LASER DISTANCE SENSOR WITH TIME OF FLIGHT MEASUREMENT

DISTANCE SENSORS

- *Large measuring range from 300 to 4000 mm with 0.9 mm resolution*
- *4-digit display for measurement and parameter indications*
- *Double NPN or PNP output, 4-20 mA analogue output, RS-485 interface*
- *Sturdy IP67 metal housing and standard M12 8-pole connector*

S80L-Y SERIES

The **S80L-Y** series, in the sturdy metal housing, offers an innovative laser distance sensors with time of flight measurement. This technology, based on the measurement of the time between the emission and receipt of the laser light pulses, provides a very accurate measurement independent of the target's colour, in the 300 - 4000 mm distance range, with 12 bit elaboration, 0.9 mm resolution and linearity better than 0.3 %.

The class 2 laser emission produces a visible red spot that facilitates the alignment of the sensor with the object to detect. The **S80L-Y** sensor can be used as a double threshold proximity sensor with high-precision background suppression. A 4-digit display, present on the sensor's top, visualises the value of the measured distance in mm, as well as all the parameters that can be set with the three push-buttons.

The **S80L-Y** sensors have two switching outputs, available in both the NPN and PNP models, that can be set at different distances, while the measurement value is supplied on the 4-20 mA analogue output and RS-485 serial interface; the latter can be also used to set all the parameters. Other auxiliary functions are available, such as timing, synchronisation and 5 ms normal or 1 ms fast response time selection.
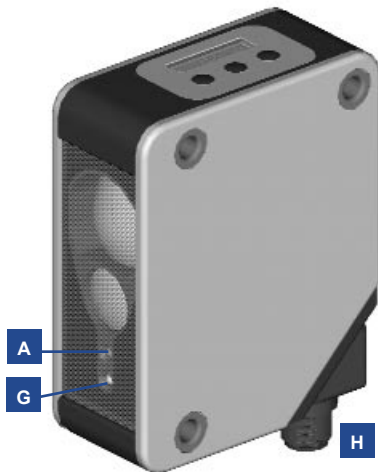
DATASENSOR
value through detection

MAXI

1.42

The laser distance sensor with time of flight measurement is suitable for high-precision detection, where resolution, linearity and temperature drift are the main specifications.
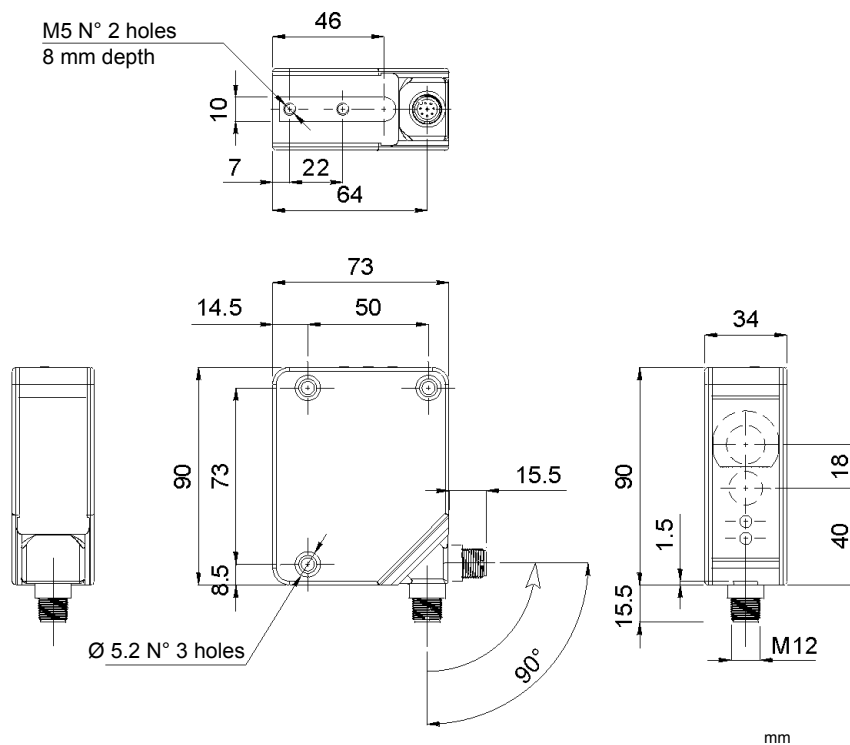
The resolution indicates the minimum variation in mm of the distance detected by the sensor.

The linearity indicates the maximum deviation of the analogue output respect to the ideal value and is expressed in percentage of full range.
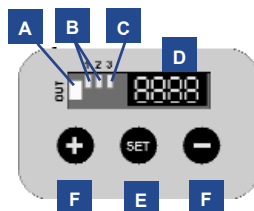
The temperature drift indicates the maximum deviation in relation to the sensor temperature variation and is expressed in mm/C°.
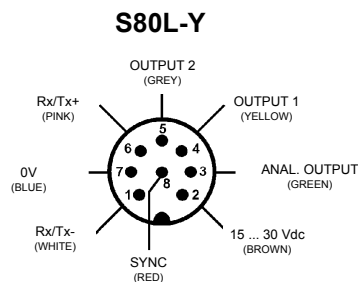
DIMENSIONS

M5 N° 2 holes
8 mm depth

46
10
7
22
64

73
14.5
50
90
73
8.5
15.5
Ø 5.2 N° 3 holes
90°

34
90
1.5
15.5
18
40
M12

mm

INDICATORS AND SETTINGS

A	Output 'OR' function LED
B	Output status LED
C	Response time LED
D	4-digit display
E	SETpush-button
F	+/- selection push-buttons
G	Alarm LED
H	M12 connector output, orientable on 2 positions

ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section of this catalogue.

Refer also to **Connectors (A.03)** and **Fixing Brackets (A.04)** of the **General Catalogue**.

CONNECTIONS

S80L-Y

OUTPUT 2 (GREY)
Rx/Tx+ (PINK)
OUTPUT 1 (YELLOW)
0V (BLUE)
ANAL. OUTPUT (GREEN)
Rx/Tx- (WHITE)
15 ... 30 Vdc (BROWN)
SYNC (RED)

5
6   4
7   3
1   8   2

NOTE: the wire colours refer to the cables manufactured according to the European standard

Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

		S80-MH-5-Y09-PPIZ	S80-MH-5-Y09-NNIZ
Measurement range:	300 ... 4000 mm *(from 90% white to 18% grey)*	●	●
Resolution:	0.9 mm	●	●
Linearity:	< 0.3 %[1]	●	●
Switching output hysterisis:	5 mm (NORM)	●	●
	10 mm (FAST)	●	●
Temperature drift:	< 0.6 mm/°C	●	●
Power supply:	15 ... 30 Vdc[2]	●	●
Ripple:	2 Vpp max.	●	●
Consumption:	110 mA max. @ 24 Vdc	●	●
Light emission:	red Laser 665 nm, class 2[3]	●	●
Spot dimension:	approx. 12 mm at 2 m	●	●
	approx. 20 mm at 4 m	●	●
Setting:	SET push-button	●	●
	+/- push-button	●	●
Indicators *(on command panel)***:**	4-digit display	●	●
	yellow OUTPUT LED	●	●
	green OUTPUT STATUS LED	●	●
	green FAST mode LED	●	●
Indicators *(on front)***:**	yellow OUTPUT LED	●	●
	red ALARM LED	●	●
Output type:	2 PNP, NO	●	
	2 NPN, NO		●
	4 ... 20 mA analogue	●	●
Output current:	≤ 100 mA	●	●
Saturation voltage:	≤ 2 V	●	●
Response time:	5 ms (NORM)	●	●
	1 ms (FAST)	●	●
Switching frequency:	100 Hz (NORM)	●	●
	500 Hz (FAST)	●	●
Timing function:	selectable between 5, 10, 20, 30 e 40 ms	●	●
Auxiliary functions:	synchronism (SYNC)	●	●
	keylock[4]	●	●
	RS485 serial interface	●	●
Connection:	M12 8-pole connector[5]	●	●
Electrical protection:	class 2	●	●
Mechanical protection:	IP67	●	●
Protection devices:	A, B[6]	●	●
Housing material:	aluminium	●	●
Lens material:	glass	●	●
Weight:	330 g max.	●	●
Operating temperature:	-10 ... +50°C	●	●
Storage temperature:	-25 ... +70°C	●	●
Reference standard:	EN 60947-5-2, EN 60825-1	●	●

CE   c(UL)us LISTED

CAUTION
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
EN60825-1 (1994) - IEC825-1 (1993)
Max.power ≤ 1mW   λ 665nm

SELECTION TABLE

distance sensor

S80-MH-5-Y09-PPIZ	951501000	PNP
S80-MH-5-Y09-NNIZ	951501010	NPN

TECHNICAL NOTES

[1] @ 24 Vdc and 90 % white target, 25 °C

[2] Limit values

[3] Average life of 100.000 h with T_A = +25 °C

[4] Active with SYNC wire connected to + Vdc for at least 1 s. at powering

[5] Connector can be blocked in two positions

[6] A - reverse polarity protection
B - overload and short-circuit protection
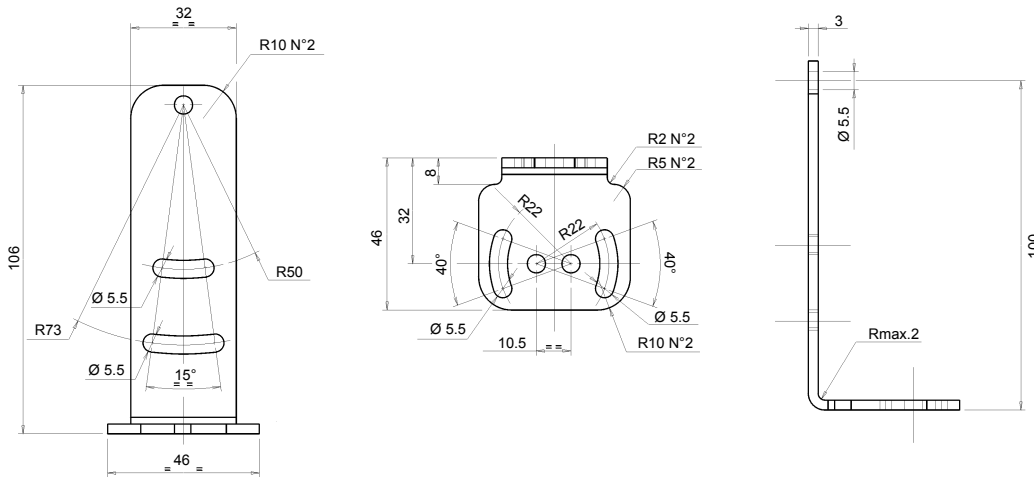
DETECTION DIAGRAMS

Analogue output

1 or 2 digital output

Measurement distance according to object reflection degree

DATASENSOR
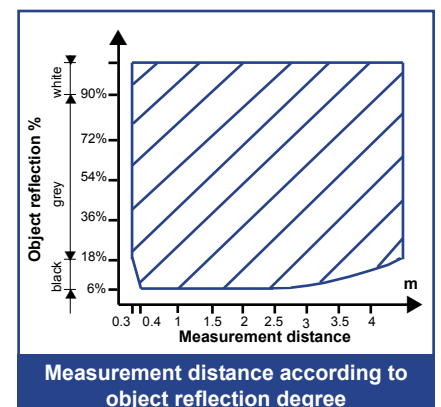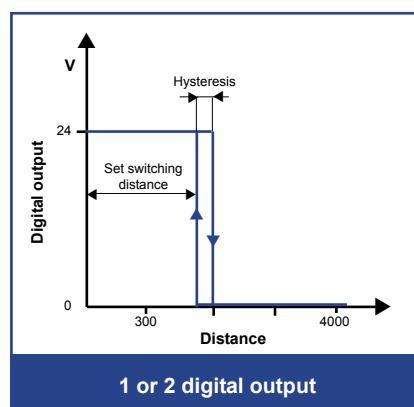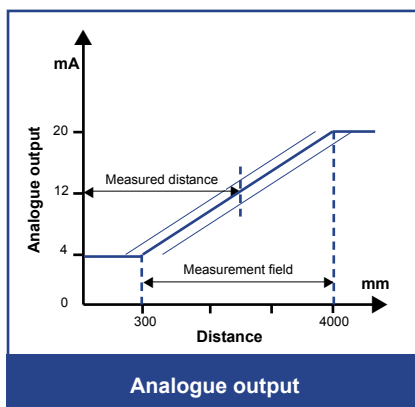
MODEL SELECTION TABLE

MODEL	FUNCTION	CONNECTION	OUTPUT	N° ORDER
S80-MH-5-Y09-PPIZ	distance sensor	M12 connector	PNP	951501000
S80-MH-5-Y09-NNIZ	distance sensor	M12 connector	NPN	951501010

ACCESSORIES

DIMENSIONS

ST-5037

ACCESSORY SELECTION TABLE

MODEL	DESCRIPTION	N° ORDER
ST-5037	'L' shaped fixing bracket	95ACC2260
*Refer also to **Accessories for Sensors***		
CS-A1-06-B-03	M12 8-pole conn. with 3 m unshielded cable	95ACC2230
CS-A1-06-B-05	M12 8-pole conn. with 5 m unshielded cable	95ACC2240
CS-A1-06-B-10	M12 8-pole conn. with 10 m unshielded cable	95ACC2250

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