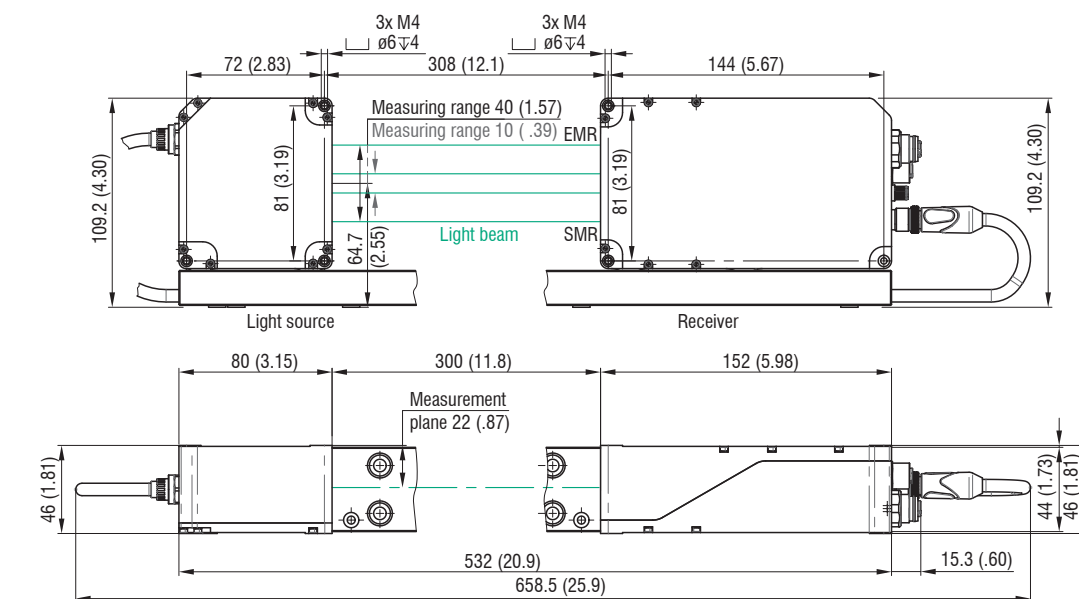## Dimensional Drawings

Fig. 1 Light source and receiver ODC2700-10, ODC2700-40, dimensions in mm (inches)
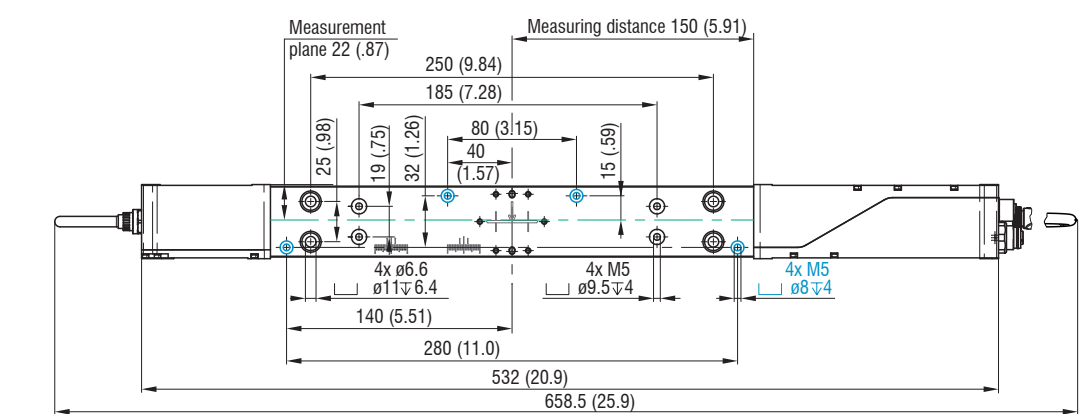

Fig. 2 Light source and receiver ODC2700-10, ODC2700-40 with mounting rail, dimensions in mm (inches)

Preferably mount the mounting rail flat on the four mounting holes M5, blue color.
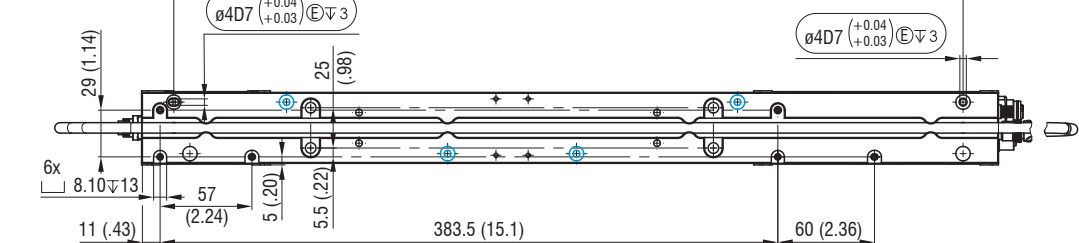

Fig. 3 Light source and receiver ODC2700-40(002), dimensions in mm (inches)
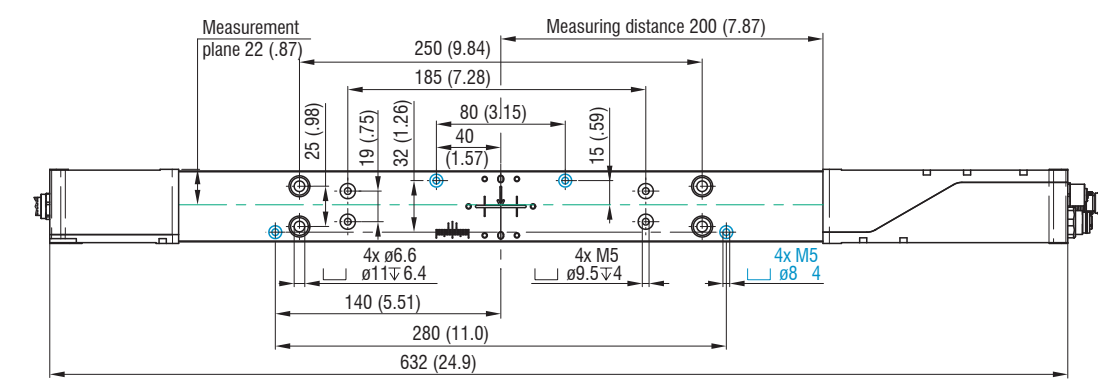
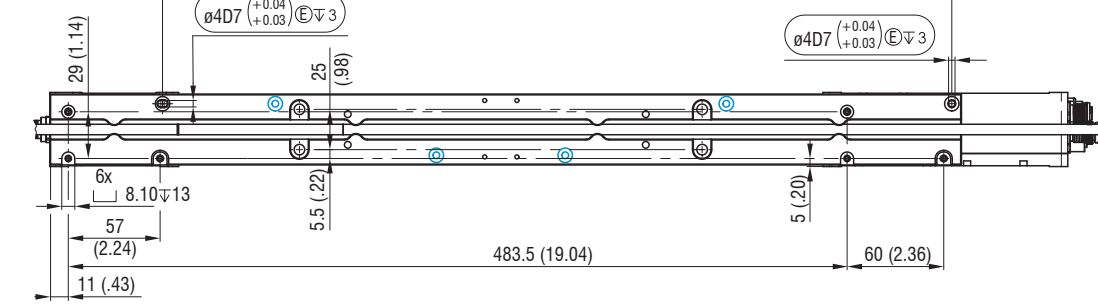*Fig. 4 Light source and receiver ODC2700-40(002) with mounting rail, dimensions in mm (inches)*

Preferably mount the mounting rail flat on the four mounting holes M5, blue color.

Information on other mounting options can be found in the operating instructions.

Mounting, Structure of Components, Mounting Rail

Mount the sensor (light source and receiver on the mounting rail), see Fig. 1 up to 4.

Connect the sensor with a power supply unit to a laptop / PC.
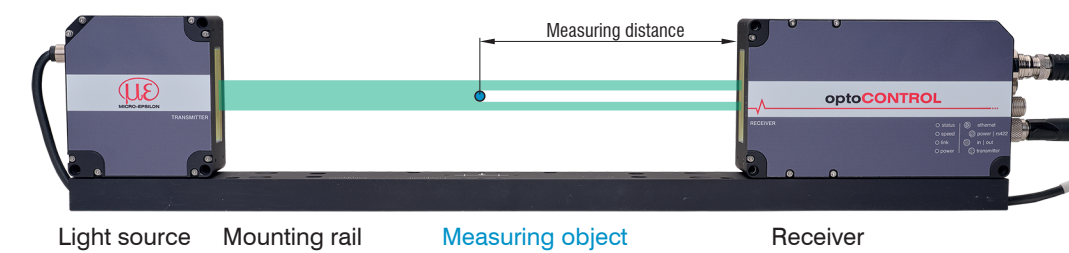
i Position the light source and receiver so that the connections and displays are not concealed. Do not bend the cables more tightly than the bending radii.

Freestanding Mounting on Your Own Device

Only attach the light source and receiver using the existing holes on a flat surface. Any type of clamping is not permitted.
> Inaccurate or incorrect measurements

If light source and receiver must be installed without the supplied mounting rail, you must make sure that the components are exactly aligned with each other.

i Light source and receiver must be located on the same plane and must not be tilted in relation to each other!

After installation of light source and receiver, check the centered alignment of the light band on the receiver at the correct distance. If necessary, loosen the light source for exact positioning.
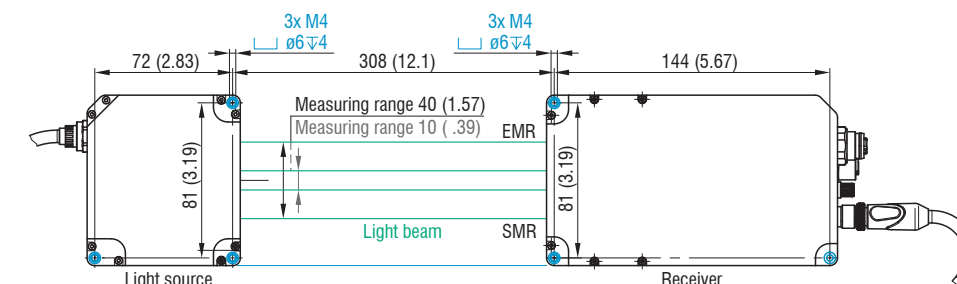

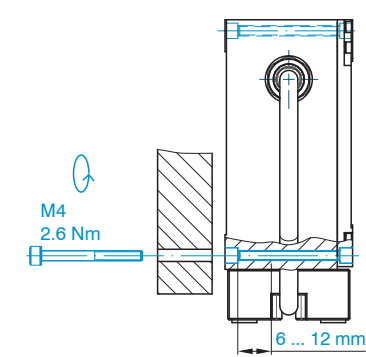*Fig. 5 Mounting thread for direct fastening ODC2700-10, ODC2700-40, dimensions in mm (inches)*

Fig. 6 Direct fastening of sensor   *Fig. 7 Errors to be avoided with free mounting*

Supply, Synchronization, RS422

Signal	Pin	Wire color PC/SC2700-x, Explanation		Notes
V_+	9	Red	Supply voltage	11 … 30 VDC, typ. 24 VDC, I_{max} 230 mA at 24 VDC
GND	2	Blue	Reference ground	Reference ground for Power, Sync, RS422
Sync +	1	Brown	Synchronization	Symmetrical, RS422 level, terminating resistor (120 ohm), direction can be switched using software, not electrically separated
Sync -	3	White		
Tx +	5	Pink	RS422, 32 Bit	Interface RS422, symmetrical, Rx internally terminated with 100 ohm, max. 4 MBaud, full duplex, not electrically separated
Tx -	8	Gray		
Rx +	4	Green		
Rx -	6	Yellow		

Fig. 8 Pin assignment for the 12-pin M12 socket

The PC/SC2700-x has a 12-pin M12 connector and open ends on the other side.

Analog Output, Switching Outputs and Inputs

| Signal	Pin	Wire color SCA2700-x, Explanation	Notes
Analog output [1]	1	White	not electrically separated, 16 Bit D/A
			Current 4 … 20 mA
			Voltage 0 … 5 VDC
			Voltage 0 … 10 VDC
AGND [1]	2	Black	Ground analog output
Switching output 1	11	White	Switching behavior NPN, PNP, push-pull or push-pull negated
Switching output 2	9	Green	
Switching output 3	16	Yellow	Function either limit value or number of edges
Multifunction input 1	15	Pink	24 V logic (HTL): Low ≤ 3 V; High ≥ 8 V (max 30 V) 5 V logic (TTL): Low ≤ 0.8 V; High ≥ 2 V Internal pull-up resistor, an open input is detected as High. Connect the input to GND to trigger the function.
Multifunction input 2	12	Red/blue	
Multifunction input 3	17	Gray/pink	Function either triggering or encoder
GND	10	Brown	Reference ground for the switching inputs and outputs
GND	8	Gray	

Fig. 9 Pin assignment 17-pin M12 connector

The SCA2700-x has a 17-pin M12 socket and open ends on the other side.

1) Internal coaxial cable for analog output in SCA2700-x.
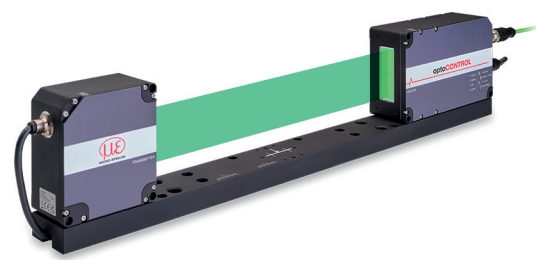
Proper Environment

- Protection class: IP67; unused connectors sealed with protective cap
- Temperature range:
  - Operation: 0 … +50 °C
  - Storage: -20 … +70 °C
- Humidity: 5 … 95 % RH (non-condensing)
- Ambient pressure: Atmospheric pressure

i The protection class is limited to water (no penetrating liquids, detergents or similarly aggressive media). Use a protective housing if there is constant exposure to water.

Optical windows are excluded from the protection class. Contamination of the windows causes impairment or failure of the function.

Warnings

Connect the power supply according to the safety regulations for electrical equipment. The supply voltage must not exceed the specified limits.
> Risk of injury, damage to or destruction of the system.

Protect the cables against damage. Never bend the cable more tightly than the bending radius.
> Failure of the measuring device, damage to and destruction of the cable.

Avoid shocks and impacts to the light source and receiver.
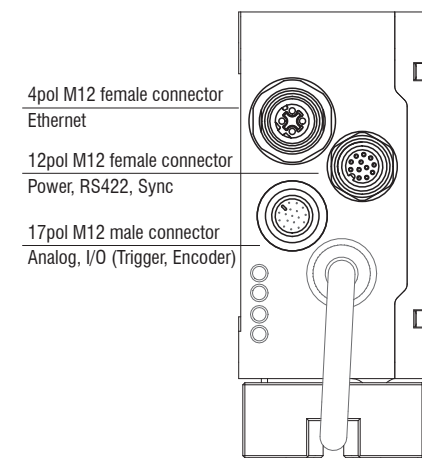> Damage to or destruction of the system

Light Source

The light source for optoCONTROL 2700 uses an LED with a wavelength of 508 nm.

The LED light source is not covered by the laser standard.

Ethernet

Signal	Pin	Notes
Tx +	1	
Rx +	2	Ethernet
Tx -	3	
Rx -	4	

Connections Receiver

4pol M12 female connector
Ethernet

12pol M12 female connector
Power, RS422, Sync

17pol M12 male connector
Analog, I/O (Trigger, Encoder)

LEDs on Receiver

LED	Color	Meaning
Status	Yellow	If synchronization error
	Flashing red	Ethernet, error
	Yellow	Loading factory settings
	Green	Zeroing/mastering
Speed	Yellow	If baud rate 100 Mb
	Off	If baud rate 10 Mb
Link	Green	If link active
	Off	If link inactive
	Flashing	If network activity
Power	Green	Supply voltage On

Fig. 10 LEDs on receiver

Connection Options

Source Cable/supply Interface Terminal device

Receiver ODC2700

PC/SC2700-x
SCD2700-3

SPS

IF2035-PROFINET
IF2035-EtherCAT
IF2035-EIP

PROFINET
EtherNet/IP
EtherCAT

Ethernet

USB

USB

PC

SCA2700-x
Analog, I/O (Trigger, Encoder)

From the light source
SCR3000A-0,6

PC/SC2700-3/IF2008

PC/SC2700-x

IF2001/USB

IC2001/USB

PS 2020

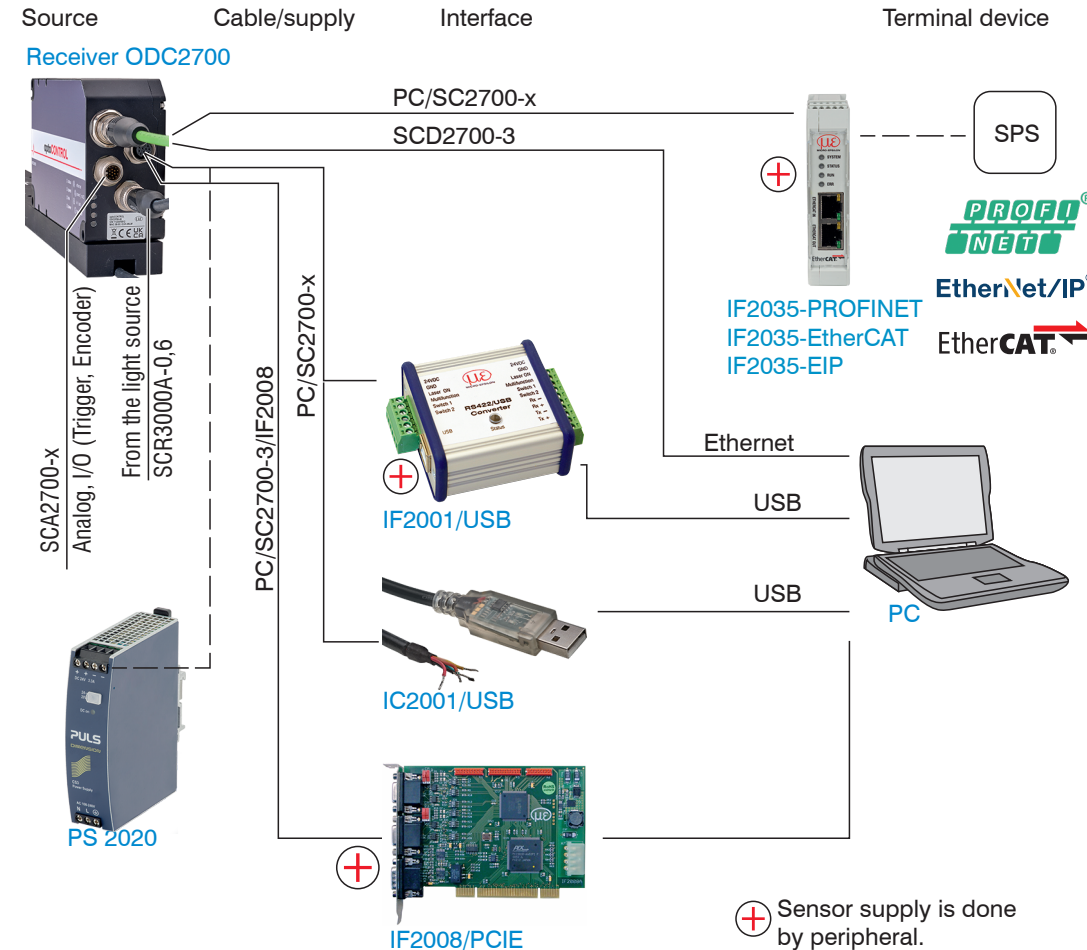IF2008/PCIE

⊕ Sensor supply is done by peripheral.

Fig. 11 Connection examples on the optoCONTROL 2700-40

Using the 12-pin socket `Power/RS422`, various peripherals[1] can be connected with the connecting cables shown[1].

1) The various peripherals and connecting cables are available as optional accessories, see also operating instructions, Chapter "Optional Accessories".

Quick Guide

The sensor is shipped with the factory-set IP address 169.254.168.150.

You can query the IP addresses of the sensors that are connected to a PC or network by using the `sensorTOOL.exe` program.

▶ Launch the `sensorTOOL` program and click on the button.

▶ Select the correct sensor from the list.

▶ Click the `Open Website` button to connect the sensor to your default browser.

The `sensorTOOL` program is available online at https://www.micro-epsilon.com/fileadmin/download/software/sensorTool.exe.

The start screen of the sensor software should now be displayed in the web browser:
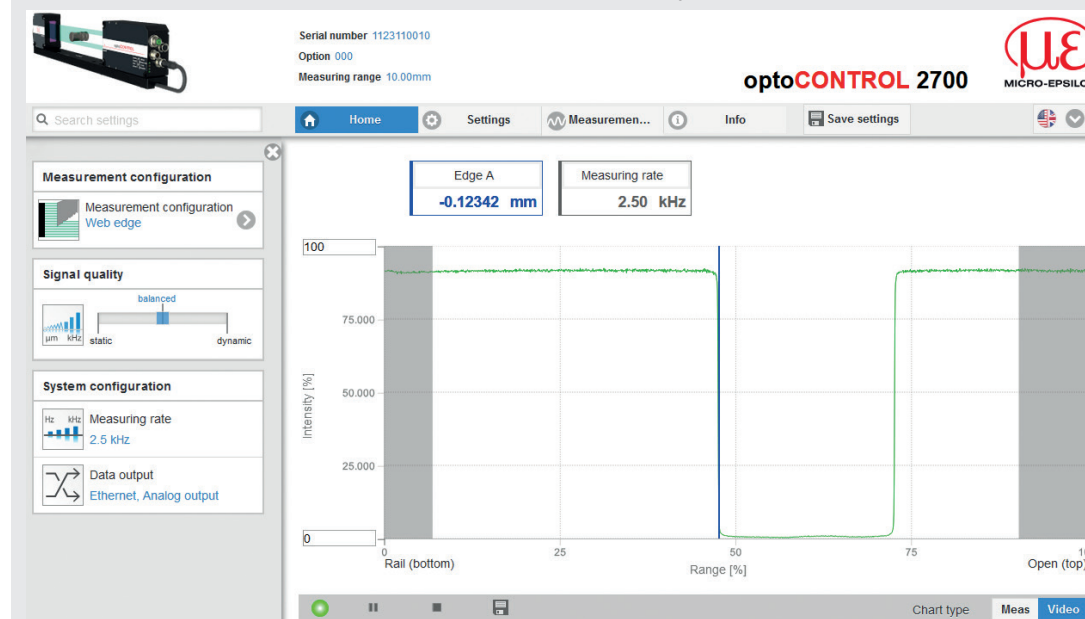
In the top navigation bar, other functions (settings, measurement chart etc.) are available. All settings on the web page are implemented in the sensor immediately after clicking the `Save settings` button. Parallel operation with web browser and ASCII commands is possible; the last setting applies.

Selecting Measuring Program

▶ Go to the `Home` > `Measurement configuration` menu. Here you will find predefined presets for common measurement tasks.

▶ Go to the menu `Settings` > `Data acquisition` > `Measurement program`. Here you will find setups for individual measurement tasks.

▶ Select the appropriate preset or setup.

Performing Light Referencing

This referencing must be performed at least once after installation. But can also be repeated very frequently if great accuracy is required.

▶ The sensor requires a warm-up time of at least 30 minutes before a light correction can be performed.

▶ Go to the menu `Settings` > `Corrections/Referencing` > `Light correction`.

ℹ During light correction, no measuring object must be in the measuring range.

▶ Click the `Execute` button to start light referencing.

Positioning the Target

▶ Position the measured object at the measuring distance to the receiver, as much as possible in the center of the measuring range.

ℹ The `Setup mode` in the `Measurement chart` menu helps you position a measurement object. `Setup mode` should be switched off in measurement mode to reduce the amount of data to be transmitted.

Checking the Video Signal

▶ Click the `Video` button in the footer and check the signal.

You can suppress edges at the start and end of the measuring range that are not to be evaluated. Change the `Evaluation range` in the menu `Settings` > `Data acquisition`.

Checking the Measurement

▶ Go to the `Measurement chart` menu and check the measured value-time diagram.

Here you can select additional data for display, e.g., individual edges or center axes.

Saving the Settings

▶ Save the current settings in the receiver using a setup.

▶ Go to menu `Settings` > `System settings` > `Load & Save`. Alternatively, press the `Save settings` button in the horizontal menu control.

Without saving, the settings will be lost when the receiver is turned off.

You can download a PDF of the detailed operating instructions from our website:
https://www.micro-epsilon.com/download/manuals/man--optoCONTROL-2700--en.pdf