



This product is covered by one or more of the following patents.
European Patent: 1,324,072 B1



S81-PL-5-Y03-PPVK

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

CLASS 2 EN 60825-1
LASER PRODUCT

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.

⬆️ OUT PUSH-BUTTON

The teach-in procedure of the digital threshold of the ⬆️ output is activated by pressing the ⬆️ push-button.



See the “THRESHOLD SETTING” paragraph for digital threshold teach-in procedure

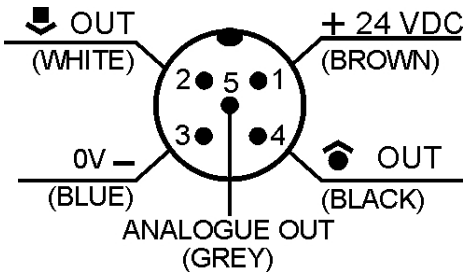
INSTALLATION

The sensor can be positioned using threaded M5 holes with max. 6 mm depth.

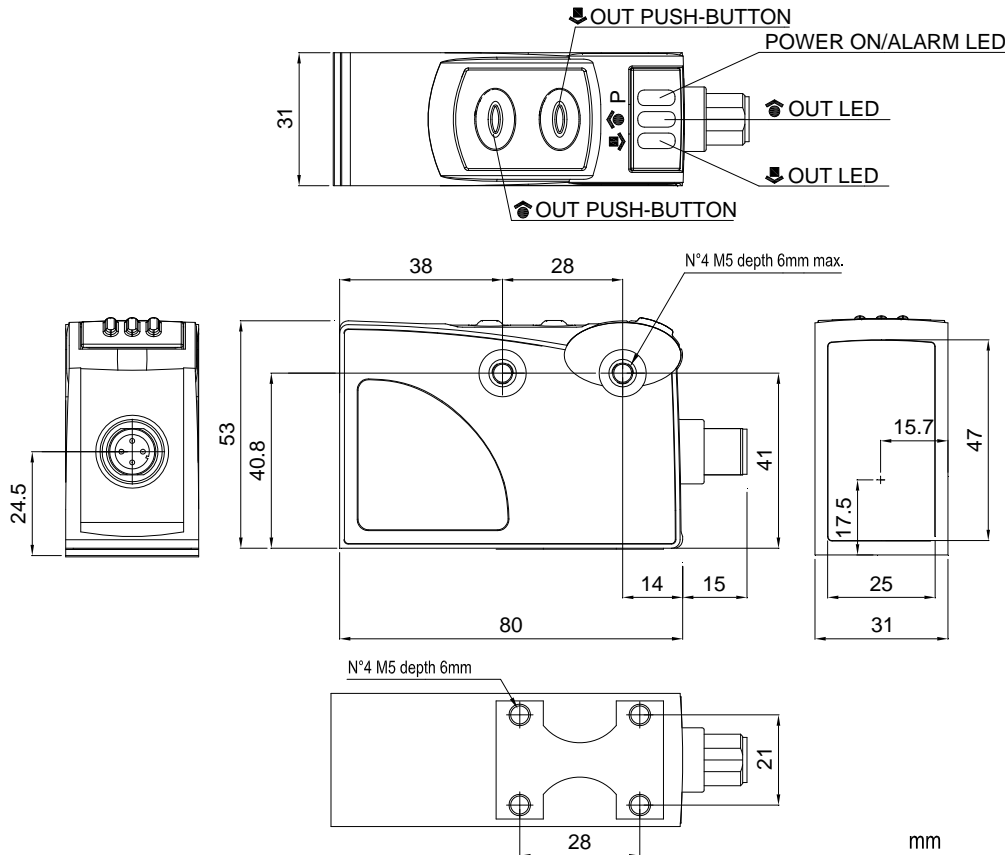
Do not apply excessive torque when adjusting (max 2.2 Nm).

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% withe) 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-ALLARM (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:	Ø 3.5 mm at 30 cm - Ø 7 mm at 4 m
Emission type:	RED LASER (λ = 665nm): Class 2 EN 60825-1 (1994) +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).

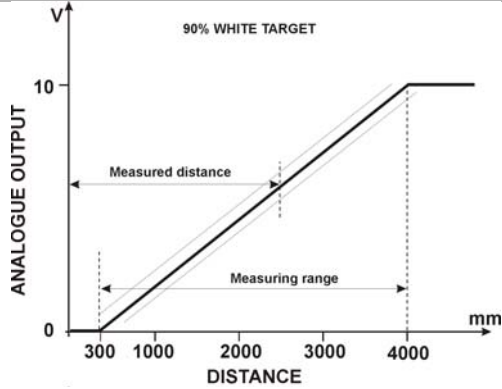
Repeat the same procedure for the ⬆️ OUTPUT, placing the target inside the detection range and at least 500 mm from the previous measurement. The sensor has now acquired the maximum measurement value to associate 10V. If the measured object is inside the new measurement range, the sensor digital outputs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

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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