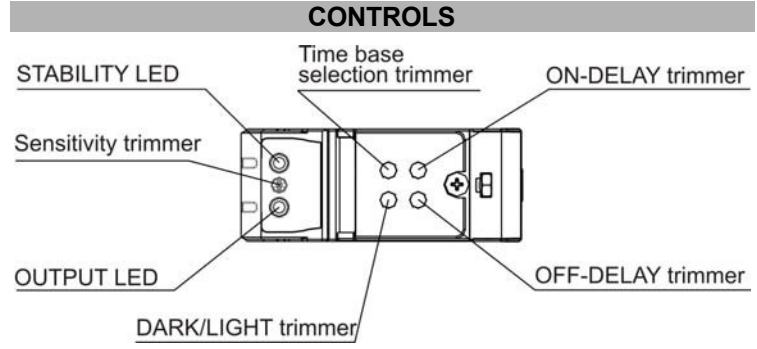


OR285906
Retro-reflective sensors with polarizing filter,
time function and optics room heater

INSTRUCTION MANUAL



OUTPUT LED (yellow)
The yellow LED ON indicates the output status.

STABILITY LED (green)
The green LED ON indicates that the sensor has working with a enough safety margin.

SENSITIVITY TRIMMER
A mono-turn trimmer adjusts the sensitivity and the sensor operating distance. The operating distance increases, rotating the screws in a clockwise direction.

DARK/LIGHT TRIMMER
A mono-turn trimmer to select dark/light mode.

ON-DELAY AND OFF-DELAY TRIMMER (only versions with timing functions)
Mono-turn trimmers to setting output activation and disactivation delay time. Please refer to "TIMING FUNCTIONS" paragraph for for procedure indications.

TIME BASE SELECTION AND ONE-SHOT TRIMMER (only versions with timing functions)
A mono-turn trimmer with three operation position: it allows to select two different delay time base (SHORT BASE and LONG BASE) or ONE SHOT. Please refer to "TIMING FUNCTIONS" paragraph for procedure indications.

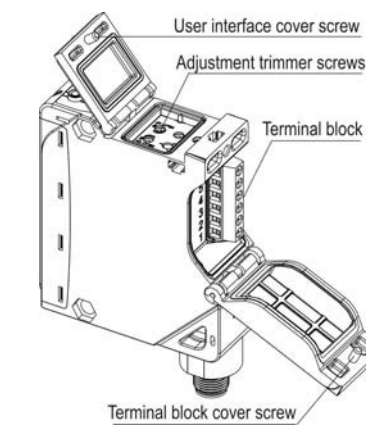
WARNING: the maximum mechanical rotation range of the trimmer is 240°. Do not force over of the maximum and minimum positions.

INSTALLATION

The sensor can be positioned by means of the two housing holes using two screws (M5x35 or longer, 1.2Nm maximum tightening torque). The sensor bottom surface has been provided of two mechanical threaded insert M5x5,5. These metal insert are commercial components.

Various orientable fixing brackets to ease the sensor positioning are available (please refer to the accessories listed in the general catalogue). The operating distance is measured from the front surface of the sensor optics.

For a correct use, the sensor must be installed orthogonal respect the direction of the object to detect like show in the figure.



Tighten all screws surely to maintain the water-proof characteristics for IP67 (IEC/EN60529). Excessive tightening causes damage. Tighten the screws within the tightening torque range shown in the table.

TIGHTENING TORQUE (Nm)	
Terminal screws(6pc)	0.5 max
Covers screws	0.5...0.8

The cable gland assures mechanical retention compliant with EN50262.

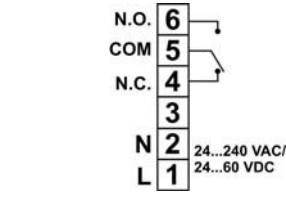
CABLE DIAMETER	LOAD (N)
4,5..8mm	30
8..10mm	42

TECHNICAL DATA

MODEL	OR285906
Power supply:	24...240 VAC / 24...60 VDC
Ripple:	10 % max
Current consumption (output current excluded):	< 3 VA
Outputs:	Electromechanical SPDT: Max. Voltage contact 250 V AC / 30 VDC
Output current:	Max 3 A (resistive load)
Response time:	20 ms
Switching frequency:	25 Hz
Weight:	150 g

General characteristics	
Emission type:	RED LED (660nm)
Operating distance (typical value):	20m on the reflector AO000027
Indicators:	OUTPUT LED (YELLOW), STABILITY LED (GREEN)
Adjustment:	Sensitivity trimmer / DARK/LIGHT trimmer the trimmer selects the time base and the operating mode one shot / trimmer ON DELAY / trimmer OFF DELAY
Time base:	SHORT BASE: 0...2 sec, LONG BASE: 0...10 sec
Operating temperature:	-40...55 °C
Storage temperature:	-40...70 °C
Dielectric strength:	:T500 VAC, 1 min between electronics and housing
Insulating resistance:	> 20 MΩ, 500 VDC between electronics and housing
Ambient light rejection:	EN 60947-5-2
Vibration:	0.5 mm amplitude, 10 ... 55 Hz frequency, for every axis (EN60068-2-6)
Shock resistance:	11 ms (30 G) 6 shock for every axis (EN60068-2-27)
Housing:	PBT 30% Glass fiber-reinforced
Lenses:	frontal window and lens in PC
Protection class:	IP67 (IEC / EN60529) / cable gland EN50262

CONNECTIONS



Use a cable of 4.5 to 10mm in diameter to ensure water- and dust-proof characteristics. The trasversal section of the cable must be between 0.14 and 1.3mm². The length of conductor peel must be 6mm and the cable peel must be 100mm.

To make cable connections easier, it is possible to remove (and then reposition) the terminal block cover at maximum opening. See the figure on the side.

Make sure that the power supply is switched off before connecting the cable lugs to the terminal block.

Make sure that all connections have been made correctly to avoid damage.

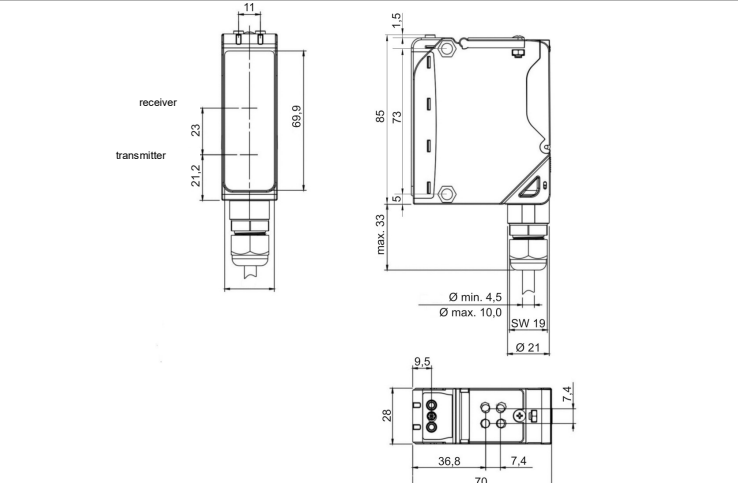
After making the connections, tighten the cable gland firmly to make the strain relief secure.

Close the cover of the terminal strips using the fixing screw.

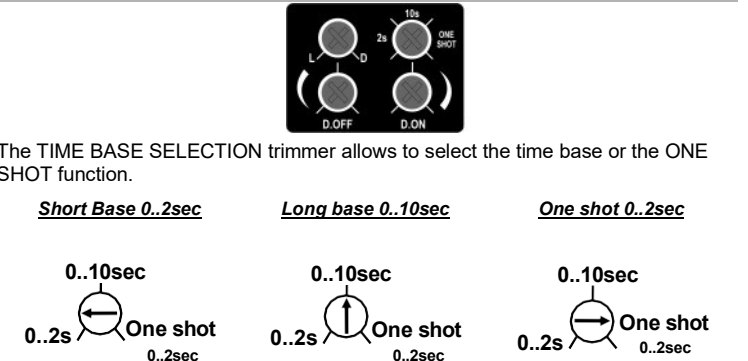
SETTING

Sensitivity setting
Position the sensor and reflector on opposite sides. Turn the sensitivity trimmer to maximum. Find the points where the yellow LED (OUT) is switched ON and OFF in both vertical and horizontal positions and fix the sensor in the centre between these points. Optimum operation is obtained when both LEDs switch ON. If necessary, reduce sensitivity using the trimmer, in order to detect very small targets. In order to improve alignment, repeat the procedure detailed above whilst progressively reducing the sensitivity.

DIMENSIONS



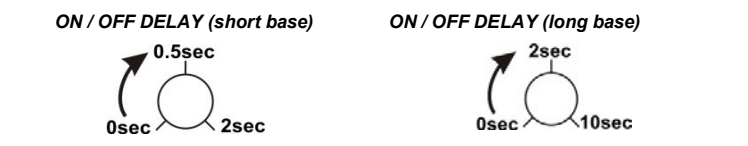
SETTING THE DELAY TIME



Selecting the short base the time setting of ON delay and OFF delay trimmer is in the range 0..2sec, selecting long base is in the range 0..10sec.

To allow a better setting of little delay, the variation of ON and OFF delay are not linear with mechanical regulation of the trimmer: until half rotation the regulation is thinner, whereas from half to full scale the regulation is faster.

The follow figure indicates the values of initial, middle and full scale delay of ON and OFF delay trimmer in the two different selectable time base:



The TIME BASE SELECTION trimmer has a third position to select ONE SHOT mode. The ONE SHOT duration is selectable by ON DELAY trimmer with short time base (0...2 sec). In this mode the OFF delay trimmer is disabled.

TIMING DIAGRAM

OPERATION MODE	OUTPUT
Normal (timing disable)	
ONE SHOT (only with short time base 0...2 sec.)	
ON/OFF delay	
ON delay	
OFF delay	

This sensor is not a safety device and must therefore NOT be used for the safety management of the machines on which they are installed.