DISTANCE SENSORS

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

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, for example as double-threshold background suppression on long distance.

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 and are ideal for position applications in automatic warehouses or material handling lines in general.

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.
The laser distance sensors with time of flight measurement are suitable for long distance measurements offering constant performances on the entire range. The resolution represents the minimum dimension, or the smallest target movement 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. Whereas the temperature drift indicates the maximum deviation in relation to the sensor temperature variation and is expressed in mm/°C. Lastly, the repeatability represents the variation interval of the measurement made different times on the target at the same distance.

For dedicated accessories refer to the ACCESSORIES section of this catalogue. Refer also to Connectors and Fixing Brackets of the General Catalogue.

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: 0.3 - 4 m (Y0), 0.3 - 7 m scalable (YL0)
Retroreflex measurement range: 0.3 - 20.3 m (Y1), 0.3 - 100.3 m (Y2)
Digital resolution: 0.9 mm (Y0), 0.4 mm (YL0), 0.6 mm (Y1), 6 mm (Y2)
Linearity: 0.3% (Y0/YL0), 0.25% (Y1), 0.15% (Y2)
Temperature drift: ±1.5 mm/°C (Y0/YL0), ±2 mm/°C (Y2)
Repeatability: 3 mm @ 4 m (Y0 NORM/YL0), 3 mm @ 4 m (Y0 FAST)
7 mm @ 7 m (YL0), 10 mm @ 20 m (Y1), 10 mm @ 100 m (Y2)
Switching output hysteresis: 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 665 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
RS485 serial interface
Connection: M12 8-pole connector
Electrical protection: class 2
Mechanical protection: IP67
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

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**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

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**DETECTION DIAGRAMS**

- Analogue output: Graph showing mA output against distance
- Digital outputs: Graph showing digital output against distance
- Direct measurement distance according to object reflection degree
MODEL SELECTION AND ORDER INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MAX. DISTANCE</th>
<th>REFLECTOR</th>
<th>CONNECTION</th>
<th>OUTPUT</th>
<th>N° ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>S80-MH-5-Y09-PPIZ</td>
<td>4 m</td>
<td>no</td>
<td>M12 connector</td>
<td>PNP</td>
<td>951501080</td>
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<tr>
<td>S80-MH-5-Y09-NNNZ</td>
<td>4 m</td>
<td>no</td>
<td>M12 connector</td>
<td>NPN</td>
<td>951501010</td>
</tr>
<tr>
<td>S80-MH-5-YL09-PPIZ</td>
<td>7 m</td>
<td>no</td>
<td>M12 connector</td>
<td>PNP</td>
<td>951501060</td>
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<tr>
<td>S80-MH-5-YL09-NNNZ</td>
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<td>no</td>
<td>M12 connector</td>
<td>NPN</td>
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<tr>
<td>S80-MH-5-Y19-PPIZ</td>
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<td>yes *</td>
<td>M12 connector</td>
<td>PNP</td>
<td>951501020</td>
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<tr>
<td>S80-MH-5-Y19-NNNZ</td>
<td>20 m</td>
<td>yes *</td>
<td>M12 connector</td>
<td>NPN</td>
<td>951501030</td>
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<tr>
<td>S80-MH-5-Y29-PPIZ</td>
<td>100 m</td>
<td>yes *</td>
<td>M12 connector</td>
<td>PNP</td>
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<tr>
<td>S80-MH-5-Y29-NNNZ</td>
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<td>yes *</td>
<td>M12 connector</td>
<td>NPN</td>
<td>951501050</td>
</tr>
</tbody>
</table>

* supplied with the sensor

ACCESSORIES

ST-5037 fixing bracket

R80 reflector

ACCESSORY SELECTION AND ORDER INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>N° ORDER</th>
</tr>
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<tbody>
<tr>
<td>ST-5037</td>
<td>&quot;L&quot; shaped fixing bracket</td>
<td>95ACC2260</td>
</tr>
<tr>
<td>R80 *</td>
<td>S80 distance sensor reflector</td>
<td>95A151210</td>
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Refer also to Accessories for Sensors

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>N° ORDER</th>
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</thead>
<tbody>
<tr>
<td>CS-A1-06-B-03</td>
<td>M12 8-pole conn. with 3 m unshielded cable</td>
<td>95ACC2230</td>
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<tr>
<td>CS-A1-06-B-05</td>
<td>M12 8-pole conn. with 5 m unshielded cable</td>
<td>95ACC2240</td>
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<tr>
<td>CS-A1-06-B-10</td>
<td>M12 8-pole conn. with 10 m unshielded cable</td>
<td>95ACC2250</td>
</tr>
</tbody>
</table>

* supplied with the sensor

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