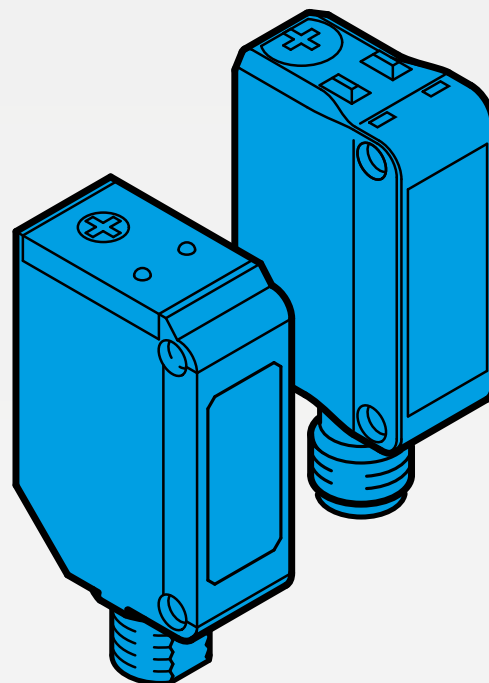


THROUGH-BEAM SENSORS

OS3X, OE3X



600025-0000EN · Rev 1 · 2025/11

OPERATING INSTRUCTIONS

1 PRELIMINARY NOTE	3
1.1 About the product	3
1.2 Symbols	3
2 SAFETY INSTRUCTIONS	3
3 INTENDED USE	3
4 PRODUCT DESCRIPTION	3
4.1 Properties	3
4.2 Variants	4
5 INSTALLATION	4
5.1 Installation conditions	4
5.2 Mounting	4
5.3 Aligning the transmitter with the receiver	5
6 ELECTRICAL CONNECTION	6
6.1 General notes	6
6.2 Pin assignment	6
6.3 Switching logic of switching output	6
6.4 Connecting the supply voltage	6
7 OPERATING AND DISPLAY ELEMENTS	7
8 COMMISSIONING THE SENSOR	8
8.1 General notes	8
8.2 Parameterization on the sensor with operating elements	8
9 TROUBLESHOOTING	9
10 MAINTENANCE, REPAIRS, DISPOSAL	10
10.1 Maintenance	10
10.2 Repair	10
10.3 Disposal	10
APPENDIX	10
Typical functional reserve	10
Typical response behavior (white 90%)	10

1 PRELIMINARY NOTE

1.1 ABOUT THE PRODUCT



IMPORTANT! Technical data, the user manual, data sheet and IODD can be found via the QR code on the packaging or alternatively via the article number at www.di-soric.com.

1.2 SYMBOLS



Warning symbol about personal harm



Note on efficient and trouble-free operation



Important! Malfunctions or faults are possible if not observed

ABBREVIATIONS, TERMS

NC	Switching logic of normally closed contact
NO	Switching logic of normally open contact
PELV	Protective extra low voltage
SELV	Safety extra low voltage
UL	Underwriters Laboratories

2 SAFETY INSTRUCTIONS



WARNING! The device is not a safety component pursuant to 2006/42/EC and EN 61496-1/-2. The device may not be used for personal protection! Non-compliance can lead to death or serious injuries! The device may only be used for the intended purpose!

3 INTENDED USE

The product (also known as a sensor) is a sensor for optical, non-contact detection of objects.

4 PRODUCT DESCRIPTION

4.1 PROPERTIES

The sensors are through-beam sensors. The OS3* transmitter and OE3* receiver are each in a separate housing. Transmitter and receiver are mounted opposite one another.

The received intensity level of the receiver is compared to the setpoint and evaluated as a switching signal.



NOTE:
Installation instructions for this are located in *Chapter 5.2 Mounting, page 4*.

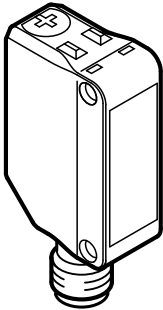


NOTE:
Instructions for commissioning the sensor are located in *Chapter 8 Commissioning the sensor, page 8*.

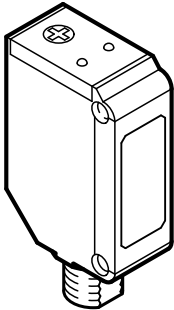
4.2 VARIANTS

The products are available in the O-33 and O-34 series.

The O-33 and O-34 series differ in terms of their mechanical design and housing material. Products from the O-33 series have a housing made of plastic with IP67 degree of protection. Products from the O-34 series have a housing made of stainless steel with IP69K degree of protection.



O-33 series



O-34 series

The individual product variants differ as follows:

Product	Number	Function	Housing material	Light source	Max. range [mm]	Connection
OS33-IMN-T4	214917	Transmitter	Plastic	LED, infrared	15000	M8, 4-pin
OS33-IMN-2C	214916	Transmitter	Plastic	LED, infrared	15000	Cable, 2.0 m
OS34-IMN-T4	214918	Transmitter	Plastic	LED, infrared	15000	M8, 4-pin
OE33-IMN-PT-P3-T4	214887	Receiver	Stainless steel		15000	M8, 4-pin
OE33-IMN-PT-P3-2C	214886	Receiver	Stainless steel		15000	Cable, 2.0 m
OE34-IMN-PT-G3-T4	214888	Receiver	Stainless steel		15000	M8, 4-pin

5 INSTALLATION

5.1 INSTALLATION CONDITIONS



IMPORTANT! The permitted ambient conditions for operation of the device must be maintained. The device must be protected from mechanical loads (e.g. shocks and impacts). The device may be mounted in any position, as long as it is not shaken or subjected to vibration in the process.

5.2 MOUNTING

The O-33 and O-34 series have different mounting holes. The O-33 series has a through-hole for the M3 fastening screws. The O-34 series has an M3 internal thread.

Fasten the device at the mounting holes. Observe the maximum torque for the fastening screws (M3 max. 0.5 Nm). The housing must not be bent out of shape; mechanical tension must be avoided.



NOTE:
Use a suitable mounting bracket (accessory) to mount the sensor.

5.3 ALIGNING THE TRANSMITTER WITH THE RECEIVER

Preparation

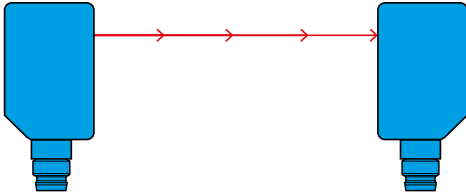
The sensors are to be mounted in such a way that no foreign objects are located in the area of the front panel and in the field of view of the sensor. It must be ensured that the front panel is free of dirt. To clean the front panel, use a soft, dust-free cloth.

Fasten the receiver (OE) with screws.

Align the transmitter (OS) with the receiver and fasten with screws.

Choose the position of the transmitter so that the invisible infrared light strikes the receiver.

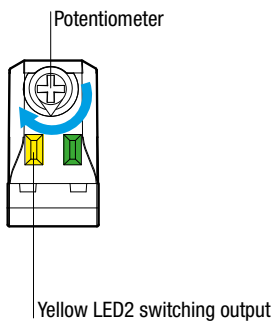
The maximum range can only be attained with optimal alignment.



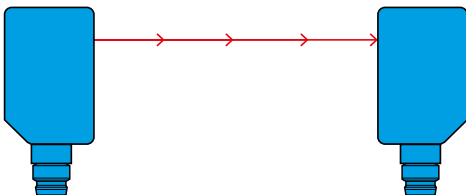
To check the alignment, first set the potentiometer of the receiver to the maximum functional reserve.

The alignment can only be assessed with the LED indicators on the receiver.

(Chapter 7 Operating and display elements, page 7).



Then decrease the functional reserve and optimize the alignment of the transmitter. When the transmitter and receiver are aligned correctly, then the receiver has green LED1 on and yellow LED2 off.

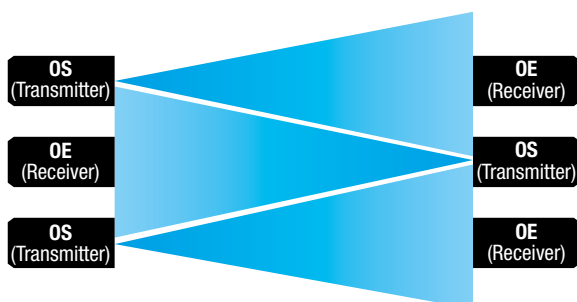


NOTE:

If the beam is interrupted by an object, then yellow LED2 is on.



NOTE: If LED 1 (green) is not lit on the receiver, then the application does not have a sufficient functional reserve. In this case, increase the functional reserve with the potentiometer and realign the transmitter.



If several through-beam sensors are installed, install the transmitter (OS) and receiver (OE) in reverse order at every other pair. To prevent mutual interference, keep enough distance between the light axes. To do so, observe the light spot diameter.

6 ELECTRICAL CONNECTION

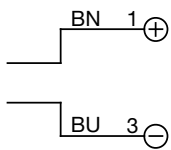
6.1 GENERAL NOTES



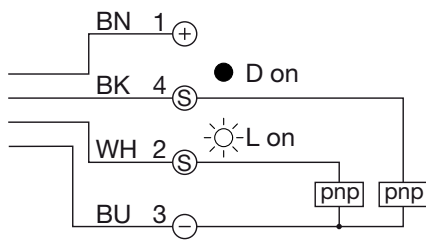
IMPORTANT! The device may only be installed by a qualified electrician. National and international regulation for setting up electrotechnical systems are to be adhered to.

6.2 PIN ASSIGNMENT

Depending on the product variant, the device has an M8 connector or a cable connection.



Transmitter electrical connection



Receiver electrical connection

6.3 SWITCHING LOGIC OF SWITCHING OUTPUT

At pin 4, the receiver has a PNP switching output with the NO switching logic. The resulting switching behavior at pin 4 is "dark switching".

At pin 2, the receiver has a PNP switching output with the NC switching logic. The resulting switching behavior at pin 2 is "light switching".

6.4 CONNECTING THE SUPPLY VOLTAGE



IMPORTANT! Ensure a voltage supply in accordance with SELV, PELV.

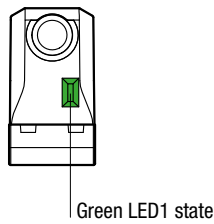


IMPORTANT! Only operate UL applications with supply class 2 power supplies. Maintain a minimum distance of 12.5 mm between the sensor and all uninsulated live parts. Use an overcurrent protection device with a maximum nominal current of 2 A.

Operate UL applications exclusively with power supplies classified as Class 2. Allow a minimum distance of 12.5 mm between the proximity sensor and any uninsulated live parts. Use an overcurrent protection rated 2 A maximum.

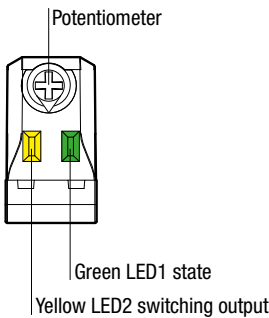
- De-energize the device
- Connect supply voltage to device in accordance with the technical data

7 OPERATING AND DISPLAY ELEMENTS



Transmitter LED indicator in operation

LED1	green on	Sensor ready
------	----------	--------------



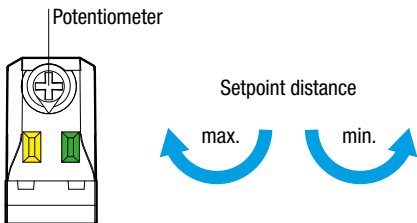
Receiver LED indicator operating with sufficient functional reserve

LED1	green on	Sensor ready
LED2	yellow on	Switching output (pin 4) active
LED2	yellow off	Switching output (pin 4) not active

Receiver LED indicator operating with low functional reserve

LED1 LED2	green off yellow on	Sensor with low functional reserve, switching output (pin 4) active
LED1 LED2	green off yellow off	Sensor with low functional reserve, switching output (pin 4) not active

The setpoint is set by a potentiometer with a setting range of 270°. If the potentiometer is located on the left limit stop (as viewed from the front of the sensor), the setpoint is set to the maximum functional reserve. If the potentiometer is located on the right limit stop, the functional reserve is minimal.



NOTE: For more details on how to operate with a potentiometer, see *Chapter 8.2 Parameterization on the sensor with operating elements, page 8.*

8 COMMISSIONING THE SENSOR

8.1 GENERAL NOTES

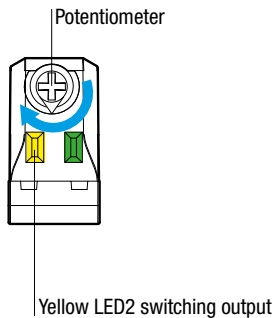
Switching on the supply voltage puts the device into operation. After the time delay before availability has elapsed, the device is operational.

8.2 PARAMETERIZATION ON THE SENSOR WITH OPERATING ELEMENTS

To set the setpoint, you have to have the transmitter (OS) and receiver (OE) aligned and have an object.

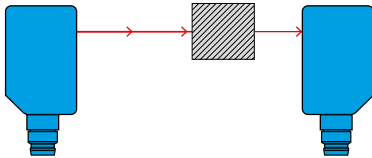
The setpoint is set by means of the potentiometer.

Turn the potentiometer to the left limit stop (maximum functional reserve).

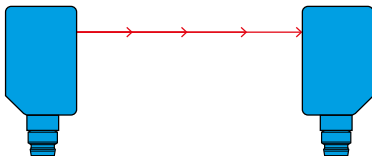


Position the object in the detection range of the sensor and check whether LED2 (yellow) is lit.

For detection of small objects and partly transparent objects, decrease the functional reserve by turning the potentiometer clockwise.



Remove the object from the detection range of the sensor and check whether LED2 (yellow) is not lit.



NOTE:

If LED2 (yellow) is lit sporadically with an object, decrease the functional reserve and check the application.



NOTE: If LED1 (green) is not lit, then the application does not have sufficient functional reserve. In this case, increase the functional reserve and check the application.

9 TROUBLESHOOTING

LED / fault pattern	Possible cause	Measures
Green LED1 on transmitter off	No voltage or voltage outside service voltage	Check voltage supply
Green LED1 on receiver off	No voltage or voltage outside service voltage	Check voltage supply
Green LED1 on receiver off	Operation with low functional reserve	Optimize the sensor alignment (<i>Chapter 5.3 Aligning the transmitter with the receiver, page 5</i>) Optimize the setpoint with the operating element Clean the front panel
Yellow LED2 on receiver on, no object in the detection range	Signal at receiver too low	Optimize the sensor alignment (<i>Chapter 5.3 Aligning the transmitter with the receiver, page 5</i>) Optimize the functional reserve with the operating element Clean the front panel
Detection disrupted, multiple light barrier pairs are mounted near each other.	Mutual interference	Install every other light barrier pair in reverse order Increase the distance between sensors

Have the following information ready when contacting Service:

- Customer number
- Article designation or article number
- Serial or batch number
- Description of support inquiry

10 MAINTENANCE, REPAIRS, DISPOSAL

10.1 MAINTENANCE

The device operates without maintenance during ongoing operation.

For optimum function, observe the following:

- Regularly clean the front panel with a soft, lint-free cloth
- Regularly check the fastening and the electrical connections

10.2 REPAIR

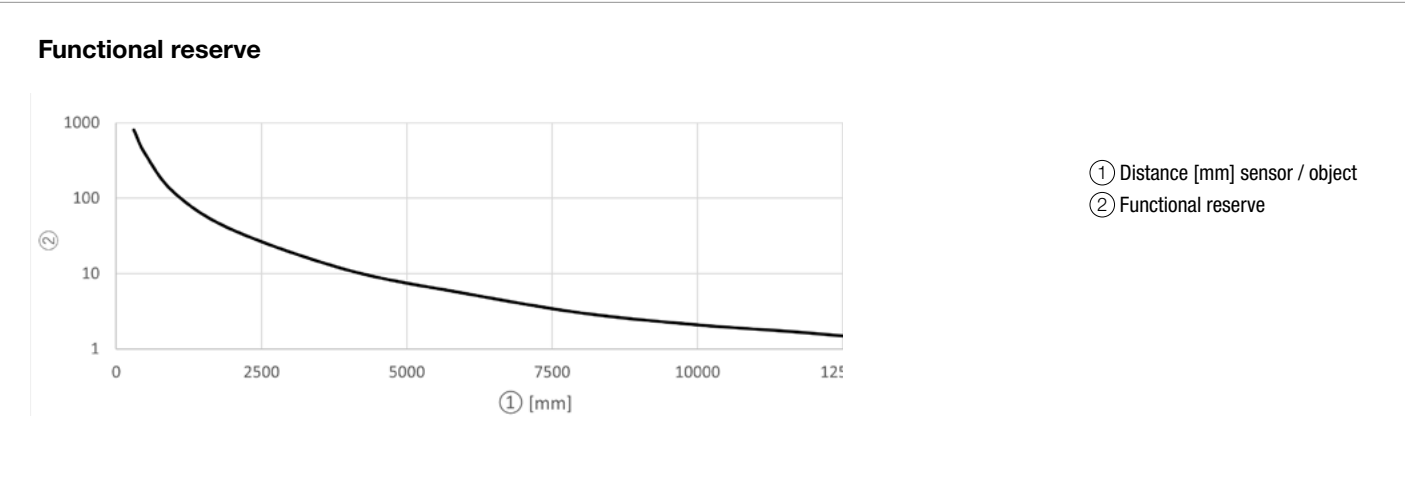
Defective devices may only be repaired by the manufacturer.

10.3 DISPOSAL

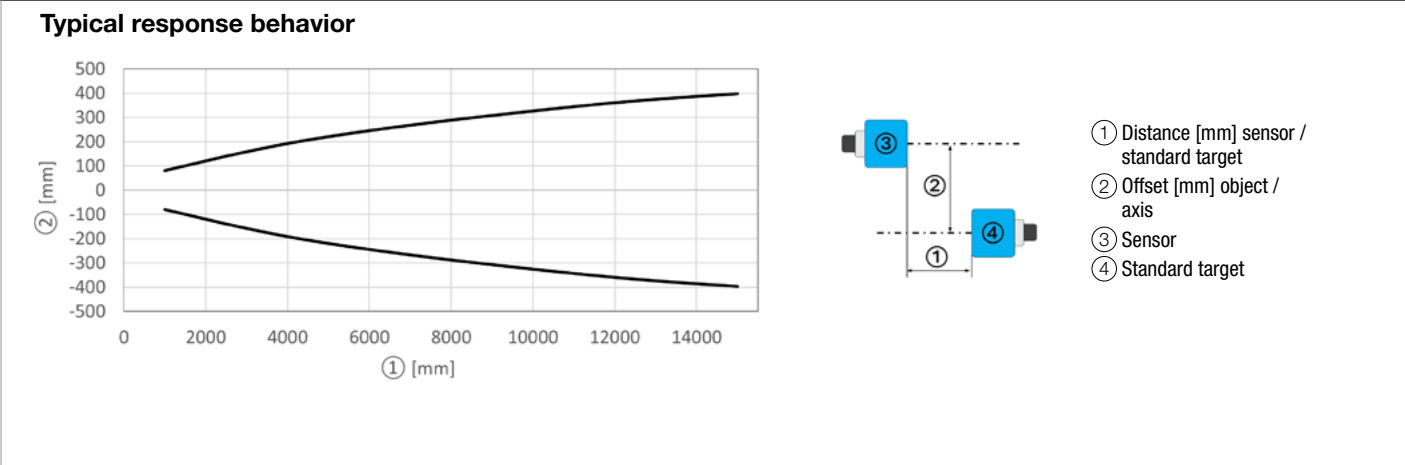
The device is to be disposed of in an environmentally appropriate manner according to the respectively applicable waste removal regulations.

APPENDIX

TYPICAL FUNCTIONAL RESERVE



TYPICAL RESPONSE BEHAVIOR (WHITE 90%)



SOLUTIONS. CLEVER. PRACTICAL.

di-soric GmbH & Co. KG | Steinbeisstrasse 6 | 73660 Urbach | Germany
Phone +49 71 81 98 79-0 | Fax +49 71 81 98 79-179 | info@di-soric.com

www.di-soric.com