



## S81-PL-5-Y03-PPVK

Distance sensor with Laser emission and Time of Flight measurement with scalable analogue output



### INSTRUCTION MANUAL

#### CONTROLS

- OUT LED (yellow)**  
The yellow LED ON indicates the activation of the output.
- OUT LED (yellow)**  
The yellow LED ON indicates the activation of the output.
- POWER ON/ALARM LED (green)**  
The green LED blinking indicates received signal absence or distance target outside the measurement range.  
The green LED on indicates the power of the sensor.
- OUT PUSH-BUTTON**  
The teach-in procedure of the digital threshold of the output is activated by pressing the push-button.
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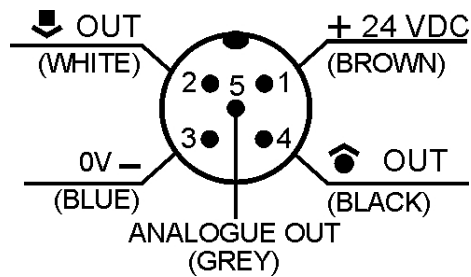
See the "THRESHOLD SETTING" paragraph for digital threshold teach-in procedure

#### INSTALLATION

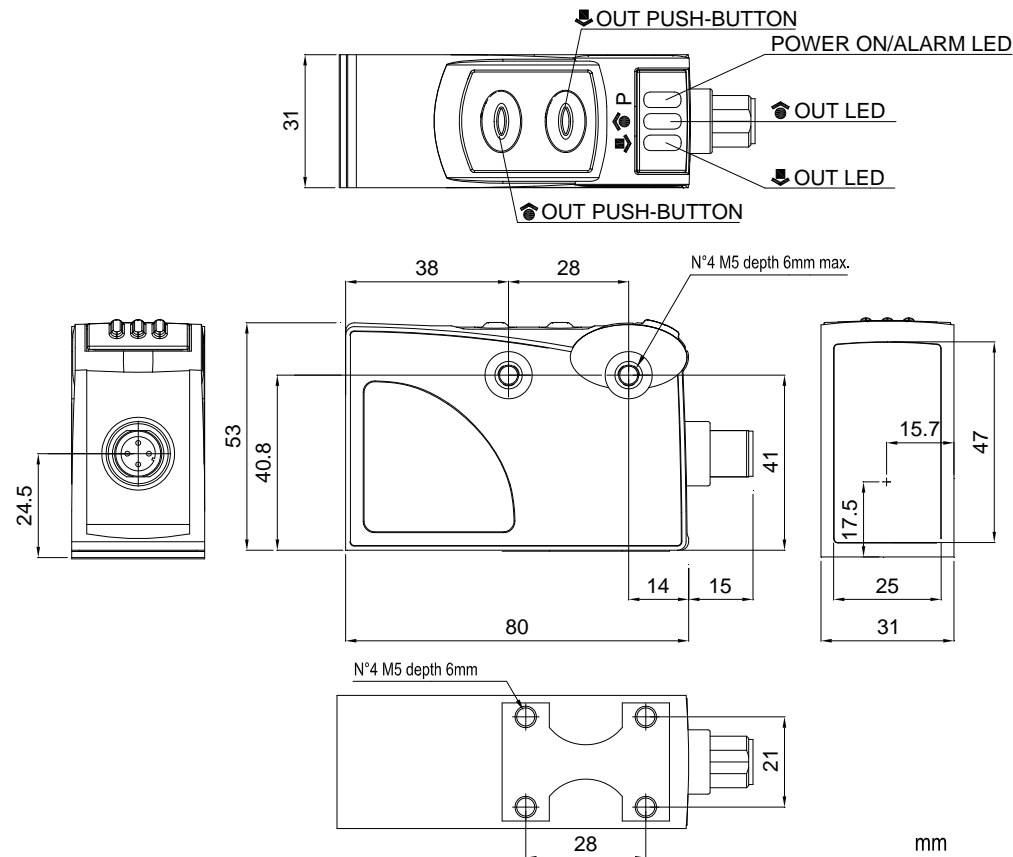
The sensor can be positioned using threaded M5 holes with max. 6 mm depth.  
Do not apply excessive torque when adjusting (max 2.2 Nm).

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

#### CONNECTIONS



#### DIMENSIONS



#### TECHNICAL DATA

Power supply:	24 +/- 20% VDC limit values (Class 2 UL508)
Ripple:	2 Vpp max.
Consumption (output current excluded):	120 mA max (100 mA @ 24 V)
Outputs:	2 PNP outputs 30 VDC max. (short-circuit protection)  analogue output with 0-10 V (max. output current = 10 mA - 1 kΩ minimum resistance load)
Switching mode	LIGHT
Output current:	100 mA max.
Measurement range:	300 ... 4000 mm (90% white) 300 ... 3000 mm (18% gray) 300 ... 2000 mm (4% black)
Linearity:	<1% (24 VDC, 25 °C, with 90% white target)
Repeatability:	+/- 4mm
Hysteresis:	20 mm
Temperature drift:	< 1 mm/°C
Response time:	5 ms
Switching frequency:	80 Hz
Indicators:	OUT LED (yellow) / OUT LED (yellow) / POWER ON-ALARM (green)
Setting:	OUT and OUT push-buttons
Warm-up:	15 min.
Operating temperature:	0 ... 50 °C
Storage temperature:	-20 ... 70 °C
Dielectric strength:	500 VAC 1 min., between electronics and housing
Insulating resistance:	20 MΩ 500 VDC, between electronics and housing
Typical spot dimension:	∅ 3.5 mm at 30 cm - ∅ 7 mm at 4 m
Emission type:	RED LASER (λ = 665nm): Class 2 EN 60825-1 (2014) +A1(2002) +A2(2001),
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)
Housing material:	ABS
Lens material:	PMMA
Mechanical protection:	IP67
Connections:	M12 5-pole connector
Weight:	92 g. max.

#### SETTING

The sensor uses the patent-covered EASYTOUCH™ technology that ensures a rapid and safe setting of the product.

##### EASYTOUCH™

Position the target to measure inside the detection range. Press the OUTPUT until the OUTPUT LED turns off. The sensor has now acquired the minimum measurement value to associate to 0V (powering of the OUTPUT LED).

Repeat the same procedure for the OUTPUT, placing the target inside the detection range and at least 500 mm from the previous measurement. The sensor has now acquired the maximum measurement value to associate 10V.

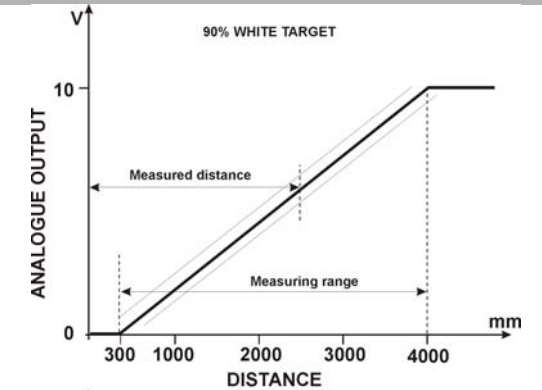
If the measured object is inside the new measurement range, the sensor digital outputs are associated to 0V. When the object is outside the maximum reference (always within the operating distance), the output will be associated to 24V.

When the object is outside the minimum reference (always inside the operating distance), the output is associated to 24V. Both digital outputs\* will have a 20 mm hysteresis and are not active when the entire operating range (300 – 4000 mm) is used.

Press contemporaneously the and push-buttons until all the 3 LEDs blink in order to RESET the values. At the end of the procedure, the minimum reference will be associated to 300 mm and the maximum reference to 4000 mm. In presence of an error, the 3 LEDs will blink for about 6 sec. during the acquisition phase and the sensor returns successively to the RESET condition.

\* (Both digital outputs are associated exclusively to the scalable range's maximum and minimum values.)

#### TYPICAL DETECTION DIAGRAMS



#### SAFETY WARNINGS

All the safety electrical and mechanical regulations and laws have to be respected during sensor functioning. The sensor has to be protected against mechanical damages. The sensor has to be protected against mechanical damages.



Place the given labels in a visible position close to the laser emission. Do not look directly into the laser beam! Do not point the laser beam towards people! Eye irradiation for over 0.25 seconds is dangerous; refer to class 2 standard (EN60825-1). These sensors are not conform to safety applications!

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](#).

The warranty period for this product is 36 months. See General Terms and Conditions of Sales for further details.

Under current Italian and European laws, Datalogic is not obliged to take care of product disposal at the end of its life. Datalogic recommends disposing of the product in compliance with local laws or contacting authorised waste collection centres.

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