The new SMall series offers a complete line of subminiature amplified photoelectric sensors, ideal for mounting in reduced spaces or in presence of particular mechanical obstacles.

The extremely compact dimensions and wide detection field of all modes suit most of the applications on automatic machinery for packaging, assembling, printing as well as in automatic distribution and vending machines.

The series offers many different optic functions including 1.5 m retroreflex, 1 m polarised retroreflex, and 2 m through beam. The 15 mm, 20 mm, 30 mm and 50 mm fixed focus proximity models represent a valid alternative to fibre-optic systems and can be used to detect objects with small profiles and poorly reflective materials.

All models of the subminiature SMall series have visible red emission facilitating alignment, cable connection and are available in the NPN or PNP versions with NO-NC double output. The plastic housing guarantees an IP67 protection degree.
The range offers versions with PNP or NPN output and each are available with a normally open and normally closed output. The sensor functions in the light mode if the normally open output is used and is activated, like the output LED, in presence of light. The opposite effect is obtained when the sensor functions in dark mode and the normally closed output is used. In presence of short-circuit output, the green LED blinks signalling the fault.

**DIMENSIONS**

**CONNECTIONS**

<table>
<thead>
<tr>
<th>SM ... F00/A00/B00/D00/D10/D20</th>
<th>SM ... G00</th>
</tr>
</thead>
<tbody>
<tr>
<td>BROWN 1 + 10 ... 30 Vdc</td>
<td>BROWN 1 + 10 ... 30 Vdc</td>
</tr>
<tr>
<td>WHITE 2 NC OUTPUT</td>
<td>BLUE 3 0 V</td>
</tr>
<tr>
<td>BLACK 4 NO OUTPUT</td>
<td>BLUE 3 0 V</td>
</tr>
<tr>
<td>BLUE 3 0 V</td>
<td>BLUE 3 0 V</td>
</tr>
</tbody>
</table>

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

**INDICATORS AND SETTINGS**

A Output status LED

B Power on LED

**DETECTION DIAGRAMS**

Through beam
Detection area

Operating distance

Retroreflex
Detection area

Fixed focus proximity - 15 mm
Detection area

Fixed focus proximity - 15 mm

Operating distance

Through beam
Excess gain

Operating distance

Polarised retroreflex
Detection area

Operating distance

Excess gain
TECHNICAL DATA

Power supply: 10 ... 30 Vdc
Consumption: 20 mA max.
Light emission: red LED 640 nm
Through beam operating distance: 0 ... 2 m
Retroreflex operating distance: 5 ... 150 cm
Polarised retroreflex operating distance: 10 ... 100 cm
Fixed focus operating distance: 3 ... 15 mm
3 ... 20 mm
3 ... 30 mm
3 ... 50 mm
Indicators: yellow OUTPUT LED, green POWER LED
Output type: PNP, NO-NC
NPN, NO-NC
Operating mode: light on NO, dark on NC
Saturation voltage: 1.45 V max. at 50 mA
Response time: 0.7 ms
1.3 ms
Switching frequency: 700 Hz
385 Hz
Connection: 2 m cable, Ø 2.5 mm
Electrical protection: class 2
Mechanical protection: IP67
Protection devices: A, B
Housing material: Polycarbonate
Lens material: PMMA, glass
Weight: 22 g
Operating temperature: -20 ... +55°C
Storage temperature: -30 ... +75°C
Reference standard: EN 60947-5-2

1 On white 90 % target
2 Limit value
3 A - reverse polarity protection
   B - overload and short-circuit protection

TECHNICAL NOTES

DETECTION DIAGRAMS
ACCESSORIES

ACCESSORY SELECTION AND ORDER INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>FUNCTION</th>
<th>OUTPUT</th>
<th>ORDER N°</th>
</tr>
</thead>
<tbody>
<tr>
<td>SM-PR-2-D00-XG</td>
<td>emitter</td>
<td>-</td>
<td>95B000160</td>
</tr>
<tr>
<td>SM-PR-2-F00-PP</td>
<td>receiver</td>
<td>PNP</td>
<td>95B000120</td>
</tr>
<tr>
<td>SM-PR-2-F00-NN</td>
<td>receiver</td>
<td>NPN</td>
<td>95B000130</td>
</tr>
<tr>
<td>SM-PR-2-A00-PP</td>
<td>retoreflex</td>
<td>PNP</td>
<td>95B000060</td>
</tr>
<tr>
<td>SM-PR-2-A00-NN</td>
<td>retoreflex</td>
<td>NPN</td>
<td>95B000070</td>
</tr>
<tr>
<td>SM-PR-2-B00-PP</td>
<td>polarised retoreflex</td>
<td>PNP</td>
<td>95B000080</td>
</tr>
<tr>
<td>SM-PR-2-B00-NN</td>
<td>polarised retoreflex</td>
<td>NPN</td>
<td>95B000090</td>
</tr>
<tr>
<td>SM-PR-2-D00-PP</td>
<td>15 mm fixed focus proximity</td>
<td>PNP</td>
<td>95B000020</td>
</tr>
<tr>
<td>SM-PR-2-D00-NN</td>
<td>15 mm fixed focus proximity</td>
<td>NPN</td>
<td>95B000030</td>
</tr>
<tr>
<td>SM-PR-2-D10-PP</td>
<td>20 mm fixed focus proximity</td>
<td>PNP</td>
<td>95B000140</td>
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<tr>
<td>SM-PR-2-D10-NN</td>
<td>20 mm fixed focus proximity</td>
<td>NPN</td>
<td>95B000150</td>
</tr>
<tr>
<td>SM-PR-2-D20-PP</td>
<td>30 mm fixed focus proximity</td>
<td>PNP</td>
<td>95B000040</td>
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<tr>
<td>SM-PR-2-D20-NN</td>
<td>30 mm fixed focus proximity</td>
<td>NPN</td>
<td>95B000050</td>
</tr>
<tr>
<td>SM-PR-2-D30-PP</td>
<td>50 mm fixed focus proximity</td>
<td>PNP</td>
<td>95B000000</td>
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<tr>
<td>SM-PR-2-D30-NN</td>
<td>50 mm fixed focus proximity</td>
<td>NPN</td>
<td>95B000010</td>
</tr>
</tbody>
</table>

DIMENSIONS

ST-5049

ACCESSORY SELECTION AND ORDER INFORMATION

<table>
<thead>
<tr>
<th>MODEL</th>
<th>DESCRIPTION</th>
<th>ORDER N°</th>
</tr>
</thead>
<tbody>
<tr>
<td>ST-5049</td>
<td>L-shaped fixing bracket</td>
<td>95ACC6650</td>
</tr>
</tbody>
</table>

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HEADQUARTERS

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