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G AND D G&D U2+R Console For Transparent USB2.0 Transmission Instruction Manual

Contents

G AND D G&D U2+R Console For Transparent USB2.0 Transmission

About this manual

This manual has been carefully compiled and examined to the state-of-the-art.

G&D neither explicitly nor implicitly takes guarantee or responsibility for the quality, efficiency and marketability of the product when used for a certain purpose that differs from the scope of service covered by this manual.

For damages which directly or indirectly result from the use of this manual as well as for incidental damages or consequential damages, G&D is liable only in cases of intent or gross negligence.

Caveat Emptor

- G&D will not provide warranty for devices that:
- Are not used as intended.
- Are repaired or modified by unauthorized personnel.
- Show severe external damages that was not reported on the receipt of goods.
- Have been damaged by non G&D accessories.
- G&D will not be liable for any consequential damages that could occur from using the products.

Proof of trademark

- All product and company names mentioned in this manual, and other documents you have received alongside your G&D product, are trademarks or registered trademarks of the holder of rights.

Version 1.10 – 29/09/2022

FCC Statement

The devices named in this manual comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) the devices may not cause harmful interference, and (2) the devices must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.
This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be deter-mined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Safety guidelines

- Please read through the following safety guidelines before putting the G&D product into operation. The guidelines help to avoid damage to the product and prevent potential injuries.
- Keep these safety guidelines ready to hand for all persons who use this product.
- Observe all warnings and operating information given at the device or in this operating manual.

Disconnect all power sources

CAUTION: Shock hazard!

- Before installation, ensure that the device has been disconnected from all power sources. Disconnect all power plugs and all power supplies of the device.

Warning: electric shock

- To avoid the risk of electric shock, you should not open the device or remove any covers. If service is required, please contact our technicians.

Ensure constant access to the devices' mains plugs

- When installing the devices, ensure that the devices' mains plugs remain accessible at all time.

Do not cover the ventilation openings

- For device variants with ventilation openings, it must always be ensured that the ventilation openings are not

covered.

Ensure correct installation position for devices with ventilation openings

- For reasons of electric safety, devices with ventilation openings must only be installed in an upright, horizontal position.

Do not insert any objects through the device's openings

- Objects should never be inserted through the device's openings. Dangerous voltage could be present. Conductive foreign bodies can cause a short circuit, which can lead to fires, electric shocks or damage to your devices.

Avoid tripping hazards

- Avoid tripping hazards while laying cables.

Use earthed voltage source

- Only operate this device with an earthed voltage source.

Use exclusively the G&D power pack

- Only operate this device with the power packs included in delivery or listed in this operating manual.

Do not make any mechanical or electrical alternations to the device

- Do not make any mechanical or electrical alternations to this device. Guntermann & Drunck GmbH is not responsible for compliance with regulations in the case of a modified device.

Do not remove device cover

- The cover may only be removed by a G&D service technician. Unauthorised removal voids the guarantee. Failure to observe this precautionary measure can result in injuries and damage to the device.

Operate the device exclusively in the intended field of application

- The devices are designed for indoor use. Avoid extreme cold, heat or humidity.

Special advices for dealing with laser technology

- The Fiber devices of the target modules and user modules use components with laser technology which comply with laser class 1 or better.
- They meet the requirements according to EN 60825-1:2014 as well as U.S. CFR 1040.10and 1040.11.

Class 1 Laser Product EN 60825-1:2014	Invisible laser beam, avoid direct eye exposure with optical instruments	Complies with 21 CFR 1040.10 and 1040.11
Produit laser de classe 1 EN 60825-1:2014	Laser invisible, évitez l'exposition directe des yeux avec des instruments optiques	Est conforme à 21 CFR 1040.10 et 1040.11
LASER KLASSE 1 EN 60825-1:2014	Unsichtbare Laserstrahlung, nicht direkt mit optischen Instrumenten betrachten	Complies with 21 CFR 1040.10 and 1040.11

Mind the following advices when dealing with laser beams:

Avoid direct eye exposure to beam

- Never stare directly into the beam when wearing optical instruments!

Always connect optical connections or cover them with protection caps

- Always cover the optical connections of the Transmission socket and the cable plugs with a connector or a protection cap.

Only use G&D certified transmission modules

- It is not permitted to use fibre optic modules, which do not meet the requirements of laser class 1 in accordance to EN 60825-1:2014. By using such modules, the compliance with regulations and advices for the safe handling of laser technology cannot be guaranteed.
- The guarantee of complying with all relevant instructions can only be given by applying original components. Therefore, the devices have to be operated with G&D certified transmission modules only.

Target modules

Target module »U2+R-CPU«

- U2+R-CPU target modules receive USB and RS232 signals from a compatible user module of the U2+R series and transmit them to the computer.

Package contents

- 1 × Target module U2+R-CPU
- 1 × USB device cable
- 1 × RS232 cable
- 1 × Power pack (12V/2A, only with variants incl. PowerPack)
- 1 × Power cable (only with variants incl. PowerPack)
- 1 × EasyStart flyer
- 1 × »Safety instructions« flyer

Required accessory

- 1 × Category 5e (or better) twisted pair cable to connect the target module to a matrix switch of the ControlCenter-Compact or ControlCenter Digital series.
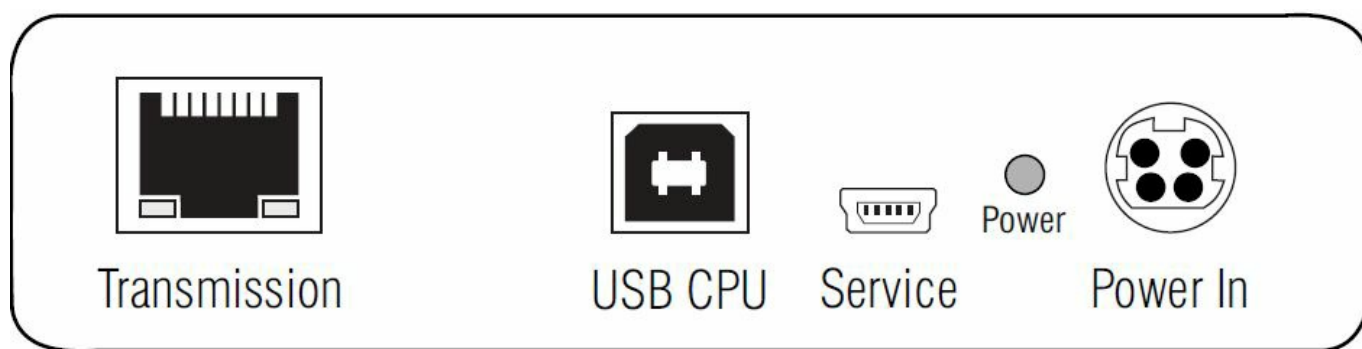
Installation

Connecting the target computer

Serial
Use the RS232 cable to connect the computer's 9-pin serial computer interface to this interface (optional).

Transmission
Use a category 5e (or better) twisted pair cable to connect this interface to a Dynamic Port of the matrix switch.

USB CPU
Use the USB device cable to connect one of the computer's USB ports to this port.

Power In
Insert the connection cable of the power pack to this interface. Now connect the power cable to the power pack and a power outlet.

Status displays

- The Power LED on the back panel of the target module shows the status of the external power pack:

LED	Status	Meaning
Power	Off	The external power pack is not (properly) connected.
	On	The external power pack is connected and the required voltage (12 Volt) is available.

The blinking Transmission LEDs show the following connection statuses:

LED	Color	Status	Meaning
Left	Yellow	Off	Connection to the remote side could not be established.
		On	Conversion to the remote side has been successfully established.
Right	Green	Off	The target module is not connected to any end device.
		On	The target module is connected to an end device.

Technical data

U2+R-CPU		
Interfaces to target computer:	USB 2.0:	1 × USB-B
	RS232:	1 × D-SUB 9 socket
Data transmission to matrix switch	Interface:	1 × RJ45 socket
	Transmission length:	Max. 140 meters
USB 2.0	Transmission type:	Transparent
	Transmission rate:	Max. 480 Mbit/s
RS232	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxD, TxD, RTS, CTS, DTR, DSR, DCD
RS422	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxA, RxB, TxA, TxB
Power supply	Type:	Portable power pack
	Connector:	1 × Mini-DIN 4 socket
	Power consumption:	12 VDC/300 m A
Housing	Material:	Anodized aluminum
	Dimensions (W × H × D):	105 × 26 × 104 mm
	Weight:	Approx. 240 g
Operating environment	Temperature:	+5 °C to +45 °C
	Air humidity:	20 % to 80 %, non-condensing
Storage environment	Temperature:	-20 °C to +60 °C
	Air humidity:	15 % to 85 %, non-condensing
Conformity		CE, EAC, FCC class B, RoHS

Target module »U2+R-Fiber-CPU

NOTE: This target module can only be connected to a compatible fiber port of ControlCenter-Compact matrix switches or ControlCenter-Digital matrix switches (requires CCD-I/O 16-Card-Fiber).

IMPORTANT: Both, the target module and the fiber ports are available as single-mode variants or as multi-mode variants. Make sure that the port at the target module, the fiber port and the optical fibers are compatible with each other.

U2+R-Fiber-CPU target modules receive USB and RS232 signals from a compatible user module of the U2+R series and transmit them to the computer.

Package contents

- 1 × Target module U2+R-Fiber-CPU
- 1 × USB device cable
- 1 × RS232 cable
- 1 × Power pack (12V/2A, only with variants incl. PowerPack)
- 1 × Power cable (only with variants incl. PowerPack)
- 1 × EasyStart flyer
- 1 × »Safety instructions« flyer

Required accessory

- 1 × Compatible optical fibre cable to connect the target module to a matrix switch of the ControlCenter-Compact or ControlCenter Digital series.
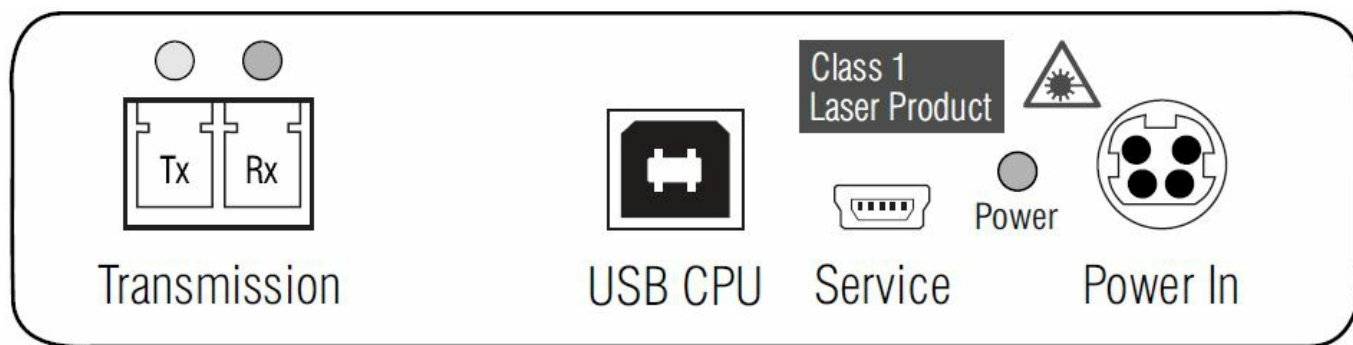
Target and user modules of the U2+R series

Installation
Connecting the target computer

Serial
Use the RS232 cable to connect the computer's 9-pin serial computer interface to this interface (optional).

IMPORTANT: The devices use components with laser technology which comply with laser class 1.

- They meet the requirements in accordance to EN 60825-1:2014 as well as U.S. CFR 1040.10 and 1040.11.
- Mind the following instructions when dealing with laser beams:
- Avoid direct eye exposure to beam on page 3
- Always connect optical connections or cover them with protection caps on page 3
- Only use G&D certified transmission modules on page 3

NOTE: Use optical fibres with LC plugs to connect the devices. The cables are available as accessories.

Transmission|Tx
Insert the LC plug of a compatible optical fibre cable. Connect the other end of the cable to the Rx interface of a Dynamic Port provided at the matrix switch.

Transmission|Rx
Insert the LC plug of a compatible optical fibre cable. Connect the other end of the cable to the Tx interface of the same Dynamic Port provided at the matrix switch.

USB CPU
Use the USB device cable to connect one of the computer's USB ports to this port.

Power In
Insert the connection cable of the power pack to this interface. Now connect the power cable to the power pack and a power outlet.

Status displays
The Power LED on the back panel of the target module shows the status of the external power pack:

LED	Status	Meaning
Power	Off	The external power pack is not (properly) connected.
	On	The external power pack is connected and the required voltage (12 Volt) is available.

The blinking Transmission LEDs show the following connection statuses:

LED	Color	Status	Meaning
Left	Yellow	Off	Connection to the remote side could not be established.
		On	Conversion to the remote side has been successfully established.
		Flashing	Only Rx connection to the remote side is established.
		Flashing quickly	Incompatible or faulty SFP module plugged in.
Right	Green	Off	The target module is not connected to any end device.
		On	The target module is connected to an end device.

Target and user modules of the U2+R series.

Technical data

U2+R-FIBER-CPU		
Interfaces to target computer:	USB 2.0:	1 × USB-B
	RS232:	1 × D-SUB 9 socket
Data transmission to the matrix switch	Interface:	1 × LC-Duplex socket
	Transmission distance:	U2+R-Fiber(M)-CPU Max. 100 Meter (62,5µ/125µ), Max. 200 Meter (50µ/125µ OM2) Max. 400 Meter (50µ/125µ OM3)
		U2+R-Fiber(S)-CPU Max. 5.000 Meter (9µ/125µ OS1)
		U2+R-Fiber(S+)-CPU Max. 10.000 Meter (9µ/125µ OS1)
USB 2.0	Transmission type:	Transparent
	Transmission rate:	Max. 480 Mbit/s
RS232	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxD, TxD, RTS, CTS, DTR, DSR, DCD
RS422	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxA, RxB, TxA, TxB
Power supply	Type:	Portable power pack
	Connector:	1 × Mini-DIN 4 socket
	Power consumption:	12 VDC/300 m A
Housing	Material:	Anodized aluminum
	Dimensions (W × H × D):	105 × 26 × 104 mm
	Weight:	Approx. 240 g
Operating environment	Temperature:	+5 °C to +45 °C
	Air humidity:	20 % to 80 %, non-condensing
Storage environment	Temperature:	-20 °C to +60 °C
	Air humidity:	15 % to 85 %, non-condensing
Conformity		CE, EAC, FCC class B, RoHS

User modules

User module »U2+R-CON«
The U2+R-CON user module transmits USB and RS232 signals from the console to a compatible target module of the U2+R series.
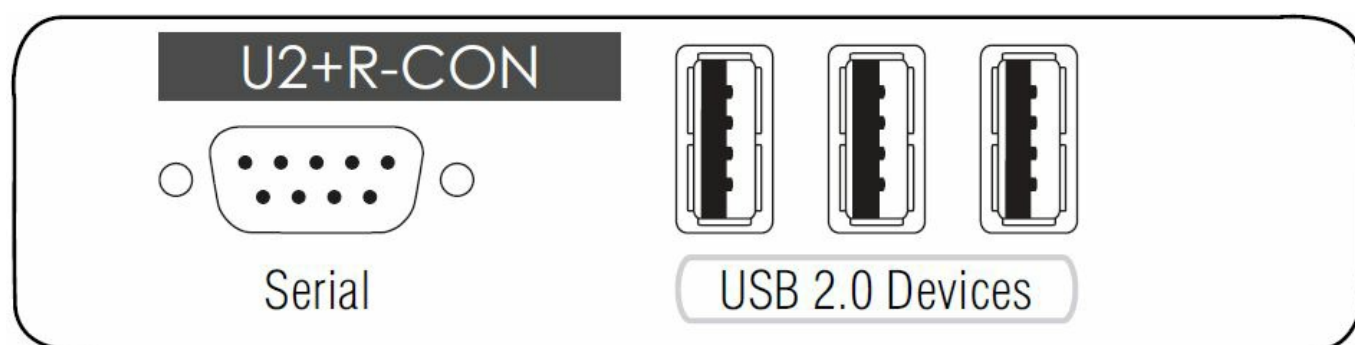

Package contents

- 1 × U2+R-CON user module
- 1 × Power pack (12V/2A)
- 1 × Power cable
- 1 × EasyStart flyer
- 1 × »Safety instructions« flyer

Required accessory

- 1 × Category 5e (or better) twisted pair cable to connect the target module to a matrix switch of the ControlCenter-Compact or ControlCenter Digital series
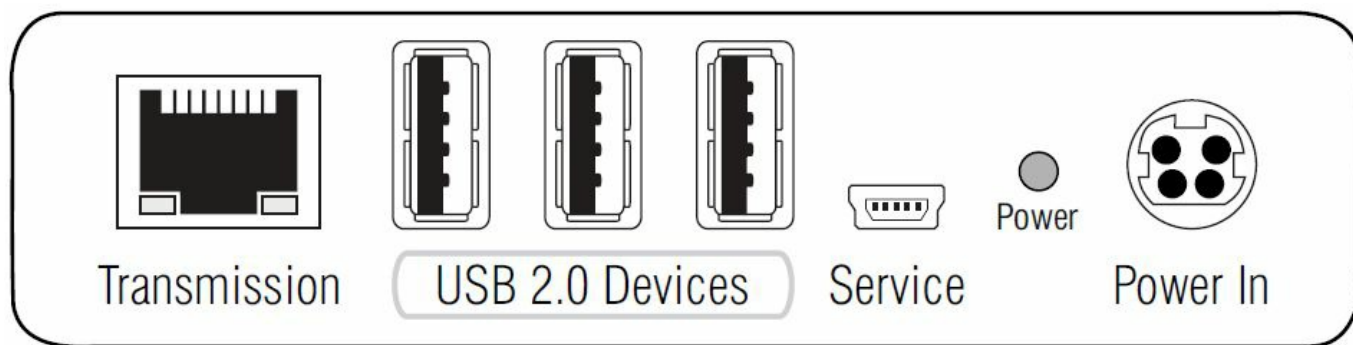
Installation
Connecting the console devices

Serial: Connect the serial end device to this interface.
USB 2.0 Devices: Connect up to three USB devices to these interfaces.

Transmission: Use a category 5e (or better) twisted pair cable to connect this interface to a Dynamic Port of the matrix switch.

USB 2.0 Devices: Connect up to three USB devices to these interfaces.

Power In: Connect the power cable to the power pack and a power outlet.

Status displays

The Power LED on the back panel of the target module shows the status of the external power pack:

LED	Status	Meaning
Power	Off	The external power pack is not (properly) connected.
	On	The external power pack is connected and the required voltage (12 Volt) is available.

The blinking Transmission LEDs show the following connection statuses:

LED	Color	Status	Meaning
Left	Yellow	Off	Connection to the remote side could not be established.
		On	Conversion to the remote side has been successfully established.
Right	Green	Off	The user module is not connected to any end device.
		On	The user module is connected to an end device.

Target and user modules of the U2+R series.

Technical data

U2+R-CON		
Interfaces to target computer:	USB 2.0:	6 × USB-A
	RS232:	1 × D-SUB 9 socket
Data transmission to matrix switch	Interface:	1 × RJ45 socket
	Transmission length:	Max. 140 meters
USB 2.0	Transmission type:	Transparent
	Transmission rate:	Max. 480 Mbit/s
RS232	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxD, TxD, RTS, CTS, DTR, DSR, DCD
RS422	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxA, RxB, TxA, TxB
Main power supply	Type:	Portable power pack
	Connector:	1 × Mini-DIN 4 socket
	Power consumption:	12 VDC/1.8 A
Housing	Material:	Anodized aluminum
	Dimensions (W × H × D):	105 × 26 × 104 mm
	Weight:	Approx. 240 g
Operating environment	Temperature:	+5 °C to +45 °C
	Air humidity:	20 % to 80 %, non-condensing
Storage environment	Temperature:	-20 °C to +60 °C
	Air humidity:	15 % to 85 %, non-condensing
Conformity		CE, EAC, FCC class B, RoHS

User module »U2+R-Fiber-CON«

NOTE: This user module can only be connected to a compatible fiber port of ControlCenter-Compact matrix switches or ControlCenter-Digital matrix switches (requires CCD-I/O 16-Card-Fiber).

IMPORTANT: Both, the user module and the fiber ports are available as single-modevariants or as multi-mode variants. Make sure that the port at the target module, the fiber port and the optical fibers are compatible with each other.

The U2+R-Fiber-CON user module transmits USB and RS232 signals from the console to a compatible target module of the U2+R series.

Package contents

- 1 × U2+R-Fiber-CON user module
- 1 × Power pack (12V/2A)
- 1 × Power cable
- 1 × EasyStart flyer
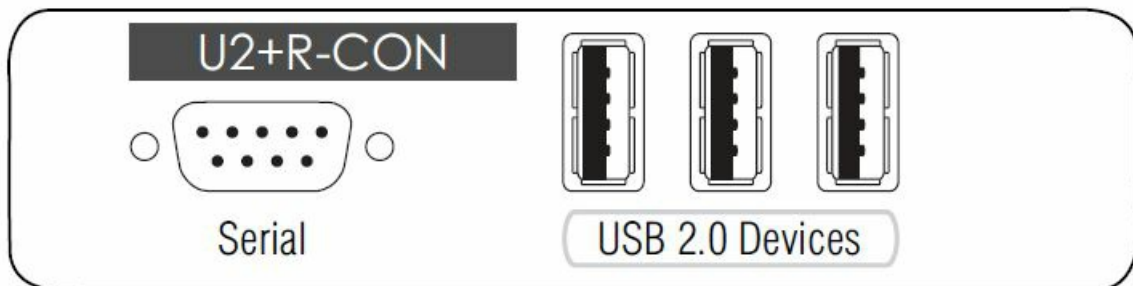- 1 × »Safety instructions« flyer

Required accessory

- 1 × Compatible optical fibre cable to connect the target module to a matrix switch of the ControlCenter-Compact or ControlCenter Digital series.
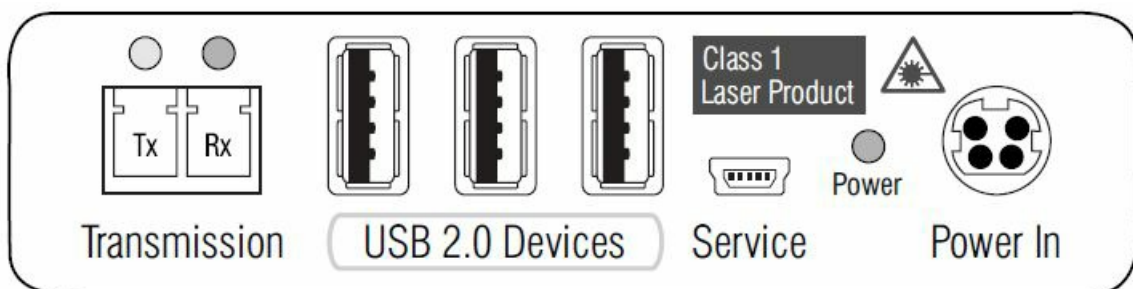
Target and user modules of the U2+R series.

Installation
Connecting the console devices

Serial: Connect the serial end device to this interface.
USB 2.0 Devices: Connect up to three USB devices to these interfaces.

IMPORTANT: The devices use components with laser technology which comply with laser class 1.
They meet the requirements in accordance to EN 60825-1:2014 as well as U.S. CFR 1040.10 and 1040.11.
Mind the following instructions when dealing with laser beams:

- Avoid direct eye exposure to beam on page 3
- Always connect optical connections or cover them with protection caps on page 3
- Only use G&D certified transmission modules on page 3

NOTE: Use optical fibres with LC plugs to connect the devices. The cables are available as accessories.

Transmission|Tx: Insert the LC plug of a compatible optical fibre cable. Connect the other end of the cable to the Rx interface of a Dynamic Port provided at the matrix switch.

Transmission|Rx: Insert the LC plug of a compatible optical fibre cable. Connect the other end of the cable to the Tx interface of the same Dynamic Port provided at the matrix switch.

USB 2.0 Devices: Connect up to three USB devices to these interfaces.

Power In: Connect the power cable to the power pack and a power outlet.

Status displays

The Power LED on the back panel of the target module shows the status of the external power pack:

LED	Status	Meaning
Power	Off	The external power pack is not (properly) connected.
	On	The external power pack is connected and the required voltage (12 Volt) is available.

The blinking Transmission LEDs show the following connection statuses:

LED	Color	Status	Meaning
Left	Yellow	Off	Connection to the remote side could not be established.
		On	Conversion to the remote side has been successfully established.
		flashing	Only Rx connection to the remote side is established.
		flashing quickly	Incompatible or faulty SFP module plugged in.
Right	Green	Off	The user module is not connected to any end device.
		On	The user module is connected to an end device.

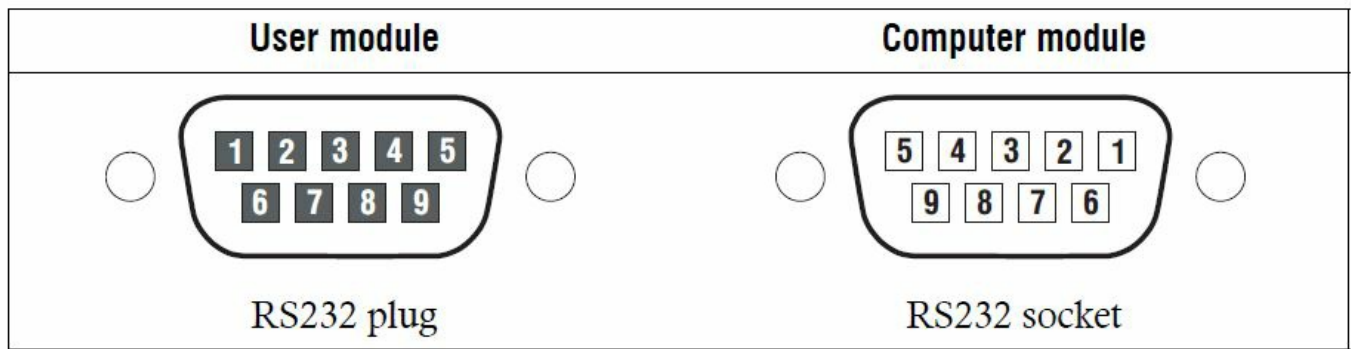Target and user modules of the U2+R series.

Technical data

U2+R-CON		
Interfaces to target computer:	USB 2.0:	6 × USB-A
	RS232:	1 × D-SUB 9 socket
	Interface:	1 × LC-Duplex socket

Data transmission to the matrix switch	Transmission distance:	U2+R-Fiber(M)-CON Max. 100 Meter (62,5µ/125µ), Max. 200 Meter (50µ/125µ OM2) Max. 400 Meter (50µ/125µ OM3)
		U2+R-Fiber(S)-CON Max. 5.000 Meter (9µ/125µ OS1)
		U2+R-Fiber(S+)-CON Max. 10.000 Meter (9µ/125µ OS1)
USB 2.0	Transmission type:	Transparent
	Transmission rate:	Max. 480 Mbit/s
RS232	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxD, TxD, RTS, CTS, DTR, DSR, DCD
RS422	Transmission type:	Transparent
	Transmission rate:	Max. 230,400 bit/s
	Signals:	RxA, RxB, TxA, TxB
Main power supply	Type:	Portable power pack
	Connector:	1 × Mini-DIN 4 socket
	Power consumption:	12 VDC/1.8 A
Housing	Material:	Anodized aluminum
	Dimensions (W × H × D):	105 × 26 × 104 mm
	Weight:	Approx. 240 g
Operating environment	Temperature:	+5 °C to +45 °C
	Air humidity:	20 % to 80 %, non-condensing
Storage environment	Temperature:	-20 °C to +60 °C
	Air humidity:	15 % to 85 %, non-condensing
Conformity		CE, EAC, FCC class B, RoHS

Configuration of the serial interface

- In the default setting of the module, you can connect any RS232-compatible device to the serial interface.
- If you want to transmit alternative RS422 signals, you need to change the operating mode of the serial interface.
- The following figures show the pin assignments of the serial interface

Pin assignment with RS232 mode

The table shows how the different lines of the data connection are assigned to the according pins:

Pin no.	Signal
1	DCD
2	RxD
3	TxD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	*not occupied*

Target and user modules of the U2+R series.

Pin assignment with RS422 mode

The table shows how the different lines of the data connection are assigned to the according pins:

Pin no.	Signal master	Signal slave
1	GND	GND
2	Rx A	Tx A
3	Tx B	Rx B
4	GND	GDN
5	*not occupied*	*not occupied*
6	GND	GND
7	Rx B	Tx B
8	Tx A	Rx A
9	GND	GND

How to configure the serial interface

NOTE: Before establishing a connection using the terminal emulator, install the device driver CP210x USB to UART Bridge VCP.

This driver provides the Service port of the module, which is connected via service cable, as the virtual serial interface (COM port). Now, the virtual interface can be selected in the terminal emulator to establish the connection.

The driver is provided as a download on the website **www.gdsys.com/en** under More from G&D > Tools & Drivers.

1. Use the supplied service cable to connect the computer on which a terminal emulator (e.g. Tera Term, HyperTerminal or PuTTY) is installed with the Service port of the target or user module.

2. Start the terminal emulator.

3. Establish a new connection in the terminal emulator and enter the following settings:

   - Bits per seconds:115.200
   - Data bits:8
   - Parity: none
   - Stop bits:1
   - Flow control: none

4. Enter the command rs422 and confirm with Enter to switch to RS422 mode. To switch back to RS232 mode, use the rs232 command and also confirm with Enter.

G&D. AND KVM FEELS RIGHT

Hauptsitz | Headquarter

- Guntermann & Drunck GmbH Systementwicklung
- Obere Leimbach 9 | D-57074 Siegen | Phone +49 271 23872-0 **sales@gdsys.com** | **www.gdsys.com**

US-Büro | US-Office

- G&D North America Inc.
- 4001 W. Alemada Avenue | Suite 100, Burbank, CA 91505 | Phone +1-818-748-3383
- **sales.us@gdsys.com** | **www.gdsys.com**

Documents / Resources

G AND D G&D U2+R Console For Transparent USB2.0 Transmission [pdf] Instruction Manual
G D U2 R Console For Transparent USB2.0 Transmission, G D U2 R, Console For Transparent USB2.0 Transmission, Transparent USB2.0 Transmission, USB2.0 Transmission, Transmission

References

- **[G&D – KVM solutions have been our passion for over 35 years | Guntermann & Drunck](#)**

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