



## S90...U Luminescence sensor

### INSTRUCTION MANUAL

#### CONTROLS

##### OUTPUT LED

The yellow LED ON indicates that the N.O. (normally open) output status is closed.

##### READY/ERROR LED (bicolour)

When the bicolour LED is continuously green, the sensor is operating in a normal condition and it is ready to function correctly (stability condition).

The red and green blinking of the LED indicates a wrong sensor setting. Please refer to the "SETTING" paragraph to get the correct setting procedure.

##### SET PUSHBUTTON

A long pressure on the pushbutton activates the self-setting procedure. The REMOTE input allows the external control of the SET pushbutton.

#### INSTALLATION

The sensor can be positioned by means of the housing's holes using two screws (M4x25 or longer, 1.5 Nm maximum tightening torque) with washers.

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

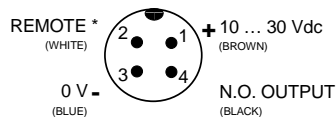
The operating distance is measured from the front surface of the sensor optics.

The M12 connector can be oriented at four different positions rotating the block of 0°, 90°, 180° or 270°.



#### CONNECTIONS

##### M12 CONNECTOR

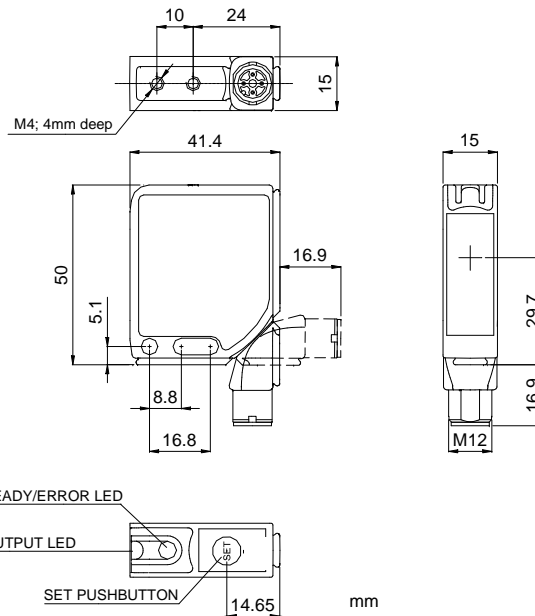


\* = Connect the REMOTE wire to 0 V if not used.

##### NOTE

If a setting error will occur please repeat again the EASY TOUCH™ setting procedure, in order to be sure to restart the setting procedure correctly.

#### DIMENSIONS



#### TECHNICAL DATA

Power supply:	10 ... 30 Vdc (limit values)
Ripple:	2 Vpp max.
Current consumption (output current excluded):	30 mA max.
Outputs:	PNP or NPN; 30 Vdc max. (short-circuit protection)
Output current:	100 mA max.
Output saturation voltage:	≤ 2 V
Response time:	250 μs max.
Switching frequency:	2 KHz
Indicators:	OUTPUT LED (YELLOW) / READY/ERROR LED (GREEN/RED)
Adjustment:	SET pushbutton
Data retention:	non volatile EEPROM memory
Operating temperature:	-10 ... 55 °C
Storage temperature:	-20 ... 70 °C
Electrical shock protection:	Class 2, double insulation
Operating distance (typical values):	0...40 mm range, maximum signal at 10 mm
Minimum spot dimension:	1.5 mm at 10 mm
Emission type:	UV LED (370 nm)
Ambient light rejection:	according to EN 60947-5-2
Vibrations:	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)
DARK/LIGHT selection:	LIGHT mode with EASY TOUCH™ / Automatic with fine detection
Housing:	ZAMA
Lens:	glass window (skewed anti-reflection); glass lens
Mechanical protection:	IP67 (TYPE 1 ENCLOSURE)
Connections:	M12-4 pole connector
Weight:	77 g.

#### DELAY FUNCTION

Press the SET pushbutton and keep it pressed until the READY/ERROR LED turns off, blinking and turns off again, then release the SET pushbutton.

If the delay function *is not active* the READY/ERROR LED blinks green with 2 quick pulses.

If the delay function *is active* the READY/ERROR LED blinks green with 4 quick pulses.

Press and release immediately the SET pushbutton in order to change the function status, the new function status is indicated the READY/ERROR LED as the mode before described. The delay function adds 20ms to the duration of the sensor's ON pulse.

#### SETTING

The supplied sensor is set at the maximum sensitivity, allowing the detection of the minimum luminescence intensity. No other setting procedure is necessary, unless luminescent objects placed on luminescence backgrounds have to be detected.

##### EASY TOUCH™

The sensor uses the patent-covered EASY TOUCH™ technology that allows a rapid and safe self-setting of the product.

Two different setting possibilities are available:

- *EASY TOUCH™*: a long pressure of the SET pushbutton allows self-setting.
- *FINE DETECTION™*: to be used only in particularly critical conditions, this setting procedure is used only when the EASY TOUCH™ is not sufficient.

##### S90...U setting

To achieve a correct sensor functioning, the luminescent mark or object to be detected has to be placed at the right reading distance.

- *EASY TOUCH™ (standard detection in the LIGHT mode)*

The EASY TOUCH™ technology allows the functioning in the LIGHT mode (mark presents a higher luminescence respect to the background). The mark to detect has to be placed correctly at the right reading distance within the sensor spot.

Press the SET pushbutton until the READY/ERROR LED turns off.

Release the SET pushbutton and wait for the READY/ERROR LED to turn green. The sensor is now ready to detect the pre-set luminescent mark or object (output LED turns on when the NO output is closed).

*Note:* The automatic EASY TOUCH™ setting has to be performed without any objects inside the sensor reading range (or using a non-luminescent object) in order to bring the sensor back to the maximum sensitivity condition.

##### Fine detection (DARK or LIGHT mode)

This mode offers an improved detection precision and also allows the detection of luminescent marks or objects placed on luminescent backgrounds. The operating mode is selected automatically by the sensor: DARK operating mode (mark presents a minor luminescence respect to the background) or LIGHT operating mode (mark presents a higher luminescence respect to the background). Thus the output LED is ON and the NO output is closed, when the sensor is positioned on the pre-set luminescent mark. The mark to detect has to be placed correctly at the right reading distance within the sensor spot. Press the SET pushbutton. The READY/ERROR LED turns off. Keep the SET pushbutton pressed until the READY/ERROR LED blinks green. Place the background under the sensor spot. Press the SET pushbutton again until the READY/ERROR LED turns off. The sensor is now ready to detect, with a very high precision, the pre-set luminescent mark (output LED turns on, READY/ERROR LED turns green).

#### REMOTE FUNCTION

The REMOTE wire, if connected to +Vdc, is equal to the pressure of the SET button. If the REMOTE wire is connected to +Vdc, when the sensor is powered ON, the *keyboard lock* function is activated; the SET button is no longer active. To deactivate the *keyboard lock* function, the sensor has to be turned off and powered again with the REMOTE wire not connected or connected to 0V.

#### DECLARATION OF CONFORMITY

We DATALOGIC AUTOMATION declare under our sole responsibility that these products are conform to the 2004/108/CE and successive amendments.



#### WARRANTY

DATALOGIC AUTOMATION warrants its products to be free from defects.

DATALOGIC AUTOMATION 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 DATALOGIC AUTOMATION products.

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