

## OTR49176

optical sensors  
diffuse reflection sensors

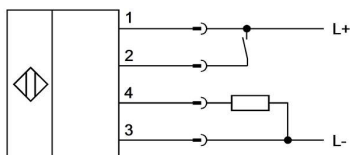
- / stainless steel sleeve
- / high degree of protection IP67
- / LED display for status and functional reserve
- / connection with M8-pigtail

subminiature devices  
visible red light

### TECHNICAL DATA

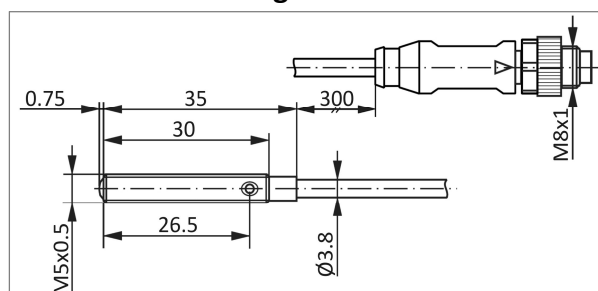
sensing range max.	120mm (object with 90% reflectivity)
operating range	0 ... 100mm (objekt with 90% reflectivity)
transmitting element	LED, red light
wave length	630nm
operating voltage $U_b$	10 ... 30V DC
residual ripple	$\leq 10\%$
power consumption (no load)	$\leq 12\text{mA}$
output signal	npn, no
output current (max. load)	$\leq 100\text{mA}$
voltage drop (max. load)	$\leq 2\text{V DC}$
Sampling frequency	$\leq 1\text{kHz}$
indicator LED, green	excess gain
indicator LED, yellow	sensing state
short circuit protection	+
reverse polarity protection	+
housing material	stainless steel V2A
optics material	PMMA
degree of protection (EN 60529)	IP 67
design	$\varnothing 4\text{mm}$
length	35.75mm
operating temperature	-20 ... +65°C
connection	300mm PUR-Cable / M8-Connector, 4-pin
connection accessories	e.G. <b>VK200375</b>
mounting accessories (mounting holder)	<b>AY000115</b>

### connection



**Colors:** 1 = BN (brown), 2 = WH (white), 3 = BU (blue), 4 = BK (black)  
**Functions:** 1 = L+, 2 = Teach-In 3 = L-, 4 = PNP NO

### dimensional drawing



**Installation and environment**

Two nuts are included to attach the device.

The maximum tightening torque of 1Nm must not be exceeded!

Coverings on the optics impair the function. Please install the device in such a way that dust cannot be deposited or liquids can get on the optics. The device should be accessible for cleaning.

From time to time, the optics should be cleaned with a soft cloth moistened with soapy water.

**Cable**

The connecting cable between sensor and M8-connector should be laid as fixed as possible or strain-relieved.

**Adjustment**

Mount the device by taking into account the sensing range, so that the object is reliably detected. In case of reliable detection, the LED lights up green.

If the LED lights up yellow, the device is in an insecure area. The cause may be an object that is too far away or even soiling. There should be no other objects than the one to be detected within the detection area or its border.

The sensing range is adjustable between 30 and 100mm (90% reflectivity) by a teach-in-procedure.

1. Install the sensor at the required position and bring the object to be detected into the beam path within the specified operating range.
2. Connect the white wire (PIN 2) to the operating voltage (brown wire, PIN 1).
3. As soon as the LED starts to flash yellow, disconnect the connection.
4. The desired sensing range is set.
5. If the distance to the object is more than 100mm, the maximum operating range is automatically set.

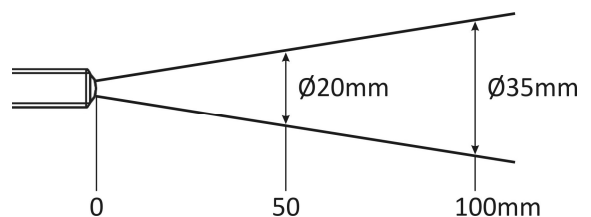
**Note**

The devices respond to the intensity of the light that is reflected of any object. The nominal switching distances are based on white paper with an area of 100 x 100mm. The possible detection ranges for less reflective materials can be found in the table "sensing range". The switching distance increases with more reflective materials (e.g. polished aluminum).

**Sensing range**

target (reflectivity)	operating range	sensing range max.
white (90%)	0 ... 100mm	0 ... 120mm
grey (18%)	0.1 ... 50mm	0.1 ... 60mm
black (6%)	0.2 ... 30mm	0.2 ... 35mm

**Light spot size**



**SAFETY WARNINGS:**

Before initial operation, please make sure to follow all safety instructions that may be provided in the product information!

Never use these articles in applications where the safety of a person depends on their functionality.