KVM Solutions for Broadcast & Post Production

Leading the way in digital KVM
Leading the way in digital KVM

Intelligent solutions

The Guntermann & Drunck GmbH was founded in 1985 and is now established as a leading manufacturer of digital KVM solutions.

With our products we serve almost all German broadcast stations ruled under public law, as well as numerous private ones. Core competencies like development, production, sales and service are available in-house.

With our multi-platform KVM Extenders, loud and distracting computers are moved out of noise-sensitive environments. Computer and user can be separated by up to 10,000 m; bridged by standard cabling (CAT and optical fibre).

KVM Extenders can transmit the signals for keyboard, video, mouse, audio, RS232 and USB. Multiple video (DVI + VGA), high image quality and the integration of broadcast special keyboards lead into a complete concept.

With KVM Switches and Matrix switches several computers can be operated/administrated by one or more user consoles e.g., in plant rooms or for enabling simultaneous access of multiple users to the computer-aided inventory in OB vans.

All solutions have the common advantage of high performance, latency- and loss-free access from the user console to the computers.
## KVM Extender

**Products for extending computer signals over long distances**

[extend the following signals: video, keyboard/mouse, audio, RS232, and USB 2.0]

<table>
<thead>
<tr>
<th>Product</th>
<th>Signal Type</th>
<th>Transmitted Over</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL-Vision</td>
<td>DVI dual-link</td>
<td>optical fibres</td>
</tr>
<tr>
<td>FIbreVision</td>
<td>DVI single-link</td>
<td>optical fibres</td>
</tr>
<tr>
<td>DVision</td>
<td>DVI single-link</td>
<td>CAT cable</td>
</tr>
<tr>
<td>LWL-Vision</td>
<td>DVI &amp; VGA</td>
<td>optical fibres</td>
</tr>
<tr>
<td>CAT Vision</td>
<td>VGA</td>
<td>CAT cable</td>
</tr>
</tbody>
</table>

## KVM Switches

**Products for operating multiple computers by one workplace**

[switch the following signals: video, keyboard/mouse, audio, USB 2.0]

<table>
<thead>
<tr>
<th>Product</th>
<th>Signal Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DL-MUX</td>
<td>DVI dual-link / DVI single-link / VGA</td>
</tr>
<tr>
<td>DVIMUX-DL</td>
<td>DVI dual-link / DVI single-link / VGA</td>
</tr>
<tr>
<td>DVIMUX</td>
<td>DVI single-link / VGA</td>
</tr>
</tbody>
</table>

## KVM Matrixswitches

**Products for simultaneously operating multiple computers via multiple workplaces**

[provides the following signals: video, keyboard/mouse, audio bidirectional, RS232, USB 2.0]

<table>
<thead>
<tr>
<th>Product</th>
<th>Feature</th>
<th>Capacities</th>
</tr>
</thead>
<tbody>
<tr>
<td>DVI Center DP16</td>
<td>with bidirectional audio</td>
<td>1 up to 63 computers over 63 - 1 simultaneous user modules</td>
</tr>
<tr>
<td>DP 32, DP 64</td>
<td></td>
<td>depending on the chosen variation</td>
</tr>
<tr>
<td>CAT Center NEO4</td>
<td>with audio support</td>
<td>up to 16 users &amp; 64 computers</td>
</tr>
<tr>
<td>NEO8, NEO16</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compact Center X2</td>
<td>integrated IP console</td>
<td>2 users - 16 computers</td>
</tr>
</tbody>
</table>

## SNMP / Monitoring

**Helpful functions for predictive maintenance of the G&D devices and connected peripherals.**
**Application**

**KVM for broadcast & post production**

**Studio workplaces ► Remove computer equipment from the studio**

G&D’s KVM products are the spine of the employed computer technology in broadcasting. Requirements such as desks without computers, a calm working environment, and access to computer technology must be met.

KVM allows you to use technology flexibly, offers stability and provides reliability – even during live broadcasts.

G&D’s KVM solutions enable users to remove computers from the studio to a central computer room. The producers are still able to fully access those computers from their studios in real-time.

The peripherals-saving solution reduces the noise level in the studio and avoids unnecessary heat emissions.

**How KVM works in studios**

The computers are housed in a central control room, separated from the production-level users. In the technical area, an administration console allows the administrator to operate the computers. The desks can have both digital and analog monitors. Two DVICenters (1 x master, 1 x slave) connect the user modules and the computer.

A dedicated CAT-x link integrates the productive workplaces into the operational concept (DVI-CON) where they work on the computers like a 1:1 connection without latency or loss of quality.

Each user module can access every computer. Flexible operation concepts can be implemented, which creates optimal environmental conditions for both users and computers.
KVM for broadcast & post production

Application

Studio workplaces ➤ The products

The KVM matrix switch DVICenter allows you to operate 1 to 63 computers over multiple simultaneous user modules. The 64 available ports can be freely combined as computer or user modules. Configured with 8 consoles, you can connect up to 2,744 computers to the system.

The DVICenter switches the signals keyboard/mouse (PS/2 & USB), video (DVI single-link) and bidirectional audio as well as RS232 & USB 2.0.

**DVICenter DP64 Highlights**

- Crystal clear images
- Up to 560 m system range via CAT cable when cascaded
- Comprehensive user and rights management
- Freely configurable number of computer and user ports
- Centralised configuration for all system components
- Operation and configuration via web interface and OSD
- Monitoring function, SNMP support
- Text-based media control over TCP/IP e.g. AMX and Crestron
- Supports optical fibres (additional 10,000 metres range)

DVICenter DP64: With the DP64 even the largest applications can be implemented. In DP16, DP32 and DP64 version of the DVICenter system offer the flexibility needed for any operation.

KVM at the studio workplace

To save space in the studio environment, G&D devices are mounted behind desks. The computers can now be easily accessed and the corresponding cabling of the new workplaces is clearly arranged. The following devices can be optimally used at the studio workplace:

- **User module DL-Vision-MC2-CON**
  keyboard, DVI dual-link video, mouse, audio, RS232; USB 2.0

- **User module DVIVision-CON** (also available as multichannel)
  keyboard, DVI single-link video, mouse, audio, RS232 extender;

- **User module CATVision-MC2-CON**
  keyboard, dual-VGA video, mouse, audio, RS232 extender;

- **User module DVI-CON** (user module for DVICenter)
  keyboard, DVI-SL video, mouse, audio bidirectional, RS232 & USB 2.0

At the workplace
KVM for broadcast & post production

In the computer room ► Remove computer equipment from the studio

KVM solutions further improve the maintainability of the computers as the technician can access them easily in the computer room and does not need to disturb the broadcast employees at their workplaces.

Examples for computer modules:

- Computer module **DL-Vision-MC2-CPU**
  - keyboard, DVI dual-link video, mouse, audio, RS232; USB 2.0
  - Keyboard, dual-VGA video, mouse, audio, RS232 extender; transmitter

- Computer module **DVI-Vision-CPU**
  - keyboard, DVI single-link video, mouse, audio, RS232 extender; transmitter

- Computer module **CATVision-MC2-CPU**
  - keyboard, dual-VGA video, mouse, audio, RS232 extender;

- Matrixswitch **DVIcenter & DVI CPU**
  - keyboard, DVI-SL video, mouse, audio bidirectional, RS232 & USB 2.0

OB vans ► Access the technology from everywhere

Whether it’s the director’s desk or the driver’s seat - in an OB van, each console needs to have simultaneous access to the central computer technology in the server rack.

Switching between computers is carried out through a KVM matrix switch to which multiple computers are connected. The flexible operation concept of the OB van is therefore supported in an optimal way.

Further advantages are space savings in the different working areas as well as improving the working conditions for the staff.

1. KVM Matrix switch **DVI-CPU**
   - computer connection module
2. KVM Matrix switch **DVIcenter**
   - keyboard, video, mouse, USB2.0, RS232 multi-user switch;
3. KVM Matrix switch **DVI-CON**
   - user module for attaching the peripherals; one DVI-CON for each workplace
The existing workplaces can be used according to the event to be serviced. The staff can not only be deployed more flexible but can also share the control of all processes within the OB van.

The workplaces as well as the computers are each connected with one or multiple CAT cables. This aspect clearly speaks for this application regarding the limited space in the OB van and the necessity to use this space as effectively as possible.

How KVM improves OB vans
Since users can now access any computer, they can carry out any task in the OB van. Several staff members are therefore able to share and perform any monitoring processes at the same time. By applying the G&D Matrixswitch DVICenter, each user can access each computer in the OB van. The system is operated via web interface or on-screen display.

Further KVM products for OB vans:

KVM Switch DVIMux8-OSD
- For operating up to 8 computers over one user console
- The KVM switch for operating single-link DVI with resolutions up to 1920 x 1200 @ 60 Hz
- Mixed DVI/VGA operation on input and output side
- With intuitive on-screen display for easy operation and configuration
- Support of bidirectional audio and transparent USB 2.0

KVM Matrix switch DVICenter DP16
- Crystal clear images, even at small installations
- For the operation of 1 up to 15 computers over 15 to 1 simultaneous user modules
- Freely configurable number of computer and user port
- For operating single-link DVI with resolutions up to 1920 x 1200 @ 60 Hz
- Operation and configuration via web interface and OSD
Mobile radio transmission ► Enable a quick and flexible installation

In the mobile radio van

One of the greatest challenges of outside radio broadcasting is the compromise between permanently changing, cramped confines and an effective working environment for the broadcast technicians.

The high requirements by means of operational stability and reliability have to be added. If a broadcast is on-air, the supervising technician has to be able to access the relevant computer systems immediately - for operation as well as for urgent administrative tasks.

The computers are housed in a dedicated container. The technicians reside in near-by containers such as the Master Control Room.

The distance between the containers is bridged by G&D KVM Extenders. The setup can be easily adapted to the changing venues as the KVM Extenders automatically adapt to different transmission distances. Both human and machine can therefore work under best possible conditions. Computers can be accessed and maintained without disturbing the „on-air“ staff. KVM products auto-adapt to the changing distances to be bridged at different locations.
Mobile radio transmission  ► Enable a quick and flexible installation

In the master control room

The Master Control Room is the core of the computer operation. From here, users can centrally access the audio input computers, the control computer for the audio-matrix as well as other servers in the Equipment Container. The operators are not affected by noise or heat emitting from the computers.

1. User module CATVision-CON
   keyboard, VGA video, mouse, audio, RS232 extender;
   receiver of the computer signals from the equipment room

2. Workplace switch TradeSwitch4
   enables the control of 4 computers by one keyboard/mouse

3. Administration console CAT-REM
   keyboard, VGA video, mouse extender;
   workplace module for ControlCenter 1

In the equipment container

All computers can be centrally operated and maintained from the MCR and the Equipment Container without disturbing the production.

4. Computer module CATVision-CPU
   keyboard, VGA video, mouse, audio, RS232 extender;
   transmitter of the computer signals

5. Central switch ControlCenter 1
   keyboard, video, mouse single user switch with local console

In the Equipment Container:
4 x CATVision-CPU rackmounted
Post production ► Creating computer-free offices

High-performance computers for editing images require powerful processors causing noise and heat emissions.

Additionally, the creative heads of such departments need multiple screens and a broad variety of transmittable signals.

To keep those emissions away from the staff, the computers are moved out of the offices into a dedicated plant room using G&D KVM Multichannel Extenders.

This way, the working conditions for employees and computers are optimised which increases productivity and concentration of all staff members.

1. KVM Extender DVIVision-MC2-CON
   Receives computer signals sent from the plant room and offers connectivity for user’s peripherals

2. KVM Extender DVIVision-MC2-CPU
   Sends the signals 2 x digital video, keyboard, mouse and optional audio, RS232, USB to the production room

3. KVM Switch DVIMUX8
   Enables users to control all computers in the plant room with an additional, administration console

Further KVM products for post production

KVM Extender DL-Vision
- Keyboard, DVI single- & dual-link video, mouse, audio, RS232, USB 2.0 extender
- Resolutions up to 2560 x 1600 @ 60 Hz
- Uncompressed transmission over fibre optics
- Web interface, monitoring and reporting function
- Optional active monitoring and reporting functions
- Also available as multi channel variant for up to 2 video transmissions
- Broad range of variants following your needs
High operational safety and reliability are essential to G&D products. In order to enhance these well-established attributes, our latest products optionally offer two integrated network interfaces to actively query the system status and to send these information as SNMP or Syslog-message (DevCon-function).

Critical operational states can be recognised in advance and the system administrator can act accordingly. System availability is increased and safety is achieved for mission-critical applications such as live broadcasts or just-in-time productions.

**Query and receive status information**

The function is carried out through a web interface, which is integrated into the devices. In addition to configuring essential device settings, this graphical interface enables the user to query status information. If the respective values exceed the threshold, the system automatically informs the administrator. The respective settings are adjusted in the „Network“ area of the web interface.

**Supported products:**

The following product families currently support this function:

- **DL-Vision** dual-link DVI extender for single or dual video
- **DL-MUX** dual-Link DVI & VGA switch for 4 computers
- **DVICenter** single-Link DVI matrix switch for operating up to 1 - 63 computers over 63 - 1 simultaneous user modules
- **CATCenter NEO** VGA matrix switch for 1 to 1024 computers and 4 to 128 users
- **CompactCenter X2** VGA matrix switch for 16 computers and 2 users
- **DevConCenter** central monitoring, reporting and configuration tool for G&D devices

Further networkable products are projected.

**KVM Add-Ons for monitoring and configuration**

- **DevConCenter**
  - Central appliance for Network based central monitoring, reporting and configuration of G&D devices
  - Configuration is done via the web interface “Config Panel”
  - Any critical operational status can be recognised in advance and the system administrator can act accordingly
  - Autonomous output of message or query via web interface
  - Supports SNMP and Syslog
  - Redundant power supply
  - Two network interfaces
Leading the way in digital KVM

Customers and users of G&D products

- Public broadcast studios in Germany (ARD / ZDF)
- Other European public broadcast stations
- Privately owned broadcast stations
- Broadcast system integrators
- Post production houses
- Audio-video system vendors

For more information about G&D KVM products please scan:

Guntermann & Drunc GmbH
Dortmunder Straße 4a
D-57234 Wilnsdorf

Telefon +49 (0) 2739 8901-333
Telefax +49 (0) 2739 8901-120

sales@gdsys.de

http://broadcast.gdsys.de