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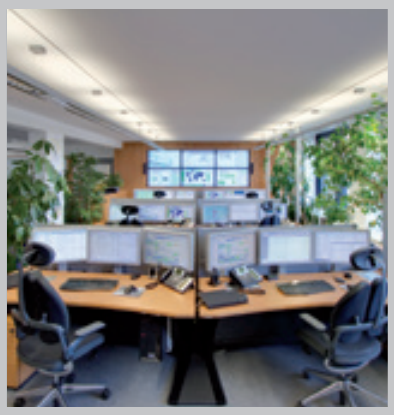
Guntermann & Drunck
GmbH

DVI KVM Matrix Switches

ControlCenter-Digital 7.4

DVI KVM Matrix Switches
Matrix Switches for the simultaneously operation of multiple computers via several consoles






Leading the way in digital KVM

Leading the way in digital KVM

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

With a powerful portfolio consisting of KVM extenders, switches and matrix switches, G&D's users get real added value. G&D provides the broadest KVM product portfolio at the market. Even with different features, all G&D products are compatible and can be combined. Our KVM solutions optimise the application of IT equipment and improve the working conditions for humans and computers.

No matter where KVM devices are installed, there's always one main requirement - robust, reliable, user-friendly and easy to operate KVM systems that can be adapted to future requirements and grow with your demands.

By short lines of communication G&D is able to solve challenging requirements and tailor systems to our customers' needs. We keep direct contact to our customers and are personally available. We are proactive and always keep an eye on the trends in the industry. Functionalities required by our customers are quickly implemented into our products. Our success can only be measured with our customers' satisfaction.

Trust in G&D for your optimal KVM solution.

The System

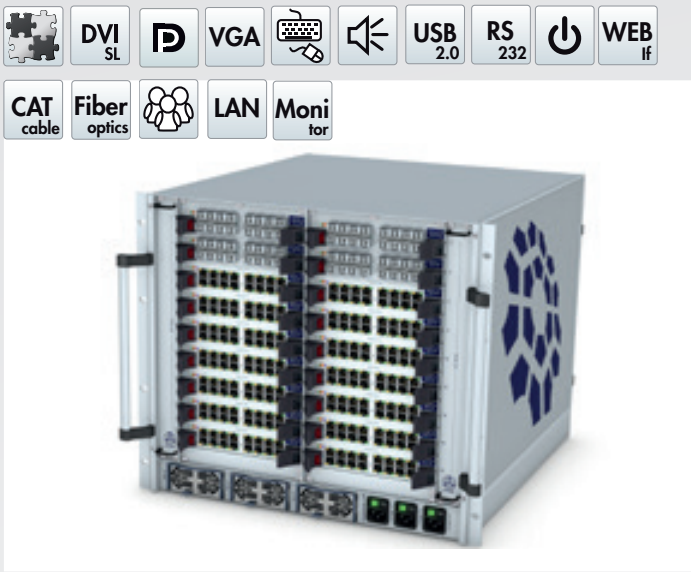
With the modular KVM matrix switch ControlCenter-Digital, users can operate up to 287 computers over a number of simultaneous consoles, consisting of keyboard, monitor and mouse. Depending on the chosen variation, the available 288, 160 or 80 dynamic ports can be connected either as computer or as user port.

The ControlCenter-Digital comes with a **modular setup** consisting of:
- Input/Output cards (I/O cards),
- Switch card with the central processor unit,
- Controller card that holds the “logic”,
- Three redundant power packs
- Two fan boards

The system supports CAT cables and fibre optics even in mixed mode. The Dynamic Port technology enables users to expand and adapt the ControlCenter-Digital even in existing IT installations.

A working system consists of at least:
- 1 × central module ControlCenter-Digital with controller card and switch card
- 1 × I/O card
- 1 × computer module DVI-CPU
- 1 × user module DVI-CON

The ControlCenter-Digital is compatible with all devices of the DVICenter series. Existing KVM installations can be seamlessly implemented in this system.



The ControlCenter-Digital switches the following signals:
- Keyboard/mouse [USB and PS/2]
- Video [DVI Single-Link]
- DisplayPort
- VGA video sources possible
- Stereo audio, bidirectional
- RS232 & USB 2.0 transparent

Highlights / System

Modularity
- Fully modular setup, replaceable components
- The backplane contains four different types of cards: I/O CAT cards, I/O Fibre cards, switch card and controller card
- I/O CAT cards, I/O Fibre cards, power supplies and fan boards are hot pluggable/hot swappable
- Supports CAT cables and fibre optics in mixed mode
- Switch card and controller card can be separately replaced
- The system can be adapted or expanded; system components like redundant power supplies can be replaced even during operation

Video
- DVI single-link video resolution up to 1920 × 1200 @ 60Hz (at user modules also VGA 1280 × 1024 @ 85Hz)
- Integration of DisplayPort thanks to DP-CPU & DP-CON
- Analogue video sources (VGA) in the matrix also possible
- HDIP2 (High Dynamic Image Processing 2.0) for highest video and mouse quality in all applications
- Transmission up to 140 m over CAT cable at maximum resolution between all modules
- Transmission up to 10,000 m via fiber optics at maximum resolution

Signals
- Single-Link DVI and DisplayPort, (Dual-Link DVI in preparation)
- Switches bidirectional audio signals
- Supports PS/2 and USB keyboard/mouse
- RS232 & USB 2.0 transparent
- complies with USB 3.0 devices

Kompatibility
- ControlCenter-Digital is compatible with all DVICenter system components
- DVICenter can be fully integrated into the system as a slave

Expansion
- Expandable to up to 4,039 computers when connected to 49 workstations
- Expansion of the switchable signals either through **port grouping** or **stacking**
- Multi-monitor workstations
- Firmware expansion for multi-monitor consoles (TS function)
- Innovative **CrossDisplay-Switching** enables users to switch between channels by using the mouse
- Firmware expansion for moving/getting own or external screen contents (**Push-Get function**)
- Firmware expansion for preparing the switching over network (**IP-Control-API**)
- Expansion of the user range: access to computer over multiple ControlCenter-Digital-Cluster due to Dynamic-UserCenter32 (full redundancy)

DynamicPorts
- The ControlCenter-Digital dynamic ports can be configured as computer or user port
- Freely configurable number of computer and user ports
- Automatic device detection: ControlCenter-Digital identifies automatically if a computer module or console module is connected

Highlights / Monitoring&SNMP

Function: receive ControlCenter-Digital status info
Operation via: web interface/SNMP
Sphere of effectiveness: 1 cluster

The Monitoring feature enables you to detect the system status of G&D devices. The web interface provides information that can be sent (SNMP trap) or queried (via SNMP GET) as well. The information section shows the device configuration settings and the detected status values. Monitoring values can also be sent to AMX or Crestron media control.

Among others, the following status values can be monitored:

- Status matrix (online/offline)
- Status I/O cards (online/offline)
- Switchboard function (ok/failure)
- Device main power supply (on/off)
- Device redundant power supply (on/off)
- Device temperature (°C)
- Network interfaces (Up/Down)
- Stackbus interfaces (active/inactive)
- Fan rate (RPM)
- Current (A)
- Voltage (V)
- Status of power packs (on/off)

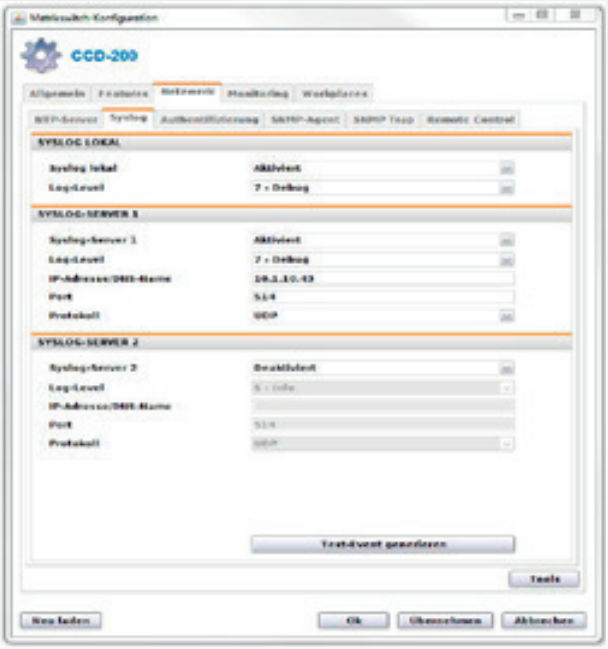
Furthermore, the computer modules and the user modules can be also monitored, e. g.:

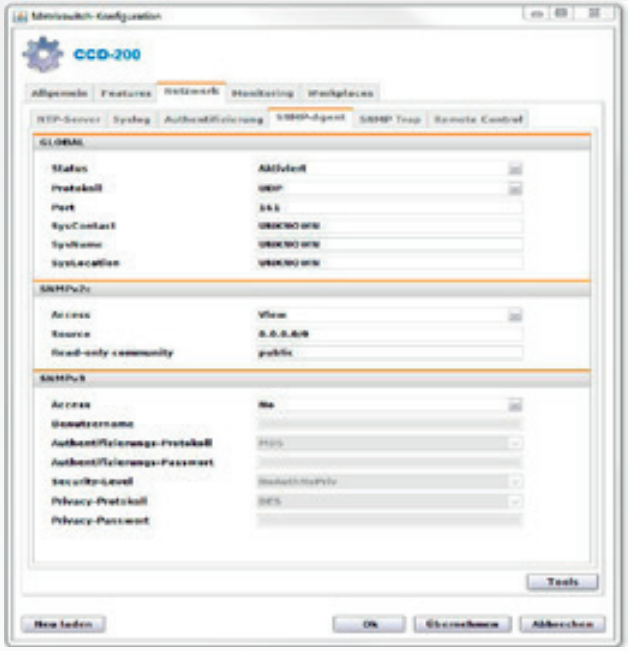
- Status (On/Off)
- Device temperature (°C)
- Main and redundant power supply (On/Off)
- Keyboard/mouse connection (On/Off)
- Video signal connection (On/Off)

Status changes (e.g. power on/off) and exceeding defined threshold values (e.g. temperatures) highlight these values in red in the web interface. The administrator will also be notified based on predefined network parameters.

Among others, the following user activity values can be sent via Syslog and/or SNMP-Traps:

- User login/-out on consoles
- Failed user logins
- Connected/disconnected targets
- Failed target connections





Features

Video
- DVI single-link video resolution up to 1920 × 1200 @ 60Hz
- DisplayPort video resolution up to 1920 × 1200 @ 60Hz
- Integration of analogue video sources (VGA) also possible
- Colour mode DVI 24 bits
- Multi-channel Video
- E-DDC support
- System transmits a total length of 560 m over CAT cables
  Computer module to central module 140 m
  - Computer module to central module 140 m
  - Central module to user module 140 m
  - Central module to other central modules (up to 2 ×) 140 m
- Over fibre optics: up to 10,000 m between two system components possible (in preparation)

Audio
- Bidirectional transmission of audio signals
- Resolution 24 bits digital
- Bandwidth 22 kHz / refresh rate 96 kHz

Device
- Accesses only the computers' standard interfaces and requires no software installation
- The backplane contains four different types of cards: I/O CAT cards and I/O Fibre cards to connect the cabling at both the computer and the console side, the switch card with the central processor unit and the controller card that holds the logic
- Switch card and controller card are modular and can be replaced
- Three redundant power packs that can be replaced during operation
- I/O CAT cards, I/O Fibre cards, power supplies and fan boards are hot-pluggable and hot-swappable
- Device cascading enables even large installations with thousands of computers
- Shipped in an aluminium housing for best interference immunity

Network / Communication
- Access protection and user administration can be switched off
- Auto-recognition and visualization of the system structure
- Two network ports
- Configuration over web interface
- Central update of all DVICenter components over network
- Text-based media control over TCP/IP e.g. AXM and Crestron; Monitoring values can also be sent to AMX, Crestron, VSM media control as well as KSC-Commander

Safety
- Failover connection (in the unlikely event that the central modules should fail, you can directly connect DVI-CPU and DVI-CON to operate the system; max. distance up to 140m).
- Support of external authentication via LDAP, Active Directory, TACACS+, Radius
- Redundant power supply

Versatile functions

Channel grouping
The ControlCenter-Digital supports multi-monitor workstations for computers with several video outputs. Here, multiple channels can easily be combined as **channel groups**. As always, you can administrate all functions in the ControlCenter-Digital web interface. In addition to multiple screens, you can include other signals in these groups. The system also transmits and switches transparent USB2.0 signals as well as RS232.

Example:
To transmit a second video signal and a USB 2.0 signal of the same computer, in addition to the DVI-CPU computer module, a second DVI-CPU module (second video channel) and a U2-CPU module (USB2.0/RS232) must be connected to the computer. In addition to the DVI-CON user module, the DVI-CON-Video (second video channel) and a U2-CPU module should be connected. Therefore with the ControlCenter-Digital, you can switch various computer modules of one computer or various user modules of one console at the same time.

Stacking function
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 workstations and assign consoles with USB or RS232 channels.
Example: All ports of a ControlCenter-Digital matrix switch are occupied with 50 consoles accessing 238 computers. However, each console requires five channels: 4 video signals per computer and transparent USB 2.0. Stacking 5 ControlCenter-Digital 288 provides you with the required 1440 ports.

USB-Pinning
If several ControlCenter-Digital ports are grouped as a multi-channel configuration, the newest USB pinning function enables you to hold the USB transmission on the current computer even if the user switches to another channel. In this case the USB transmission is not interrupted, but transmitted to the end

CrossDisplay-Switching (see page 34)
Switching by using the mouse

Screen-freeze-function
If the display loses the video signal due to a broken connection or a problem 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. Meanwhile, the current time and the downtime of the video signal is displayed. The function is automatically cancelled when the display receives an active video signal.

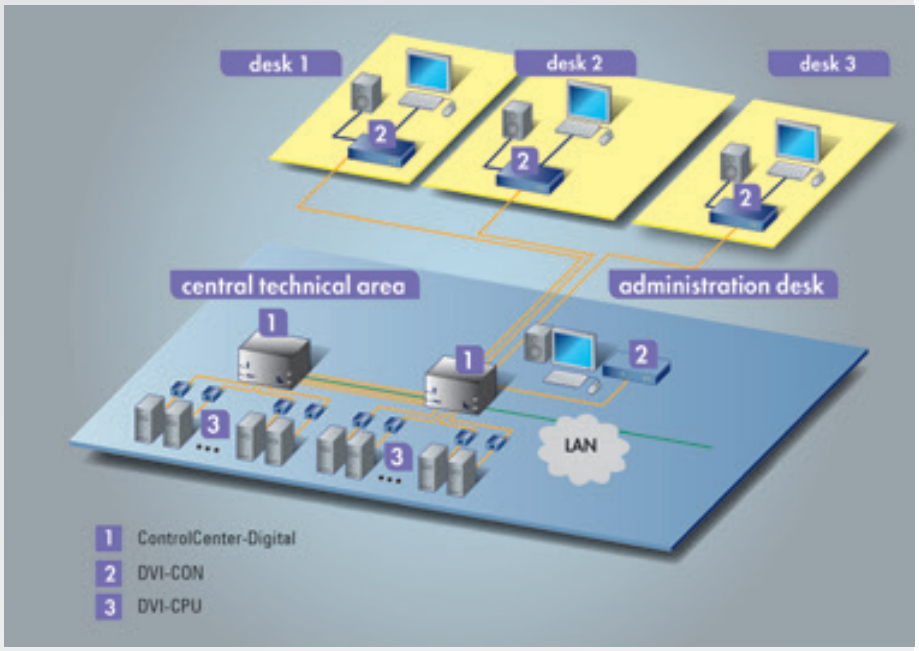
Application scheme

Example:
The computers are housed in a central control room, separated from the users. in the technical area, an administration console allows the administrator to operate the computers.

The ControlCenter-Digital enables the operator to use all common video signals in one matrix switch: DVI Single-Link, DisplayPort 1.1., VGA, and DVI Dual-Link (in preparation). In addition to this, the desks can be provided with both digital and analog monitors.

Two ControlCenter-Digital (1 x Master, 1 x slave) connect the user modules and the computer. The matrix comes with the automatic device detection for user and computer modules. The connected devices can be automatically identified.

A dedicated CAT-x-link integrates the productive workplaces into the operational concept (DVI-CON) where they work on the computers as if they are still at the console.



The ControlCenter-Digital 288 can be integrated into the network for configurating the device via web interface, sending messages to a Syslog server or using directory services. Each user module can access every computer. Flexible operation concepts can be implemented, which creates perfect conditions for both users and computers.

Use

The ControlCenter-Digital enables the flexible and decentralised operation of large and distributed IT installations. With its modular setup, a broad range of supported signals and transmission media, the ControlCenter-Digital can be applied in applications like control centres, OB vans or studios. Quantitative and functional adjustments are easily carried out within the modular system design meeting expansion requirements.

Variants

Design
The ControlCenter-Digital 288 is shipped as desktop device.

The ControlCenter-Digital is available with 288, 160 and 80 dynamic ports (160 and 80 port variants in preparation).

ControlCenter-Digital-288

left: ControlCenter-Digital-288 - rear view
right: ControlCenter-Digital-288 - front view

	ControlCenter-Digital-288
Console	
Type of console ports	RJ45 socket
Console ports per device	Dynamic: min. 1 - max. 287
Transmission type user module	Dedicated 1:1 CAT-x link ot fibre optics (fibre optics in preparation)
Transmission length to user module	140 m (CAT)
Interfaces for user modules	RJ45 sockets
Network port	2 × RJ45 socket
Computer	
Type of computer ports	RJ45 socket
Computer ports	Dynamic: min. 1 - max. 287
Computer ports cascade level 1	max. 4081
Computer ports cascade level 2	max. 4039
Transmission length between cascades	140 m (CAT)
Transmission type to computer module	Optional dedicated 1:1 CAT-x link or fibre optics (fibre optics in preparation)
Transmission length to computer module	140 m (CAT)
Interfaces to computer module	RJ45 sockets
Main power supply	
Type	1 × internal power pack
Connection	1 × IEC plug
Voltage	AC100-240V/60-50Hz
	8A - 3,4A
Redundant power supply	
Type	2 × internal power pack
Connection	2 × IEC plug
Voltage	AC100-240V/60-50Hz
	8A - 3,4A
Housing	
Casing	Anodised aluminium
Desktop (W × H × D)	435 × 9 U × 500 mm
Weight	Approx. 25 kg
Update	
Process	Via web interface „Config Panel“
Connection	Via network port
Operating conditions	
Temperature	+5 to +45 °C
Humidity	< 80% non-condensing
Conformity	CE, RoHs

ControlCenter-Digital-160

left: ControlCenter-Digital-160 - rear view
right: ControlCenter-Digital-160 - front view

	ControlCenter-Digital-160
Console	
Type of console ports	RJ45 socket
Console ports per device	Dynamic: min. 1 - max. 159
Transmission type user module	Dedicated 1:1 CAT-x link ot fibre optics (fibre optics in preparation)
Transmission length to user module	140 m (CAT)
Interfaces for user modules	RJ45 sockets
Network port	2 × RJ45 socket
Computer	
Type of computer ports	RJ45 socket
Computer ports	Dynamic: min. 1 - max. 159
Computer ports cascade level 1	max. 3854 (by the use of 6 consoles)
Computer ports cascade level 2	max. 3557 (by the use of 31 consoles)
Transmission length between cascades	140 m (CAT)
Transmission type to computer module	Optional dedicated 1:1 CAT-x link or fibre optics
Transmission length to computer module	140 m (CAT) or up to 10,000 m via fiber optics
Interfaces to computer module	RJ45 sockets
Main power supply	
Type	1 × internal power pack
Connection	1 × IEC plug
Voltage	AC100-240V/60-50Hz
	8A - 3,4A
Redundant power supply	
Type	2 × internal power pack
Connection	2 × IEC plug
Voltage	AC100-240V/60-50Hz
	8A - 3,4A
Housing	
Casing	Anodised aluminium
Desktop (W × H × D)	19“ × 6 U × 500 mm
Update	
Process	Via web interface „Config Panel“
Connection	Via network port
Operating conditions	
Temperature	+5 to +40 °C
Humidity	< 80% non-condensing
Conformity	CE, RoHs

Computer modules

The **DVI-CPU computer modules link external** keyboard, video, mouse, and audio interfaces to the ControlCenter-Digital system.

The DVI-CPUs combine signals, process them and use CAT cables to transmit the signals to the KVM matrix switch. Any DVI-CPU has a unique ID that helps identify the device within a ControlCenter-Digital system.

In Preparation: DVI-CPU-Fiber, module to connect a computer over fiber optics (range up to 10,000 m).

NEW: DVI-CPU and DVI-CON can also be connected directly and used as extender line. Now users can operate computers placed up to 140 m away from your console.

DVI-CPU - front view

DVI-CPU

Standard variant transmitting the following signals:

- single-link DVI-D
- PS/2 + USB keyboard/mouse
- Audio (Line In / Line Out)
-

The common firmware version for DVI-CPU is compatible to Wintu3 and Wintu4 and supports the communication with Wacom Intuos3 or 4® tablets.

The DVI-CPU is also available without a supplied AC adapter.

Order the MultiPower-12 if the computer modules have to be supplied with power from a central source.
The MultiPower-12 functions as a central and external power supply for up to 12 computer modules (DVI-CPU).

Installation:
We provide **19“ rack mount solutions** facilitating the installation of DVI-CPU computer modules into a server rack. The rack solutions are listed under KVM Accessories.

DVI-CPU-UC

UserCenter module for connecting a computer to two ControlCenter-Digital clusters (e.g. full redundancy) transmitting the following signals:

- single-link DVI-D
- PS/2 + USB keyboard/mouse
- Audio (Line In / Line Out)

The common firmware version for DVI-CPU-UC is compatible to Wintu3 and Wintu4 and supports the communication with Wacom Intuos3 or 4® tablets.

DVI-CPU-UC - rear view

DVI-CPU-FSC & DVI-CPU-UC-FSC

DVI-CPU-FSC computer modules connect the external keyboard, video, mouse and audio interfaces to the matrix switch central module. For easier rack mounting, all interfaces at the device’s back are redirected to the front via cables.

The DVI-CPU-UC-FSC is a UserCenter module connecting a computer to two matrix switch clusters (for example to create a fully redundant system). Here, all interfaces are placed at the front side as well.

DVI-CPU-FSC - front view

Computer modules

DVI-CPU-MC2

Computer module to establish multi-monitor workstations and transmitting the following signals:
- Single-Link DVI-D
- PS / 2 + USB keyboard / mouse
- Audio (Line In / Line Out)

Using a DVI-CPU-MC2 multi-channel video computers can be now easily integrated into the ControlCenter-Digital.

The DVI-CPU-MC2 combines signals, process them, and use CAT cables to transmit the signals to the DVICenter.

DVI-CPU-MC2 - front view

DVI-CPU-MC2-UC

UserCenter computer module for connecting a multi-video computer to two DVICenter clusters.
Transmits the following signals:

- Single-Link DVI-D
- PS/2 + USB keyboard/mouse
- Audio (Line In / Line Out)

Use DVI-CPU-MC2-UC modules instead of the usual DVI-CPU-MC2 computer modules to increase the number of multi-monitor consoles or to establish a redundant system.

Installation:
We provide 19“ rack mount solutions facilitating the installation of DVI-CPU-MC2-UC computer modules into a server rack.

DVI-CPU-MC2-UC - rear view

Computer modules

DP-CPU

DP-CPU is a standard module for the integration of DisplayPort video sources into the ControlCenter-Digital matrix.

The DP-CPU combines keyboard, video, mouse, and audio signals, converts DisplayPort into single-link DVI and uses CAT cables to link them to the KVM matrix switch. Integrating the user module DP-CON the signals are provided at the remote workstation.

DP-CPU - front view

DP-CPU-UC

UserCenter module for connecting one DisplayPort computer to two DVICenter clusters.

Transmits the following signals:

- Single-Link DVI-D
- PS/2 + USB Keyboard/Mouse
- Audio (Line In / Line Out)

Use DVI-DP-CPU-UC modules to increase the number consoles or to establish a redundant system.

DP-CPU-UC - rear view

Computer modules

VGA-CPU-UC

VGA-CPU-UC ist a module to connect a VGA computer to two matrix clusters. The VGA-CPU-UC combines keyboard, video, mouse, and audio signals and uses CAT cables to link them to both central modules.

Integrating the user module DVI-CON the signals are provided at the remote workstation.

The module transmits the following signals:

- VGA
- Keyboard/Mouse (USB & PS/2)
- Audio bidirectional

Resolution: VGA up to 1920 x 1440 @ 75 Hz

VGA-CPU-UC - front view

DVI-CPU-Fiber

The new DVI-CPU-Fiber lets users provide fibre optics with the ControlCenter-Digital. The transmission length to the central module depends on the used module and is up to 10,000 m.

- DVI-CPU-Fiber(M) bridges up to 380 m
- DVI-CPU-Fiber(S) bridgesup to 5,000m
- DVI-CPU-Fiber(S+) bridges up to 10,000m

The module transmits the following signals:
- DVI single-link
- Keyboard/Mouse (USB & PS/2)
- Audio

Resolution:
DVI Single-Link up to 1920 x 1200 @ 60 Hz
incl. Full-HD (1920 x 1080)

DVI-CPU-Fiber-UC - rear view

Computer modules

U2-R-CPU

In combination with the relevant ControlCenter-Digital components the **U2-R-CPU** computer modules link external **USB 2.0 and RS232** interfaces to the matrix switch system.

A U2-R-CPU module combines and processes USB2.0 and RS232 signals. Via CAT cabling they are then transmitted to the KVM matrix switch.

The transmission of the signals takes place transparently. The maximum distance between the U2-R CPU module and the KVM matrix switch can be up to 140 meters.

The U2-R-CPU are distributed including external power pack.

U2-R-CPU - front view

Standard variant transmitting the following signals:
- USB 2.0
- RS232

Application
CPU module for connecting external USB2.0 and RS232 interfaces to ControlCenter-Digital.

Mounting
19“ rack mount solutions are available for optimized mounting of the U2-R-CON modules. You can find them in KVM Accessories.

Operating / Updates:
System upgrades can be managed over wizard at service socket (Mini USB TypB).

DVI-CPU & DVI-CPU-UC

left: DVI-CPU - front view
right: DVI-CPU-UC - rear view

	DVI-CPU	DVI-CPU-UC
Video		
Signal type/Video	single-link DVI-D	
Resolution	1920 × 1200 @ 60 Hz	
Colour depth	24 bits	
Audio		
Resolution	24 bits digital	
Refresh rate	96 kHz	
Bandwidth	22 kHz	
Transmission		
Interfaces to central module	1 x RJ45 socket	2 x RJ45 socket
Cabling type	dedicated 1:1 connection via CAT-x cable	
Transmission length	140 m to central module	
Power supply		
Main Type	via external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC / 500mA	+12VDC / 600mA
Interfaces to computer		
Video	DVI-D socket	
Keyb./Mouse	2 × Mini-DIN 6 socket/1 × USB-B socket	
Audio	2 × 3.5 mm jack socket	
Other interfaces		
Service	Mini-USB-B socket	
Update		
Mode	via ControlCenter-Digital Config panel	
Casing		
Total length incl. cable	approx. 2 m	
Material	anodised aluminium	
Dimensions (W×H×D)	105 × 26 × 104 mm	105 x 26 x 104 mm
Weight	approx. 240 g	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	< 85% non-condensing	
Conformity	CE, RoHs	

DVI-CPU-FSC & DVI-CPU-UC-FSC

left: DVI-CPU-FSC - front view
right: DVI-CPU-UC-FSC - front view

	DVI-CPU-FSC	DVI-CPU-UC-FSC
Video		
Signal type/Video	single-link DVI-D	
Resolution	1920 × 1200 @ 60 Hz	
Colour depth	24 bits	
Audio		
Resolution	24 bits digital	
Refresh rate	96 kHz	
Bandwidth	22 kHz	
Transmission		
Interfaces to central module	1 x RJ45 socket	2 x RJ45 socket
Cabling type	dedicated 1:1 connection via CAT-x cable	
Transmission length	140 m to central module	
Power supply		
Main Type	via external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC / 500mA	+12VDC / 600mA
Interfaces to computer		
Video	DVI-D socket	
Keyb./Mouse	2 × Mini-DIN 6 socket/1 × USB-B socket	
Audio	2 × 3.5mm jack socket	
Other interfaces		
Service	Mini-USB-B socket	
Update		
Mode	via ControlCenter-Digital Config panel	
Casing		
Total length incl. cable	approx. 2 m	
Material	anodised aluminium	
Dimensions (W×H×D)	105 × 26 × 104 mm	105 x 26 x 124 mm
Weight	approx. 370 g	approx. 402 g
Dimensions front panel (W × H)	105 × 52 mm	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	< 85% non-condensing	
Conformity	CE, RoHs	

DVI-CPU-MC2 & DVI-CPU-MC2-UC

left: DVI-CPU-MC2 - front view
right: DVI-CPU-MC2-UC - rear view

	DVI-CPU-MC2	DVI-CPU-MC2-UC
Video		
Signal type/Video	single-link DVI-D	
Resolution	1920 × 1200 @ 60 Hz	
Colour depth	24 bits	
Audio		
Resolution	24 bits digital	
Refresh rate	96 kHz	
Bandwidth	22 kHz	
Transmission		
Interfaces to central module	1 x RJ45 socket	2 x RJ45 socket
Transmission type	dedicated 1:1 connection via CAT-x cable	
Transmission length	140 m to central module	
Power supply		
Main Type	via external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC / 800mA	+12VDC / 1000mA
Interfaces to computer		
Video	2 x DVI-D socket	
Keyb./Mouse	2 × Mini-DIN 6 socket/1 × USB-B socket	
Audio	2 × 3.5mm jack socket	
Other interfaces		
Service	Mini-USB-B socket	
Update		
Mode	via ControlCenter-Digital Config panel	
Casing		
Total length incl. cable	approx. 2 m	
Material	anodised aluminium	
Dimensions (W×H×D)	105 × 46 × 104 mm	105 x 46 x 124 mm
Weight	approx. 240 g	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	< 85% non-condensing	
Conformity	CE, RoHs	

DP-CPU & DP-CPU-UC

left: DP-CPU - front view
right: DP-CPU-UC - rear view

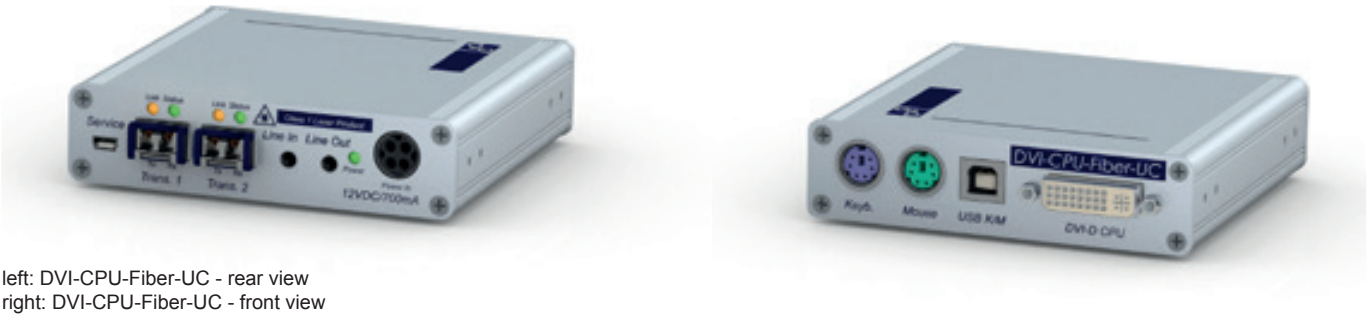
	DP-CPU	DP-CPU-UC
Video		
Video	DisplayPort	
Resolution	1920 × 1200 @ 60 Hz	
Colour depth	24 bits	
Audio		
Resolution	24 bits digital	
Refresh rate	96 kHz	
Bandwidth	22 kHz	
Transmission		
Interfaces to central module	1 x RJ45 socket	2 x RJ45 socket
Cabling type	dedicated 1:1 connection via CAT-x cable	
Transmission length	140 m to central module	
Power supply		
Main Type	via external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC / 500mA	+12VDC / 600mA
Interfaces to computer		
Video	1 x DisplayPort socket	
Keyb./Mouse	2 × Mini-DIN 6 socket/1 × USB-B socket	
Audio	2 × 3.5 mm jack socket	
Other interfaces		
Service	Mini-USB-B socket	
Update		
Mode	via ControlCenter-Digital Config panel	
Casing		
Total length incl. cable	approx. 2 m	
Material	anodised aluminium	
Dimensions (W×H×D)	105 × 26 × 104 mm	105 x 26 x104 mm
Weight	approx. 240 g	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	< 85% non-condensing	
Conformity	CE, RoHs	

VGA-CPU-UC

left: VGA-CPU-UC - front view
right: VGA-CPU-UC - rear view

	VGA-CPU-UC
Video	
Signal type/Video	VGA
Resolution	1920 × 1440 @ 75 Hz
Colour depth	24 bits
Audio	
Resolution	24 bits
Refresh rate	96 kHz
Bandwidth	22 kHz
Transmission	
Interfaces to central module	2 x RJ45 socket
Cabling type	dedicated 1:1 connection via CAT-x cable
Transmission length	140 m to central module
Power supply	
Main Type	via external power pack
Connection	Mini-DIN 4 socket
Voltage	+12VDC / 500mA
Interfaces to computer	
Video	VGA socket
Keyb./Mouse	2 × Mini-DIN 6 socket/1 × USB-B socket
Audio	2 × 3.5 mm jack socket
Other interfaces	
Service	Mini-USB-B socket
Update	
Mode	via ControlCenter-Digital Config panel
Casing	
Total length incl. cable	approx. 2 m
Material	anodised aluminium
Dimensions (W×H×D)	105 x 26 x 124 mm
Weight	approx. 240 g
Operating conditions	
Temperature	+5 to +45 °C
Humidity	< 85% non-condensing
Conformity	CE, RoHs

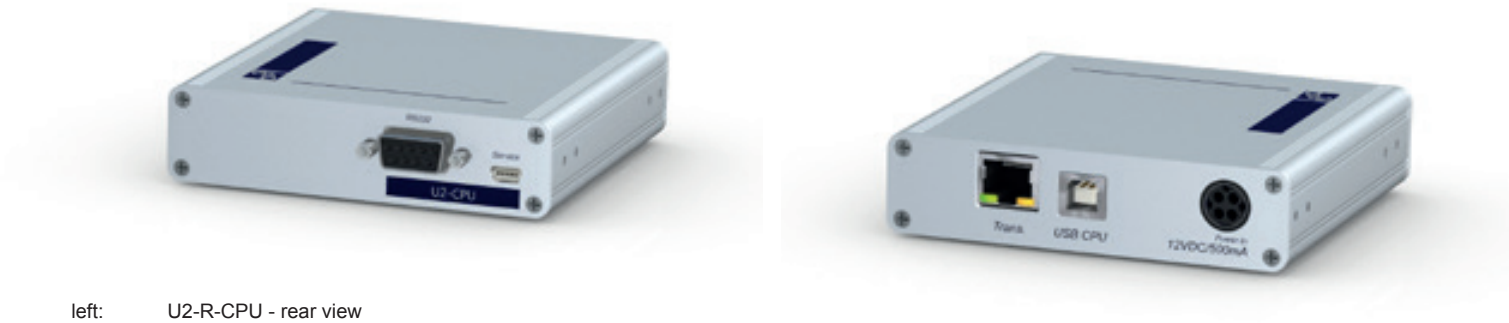
DVI-CPU-Fiber



left: DVI-CPU-Fiber-UC - rear view
right: DVI-CPU-Fiber-UC - front view

	DVI-CPU-Fiber	DVI-CPU-Fiber-UC
Video		
Signal type/Video	single-link DVI-D	
Resolution	1920 × 1200 @ 60 Hz	
Colour depth	24 bits	
Audio		
Resolution	24 bits digital	
Refresh rate	96 kHz	
Bandwidth	22 kHz	
Transmission		
Interfaces to central module	1 x RJ45 socket	2 x RJ45 socket
Cabling type	dedicated 1:1 connection via fiber optics	
Transmission length	up to 10,000 m to central module	
Power supply		
Main Type	via external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC / 700mA	+12VDC / 700mA
Interfaces to computer		
Video	DVI-D socket	
Keyb./Mouse	2 × Mini-DIN 6 socket/1 × USB-B socket	
Audio	2 × 3.5 mm jack socket	
Other interfaces		
Service	Mini-USB-B socket	
Update		
Mode	via ControlCenter-Digital Config panel	
Casing		
Total length incl. cable	approx. 2 m	
Material	anodised aluminium	
Dimensions (W×H×D)	105 × 26 × 124 mm	105 x 26 x 124 mm
Weight	approx. 240 g	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	< 85% non-condensing	
Conformity	CE, RoHs	

U2-R-CPU



left: U2-R-CPU - rear view
right: U2-R-CPU - front view

	U2-R-CPU
USB 2.0	
Transfer type	transparent
Transfer rate	up to 480 MBit/s
RS232	
Signal type	transparent
Type	RS232-C
Resolution	max. 115.200 bit/s
Signals	RxD, TxD, RTS, CTS, DTR, DSR, DCD
Transmission	
Cabling	dedicated 1:1 connection via CAT-x-cable
Transmission length	140 m
Connection	RJ45 socket
Interfaces to computer	
USB 2.0	USB-B socket
RS232	9 pol. Sub-D socket
more interfaces	
RS232	9 pol. Sub-D socket
Power supply	
Type	external power pack
Connection	Mini-DIN 4 socket
Voltage	AC100-240V/60-50Hz, 300mA
Casing	
Material	anodised aluminium
Desktop (W × H × D)	105 × 26 × 104 mm
Weight	approx. 240 g
Update	
Mode	via Wizard
Connection	via service socket
Operating conditions	
Temperature	+5 to +45 °C
Humidity	below 80%, non-condensing
Conformity	CE, RoHs

User module

The user module DVI-CON connects the user console to the system.

CAT cabling connects the DVI-CON with the ControlCenter-Digital. The DVI-CON provide the required interfaces for the following peripherals: monitor, keyboard, mouse, speakers and microphone.

The video output of the DVI-CON (DVI-I interface) also provides a VGA video signal. The output can be used to connect a VGA monitor.

NEW: DVI-CPU and DVI-CON can also be connected directly and used as extender line. Now users can operate computers placed up to 140 m away from the console. Do you plan for a smaller extender installation that you want to expand at some point in the future and connect it to a matrix system? Then DVI-CPU and DVI-CON come in handy and can always be implemented into a matrix system.

DVI-CON - front view

In preparation: DVI-CON-Fiber - user module to operate computers from distances up to 10,000 m.

DVI-CON

Application
- remote console
- operates the ControlCenter-Digital from distances up to 140 metres

Signals
- single-link DVI-I video
- PS/2 + USB keyboard/mouse
- audio (speakers / Line In)

Operation
- select computers via OSD or hotkeys
- configuration via OSD or web interface of the ControlCenter-Digital
- supports TradeSwitch function, CrossDisplay-Switching and Push-Get function

Design
- desktop or rack mount variant
- twin variant (two devices housed in one 19“ casing, shipped as desktop version incl. rack mount kit)

DVI-CON-Video

The user module DVI-CON-Video enables the integration of an additional monitor or projector on the remote console of a compatible KVM matrix switch. Thus it increases a multi-monitor workstation. The video signal of the accessed computer is displayed at the monitor/projector of the user module.

Signals
- single-link DVI-I video

Application
- remote console or a wide screen projection
- transmission of a second video signal at the workplace

DVI-CON-2

The new DVI-CON-2 user module provides the interfaces for peripheral devices (monitor, keyboard, mouse, speaker/microphone) and can be connected to up to two matrix clusters to establish a redundant system that‘s always available, for example.

User module

DP-CON

The user module DP-CON provides the interfaces for any peripheral devices (DisplayPort monitor, keyboard, mouse, speaker/microphone) at the remote console.
NEW: You can also use DP-CPU and DP-CON modules to one extender line.

It transmits the following signals:
- DisplayPort
- Keyboard/Mouse (USB & PS/2)
- Audio bidirectional

Resolution: DisplayPort 1920 x 1200 @ 60 Hz

Coming soon

DP-CON - rear view

DVI-CON-Fiber

The user module DVI-CON-Fiber connects the user console with the ControlCenter-Digital via fiber optics.The transmission length to the ControlCenter-Digital depends on the used module and is up to 10,000 m.

- DVI-CPU-Fiber(M) bridges up to 380 m
- DVI-CPU-Fiber(S) bridgesup to 5,000m
- DVI-CPU-Fiber(S+) bridges up to 10,000m

The DVI-CON-Fiber provide the required interfaces for the following peripherals: monitor, keyboard, mouse, speakers and microphone.

Coming soon

User module

DVI-CON-MC2

The user module DVI-CON-MC2 connects a multi-monitor consoles to the matrix switch system. The DVI-CON-MC2 provides the required interfaces for the following peripherals:

- multi-monitor video
- keyboard
- mouse
- audio (speakers / Line In)

Application
- remote multi-monitor console
- transmission of two video signals at the workplace

DVI-CON-MC2 - rear view

DVI-CON-MC4

The user module DVI-CON-MC4 connects a multi-monitor consoles to the matrix switch system. DVI-CON-MC4 transmits four video signals at the workplace.

The video output of all DVI-CON devices (DVI-I interface) also provides a VGA video signal. The output can be used to connect a VGA monitor.

DVI-CON-MC4 - rear view

User module

U2-R-CON

Peripherals on the remote user console can be connected with the ControlCenter-Digital via the U2-R-CON module. The module
is connected via CAT cable to the KVM matrix switch.

Application
- remote user console
- operates peripherals with USB2.0 and RS232
- interfaces over distances up to 140 metres to the DVICenter

Signals
- USB 2.0
- RS232

Mounting
- For the optimized mounting of the U2-R-CON are 19“-Rackmount solutions available. You can find them in KVM Accessories.

U2-R-CON - rear view

DVI-CON & DVI-CON-Video

DVI-CON - rear view

	DVI-CON	DVI-CON-Video
Console		
Consoles	1	
Assigned console ports at central module	1	1
Video		
Signal type/Video	DVI single-link	
Resolution DVI / VGA	1920 × 1200 @ 60Hz	
	1280 × 1024 @ 85Hz	
Audio		
Design	internal	
Refresh rate	96 kHz	
Resolution	24 bit digital	
Bandwidth	22 kHz	
Transmission		
Cabling	dedicated 1:1 connection via CAT-x cable	
Transmission length	140 m	
Interfaces to central module	1 x RJ45 socket	1 x RJ45 socket
Interfaces for console		
Video	1 x DVI-I socket	
Keyboard/Mouse	2 × Mini-DIN 6 socket	-
	2 × USB-A socket	-
Audio	2 × 3.5 mm jack socket	
TradeSwitch-LED	1 x D-Sub 9 socket	
Main power supply		
Type	internal power pack	
Connection	1 × IEC plug	
Voltage	AC100-240V/60-50Hz, 0.2A-0,12A	AC100-240V/60-50Hz, 0,3-0,2A
Redundant power supply		
Type	external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC/1.0A	+12VDC/0.9A
Housing		
Material	anodised aluminium	
Desktop (W × H × D)	210 × 44 × 210 mm	
Rackmount (W × H × D)	19" × 1U × 210 mm	
Weight	approx. 1.3 kg	
Update		
Mode	via ControlCenter-Digital Config panel	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	below 80%, non-condensing	
Conformity	CE, RoHs	

DVI-CON-Fiber

left: DVI-CON-Fiber - Rear view
right: DVI-CON-Fiber-Front view

	DVI-CON-Fiber
Console	
Consoles	1
Assigned console ports at central module	1
Video	
Signal type/Video	DVI single-link
Resolution DVI / VGA	1920 × 1200 @ 60Hz
	1280 × 1024 @ 85Hz
Audio	
Design	internal
Refresh rate	96 kHz
Resolution	24 bit digital
Bandwidth	22 kHz
Transmission	
Cabling	dedicated 1:1 connection via fiber optics
Transmission length	140 m
Interfaces to central module	1 x RJ45 socket
Interfaces for console	
Video	1 x DVI-I socket
Keyboard/Mouse	2 × Mini-DIN 6 socket
	3 × USB-A socket
Audio	2 × 3.5 mm jack socket
TradeSwitch-LED	1 x D-Sub 9 socket
Main power supply	
Type	internal power pack
Connection	1 × IEC plug
Voltage	AC100-240V/60-50Hz, 0.2A-0,12A
Redundant power supply	
Type	external power pack
Connection	Mini-DIN 4 socket
Voltage	+12VDC/1.0A
Housing	
Material	anodised aluminium
Desktop (W × H × D)	210 × 44 × 210 mm
Rackmount (W × H × D)	19" × 1U × 210 mm
Weight	approx. 1.3 kg
Update	
Mode	via ControlCenter-Digital Config panel
Operating conditions	
Temperature	+5 to +45 °C
Humidity	below 80%, non-condensing
Conformity	CE, RoHs

DVI-CON-2

DVI-CON-2 - Rear view

Console	DVI-CON-2
Consoles	1
Assigned console ports at central module	1
Video	
Signal type/Video	DVI single-link
Resolution DVI / VGA	1920 × 1200 @ 60Hz
	1280 × 1024 @ 85Hz
Audio	
Design	internal
Refresh rate	96 kHz
Resolution	24 bit digital
Bandwidth	22 kHz
Transmission	
Cabling	dedicated 1:1 connection via CAT-x cable
Transmission length	140 m
Interfaces to central module	2 x RJ45 socket
Interfaces for console	
Video	1 x DVI-I socket
Keyboard/Mouse	2 × Mini-DIN 6 socket
	3 × USB-A socket
Audio	2 × 3.5 mm jack socket
TradeSwitch-LED	1 x D-Sub 9 socket
Main power supply	
Type	internal power pack
Connection	1 × IEC plug
Voltage	AC100-240V/60-50Hz, 0.3A-0.2A
Redundant power supply	
Type	external power pack
Connection	Mini-DIN 4 socket
Voltage	+12VDC/1.2A
Housing	
Material	anodised aluminium
Desktop (W × H × D)	210 × 44 × 210 mm
Rackmount (W × H × D)	19" × 1U × 210 mm
Weight	approx. 1.3 kg
Update	
Mode	via ControlCenter-Digital Config panel
Operating conditions	
Temperature	+5 to +45 °C
Humidity	below 80%, non-condensing
Conformity	CE, RoHs

DP-CON

DP-CON - rear view

	DP-CON
Console	
Consoles	1
Assigned console ports at central module	1
Video	
Signal type/Video	DisplayPort
Resolution DVI / VGA	1920 × 1200 @ 60Hz
Audio	
Design	internal
Refresh rate	96 kHz
Resolution	24 bit digital
Bandwidth	22 kHz
Transmission	
Cabling	dedicated 1:1 connection via CAT-x cable
Transmission length	140 m
Interfaces to central module	1 x RJ45 socket
Interfaces for console	
Video	1 x DisplayPort socket
Keyboard/Mouse	2 × Mini-DIN 6 socket
	3 × USB-A socket
Audio	2 × 3.5 mm jack socket
TradeSwitch-LED	1 x D-Sub 9 socket
Main power supply	
Type	internal power pack
Connection	1 × IEC plug
Voltage	AC100-240V/60-50Hz, 0.2-0.12A
Redundant power supply	
Type	external power pack
Connection	Mini-DIN 4 socket
Voltage	+12VDC/1.0A
Housing	
Material	anodised aluminium
Desktop (W × H × D)	210 × 44 × 210 mm
Rackmount (W × H × D)	19" × 1U × 210 mm
Weight	approx. 1.3 kg
Update	
Mode	via ControlCenter-Digital Config panel
Operating conditions	
Temperature	+5 to +45 °C
Humidity	below 80%, non-condensing
Conformity	CE, RoHs

DVI-CON-MC2 & DVI-CON-MC4

DVI-CON-MC4 - rear view

	DVI-CON-MC2	DVI-CON-MC4
Console		
Consoles	1	
Assigned console ports at central module	2	4
Video		
Signal type/Video	DVI single-link	
Resolution DVI / VGA	1920 × 1200 @ 60Hz	
	1280 × 1024 @ 85Hz	
Audio		
Design	internal	
Refresh rate	96 kHz	
Resolution	24 bit digital	
Bandwidth	22 kHz	
Transmission		
Cabling	dedicated 1:1 connection via CAT-x cable	
Transmission length	140 m	
Interfaces to central module	2 x RJ45 socket	4 x RJ45 socket
Interfaces for console		
Video	2 x DVI-I socket	4 x DVI-I socket
Keyboard/Mouse	2 × Mini-DIN 6 socket	2 × Mini-DIN 6 socket
	2 × USB-A socket	2 × USB-A socket
Audio	2 × 3.5 mm jack socket	
TradeSwitch-LED	1 x D-Sub 9 socket	
Main power supply		
Type	internal power pack	
Connection	1 × IEC plug	
Voltage	AC100-240V/60-50Hz, 0,6-0,3A	AC100-240V/60-50Hz, 0,9-0,5A
Redundant power supply		
Type	external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC/2A	+12VDC/3,6A
Housing		
Material		anodised aluminium
Desktop (W × H × D)	435 x 44 x 210 mm	
Rackmount (W × H × D)	19“ × 1U × 210 mm	
Weight	approx. 3 kg	approx. 3 kg
Update		
Mode	via ControLCenter-Digital Config panel	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	below 80%, non-condensing	
Conformity	CE, RoHs	

U2-R-CON

left: U2-R-CON - front view
right: U2-R-CON - rear view

	U2-R-CON
Console	
Consoles	1
Assigned console ports at central module	1
USB 2.0	
Transfer type	transparent
Transfer rate	up to 480 MBit/s
Support	high power devices (500mA)
RS232	
Signal type	transparent
Type	RS232-C
Transmission rate	max. 115.200 bit/s
Signals	RxD, TxD, RTS, CTS, DTR, DSR, DCD
Transmission	
Cabling	dedicated 1:1 connection via CAT-x-cable
Transmission length	140 m
Interfaces to central module	1 x RJ45 socket
Interfaces for console	
USB 2.0	4 x USB-A socket
RS232	1 x 9 pol. Sub-D plug
Power supply	
Type	external power pack
Connection	Mini-DIN 4 socket
Voltage	+12V DC, 1.3A
Casing	
Material	anodised aluminium
Desktop (W × H × D)	105 × 26 × 104 mm
Weight	approx. 240 g
Update	
Mode	via wizard
Connection	via service socket
Operating conditions	
Temperature	+5 to +40 °C
Humidity	below 80%, non-condensing
Conformity	CE, RoHs

Operation & Configuration

The ControlCenter-Digital system is operated/configured via:
- OSD & hotkeys
- web interface (ConfigPanel)

Both OSD and hotkeys are available at all DVI-CON user modules; the web interface can be accessed from any console that is connected to the network. The configuration can be performed via web interface or OSD. All configurations are systemwide available. This ensures quick and easy operation.

OSD

The OSD enables you to operate and configure the ControlCenter-Digital independently from any network. The DVI-CON modules provide the OSD at all user consoles. The OSD only covers the currently visible screen content partially - not fully.

The OSD complies with the individual user requirements and/or your internal safety regulations.

The OSD can be accessed via keyboard/mouse and configurable hotkeys. Hotkey combinations open the menus.

The following menus are available:
- Select (select a computer)
- Operation (frequent operations)
- Personal Profile (adjust user-related details)
- Configuration (change system settings)
- Information (query system status)

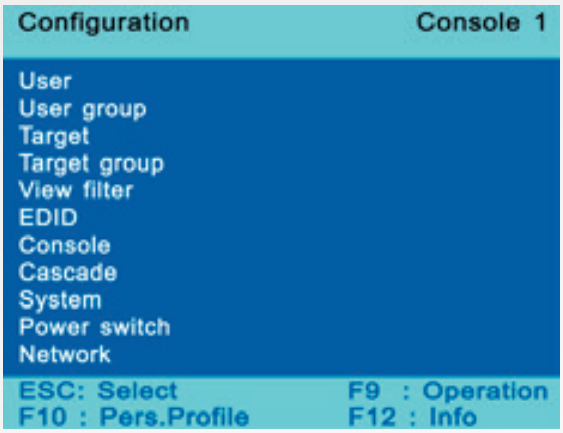
Operating options:

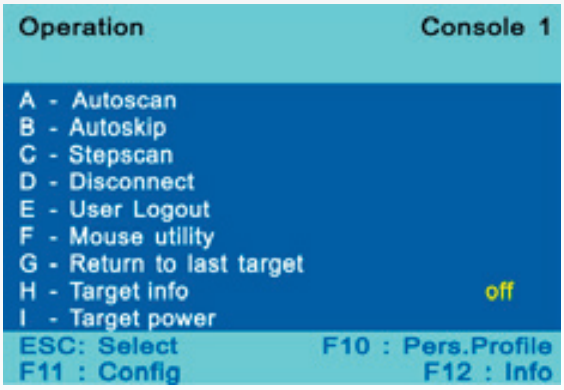
User settings
- create up to 256 individual user accounts
- integrated multi-level user/rights administration
- create password protection for all consoles
- create groups for effective rights management
- assign individual configuration rights
- assign access rights for each computer
- define a computer that is automatically accessed after the login
- multiuser-mode: multiple users having simultaneous access to one and the same computer

Computer settings
- create, edit, or delete computer names
- select or search computers by names using the select menu
- Free Seating: access a user-related computer by logging in at any console
- set permanent information display (computer & user console name) for easy navigation
- create groups for effective access management
- select 3 scan modes to auto-scan the connected computers
- show computer routing – even over cascades

System info
- recognise components with automatic assignment of the known configuration information
- schematic figure of the system structure from computer to console
- show all computers in one list - even over cascades; no switching though multiple OSDs
- show busy states console <-> computer

Console settings
- connect PS/2 keyboards with special functions
- create open access without querying password
- enable access protection per auto-log off when leaving the console
- block OSD to prevent access to certain consoles
- install a video console (e.g. projector) that can be remotely controlled by other consoles (requires Push-Get and TradeSwitch module)





Web-Interface

The „Config Panel“ web application offers a graphical user interface to configure the ControlCenter-Digital.

The clearly organized user interface shows the comprehensive OSD settings and therefore makes the web interface **the primary configuration tool.**

The Config Panel is divided into the following sections. The list below highlights the most important settings:

Basic configuration
- network parameter
- tools (backup/restore, firmware update, resetting the defaults)
- query of syslog messages

Dynamic port configuration
- define ports as console or computer connection in any order

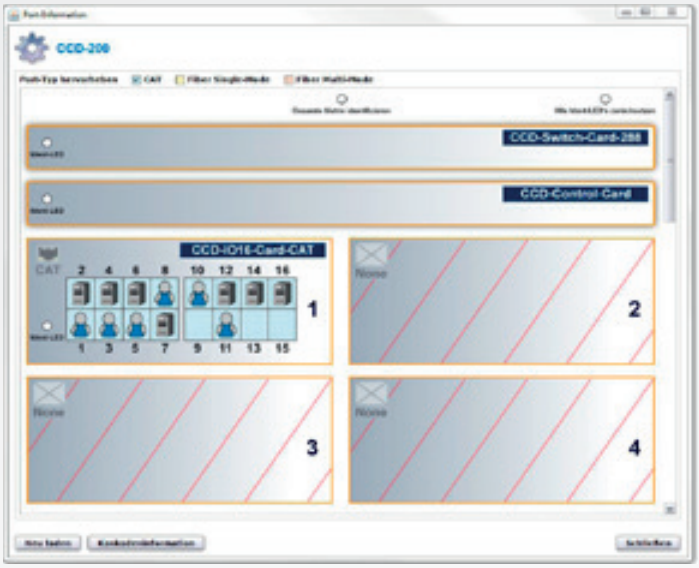
Rights configuration
- user rights
- user group rights
- computer rights
- computer group rights

Matrix switch configuration
- name, hotkeys etc.
- activation of communication modules
- network settings

User module configuration
- name
- cascade information
- console type
- special keyboard

Computer configuration
- configuration of the computer module
- cascade information

Monitoring configuration
- Query of syslog messages
- SNMP SET + Get/Trap



Hardware / Expansion

The hardware components are connected to the ControlCenter-Digital and fully integrated into operation. This way e.g. the power-switching can be carried out in the OSD.

The user range can be increased by using the computer modules DVI-CPU-UC.

Through installation of the Dynamic UserCenter32 several computers can be accessed from multipleControlCenter-Digital clusters.

We provide the following hardware expansions:

- increase the number of computers by cascading with other DVICenters
- double the number of consoles with the DVI-CPU-UC computer modules (also applicable for backup systems/ mirrored systems)
- increase the system‘s range up to 10,000 m by integrating a fibre optics line (DVI-FiberLink)
- access to computers from multiple ControlCenter-Digital -Clusters by using Dynamic-UserCenter32

MultiPower

The MultiPower serves as the central power source of G&D devices that require an external power pack (for example DVI-CPU or DVI-Extender-F).

The Multipower-12 and the MultiPower-6 are functional and a space-saving solution for applications as in a server room and computer rack.
MultiPower-12 provides up to 12 output interfaces (12V, max. 600mA) and MultiPower-6 provides up to 6 output interfaces (12V, max. 1,2A). Optimally suitable for the power supply of DVI-CPU or DVI-CPU-MC2 in a rack.

- power supply for up to twelve devices
- central power source e.g. in a rack or when applied in a server room
- MultiPower-12 twelve interfaces 12VDC (max. 600mA)
- MultiPower-6: six interfaces 12VDC (max. 1,2A)
- redundant power supply

above: MultiPower-12
below: MultiPower-6

Hardware / Expansion

more Consoles

The DVI-CPU-UC devices allow you to connect more consoles **than ports provided at the device.**

Use **DVI-CPU-UC modules** instead of the usual DVI-CPU computer modules to increase the number of consoles or to establish a redundant system.

Using a **second RJ-45 socket**, the DVI-CPU-UC module **doubles** the keyboard, video, mouse, and audio **interfaces** to the ControlCenter-Digital. Thus, a computer can be connected to two matrix switch clusters. Combining the DVI clusters with the corresponding central and user modules increases the number of consoles.

This requires:
- 1 x computer module DVI-CPU-UC per computer
- + number of DVI-CON modules according to the number of additional consoles
- + DVICenter DP32 according to the number in cluster 1

More details regarding the DVI-CPU-UC are given in the section Computer modules.

DVI-CPU-UC - rear view

Hardware / Expansion: more consoles

Dynamic-UserCenter32

The Dynamic UserCenter allows you to access multiple computers via several ControlCenter-Digital clusters. This way the Dynamic-UserCenter expands the user range of the matrix switch

For example:
When configuring the Dynamic-UserCenter with
- 1 CPU you can operate this computer via up to 31 simultaneous ControlCenter-Digital-Clusters
- 4 CPUs you can access those computers over 7 simultaneous ControlCenter-Digital-Cluster

Thus, the number of users can be increased significant.

Dynamic-UserCenter32 - rear view

Highlights/System

The Dynamic UserCenter is a supporting module for the ControlCenter-Digital Series and can be used to realize large installations. The product offers 32 dynamic ports, which can be freely configured as computer or user port by web interface.

System Features
- Centralised configuration of the dynamic ports (cluster / CPUs) via web interface
- Hot plug und hot swap capability
- Finder-LED on the front and back side

Design
The Dynamic-UserCenter is shipped as desktop device. The package contents contain a 19“ rack mount set.

Network / Communication / Security
- Redundant power supply
- Monitoring function integrated
- SNMP-Trap & -Agent support
- Syslog massage output
- Backup and Restore of device configuration via web-interface

Capacity

No. of port groups	No. of clusters per group
1	31
2	15
3	9
4	7
5	5
6	4
7	3
8	3
9	2
10	2

Dynamic-UserCenter32

left: Dynamic-UserCenter32 - front view
right: Dynamic-UserCenter32 - rear view

	Dynamic-UserCenter32
Cluster	
Typ of cluster ports	RJ45 socket
Cluster ports per device	Dynamic: min. 2 - max. 31
Transmission type computer module	Dedicated 1:1 connection via CAT-x cable
Transmission lenght to central module	140 m
Interfaces for central module	RJ45 sockets
Computer	
Type of computer ports	RJ45 socket
Computer ports	Dynamic: min. 1 - max. 10
Transmission type to computer module	Dedicated 1:1 connection via CAT-x cable
Transmission length to computer module	140 m
Interfaces to computer module	RJ45 sockets
Main power supply	
Type	Internal power pack
Connection	1 × IEC plug
Voltage	AC100-240V/60-50Hz
	0,8A - 0,3A
Redundant power supply	
Type	Internal power pack
Connection	1 × IEC plug
Voltage	AC100-240V/60-50Hz
	0,8A - 0,3A
Casing	
Material	Anodised aluminium
Desktop (W × H × D)	435 x 44 x 211 mm
Rackmount (W × H × D)	19" x 1HE x 211 mm
Weight	Approx. 4.0 kg
Update	
Mode	Via network
Operating conditions	
Temperature	+5 to +40 °C
Humidity	< 80% non-condensing
Conformity	CE, RoHs

more Computers

When **cascaded into three levels**, the ControlCenter-Digital system increases the number of connectable computers. The master device takes over all controlling tasks. The listed possibilities guarantee the **full access of all consoles** to all computers over all cascade levels.

Cascading allows for an **additional transmission distance of 140 m (CAT)** per ControlCenter-Digital. When fully cascaded, the distance from computer through to the cascaded central modules up to the user module can be up to 560 m (CAT)
How to read the following table 2 (e.g. the row „2 Console ports“)

When configuring the ControlCenter-Digital with
- **17** console ports and **271** computer ports (stand-alone)
- you can operate **4081** computers via 17 simultaneous consoles in the first cascade. This requires **16** ControlCenter-Digital.

ControlCenter-Digital-288

Stand-Alone		1 Cascade		2 Cascade	
Console Ports	Computer Ports	No. of Computers	No. of CCD 288	No. of Computers	No. of CCD 288
17	271	4081	16	- -	- -
18	270	4050	16	- -	- -
19	269	3769	15	- -	- -
20	268	3492	14	- -	- -
21	267	3219	13	- -	- -
22	266	3194	13	- -	- -
23	265	2927	12	- -	- -
24	264	2904	12	- -	- -
25	263	2643	11	- -	- -
26	262	2622	11	- -	- -
27	261	2367	10	- -	- -
28	260	2348	10	- -	- -
29	259	2099	9	- -	- -
30	258	2082	9	- -	- -
31	257	2065	9	- -	- -
32	256	2048	9	- -	- -
33	255	1809	8	- -	- -
34	254	1794	8	- -	- -
35	253	1779	8	- -	- -
36	252	1764	8	- -	- -
37	251	1535	7	- -	- -
38	250	1522	7	- -	- -
39	249	1509	7	- -	- -
40	248	1496	7	- -	- -
41	247	1483	7	- -	- -
42	246	1266	6	- -	- -
43	245	1255	6	- -	- -
44	244	1244	6	- -	- -
45	243	1233	6	- -	- -
46	242	1222	6	- -	- -
47	241	1211	6	- -	- -
48	240	1200	6	- -	- -

Table1

ControlCenter-Digital-288

Stand-Alone		1 Cascade		2 Cascade	
Console Ports	Computer Ports	No. of Computers	No. of CCD 288	No. of Computers	No. of CCD 288
49	239	999	5	4039	21
50	238	990	5	3998	21
51	237	981	5	3957	21
52	236	972	5	3916	21
53	235	963	5	3875	21
54	234	954	5	3834	21
55	233	945	5	3793	21
56	232	936	5	3752	21
57	231	927	5	3711	21
58	230	746	4	2294	13
59	229	739	4	2269	13
60	228	732	4	2244	13
61	227	725	4	2219	13
62	226	718	4	2194	13
63	225	711	4	2169	13
64	224	704	4	2144	13
65	223	697	4	2119	13
66	222	690	4	2094	13
67	221	683	4	2069	13
68	220	676	4	2044	13
69	219	669	4	2019	13
70	218	662	4	1994	13
71	217	655	4	1969	13
72	216	648	4	1944	13
73	215	499	3	1067	7
74	214	494	3	1054	7
75	213	489	3	1041	7
76	212	484	3	1028	7
77	211	479	3	1015	7
78	210	474	3	1002	7
79	209	469	3	989	7
80	208	464	3	976	7
81	207	459	3	963	7
82	206	454	3	950	7
83	205	449	3	937	7
84	204	444	3	924	7
85	203	439	3	911	7
86	202	434	3	898	7
87	201	429	3	885	7
88	200	424	3	872	7
89	199	419	3	859	7
90	198	414	3	846	7
91	197	409	3	833	7
92	196	404	3	820	7
93	195	399	3	807	7
94	194	394	3	794	7

ControlCenter-Digital-160

Stand-Alone		1 Cascade		2 Cascade	
Console Ports	Computer Ports	No. of Computers	No. of CCD 288	No. of Computers	No. of CCD 288
6	154	3854	26	- -	- -
7	153	3219	22	- -	- -
8	152	2888	20	- -	- -
9	151	2423	17	- -	- -
10	150	2250	16	- -	- -
11	149	1943	14	- -	- -
12	148	1780	13	- -	- -
13	147	1621	12	- -	- -
14	146	1466	11	- -	- -
15	145	1315	10	- -	- -
16	144	1296	10	- -	- -
17	143	1151	9	- -	- -
18	142	1010	8	- -	- -
19	141	995	8	- -	- -
20	140	980	8	- -	- -
21	139	847	7	- -	- -
22	138	834	7	- -	- -
23	137	707	6	3557	31
24	136	696	6	3496	31
25	135	685	6	3435	31
26	134	674	6	3374	31
27	133	557	5	2253	21
28	132	548	5	2212	21
29	131	539	5	2171	21
30	130	530	5	2130	21
31	129	521	5	2089	21
32	128	512	5	2048	21
33	127	409	4	1255	13
34	126	402	4	1230	13
35	125	395	4	1205	13
36	124	388	4	1180	13
37	123	381	4	1155	13
38	122	374	4	1130	13
39	121	367	4	1105	13
40	120	360	4	1080	13
41	119	275	3	587	7
42	118	270	3	574	7
43	117	265	3	561	7
44	116	260	3	548	7
45	115	255	3	535	7
46	114	250	3	522	7
47	113	245	3	509	7
48	112	240	3	496	7
49	111	235	3	483	7
50	110	230	3	470	7
51	109	225	3	457	7

ControlCenter-Digital-160

Stand-Alone		1 Cascade		2 Cascade	
Console Ports	Computer Ports	No. of Computers	No. of CCD 288	No. of Computers	No. of CCD 288
52	108	220	3	444	7
53	107	215	3	431	7
54	106	158	2	210	3
55	105	155	2	205	3
56	104	152	2	200	3
57	103	149	2	195	3
58	102	146	2	190	3
59	101	143	2	185	3
60	100	140	2	180	3
61	99	137	2	175	3
62	98	134	2	170	3
63	97	131	2	165	3
64	96	128	2	160	3
65	95	125	2	155	3
66	94	122	2	150	3
67	93	119	2	145	3
68	92	116	2	140	3
69	91	113	2	135	3
70	90	110	2	130	3
71	89	107	2	125	3
72	88	104	2	120	3
73	87	101	2	115	3
74	86	98	2	110	3
75	85	95	2	105	3
76	84	92	2	100	3
77	83	89	2	95	3
78	82	86	2	90	3
79	81	83	2	85	3

more Range

The DVI-FiberLink increases the system range within a ControlCenter-Digital cluster to up to 10,000 m. The system consists of two identical modules (transceivers) and is available in two variants:

- **DVI-FiberLink(M)**
  Transmission via 2 **multi-mode** fiber optics (50/125µm)
  Range **up to 550 m**

- **DVI-FiberLink(S)**
  Transmission via 2 **single-mode** fiber optics (9/125µm)
  Range **up to 10,000 m**

The pair of DVI-FiberLink devices can be placed between any ControlCenter-Digital module. One pair of DVI-FiberLink devices extends one access (console).

Installation:
We provide **19“ rack mount solutions** for easily installing a DVI-FiberLink(S) into a server rack. The solutions are listed under KVM Accessories.

DVI-FiberLink(S) - rear view

DVI-FiberLink

left: DVI-FiberLink(S) - front view
right: DVI-FiberLink(S) - rear view

	DVI-FiberLink(S)	DVI-FiberLink(M)
Main power supply		
Type	external power pack	
Connection	Mini-DIN 4 power socket	
Voltage	+12VDC/0.3A	
Power loop support	yes	
Transmission CAT side		
Transmission mode	dedicated 1:1 connection via CAT-x cable	
Interface	1 × RJ45 socket	
Transmission length	up to 140 m	
Transmission fiber side		
Transmission mode	2 fiber optic strands (cross-over connection)	
Interface	1 × LC duplex socket	
Transmission cable	2 single-mode fiber optic strands	2 multi-mode fibre optic strands
Transmission lenght	10,000 m (9/125 µm, 2,000 MHz*km, OS1)	550 m (50/125 µm, 500 MHz*km, OM2)
		275 m (62.5/125 µm, 200 MHz*km, OM1)
		220 m (62.5/125 µm, 160 MHz*km, FDDI grade)
Casing		
Material	anodised aluminium	
Desktop (W × H × D)	105 × 26 × 86 mm	
Rackmount	see KVM Accessories/19" Device Carrier	
Weight	approx. 240 g	
Update		
Mode	via wizard	
Connection	1 × Mini-USB-B socket	
Operating conditions		
Temperature	+5 to +40 °C	
Humidity	< 80% non-condensing	
Conformity	CE, RoHs	

Firmware / Expansion

Use the devices‘ web interface to install and activate any firmware expansions.

We provide the following firmware expansions:

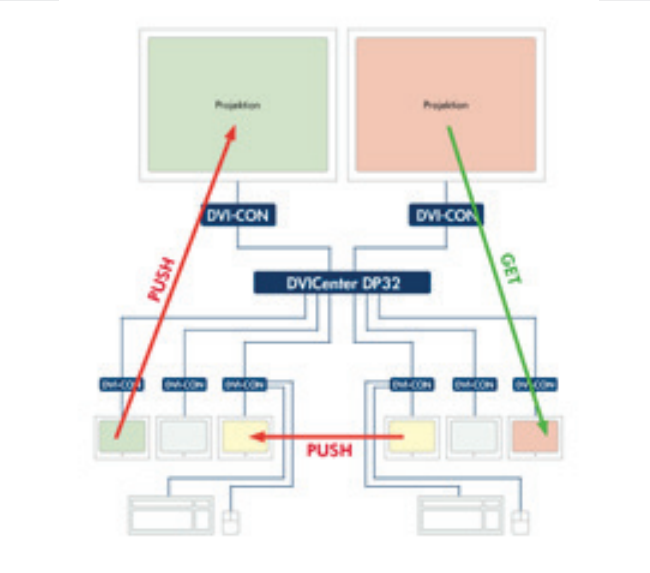
- **Push-Get function**
  (push the image and/or operation of your console to another DVI-CON or get the image from there)
- **TradeSwitch function**
  (turn multiple DVI-CONs into a multi-monitor console, and operate this console through only one keyboard/mouse).
- **CrossDisplay-Switching**
  (Automatic switching by mouse between channels. With CrossDisplay-Switching (CDS), users can use the mouse to switch between the modules of a Tradeswitch configuration)
- **IP-Control-API**
  (use a third-party program to build an interface for swit ching/operating the ControlCenter-Digital over network)

Push-Get

Function: DVI-CON interaction
Operation via: OSD
Operating requirement: activation within master
Efficiency: 1 cluster

The Push-Get function allows you to push the image of a target to - or get it from - the display of another console. This display can be a large screen projection, for example.

All consoles can exchange computer and screen contents to work together on a common task.



Screen-Freeze Function

If the display loses the video signal due to a broken connection or a problem with the computer‘s graphics card, the Screen-Freeze function „freezes“ the image last displayed on the monitor.

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

FIBREVison-CON and WACOM® display with active Screen-Freeze function.

TS-Function

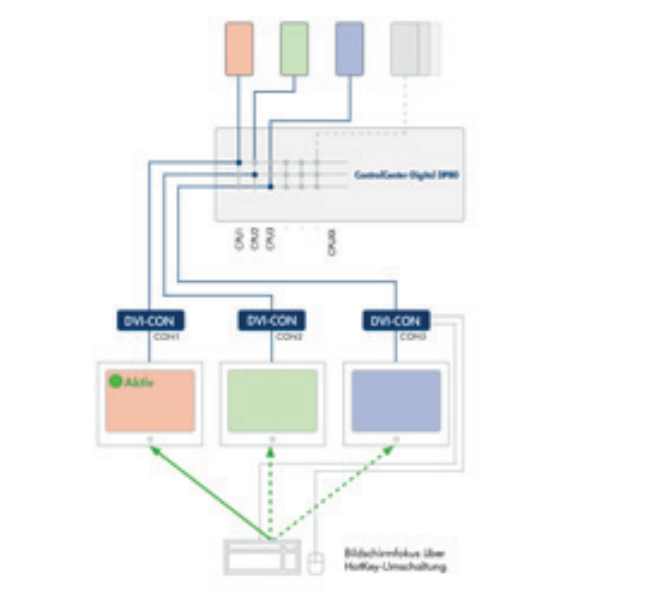
Function: DVI-CON pooling
Operation: via hotkeys
Operating requirement: activation within master
Efficiency: 1 cluster

The TradeSwitch function combines multiple user modules (DVI-CON) into one logical console.

The logical console can be operated with one keyboard and one mouse while providing multiple displays (multi-monitor console). Large screen projections can also be integrated.

A hotkey assigns keyboard and mouse to the DVI-CON devices of the logical console. The size and amount of user groups is optional.

With the innovative **CrossDisplay-Switching** as part of the TS-function (ControlCenter-Digital), users can use the mouse to easily switch between channels.



CrossDisplay-Switching

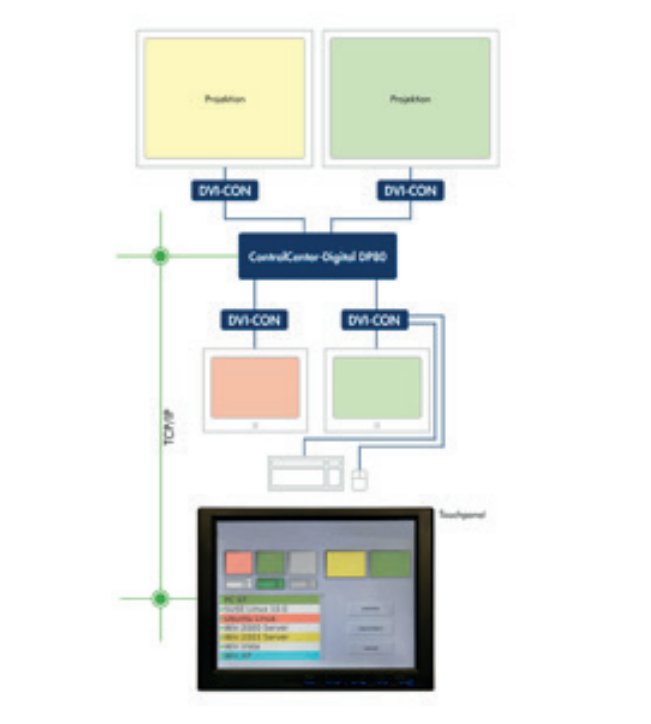
Function: Switching by using the mouse
Operation: using mouse cursor
Operating requirement: activated TS-Function
Efficiency: 1 Cluster

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.

Now users can create a multi-monitor console and need only one keyboard and one mouse to operate all computers. The mouse becomes the ultimate intuitive switching tool.

IP-Control

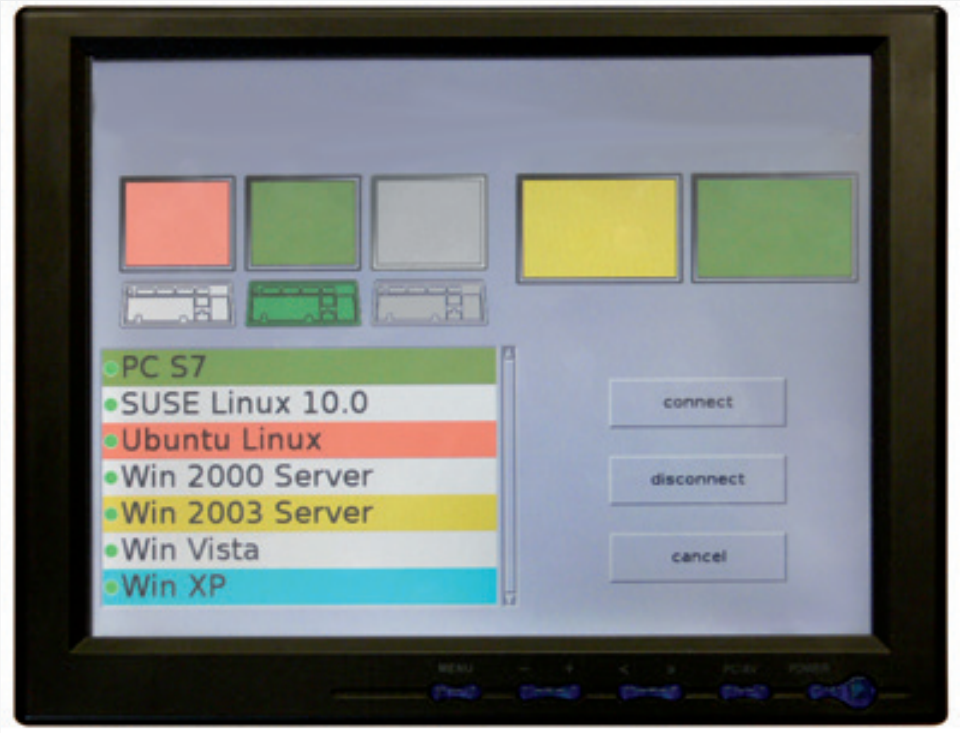
Function: DVICenter remote control over IP
Operation via: customer-programmed user interface or media control
Operating requirement:
activation within master + programming of user interface
Effectiveness: system (several clusters)



The IP-Control-API function allows you to send switching commands to the ControlCenter-Digital. The commands are sent via network.
The system is operated independently from a DVI-CON user module. Regardless of the location, each computer can access the desired projection media and/or operator screens.

To program the user interface you are provided with the necessary Windows DLL or Linux SO interface.

IP-Switching also allows you to:
- receive information about current switching conditions
- cancel all switching conditions (disconnect)
- receive information about the computer status
- execute the Push-Get function via network (but no OSD integration)



Illustration

List of Item Number Central Module

Item No.	Description	User	Computer
A2300054	ControlCenter-Digital-288	1 to 287	287 to 1
A2300055	ControlCenter-Digital-160	1 bis 159	159 bis 1
A2300056	ControlCenter-Digital-80	1 bis 79	79 bis 1
Item No.	Description		
A2300057	CCD-Control-Card		
A2300058	CCD-Switch-Card-288		
A2300059	CCD-Switch-Card-160		
A2300060	CCD-Switch-Card-80		
A2300061	CCD-IO16-Card-CAT		
A2300062	CCD-IO16-Card-Fiber(M)		
A2300063	CCD-IO16-Card-Fiber(S)		
A2300078	CCD-IO16-Card-Fiber(S+)		
A2300065	CCD-Fan-IN-Card-160		
A2300066	CCD-Fan-IN-Card-288		
A2300068	CCD-Fan-OUT-Card-160		
A2300069	CCD-Fan-OUT-Card-288		
A2300070	CCD-Power-Module-288		
A2300071	CCD-Power-Module-160		
A2300073	CCD-Air-Filter-288		
A2300074	CCD-Air-Filter-160		
A2300075	CCD-Air-Filter-80		

List of Item Numbers Computer Modules

Item No.	Description	USB 2.0	RS232	PS/2	USB-K/M	Video	Audio	No.of clusters
DVI-CPU								
A2320071	DVI-CPU	-	-	PS/2	USB	DVI-SL	Audio	1
A2320070	DVI-CPU without-power-pack	-	-	PS/2	USB	DVI-SL	Audio	1
A2320075	DVI-CPU-UC	-	-	PS/2	USB	DVI-SL	Audio	2
A2320074	DVI-CPU-UC without power-pack	-	-	PS/2	USB	DVI-SL	Audio	2
A2320090	DVI-CPU-Fiber(M)	-	-	PS/2	USB	DVI-SL	Audio	1
A2320091	DVI-CPU-Fiber(S)	-	-	PS/2	USB	DVI-SL	Audio	1
A2320092	DVI-CPU-Fiber(S+)	-	-	PS/2	USB	DVI-SL	Audio	1
A2320063	U2-R-CPU	USB 2.0	RS232	-	-	-	-	1
A2320072	DVI-CPU-MC2	-	-	PS/2	USB	2 x DVI-SL	Audio	1
A2320073	DVI-CPU-MC2-UC	-	-	PS/2	USB	2xDVI-SL	Audio	2
A2320078	DP-CPU	-	-	PS/2	USB	1 x DP	Audio	1
A2320079	DP-CPU-UC	-	-	PS/2	USB	1 x DP	Audio	2
A2320083	DVI-CPU-FSC	-	-	PS/2	USB	1 x DVI-SL	Audio	1
A2320085	DVI-CPU-UC-FSC	-	-	PS/2	USB	1 x DVI-SL	Audio	2
A2320086	VGA-CPU-UC	-	-	PS/2	USB	VGA	Audio	2
A2320096	VGA-CPU-UC without PowerPack	-	-	PS/2	USB	VGA	Audio	2

List of Item Numbers User Modules

Item No.	Description	USB 2.0	RS232	PS/2	USB-HID	DVI	Audio	Desktop/ Rackmount	No. of cluster
A1120157	DVI-CON	-	-	PS/2	USB	DVI-SL	Audio	DT	1
A1120157-12V	DVI-CON-12V	-	-	PS/2	USB	DVI-SL	Audio	DT	1
A1120159	DVI-CON-RM	-	-	PS/2	USB	DVI-SL	Audio	RM	1
A1120161	Twin-DVI-CON	-	-	PS/2	USB	DVI-SL	Audio	DT/RM	1
A1120162	DVI-CON-Fiber(M)	-	-	PS/2	USB	DVI-SL	Audio	DT	1
A1120164	DVI-CON-Fiber(S)	-	-	PS/2	USB	DVI-SL	Audio	DT	1
A1120167	DVI-CON-Fiber(S+)	-	-	PS/2	USB	DVI-SL	Audio	DT	1
A1120168	DVI-CON-2	-	-	PS/2	USB	DVI-SL	Audio	DT	2
A1120151	U2-R-CON	USB 2.0	RS232	-	-	-	-	DT/RM	1
A1120160	DVI-CON-Video	-	-	-	-	DVI-SL	Audio	DT	1
A1120158	DVI-CON-MC2	-	-	PS/2	USB	2 x DVI-SL	Audio	DT	1
A1120166	DVI-CON-MC4	-	-	PS/2	USB	4 x DVI-SL	Audio	DT	1

List of Item Numbers Expansions ControlCenter-Digital

Item No.	Description	
PowerSwitching		
A4110030	MultiPower-12	Power Supply, Rackmount
A4110032	MultiPower-6	Power Supply, Rackmount
more Range		
A2300044	DVI-FiberLink(S)	Single-mode transceiver up to 10,000 m, please order 2 x for 1 line
A2300052	DVI-FiberLink(M)	Multi-mode transceiver up to 550 m, please order 2 x for 1 line
Firmware expansions		
A8200014	TS-Function DVICenter	TradeSwitch module
A8200013	Push-Get-Function DVICenter	Push-Get module
A8200015	IP-Control-API DVICenter	IP-Switching module
Hardware expansions		
A2200016	Dynamic-UserCenter32	Expending the number of workplaces

ABBREVIATIONS

CPU = Computer module
PC = Computer module

CON = User module
REM = User module

MC2 = Multichannel 2
MC3 = Multichannel 3
MC4 = Multichannel 4

M = Multimode
S = Singlemode
RM = For assembly in a 19“ rack
DT = Available as desktop variant
A = Audio
AR = Audio + RS232
R = RS232
U = transparent USB 1.1
U2 = transparent USB 2.0
D = Delay

EQUIPMENT FEATURES

= modular setup

= keyboard/mouse

= dual-link DVI video

= single-link DVI video

= DisplayPort 1.1

= single-link DVI + VGA

= VGA video

= Audio

= RS232

= USB 1.1

= USB 2.0

= Delay

= Screen Freeze

= Power Switching

= Fire Wire

= VT100

= KVM IP access

= Network connection

= Web interface

= DevCon support

= Monitoring

= CAT cable

= Fiber optics

= Single user

= Multi user

= Separat local/remote user