# CONTROLCENTER-DIGITAL-288 EXCLUSIVE I/O-CARDS

KVM matrix systems, Article number A2300054




Front



Back

With the central module ControlCenter-Digital, you can operate a larger number of computers from a greater number of workplaces. KVM matrix systems assist you in managing complex IT infrastructures in a simple and intuitive way. Especially in mission-critical environments such as control rooms, military command centers, data centers, or facilities for managing critical infrastructures, users benefit from the secure, reliable, and flexible solution for decentralized operation and administration. The ControlCenter-Digital is available in three size variants with 80, 160, or 288 ports. Due to its fully modular design, input/output cards with the required transmission media (CAT and/or fiber ports) can be used. Thanks to Dynamic Port Technology, the ports can be flexibly used as input or output for connecting computer modules, RemoteAccess-CPUs, console modules, or DynamicWorkplace-CONs.

## SCOPE OF DELIVERY

| Quantity | Description | Article number |
|---|---|---|
| 1 | CCD-IO16-Card-Cover card cover f. CCD | A2300076 |
| 1 | CCD-Power-Module-Cover card cover f. CCD Powermod | A2300077 |
| 3 | PowerCable-2 Standard cable 2m | A6300057 |
| 1 | 19" RM-Set-CCD-L long rail set: 550-750mm | A7000040 |
| 1 | Safety instructions flyer - FCC class A | A9100377 |
| 1 | Safety instructions - CCD flyer | A9100372 |

# DETAILS

## TRANSMISSION

- The transmission distance between the central module and the end devices depends on the selected input/output card (I/O card) and reaches up to 140 meters over CAT or up to 10,000 meters over fiber optic (Fiber)

## DEVICE

- Improved security through physical separation between workplaces and computers
- Access to standard interfaces of the computer, with no software installation required
- Users can switch between different sources almost in real-time, without noticing interruptions or delays
- Fully modular design for flexible adaptation and expansion options
- The device always includes the chassis, which contains:
  - Backplane, where the individual components are mounted in card form
  - Controller card, which manages, controls, and monitors all functions
  - Switch card, which contains the central switching logic
  - Power supply modules
  - Fan cards
- Input/output cards are not included in the scope of delivery and must be ordered separately and feature 16 Dynamic Ports, which are available in variants with CAT, fiber optic, or mixed options
- Dynamic ports are flexible and automatically detect whether a computer module, RemoteAccess-CPU, console module, or DynamicWorkplace-CON is connected
- System components can be connected, removed, or replaced during operation (hot-plug/hot-swap capable).
- The ControlCenter-Digital series is compatible with the ControlCenter-Compact series and the end devices for computer and workplace connections

## WARRANTY

- A 3-year, free of charge product guarantee
- For an additional fee guarantee extension possible

# FEATURES

## SECURITY FEATURES

- Bootloader, operating system, and firmware form a "Trusted Computing Platform" with automatic integrity checks during system startup
- Integrated Trusted Platform Module (TPM) protects all access and configuration data from being spied on or tampered with by third parties
- Comprehensive rights management and user administration, allowing precise control over which user can access which resources
- Option for disablable access protection (OpenAccess mode), in which all connected workstation modules can access all released computer sources immediately and without prior authentication
- Support for external directory services (Active Directory, Radius, LDAP) to meet company security policies
- To comply with individual password policies and improve security, password complexity can be configured system-wide
- Configurable login options, such as displaying terms of use or setting the maximum acceptable number of failed login attempts, can enhance system security
- Emergency direct connection (extender mode) between console and computer module ensures continuous operation even during unexpected events at the central module
- redundant internal power supply modules
- Redundant network interface
- Monitoring of system states such as status, power supply, temperature and computer modules and console modules are monitored as well
- Each monitoring value can be enabled individually; critical states raise an alarm, which authorized users can acknowledge to downgrade it to warning level
- Syslog logging locally and to up to two servers, via TCP or UDP, with configurable port, eight severity levels per the syslog standard and ISO 8601 timestamps
- Logged events include user logins, failed login attempts, changes to user rights, connections to remote targets and failed backups
- SNMP agent supporting SNMPv2c and SNMPv3; for SNMPv3, authentication via SHA-1 through SHA-512, encryption with AES128, AES192 or AES256, and security levels up to authPriv
- Access to the SNMP agent can be restricted to defined source IP addresses or network segments (IPv4 and IPv6)
- SNMP notifications to multiple receivers, sent either as traps or as acknowledged informs, with a configurable severity threshold
- Auto Backup Function: Automates backups at user-defined intervals and replaces manual intervention – ensuring reliable, timely data protection without the need for continuous monitoring
- Configurable exclusive access control for USB, audio, and RS232 ensures that access is granted only to console modules, DynamicWorkplace-CONs, and authorized users

- End devices (computer modules, RemoteAccess-CPUs, console modules, and DynamicWorkplace-CONs) do not store security-relevant information such as login credentials, which could be extracted in the event of device loss
- Freeze function: If the video signal is lost, the last displayed image is frozen and highlighted with a colored frame and timer

## OPERATION FEATURES

- Operation via multilingual on-screen display (OSD) or a graphical interface and hotkeys
- auto-recognition and display of the system structure
- Configuration and central update of all components via the multilingual HTML5 web interface “Config Panel 21” (Java-free)
- Support for Wake-on-LAN Function: A standardized method for powering on a shut-down or sleeping computer via a network command, provided the target system supports this functionality
- With configurable select keys, computers can be made available to each user individually via quick access
- Configurable view filters enable efficient sorting of large lists of computer modules
- The configurable multi-user access allows multiple users to access a real or virtual computer simultaneously
- With channel grouping, multiple computer modules or multiple console modules can be grouped together into a channel group
- USB pinning: In grouped channels, transparent USB transmission remains linked to the currently connected computer – even when switching to another system – and continues seamlessly until the transfer is complete

# EXTENSIONS

## DEVICE

- Select the input/output cards (I/O cards) according to your requirements. The cards operate independently of one another, allowing mixed operation.
  - I/O-Card-CAT provides 16 CAT-based dynamic ports
  - I/O-Card-Fiber provides 16 fiber-optic-based dynamic ports
  - I/O-Card-Trunk4 aggregates 4 out of 16 dynamic ports into a 10G link
  - I/O-Card-Multi enables the integration and switching of 16 standalone devices within the matrix system
- Thanks to the modularity, you can use additional modular system components for replacement or exchange:
  - Controller cards
  - Switch cards (hardware 1.0)
  - Fan cards (hardware 1.0)
  - Power supply modules

## SECURITY FEATURES

- MatrixGuard Function – premium software feature for ensuring continuous operation against unforeseen disruptions.
  - requires the premium software feature Matrix-Grid Function
  - Redundancy concept with failover functionality: In the event of unforeseen disruptions, console modules and computer modules within the Matrix-Grid network automatically connect to an alternative matrix switch - except for endpoint devices connected to the unavailable matrix switch
  - restoration of switching states enables rapid resumption of operations
- 2-Factor-Authentication (2FA) – premium software feature to enhance security by using a second possession-based factor during user authentication:
  - The traditional password authentication is combined with a time-limited, single-use code (Time-Based-One-Time-Password - TOTP)
  - You can choose between using the internal authentication server provided in the device or an external directory service
  - Authenticator apps or hardware token can be used
  - This additional layer of protection prevents unauthorized access and ensures the highest level of security, particularly in sensitive IT environments

## OPERATION FEATURES

- TradeSwitch Function (TS Function) – premium software feature providing convenient operation and seamless restoration of individual working environments at consoles with multiple console modules, including the most recently connected sources:
  - optimizes usability for consoles tasked with simultaneous monitoring or control of multiple computers via several console modules
  - provides a central keyboard and mouse for operating the entire workplace
  - both input devices can switch to any console module using a hotkey
  - CrossDisplay switching additionally offers an especially user-friendly switching method: simply moving the mouse pointer from one monitor to another automatically transfers keyboard and mouse focus to another module and thus another computer
  - The FreeSeating function automatically restores a user's personalized working environment, including previously used sources, at any workplace within the group. A single login is sufficient to register all console modules and activate the respective sources, while a single logout will log out the entire group
- Push-Get Function – premium software feature for moving/retrieving connections from own or other devices:
  - optimizes collaboration within control rooms by improving team communication, flexibility, and responsiveness
  - allows users to "push" the connection status of their console module to another console module or "get" it from there

## CONTROL OPTIONS

- IP-Control-API – premium software feature enabling remote control, scenario switching, and retrieval of switching states via an API interface:
  - allows text-based XML control of a KVM matrix system over the network
  - optional encryption of communication:
    - Encryption of login passwords (partial encryption)
    - Complete encryption of the data stream
    - Additional certificate check when establishing a connection
  - provides the capability to create custom control applications, send switching commands, and retrieve selective information on switching states as well as computer statuses
  - flexible and scalable solution for seamless integration into IT infrastructures from various vendors
  - Includes a scripting function for creating, managing, and executing scripts, automating scenarios such as changing the switching state of individual consoles, multiple consoles, or the entire system
  - Enables control of external devices via HTTP requests

## SYSTEM EXTENSION

- Support for all common video signals, thanks to a wide selection of matrix-compatible KVM extenders, which can be integrated as end devices in matrix operation in a “mixed” configuration (Mix & Match). Video transmission is performed using bluedec™ – G&D’s advanced, multi-stage, lossless compression – delivering pixel-perfect, lossless video quality with near-zero latency.
- The RemoteAccess-CPU lets you seamlessly integrate virtual machines into your matrix installation. This way, hybrid systems with real and virtual computer infrastructure can be optimally implemented.
- Matrix-Grid Function – premium software feature for expanding the matrix system or increasing the number of ports by adding additional central modules:
  - multiple digital matrix switches from the ControlCenter-Compact and ControlCenter-Digital series can be combined into a large matrix network
  - enables bidirectional communication between console and computer modules connected to different matrix switches
  - can be combined with the MatrixGuard Function
- Increase the system's range up to 10,000 m by using CAT variants/connections by integrating an optical fibres line (DVI-FiberLink)
- Increase the system's range up to 140 m by using CAT variants/connections by integrating a CAT line (CAT-Repeater)
- Increase the system's range by integrating the ethernet-capable I/O-Card-Trunk

# TECHNICAL DATA

| | | |
|---|---|---|
| General | Brand | G&D |
| | Product group | KVM matrix switches |
| | Product Family | ControlCenter-Digital |
| | Country of origin | Germany |
| | KVM matrix system component | Central module (digital) |
| Network | Quantity | 2 |
| | Medium | CAT5<br>CAT6<br>CAT7 |
| | Data rate | 10 Mbit/s<br>100 Mbit/s<br>1 Gbit/s |
| Maintenance | Update via | ConfigPanel (Network) |
| | Serviceport settings | 460800bps (8/N/1) |
| Housing | Material | Anodised aluminium |
| | Active cooling (fan) | yes |
| | Width ca. | 448 mm / 17.64 in |
| | Height ca. | 400 mm / 15.75 in |
| | Depth ca. | 500 mm / 19.69 in |
| | IP protection class | IP20 |
| | Weight ca. | 23.63 kg / 52.10 lb |

| | | |
|---|---|---|
| Operating conditions | Operating environment temperature | 5 °C to 45 °C / 41 °F to 113 °F |
| | Operating air humidity, non-condensing | 20 % to 80 % |
| | Area of application | Indoor use |
| | Maximum operating altitude above sea level | 3,048 m |
| | Storage environment temperature | -20 °C to 55 °C / -4 °F to 131 °F |
| | Storage air humidity, non-condensing | 15 % to 85 % |
| | MTBF | 60,000 h at 25°C (77 °F) |
| | Note | Power supplies 70.000h, fan modules 60.000h, Remaining unit > 100.000h |
| | Conformities | CE compliant (see downloads)<br>UKCA compliant (see downloads)<br>FCC compliant (see manual)<br>TAA compliant (see downloads)<br>RoHS compliant (see downloads)<br>WEEE (reg. no. DE30763240)<br>REACH compliant (see downloads) |
| Power supply | Quantity | 2 |
| | Type | Internal |
| | Input voltage | 100-240 VAC |
| | Input frequency | 60-50 Hz |
| | Current consumption | 7-3 A |
| | Power consumption idle | 60.8-66.8 W |

# ACCESSORY PRODUCTS

| Image | Description | Article number |
|---|---|---|
|  | **CCD-Control-Card card f. CCD**<br>Controller module for the ControlCenter-Digital system | A2300057 |
| | **CCD-IO16-Card-Cover card cover f. CCD**<br>Cover for input/output interface of the ControlCenter-Digital system | A2300076 |
| | **CCD-Power-Module 100-240VAC/12VDC - 1600W**<br>Power supply of the ControlCenter-Digital system | A2300070 |
| | **CCD-Power-Module-Cover card cover f. CCD Powermod**<br>Cover for the power module of the ControlCenter-Digital system | A2300077 |
|  | **CCD-Switch-Card-288 card f. CCD-288**<br>Module for the central processing unit of the ControlCenter-Digital-288 | A2300058 |
| | **CCD-Fan-IN-Card-288 card f. CCD-288**<br>Fan tray for ControlCenter-Digital 288 (Input side) | A2300066 |
| | **CCD-Fan-OUT-Card-288 card f. CCD-288**<br>Fan tray for ControlCenter-Digital 288 (Output side) | A2300069 |
| | **CCD-Air-Filter-288**<br>Air filter for the fan trays of ControlCenter-Digital 288 | A2300073 |
| | **USB-Service-2 cable 2m**<br>Cable for system updates and configuration | A6200103 |
| | **PowerCable-3 Standard cable 3m**<br>Cable to connect the power supply type Germany | A6300066 |
| | **PowerCable-5 Standard cable 5m**<br>Cable to connect the power supply type Germany | A6300065 |

## RELATED PRODUCTS

| Description | Article number |
|---|---|
| **CCD-IO16-Card-CAT card f. CCD 16xCAT**<br>Input/output module of the ControlCenter-Digital system | A2300061 |
| **CCD-IO16-Card-Fiber blank without SFP-Transc.**<br>Input/output module of the ControlCenter-Digital system | A2300086 |
| **CCD-IO16-Card-Fiber(M) card f. CCD 16xFiber(M)**<br>Input/output module of the ControlCenter-Digital system | A2300062 |
| **CCD-IO16-Card-Fiber(S) card f. CCD 16xFiber(S)**<br>Input/output module of the ControlCenter-Digital system | A2300063 |
| **CCD-IO16-Card-Multi card f. CCD 16xMulti**<br>Input/output module of the ControlCenter-Digital system | A2300085 |
| **CCD-IO16-Card-Trunk4 blank without SFP-Transc.**<br>Input/output module of the ControlCenter-Digital system including 4x 10G interfaces - without SFP-Transceiver | A2300098 |
| **CCD-IO16-Card-Trunk4(M)**<br>Input/output module of the ControlCenter-Digital system including 4x 10G interfaces | A2300096 |
| **CCD-IO16-Card-Trunk4(S)**<br>Input/output module of the ControlCenter-Digital system including 4x 10G interfaces | A2300097 |

## MORE VARIANTS

| Description | Article number |
|---|---|
| **ControlCenter-Digital-160 2.0 exclusive I/O-cards**<br>Modular KVM Matrixswitch (6 RU) with 160 dynamic ports - optionally for CAT cable, fiber or mixed operation (V 2.0) | A2300132 |
| **ControlCenter-Digital-160 exclusive I/O-cards**<br>Modular KVM Matrixswitch (6 RU) with 160 dynamic ports - optionally for CAT cable, fiber or mixed operation | A2300055 |
| **ControlCenter-Digital-80 exclusive I/O-cards**<br>Modular KVM Matrixswitch (4 RU) with 80 dynamic ports - optionally for CAT cable, fiber or mixed operation | A2300056 |

# CONTACT

## WE ARE HERE FOR YOU!

If you have any further questions, we are looking forward to advising you on your individual project requirements.

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