

S100 SERIES INSTRUCTION MANUAL

CONTROLS

OUTPUT LED – Yellow (S100...A00/Bx0/Cx0/D00/F00/Mx0/Tx0)

The yellow LED indicates the output status.

POWER ON LED – Green (S100...G00)

The green LED indicates that the sensor is operating.

REMOTE INPUT (S100...Mx0/Tx0)

This wire-input allows to operator to adjust the operating distance in the background suppression and transparent models.

Please refer to the "SETTINGS" paragraph for procedure indications during acquisition or setting phases.

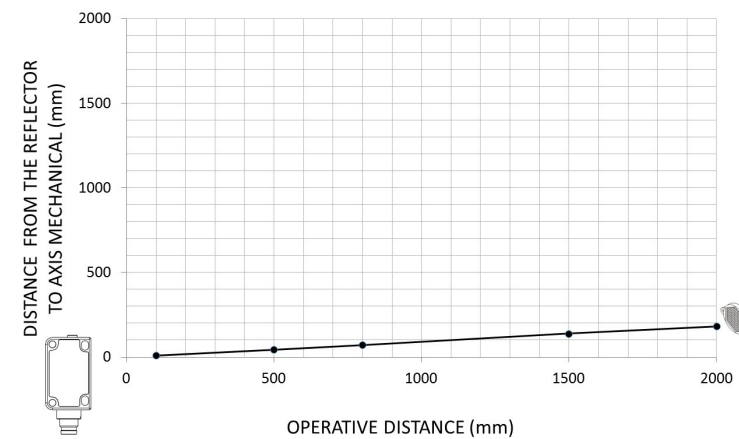
INSTALLATION

The sensor can be positioned by means of the two housing's threaded holes (M3) using two screws (M3x12 or longer or M2.5 passing screw, 0.4 Nm maximum tightening torque) with washers or by mean of the two rear holes using two M3 passing screw, 0.4Nm maximum tightening torque.



Various orientable fixing brackets to ease the sensor positioning are available (please refer to the accessories listed in the catalogue).

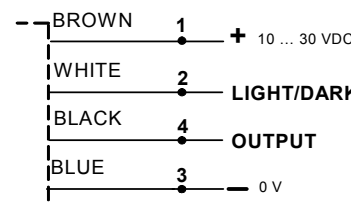
During installation of transparent models (S100-TX0) refer to the diagram below for proper alignment between sensor and reflector.



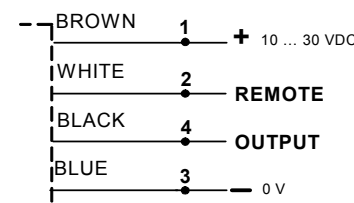
OPERATIVE DISTANCE (mm)

CONNECTIONS

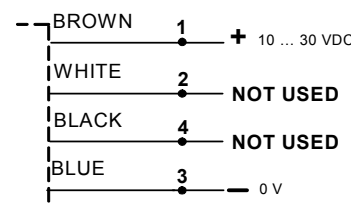
S100-A00/Bx0/Cx0/D00/F00



S100-Mx0 / Tx0

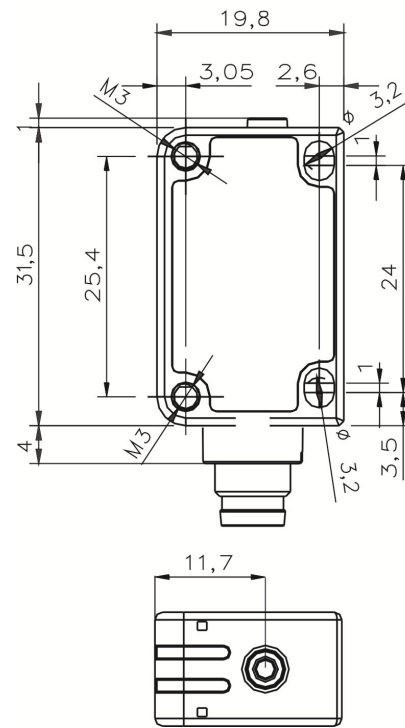


S100-G00

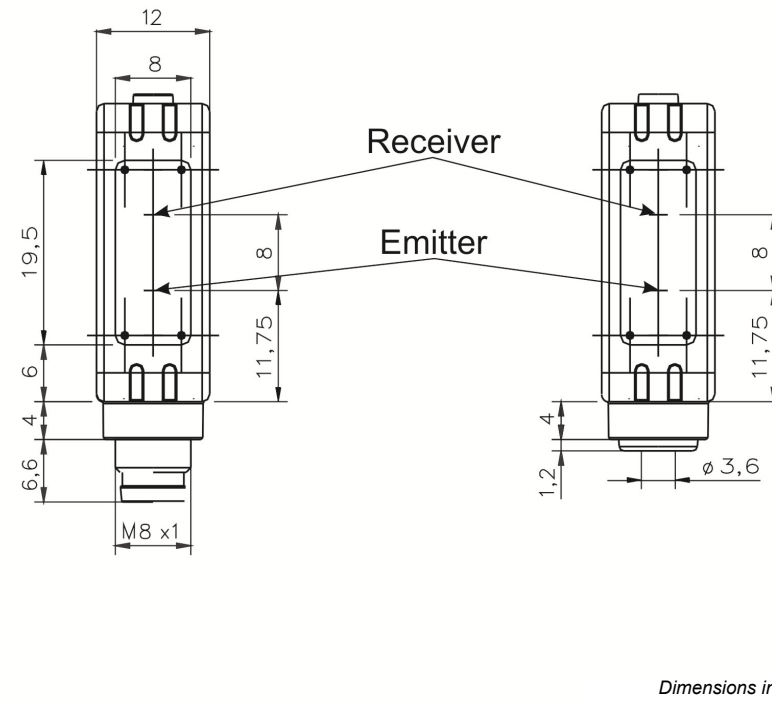


DIMENSIONS

M8x1 CONNECTOR VERSION



CABLE VERSION



Dimensions in mm

TECHNICAL DATA

Power supply:	10 ... 30 VDC (Class 2 UL508) (reverse polarity protected)
Ripple:	10% max.
Current consumption (output current excluded):	20 mA max.
Output:	PNP or NPN (with pull-down / pull-up = 33 KΩ and short-circuit protection)
Output current:	100 mA
Output saturation voltage:	2 V max.
Response time:	1 ms mod.A00/Bx0/Cx0/D00/Mx0/Tx0 2 ms mod.F00/G00
Switching frequency:	500 Hz mod.A00/Bx0/Cx0/D00/Mx0/Tx0 250 Hz mod.F00/G00
Indicators:	OUTPUT LED (YELLOW) mod. A00/Bx0/Cx0/D00/F00/Mx0/Tx0 POWER-ON LED (GREEN) mod.G00
Setting:	DARK/LIGHT input mod.A00/Bx0/Cx0/D00/F00, TEACH-IN with REMOTE mod. Mx0/Tx0
Operating temperature:	-25 °C ... +55 °C
Storage temperature:	-40 °C ... +70 °C
Operating distance (typical values):	A00: 0.01...6 m (on R2 reflector Ø 48mm) B00: 0.03...2 m (on R2 reflector Ø 48mm) B10: 0.01...4.5 m (on R2 reflector Ø 48mm) F00/G00: 0...12 m C00: 0...300 mm (on White 90%) C10: 0...500 mm (on White 90%) D00: 0...70 mm (on White 90%) M00: 30...100 mm (on White 90%) M10: 30...200 mm (on White 90%) T00: 100...500 mm (on R2 reflector Ø 48mm) T10: 0.8...2 m (on R2 reflector Ø 48mm)
Optical axis deviation:	5° mod. T00 / T10
Distance of object detection:	M00: 10...100 mm, M10: 10...200 mm (on White 90%) T00: 50...500 mm, T10: 0.1...2 m (on transparent object)
Difference on White 90% / Gray 18%	M00: < 15 % - D00: < 30 % at maximum distance; M10: < 35% at 200 mm
Hysteresis on White 90%	M00: < 5 mm - D00: < 10 mm at maximum distance; M10: < 30 mm at 200 mm
Emission type:	RED LED (632 nm) mod.Bx0/Cx0/D00/M00 INFRARED LED (860 nm) mod.A00/G00/M10/Tx0
Ambient light rejection:	according to 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:	ABS body / indicators cover PMMA
Lenses:	PC lens / PMMA window
Mechanical protection:	IP67
Connections:	2 m cable Ø 3.5 mm (pulling force max 7Kg) / M8-4 pole connector
Weight:	50 g. max. cable versions / 10 g. connector versions

SETTINGS

LIGHT/DARK INPUT (S100...A00/Bx0/Cx0/D00/F00)

The DARK/LIGHT input allows the operator to select the DARK/LIGHT operating mode for dynamic acquisition.

The connection of the DARK/LIGHT wire to +VDC sets the LIGHT mode. If connected to 0V set the DARK mode.

If not connected: LIGHT mode Cx0/D00, DARK mode A00/Bx0/F00

Alignment S100...A00/Bx0

Position the sensor and reflector on opposite sides. 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.

Alignment S100...F00/G00

Position the sensors on opposite sides. 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.

Acquisition with REMOTE (external Teach-in) S100... Mx0/Tx0

The REMOTE input sets the background suppression operating distance for M00/M10 and T00/T10 using two different acquisition procedures:

S100-M00/M10

Object acquisition (to be used in case of absence of the background)

1. Place the target opposite the sensor at the maximum distance required;
2. Connect the REMOTE wire to + VDC for 1 second.

The OUT LED changes its status once.

3. If the object is out of range the sensor fails the acquisition and the OUT LED blinking. To return to normal operation, connect the REMOTE + VDC for 100ms.

Acquisition for background suppression

1. Place the sensor in front of the background within the maximum operating distance.
2. Connect the REMOTE wire to +VDC for 3 seconds.

The OUT LED changes its status twice.

3. If the object is out of range the sensor fails the acquisition and the OUT LED blinking. To return to normal operation, connect the REMOTE + VDC for 100ms.

S100-T00/T10

Reflector standard acquisition

1. Position the reflector in front of the sensor at the required distance (within the operating range).
2. Connect the REMOTE wire to +VDC for 1 second. The OUT LED changes its status once.

If the reflector is outside the operation range, the sensor fails the acquisition and the OUT LED blinks. To go back to the condition before the acquisition, connect the REMOTE wire to +VDC for at least 100 msec.

Reflector acquisition at maximum sensitivity

This procedure allows to obtain a more precise alignment between sensor and reflector, in particular for longer reading distances:

1. Connect the REMOTE wire to +VDC for 3 seconds.

The OUT LED changes its status twice: the sensor is at maximum sensitivity.

2. Position the reflector in front of the sensor (within the operating range), vertically and horizontally determine the OUT LED switching on and off points, and secure the reflector in the centre between such points.

3. Connect the REMOTE wire to +VDC for 1 second. The OUT LED changes its status once.

DARK/LIGHT selection (S100...Mx0/Tx0)

To change the operating DARK/LIGHT mode connect the REMOTE wire to +VDC for 7 seconds until the LED OUT blinking. The sensor switches the operating mode (LIGHT → DARK, DARK → LIGHT) and saves it in memory.

TAB.1: Distanze operative per i modelli Bx0, A00 e Tx0 (m)

	AVAILABLE REFLECTORS						
	R1 Ø 23 mm	R2 Ø 48 mm	R3 18x54 mm	R4 47x47 mm	R5 Ø 75 mm	R6 36x55 mm	RT3970 60x40 mm
A00	0.03...3	0.01...6	0.01...3.5	0.01...5	0.01...7	0.01...6	0.05...2
B00	0.2...0.8	0.03...2	0.03...1.5	0.03...2.5	0.01...3	0.03...1.8	0.2...0.8
B10	0.02...2	0.01...4.5	0.01...3	0.01...4.5	0.01...5.5	0.01...4	0.05...1.8
T00	0.1...0.3	0.1...0.5	0.1...0.3	0.1...0.5	0.1...0.8	0.1...0.5	-
T10	0.4...1	0.8...2	0.4...1	0.8...2	0.8...2.5	0.8...2	0.1...0.8

The sensors are NOT safety devices, and so MUST NOT be used in the safety control of the machines where installed.

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Helpful links at www.datalogic.com: [Contact Us](#), [Terms and Conditions](#), [Support](#).

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