



# Optical Fiber Transceiver

## **CTrans OL-.../P/RMD**

## **CTrans OL-.../ST/RMD**

User manual

User manual for Optical Fiber Transceiver CTrans OL version 3.0

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Our products are continuously improved. Due to this fact specifications may be changed at any time and without announcement.

**FCC:** This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

**WARNING:** CTrans OL hardware and software may not be used in applications where damage to life, health or private property may result from failures in or caused by these components.

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# 1 Overview

## 1.1 Attributes

- Coupling of CAN systems by optical fiber
- Available for PMMA- and glass fiber, connection by ST connector or by plugging
- Protocol transparent; CAN error handling mechanisms are preserved
- Extended error suppression

## 1.2 General Description

CTrans OL acts as a transceiver for protocol transparent transmission of CAN signals between copper based sections via an optical fiber.

Several technical improvements can be obtained by optical transmission of CAN signals, such as secure separation of high voltages and insensitivity to electromagnetic perturbation.

Furthermore the transparent transmission of CAN signals with CTrans OL preserves the main benefits of CAN, such as error correction and priority driven bus access.

Like repeaters CTrans OL can be used to build flexible wiring topologies. Star and tree structures as well as stub lines can be realized. The integrated error suppression reduces the influence of faulty segments onto intact sections.

Depending on the type of the device either cost effective 1mm PMMA/POF fibers with plugged connection or 50/125 $\mu$ m or 62,5/125 $\mu$ m multimode glass fibers with ST connectors can be used. Depending on the type of fiber a wiring distance up to 1000m can be achieved.

### 1.3 Ordering Information

12-03-0xx-yy	<b>CTrans OL-.../P/RMD</b> Optical fiber transceiver for rail mount application, pluggable connection for PMMA fiber, range up to 40m (...inhibit time)
12-03-1xx-yy	<b>CTrans OL-.../ST/RMD</b> Optical fiber transceiver for rail mount application, ST connector for optical fiber, range up to 1000m (...inhibit time)

**Note:** xx denotes inhibit time:

02	-5	500ns
03	-10	1000ns
04	-20	2000ns
05	-50	5000ns
06	-100	10000ns

yy denotes language of delivery:

10	german
20	english

## 2 Electrical Characteristics

### 2.1 Absolute Limiting Values

Any (also temporary) stress in excess of the limiting values may cause permanent damage on CTrans OL and connected devices.

Parameter	Min.	Max.	Unit
Storage temperature	-30	+80	°C
Operating temperature	-20	+60	°C
Power supply voltage	-100	+35	V
Voltage on signal lines	-30	+30	V
Maximum power dissipation (at 60°C)	-	2000	mW
Maximum distance 'P' type PMMA/POF at 20°C	-	40	m
Maximum distance 'ST' type at 20°C	-	1000	m

### 2.2 Nominal Values

All values, unless otherwise specified, refer to a supply voltage of 24V and an environmental temperature of 20°C.

Parameter	Min.	Typ.	Max.	Unit
Current consumption (running idle)	-	30	-	mA
Current consumption (250kBit/s, 100% load)	-	40	-	mA
Power supply voltage	10	24	30	V
Propagation delay (per pair of devices)	-	125	300	ns
Wavelength 'P' type	-	650	-	nm
Wavelength 'ST' type	-	850	-	nm

## 2.3 Dimensions

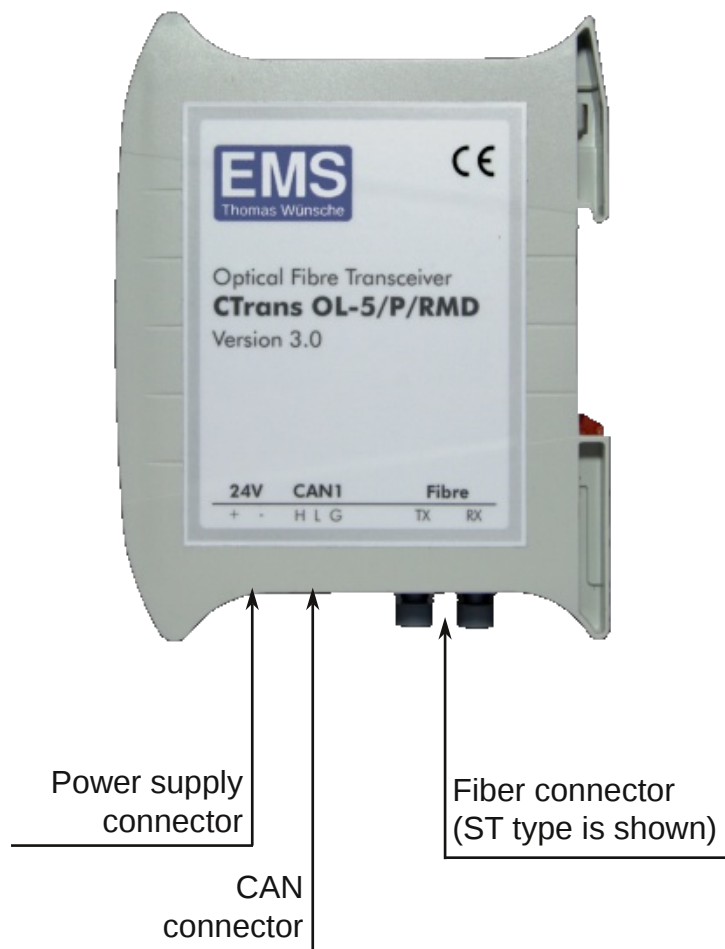
<b>Parameter</b>	<b>Typ.</b>	<b>Unit</b>
Heigth	101	mm
Width	23	mm
Depth	79	mm



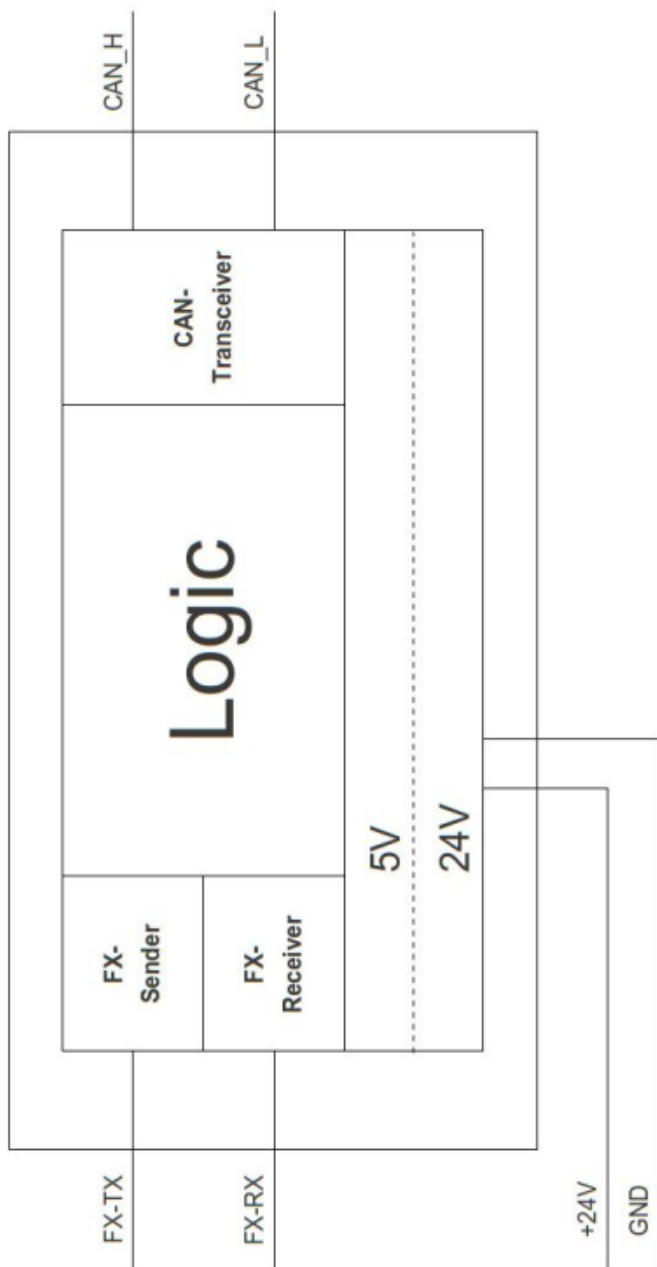
### 3 Operating Instructions

#### 3.1 Layout and Connection

CTrans OL devices include one CAN segment (marked 'CAN') fed to a three pin pluggable terminal. Power is connected at a two pin pluggable terminal. The figure shows the locations of power, CAN and fiber optical connections. Three LEDs on the front panel indicate the status of power, CAN and optical transmissions.



### 3.2 Block Diagram

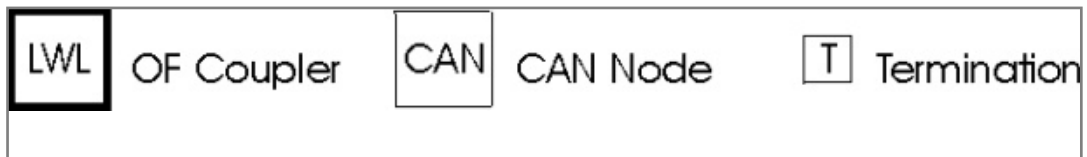


## 4 Appendix

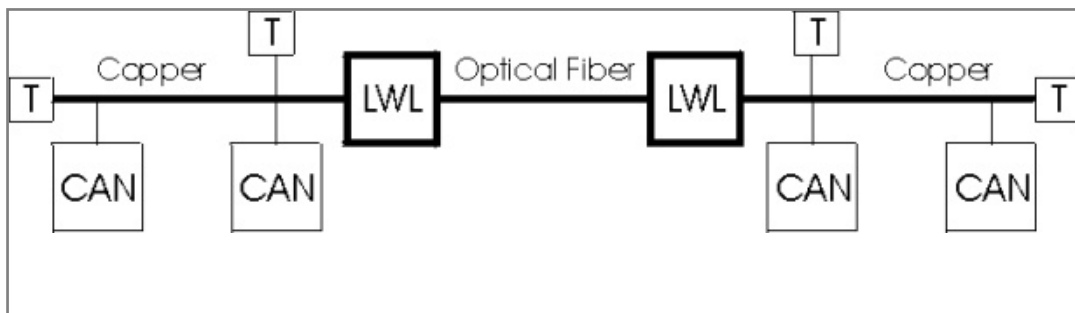
### 4.1 Topology examples

Each CAN segment has to be terminated on both ends, typically using a 120 Ohm termination resistor between CAN-High and CAN-Low signal lines.

#### Legend



#### Line topology with Optical Fiber Transceivers



#### Tree topology with Optical Fiber Transceivers

