DISTANCE SENSORS

LASER DISTANCE SENSORS WITH TIME OF FLIGHT MEASUREMENT

- *Operating distance reaching 4 m proximity and up to 20 or 100 m on reflector*
- *4-digit display for measurement and parameter indications*
- *Double NPN or PNP output, 4-20 mA analogue output, RS485 interface*
- *Sturdy IP67 metal housing and standard M12 8-pole connector*

S80L-Y SERIES

The **S80L-Y** series, in the compact sturdy metal housing, offers innovative class 2 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, effects accurate distance detection.

The **S80L-Y0** sensor functions as proximity on a 0.3 - 4 m distance in object positioning or detection applications, for example as double-threshold background suppression up to 4 m.

The **S80L-Y1** and **S80L-Y2** sensors, with operating distances reaching 20 or 100 m, function as retroflex measuring the distance from a reflector mounted on the object to detect and are ideal for position applications in automatic warehouses or goods handling lines in general.

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 RS485 serial interface; the latter can be also used to set all the parameters.

A 4-digit display visualises the distance, as well as all the parameters that can be set with the three push-buttons.

DATASENSOR
value through detection

The laser distance sensors with time of flight measurement are suitable for long distance measurements offering constant performances on the entire field.
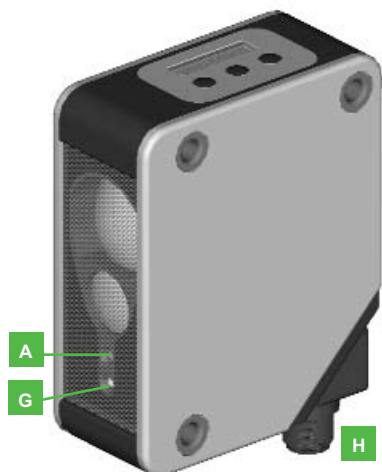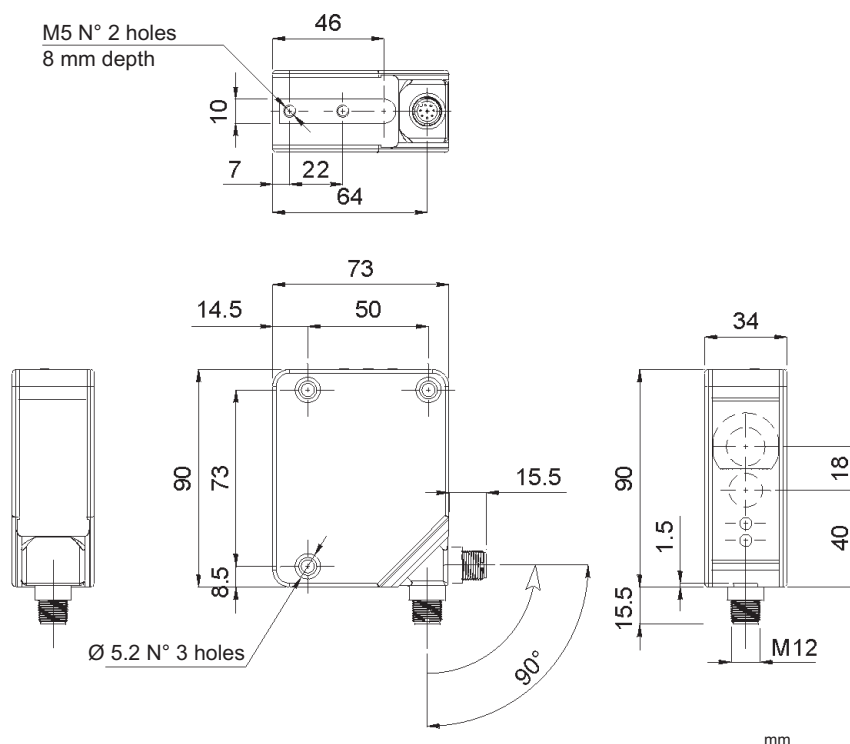
The maximum measurement and detection error depends on the application characteristics and differnt factors.

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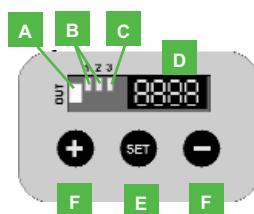
Whereas the temperature drift indicates the maximum deviation in relation to the sensor temperature variation and is expressed in mm/°C.

Lastly, the repeatibility represents the variation interval of the measurement made different times on the target at the same distance.
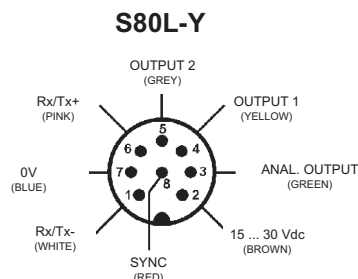
DIMENSIONS

M5 N° 2 holes
8 mm depth

46
10
7
22
64

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

34
90
18
1.5
40
15.5
M12
90°

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** and **Fixing Brackets** 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   8   3
1   2

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

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

DATASENSOR

TECHNICAL DATA

	S80-MH-5-Y09-PPIZ	S80-MH-5-Y09-NNIZ	S80-MH-5-Y19-PPIZ	S80-MH-5-Y19-NNIZ	S80-MH-5-Y29-PPIZ	S80-MH-5-Y29-NNIZ
Measurement range:	*refer to table 1*					
Maximum measurement error:	*refer to table 1*					
Linearity:	*refer to table 1*					
Repeatability:	*refer to table 1*					
Switching output hysterisis:	*refer to table 1*					
Temperature drift:	*refer to table 1*					
Resolution:	< 3 mm ●	●				
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] ●	●	●	●	●	●
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 (NORMAL) ●	●	●	●	●	●
	1 ms (FAST) ●	●	●	●	●	●
Switching frequency:	100 Hz (NORMAL) ●	●	●	●	●	●
	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 cULus LISTED Ex II3D

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

SELECTION TABLES

distance sensor

S80-MH-5-Y09-PPIZ	951501000	PNP
S80-MH-5-Y09-NNIZ	951501010	NPN
S80-MH-5-Y19-PPIZ	951501020	PNP
S80-MH-5-Y19-NNIZ	951501030	NPN
S80-MH-5-Y29-PPIZ	951501040	PNP
S80-MH-5-Y29-NNIZ	951501050	NPN

table 1

|	S80L-Y0	S80L-Y1	S80L-Y2
operating distance	0.3-4m*	0.3-20.3m**	0.3-100.3m**
maximum error	±1.2cm	± 5cm	± 15cm
linearity	0.3 % [1]	0.25 %	0.15 %
repeatability	2mm NORM	10mm NORM	30mm NORM
	6mm FAST	12mm FAST	40mm FAST
digital output hysterisis	5mm NORM	25mm NORM	40mm NORM
	10mm FAST	35mm FAST	60mm FAST
temperature drift (mm/°C)	± 0.6	± 1.5	± 2

* from white 90% to 18% grey target
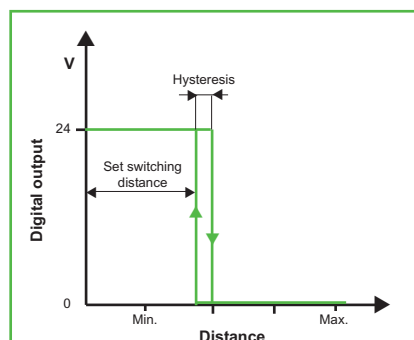** on R80 reflector

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
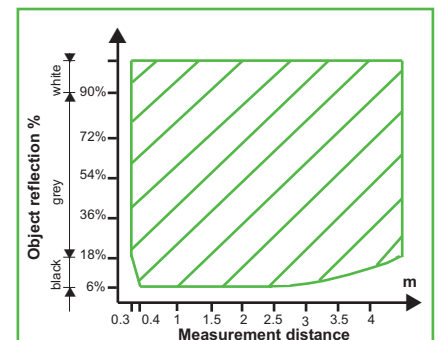 B - overload and short-circuit protection

DETECTION DIAGRAMS
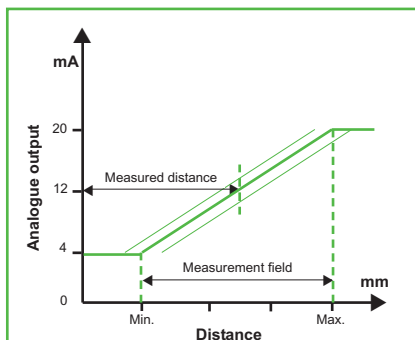

Analogue output

1 or 2 digital output

**Measurement distance according to object reflection degree (S80L-Y0)**

DATASENSOR

MODEL SELECTION TABLE

MODEL	MAX. DISTANCE	REFLECTOR	CONNECTION	OUTPUT	N° ORDER
S80-MH-5-Y09-PPIZ	4 m	no	M12 connector	PNP	951501000
S80-MH-5-Y09-NNIZ	4 m	no	M12 connector	NPN	951501010
S80-MH-5-Y19-PPIZ	20 m	yes	M12 connector	PNP	951501020
S80-MH-5-Y19-NNIZ	20 m	yes	M12 connector	NPN	951501030
S80-MH-5-Y29-PPIZ	100 m	yes	M12 connector	PNP	951501040
S80-MH-5-Y29-NNIZ	100 m	yes	M12 connector	NPN	951501050

ACCESSORIES

DIMENSIONS

ST-5037 fixing bracket
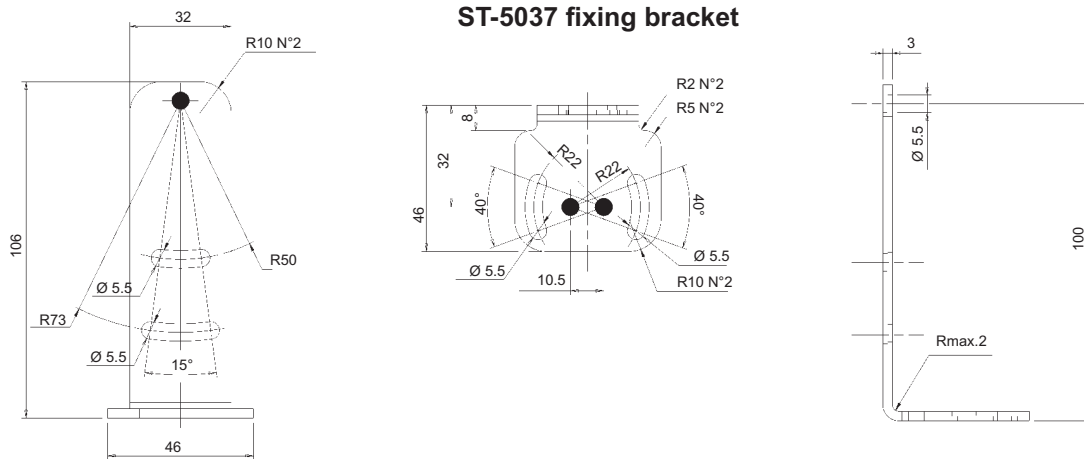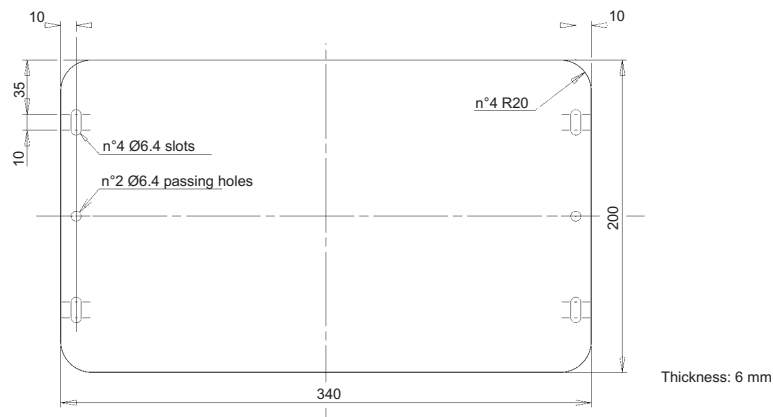
R80 reflector

ACCESSORY SELECTION TABLE

MODEL	DESCRIPTION	N° ORDER
ST-5037	'L' shaped fixing bracket	95ACC2260
R80 *	distance sensor reflector	95A151210
*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

   * supplied with the product

Distributed by:

DISTANCE SENSORS