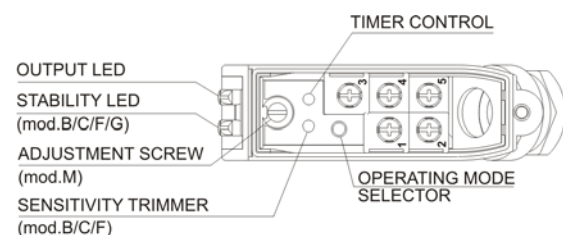


CONTROLS



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

STABILITY LED (green)
The green LED ON indicates that the received signal has a enough signal reserve compared to the output switching value.

ADJUSTMENT SCREW (only mod.M)
A multi-turn adjustment screw allows the background suppression distance adjustment through a mechanical variation of the optic triangulation angle. Please refer to the "SETTING" paragraph for setup procedure indications.

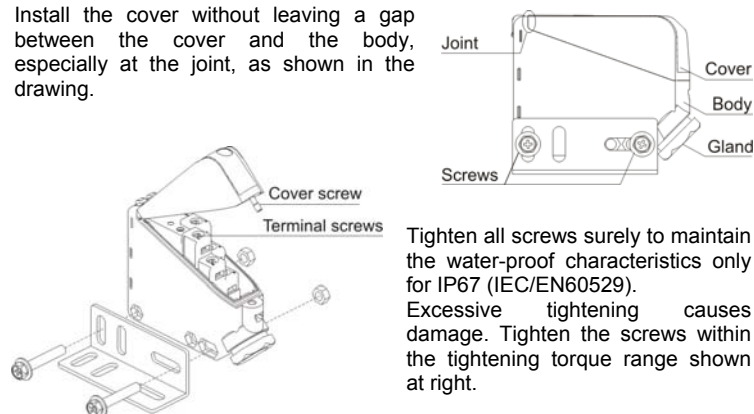
SENSITIVITY TRIMMER (mod.B/C/F)
A mono-turn trimmer adjusts the sensitivity and the sensor operating distance. The operating distance increases, rotating the screws in a clockwise direction. See the "SETTING" paragraph for the functioning mode.

TIMER CONTROL
This control is a trimmer which allows to vary the output delay deactivation from 0.1 to 5 sec.

OPERATING MODE SELECTOR
This control is a ten position selector switch which allows to select the sensor function mode. See the "OPERATING CHART" paragraph for the functioning mode.

INSTALLATION

Install the cover without leaving a gap between the cover and the body, especially at the joint, as shown in the drawing.



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

TIGHTENING TORQUE (Nm)	
Terminal screws (5pz)	0.6...1.0
Screw + Gland	4.0...6.0
Cover screw	0.5...0.8
Screws (2pz)	0.8...1.2

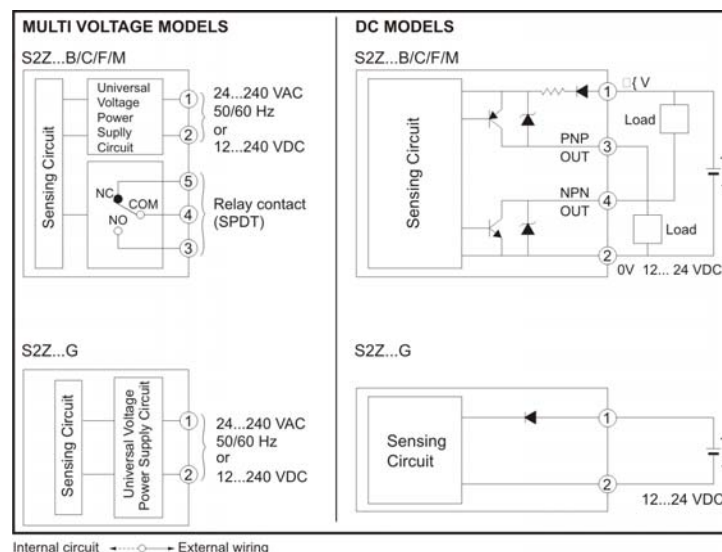
TECHNICAL DATA

MULTI-VOLTAGE MODELS	S2Z-F/G	S2Z-B	S2Z-C	S2Z-M	DC models	S2Z-F/G	S2Z-B	S2Z-C	S2Z-M
Power supply:	24...240 VAC / 12...240 VDC				Power supply:	12...24 VDC			
Ripple:	10 % max				Ripple:	10 % max			
Current consumption (output current excluded):	3VA max (mod.G) 3VA max (mod.F)	3 VA max			Current consumption (output current excluded):	20 mA max (mod.G) 25 mA max (mod.F)	30 mA max.		
Outputs:	Electromechanical SPDT: 250 VAC, 30 VDC				Outputs:	PNP and NPN open collector			
Output current:	3 A (resistive load)				Output current:	100 mA (resistive load)			
Response time:	20 ms max				Output saturation voltage:	2.4 V max			
Switching frequency:	25 Hz				Response time:	1 ms max			
Weight:	115 g (mod.G) 130 g (mod.F)	130 g			Switching frequency:	500 Hz			
					Weight:	105 g (mod.G) 110 g (mod.F)	110 g		

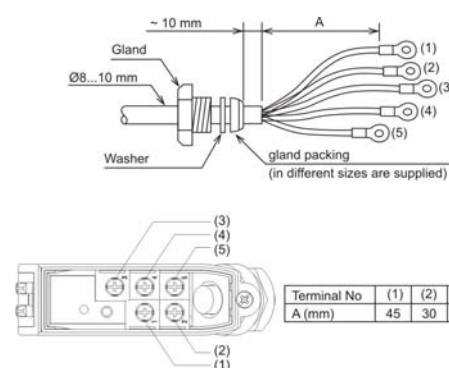
Common data

	S2Z-F/G	S2Z-B	S2Z-C	S2Z-M
Emission type:	INFRARED LED	RED LED	INFRARED LED	
Operating distance (minimum):	50 m	0.2...7 m (on R2 reflector)	1 m (with white target 200 x 200 mm)	0.2...2 m (with white target 200 x 200 mm)
Adjustment:	mono-turn sensitivity trimmer (S2Z-G excluded)			multi-turn adjustment screw
Difference (90% white / 4% black):	-	-	-	< 35 %
Hysteresis (90% white):	-	-	≤ 20 % operating distance	≤ 15 % operating distance
Indicators:	OUTPUT LED (YELLOW), STABILITY LED (GREEN)			OUTPUT LED (YELLOW)
Operating temperature:	-25...50 °C			
Storage temperature:	-40...70 °C			
Dielectric strength:	500 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			
Lenses:	PC/PET	PMMA	PC/PET	Emitter: PMMA Receiver: PC
Protection class:	IP67 (IEC / EN60529) / NEMA TYPE 1 (For UL / c-UL)			
Connections:	Terminal (recommended cable diameter from 8 to 10 mm, see the "SETTING" paragraph)			

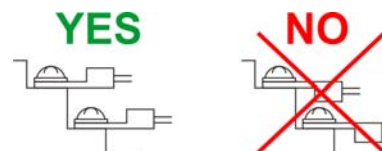
CONNECTIONS



Cable connection

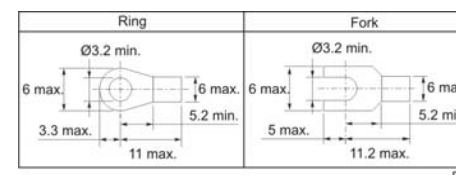


Use a cable of 8 to 10 mm in diameter to ensure water- and dust-proof characteristics. Two gland packings are supplied; for cables of 8 to 9 mm and 9 to 10 mm in diameter. Use a proper gland packing and a gland washer, and tighten the gland firmly. Keep the cable insulation within 10 mm from the gland packing as shown above. Make sure that the gland washer is placed in the gland packing correctly. Use UL Listed cable for DC models, Type MTW and 20AWG conductor (for UL / c-UL). Turn off the power supply before wiring. Connect correctly to prevent damage. The power voltage must not exceed the rated range. The cable should not be run in the same wire duct with other power supply, motor, or electromagnetic lines because induction noise will cause malfunction or damage to the photoelectric switch.



Cable extension is allowed up to 100m using a cabletyre cable with core wires of 0.3 mm² or more. On the DC power supply type, consider the voltage drop by the resistance of the cable. When connecting crimping terminals, note the direction of the crimping part as shown.

Applicable crimping terminal dimensions

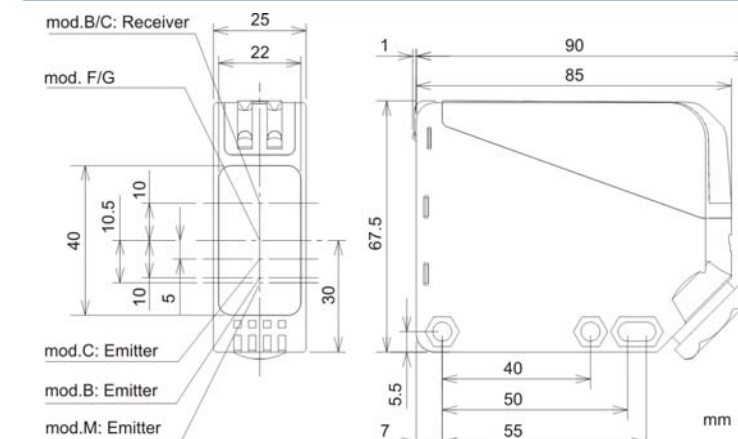


SETTING

Optical axis alignment and sensitivity adjustment

- 1) *Through-Beam (mod.F/G):*
 - a) Place the transmitter and receiver on the opposite sides and keep as much as possible the mechanical/optical axis alignment up to the desired operating distance.
 - b) Adjust the alignment moving the transmitter on the vertical and horizontal axis in order to find the correct detection condition when the yellow output LED turns On and Off. Once the position is found fix the sensor in the average of the two measured position.
- 2) *Polarized Retro-Reflective (mod.B):*
 - a) Place the sensor in front of the reflector up to the desired operating distance.
 - b) Adjust the alignment moving the transmitter on the vertical and horizontal axis in order to find the correct detection condition with yellow output LED turning On and Off. Once the position is found fix the sensor in the average of the two measured position.
- 3) *Diffuse Reflective and Background Suppression (mod.C/M):*
 - a) Place the sensor in front of the object to be detected. Turn clockwise the adjusting trimmer, starting from MIN position up to the yellow LED turns on. (position A)
 - b) Remove the object and check that yellow LED turns OFF. Turn clockwise the adjusting trimmer till the yellow LED turns ON : the sensor is detecting the background (position B)
 - c) Turn the trimmer clockwise, in the intermediate position between position A and position B (position C). This is the adjusting position which offers the best sensitivity detection.

DIMENSIONS



OPERATION CHART

Operation Mode	Mode select switch	Incident Interrupt	Light ON	Dark ON	Light ON
OFF-delay	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
Normal	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
One-shot	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
ON-delay	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
OFF-delay	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
Normal	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
One-shot	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
ON-delay	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON
Normal	1 2 3 4 5 6 7 8 9 10	ON	ON	OFF	ON

DECLARATION OF CONFORMITY

We DATASENSOR S.p.A. declare under our sole responsibility that these products are conform to the 2004/108/CE, 2006/95/CE Directives and successive amendments.

WARRANTY

DATASENSOR S.p.A. warrants its products to be free from defects. DATASENSOR S.p.A. will repair or replace, free of charge, any product found to be defective during the warranty period of 36 months from the manufacturing date. This warranty does not cover damage or liability deriving from the improper application of DATASENSOR products.

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