Digital Optoconverters
Package contents and recommended topology

PRODUCT PAGE

The product page contains datasheets, application notes, links to software downloads, videos, case studies, and other documentation.

https://www.metel.eu/l/optoconverters

This installation manual is intended for the installation of digital optoconverters of the production series listed below:

| ORDERING NAME	CODE	SUPPLY
TDW-S-4C-BOX	1-505-220	10-30VAC/10-60VDC
RDW-S-4C-BOX	1-605-220	10-30VAC/10-60VDC
FIWRE-S-PDS	1-004-290	10-20VDC
TDW-S-PDS-BOX/12	1-504-290	10-20VDC
RDW-S-PDS-BOX/12	1-604-290	10-20VDC

The package contains

- Optical converters with SFP module
- DIN Rail mounting kit
- Mounting kit for wall placement
- Installation Manual

Recommended topology xDW-S-PDS

When designing a topology, we recommend keeping to the topology of the bus and not making more than a 1 meter branch from the bus. Any longer turns can result in communication reflections and increased susceptibility to interference. In the diagram below are suggested additional restrictions on the transfer of the optical fiber and the use of multiple optical converters..


ABI, MB - max. 5/10km (MM/SM)
PARADOX, SATEL - max. 5/5km (MM/SM)
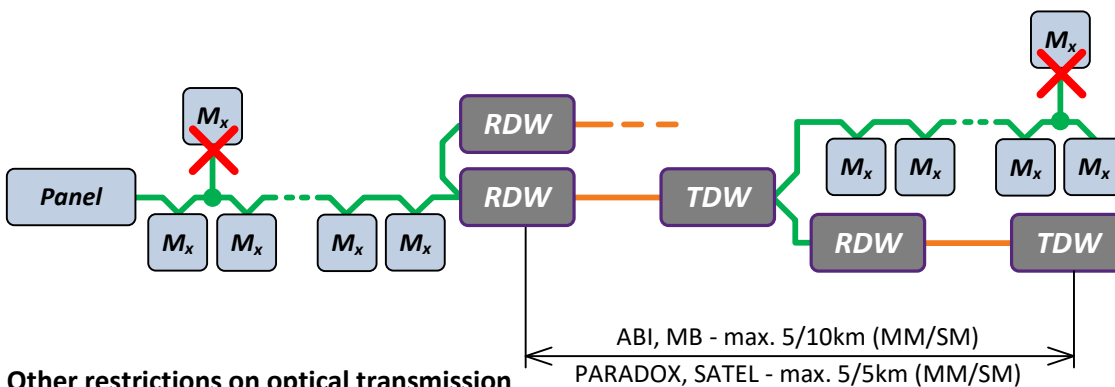
Other restrictions on optical transmission

📖 **Maximum number of RDW + TDW pairs connected in series = 3**
📖 **Maximum number of RDW + TDW pairs connected in parallel = 3**

Serial and Parallel Connection of xDW-S-4C Converters

Thanks to the minimal delay and transparency of transmission, xDW optical converters enable their parallel and serial connection. The maximum number of serial and parallel repetitions should not exceed 8.
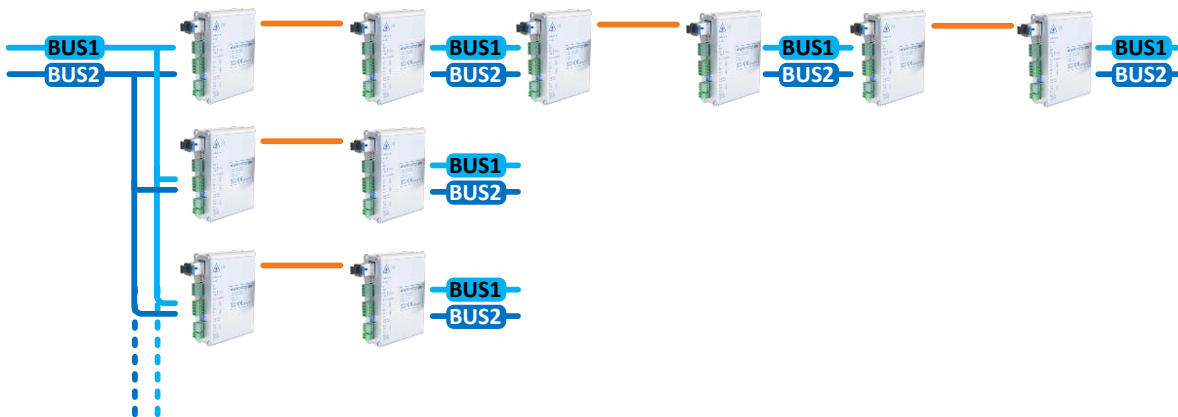
Installation and Settings

1. Mounting

Mount the converter to flat surface or DIN35 rail.

2. Connect supply

10-30VAC or 10-60VDC acc. to the picture below. The supply is indicated by yellow power LED PWR.

3. Connect MM/SM optical fiber

terminated by SC connector (grinding PC). After interconnection of TDW-S-4C and RDW-S-4C LED LOCK switches off.

4. Connect signal wires

according to the pictures below.
Connect RS485 buses to A+ and B- terminals. For RS422 transmission use e.g. BUS1 for reception and BUS2 for transmission on one side; the other side will then use BUS1 for transmission and BUS2 for reception. Terminate the data buses with 120Ω resistance by switching the DIP switch to ON position. Connect shielding to only one side to the GND terminal.

5. Connect inputs and relay outputs

IN - digital inputs can be activated by connection with GND or by low level of TTL.

OUT - relay outputs max. load 125VAC/0.5A or 60VDC/0.3A. Contacts are closed after input activation.

RELAY LOCK - relay reacting to error conditions. Used for alarm systems, starting of back-up, etc. The function is described in the picture below.
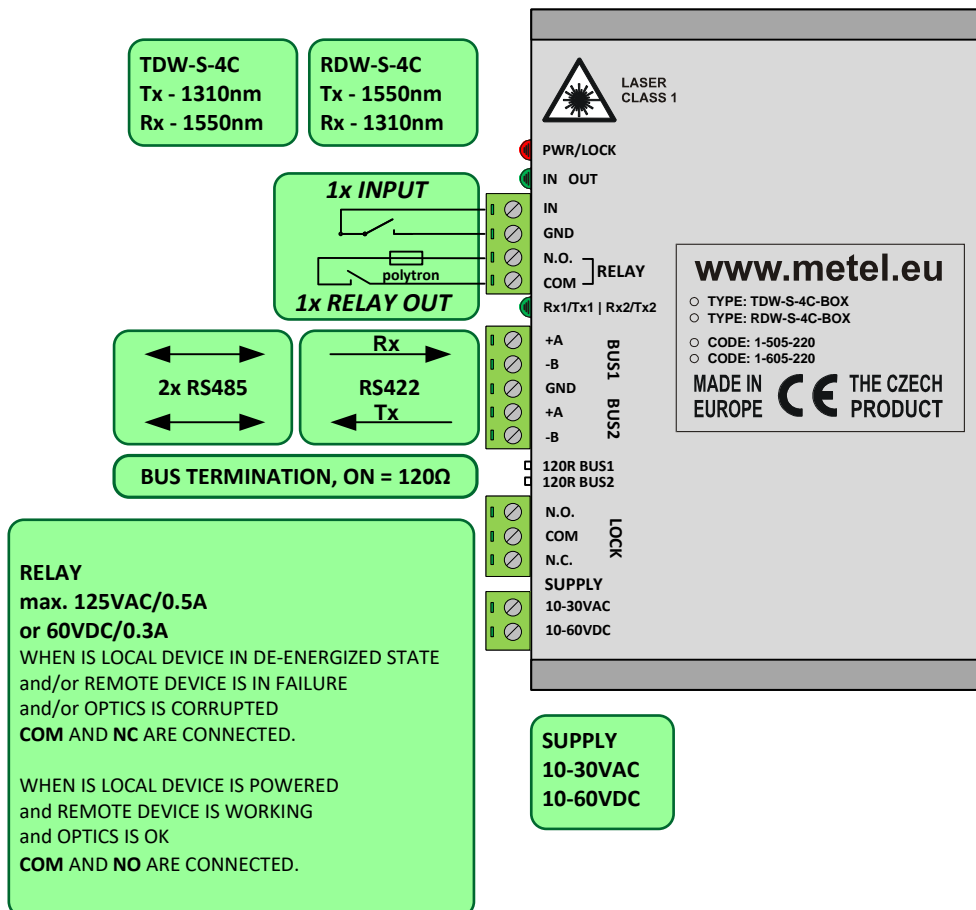
6. Indications

LED PWR - by switching on detects supply

LED LOCK - by switching on detects relay closure
- by switching on detects optics interruption
- by switching on detects failure of a remote device

BUS1,2 Rx/Tx

- green LED Tx blinking – data transmission
- red LED Rx blinking – data reception

TDW-S-4C
Tx - 1310nm
Rx - 1550nm

RDW-S-4C
Tx - 1550nm
Rx - 1310nm

1x INPUT

1x RELAY OUT

polytron

2x RS485

Rx
RS422
Tx

BUS TERMINATION, ON = 120Ω

RELAY
max. 125VAC/0.5A
or 60VDC/0.3A
WHEN IS LOCAL DEVICE IN DE-ENERGIZED STATE and/or REMOTE DEVICE IS IN FAILURE and/or OPTICS IS CORRUPTED
COM AND **NC** ARE CONNECTED.

WHEN IS LOCAL DEVICE IS POWERED and REMOTE DEVICE IS WORKING and OPTICS IS OK
COM AND **NO** ARE CONNECTED.

LASER CLASS 1

PWR/LOCK
IN OUT
IN
GND
N.O.
COM ⎤ RELAY
Rx1/Tx1 | Rx2/Tx2
+A
-B
GND
+A
-B
120R BUS1
120R BUS2
N.O.
COM
N.C.
SUPPLY
10-30VAC
10-60VDC

BUS1
BUS2
LOCK

www.metel.eu

○ TYPE: TDW-S-4C-BOX
○ TYPE: RDW-S-4C-BOX

○ CODE: 1-505-220
○ CODE: 1-605-220

MADE IN EUROPE CE THE CZECH PRODUCT

SUPPLY
10-30VAC
10-60VDC

Digital Optoconverters
xDW-S-PDS

Installation and Settings

1. **Mounting**
   Place the RDW-S-PDS to the side of the alarm system.
   Place the TDW-S-PDS to the side of the modules (keyboards, modules...).
   Mount the converters to either a flat surface or the DIN35 rail.

2. **Connect Supply**
   12VDC from bus on the panel side and from the DC source on the module side between V + and GND terminals, the power supply connection is signaled by the yellow POWER LED.

   📖 **The converters include overvoltage protections on data ports and power supply providing sufficient protection of the converters against overvoltage in the LPZ1 and LPZ2 zones. In the case of installation of transmitters in an outdoor environment (zones LPZ0A and LPZ0B), we recommend placing them in switchboards providing electromagnetic shielding. Further information on this issue can be found at www.metel.eu in the document "Surge protection of IP CCTV system according to EN 62305".**

3. **Connect MM/SM Optic Fiber**
   Terminated by a SC connector (grinding PC). After interconnection of the TDW-S-PDS and the RDW-S-PDS LED LOCK switches off. The max. length of the optical fiber is:
   - MM/SM - 5/5 km for systems PARADOX EVO and SATEL INTEGRA,
   - MM/SM – 5/10km for systems ABI and MB SECURE.

   📖 **The optical path used must meet the minimum technical requirements specified on www.metel.eu in the document "xDW - minimum requirements for the quality of the optical path". Failure to comply with these requirements may result in a significant reduction in the quality of communication.**

4. **Connect Signal Wires**
   Proceed according to the type of alarm system with the pictures on the previous pages.
   Connect the data lines from the alarm system to TDW-S-PDS to terminals DATA and CLK.

5. **Indications**
   LED PWR - by switching on detects supply
   LED LOCK - by switching on detects relay closure
   - by switching on detects optics interruption
   - by switching on detects failure of a remote device
   LED Rx/Tx1 - data line
   - red LED Tx blinking – data transmission
   - green LED Rx blinking – data reception
   LED Rx/Tx2 - data line
   - red LED Tx blinking – data transmission
   - green LED Rx blinking – data reception

   📖 **The conversion of data from the metallic line to the optics and back is completely transparent. The converters do not contain any firmware that would process the data in any way. Therefore, the converters do not require any special configuration. Their installation and commissioning are very simple and fast.**

TDW-S-PDS	RDW-S-PDS
Tx - 1310nm	Tx - 1550nm
Rx - 1550nm	Rx - 1310nm

GROUND DATA BUS1 < +10-20VDC

GROUND DATA BUS2 < +10-20VDC

RELAY
max. 125VAC / 0.5A
max. 60VDC / 0.3A
WHERE THERE IS
- LOCAL DEVICE IN DE-ENERGIZED STATE
- REMOTE DEVICE IS IN FAILURE
- FIBRE IS CORRUPTED
COM AND **NC** ARE CONNECTED.

WHEN IS DEVICE IS WORKING
- FIBRE IS OK
COM AND **NO** ARE CONNECTED.

LASER CLASS 1

● SM
● MM

PWR/LOCK

GND
DATA
CLK
V+
Rx/Tx-BUS1

BUS1

GND
DATA
CLK
V+
Rx/Tx-BUS2

BUS2

N.O.
COM
N.C.

LOCK

www.metel.eu
○ TYPE: TDW-S-PDS-BOX/12
● TYPE: RDW-S-PDS-BOX/12
○ CODE: 1-504-290
● CODE: 1-604-290
MADE IN EUROPE CE THE CZECH PRODUCT