Distance sensors

Sd = 30 ... 250 mm

- current or voltage output
- resolution up to 10 μm
- with laser line for rough surfaces

**general data**
- sensing element: photoelectric array
- adjustment: no
- power on indication: LED green
- soiled lens indicator: LED red / LED red blinking
- light source: pulsed red laser diode
- wave length: 675 nm
- laser class: 2
- measuring distance Sd = 30 ... 50 mm
  - resolution: < 0,01 mm
  - linearity error: ± 0,03 mm
- measuring distance Sd = 30 ... 130 mm
  - resolution: < 0,06 mm
  - linearity error: ± 0,2 mm
- measuring distance Sd = 50 ... 250 mm
  - resolution: < 0,3 mm
  - linearity error: ± 0,9 mm

**electrical data**
- response time / release time: < 10 ms
- voltage supply range: +Vs 12 ... 28 VDC
- current consumption max.: 120 mA
- output circuit: analog
- output signal: 4 ... 20 mA / 0 ... 10 VDC
- load resistance (analog I): < (+Vs - 6 V) / 0,02 A
- load resistance (analog U): > 100 kOhm
- output current: < 100 mA
- alarm output: PNP
- short circuit protection: yes
- reverse polarity protection: yes, Vs to GND

**mechanical data**
- width / diameter: 20,6 mm
- height / length: 65 mm
- depth: 50 mm
- housing material: die-cast zinc
- front (optics): glass
- connection types: connector M12, 5 pin, rotatable

**ambient conditions**
- operating temperature: 0 ... +50 °C
- protection class: IP 67

**order reference**
- Measuring distance Sd: 30 ... 50 mm
- beam type: point
- beam width: -
- beam height: -
- beam diameter: 1 ... 0,4 mm
- Measuring distance Sd: 30 ... 130 mm
- beam type: point
- beam width: -
- beam height: -
- beam diameter: 2 ... 1 mm
- Measuring distance Sd: 50 ... 250 mm
- beam type: point
- beam width: -
- beam height: -
- beam diameter: 2 mm
- Measuring distance Sd: 30 ... 50 mm
- beam type: line
- beam width: 1 ... 0,4 mm
- beam height: 2 mm
- beam diameter: -
- Measuring distance Sd: 30 ... 130 mm
- beam type: line
- beam width: 2 ... 1 mm
- beam height: 3 ... 5 mm
- beam diameter: -
- Measuring distance Sd: 50 ... 250 mm
- beam type: line
- beam width: 2,5 mm
- beam height: 4 ... 10 mm
- beam diameter: -

**connection diagram**

**connectors**
- ES 34CP2B
- 5 pin
- 2 m straight (shielded)

**accessories**
- mounting bracket: 131521
- for details, see accessories section

**remarks**
- While switching-on the sensor, it checks if there is a current at current output BK (4). If so, the current output is activated. If not, the voltage output GY (5) is activated after 100 ms.

**laser warning**

*CAUTION *
Laser Radiation
Do not Stare into Beam
LASERdiode
Class 2 LASER Product
Wavelength 635 – 670 nm
Max. Output < 1 mW
Complies with EN60825-1:2001

www.baumerelectric.com
beam alignment (line)

dimension drawing

* emitter axis
**Distance sensors**

**Sd = 100 ... 1000 mm**

- current or voltage output
- resolution up to 0,5 mm
- with laser line for rough surfaces

---

**general data**

- Sensing element: photoelectric array
- Adjustment: no
- Power on indication: LED green
- Soiled lens indicator: LED red / LED red blinking
- Light source: pulsed red laser diode
- Wave length: 675 nm
- Laser class: 2

**measuring distance Sd = 100 ... 500 mm**

- Resolution: < 0,5 mm
- Linearity error: ± 1,5 mm

**measuring distance Sd = 200 ... 1000 mm**

- Resolution: < 3 mm
- Linearity error: ± 12 mm

---

**electrical data**

- Response time / release time: < 10 ms
- Voltage supply range: +Vs 12 ... 28 VDC
- Current consumption max.: 120 mA
- Output circuit: analog
- Output signal (analog I): < (+Vs - 6 V) / 0,02 A
- Output signal (analog U): > 100 kOhm
- Output current: < 100 mA
- Alarm output: PNP
- Short circuit protection: yes
- Reverse polarity protection: yes, Vs to GND

---

**mechanical data**

- Width / diameter: 20,6 mm
- Height / length: 65 mm
- Depth: 50 mm
- Housing material: die-cast zinc
- Front (optics): glass
- Connection types: connector M12, 5 pin, rotatable

---

**ambient conditions**

- Operating temperature: 0 ... +50 °C
- Protection class: IP 67

---

**order reference**

<table>
<thead>
<tr>
<th>OADM 2014471/S14C</th>
<th>Measuring distance Sd</th>
<th>Beam type</th>
<th>Beam width</th>
<th>Beam height</th>
<th>Beam diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>100 ... 500 mm</td>
<td>point</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
<td></td>
</tr>
<tr>
<td>200 ... 1000 mm</td>
<td>point</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
<td></td>
</tr>
<tr>
<td>OADM 2014571/S14C</td>
<td>line</td>
<td>2,5 mm</td>
<td>5,5 ... 18 mm</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>OADM 2014581/S14C</td>
<td>line</td>
<td>2,5 mm</td>
<td>8,5 ... 35 mm</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

---

**connection diagram**

- BN (1)
- V (2)
- VS (3)
- BU (4)
- GY (5)

**connectors**

- ES 34CP2B 5 pin 2 m straight (shielded)

**accessories**

- Mounting bracket: 131521
- For details, see accessories section

---

**remarks**

While switching-on the sensor, it checks if there is a current at current output BK (4). If so, the current output is activated. If not, the voltage output GY (5) is activated after 100 ms.

---

**laser warning**

**CAUTION**

LASER RADIATION
DO NOT STARE INTO BEAM
LASERDIODE Class 2 LASER Product

Wavelength 635 nm - 670 nm
Max. Output: < 1 mW
Complies with EN60825-1:2001

---

www.baumerelectric.com
Distance sensors

beam alignment (line)

dimension drawing

* emitter axis
Distance sensors  

Sd = 30 ... 250 mm

- serial interface RS 485
- resolution up to 10 µm
- with laser line for rough surfaces

**general data**

- sensing element: photoelectric array
- adjustment: no
- power on indication: LED green
- soiled lens indicator: LED red / LED red blinking
- light source: pulsed red laser diode
- wave length: 675 nm
- laser class: 2

**measuring distance Sd = 30 ... 50 mm**

- resolution: < 0.01 mm
- linearity error: ± 0.03 mm

**measuring distance Sd = 30 ... 130 mm**

- resolution: < 0.06 mm
- linearity error: ± 0.2 mm

**measuring distance Sd = 50 ... 250 mm**

- resolution: < 0.3 mm
- linearity error: ± 0.9 mm

**electrical data**

- response time / release time: < 10 ms
- voltage supply range: +Vs 12 ... 28 VDC
- current consumption max.: 120 mA
- output circuit: RS 485
- output current: < 100 mA
- alarm output: push-pull
- short circuit protection: yes
- reverse polarity protection: yes, Vs to GND

**mechanical data**

- width / diameter: 20.6 mm
- height / length: 65 mm
- depth: 50 mm
- housing material: die-cast zinc
- front (optics): glass
- connection types: connector M12, 8 pin, rotatable

**ambient conditions**

- operating temperature: 0 ... +50 °C
- protection class: IP 67

**connection diagram**

**connectors**

- ESG 34FP0200B  8 pin  2 m straight (shielded)

**accessories**

- mounting bracket: 131521

**remarks**

The sensor has a switching output (out) that is activated when the measurement is determined within the range between threshold 1 and threshold 2. Both thresholds can be set via interface.

**laser warning**

---

**order reference**

<table>
<thead>
<tr>
<th>OADM 20S440/S14F</th>
<th>measuring distance Sd</th>
<th>beam type</th>
<th>beam width</th>
<th>beam height</th>
<th>beam diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>30 ... 50 mm</td>
<td>point</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>1 ... 0,4 mm</td>
</tr>
<tr>
<td>30 ... 130 mm</td>
<td>point</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2 ... 1 mm</td>
</tr>
<tr>
<td>50 ... 250 mm</td>
<td>point</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
</tr>
</tbody>
</table>

---
**Distance sensors**

**OADM 20**

beam alignment (line)

![Beam alignment illustration]

**Dimension drawing**

![Dimension drawing of OADM 20]

* emitter axis

---

**www.baumerelectric.com**

---

**OADM 20**

Sd = 30 ... 250 mm
Distance sensors

### Sd = 100 ... 1000 mm

- measuring ranges from 30 to 1000 mm
- resolution up to 0,5 mm
- with laser line for rough surfaces

#### general data

- sensing element: photoelectric array
- adjustment: no
- power on indication: LED green
- soiled lens indicator: LED red / LED red blinking
- light source: pulsed red laser diode
- wave length: 675 nm
- laser class: 2
- measuring distance Sd = 100 ... 500 mm
  - resolution: < 0,5 mm
  - linearity error: ± 1,5 mm
- measuring distance Sd = 200 ... 1000 mm
  - resolution: < 3 mm
  - linearity error: ± 12 mm

#### electrical data

- response time / release time: < 10 ms
- voltage supply range +Vs: 12 ... 28 VDC
- current consumption max.: 120 mA
- output circuit: RS 485
- output current: < 100 mA
- alarm output: push-pull
- short circuit protection: yes
- reverse polarity protection: yes, Vs to GND

#### mechanical data

- width / diameter: 20,6 mm
- height / length: 65 mm
- depth: 50 mm
- housing material: die-cast zinc
- front (optics): glass
- connection types: connector M12, 8 pin, rotatable

#### ambient conditions

- operating temperature: 0 ... +50 °C
- protection class: IP 67

### order reference

<table>
<thead>
<tr>
<th>Order reference</th>
<th>Measuring distance Sd</th>
<th>Beam type</th>
<th>Beam width</th>
<th>Beam height</th>
<th>Beam diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>OADM 20S4471/S14F</td>
<td>100 ... 500 mm</td>
<td>point</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
</tr>
<tr>
<td>OADM 20S4481/S14F</td>
<td>200 ... 1000 mm</td>
<td>point</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
</tr>
<tr>
<td>OADM 20S4571/S14F</td>
<td>100 ... 500 mm</td>
<td>line</td>
<td>2,5 mm</td>
<td>5,5 ... 18 mm</td>
<td>-</td>
</tr>
<tr>
<td>OADM 20S4581/S14F</td>
<td>200 ... 1000 mm</td>
<td>line</td>
<td>2,5 mm</td>
<td>8,5 ... 35 mm</td>
<td>-</td>
</tr>
</tbody>
</table>

#### connection diagram

```
+Vs
BN (2)
GN (3)
YE (4)
GY (5)
PK (6)
BU (7)

0 V
out
Rx/Tx-
Rx/Tx+

RS 485

n.c.

+VS

RD (8)

BN (2)

YE (4)

GN (3)

PK (6)

BU (7)

n.c.
```

#### connectors

- ESG 34FP0200B 8 pin 2 m straight (shielded)
- additional cable connectors and field wireable connectors, see accessories

#### accessories

- mounting bracket: 131521
- for details, see accessories section

#### remarks

The sensor has a switching output (out) that is activated when the measurement is determined within the range between threshold 1 and threshold 2. Both thresholds can be set via interface.

#### laser warning

**CAUTION**

LASER RADIATION
DO NOT STARE INTO BEAM
LASERDIODE
Class 2 LASER Product

Wavelength 630 - 680 nm
Max. Output: < 1 mW
Complies with EN60825-1:2001
beam alignment (line)

dimension drawing

OADM 20  Sd = 100 – 1000 mm

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Distance sensors

**Sd = 30 ... 300 mm**

- synchronization input
- teachable measuring range
- resolution up to 4 μm

### General Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sensing Element</td>
<td>Photoelectric Array</td>
</tr>
<tr>
<td>Adjustment</td>
<td>Teach-in: button / external</td>
</tr>
<tr>
<td>Power on Indication</td>
<td>LED green</td>
</tr>
<tr>
<td>Soiled Lens Indicator</td>
<td>LED red / LED red blinking</td>
</tr>
<tr>
<td>Light Source</td>
<td>Pulsed red laser diode</td>
</tr>
<tr>
<td>Wave Length</td>
<td>675 nm</td>
</tr>
<tr>
<td>Laser Class</td>
<td>2</td>
</tr>
</tbody>
</table>

### Measuring Distance Sd = 30 ... 70 mm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach-in Range Min.</td>
<td>&gt; 2 mm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0,004 ... 0,02 mm</td>
</tr>
<tr>
<td>Linearity Error</td>
<td>± 0,012 ... ± 0,06 mm</td>
</tr>
</tbody>
</table>

### Measuring Distance Sd = 30 ... 130 mm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach-in Range Min.</td>
<td>&gt; 3 mm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0,005 ... 0,06 mm</td>
</tr>
<tr>
<td>Linearity Error</td>
<td>± 0,015 ... ± 0,2 mm</td>
</tr>
</tbody>
</table>

### Measuring Distance Sd = 50 ... 300 mm

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Teach-in Range Min.</td>
<td>&gt; 5 mm</td>
</tr>
<tr>
<td>Resolution</td>
<td>0,01 ... 0,33 mm</td>
</tr>
<tr>
<td>Linearity Error</td>
<td>± 0,03 ... ± 1 mm</td>
</tr>
</tbody>
</table>

### Electrical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response Time / Release Time</td>
<td>&lt; 0,9 ms</td>
</tr>
<tr>
<td>Voltage Supply Range</td>
<td>+Vs 12 ... 28 VDC</td>
</tr>
<tr>
<td>Current Consumption Max.</td>
<td>120 mA</td>
</tr>
<tr>
<td>Output Circuit</td>
<td>Analog</td>
</tr>
<tr>
<td>Output Signal</td>
<td>4 ... 20 mA / 0 ... 10 VDC</td>
</tr>
<tr>
<td>Load Resistance (Analog I)</td>
<td>&lt; (+Vs - 6 V) / 0,02 A</td>
</tr>
<tr>
<td>Load Resistance (Analog U)</td>
<td>&gt; 100 kΩ</td>
</tr>
<tr>
<td>Output Current</td>
<td>&lt; 100 mA</td>
</tr>
<tr>
<td>Alarm Output</td>
<td>PNP</td>
</tr>
<tr>
<td>Short Circuit Protection</td>
<td>Yes</td>
</tr>
<tr>
<td>Reverse Polarity Protection</td>
<td>Yes, Vs to GND</td>
</tr>
</tbody>
</table>

### Mechanical Data

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Width / Diameter</td>
<td>20,6 mm</td>
</tr>
<tr>
<td>Height / Length</td>
<td>65 mm</td>
</tr>
<tr>
<td>Depth</td>
<td>50 mm</td>
</tr>
<tr>
<td>Housing Material</td>
<td>Die-cast zinc</td>
</tr>
<tr>
<td>Front (Optics)</td>
<td>Glass</td>
</tr>
<tr>
<td>Connection Types</td>
<td>Connector M12, 8 pin, rotatable</td>
</tr>
</tbody>
</table>

### Ambient Conditions

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating Temperature</td>
<td>0 ... +50 °C</td>
</tr>
<tr>
<td>Protection Class</td>
<td>IP 67</td>
</tr>
</tbody>
</table>

### Order Reference

<table>
<thead>
<tr>
<th>Order Reference</th>
<th>Measuring Distance Sd</th>
<th>Beam Type</th>
<th>Beam Width</th>
<th>Beam Height</th>
<th>Beam Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>OADM 20I6441/S14F</td>
<td>30 ... 70 mm</td>
<td>Point</td>
<td>-</td>
<td>-</td>
<td>1 ... 0,2 mm</td>
</tr>
<tr>
<td>OADM 20I6460/S14F</td>
<td>30 ... 130 mm</td>
<td>Point</td>
<td>-</td>
<td>-</td>
<td>2 ... 1 mm</td>
</tr>
<tr>
<td>OADM 20I6472/S14F</td>
<td>50 ... 300 mm</td>
<td>Point</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
</tr>
<tr>
<td>OADM 20I6541/S14F</td>
<td>30 ... 70 mm</td>
<td>Line</td>
<td>1 ... 0,2 mm</td>
<td>2 mm</td>
<td>-</td>
</tr>
<tr>
<td>OADM 20I6560/S14F</td>
<td>30 ... 130 mm</td>
<td>Line</td>
<td>2 ... 1 mm</td>
<td>3 ... 5 mm</td>
<td>-</td>
</tr>
<tr>
<td>OADM 20I6572/S14F</td>
<td>50 ... 300 mm</td>
<td>Line</td>
<td>2,5 mm</td>
<td>4 ... 12 mm</td>
<td>-</td>
</tr>
</tbody>
</table>
Distance sensors

**Resolution**

Sr = 30 ... 70 mm

Sr = 30 ... 130 mm

Sr = 50 ... 300 mm

**Linearity error**

Sr = 30 ... 70 mm

Sr = 30 ... 130 mm

Sr = 50 ... 300 mm

**Beam alignment (line)**

**Dimension drawing**

* *emitter axis*
Distance sensors

- synchronization input
- teachable measuring range
- resolution up to 15 μm

**General Data**

- Sensing element: Photoelectric array
- Adjustment: Teach-in: button / external
- Power on indication: LED green
- Soiled lens indicator: LED red / LED red blinking
- Light source: Pulsed red laser diode
- Wave length: 675 nm
- Laser class: 2

### Measuring Distance Sd = 100 ... 600 mm

- Teach-in range min.: > 10 mm
- Resolution: 0.015 ... 0.67 mm
- Linearity error: ± 0.05 ... ± 2 mm

### Measuring Distance Sd = 200 ... 1000 mm

- Teach-in range min.: > 20 mm
- Resolution: 0.12 ... 3 mm
- Linearity error: ± 0.48 ... ± 12 mm

**Electrical Data**

- Voltage supply range: +Vs 12 ... 28 VDC
- Current consumption max.: 120 mA
- Output circuit: Analog
- Output signal: 4 ... 20 mA / 0 ... 10 VDC
- Load resistance (analog I): < (+Vs - 6 V) / 0.02 A
- Load resistance (analog U): > 100 kOhm
- Output current: < 100 mA
- Alarm output: PNP
- Short circuit protection: yes
- Reverse polarity protection: yes, Vs to GND

### Measuring Distance Sd = 100 ... 600 mm

- Response time / release time: < 0.9 ms

### Measuring Distance Sd = 200 ... 1000 mm

- Response time / release time: < 2.8 ms

**Mechanical Data**

- Width / Diameter: 20.6 mm
- Height / Length: 65 mm
- Depth: 50 mm
- Housing material: Die-cast zinc
- Connection types: Connector M12, 8 pin, rotatable

**Ambient Conditions**

- Operating temperature: 0 ... +50 °C
- Protection class: IP 67

**Order Reference**

<table>
<thead>
<tr>
<th>Order Reference</th>
<th>Measuring Distance Sd</th>
<th>Beam Type</th>
<th>Beam Width</th>
<th>Beam Height</th>
<th>Beam Diameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>OADM 20I680/S14F</td>
<td>100 ... 600 mm</td>
<td>Point</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
</tr>
<tr>
<td>OADM 20I681/S14F</td>
<td>200 ... 1000 mm</td>
<td>Point</td>
<td>-</td>
<td>-</td>
<td>2 mm</td>
</tr>
<tr>
<td>OADM 20I6580/S14F</td>
<td>100 ... 600 mm</td>
<td>Line</td>
<td>2.5 mm</td>
<td>5.5 ... 21 mm</td>
<td>-</td>
</tr>
<tr>
<td>OADM 20I6581/S14F</td>
<td>200 ... 1000 mm</td>
<td>Line</td>
<td>2.5 mm</td>
<td>8.5 ... 35 mm</td>
<td>-</td>
</tr>
</tbody>
</table>

**Connection Diagram**

**Connectors**

- ESG 34FP0200B 8 pin 2 m straight (shielded)

**Accessories**

- Mounting bracket: 131521

**Laser Warning**

CAUTION

LASER RADIATION

DO NOT STARE INTO BEAM

LASER DIODE

Class 2 LASER Product

Wavelength: 630 - 680 nm

Max. Output: < 1 mW

Complies with EN60825-1:2001
Distance sensors

**Resolution**

<table>
<thead>
<tr>
<th>Sr = 100 ... 600 mm</th>
<th>Sr = 200 ... 1000 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Graph showing resolution vs. measuring distance for different Sd values]</td>
<td>[Graph showing resolution vs. measuring distance for different Sd values]</td>
</tr>
</tbody>
</table>

**Linearity Error**

<table>
<thead>
<tr>
<th>Sr = 100 ... 600 mm</th>
<th>Sr = 200 ... 1000 mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>[Graph showing linearity error vs. measuring distance for different Sd values]</td>
<td>[Graph showing linearity error vs. measuring distance for different Sd values]</td>
</tr>
</tbody>
</table>

**Beam Alignment (Line)**

- [Image of beam alignment (line)]

**Dimension Drawing**

- [Drawing of the sensor with dimensions and notes: 20.6, 50, 38, 4, 5, 12 x 1, LED, Teach-in, M12 x 1. *Emitter axis.*]