-Digital 288.

The ControlCenter-Digital stands out with its broad variety of supported signals. In addition to single-link DVI video signals, computers with DisplayPort and VGA interfaces can be connected to the matrix, too.

Enabling progress

Being able to scale and expand any IT installation is a relevant issue in traffic centres. Space and the number of ports play an important role. The ControlCenter-Digital is always ready to be expanded – whether you need to add more users or more computers. If you need more than the 288 available ports, you can simply cascade the system. When cascaded to up to three levels using optical fibres or CAT cables, the ControlCenter-Digital provides thousands of ports and sufficient ways to expand the system. Even when distributed on multiple levels and buildings, workstations can be connected to the installation using optical fibres (DVI-CON-Fiber).

With its auto-recognition of ports, the system recognizes whether you connect computer modules or user modules – manual configuration is no longer necessary. The receiving modules of the KVM matrix are placed in the control room and connect keyboard, monitor, mouse, speakers and microphone.

Thus, every workstation remains clearly arranged.
With the modular ControlCenter-Digital, it's easy to master even the most complex IT installations in traffic control, optimize processes and increase efficiency.

Want to know more about KVM in traffic control? Contact us.

DP-CPU

DVI-CPU-MC2-UC

DVI-CON-MC2

ControlCenter-Digital

Modular setup:	➤ I/O cards (input/output cards), controller and switch card, fan boards and the power supplies are modular and can be replaced
	➤ Even more flexibility: System control logic on a separate controller card
	➤ Backup and restore of configuration
	➤ Configuration of matrix on separate, replaceable memory card
Ports	➤ 288, 160 or 80 dynamic ports variable I/O ports
	➤ Automatic device recognition of computer modules and user modules
Range	➤ **via CAT cables:** up to 140m between DVI-CPU and matrix and between matrix and DVI-CON
	➤ **via optical fibres:** to 10,000m between DVI-CPU and matrix and between matrix and DVI-CON
Compatibility	➤ all devices of the DVICenter series
System components	➤ 1 × central module ControlCenter-Digital including controller card and switch card
	➤ 1 × I/O card
	➤ 1 × computer module DVI-CPU
	➤ 1 × user module DVI-CON

Versatile functions

System expansion	➤ CCD and DVICenter can be used as slave in a cascade to increase the number of available ports / cascadable to up to three levels
Firmware expansion	➤ CrossDisplay-Switching (part of the TS function) for user-friendly computer switching via mouse. The mouse acts as if on a "virtual desktop" and can be moved seamlessly across the connected displays
	➤ Push-Get function: Expansion to move screen contents to other monitors or large screen projections or get it from there
	➤ IP-Control-API: external matrix control (e. g. switching) over TCP/IP connection (AMX/Crestron compatible)
Cascade	➤ Up to three levels, transmission distance between 2 devices: 140 m (CAT cables), up to 10,000 m via optical fibres
	➤ Dynamic-UserCenter enables access to computers from multiple independent ControlCenter-Digital clusters
Console expansion	➤ UserCenter modules allow access to computers from two matrix switch clusters (full redundancy)
	➤ Dynamic-UserCenter enables access to computers from multiple independent ControlCenter-Digital clusters
System features	➤ Auto-recognition and display of the system structure (cabling)
	➤ Finder LED for all system parts
	➤ Comprehensive system information (e.g. software versions, configurations)
	➤ Integrated user and rights administration
	➤ User groups for effective user management
	➤ Monitoring & SNMP: Detection, display and sending active messages about the system status as well as the status of single components

KVM in the steel industry ▶
Increasing the efficiency by accessing computers remotely

Whenever multiple production processes take place and need to be monitored and operated from various locations, KVM products are an essential part of the IT installation. The steel industry poses special challenges to any equipment in use: All products must be ready to face a rough environment.

The equipment needs to be extremely robust, reliable, fail-proof and intuitive to operate. On top of dealing with the extreme environment, KVM devices must be able to resist interference radiation and work reliably without any failures. In addition, control rooms require a large number of computers, many peripherals as well as other hardware. To optimize both the production processes and the ones in the control room, the computers are moved out of the control room and into central server racks. An important advantage of applying KVM de-

vices: Especially at large production sites with distributed locations, IT administrators can access the computers from one room to keep downtimes and configurations to a minimum.

Ideal to be used in the steel industry:
- KVM extender LWLVisionn
- KVM extender FIBREVision
- KVM matrix switch ControlCenter-Digital
- KVM matrix switch DVICenter
- KVM matrix switch CATCenter

If a 1:1 connection for process control is no longer sufficient (extender principle), you can increase the accessibility of the system significantly by installing a matrix switch.

FIBREVision – KVM extenders via optical fibres

- Signal transmission of distances up to 10,000 m
- Multi-monitor workstations possible
- Crystal clear images
- Remote power switching to remotely turn on/off computers
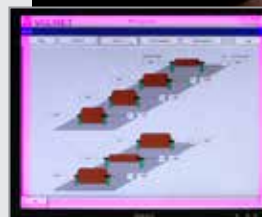- Screen-Freeze function in case the connection is interrupted

Take a look at our references

With a matrix switch, multiple remote user stations can simultaneously access all computers in the technology room. In addition to extending and switching computer signals, the matrix switch provides comprehensive safety and configuration features.

But even if a computer is assigned to one employee alone, KVM extenders provide an ideal solution by using optical fibres. The devices transmit computer signals over distances up to 10,000 m as is often the case when dealing with distributed production sites. By using optical fibres, the data streams are also protected against interfering radiation from the plant.

FIBREVison-CON and screen with active Screen-Freeze function.

FIBREVision-CON

Screen-Freeze function

If the display in the control room loses the video signal due to a broken connection or issues with the computer's graphics card, the Screen-Freeze function „freezes" the image last displayed on the monitor.

This state is highlighted by a red semi-transparent frame. The function is automatically cancelled when the display receives an active video signal.

Customer benefits

- If the connection to the computer is interrupted, a red, semi-transparent frame informs the employee that something's wrong. With the help of this information, the employee is able to react and fix the failure.
- Thanks to the Screen-Freeze function, users get an overview of the statuses of the connected computers.

Leading the way in digital KVM

Versatile KVM equipment

KVM Extenders

With DVI and VGA KVM extenders, you can extend the access to your computers to up to 10,000m and still work in real time. Extender systems consist of two units – a computer module (transmitter) and a user module (receiver). A local console at the transmitter module in the technology room lets the IT staff easily maintain the computers.

KVM extenders transmit the computer signals:

- DVI (single-link & dual-link) and VGA video
- Keyboard/mouse (PS/2 & USB)
- USB 1.1, USB 2.0 transparent
- Audio & RS232

Highlights
- Distances up to 10,000 m
- Computer access in real time
- Remote power switching
- Multi-channel video possible depending on variant (up to MC4)
- System monitoring via SNMP and monitoring function

KVM Switches

With DVI, VGA and DisplayPort KVM switches, you can operate 2 to 64 computers from one console consisting of monitor, keyboard and mouse. G&D DVI switches also transmit VGA video signals and therefore operate in a mixed environment. KVM switches are stand-alone devices and switch the following computer signals:

- Single- and dual-link DVI, DisplayPort 1.1 and VGA
- Keyboard/mouse PS/2 and USB
- Transparent USB 2.0
- Audio

Highlights
- Simultaneous connection and operation of DVI & VGA computers possible
- DisplayPort video sources possible
- Multi-channel video possible depending on variant (up to MC4)
- Solution to save peripherals to create a user-friendly and ergonomic environment

KVM Matrix Switches

With KVM matrix switches, you can operate multiple computers from multiple consoles. They consist of computer modules, central modules and user modules. Depending on your requirement, you can choose between compact and modular KVM matrix switches. They transmit the following computer signals:

- Single-link DVI or VGA (single or multiple)
- DisplayPort video sources
- Keyboard/mouse PS/2 & USB
- Audio
- RS232 and transparent USB 2.0

Highlights
- Range up to 10,000 m via optical fibres
- Multi-channel video possible
- Example: When cascaded, you can connect up to 4,096 computers (in a configuration with 6 consoles)
- Remote or direct connection or over IP
- Push-Get function for moving screen content from one display to another
- CrossDisplay-Switching enables user-friendly switching via mouse cursor

KVM Add-Ons

Add-on products increase the productivity of your KVM application. We provide the following add-on products:

- TFT keyboard drawer with single-link DVI and VGA port and a 17" display on 1 rack unit
- Programmable input devices for optimal device control
- 3G-SDI-DVI-Converter to convert SD, HD-SDI and 3G signals to single-link DVI
- Space-saving fasteners for horizontal or vertical rack mounting
- Products to easily switch KVM switches via keypress (OperatorPanel)
- Central, proactive monitoring and configuration of network-capable G&D devices

KVM products for industrial automation

KVM Extenders for CAT cables or optical fibres

DL-Vision

Digital dual-link video via optical fibres
► Distances up to 10,000 m, with optional USB up to 2,000 m
► Resolution per channel up to 2560 x 1600 @ 60 Hz incl. 2k resolution (2048 x 2048 @ 60 Hz)
► 4k resolution supported by DL-Vision-MC2
► Multi-video variants (up to four video channels)
► Proactive monitoring & SNMP
► Video bandwidth up to 330 MPixel/s and 24 Bit digital colour mode for crystal clear images
► Redundant power supply
► Two network interfaces
► Screen-Freeze function with timer
► Transparent transmission of E-DDC information
► Ident LED to quickly find devices in complex installations

DL-Vision (M/S) verlängert die Signale:
► Keyboard/mouse
► Video [dual-link DVI]
► Audio
► RS232
► USB 2.0 transparent

NEW
up to four video channels

DL-Compact

Digital dual-link video via optical fibres
► Distances up to 400 m
► Resolution up to 2560 x 1600 @ 60 Hz incl. 2k resolution (2048 x 2048 @ 60 Hz)
► Transparent transmission of E-DDC information
► Video bandwidth up to 330 MPixel/s and 24 Bit digital colour mode for crystal clear images

DL-Compact verlängert die Signale:
► Keyboard/mouse
► Video [dual-link DVI]

FIBREVision

Digital single-link video via optical fibres
► Transmission distances up to 10,000 m, with optional USB up to 2,000 m
► Resolution up to 1920 x 1200 @ 60 Hz
► Up to four video channels
► Transparent transmission of E-DDC information
► Remote power switching to remotely turn on/off computers
► Redundant power supply
► Screen-Freeze function

FIBREVision extends the signals:
► Keyboard/mouse
► Video [single-link DVI]
► Audio
► RS232
► USB 1.1 & USB 2.0

KVM Extenders for CAT cables or optical fibres

DVIVision

Digital single-link Video via CAT cables
► Transmission length up to 140 m
► Resolution up to 1920 x 1200 @ 60 Hz
► Available as variant with 1, 2 or 4 video channels
► Transparent transmission of E-DDC information
► Supports DVI-FiberLink to increase the system range up to 10,000 m
► Remote power switching to remotely turn on/off computers
► Redundant power supply
► Screen-Freeze function

DVIVision extends the signals:
► Keyboard/mouse
► Video [single-link DVI]
► Audio
► RS232
► USB 1.1 & USB 2.0

LWLVision

Analogue and digital video via optical fibres
► Transmission distances up to 10,000 m
► Resolution up to 1920 x 1200 @ 60 Hz
► DVI & VGA mixed mode possible
► Single- and multi-channel variants (up to MC2)
► DDC support
► Automatic video optimization
► Optional redundant power supply

LWLVision extends the signals:
► Keyboard/mouse
► Video [VGA und single-link DVI]
► Audio
► RS232
► USB 1.1 or USB 2.0

CATVision

Analogue video via CAT cables
► Transmission length up to 300 m
► Resolution up to 1920 x 1440 @ 75 Hz
► Single- and multi-channel variants (up to MC4)
► DDC support
► Automatic video optimization and delay compensation
► Redundant power supply
► Supports USB and PS/2 keyboard/mouse

CATVision extends the signals:
► Keyboard/mouse
► Video [VGA]
► Audio
► RS232
► USB 1.1 & 2.0

KVM products for industrial automation

KVM Switches to operate multiple computers via one console

DL-MUX4

Operating up to 4 computers via 1 console
► Resolution DVI up to 2560 x 1600 @ 60 Hz VGA up to 1920 x 1440 @ 75 Hz incl. 2k resolution (2048 x 2048 @ 60 Hz)
► Up to four video channels
► Two network interfaces
► Monitoring & reporting function
► Switching via hotkey, SNMP, button, external serial device or Control-API
► Web interface to configure and view monitoring values
► Supports the communication with the DevCon-Center for central proactive monitoring and configuration
► Ident LED to qickly find devices in complex installations
► Redundant power supply

DL-MUX4 switches the following signals:
► Keyboard/mouse
► Video [dual-link DVI & VGA]
► Audio
► USB 2.0

Operator Panel:
► switching via keypress
► facilitates the operation of KVM switches
► switches up to 8 channels via RS232
► "Enable" key prevents accidental switching

DVIMUX-DL

Operating up to 4 computers with quad video
► resolution DVI up to 2560 x 1600 @ 60 Hz VGA up to 1920 x 1440 @ 75 Hz incl. 2k resolution (2048 x 2048 @ 60 Hz)
► switching via hotkey, button or external serial device
► 300 MHz pixel rate and 24 bits colour depth for crystal clear images
► bidirectional audio

DVIMUX-DL switches the following signals:

► Keyboard/mouse
► Video [dual-link DVI & VGA]
► Audio
► USB 2.0 transparent

DVIMUX

Operating up to 8 computers with quad video
► Mixed operation for analogue and digital video
► Switching via hotkey, button or external serial device
► Bidirectional audio
► DVIMUX8 with on-screen display and broadcast function (for simultaneous configuration and operation of up to 8 computers from one console

DVIMUX switches the following signals:
► Keyboard/mouse (USB & PS/2)
► Video [single-link DVI & VGA]
► Audio
► USB 2.0

KVM Switches to operate multiple computers via one console

NEW

DP-MUX switches the following signals:
- ► Keyboard/mouse
- ► DisplayPort 1.1.
- ► Audio
- ► USB 2.0 transparent

DP-MUX

Operating up to 4 computers with single video
- ► DisplayPort 1.1 resolution up to 2560 x 1600 @ 60Hz (at 30bpp colour depth)
- ► DVI single link resolution up to 1920 x 1200 @ 60 Hz (only output side)
- ► Colour mode DisplayPort up to 48bit
- ► Colour mode DVI up to 24bit
- ► Data rate up to 10.8 Gb/s
- ► Switching via hotkey, button or external serial device

NEW incl. CrossDisplay-Switching

TradeSwitches switches the following signals:
- ► Keyboard/mouse (USB & PS/2)
- ► Audio
- ► USB 2.0

TradeSwitch

Operating up to 8 computers with one keyboard/mouse
- ► Accesses only standard keyboard, mouse and audio interfaces
- ► Bypasses video signals
- ► Switching over hotkeys, buttons or CrossDisplay-Switching
- ► CrossDisplay-Switching is available for the following KM switches: TradeSwitch2-USB & TradeSwitch4-USB
- ► Highlight active channel with LEDs

MiniMUX

Bedienung von bis zu 8 Rechnern mit einem Set Keyboard/Mouse
- ► VGA resolution up to 1920 x 1440 @ 75 Hz
- ► Video bandwidth VGA up to 400 MHz
- ► Up to four video channels possible
- ► Full keyboard/mouse emulation for each channel
- ► When cascaded, up to 64 computers can be operated via one workstation

MiniMUX switches the following signals:
- ► Keyboard/mouse (USB & PS/2)
- ► VGA

Modular KVM matrix switches: Operating multiple computers over multiple consoles

ControlCenter-Digital

Modular KVM matrix switch to operate multiple computers from multiple different workstations

► Modular design: Modular and replaceable controller card, switch card, I/O CAT cards, I/O fiber cards, fan modules and power supplies

► Modularity: Even during operation, the system can be adapted or expanded

► System supports CAT cables and optical fibres (mixed mode possible)

► Via CAT cables, range between units can be up to 140 m; via optical fibres up to 10,000 m

► Central system administration, monitoring and control on separate, replaceable controller card; switch card can be replaced as well

► Even more flexible with dynamic ports: 288, 160 or 80 dynamic ports can be connected either as computer or as user port

► Resolutions for crystal clear images: Single-link DVI up to 1920 x 1200 @ 60 Hz (incl. 1920 x 1080 full HD)

► DisplayPort and VGA video sources can be integrated as well

► Automatic recognition of employed user and computer modules

► Multi-monitor consoles incl. CrossDisplay- Switching; the innovative CrossDisplay-Switching lets users easily switch between different computers just by moving the cursor

► With channel grouping or stacking, even more signals can be switched

► Cascadable to up to 3 levels; even DVICenter can be used as slave in the cascade

► Compatible with all DVICenter connection modules

► Operation and configuration via web interface and OSD

► Monitoring & SNMP

► Two network ports (web interface, updates)

► Three redundant power supplies ready to be replaced during operation

► Provides a local console for administration and configuration

► Text-based media control via TCP/IP, e. g. AMX, Crestron, VSM and KSC Commander

► Supports touch screens

Der ControlCenter-Digital switches the following signals:

► Keyboard/mouse (USB & PS/2)
► Video [single-link DVI] (dual-link comimg soon)
► Audio bidirectional
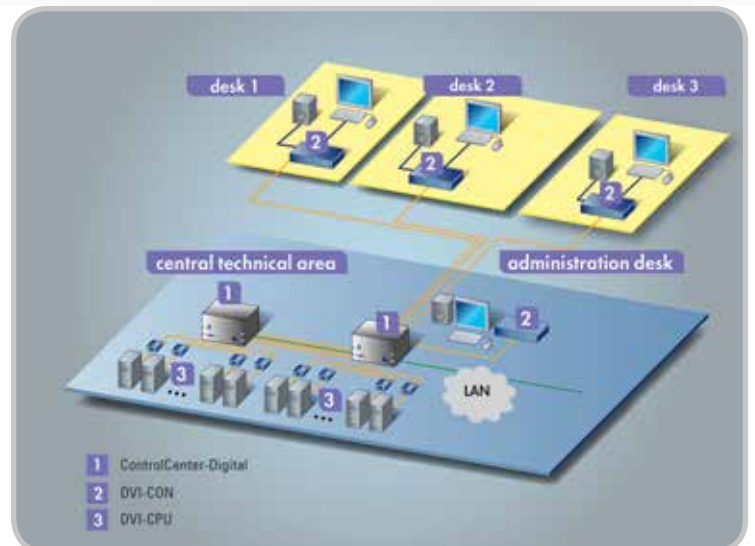► USB 2.0 transparent
► RS232

NEW

Diagram ControlCenter-Digital

Modular KVM matrix switches: Operating multiple computers over multiple consoles

Das DVICenter-System system switches the following signals:
► Keyboard/mouse
► Video [single-link DVI]
► Audio bidirectional
► RS232 & USB 2.0 transparent

Use all common video formats in one matrix!

DP-CPU

DVI-CPU-MC2-UC

DVI-CON-MC2

Das CATCenter NEO system switches the following signals:
► VGA Video
► Keyboard/mouse
► Audio

DVICenter

Operate multiple computers over multiple consoles
► Up to 560 m total transmission length via CAT cables (when cascaded)
► Through implementation of DVI-FibreLink (S/M) range up to 10,000 m
► 16, 32 or 64 dynamic ports can be freely configured as computer or user ports
► Resolution up to 1920 x 1200 @ 60 Hz and 1280 x 1024 @ 85 Hz (incl.1920 x 1080 full HD)
► Implementation of DisplayPort & VGA video sources
► Operation and configuration via web interface and OSD
► Monitoring function, SNMP support
► Support of text-based media controls over TCP/IP, e.g. AMX and Crestron control
► Redundant power supply

DVICenter components
Versatile products
► DP-CPU: module to connect DisplayPort computers
► DVI-CPU-MC2: module to connect multi-video computers (2 x video)
► DVI-CPU-MC2-UC: dual module to connect one multi-video computer to two clusters
► DVI-CON-MC2 & DVI-CON-MC4: multi-channel module to connect multi-monitor workstations (2 or 4 x video)
► VGA-CPU integrates VGA video sources in the matrix

CATCenter NEO
Operate multiple computers over multiple consoles
► Transmission length up to 300 m (CAT cables)
► Resolution up to 1920 x 1440 @ 75 Hz
► Operation and configuration via OSD, web interface and IP client
► System range up to 10,000 m with integrated NEO-FibreLink (S/M)
► Expandable to access computers over IP
► Monitoring as well as SNMP trap and SNMP agent
► Redundant power supply
► Integration of single DVI computers possible

KVM products for industrial automation

KVM Add-Ons: configuration and status monitoring

Preventive monitoring

Operational safety and reliability are essential for G&D devices. The monitoring function of many G&D devices provides the following features:

► Device configuration
► Monitoring of system statuses
► Transmission of information via SNMP and as syslog message

The settings of every device can be configured individually via web interface or centrally for all devices via DevCon-Center. G&D units with monitoring functions provide at least one network interface as well as an integrated web interface. The values of G&D devices are constantly monitored. Messages about system conditions are sent directly to the DevCon-Center.
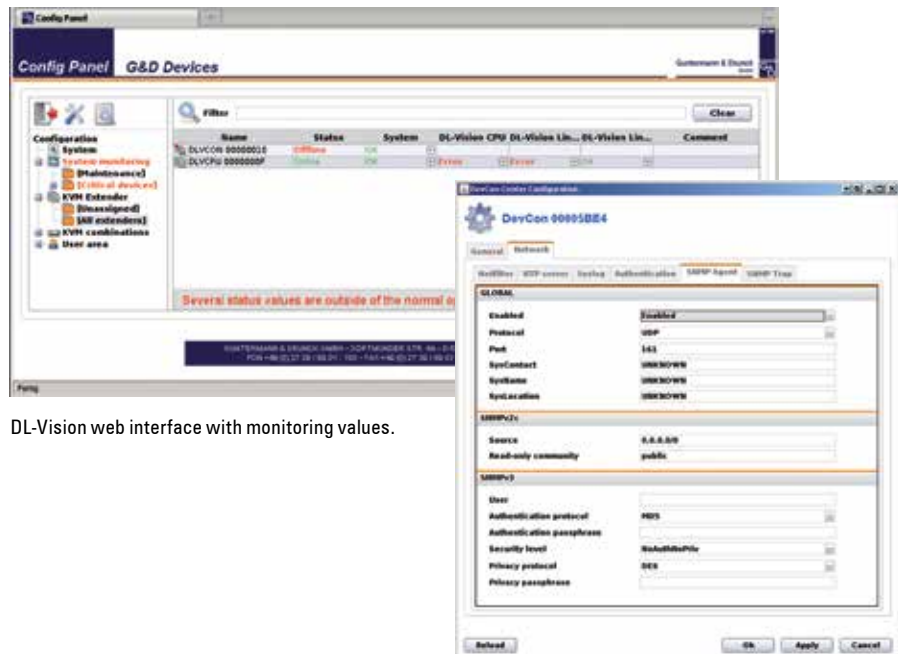
DevCon-Center

► Proactive monitoring and central configuration
► Compatible with all network-capable products
► Reporting of device statuses
► Supports SNMP (trap & agent) and syslog messages
► Redundant power supply
► Two network interfaces
► Critical system statuses are recognized early and can be prevented from the beginning

SNMP-Trap & -Agent

Function for preventive monitoring of G&D devices
► Defined conditions and exceeded thresholds are stored in the web interface and can be viewed anytime
► SNMP management software receives automatically any status event sent by G&D devices
► SNMP-GET function enables you to query the device temperature. Provides statistics on top values as well as recognise critical values in advance
► SNMP-SET has active impact on G&D products (for example when changing channels at a KVM switch)
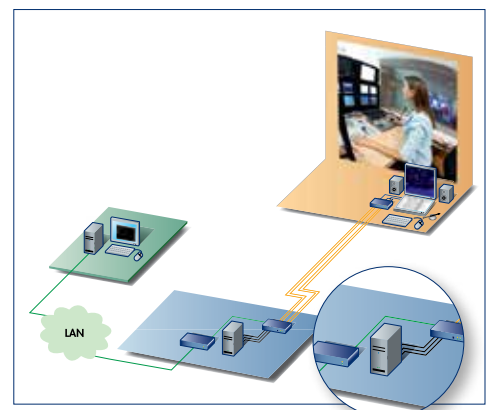
DL-Vision web interface with monitoring values.

Network settings of SNMP agent

DevCon-Center

Supported network-capable products:

DL-Vision
DL-Mux
ControlCenter-Digital
DVICenter
CATCenter NEO
CompactCenter X2

Glossary

CON module	(short for console) The user module (CON module) receives the KVM information required at the workstation.
Controller card	The controller card is the central unit to administrate, monitor and control the system.
CPU module	(short for Central Processing Unit); module to connect the computer, forwards the computer's KVM signals to the matrix switch.
CrossDisplay-Switching	CrossDisplay-Switching enables user-friendly switching via mouse cursor (part of the TradeSwitch function).
UserCenter module	UserCenter module: UserCenter modules (UC modules) let you access a computer from different ControlCenter-Digital clusters (full redundancy).
EDID support	A monitor's EDID information (Extended Display Identification Data) provide the graphics card of the connected computer with different kind of information, for example the monitor's various technical features.
I/O card	I/O cards are modular cards with multiple input/output ports, which can be used to connect user modules or computer modules via CAT cables or optical fibres.
Channel grouping	Channel grouping lets you create multi-monitor consoles for computers with multiple video channels and to group multiple channels, which can be switched together.
Cascading	By cascading KVM matrix switches, the devices can connect even more computers. For this, the central modules are interconnected. The master device is used to control the system.
Matrix satellite	With the stacking function, you can switch multiple matrix switches in parallel to the matrix system (primary). Stacked matrix switches are called matrix satellites.
MC2/MC4 modules	Multi-channel modules let you connect multi-video computers or multi-monitor consoles (user or computer modules) to your system.
Push-Get function	The Push-Get function allows you to drag the screen content of a target from one screen to another – or to get it from there. This console can also be a large screen projection.
Remote control over IP switching	The IP-Control-API allows you to externally control the matrix switch (e. g. switching via TCP/IP connection).
Stacking	Stacking increases the number of ports by combining up to ten ControlCenter-Digital devices via bus port. Thus the feature increases the supported signals. Stacked matrix switches are switched in parallel to the master switch.
Stay-Alive function	When plugging, unplugging or moving switching components, the CPU modules remain unaffected. This prevents "frozen" computers even for inactive connections.
Switch card	The switch card is the central unit, which holds the switching logic of the matrix switch.
TradeSwitch function	With the TradeSwitch function, you can operate multiple computers with one mouse and one keyboard only. The TradeSwitch function is required to use CrossDisplay-Switching (see above).

seit 1985

Guntermann & Drunck
GmbH

G&D

From professionals for professionals:

Trust in our powerful KVM solutions – from planning to support.

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