MEASUREMENT

S80 SERIES

The **S80** 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 **S80-Y0** and **S80-YL0** sensors function as proximity on respectively a 0.3 - 4 m distance, or from 0.3 to 7 m with scalable range, in object positioning or detection applications.

The **S80-Y1** and **S80-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. All models 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.

Moreover the **S80-YL0** version offers the possibility to scale the 4-20 mA analogue output. This feature allows to set the minimum and maximum values of the operating distance and link the minimum and maximum current.

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

HIGHLIGHTS

- High precision and speed
- Proximity measurement range scalable from 0 to 7 m
- Retroreflex measurement range reaching 20 or 100 m on reflector
- 4 digit display and RS485 serial interface

APPLICATIONS
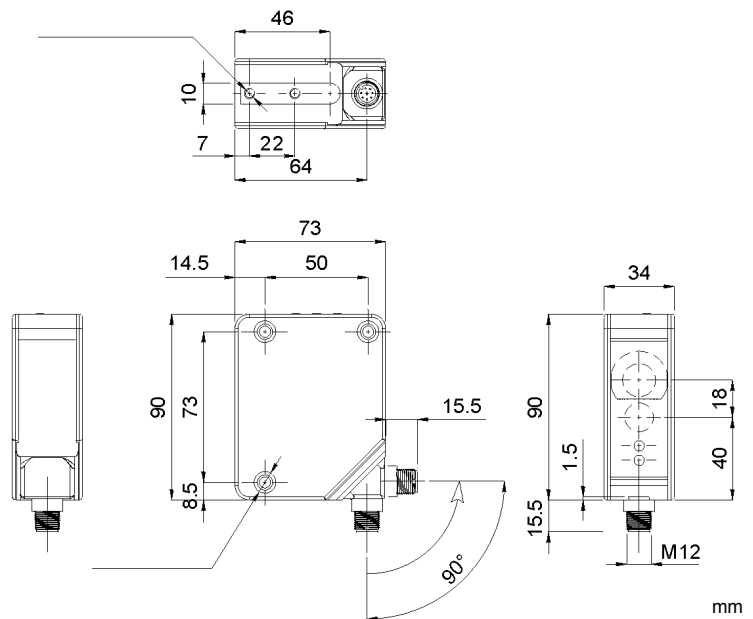
Automatic warehouse

Automotive

Wood

The laser distance sensors with time of flight measurement are suitable for long distance measurements offering constant performances on the entire range.
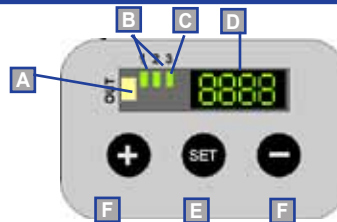The linearity indicates the maximum deviation of the analogue output respect to the ideal value and is expressed in percentage of full range. Whereas the temperature drift indicates the maximum deviation in relation to the sensor temperature variation and is expressed in mm/°C. Lastly, the repeatibility represents the variation interval of the measurement made different times on the target at the same distance. The product is not suitable to be used for OUTDOOR application.
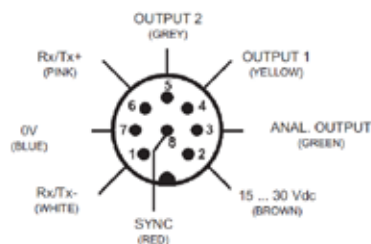
DIMENSIONS

mm

INDICATORS AND SETTINGS

A Output 'OR' function LED

B Output status LED

C Response time LED

D 4-digit display

E SET push-button

F +/- selection push-buttons

G Alarm LED

H M12 connector output orientable on two positions

ACCESSORIES

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

Refer also to **Connectors** and **Fixing Brackets** and **Supports** 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)

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

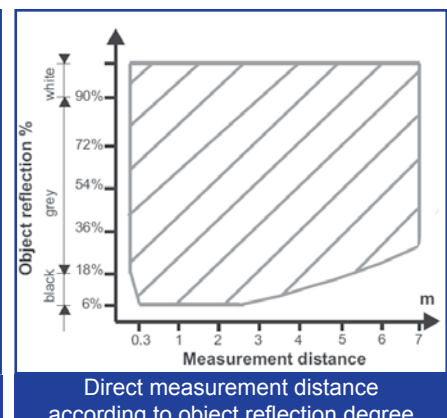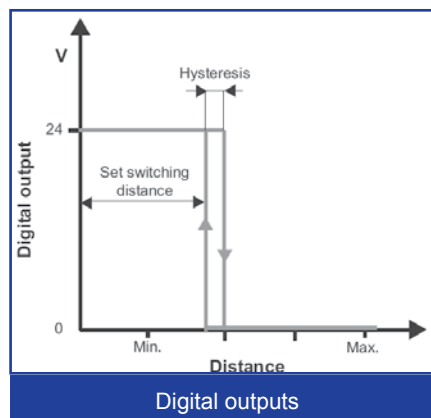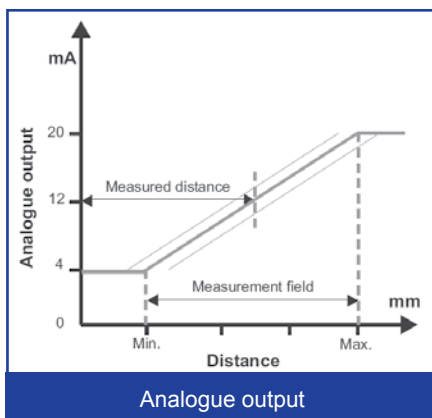Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

Direct measurement range[1]:	0.3 - 4 m (Y0), 0.3 - 7 m scalable (YL0)
Retroreflex measurement range[2]:	0.3 - 20.3 m (Y1), 0.3 - 100.3 m (Y2)
Linearity:	0.3% (Y0/YL0), 0.75% (Y1), 0.3% (Y2)
Temperature drift:	±0.6 mm/°C (Y0/YL0), <2mm/°C (Y1/Y2)
Warm Up:	20 min for all models
Repeatability[3]:	<5 mm (Y0 FAST)
	7 mm @ 7 m (YL0), 10 mm @ 20 m (Y1), 10 mm @ 100 m (Y2)
Switching output hysteresis[3]:	5 mm (Y0/YL0), 25 mm (Y1), 40 mm (Y2)
Power supply:	15 ... 30 Vdc (limit values)
Ripple:	2 Vpp max.
Consumption:	110 mA max. @ 24 Vdc
Light emission:	red Laser 658 nm, class 2
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 or 2 NPN NO
	4 ... 20 mA analogue
Output current:	≤ 100 mA
Saturation voltage:	≤ 2 V
Response time:	5 ms (NORMAL) / 1 ms (FAST)
	6 ms (YL0)
Switching frequency:	100 Hz (NORMAL) / 500 Hz (FAST)
	85 Hz (YL0)
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

TECHNICAL NOTES

[1]On target 90% white to 18% grey
[2]On reflector R80
[3]In Normal mode with 5 ms response time
[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

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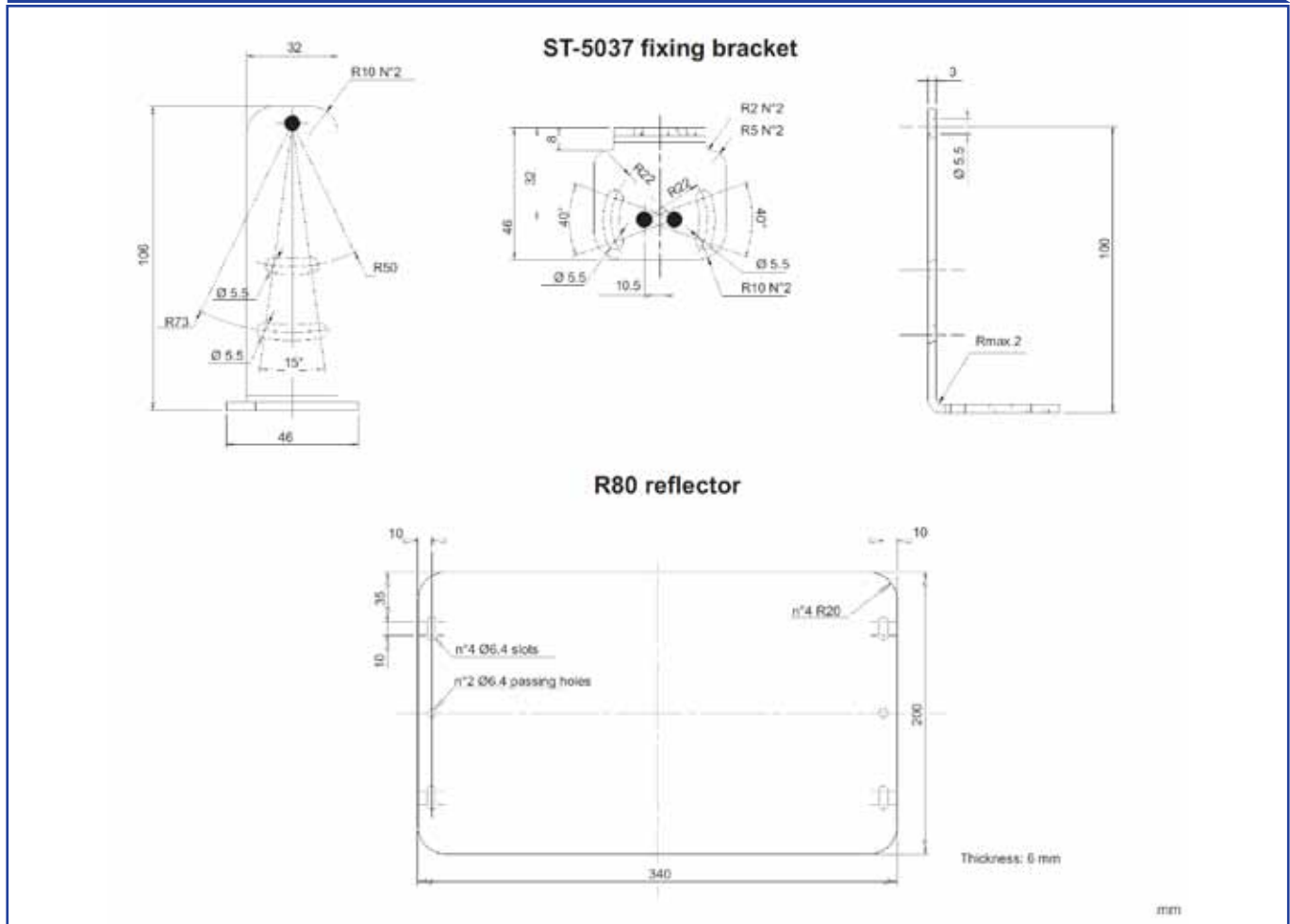CLASS 2 LASER PRODUCT
EN60825-1 (1994) - IEC825-1 (1993)
Max.power ≤ 1mW   λ 665nm

CE   c (UL) US LISTED

DETECTION DIAGRAMS

Analogue output

Digital outputs

Direct measurement distance
according to object reflection degree

MODEL SELECTION AND ORDER INFORMATION

MODEL	MAX. DISTANCE	REFLECTOR	CONNECTION	OUTPUT	N° ORDER
S80-MH-5-Y09-PPIZ	4 m	no	M12 connector	PNP	951501080
S80-MH-5-Y09-NNIZ	4 m	no	M12 connector	NPN	951501010
S80-MH-5-YL09-PPIZ	7 m	no	M12 connector	PNP	951501060
S80-MH-5-YL09-NNIZ	7 m	no	M12 connector	NPN	951501070
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

* supplied with the sensor

ACCESSORY DIMENSIONS

ST-5037 fixing bracket

R80 reflector

ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	N° ORDER
ST-5037	'L' shaped fixing bracket	95ACC2260
R80 *	S80 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 sensor

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.