S81 distance sensor line offers the best solution for all the applications where cost reduction is requested, without compromising the detection or measurement performances.

The class 2 Laser emission and the exclusive time of flight measurement of light technology assure extreme precision in the distance measurement, with range up to 4 meters.

The high resolution is not a limit for the sensing speed, reaching 5 ms response time and 80 Hz switching frequency.

Thanks to only two push-buttons for different distance threshold setting, the automatic sensor setting is very easy and accurate for the two independent NPN or PNP outputs.

The sensor is available in two different versions: S81-...Y for distance measurement with an additional 0-10 V analogue output, or S81-...M as long distance background suppression proximity with an additional alarm output for received signal problems or dirty lens condition. Moreover the S81-.. Y version offers the possibility to scale the 0-10V analogue output. This feature allows to set the minimum and maximum values of the operating distance and link the minimum and maximum voltage.

Thanks to the compact dimensions and multiple fixing holes with metallic inserts present in standard positions, the sturdy ABS plastic housing can be easily installed everywhere. S81 sensors can find typical applications in automatic materials handling and warehousing, in automotive or woodworking industries, as well as in automatic parking or other position control fields.
Easy setting: the switching thresholds are defined separately for each channel, by means of the following procedure:

- Set the target object in front of the sensor at the expected distance
- In order to set the switching threshold for the output 1, press the button until the LED1 starts blinking
- In order to set the switching threshold for the output 2, press the button until the LED2 starts blinking

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.
**TECHNICAL DATA**

**Measurement range:** 300 … 4000 mm

**Linearity:** <1% f.s. (24 Vdc, 25 °C, with white 90% target)

**Repeatability:** +/- 4 mm

**Temperature drift:** < 1 mm/°C

**Hysteresis:** 20 mm

**Power supply:** 24 Vdc +/- 20%, limit values

**Ripple:** 2 Vpp max.

**Consumption:** 120 mA max (100 mA at 24V)

**Light emission:** red Laser 665 nm, class 2

**Spot dimension:** Ø3.5 mm at 0.3 m

**Setting:** OUT2  OUT1

**Indicators:** yellow OUTPUT 1 LED

**Output type:** scaleable 0-10V analogue output

**Switching outputs:** 2 PNP or NPN outputs

**Alarm output:** 1 PNP or NPN alarm output (only S81...M)

**1 analogue 0-10 V output (only S81...Y)**

**Output current:** 100 mA max.

**Response time:** 5 ms

**Switching frequency:** 80 Hz

**Connections:** 5-pole M12 connector

**Electrical protection:** class 2

**Mechanical protection:** IP67

**Protection devices:** A, B

**Housing material:** ABS

**Lens material:** PMMA

**Weight:** 92 g max.

**Operating temperature:** -10 … 50 °C

**Storage temperature:** -20 … 70 °C

**Reference standard:** EN 60947-5-2, EN 60825-11

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**TECHNICAL NOTES**

1 On target 90% white to 18% grey

2 A - reverse polarity protection

B - overload and short-circuit protection

---

**SELECTION TABLE**

<table>
<thead>
<tr>
<th>Model</th>
<th>Analogue output</th>
<th>Scaleable</th>
<th>Alarm output</th>
<th>2 NPN</th>
<th>2 PNP</th>
</tr>
</thead>
<tbody>
<tr>
<td>S81-PL-5-M03-NNC</td>
<td>0-10V</td>
<td>0-10V</td>
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<td></td>
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<tr>
<td>S81-PL-5-M03-PPC</td>
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<tr>
<td>S81-PL-5-Y03-NNV</td>
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<tr>
<td>S81-PL-5-Y03-PPV</td>
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<tr>
<td>S81-PL-5-Y03-PPVK</td>
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</tbody>
</table>

**DETECTION DIAGRAMS**

1. **Analogue output**
2. **Digital outputs**
3. **White/Black difference**
### ACCESSORY SELECTION AND ORDER INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>N° ORDER</th>
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<tbody>
<tr>
<td>CS-A1-03-G-03</td>
<td>M12 5-pole conn. with 3 m unshielded cable</td>
<td>95ACC2110</td>
</tr>
<tr>
<td>CS-A1-03-G-05</td>
<td>M12 5-pole conn. with 5 m unshielded cable</td>
<td>95ACC2120</td>
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<tr>
<td>CS-A1-03-G-10</td>
<td>M12 5-pole conn. with 10 m unshielded cable</td>
<td>95ACC2140</td>
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</table>

Refer also to Accessories for Sensors

### MODEL SELECTION AND ORDER INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>MAX. DISTANCE</th>
<th>ANALOGUE OUT</th>
<th>ALARM OUTPUT</th>
<th>SWITCHING OUTPUT</th>
<th>N° ORDER</th>
</tr>
</thead>
<tbody>
<tr>
<td>S81-PL-5-M03-NNC</td>
<td>4 m</td>
<td>no</td>
<td>yes</td>
<td>2 NPN</td>
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<tr>
<td>S81-PL-5-M03-PPC</td>
<td>4 m</td>
<td>no</td>
<td>yes</td>
<td>2 PNP</td>
<td>951551110</td>
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<tr>
<td>S81-PL-5-Y03-NNV</td>
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<td>yes</td>
<td>no</td>
<td>2 NPN</td>
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<tr>
<td>S81-PL-5-Y03-PPV</td>
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<td>2 PNP</td>
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<tr>
<td>S81-PL-5-Y03-PPVK</td>
<td>4 m</td>
<td>yes</td>
<td>no</td>
<td>2 PNP</td>
<td>951551040</td>
</tr>
</tbody>
</table>

Datasensor SpA 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 Datasensor SpA can guarantee only the data indicated in the instruction manual supplied with the products.