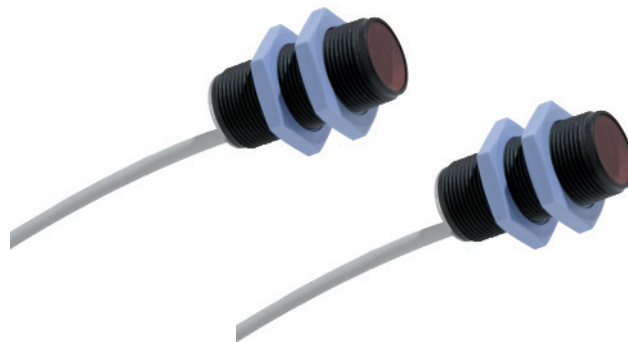


## SHORT TUBULAR SENSORS



*Above all others*

- **Small housing of only 40 mm**
- **Cable or pig-tail versions**
- **No sensitivity adjustment trimmer**
- **IP69K mechanical protection**

## S15 SERIES

The main characteristic of the new M18 tubular **S15** sensors is the housing length of only 40 mm, especially suitable for applications with reduced space.

The new **S15** series is available with cable output, in order to maximise the concept of 'reduced dimensions' as well as to offer contemporaneously the best installation flexibility.

The **S15** series is supplied without the sensitivity adjustment trimmer to ease and speed-up installation. This feature drastically reduces the possibility of allowing the operator to modify the sensor's performances and so guaranteeing major reliability and productivity.

The main optic functions used in the industrial market are available, polarised retroreflex, non-polarised retroreflex, diffuse proximity and through beam.

These sensors are ideal for the most critical applications with harsh environmental conditions thanks to the IP69K mechanical protection.

## INSTALLATION

The sensor can be fixed by means of the M18x1 threaded body using CH.24 nuts (1.5 Nm maximum tightening torque) or low-profile flared nut provided specifically supplied for . Various orientable fixing brackets are available to ease sensor positioning (please refer to the accessories listed in the general catalogue).

The operating distance is measured from the front surface of the sensor lens.

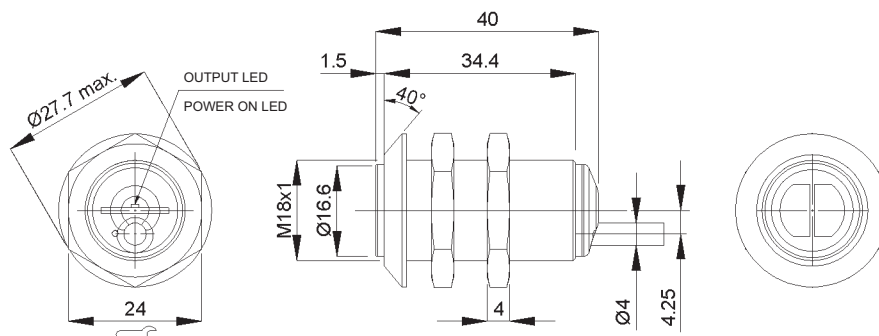
C models: the object has to be moved closer or further away from the front surface of the sensor lens to improve detection.

In case of lateral translation, the object must move as indicated in the figure.

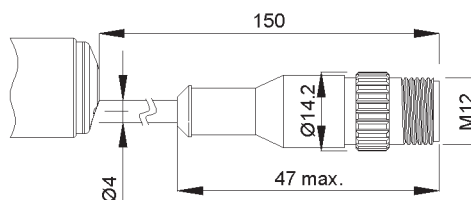


## DIMENSIONS

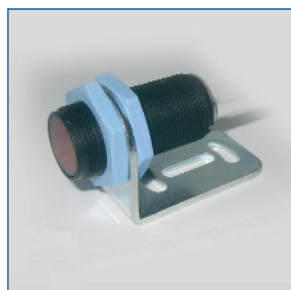
### CABLE VERSION



### PIG-TAIL VERSION



mm



## ACCESSORIES

For **dedicated accessories** refer to the **ACCESSORIES** section.

Refer also to **Connectors** and **Reflectors** of the **General Catalogue**.

## CONNECTIONS

### S15-...A00/B00/C00/C10/F00

|       |   |   |                 |
|-------|---|---|-----------------|
| BROWN | 1 | + | + 12 ... 30 Vdc |
| WHITE | 2 |   | Dark / Light    |
| BLACK | 4 |   | Output          |
| BLUE  | 3 | - | 0V              |

### S15-...G00

|       |   |   |                 |
|-------|---|---|-----------------|
| BROWN | 1 | + | + 12 ... 30 Vdc |
| WHITE | 2 |   | Test +          |
| BLACK | 4 |   | Test -          |
| BLUE  | 3 | - | 0V              |

## TECHNICAL DATA

|                                             |                                    | S15-PA-X-A00 | S15-PA-X-B00 | S15-PA-X-C00 | S15-PA-X-C10 | S15-PA-X-F00 | S15-PA-X-G00 |
|---------------------------------------------|------------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Long diffuse proximity operating distance:  | 1 ... 35 cm                        |              |              | ●            |              |              |              |
| Short diffuse proximity operating distance: | 1 ... 10 cm                        |              |              |              | ●            |              |              |
| Retroreflex operating distance:             | 0,1...4 m on R2                    | ●            |              |              |              |              |              |
| Polarised retroreflex operating distance:   | 0,1...3 m on R2                    |              | ●            |              |              |              |              |
| Through beam operating distance:            | 0...20 m                           |              |              |              |              | ●            | ●            |
| Power supply:                               | 12 ... 30 Vdc <sup>1</sup>         | ●            | ●            | ●            | ●            | ●            | ●            |
| Ripple:                                     | ≤ 2 Vpp                            | ●            | ●            | ●            | ●            | ●            | ●            |
| Consumption:                                | ≤ 30 mA                            | ●            | ●            | ●            | ●            | ●            | ●            |
| Light emission <sup>2</sup> :               | infrared LED 880 nm                | ●            | ●            | ●            | ●            | ●            | ●            |
|                                             | red LED 660 nm                     |              | ●            |              |              |              |              |
| Indicators:                                 | yellow OUTPUT LED                  | ●            | ●            | ●            | ●            | ●            |              |
|                                             | green POWER LED                    |              |              |              |              |              | ●            |
| Output type:                                | PNP (-PP suffix)                   | ●            | ●            | ●            | ●            | ●            | ●            |
|                                             | NPN (-NN suffix)                   | ●            | ●            | ●            | ●            | ●            | ●            |
| Output current:                             | ≤ 100 mA                           | ●            | ●            | ●            | ●            | ●            |              |
| Saturation voltage:                         | ≤ 2 V                              | ●            | ●            | ●            | ●            | ●            |              |
| Response time:                              | 1 ms                               | ●            | ●            | ●            | ●            |              |              |
|                                             | 4 ms                               |              |              |              |              | ●            |              |
| Switching frequency:                        | ≤ 500 Hz                           | ●            | ●            | ●            | ●            |              |              |
|                                             | ≤ 120 Hz                           |              |              |              |              | ●            |              |
| Operating mode:                             | selectable dark/light <sup>3</sup> | ●            | ●            | ●            | ●            | ●            |              |
| Auxiliary functions:                        | Test + and Test -                  |              |              |              |              |              | ●            |
| Electrical protection:                      | class 2                            | ●            | ●            | ●            | ●            | ●            | ●            |
| Mechanical protection:                      | IP69K                              | ●            | ●            | ●            | ●            | ●            | ●            |
| Protection devices:                         | A, B <sup>4</sup>                  | ●            | ●            | ●            | ●            | ●            | ●            |
| Housing material:                           | PBT                                | ●            | ●            | ●            | ●            | ●            | ●            |
| Lens material:                              | plastic PMMA                       | ●            | ●            | ●            | ●            | ●            | ●            |
| Weight:                                     | 75 g max.                          | ●            | ●            | ●            | ●            | ●            | ●            |
| Operating temperature:                      | -25 ... +55°C                      | ●            | ●            | ●            | ●            | ●            | ●            |
| Storage temperature:                        | -25 ... +70°C                      | ●            | ●            | ●            | ●            | ●            | ●            |
| Reference standard:                         | EN 60947-5-2, UL 508               | ●            | ●            | ●            | ●            | ●            | ●            |

## TECHNICAL NOTES

<sup>1</sup> Limit values

<sup>2</sup> Average life of 100.000 h with  $T_A = +25^\circ\text{C}$

<sup>3</sup> With L/D input not connected the proximity models function in the light mode and the retroreflex and through beam models in the dark mode; the light mode can be selected connecting the L/D input to +Vdc, the dark mode connecting it to 0Vdc

<sup>4</sup> A - reverse polarity protection

B - overload and short-circuit protection

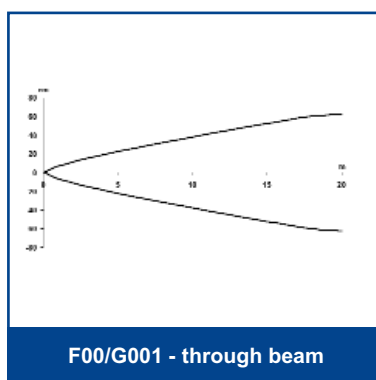
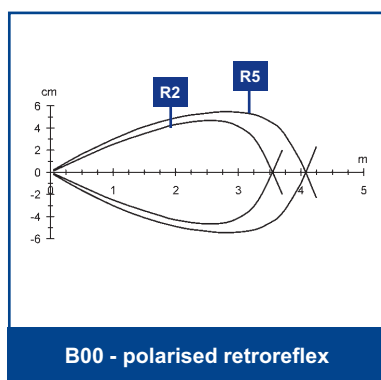
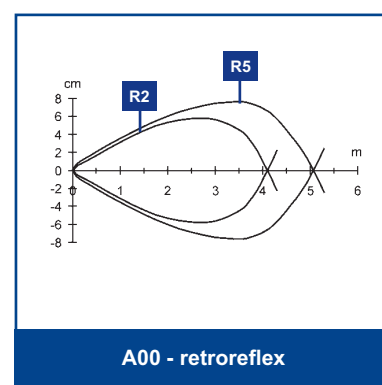
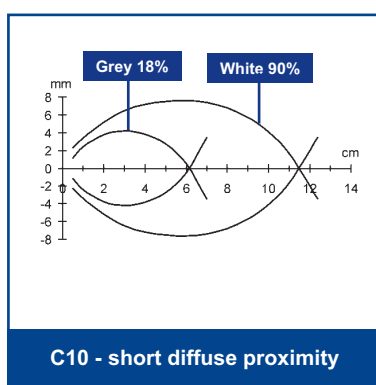
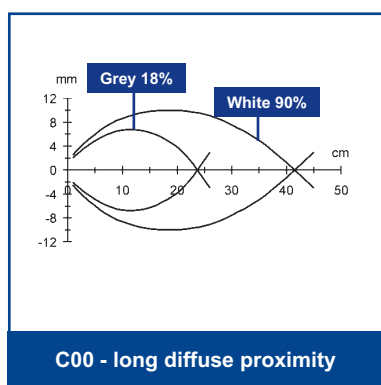
<sup>5</sup> X = 2, 2 m Ø 4 mm cable version (PVC, 4 x 0,14 mm<sup>2</sup>)

X = 3, pig-tail version (150 mm cable + M12 4-pole connector)



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## DETECTION DIAGRAMS



## MODEL SELECTION AND ORDER INFORMATION

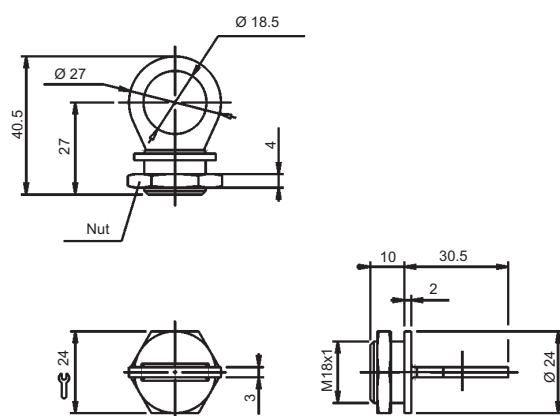
| MODEL           | OPTIC FUNCTION          | CONNECTION | OUTPUT | ORDER N°  |
|-----------------|-------------------------|------------|--------|-----------|
| S15-PA-2-A00-PK | retroreflex             | 2 m cable  | PNP    | 952301000 |
| S15-PA-2-B00-PK | polarised retroreflex   | 2 m cable  | PNP    | 952301010 |
| S15-PA-2-C10-PK | short diffuse proximity | 2 m cable  | PNP    | 952301020 |
| S15-PA-2-C00-PK | long diffuse proximity  | 2 m cable  | PNP    | 952301030 |
| S15-PA-2-F00-PK | receiver                | 2 m cable  | PNP    | 952301040 |
| S15-PA-2-A00-NK | retroreflex             | 2 m cable  | NPN    | 952301050 |
| S15-PA-2-B00-NK | polarised retroreflex   | 2 m cable  | NPN    | 952301060 |
| S15-PA-2-C10-NK | short diffuse proximity | 2 m cable  | NPN    | 952301070 |
| S15-PA-2-C00-NK | long diffuse proximity  | 2 m cable  | NPN    | 952301080 |
| S15-PA-2-F00-NK | receiver                | 2 m cable  | NPN    | 952301090 |
| S15-PA-2-G00-XG | emitter                 | 2 m cable  | -      | 952301100 |
| S15-PA-3-A00-PK | retroreflex             | pig-tail * | PNP    | 952301110 |
| S15-PA-3-B00-PK | polarised retroreflex   | pig-tail * | PNP    | 952301120 |
| S15-PA-3-C10-PK | short diffuse proximity | pig-tail * | PNP    | 952301130 |
| S15-PA-3-C00-PK | long diffuse proximity  | pig-tail * | PNP    | 952301140 |
| S15-PA-3-F00-PK | receiver                | pig-tail * | PNP    | 952301150 |
| S15-PA-3-A00-NK | retroreflex             | pig-tail * | NPN    | 952301160 |
| S15-PA-3-B00-NK | polarised retroreflex   | pig-tail * | NPN    | 952301170 |
| S15-PA-3-C10-NK | short diffuse proximity | pig-tail * | NPN    | 952301180 |
| S15-PA-3-C00-NK | long diffuse proximity  | pig-tail * | NPN    | 952301190 |
| S15-PA-3-F00-NK | receiver                | pig-tail * | NPN    | 952301200 |
| S15-PA-3-G00-XG | emitter                 | pig-tail * | -      | 952301210 |

\* Pig-tails versions (150 mm cable + 4-pole M12 connector)

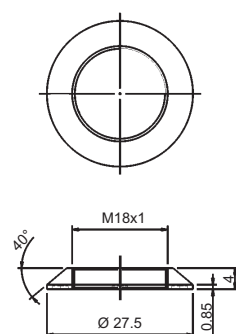
## ACCESSORIES

## DIMENSIONS

ST-5013



PLASTIC NUT



mm

## ACCESSORY SELECTION AND ORDER INFORMATION

| MODEL        | DESCRIPTION                                                 | ORDER N°  |
|--------------|-------------------------------------------------------------|-----------|
| PLASTIC NUTS | flared fixing nut                                           | 95ACC2630 |
| ST-5011      | M18 fixing bracket                                          | 95ACC5240 |
| ST-5012      | M18 fixing bracket                                          | 95ACC5250 |
| ST-5013      | round-18                                                    | 95ACC5260 |
| ST-5017      | M18 fixing bracket                                          | 95ACC5270 |
| MICRO-18     | support with micrometric regulation for tubular M18 sensors | 95ACC1380 |
| SP-40        | fixed support for tubular M18 sensors                       | 95ACC1370 |

Refer also to **Accessories for Sensors** of the **General Catalogue**

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