

DVI KVM Matrix Switches

ControlCenter-Digital 7.3

DVI KVM Matrix Switches

Matrix Switches for the simultaneous operation of multiple computers via several consoles



Leading the way in digital KVM



Leading the Way in digital KVM

Guntermann & Drunck GmbH has been established in 1985 and is named after its founders. Over 25 years have since past, and we are now a leading manufacturer of digital and analog KVM switching systems.

As an owner-managed company we work with a broad range in both digital and analog KVM closely with the marketplace and make our decisions with and in the interests of our customers. It is our philosophy to meet our customers while making decisions, to accompany them in the process and ensure that they achieve their goals.

We can do this because as a medium sized company we have short communication paths and all core competencies are in house – from development through to production. This way we can even make the impossible possible at times. If it is thanks to the modularity of the products or by implementing a customised solution. We orient ourselves towards the needs of the customer – and not the other way round.

Organisations, service providers and companies of all sizes managing numerous computers, servers and other network devices trust the comprehensive advice and service provided by Guntermann & Drunck GmbH.

Thanks to these different fields of specialisation, the demands placed on the products are many and are manifold. Our products have to provide a long-life service, be secure, uncomplicated, user-friendly, understandable and adaptable.

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.

The ControlCenter-Digital comes with a **modular setup** consisting of:

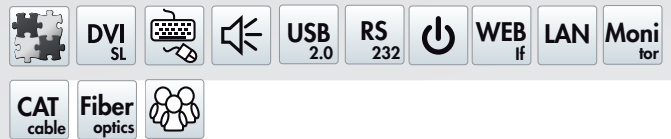
- Input/Output cards (I/O cards),
- Switch card with the central processor unit,
- Controller card that holds the “logic”,
- Three redundant power packs
- Two fan boards

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 and 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 and 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 1.1, (Dual-Link DVI in preparation)
- Switches bidirectional audio signals
- Supports PS/2 and USB keyboard/mouse
- RS232 & USB 2.0 transparent

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:

- Device main power supply (On/Off)
- Device redundant power supply (On/Off)
- Device temperature (°C)
- Network interfaces (Up/Down)
- Fan rate (RPM)
- Current (A)
- Voltage (V)

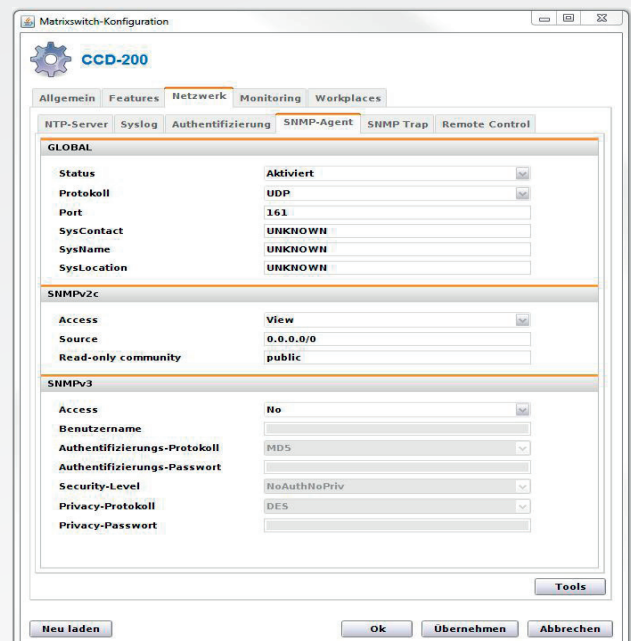
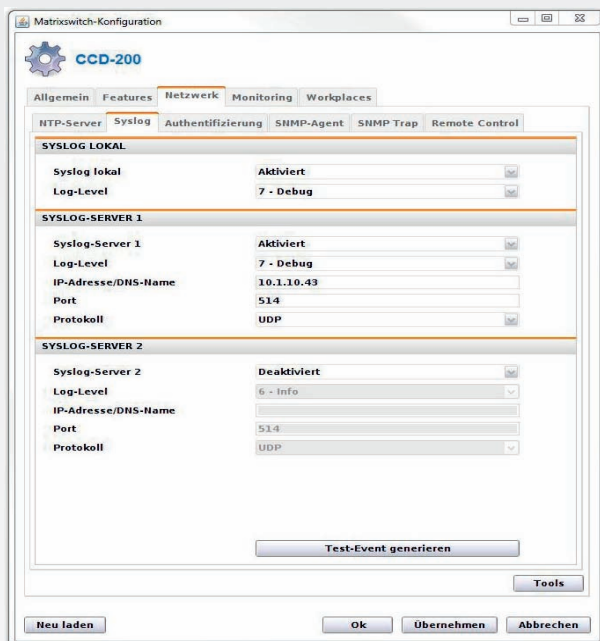
Furthermore, the computer modules and the user modules can be also monitored, e. g.:

- Status (On/Off)
- Power supply (On/Off)
- Keyboard/mouse connection (On/Off)
- Video signal connection (On/Off)
- Device temperature (°C)

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 (at user modules also VGA 1280 × 1024 @ 85Hz)
- DVI dual-link (in preparation)
- Integration of DisplayPort and analogue video sources (VGA) in the matrix 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

In addition to combining multiple computers to a console, the ControlCenter-Digital also 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

Application scheme

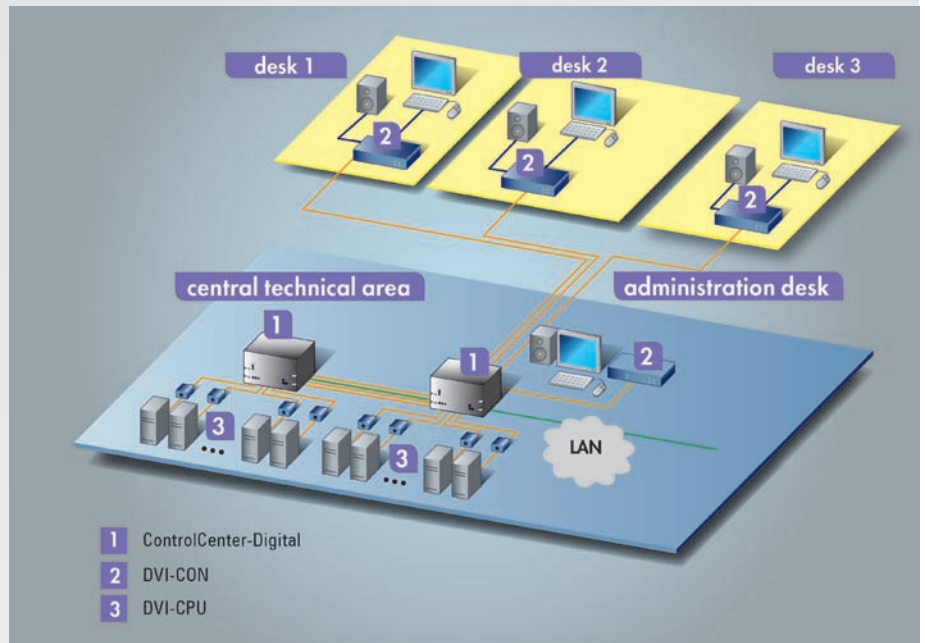
Example:

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 configuring 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 - rear view
right: ControlCenter-Digital - 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 or 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

Computer modules

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

The DVI-CPU's 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-VGA-CPU, module to connect a VGA computer; DVI-CPU-Fiber, module to connect a computer over fiber optics (range up to 10,000 m).

We provide the following DVI-CPU variants:



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

DVI-DP-CPU

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

The DVI-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 DVI-CON the signals are provided at the remote workstation.



DVI-DP-CPU - front view

DVI-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.



DVI-DP-CPU-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.

Standard variant transmitting the following signals:

- USB 2.0
- RS232

Application

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



U2-R-CPU - front view

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



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 × 26 × 124 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 × 26 × 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



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 × 46 × 124 mm
Weight	approx. 240 g	
Operating conditions		
Temperature	+5 to +45 °C	
Humidity	< 85% non-condensing	
Conformity	CE, RoHS	

DVI-DP-CPU & DVI-DP-CPU-UC



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

	DVI-DP-CPU	DVI-DP-CPU-UC
Video		
Video-In	DisplayPort 1.1	
Video-Out	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	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 × 26 × 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.

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



DVI-CON - front view

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-Video - rear view

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 - 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, 0.4-0.2A	AC100-240V/60-50Hz, 0,3-0,2A
Redundant power supply		
Type	external power pack	
Connection	Mini-DIN 4 socket	
Voltage	+12VDC/1.2A	+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-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 x H x D)	105 x 26 x 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)

Configuration	Console 1
User	
User group	
Target	
Target group	
View filter	
EDID	
Console	
Cascade	
System	
Power switch	
Network	
ESC: Select	F9 : Operation
F10 : Pers.Profile	F12 : Info

Operation	Console 1
A - Autoscan	
B - Autoskip	
C - Stepscan	
D - Disconnect	
E - User Logout	
F - Mouse utility	
G - Return to last target	
H - Target info	off
I - Target power	
ESC: Select	F10 : Pers.Profile
F11 : Config	F12 : Info

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

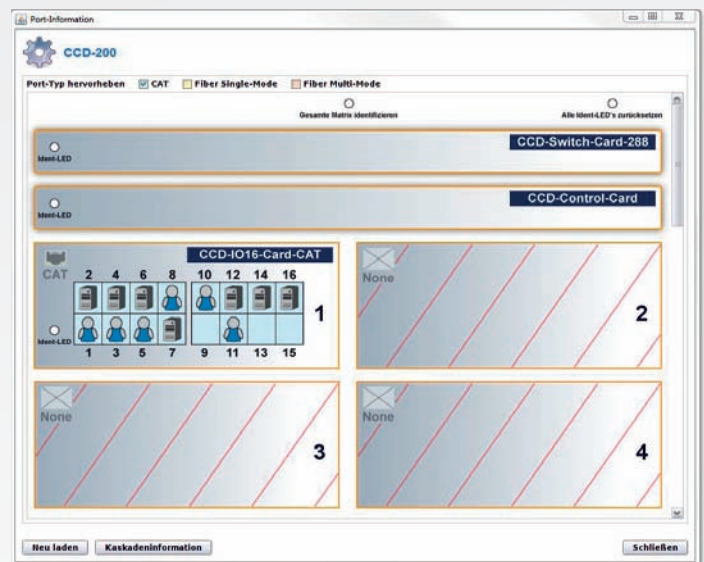
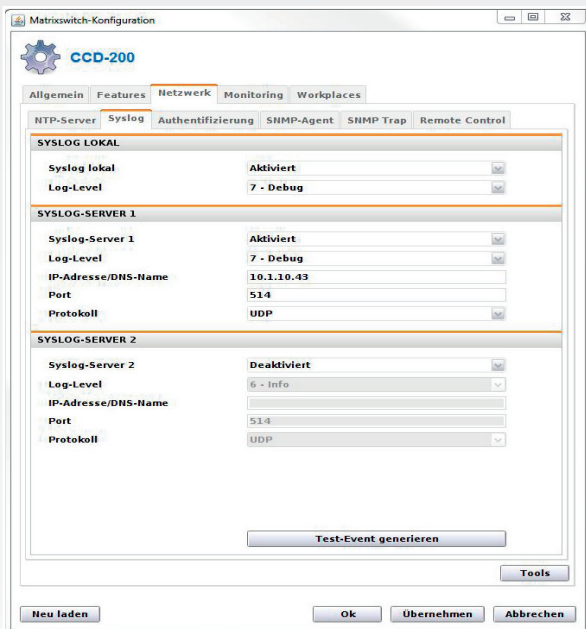
- name, hotkeys etc.
- activation of communication modules
- network settings

User module configuration

- name
- cascade information
- console type
- special keyboard

Computer configuration

- configuration of the computer module
- cascade information



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 multiple ControlCenter-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-12 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 is a functional and a space-saving solution for applications as in a server room and computer rack.

Optimally suitable for the power supply of DVI-CPU or DVI-Extender-F 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
- twelve interfaces 12VDC (max. 600mA)
- redundant power supply



MultiPower-12 - rear view

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 message 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	
Type 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 length 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	--	--

Table 1

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

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	external power pack	
Type	Mini-DIN 4 power socket	
Connection	+12VDC/0.3A	
Voltage	yes	
Power loop support	yes	
Transmission CAT side	dedicated 1:1 connection via CAT-x cable	
Transmission mode	1 × RJ45 socket	
Interface	up to 140 m	
Transmission length	2 fiber optic strands (cross-over connection)	
Transmission fiber side	1 × LC duplex socket	
Transmission mode	2 single-mode fiber optic strands	2 multi-mode fibre optic strands
Interface	10,000 m (9/125 μm, 2,000 MHz*km, OS1)	550 m (50/125 μm, 500 MHz*km, OM2)
Transmission cable		275 m (62.5/125 μm, 200 MHz*km, OM1)
		220 m (62.5/125 μm, 160 MHz*km, FDDI grade)
Casing	anodised aluminium	
Material	105 × 26 × 86 mm	
Desktop (W × H × D)	see KVM Accessories/19" Device Carrier	
Rackmount	approx. 240 g	
Weight	via wizard	
Update	1 × Mini-USB-B socket	
Mode		
Connection		
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 switching/operating the ControlCenter-Digital over network)

Push-Get

Function: DVI-CON interaction

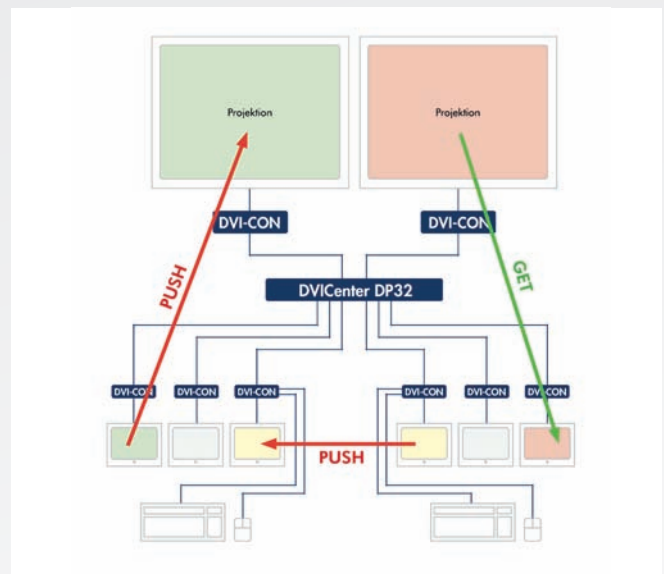
Operation via: OSD

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.



TS-Function

Function: DVI-CON pooling

Operation: via hotkeys

Operating requirement: activation within master

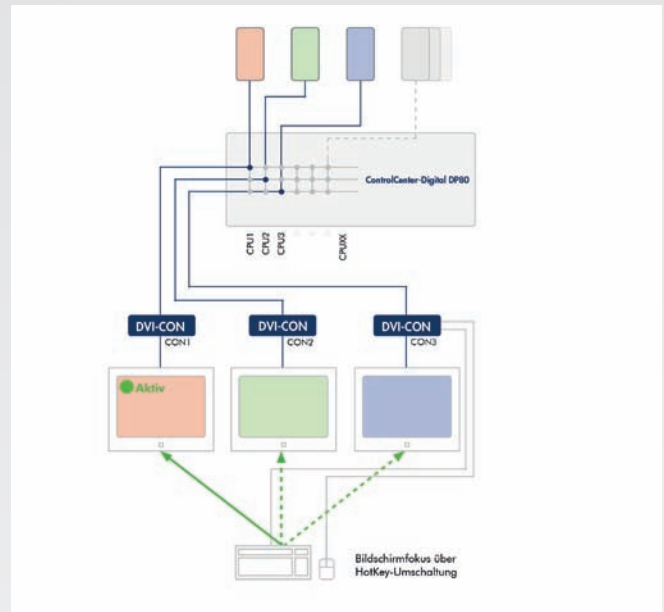
Efficiency: 1 cluster

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)

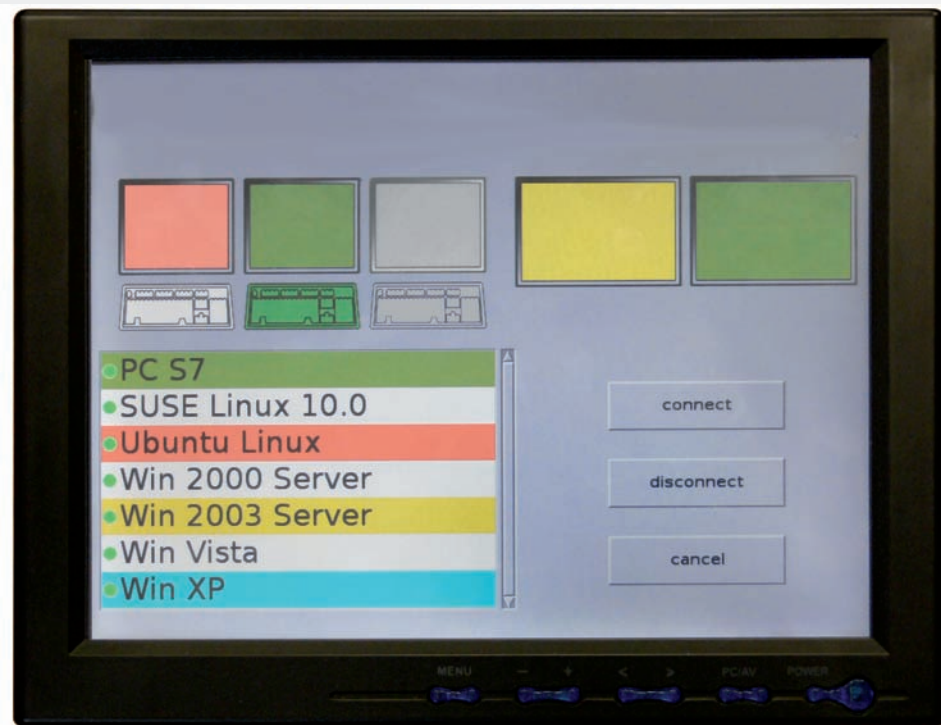
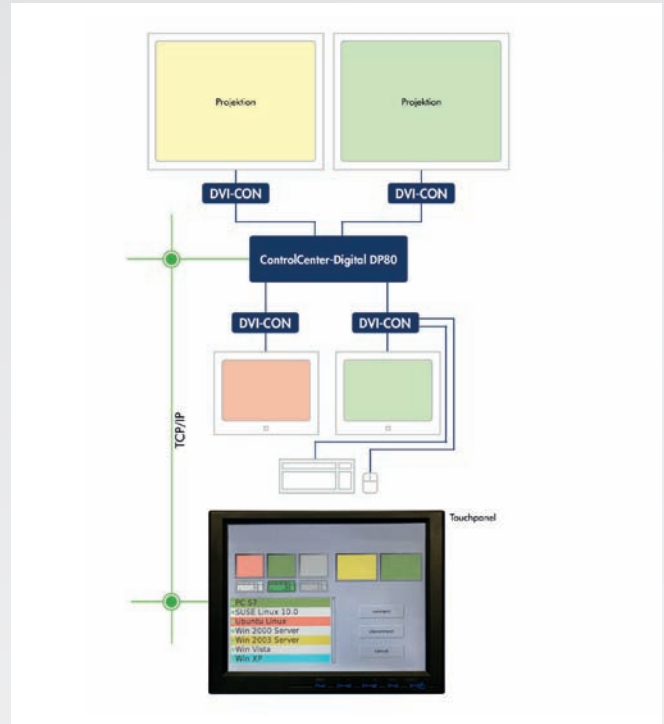
The IP-Control-API function allows you to send switching commands to the ControlCenter-Digital. The commands are sent via network.

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 DP288	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)		
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		

List of Item Numbers Computer Modules

Item No.	Description	USB 2.0	RS232	PS/2	USB-K/M	DVI	Audio	No.of clusters
DVI-CPU								
A2320051	DVI-CPU	-	-	PS/2	USB	DVI-SL	Audio	1
A2320053	DVI-CPU without-power-pack	-	-	PS/2	USB	DVI-SL	Audio	1
A2320052	DVI-CPU-UC	-	-	PS/2	USB	DVI-SL	Audio	2
A2320069	DVI-CPU-UC without power-pack	-	-	PS/2	USB	DVI-SL	Audio	2
A2320063	U2-R-CPU	USB 2.0	RS232	-	-	-	-	
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	DVI-DP-CPU	-	-	PS/2	USB	1 x DVI-SL	Audio	1
A2320079	DVI-DP-CPU-UC	-	-	PS/2	USB	1 x DVI-SL	Audio	2
A2320082	DVI-CPU-FSC	-	-	PS/2	USB	1 x DVI-SL	Audio	1
A2320084	DVI-CPU-UC-FSC	-	-	PS/2	USB	1 x DVI-SL	Audio	2
A2320086	DVI-VGA-CPU-UC	-	-	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
A1120140	DVI-CON	-	-	PS/2	USB	DVI-SL	Audio	DT
A1120140-12V	DVI-CON-12V	-	-	PS/2	USB	DVI-SL	Audio	DT
A1120141	DVI-CON-RM	-	-	PS/2	USB	DVI-SL	Audio	RM
A1120142	Twin-DVI-CON	-	-	PS/2	USB	DVI-SL	Audio	DT/RM
A1120151	U2-R-CON	USB 2.0	RS232	-	-	-	-	DT/RM
A1120160	DVI-CON-Video	-	-	-	-	DVI-SL	Audio	DT
A1120158	DVI-CON-MC2	-	-	PS/2	USB	2 x DVI-SL	Audio	DT
A1120166	DVI-CON-MC4	-	-	PS/2	USB	4 x DVI-SL	Audio	DT

List of Item Numbers Expansions ControlCenter-Digital



























Item No.	Description	
PowerSwitching		
A4110030	MultiPower-12	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	Expanding the number of workplaces

Legend

ABBREVIATIONS

CPU	=	Computer module	M	=	Multimode
PC	=	Computer module	S	=	Singlemode
CON	=	User module	RM	=	For assembly in a 19" rack
REM	=	User module	DT	=	Available as desktop variant
MC2	=	Multichannel 2	A	=	Audio
MC3	=	Multichannel 3	AR	=	Audio + RS232
MC4	=	Multichannel 4	R	=	RS232
			U	=	transparent USB 1.1
			U2	=	transparent USB 2.0
			D	=	Delay

EQUIPMENT FEATURES

 = modular setup	 = Fire Wire
 = keyboard/mouse	 = VT100
 = dual-link DVI video	 = KVM IP access
 = single-link DVI video	 = Network connection
 = DisplayPort 1.1	 = Web interface
 = single-link DVI + VGA	 = DevCon support
 = VGA video	 = Monitoring
 = Audio	 = CAT cable
 = RS232	 = Fiber optics
 = USB 1.1	 = Single user
 = USB 2.0	 = Multi user
 = Delay	 = Separat local/remote user
 = Screen Freeze	
 = Power Switching	