

# VISIONXS-CPU-C-MC2-DP-HR-LC-U-DT 2.0

KVM extenders, Article number A1110946



The matrix-compatible KVM extenders of the VisionXS-DP-HR 2.0 series extend keyboard, video, and mouse signals, as well as other peripheral data (e.g., audio and USB), via a dedicated CAT or fiber connection (up to 5,000 m – optionally extendable). An extender system consists of a computer module (CPU) and a compatible console module (CON). Computers can be controlled in near real-time – both in extender and matrix applications. The VisionXS-DP-HR 2.0 series supports DisplayPort 1.1 for high-resolution video up to 2560 × 1600 (60 Hz) or 4096 × 2160 (30 Hz). Video data is processed pixel-perfectly and offers excellent hand-eye coordination, thanks to bluedec™ – G&D's advanced, multi-stage, lossless compression technology.

## SCOPE OF DELIVERY

| Quantity | Description                                                     | Article number |
|----------|-----------------------------------------------------------------|----------------|
| 1        | PowerCable-2 Standard cable 2m                                  | A6300057       |
| 2        | DP1.4-Cable-M/M-2 SK13357 2m                                    | A6300173       |
| 1        | TypeC-Service-Cable-M/M-2, 2m, USB Type-A / Type-C              | A6200112       |
| 1        | RS232-M/F-2 cable RS232 2m                                      | A6300023       |
| 2        | Audio-M/M-2-ferrite cable 2m                                    | A6300083       |
| 1        | Audio adapter cable, 1x 3.5mm jack plug to 2x 3.5mm jack socket | A3110017       |
| 1        | Safety instructions flyer - FCC class B                         | A9100371       |
| 1        | 19" RM-Set-VXS2.0-442_MP12TypeC-1RU                             | A7000072       |

## DETAILS

### VIDEO

- bluedec™ – advanced developed multi-stage compression for best video quality and practically latency-free transmission. This method enables pixel-perfect video transmission with efficient bandwidth use.
- The end devices can be flexibly combined with each other, even if they process different video signals (Mix & Match)
- EDID data utilization from the workplace monitor
- Flexible EDID profile options for optimized monitor settings
- Resolution up to  
2560 × 1600 @ 60 Hz,  
4096 × 2160 @ 30 Hz
- Resolution up to  
2560 × 1600 @ 60 Hz,  
4096 × 2160 @ 30 Hz

### SIGNALS

- Embedded stereo audio (DisplayPort Digital, 2 channel LPCM, AC3, DTS, sampling rate up to 192 kHz)
- Transparent bidirectional audio signals (stereo)
- Transparent RS232 (max. 115,200 bps)
- GenericUSB support for USB classes HID (Human Interface Device), SmartCard and mass storage
- The product allows the use of a GenericUSB device via a console module. For this, both the used console module and the used computer module must support the use of a GenericUSB device.
- Embedded USB 2.0 with Full Speed, transparent, all USB classes

### TRANSMISSION

- The transmission distance is up to 140 meters over CAT

### DEVICE

- Improved security through physical separation between workplaces and computers
- Access to standard interfaces of the computer, with no software installation required
- New enclosure design with improved cooling, optimized interface placement, and robust surface finishing – for higher reliability and long service life even in demanding environments
- Compact design for space-saving installation within a VisionXS 2.0 DeviceCarrier (1 or 3 RU)
- The devices are compatible with the ControlCenter-Digital and ControlCenter-Compact series (matrix operation) and other end devices for computer and workplace connections (extender operation)

- PowerPack not included in the scope of delivery
- DT variant:
  - Power supply via internal power supply unit
  - In combination with an external power supply, a redundant power supply can be established
  - RS232 is provided as standard
- 2C/2F variant (comparable to UC/CON-2): Two transmission paths (CAT or Fiber) for redundancy
  - Computer modules can connect to various counterparts, such as compatible console modules or KVM matrix switches
  - Console modules can connect to different counterparts, such as compatible computer modules or KVM matrix switches, with switching controlled via hotkey or automatically depending on configuration
  - 2C/2F variants are never available with U2, since the second transmission interface is used for transmitting USB 2.0 data.
- LC variant: Optional local console on the CPU module including all video channels
  - In addition to the remote workplace, a full-featured local access point is available, providing direct access to all video and control channels.
  - Exclusive or concurrent operation  
Allows simultaneous use by optional local and remote workplaces. Input on one side temporarily locks the other. A key combination activates exclusive mode instantly; another releases shared access. The lock duration is configurable.
- Extended USB input side with TypeC and separate USB K/M interface – enables the optional physical separation of keyboard/mouse signals and USB data stream for enhanced security.

## 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
- Console modules do not store security-relevant information such as login credentials, which could be extracted in the event of device loss
- Early detection of security incidents or unusual activities through continuous monitoring via Syslog, monitoring, and SNMP
- Comprehensive rights management and user administration, allowing precise control over which user can access which resources
- Option for activatable access protection (default operating mode in matrix systems), in which authentication is required before accessing computer sources
- 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
- Auto Backup Function: Automates backups at user-defined intervals and replaces manual intervention – ensuring reliable, timely data protection without the need for continuous monitoring
- Freeze function: If the video signal is lost, the last displayed image is frozen and highlighted with a colored frame and timer
- 2-Factor-Authentication (2FA) – is integrated by default in KVM extenders and enhances security by requiring 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

- Ready for operation out of the box, no additional configuration required
- Permanent keyboard/mouse emulation ensures a stable system

- Compatibility with special USB-HID input devices
- Operation via multilingual on-screen display (OSD) and hotkeys
- Configuration and update via the multilingual HTML5 web interface “Config Panel 21” (Java-free)
- Support of DDC/CI (Display Data Channel / Command Interface) to enable centralized software-side control of monitor settings such as brightness

## EXTENSIONS

### DEVICE

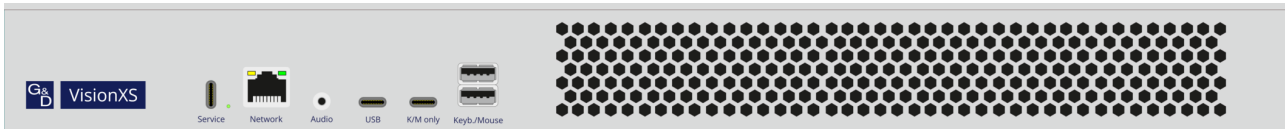
- External power supply via an external USB Type-C PD power pack or via the G&D MultiPower-12-TypeC, which ensures centralized and redundant power supply.
- Device mounting via RackMount sets, TableMount sets, G&D 19” DeviceCarrier for VisionXS 2.0 or other mounting tools

### SYSTEM EXTENSION

- You can integrate the matrix-compatible extenders into a complete installation with a ControlCenter-Compact or ControlCenter-Digital, even at a later point in time. This provides you with even greater flexibility through the possibility of distributed access – and the existing components can continue to be used.

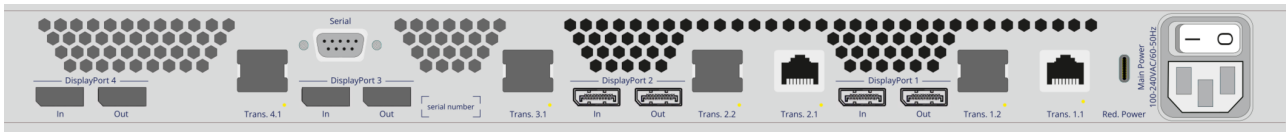
## INTERFACES

### FRONT



| Aperture designation | Design           | Description                                                                |
|----------------------|------------------|----------------------------------------------------------------------------|
| Service              | USB-C socket     | Connection for service purpose                                             |
| Network              | RJ45 socket      | Port for IP network                                                        |
| Audio                | 3,5-mm jack plug | Connection to computer - Audio                                             |
| USB                  | USB-C socket     | Connection to computer - USB                                               |
| K/M only             | USB-C socket     | Optional connection to computer - USB, only for keyboard and mouse signals |
| Keyb./Mouse          | USB A socket     | Port for keyboard and mouse                                                |

## BACK



| Aperture designation | Design             | Description                                                |
|----------------------|--------------------|------------------------------------------------------------|
| Serial               | D-Sub9 socket      | Connection to computer - serial data                       |
| DisplayPort 2 In     | DisplayPort socket | Connection to computer - Video                             |
| DisplayPort 2 Out    | DisplayPort socket | Port for monitor                                           |
| Trans. 2.1           | RJ45 socket        | Data transmission to console module or matrix switch (CAT) |
| DisplayPort 1 In     | DisplayPort socket | Connection to computer - Video                             |
| DisplayPort 1 Out    | DisplayPort socket | Port for monitor                                           |
| Trans. 1.1           | RJ45 socket        | Data transmission to console module or matrix switch (CAT) |
| Red. Power           | USB-C socket       | Power supply USB-PD (Power Delivery) redundant             |
| Main Power           | IEC plug 320 C14   | Power supply AC                                            |

## SCHEMATIC REPRESENTATION

### Dedicated extender operation



### Dedicated matrix operation



## TECHNICAL DATA

|               |                                 |                                                |
|---------------|---------------------------------|------------------------------------------------|
| General       | Brand                           | G&D                                            |
|               | Product group                   | KVM extenders                                  |
|               | Product Family                  | VisionXS 2.0                                   |
|               | Country of origin               | Germany                                        |
|               | Number of workstations          | 1                                              |
|               | KVM matrix system component     | Computer module (digital)                      |
|               | Power Supply                    | Redundancy without load balancing              |
| Input options | USB mouse                       | yes                                            |
|               | USB keyboard                    | yes                                            |
| Transmission  | Number of transmission channels | 2                                              |
|               | Redundant transmission channels | no redundant KVM transmission                  |
|               | Range                           | 140 m (AWG22)<br>100 m (AWG24)<br>80 m (AWG26) |
|               | Medium                          | CAT5e<br>CAT6<br>CAT7                          |
|               | Data rate                       | 1 Gbit/s                                       |
| Video input   | Quantity                        | 2                                              |
|               | Format                          | DisplayPort 1.1 (HBR)                          |
|               | Colour depth                    | 24 bit                                         |

|              |                              |                                                                                                                                                                                                                                    |
|--------------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|              | Pixel rate ca.               | 25 MPixel/s to 300 MPixel/s                                                                                                                                                                                                        |
|              | Vertical frequency           | 24 Hz to 120 Hz                                                                                                                                                                                                                    |
|              | Horizontal frequency         | 25 kHz to 185 kHz                                                                                                                                                                                                                  |
|              | Exemplary resolutions        | 4096 × 2160 (30 Hz)<br>4096 × 2160 (25 Hz)<br>4096 × 2160 (24 Hz)<br>3840 × 2160 (30 Hz)<br>3840 × 2160 (25 Hz)<br>3840 × 2160 (24 Hz)<br>2560 × 1600 (60 Hz)<br>2048 × 2048 (60 Hz)<br>1920 × 1200 (60 Hz)<br>1920 × 1080 (60 Hz) |
|              | General Notes                | Further VESA and CTA standardised resolutions possible within pixel rate and horizontal/vertical frequency.                                                                                                                        |
|              | Supported industry standards | Display Data Channel Command Interface (DDC/CI)<br>Extended Display Identification Data (EDID)                                                                                                                                     |
| Video output | Quantity                     | 2                                                                                                                                                                                                                                  |
|              | Format                       | DisplayPort 1.1 (HBR)                                                                                                                                                                                                              |
|              | Colour depth                 | 24 bit                                                                                                                                                                                                                             |
|              | Pixel rate ca.               | 25 MPixel/s to 300 MPixel/s                                                                                                                                                                                                        |
|              | Vertical frequency           | 24 Hz to 120 Hz                                                                                                                                                                                                                    |
|              | Horizontal frequency         | 25 kHz to 185 kHz                                                                                                                                                                                                                  |

|         |                              |                                                                                                                                                                                                                                    |
|---------|------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|         | Exemplary resolutions        | 4096 × 2160 (30 Hz)<br>4096 × 2160 (25 Hz)<br>4096 × 2160 (24 Hz)<br>3840 × 2160 (30 Hz)<br>3840 × 2160 (25 Hz)<br>3840 × 2160 (24 Hz)<br>2560 × 1600 (60 Hz)<br>2048 × 2048 (60 Hz)<br>1920 × 1200 (60 Hz)<br>1920 × 1080 (60 Hz) |
|         | General Notes                | Further VESA and CTA standardised resolutions possible within pixel rate and horizontal/vertical frequency.                                                                                                                        |
|         | Supported industry standards | Display Data Channel Command Interface (DDC/CI)<br>Extended Display Identification Data (EDID)                                                                                                                                     |
| Audio 1 | Transmission type            | 2-channel LPCM<br>Stereo<br>DTS<br>AC3                                                                                                                                                                                             |
|         | Resolutions                  | 24 bit<br>20 bit<br>16 bit                                                                                                                                                                                                         |
|         | Sampling rate                | up to 192 kHz                                                                                                                                                                                                                      |
|         | Audio support                | Digital Embedded                                                                                                                                                                                                                   |
| Audio 2 | Transmission type            | Stereo<br>Transparent<br>Bidirectional                                                                                                                                                                                             |
|         | Resolutions                  | 24 bit digital                                                                                                                                                                                                                     |
|         | Sampling rate                | up to 96 kHz                                                                                                                                                                                                                       |
|         | Bandwidth                    | 22 kHz                                                                                                                                                                                                                             |

|        |                                |                                                                       |
|--------|--------------------------------|-----------------------------------------------------------------------|
| USB 1  | Audio support                  | Analog                                                                |
|        | Separate USB transmission port | no                                                                    |
|        | Specification                  | USB 2.0                                                               |
|        | GenericUSB support             | 1 device                                                              |
|        | Medium                         | Embedded                                                              |
|        | Transmission rate              | max. 25 Mbit/s (Full Speed)                                           |
|        | USB classes                    | Mass Storage (MSC / UMS)<br>Human Interface Device (HID)<br>SmartCard |
| USB 2  | Specification                  | USB 2.0                                                               |
|        | Medium                         | Embedded                                                              |
|        | Transmission rate              | max. 16 Mbit/s (app. Full Speed)                                      |
|        | Range                          | max. 140 m                                                            |
|        | Power (output)                 | 500 mA (HighPower)                                                    |
|        | USB classes                    | All                                                                   |
| Serial | Standard                       | RS232                                                                 |
|        | Transparent transmission       | yes                                                                   |
|        | Data rate                      | 115,200 bps                                                           |
|        | Signals                        | TxD<br>RxD<br>RTS<br>CTS<br>GND<br>5V                                 |

|                      |                                            |                            |
|----------------------|--------------------------------------------|----------------------------|
| Network              | Quantity                                   | 1                          |
|                      | Medium                                     | CAT5<br>CAT6<br>CAT7       |
|                      | Data rate                                  | 10 Mbit/s<br>100 Mbit/s    |
| Maintenance          | Update via                                 | ConfigPanel (Network)      |
|                      | Serviceport settings                       | 460800bps (8/N/1)          |
| Housing              | Material                                   | Sheet steel, powder-coated |
|                      | Active cooling (fan)                       | yes                        |
|                      | Width ca.                                  | 441 mm                     |
|                      | Height ca.                                 | 44 mm                      |
|                      | Depth ca.                                  | 223 mm                     |
|                      | IP protection class                        | IP20                       |
| Operating conditions | Operating environment temperature          | 5 °C to 45 °C              |
|                      | 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 60 °C            |
|                      | Storage air humidity, non-condensing       | 15 % to 85 %               |
|                      | MTBF                                       | 200,000 h at 25°C          |

|                |                 |                                                                                                                                                                                                                                  |
|----------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                | Conformities    | RoHS compliant (see downloads)<br>REACH compliant (see downloads)<br>FCC compliant (see manual)<br>CE compliant (see downloads)<br>UKCA compliant (see downloads)<br>TAA compliant (see downloads)<br>WEEE (reg. no. DE30763240) |
| Power supply 1 | Quantity        | 1                                                                                                                                                                                                                                |
|                | Type            | Internal                                                                                                                                                                                                                         |
|                | Input voltage   | 100-240 VAC                                                                                                                                                                                                                      |
|                | Input frequency | 60-50 Hz                                                                                                                                                                                                                         |
| Power supply 2 | Quantity        | 1                                                                                                                                                                                                                                |
|                | Type            | External                                                                                                                                                                                                                         |

## MORE VARIANTS

| Description                                                                                                                                                         | Article number |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>VisionXS-CPU-2C-DP-HR 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable         | A1110879       |
| <b>VisionXS-CPU-2C-DP-HR-DH 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable      | A1110839       |
| <b>VisionXS-CPU-2C-DP-HR-DH-DT 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable   | A1110831       |
| <b>VisionXS-CPU-2C-DP-HR-DH-U 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable    | A1110815       |
| <b>VisionXS-CPU-2C-DP-HR-DH-U-DT 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable | A1110807       |
| <b>VisionXS-CPU-2C-DP-HR-DT 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable      | A1110871       |
| <b>VisionXS-CPU-2C-DP-HR-LC-DT 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable   | A1110991       |
| <b>VisionXS-CPU-2C-DP-HR-LC-U-DT 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable | A1110982       |
| <b>VisionXS-CPU-2C-DP-HR-U 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable       | A1110855       |
| <b>VisionXS-CPU-2C-DP-HR-U-DT 2.0</b><br>Redundant Computer module for the transmission of DisplayPort signals to 2 different counterpart stations via CAT cable    | A1110847       |
| <b>VisionXS-CPU-C-DP-HR 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable                                                        | A1110883       |
| <b>VisionXS-CPU-C-DP-HR-DH 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable                                                     | A1110843       |

| Description                                                                                                               | Article number |
|---------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>VisionXS-CPU-C-DP-HR-DH-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable        | A1110835       |
| <b>VisionXS-CPU-C-DP-HR-DH-U 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable         | A1110819       |
| <b>VisionXS-CPU-C-DP-HR-DH-U-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable      | A1110811       |
| <b>VisionXS-CPU-C-DP-HR-DH-U2 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable        | A1110827       |
| <b>VisionXS-CPU-C-DP-HR-DH-U2-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable     | A1110823       |
| <b>VisionXS-CPU-C-DP-HR-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable           | A1110875       |
| <b>VisionXS-CPU-C-DP-HR-LC-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable        | A1110994       |
| <b>VisionXS-CPU-C-DP-HR-LC-U-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable      | A1110985       |
| <b>VisionXS-CPU-C-DP-HR-LC-U2-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable     | A1110988       |
| <b>VisionXS-CPU-C-DP-HR-U 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable            | A1110859       |
| <b>VisionXS-CPU-C-DP-HR-U-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable         | A1110851       |
| <b>VisionXS-CPU-C-DP-HR-U2 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable           | A1110867       |
| <b>VisionXS-CPU-C-DP-HR-U2-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable        | A1110863       |
| <b>VisionXS-CPU-C-MC2-DP-HR-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable       | A1110961       |
| <b>VisionXS-CPU-C-MC2-DP-HR-LC-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable    | A1110952       |
| <b>VisionXS-CPU-C-MC2-DP-HR-LC-U2-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable | A1110949       |
| <b>VisionXS-CPU-C-MC2-DP-HR-U-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable     | A1110955       |

| Description                                                                                                               | Article number |
|---------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>VisionXS-CPU-C-MC2-DP-HR-U2-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable    | A1110958       |
| <b>VisionXS-CPU-C-MC4-DP-HR-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable       | A1110979       |
| <b>VisionXS-CPU-C-MC4-DP-HR-LC-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable    | A1110970       |
| <b>VisionXS-CPU-C-MC4-DP-HR-LC-U-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable  | A1110964       |
| <b>VisionXS-CPU-C-MC4-DP-HR-LC-U2-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable | A1110967       |
| <b>VisionXS-CPU-C-MC4-DP-HR-U-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable     | A1110973       |
| <b>VisionXS-CPU-C-MC4-DP-HR-U2-DT 2.0</b><br>Computer module for the transmission of DisplayPort signals via CAT cable    | A1110976       |

# CONTACT

## WE ARE HERE FOR YOU!

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

### TECHNICAL SALES

Tel.: +49 271 23872-333  
Fax: +49 271 23872-120  
E-Mail: [sales@gdsys.com](mailto:sales@gdsys.com)

### HEADQUARTERS

Panoptec Europe GmbH  
Obere Leimbach 9 | 57074 Siegen | NRW |  
Deutschland

Tel.: +49 271 23872-0  
Fax: +49 271 23872-120  
E-Mail: [sales@gdsys.com](mailto:sales@gdsys.com)

### US OFFICE

G&D North America Inc.  
4540 Kendrick Plaza Drive | Suite 100  
Houston, TX 77032 | United States

Tel.: +1-346-620-4362  
E-Mail: [sales.us@gdsys.com](mailto:sales.us@gdsys.com)

### MIDDLE EAST OFFICE

Panoptec Europe GmbH  
Dubai Studio City | DSC Tower  
12th Floor, Office 1208 | Dubai, UAE

Tel.: +971 4 5586178  
E-Mail: [sales.me@gdsys.com](mailto:sales.me@gdsys.com)

### APAC OFFICE

Panoptec Europe GmbH  
60 Anson Road #17-01  
Singapore 079914

Tel.: +65 9685 8807  
E-Mail: [sales.apac@gdsys.com](mailto:sales.apac@gdsys.com)