Risk of injury, damage to or destruction of the sensor.

8-pin Male connector

IN3
Orange
Color
IN0
Switching inputs and outputs

OUT1
Power supply, switching outputs, switching input, RS232

Storage temperature:  -10 °C ...  +85 °C (+14 °F ... +185 °F)

4-pin Female connector

OUT2
Switching output (NPN/PNP/PP)

with Ethernet network (PC)

Switching output (NPN/PNP/PP)

Terminal (RS 232 receive)

Electrical connections on colorSENSOR CFO200

Yellow
Red
Gray
Orange/white
Blue
Gray
Brown
Red
TX-
not electrically separated, polarity reversal protection, GND is electrically connected to GND

OUT6
Blue/white
Terminal (RS 232 transmit)

Operating voltage (10 - 28 VDC)

Color
Ethernet
OUT3
USB process interface

Trigger input
IN1
Function
Switching input

TX
Ethernet
Description
RX
Connection to PC

Mono-Epsilon recommends use of the optionally available cable CAB-M12-8P-gb.

The three switching outputs are switchable push-pull outputs. The switching output logic level depends on the operating voltage potential +UB connected.

The switching state zero is not used to ensure reliable test performance in the face of a disconnection. The switching state all switched is recommended as the standard output state detected.

Use shielded cable with a length < 30 m.

Use shielded cable with a length < 100 m. Micro-Epsilon recommends use of the optionally available cable CAB-M12-8P-st-ge.

Connect the sensor to the network using a shielded Ethernet cable (Cat5E) with a length < 100 m. Micro-Epsilon recommends use of the optionally available cable CAB-M12-4P-St-ge.

Use shielded cable with a length < 30 m.

The switching outputs are protected against polarity reversal, overload (< 100 mA), excessive temperature and have an integrated self-induction recuperation device for inductive loads. Not electrically separated, 24 V logic (VOL), low level: GND, high level: +UB (max 28 V).

The switching state zero is not used to ensure reliable test performance in the face of a disconnection. The switching state all switched is recommended as the standard output state detected.

The cable shield is connected to the housing.

Connect the cable shield to the evaluation unit.

All GND conductors are interconnected with one another and to the operating voltage ground.

The color SENSOR CFO can be placed on a level surface or fastened with the dovetail on the rear of the sensor.

The supply voltage must not exceed the specified limits.

The color SENSOR CFO can be placed on a level surface or fastened with the dovetail on the rear of the sensor.

Position the sensor so that the connections, controls and displays are not concealed. We recommend maintaining a clearance of at least 2 m at the front left and right sides.

A mounting adapter is available separately for mounting with screws or with a mounting plate (TS3 top-hat rail) according to DIN EN 60715 (SN rail).

The color SENSOR CFO can be placed on a level surface or fastened with the dovetail on the rear of the sensor.

The sensor can be configured using the ETHERCAT command.

1) Conductor color CAB-M12-8P-Bu-ge  2) Conductor color CAB-M12-8P-St-ge ...

1) Applies only for colorSENSOR CFO200.

The color SENSOR CFO can be placed on a level surface or fastened with the dovetail on the rear of the sensor.

Position the sensor so that the connections, controls and displays are not concealed. We recommend maintaining a clearance of at least 2 m at the front left and right sides.

A mounting adapter is available separately for mounting with screws or with a mounting plate (TS3 top-hat rail) according to DIN EN 60715 (SN rail).
### Operation Using Foil Keyboard

The starting point is the main menu = operating mode/measuring mode: Display of the color group identified/selected setting for the LEDs flash - sensor is overmodulated.

#### Controls and LEDs

The operating concept, as well as the function of the foil keyboard, are described in the Chapter on Foil keyboards. See operating instructions.

#### LED key

<table>
<thead>
<tr>
<th>LED key</th>
<th>Color</th>
<th>Meaning</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>Color</td>
<td>White</td>
<td>Options menu</td>
<td>1.0</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>Display/visualization</td>
<td>8.0</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>Options menu</td>
<td>0.5</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>Display/visualization</td>
<td>12.0</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>Options menu</td>
<td>24.0</td>
</tr>
<tr>
<td>Color</td>
<td>White</td>
<td>Display/visualization</td>
<td>8.0</td>
</tr>
</tbody>
</table>

#### Function: switch on/off/scroll

Tolerance space

<table>
<thead>
<tr>
<th>Tolerance stage</th>
<th>AL</th>
<th>L+</th>
<th>L-</th>
<th>BL</th>
<th>BR</th>
<th>GL</th>
<th>GR</th>
<th>BL</th>
<th>BR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>0.5</td>
<td>1.0</td>
<td>0.5</td>
<td>1.0</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
<td>0.5</td>
</tr>
<tr>
<td>2</td>
<td>1.0</td>
<td>1.5</td>
<td>1.0</td>
<td>1.5</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>3</td>
<td>2.0</td>
<td>2.5</td>
<td>2.0</td>
<td>2.5</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>4</td>
<td>3.0</td>
<td>3.5</td>
<td>3.0</td>
<td>3.5</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
<td>3.0</td>
</tr>
<tr>
<td>5</td>
<td>4.0</td>
<td>4.5</td>
<td>4.0</td>
<td>4.5</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
<td>4.0</td>
</tr>
<tr>
<td>6</td>
<td>5.0</td>
<td>5.5</td>
<td>5.0</td>
<td>5.5</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
<td>5.0</td>
</tr>
<tr>
<td>7</td>
<td>6.0</td>
<td>6.5</td>
<td>6.0</td>
<td>6.5</td>
<td>6.0</td>
<td>6.0</td>
<td>6.0</td>
<td>6.0</td>
<td>6.0</td>
</tr>
<tr>
<td>8</td>
<td>7.0</td>
<td>7.5</td>
<td>7.0</td>
<td>7.5</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
<td>7.0</td>
</tr>
</tbody>
</table>

#### Options/settings

- **Operating mode**
  - Main menu: Press and hold: > 2 sec. to change from operating mode to various menus.
  - Submenu: Press the TOL/AUTO key in the TOL/AUTO menu call the submenu for Tolerance adaptation.
  - Change-over: Press one of the keys > 2 sec. to change between different colors, options, etc. in a menu.
  - Start action: Press the TEACH/AUTO key for > 2 sec. to start an action.
  - Operation mode: Press and hold the TEACH/AUTO key to cancel and leave menu mode.

#### Display/visualization

- **Number of illuminated LEDs matches intensity.**
- **All LEDs flash:** sensor is overmodulated.

#### Intensity menu

- Press and hold: > 2 sec.
- **Automatic setting**
  - About 80% intensity

#### Tolerance menu

- Press and hold: > 2 sec.
- **Flash color**
  - Teaching color: Press < 2 sec.: 1 color
  - Press and hold: > 2 sec.: Multi-teach

#### Color teach menu

- Press and hold: > 2 sec.
- **Select color group**
  - CP0160 - 6
  - CP0200 - 254

#### Tolerance stage

- **Tolerance stage**
  - High/low

### Tolerance Setting

Tolerance is subdivided into the following stages:

1. TEACH/INT/AUTO
2. 2 periods:
   - 1) 100 ms on/900 ms off
   - 2) 2 periods:
     - 2) 2 periods:
       - 1) 100 ms on/900 ms off
       - 2) 2 periods:
         - 1) 100 ms on/900 ms off

### Controls and LEDs

- **Color**
  - White
  - Red
  - Green

### LED table at right

<table>
<thead>
<tr>
<th>LED/key</th>
<th>Color</th>
<th>Meaning</th>
<th>Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>TOL/AUTO</td>
<td>White</td>
<td>Options menu</td>
<td>0.5</td>
</tr>
<tr>
<td>TOL/AUTO</td>
<td>White</td>
<td>Display/visualization</td>
<td>12.0</td>
</tr>
<tr>
<td>TOL/AUTO</td>
<td>White</td>
<td>Options menu</td>
<td>24.0</td>
</tr>
<tr>
<td>TOL/AUTO</td>
<td>White</td>
<td>Display/visualization</td>
<td>8.0</td>
</tr>
</tbody>
</table>

### Arrow pointing left

- **Press and hold:**
  - > 2 sec.
  - < 2 sec.

### Arrow pointing right

- **Press and hold:**
  - > 2 sec.
  - < 2 sec.

### Back to main menu

- Press and hold: > 2 sec.