**Proper Environment**

- **Protection class:** IP64, when plugged in with protective cap on Ethernet socket
- **Operation:** 0 ... +50°C (3 ... 122 °F)
- **Storage:** -40 ... +85°C (14 ... 185 °F)
- **Humidity:** 0 ... 95% RH (non-condensing)
- **Ambient pressure:** Atmospheric pressure ±3 kPa

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.

1) For operation without Ethernet / EtherCAT cable, the protective cap for the M12 connector must be used to achieve the IP degree of protection.

**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 or interruption in the system.
- Protect the cable against damage. Never bend the cable more than the bending radius.
- Failure of the measurement device and to the destruction of the cable.
- Avoid shocks and impacts to the light source and receiver.
- Damage to or destruction of the system.

**Laser Safety**

The optoCONTROL 2520-46 operates with a semiconductor laser with a wavelength of 670 nm. Laser safety is limited to Class 1M. The accessible radiation is harmless under predictable conditions.

If installed freestanding, now adjust the alignment between light source and receiver.

Connect at least the power supply and turn it on.

The greater the distance between light source and receiver, the more exact an alignment is required!

Only for USA

The available radiation is harmless under predictable conditions. Do not view the radiation with optical instruments (e.g.: converging lenses, magnifying glass). For class I laser devices, impairment of color vision and disturbances, e.g., from a glare effect, cannot be excluded. Consequently, you can work without glasses. For class II and IIIa devices, goggles with 4/f ≥ 750 are recommended to prevent the user from the country must be attached before the device is put into operation for the first time.

The greater the distance between light source and receiver, the more exact an alignment is required!

**Supply Voltage (Power)**

- **Voltage output**
  - 11 to 30 VDC, \( I_{\text{max}} \leq 200 \text{ mA} \)
- **Operating voltage**
  - GND: 13.5 to 15.5 V
  - 14-pin cable connector

1) Internal coaxial cable for voltage output

**Light Source Socket (3-Pin)**

Cables of different lengths (1 m, 2 m or 5 m, each optionally with straight or angled plugs) are available as accessories. The receiver is connected to a PC via a network to the Ethernet/EtherCAT bus system. Ethernet cables with straight and angled plug in RJ45 plugs are available as accessories. The receiver is connected to a PC in a general is to a network via the Ethernet/EtherCAT socket. A web browser is used to call up the receiver’s internal web pages and set up the measuring system there.

- **Pin assignment**
  - 1: Ethernet/EtherCAT socket
  - 2: 14-pin cable plug, view of connector side
  - 3: 14-pin cable plug, view of solder side

**Fig. 4 Pin assignments for 14-pin round plug (power/signals)**

- A cable with open ends (PC/SC2520-3) is required and is available as an optional accessory.
- Connect at least the power supply and turn it on.
- 3 installed tweezers, now adjust the alignment between light source and receiver.

- **Light Source**
  - Make sure the receiver (in the center). The following applies here: the greater the distance between light source and receiver, the more exact an alignment is required!
LEDs on Receiver

- **Light source**
- **Receiver**

The measuring system is shipped with the factory-set IP address 169.254.168.150. You can query the IP address of the sensors that are connected to your PC/SC2520-x with the factory-set IP address or by using the sensorTOOL program by using the EtherCAT socket. Figure 6 can be connected with the sensorTOOL program is available online at https://www.micro-epsilon.com/service/download/software.

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

2) The start screen of the sensor software should now be displayed in the web browser.

3) The edges to be measured must intersect the detection threshold. If a transparent measured object
4) The various peripherals and connecting cables are available as optional accessories, see also operating instructions, Chapter “Optional Accessories”.

LEDs on Receiver

- **Light source**
- **Receiver**

- **Power supply**
- **Laptop/PC**

- **Ethernet**

Fig. 6 LEDs on the Ethernet/EtherCAT socket

**LED Color**
- **Power on**
- **Inaccurate or incorrect measurements**
- **Loading factory settings**

**Status**
- **If baud rate 100 Mb**
- **If link inactive**

**Light source**
- **If baud rate 10 Mb**
- **If link active**

**Power supply**
- **Green**

**Speed**
- **Yellow**
- **Green**

**If network activity**
- **Yellow**

**Operating voltage on Ethernet, error**
- **Green**

**Yellow**
- **Yellow**

**Green**
- **Green**

**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.**

Special notice regarding the installation of the light source:
- **Screw connection**
- **If the mounting rail is not used, using the four M4 threaded holes in each housing**

**Solution of the Components**

- **Screen clamping is not permitted.**
- **If the measuring distance changes during the measurement or the edge to be measured is very thick in parallel to the laser beam, a relatively large linearity error may occur.**

**Selecting Measuring Distance**

- **Select the correct sensor from the list.**

**Performing Light Referencing**

- **The start screen of the sensor software should now be displayed in the web browser.**

**Selecting Measuring Program**

- **Click the open Website button to connect the sensor to your default browser.**

**Checking the Video Signal**

- **The edges to be measured must intersect the detection threshold. If a transparent measured object cannot be connected with the sensorTOOL program is available online at https://www.micro-epsilon.com/service/download/software.**

**Positioning the Target**

- **The start screen of the sensor software should now be displayed in the web browser.**

**Accessories**
- **Edge light-dark**

**SensorTOOL**

- **Diameter**

**PS 2031**

**Source**
- **Source Cable/Supply**

**PC/SC2520-x**

**Taking the Measurements**

- **Selecting Measuring Distance**

**Selecting Measuring Program**

- **Selecting Measuring Distance**

**Performing Light Referencing**

- **Checking the Measurement**

**Positioning the Target**

- **Accessories**

**SensorTOOL**

- **Selecting Measuring Distance**

**Performing Light Referencing**

- **Checking the Measurement**

You can download a PDF of detailed operating instructions from our website: http://www.micro-epsilon.de/download/manuals/man-sensorTOOL-2520-pd