




# Series OM

## Versatile - nifty - slim sensors with an outstanding profile

 up to 9 m  
Through-beam sensors OMS/OME

 up to 6,2 m  
Retro-reflective sensors OMR

 up to 4,7 m  
Retro-reflective sensors  
with polarizing filters OMP

 up to 65 cm  
Diffuse-reflective sensors OMT



### High functionality

#### Diverse operating principles

ELESTA's OM sensors are available as through-beam sensors, retro-reflective sensors with and without polarizing filters, as well as diffuse-reflective sensors. The OM sensors can also be used with fiber optic cables.

#### Light reserve warning indicator

All of the sensors in the OM series contain a light-reserve warning indicator (blinking function indicator) for controlling dirt build-up on the lenses and as an alignment aid.

#### High ambient temperature

These photoelectric sensors can be used for ambient temperatures up to +90° C (at reduced supply voltage).

#### High switching frequency

All OM sensors have a 1000 Hz switching frequency, allowing for the reliable detection of even fast moving objects.

#### Low power consumption

The OM sensors distinguish themselves with an extremely small power consumption of less than 15 mA.

#### Test input as option

As an option, the OM sensors are available with test input, for confirming that the sensor is operating properly. A sensor with test input has only one output, either light-on or dark-on.

### Simple installation and operation

#### Adjustable range

The optical range of each OM sensor can be adjusted to meet the specific application.

#### Angle optics

The right angle optics version of this series has a special user-friendly design. The diameter of the optic head is no greater than that of the sensor housing. Therefore, also the angle optics versions of the OM sensors are easy to install, even in bore mounting applications.

#### Various connection versions

All OM sensors are available standard with a 2m cable or an M12 connector. As an option, the OM sensors are available with a right angle 2m cable, or a Torson connector.

#### Combined surface and bore mounting

The ELESTA OM sensors distinguish themselves with a special housing concept. They can be bore mounted or flat mounted on a surface with two M4 screws.



### Reliable for the highest demands

#### Robust construction with IP 67 sealing

The OM photoelectric sensors are built with a glass-sphere reinforced polyamide housing, and are protected against water and dust. The sensors meet the sealing requirements of IP 67.

#### EMC-tested

The OM sensors are tested according to IEC 801, EN50081-1 and EN50082-2. This assures trouble free use even in high electromagnetically contaminated environments.

#### High ambient light rejection

Thanks to pulse modulation and a multilevel disturbance rejection, the OM sensors are extremely insensitive to foreign light sources.

#### Reverse polarity protection

All of the OM sensor's electrical connections are protected against reverse wiring.

#### Short-circuit protection

The OM sensor's transistor outputs are electronically protected against short circuit.

#### Power-up output suppression

During power-up the outputs of the OM sensors are blocked for typically 30 msec.

#### Glass-protected optics

Partially standard, but also as an option, the OM sensors are available with a glass window to protect the optics against aggressive chemicals and mechanical damage (scratching).

**Designation code**

OM X XXX XXX XX

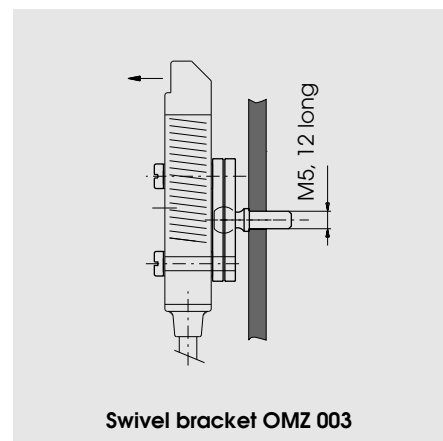
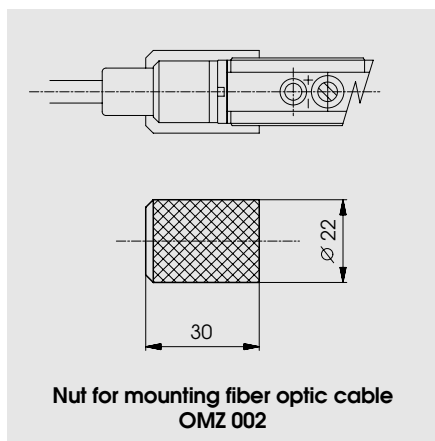
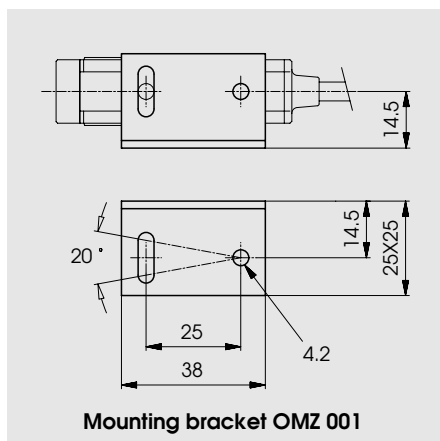
| Principle                                   | Supply       | Outputs                    | Connection              | Electr. option                       | Light                          | Range  |  |
|---|--------------|----------------------------|-------------------------|--------------------------------------|--------------------------------|--|--|
| E: Through-beam receiver                    | 1: 10-30 VDC | KA: No output              | 0: Cable special length | 00: Range adjustable                 | A: Right angle optic, red      | OMS/OME:<br>1: 9 m<br>2: 8 m                         |  |
| P: Retro-reflective with polarizing filters |              | NA: NPN light- and dark-on | 1: Cable 2 m            | 01: Range adjustable, test input     | G: Straight optic, infrared    | OMP/OMR:<br>1: 2 m<br>2: 2 m<br>3: 3 m               |  |
| R: Retro-reflective                         |              | ND: NPN dark-on            | 2: Angled cable 2 m     | 40: Range not adjustable             | S: Straight optic, red         | OMT:<br>1: 10 cm<br>2: 20 cm<br>3: 40 cm<br>4: 65 cm |  |
| S: Through-beam emitter                     |              | NH: NPN light-on           | 4: Connector M12        | 41: Range not adjustable, test input | W: Right angle optic, infrared |  |  |
| T: Diffuse-reflective                       |              | PA: PNP light- and dark-on | 6: Connector Torson     |                                      |                                |  |  |
| Z: Accessory                                |              |                            | PD: PNP dark-on         |                                      |                                |  |  |
|   |              |                            | PH: PNP light-on        |                                      |                                |  |  |

**Accessories**

**Retroreflectors:** see page 130

**Connector cables:** see page 128

**Mounting:**



# Through-beam sensors, straight optics, M18 housing



- Combined surface and bore mounting
- Light reserve warning indicator
- Dual transistor outputs, NPN or PNP
- Test input
- Short-circuit protection, reverse polarity protection, and power-up output suppression
- Connections: Straight cable, 2 meter  
Connector, M12  
Right angle cable, 2 meter (option)  
Connector, Torson (option)
- EMC tested according to IEC 801 and EN50081-1/EN 50082-2



## Product designation<sup>1)</sup>

|                  |
|------------------|
| Output           |
| Connection       |
| Range adjustment |

## Optical data<sup>2)</sup>

|            |
|------------|
| Max. range |
| Emitter    |

## Electrical data<sup>2)</sup>

|   |
|---|
| Supply voltage $U_s$                          |
| Allowable ripple                              |
| Current consumption (without load)            |
| Max. load current $I_L$                       |
| Residual voltage                              |
| Max. switching frequency                      |
| Test input: emitter on<br>emitter off         |
| Test input inverse: emitter on<br>emitter off |

## Environmental data

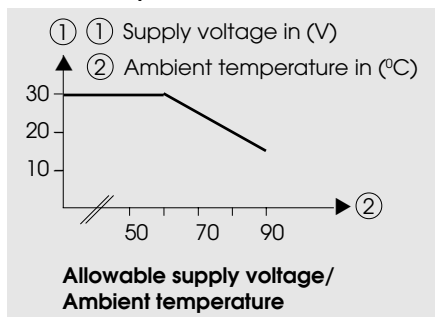
|  |
|--|
| Sealing                                      |
| Temperature $T_A$<br>(operating and storage) |
| Weight                                       |

| Emitter                            |                   | Receiver                 |                   |                          |                   |
|------------------------------------|-------------------|--------------------------|-------------------|--------------------------|-------------------|
| OMS 1KA<br>141 G1                  | OMS 1KA<br>441 G1 | OME 1NA<br>100 G1        | OME 1NA<br>400 G1 | OME 1PA<br>100 G1        | OME 1PA<br>400 G1 |
|                                    |                   | NPN (light- and dark-on) |                   | PNP (light- and dark-on) |                   |
| Cable 2 m                          | Connector<br>M12  | Cable 2 m                | Connector<br>M12  | Cable 2 m                | Connector<br>M12  |
| No                                 |                   | Yes                      |                   |                          |                   |
| 9 m                                |                   |                          |                   |                          |                   |
| Infrared-LED, 880 nm, pulsed       |                   |                          |                   |                          |                   |
| 10...30 VDC                        |                   |                          |                   |                          |                   |
| +/- 10% of $U_s$                   |                   |                          |                   |                          |                   |
| < 25 mA                            |                   | < 15 mA                  |                   |                          |                   |
|                                    |                   | 200 mA                   |                   |                          |                   |
|                                    |                   | < 1,6 V                  |                   |                          |                   |
|                                    |                   | 1000 Hz                  |                   |                          |                   |
| > 8 V or open<br>< 1,5 V           |                   |                          |                   |                          |                   |
| open or < 1,5 V<br>> 8 V           |                   |                          |                   |                          |                   |
| IP 67                              |                   |                          |                   |                          |                   |
| -20...+90 °C (☛ Tech. explanation) |                   |                          |                   |                          |                   |
| ca. 90 g                           | ca. 20 g          | ca. 90 g                 | ca. 20 g          | ca. 90 g                 | ca. 20 g          |

1) For product designation of sensors with options see designation code on page 47.

2) When not otherwise noted, all technical data at  $T_A = 25\text{ °C}$  and  $U_s = 24\text{ V}$ .

## Technical explanation

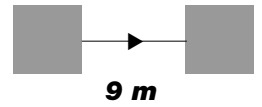


## Allowable supply voltage as a function of ambient temperature

The specified operating temperature is only usable if the supply voltage is reduced at higher temperatures (☛ Diagram "Allowable supply voltage/Ambient temperature").

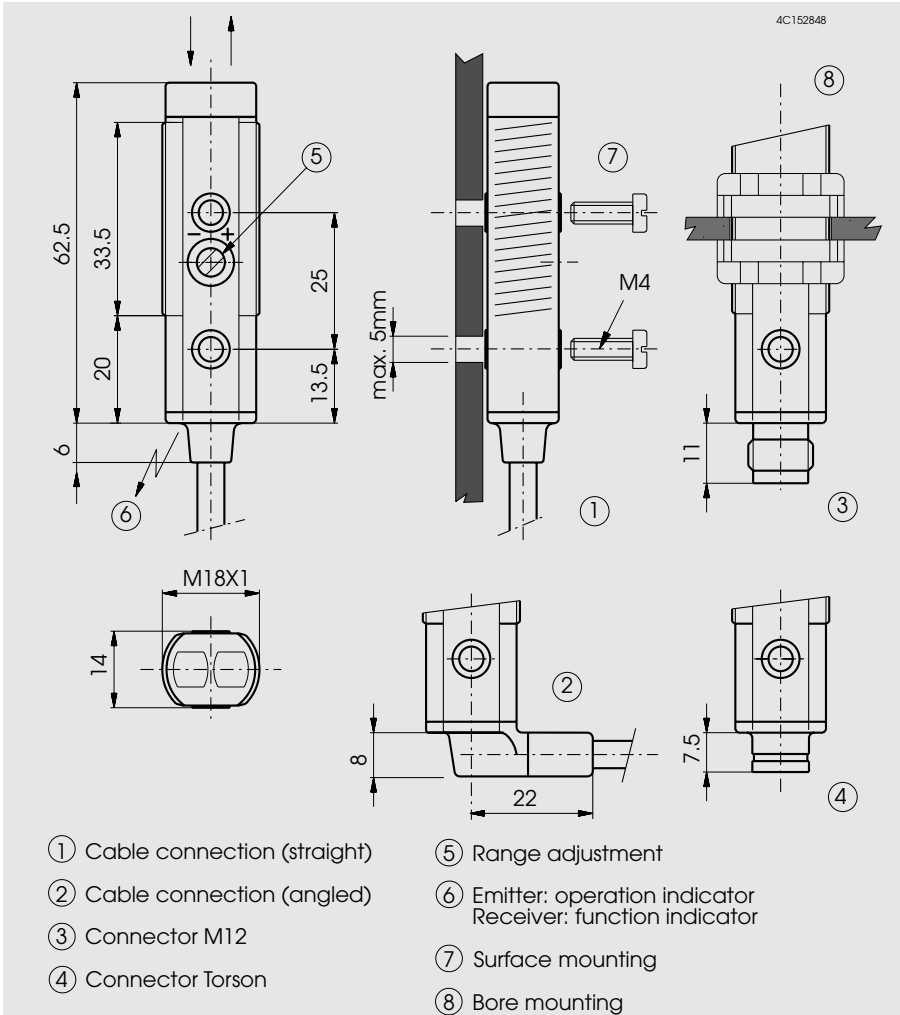
10...30 VDC

NPN / PNP  
light-on and  
dark-on output

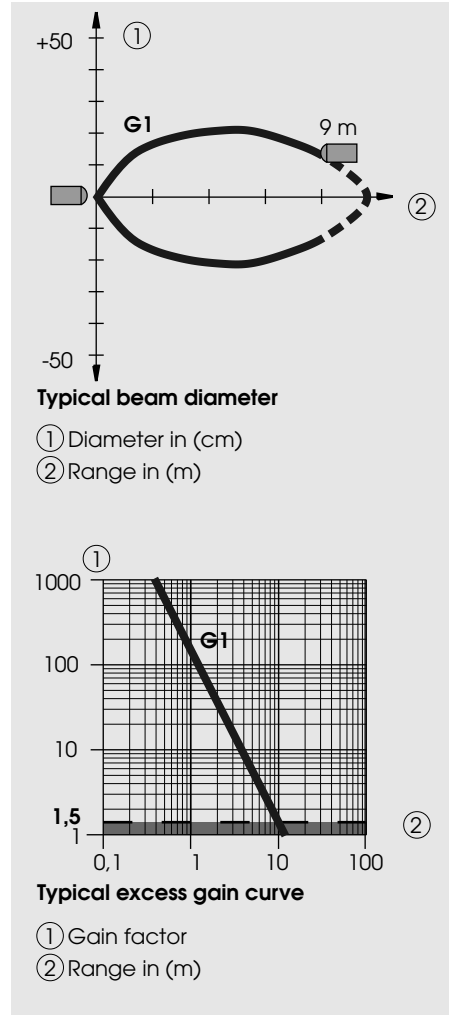


## OMS/OME straight optics

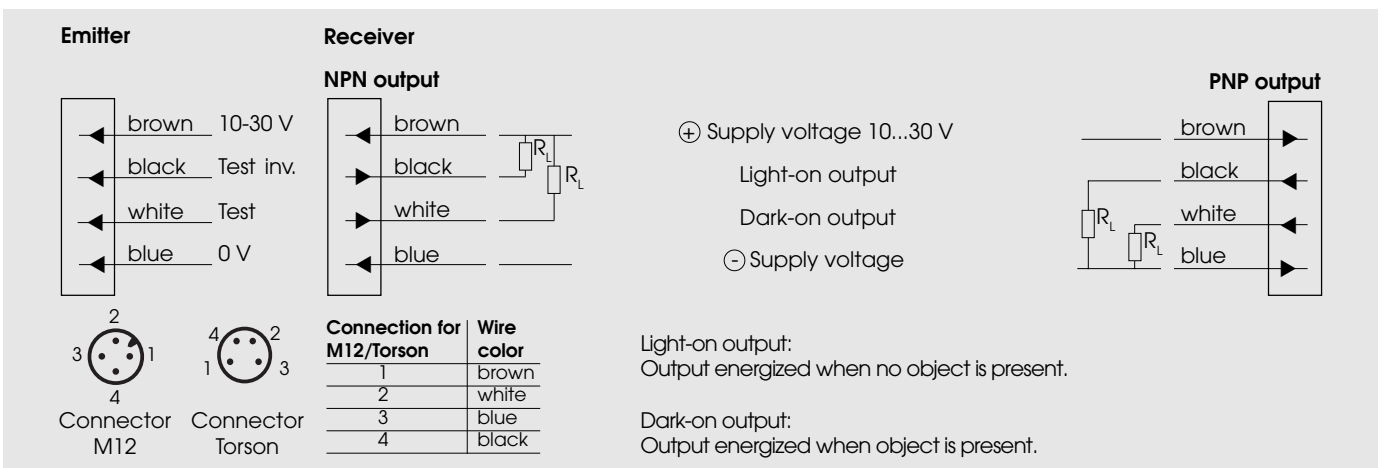
### Dimensions (62,5 mm, M18 x 1)



### Optical diagrams



### Wiring diagram



# Through-beam sensors, right angle optics, M18 housing



- Combined surface and bore mounting
- Light reserve warning indicator
- Dual transistor outputs, NPN or PNP
- Test input
- Short-circuit protection, reverse polarity protection, and power-up output suppression
- Connections: Straight cable, 2 meter  
Connector, M12  
Right angle cable, 2 meter (option)  
Connector, Torson (option)
- EMC tested according to IEC 801 and EN50081-1/EN 50082-2



## Product designation <sup>1)</sup>

Output

Connection

Range adjustment

## Optical data <sup>2)</sup>

Max. range

Emitter

## Electrical data <sup>2)</sup>

Supply voltage  $U_s$

Allowable ripple

Current consumption (without load)

Max. load current  $I_L$

Residual voltage

Max. switching frequency

Test input: emitter on  
emitter off

Test input inverse: emitter on  
emitter off

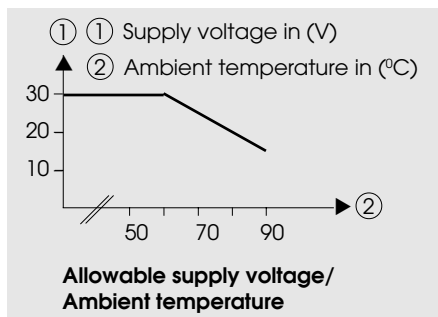
## Environmental data

Sealing

Temperature  $T_A$   
(operating and storage)

Weight

## Technical explanation



| Emitter                            |                   | Receiver                 |                   |                          |                   |
|------------------------------------|-------------------|--------------------------|-------------------|--------------------------|-------------------|
| OMS 1KA<br>141 W2                  | OMS 1KA<br>441 W2 | OME 1NA<br>100 W2        | OME 1NA<br>400 W2 | OME 1PA<br>100 W2        | OME 1PA<br>400 W2 |
|                                    |                   | NPN (light- and dark-on) |                   | PNP (light- and dark-on) |                   |
| Cable 2 m                          | Connector<br>M12  | Cable 2 m                | Connector<br>M12  | Cable 2 m                | Connector<br>M12  |
| No                                 |                   | Yes                      |                   |                          |                   |
| 8 m                                |                   |                          |                   |                          |                   |
| Infrared-LED, 890 nm, pulsed       |                   |                          |                   |                          |                   |
| 10...30 VDC                        |                   |                          |                   |                          |                   |
| +/- 10% of $U_s$                   |                   |                          |                   |                          |                   |
| < 25 mA                            |                   | < 15 mA                  |                   |                          |                   |
|                                    |                   | 200 mA                   |                   |                          |                   |
|                                    |                   | < 1,6 V                  |                   |                          |                   |
|                                    |                   | 1000 Hz                  |                   |                          |                   |
| > 8 V or open<br>< 1,5 V           |                   |                          |                   |                          |                   |
| open or < 1,5 V<br>> 8 V           |                   |                          |                   |                          |                   |
| IP 67                              |                   |                          |                   |                          |                   |
| -20...+90 °C (↔ Tech. explanation) |                   |                          |                   |                          |                   |
| ca. 95 g                           | ca. 25 g          | ca. 95 g                 | ca. 25 g          | ca. 95 g                 | ca. 25 g          |

1) For product designation of sensors with options see designation code on page 47.

2) When not otherwise noted, all technical data at  $T_A = 25\text{ °C}$  and  $U_s = 24\text{ V}$ .

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