Proper Environment
- Protection class: IP64; when plugged in or with protective cap on Ethernet socket
- Risk of injury, damage to or destruction of the system.
- Ambient pressure: Atmospheric pressure

Assemblies

- optiCONTROL 2520-46(090)
- 24 V DC
- Operating voltage
- 11 to 30 VDC, $I_{max} = 200 mA$, at 24 VDC
- GND
- Operating ground
- Reference ground for Power, Out, In, Sync, RS422
- Switching output 1
- Error or limits, not electrically separated, 24 V logic, Hi level: $0.1 \, \text{A} \quad \text{at} \quad 30 \, \text{V}

Switching output 2
- Low level: $< 2.5 \, \text{V}$ (output - operating voltage)

TX+
- Internal pull-up resistor, open input is detected as High.

RX-
- Symmetrical, RS422 level, max. 4 Ma, full differential, not electrically separated
- Internal pull-up resistor, open input is detected as High.

RX+
- Symmetrical, RS422 level, not electrically separated
- More than 10 V level (30 V max)

Electrically isolated M12x1 socket to connect to an Ethernet network (PC) or the EtherCAT bus system. Ethernet cables with straight and angled plugs in RJ45 plugs are available as accessories. The receiver is connected to a PC as a generally to a network via the Ethernet interface. A web browser is used to call up the receiver’s internal web page and setup the measurement system there.

Light Source Socket (3-Pin)

Laser Safety
- The optiCONTROL 2520-46(090) operates with a semiconductor laser with a wavelength of 670 nm (visible red). The maximum optical power of 2 mW. The sensors fall within laser class 1M.
- The accessible radiation is harmless under predictable conditions.
- The laser light must hit the receiver’s inlet window exactly in the center. The following applies here:
- The laser class is limited to water (nostanding liquids, detergents or similarly aggressive media). Use a protective housing if there is constant exposure to water.
- The protection class is limited to water (nostanding liquids, detergents or similarly aggressive media). Use a protective housing if there is constant exposure to water.
- Avoid shocks and impacts to the light source and receiver.
- Protect the cable against damage. Never bend the cable more tightly than the bending radius.
- Avoid shocks and impacts to the light source and receiver.
- Damage or destruction of the system.

- Voltage output
- $0 \ldots 10 \, \text{V}$, not electrically separated,
- $14 \, \text{Bit D/A, R}$
- $1 \, \text{mA}$
- $> 10 \, \text{kOhm}$
- $\max = 0.1 \, \text{A}$:
- $= 30 \, \text{V}$
- $>10 \, \text{kOhm}$
- $\max = 0.1 \, \text{A}$:
- $= 30 \, \text{V}$
- $= 0 \ldots 10 \, \text{V}$, not electrically separated,
- $1 \, \text{mA}$
- $> 10 \, \text{kOhm}$
- $\max = 0.1 \, \text{A}$:
- $= 30 \, \text{V}$
- $= 0 \ldots 10 \, \text{V}$, not electrically separated,
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- $1 \, \text{mA}$
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- $= 30 \, \text{V}$
- $= 0 \ldots 10 \, \text{V}$, not electrically separated,
- $1 \, \text{mA}$
- $> 10 \, \text{kOhm}$
- $\max = 0.1 \, \text{A}$:
- $= 30 \, \text{V}$
- $= 0 \ldots 10 \, \text{V}$, not electrically separated,
**LEDs on Receiver**

**Status**

- Green: Operating voltage on
- Yellow: Zeroing/mastering
- Red: Error
- Flashing red: Ethernet, error
- Flashing yellow: Ethernet, link activity

- **Link/activity**
  - Off: If link inactive
  - On: If link active

- **Speed**
  - Yellow: If baud rate 100 Mb
  - Off: If baud rate 10 Mb

- **Power supply**
  - Off: Stop

**Ethernet, error**

- If network activity
  - Yellow
- If link active
  - If baud rate 10 Mb
- If baud rate 100 Mb

**Structure of the Components**

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

Position the light source and receiver so that the connections and displays are not concealed. Never bend the cable more tightly than the bending radius. 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.

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

- 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.

- Light source and receiver can be attached using three through-holes Ø4.5 each (bolt connection) or, if the mounting rail is not used, using the four M4 threaded holes in each housing (direct screw connection). 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.

- After installation of light source and receiver, check and adjust the center alignment of the light beam on the receiver at the correct distance. If necessary, loosen the light source for exact positioning.

- Please observe additional installation notes with and without mounting rail in Chapter 5.2 of the operating instructions.

**Quick Guide**

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 a local network by using the sensorTOOL program.

1. Start the sensorTOOL program and click the button.

2. Select the correct sensor from the list.

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

The sensorTOOL program is available online at the Micro-Epsilon website under “Downloads”.

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

**Source**

- Receiver (DC23-2520-4650E)

**Table**

<table>
<thead>
<tr>
<th>Source</th>
<th>Supply</th>
<th>Interface</th>
<th>End device</th>
</tr>
</thead>
<tbody>
<tr>
<td>PS 2520</td>
<td>PC/SC2520-x/IF2008</td>
<td>PC/SC2520-x</td>
<td>FLC</td>
</tr>
<tr>
<td>PLD</td>
<td>to light source</td>
<td>Ethernet</td>
<td>USB</td>
</tr>
</tbody>
</table>

**Accessories**

- PC/SC2520-x
- IF2008
- SCD2520-x
- PC/SC2520-x/IF2008

If the EtherCAT interface is enabled, the meaning of the LEDs on the Ethernet/ EtherCAT socket also changes.

- Flashing green: Zeroing/mastering
- Flashing red: Ethernet, error
- Off: Stop

For detailed operating instructions, go to the Micro-Epsilon website under “Downloads”.

You can download a PDF of detailed operating instructions from our website:


**Choosing the Measurement Distance**

1. Go to the settings > Measuring distance menu.
2. Select the measured distance from the list, confirm with Apply.
3. If the measuring distance changes during the measurement or the edge to be measured is very thin in parallel to the laser beam, a relatively large linearity error may occur.

**Choosing the Program**

1. Go to the settings > measuring program menu.
2. Select, e.g., edge light-dark as the measurement to be performed.

**Performing Light Referencing**

1. This reference must be performed at least once after installation and after a warm-up period of about 30 min., but can also be repeated very frequently if great accuracy is required.
2. When performing a light referencing using the menu Video signal > Start light referencing, button.
3. Press stop once and Start once, if the diagram does not reset automatically.

**Positioning the Target**

1. Position the measured object at the selected measuring distance to the receiver, as much as you can see the target center in the center of the measuring range.
2. If the edge to be measured is very thick, it must be aligned exactly parallel to the laser beam.

**Checking the Video Signal**

1. Go to the Video signal menu and check the signal.
2. The edges to be measured must intersect the detection threshold. If a transparent measured object is to be measured, you can increase the detection threshold. However, this may affect linearity.

**Checking the Measurement**

1. Go to the measurement menu and check the measured value-time diagram.
2. You can select additional display for display, e.g., individual edges or center value, in the measuring programs Diameter, Gap and Segment.
3. The page also allows you to quickly change notification settings and watch their effect.

**Saving the Settings**

1. Save the current settings in the receiver using a setup.
2. Otherwise, the settings will be lost when the receiver is turned off.

**LEDs on Receiver**

<table>
<thead>
<tr>
<th><strong>LED</strong></th>
<th><strong>Color</strong></th>
<th><strong>Meaning</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Power on</td>
<td>Green</td>
<td>Operating voltage on</td>
</tr>
<tr>
<td>Status</td>
<td>Green</td>
<td>Synchro_word error</td>
</tr>
<tr>
<td>Flashing red</td>
<td>Ethernet, error</td>
<td></td>
</tr>
<tr>
<td>Yellow</td>
<td>Ethernet, link activity</td>
<td></td>
</tr>
<tr>
<td>Green</td>
<td>Zeroing/mastering</td>
<td></td>
</tr>
<tr>
<td>Blinking Ethernet</td>
<td>Interface is available, the meaning complies with the EtherCAT guidelines.</td>
<td></td>
</tr>
</tbody>
</table>

**Control Panel**

- **Power supply**
- **Ethernet, error**
- **Flash**
- **Speed**
- **Link/activity**

**Connection Examples**

- PC/SC2520-x/CSP
- IF2003/USB
- Ethernet

**Accessories**

- PC/SC2520-x
- IF2008
- SCD2520-x
- PC/SC2520-x/IF2008

**Source / Cable / Supply**

- **Source**
- **Cable / Supply**
- **Interface**
- **End device**

PC/SC2520-x  IF2008  Ethernet  FLC

**Fig. 8** Connection examples on the optoCONTROL 2520-46(090). Using the 14-pin socket (Power/signal), various peripherals can be connected to the device.

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