



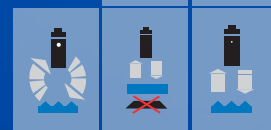
# SS - SP series

M18 DC with lateral adjustment



## features

- Models with side sens. adjustment on axial and right angle optic
- LO/DO selectable output
- ATEX models, cat. 3, available on request
- LED status indicator for all versions
- Complete protection against electrical damages
- IP67 protection degree for all models
- Approvals: CE and cULus listed



M18 DC with lateral adjustment

## web contents

- Application notes
- Photos
- Catalogue / Manuals



## code description (\*)

background suppression

SS 0 / 0 N - 0 A

|                   |           |   |
|-------------------|-----------|---|
| series            | <b>SS</b> | M18 photoelectric sensors with axial optic  |
| type              | <b>0</b>  | 50 mm background suppr. without sens. adjust.   |
|                   | <b>1</b>  | 100 mm background suppr. without sens. adjust.  |
|                   | <b>T</b>  | Focalizer background suppr. 12 mm (with focalizer STF-12) - 25 mm (with focalizer STF-25) |
| output            | <b>0</b>  | LO/DO selectable output   |
|                   | <b>L</b>  | 3 wires – light on  |
|                   | <b>D</b>  | 3 wires – dark on   |
| NPN / PNP output  | <b>N</b>  | NPN output  |
|                   | <b>P</b>  | PNP output  |
| housing material  | <b>0</b>  | Plastic housing   |
|                   | <b>1</b>  | Metallic housing  |
| cable / plug exit | <b>A</b>  | Axial cable exit 2 m  |
|                   | <b>E</b>  | M12 plug cable exit   |

(\*) ATEX models available, contact our Sales Dept. for further information.



## code description

diffuse reflection and retro-reflective

SS 2 / 0 N - 0 A

|                     |    |   |
|---------------------|----|---|
| series              | SS | M18 photoelectric sensors with axial optic                          |
|                     | SP | M18 photoelectric sensors with right angle optic                    |
| type                | 2  | 100 mm diffuse reflection without sens. adjust.                     |
|                     | 3  | 100 mm diffuse reflection with sens. adjust.                        |
|                     | 7  | 400 mm diffuse reflection with sens. adjust.                        |
|                     | 8  | 800 mm diffuse reflection with sens. adjust.                        |
|                     | C  | 5 m retro-reflective without sens. adjust. <sup>(1)</sup>           |
|                     | P  | 4 m polarized retro-reflective without sens. adjust. <sup>(1)</sup> |
| output              | 0  | LO/DO selectable output   |
|                     | L  | 3 wires - light on  |
|                     | D  | 3 wires - dark on   |
| NPN / PNP output    | N  | NPN output  |
|                     | P  | PNP output  |
| housing material    | 0  | Plastic housing   |
|                     | 1  | Metallic housing  |
| cable / plug output | A  | Axial cable exit  |
|                     | E  | M12 plug cable exit   |
|                     |    | Standard version  |
|                     | 3X | Retro-reflective and polarized with sens. adjust.                   |

<sup>(1)</sup> Special version with sens. adjust, 3X variant

M18 DC with lateral adjustment

## code description

through beam

SS H / 0 0 - 0 A

|                   |    |   |
|-------------------|----|---|
| series            | SS | M18 photoelectric sensors with axial optic            |
|                   | SP | M18 photoelectric sensors with right angle optic      |
| type              | H  | 14 m emitter without sens. adjust.                    |
|                   | Z  | 14 m receiver without sens. adjust.                   |
|                   | D  | 14 m receiver with sens. adjust.                      |
|                   | U  | Emitter with reduced visible beam                     |
|                   | G  | 8 m receiver for small object                         |
|                   | V  | 3 m receiver for ultra small object                   |
|                   |    | 0   |
| features          | X  | Emitter with check                                    |
|                   | L  | 3 wires - light on - S*D and S*Z only                 |
|                   | D  | 3 wires-dark on - S*D and S*Z only                    |
|                   | A  | 3 wires - light on - S*G and S*V only                 |
|                   | C  | 3 wires-dark on - S*G and S*V only                    |
| NPN / PNP output  | 0  | Emitter   |
|                   | N  | NPN output  |
|                   | P  | PNP output  |
| housing material  | 0  | Plastic housing                                       |
|                   | 1  | Metallic housing                                      |
| cable / plug exit | A  | Axial cable exit                                      |
|                   | E  | M12 plug cable exit - S*H, S*D and S*Z" versions only |
|                   | H  | M12 plug cable exit - S*U, S*G and S*V versions only  |

SS - SP

# available models

## plug exit photoelectric sensors axial optic

M18 DC with lateral adjustment

| function               | distance  | housing       | adjustment     | 3 wires LO NPN | 3 wires LO PNP | 3 wires DO NPN | 3 wires DO PNP | 3 wires NPN LO / DO | 3 wires PNP LO / DO |
|------------------------|-----------|---------------|----------------|----------------|----------------|----------------|----------------|---------------------|---------------------|
| background suppression | 50 mm     | plastic       | -              | -              | SS0/LP-0E      | -              | -              | SS0/0N-0E           | SS0/0P-0E           |
|                        |           | metallic      |                | -              | SS0/LP-1E      | -              | -              | SS0/0N-1E           | SS0/0P-1E           |
|                        | 100 mm    | plastic       |                | -              | SS1/LP-0E      | -              | -              | SS1/0N-0E           | SS1/0P-0E           |
|                        |           | metallic      |                | -              | SS1/LP-1E      | -              | -              | SS1/0N-1E           | SS1/0P-1E           |
|                        | focalized | plastic       |                | -              | -              | -              | -              | SST/0N-0E           | SST/0P-0E           |
|                        |           | metallic      |                | -              | -              | -              | -              | SST/0N-1E           | SST/0P-1E           |
| diffuse reflection     | 100 m     | plastic       | •              | SS2/LN-0E      | SS2/LP-0E      | -              | -              | SS2/0N-0E           | SS2/0P-0E           |
|                        |           | metallic      | -              | -              | -              | -              | -              | -                   |                     |
|                        |           | plastic       | •              | SS2/LN-1E      | SS2/LP-1E      | -              | -              | SS2/0N-1E           | SS2/0P-1E           |
|                        |           | metallic      | -              | -              | -              | -              | -              | SS3/0P-1E           |                     |
|                        | 400 mm    | plastic       | •              | -              | SS7/LP-0E      | -              | -              | SS7/0N-0E           | SS7/0P-0E           |
|                        |           | metallic      | -              | -              | SS7/LP-1E      | -              | -              | SS7/0N-1E           | SS7/0P-1E           |
|                        |           | plastic       | •              | -              | -              | -              | -              | -                   | SS8/0P-0E           |
|                        |           | metallic      | -              | -              | -              | -              | -              | -                   | SS8/0P-1E           |
| retro-reflective       | 4 m       | plastic       | -              | SSC/LN-0E      | SSC/LP-0E      | SSC/DN-0E      | SSC/DP-0E      | SSC/0N-0E           | SSC/0P-0E           |
|                        |           | metallic      | •              | -              | -              | -              | -              | SSC/0N-0E3X         | SSC/0P-0E3X         |
|                        |           | plastic       | •              | SSC/LN-1E      | SSC/LP-1E      | SSC/DN-1E      | SSC/DP-1E      | SSC/0N-1E           | SSC/0P-1E           |
|                        |           | metallic      | •              | -              | -              | -              | -              | SSC/0N-1E3X         | SSC/0P-1E3X         |
| polarized              | 3 m       | plastic       | -              | SSP/LN-0E      | SSP/LP-0E      | SSP/DN-0E      | SSP/DP-0E      | SSP/0N-1E           | SSP/0P-1E           |
|                        |           | metallic      | •              | -              | -              | -              | -              | SSP/0N-1E3X         | SSP/0P-1E3X         |
|                        |           | plastic       | •              | SSP/LN-1E      | SSP/LP-1E      | SSP/DN-1E      | SSP/DP-1E      | SSP/0N-1E           | SSP/0P-1E           |
|                        |           | metallic      | •              | -              | -              | -              | -              | SSP/0N-1E3X         | SSP/0P-1E3X         |
| through-beam           | 14 m      | plastic       | emitter        | SSH/00-0E      |                |                |                |                     |                     |
|                        |           |               | em. with check | SSH/X0-0E      |                |                |                |                     |                     |
|                        |           |               | receiver       | SSZ/LN-0E      | SSZ/LP-0E      | SSZ/DN-0E      | SSZ/DP-0E      | SSZ/0N-0E           | SSZ/0P-0E           |
|                        |           | receiver adj. | SSD/LN-0E      | SSD/LP-0E      | SSD/DN-0E      | SSD/DP-0E      | SSD/0N-0E      | SSD/0P-0E           |                     |
|                        |           | metallic      | emitter        | SSH/00-1E      |                |                |                |                     |                     |
|                        |           |               | em. with check | SSH/X0-1E      |                |                |                |                     |                     |
|                        | receiver  |               | SSZ/LN-1E      | SSZ/LP-1E      | SSZ/DN-1E      | SSZ/DP-1E      | SSZ/0N-1E      | SSZ/0P-1E           |                     |
|                        | 8 m       | plastic       | emitter        | SSU/00-0E      |                |                |                |                     |                     |
|                        |           |               | receiver       | SSG/AN-0E      | SSG/AP-0E      | SSG/CN-0E      | SSG/CP-0E      | -                   | -                   |
|                        |           |               | emitter        | SSU/00-1H      |                |                |                |                     |                     |
|                        |           | receiver      | SSG/AN-1H      | SSG/AP-1H      | SSG/CN-1E      | SSG/CP-1H      | -              | -                   |                     |
|                        |           | 3 m           | plastic        | emitter        | SSU/00-0E      |                |                |                     |                     |
| receiver               |           |               |                | SSV/AN-0E      | SSV/AP-0E      | SSV/CN-0E      | SSV/CP-0E      | -                   | -                   |
| metallic               | emitter   |               | SSU/00-1H      |                |                |                |                |                     |                     |
| receiver               | -         |               |                |                |                |                |                |                     |                     |



## available models

### cable exit photoelectric sensors axial optic

M18 DC with lateral adjustment

| function                  | distance    | housing        | adjustment     | 3 wires<br>LO NPN | 3 wires<br>LO PNP | 3 wires<br>DO NPN | 3 wires<br>DO PNP | 4 wires<br>NPN LO / DO | 4 wires<br>PNP LO / DO |
|---------------------------|-------------|----------------|----------------|-------------------|-------------------|-------------------|-------------------|------------------------|------------------------|
| background<br>suppression | 50 mm       | plastic        | -              | -                 | -                 | -                 | -                 | SS0/0N-0A              | SS0/0P-0A              |
|                           |             | metallic       |                | -                 | -                 | -                 | -                 | SS0/0N-1A              | SS0/0P-1A              |
|                           | 100 mm      | plastic        |                | -                 | -                 | -                 | -                 | SS1/0N-0A              | SS1/0P-0A              |
|                           |             | metallic       |                | -                 | -                 | -                 | -                 | SS1/0N-1A              | SS1/0P-1A              |
|                           | focalizzata | plastic        |                | -                 | -                 | -                 | -                 | SST/0N-0A              | SST/0P-0A              |
|                           |             | metallic       |                | -                 | -                 | -                 | -                 | SST/0N-1A              | SST/0P-1A              |
| diffuse<br>reflection     | 100 m       | plastic        | ●              | SS2/LN-0A         | SS2/LP-0A         | -                 | SS2/DP-0A         | SS2/0N-0A              | SS2/0P-0A              |
|                           |             | metallic       | -              | -                 | -                 | -                 | SS3/0N-0A         | SS3/0P-0A              |                        |
|                           |             | plastic        | ●              | SS2/LN-1A         | SS2/LP-1A         | SS2/DN-1A         | SS2/DP-1A         | SS2/0N-1A              | SS2/0P-1A              |
|                           |             | metallic       | -              | -                 | -                 | -                 | SS3/0N-1A         | SS3/0P-1A              |                        |
|                           | 400 mm      | plastic        | ●              | -                 | -                 | -                 | -                 | SS7/0N-0A              | SS7/0P-0A              |
|                           |             | metallic       | -              | -                 | -                 | -                 | -                 | SS7/0N-1A              | SS7/0P-1A              |
|                           |             | plastic        | ●              | -                 | -                 | -                 | -                 | SS8/0N-0A              | SS8/0P-0A              |
|                           |             | metallic       | -              | -                 | -                 | -                 | -                 | SS8/0N-1A              | SS8/0P-1A              |
| 800 mm                    | plastic     | ●              | -              | -                 | -                 | -                 | SS8/0N-0A         | SS8/0P-0A              |                        |
|                           | metallic    | -              | -              | -                 | -                 | -                 | SS8/0N-1A         | SS8/0P-1A              |                        |
|                           | plastic     | ●              | -              | -                 | -                 | -                 | SSC/0N-0A         | SSC/0P-0A              |                        |
|                           | metallic    | -              | -              | -                 | -                 | -                 | SSC/0N-1A         | SSC/0P-1A              |                        |
| retro-reflective          | 5 m         | plastic        | ●              | -                 | -                 | -                 | -                 | SSC/0N-0A3X            | SSC/0P-0A3X            |
|                           |             | metallic       | -              | -                 | -                 | -                 | -                 | SSC/0N-1A              | SSC/0P-1A              |
|                           |             | plastic        | ●              | -                 | -                 | -                 | -                 | SSC/0N-1A3X            | SSC/0P-1A3X            |
|                           |             | metallic       | -              | -                 | -                 | -                 | -                 | SSC/0N-1A3X            | SSC/0P-1A3X            |
| polarized                 | 4 m         | plastic        | ●              | -                 | -                 | -                 | SSP/DP-0A         | SSP/0N-1A              | SSP/0P-1A              |
|                           |             | metallic       | -              | -                 | -                 | -                 | SSP/DP-1A         | SSP/0N-1A              | SSP/0P-1A              |
|                           |             | plastic        | ●              | -                 | -                 | -                 | -                 | SSP/0N-1A3X            | SSP/0P-1A3X            |
|                           |             | metallic       | -              | -                 | -                 | -                 | -                 | SSP/0N-1A3X            | SSP/0P-1A3X            |
| through-beam              | 14 m        | plastic        | emitter        | SSH/00-0A         |                   |                   |                   |                        |                        |
|                           |             |                | em. with check | SSH/X0-0A         |                   |                   |                   |                        |                        |
|                           |             |                | receiver       | SSZ/LN-0A         | SSZ/LP-0A         | SSZ/DN-0A         | SSZ/DP-0A         | SSZ/0N-0A              | SSZ/0P-0A              |
|                           |             |                | receiver adj.  | -                 | -                 | -                 | -                 | SSD/0N-0A              | SSD/0P-0A              |
|                           |             | metallic       | emitter        | SSH/00-1A         |                   |                   |                   |                        |                        |
|                           |             |                | em. with check | SSH/X0-1A         |                   |                   |                   |                        |                        |
|                           |             |                | receiver       | -                 | -                 | -                 | -                 | SSZ/0N-1E              | SSZ/0P-1E              |
|                           |             |                | receiver adj.  | -                 | -                 | -                 | -                 | SSD/0N-1E              | SSD/0P-1E              |
|                           | 8 m         | plastic        | emitter        | SSU/00-0A         |                   |                   |                   |                        |                        |
|                           |             |                | receiver       | SST/AN-0A         | SST/AP-0A         | SST/CN-0A         | SST/CP-0A         | -                      | -                      |
|                           |             |                | emitter        | SSU/00-1A         |                   |                   |                   |                        |                        |
|                           |             |                | em. with check | SSU/X0-1A         |                   |                   |                   |                        |                        |
|                           |             | metallic       | receiver       | SST/AN-1A         | SST/AP-1A         | SST/CN-1A         | SST/CP-1A         | -                      | -                      |
|                           |             |                | emitter        | SSU/00-0A         |                   |                   |                   |                        |                        |
|                           |             |                | em. with check | SSU/X0-0A         |                   |                   |                   |                        |                        |
|                           |             |                | receiver       | -                 | SSV/AP-0A         | -                 | -                 | -                      | -                      |
| 3 m                       | plastic     | emitter        | SSU/00-0A      |                   |                   |                   |                   |                        |                        |
|                           |             | em. with check | SSU/X0-0A      |                   |                   |                   |                   |                        |                        |
|                           | metallic    | emitter        | SSU/00-1A      |                   |                   |                   |                   |                        |                        |
|                           |             | receiver       | -              | SSV/AP-1A         | -                 | -                 | -                 | -                      |                        |



## available models

### plug exit photoelectric sensors radial optic

| function           | distance | housing  | adjustment          | 3 wires<br>LO NPN | 3 wires<br>LO PNP | 3 wires<br>DO NPN | 3 wires<br>DO PNP | 4 wires<br>NPN LO/DO | 4 wires<br>PNP LO/DO |
|--------------------|----------|----------|---------------------|-------------------|-------------------|-------------------|-------------------|----------------------|----------------------|
| diffuse reflection | 100 mm   | plastic  | -                   | SP2/LN-0E         | SP2/LP-0E         | -                 | -                 | SP2/0N-0E            | SP2/0P-0E            |
|                    |          | metallic | ●                   | -                 | -                 | -                 | -                 | -                    | SP3/0P-0E            |
|                    | 400 mm   | metallic | -                   | SP2/LN-1E         | SP2/LP-1E         | -                 | -                 | SP2/0N-1E            | SP2/0P-1E            |
|                    |          | plastic  | ●                   | -                 | -                 | -                 | -                 | -                    | SP3/0P-1E            |
|                    |          |          |                     | -                 | -                 | -                 | -                 | -                    | SP7/0N-0E            |
|                    |          | metallic | -                   | -                 | -                 | -                 | -                 | -                    | SP8/0P-0E            |
| metallic           | -        | -        | -                   | -                 | -                 | -                 | SP8/0P-1E         |                      |                      |
| through-beam       | 14 m     | plastic  | emitter             | SPH/00-0E         |                   |                   |                   |                      |                      |
|                    |          | metallic | receiver with check | -                 | -                 | -                 | -                 | SPZ/0N-0E            | SPZ/0P-0E            |
|                    | 8 m      | plastic  | emitter             | SPH/00-1E         |                   |                   |                   |                      |                      |
|                    | 3 m      | metallic |                     | SPU/00-0E         |                   |                   |                   |                      |                      |
|                    |          |          |                     | SPU/00-1E         |                   |                   |                   |                      |                      |

## available models

### cable exit photoelectric sensors radial optic


| function           | distance       | housing   | adjustment     | 3 wires<br>LO NPN | 3 wires<br>LO PNP | 3 wires<br>DO NPN | 3 wires<br>DO PNP | 3 wires<br>NPN LO/DO | 3 wires<br>PNP LO/DO |
|--------------------|----------------|-----------|----------------|-------------------|-------------------|-------------------|-------------------|----------------------|----------------------|
| diffuse reflection | 100 mm         | metallic  | ●              | -                 | -                 | SP3/DN-1A         | -                 | -                    | -                    |
|                    | 400 mm         | plastic   |                | -                 | -                 | -                 | -                 | SP7/0N-0A            | SP7/0P-0A            |
|                    |                | metallic  |                | -                 | -                 | -                 | -                 | SP7/0N-1A            | SP7/0P-1A            |
| through-beam       | 14 m           | plastic   | emitter        | SPH/00-0A         |                   |                   |                   |                      |                      |
|                    |                |           | em. with check | SPH/X0-0A         |                   |                   |                   |                      |                      |
|                    |                | receiver  | -              | -                 | -                 | -                 | SPZ/0N-0A         | SPZ/0P-0A            |                      |
|                    |                | metallic  | emitter        | SPH/00-1A         |                   |                   |                   |                      |                      |
|                    | em. with check |           | SPH/X0-1A      |                   |                   |                   |                   |                      |                      |
|                    | receiver       |           | -              | -                 | -                 | -                 | SPZ/0N-1A         | SPZ/0P-1A            |                      |
| 3 m                | emitter        | SPU/00-1A |                |                   |                   |                   |                   |                      |                      |



# technical specification

## background suppression models

M18 DC with lateral adjustment

|                             | SS0/**-**   | SS1/**-**   | SST/**-**                                 |
|-----------------------------|---|---|---|
|                             |   |  |   |
| nominal sensing distance    | 50 mm   | 100 mm  | 12/25 mm                                  |
| emission                    | red (660 nm)  |   |   |
| spot diameter               | see diagram   |   |   |
| minimum detectable object   | 1 mm  | 3.5 mm  | 0.1 mm with STF-12<br>0.25 mm with STF-25 |
| dfferential travel          | ≤ 10 %  |   |   |
| repeatability               | 5 %   |   |   |
| operating voltage           | 10...30 Vdc   |   |   |
| ripple                      | ≤ 10 %  |   |   |
| supply current              | ≤ 30 mA   |   |   |
| load current                | 100 mA  |   |   |
| leakage current             | 10 µA   |   |   |
| output voltage drop         | 1.2 V max. IL = 100 mA  |   |   |
| output type                 | NPN or PNP - LO/DO selectable   |   |   |
| switching frequency         | 1 kHz   |   |   |
| power on delay              | 200 ms  |   |   |
| power supply protections    | polarity reversal, transient  |   |   |
| output protection           | short circuit (autoreset)   |   |   |
| operating temperature range | - 25°C...+ 70°C (without freeze)  |   |   |
| temperature drift           | 10 % Sr   |   |   |
| protection degree           | IP67 (EN60529) <sup>(1)</sup>   |   |   |
| EMC                         | in conformity with the EMC Directive according to EN 60947-5-2                                  |   |   |
| external light interference | 3,000 lux (incandescence lamp)<br>10,000 lux (sunligh)  |   |   |
| LEDs                        | yellow  |   |   |
| housing material            | PBT (plastic) / nicked plated brass (metallic) / PC (cable exit)                                |   |   |
| optic material              | plastic   |   |   |
| tightening torque           | 25 Nm (metallic housing), 1 Nm (plastic housing)  |   |   |
| weight (approx)             | plastic version: 30 g connector / 70 g cable<br>metallic version: 100 g connector / 130 g cable |   |   |

<sup>(1)</sup> Protection guaranteed only with plug cable well mounted

# technical specification

## diffuse reflection and retro-reflective models



M18 DC with lateral adjustment

|                             | diffuse reflection  |                                       |                                       |                           | retro-reflective          | polarized    |
|-----------------------------|---|---------------------------------------|---------------------------------------|---------------------------|---------------------------|--------------|
|                             | S*2/**_**   | S*3/**_**                             | S*7/**_**                             | S*8/**_**                 | S*C/**_****               | S*P/**_****  |
|                             |   |                                       |                                       |                           |                           |              |
| nominal sensing distance    | with white target 100 x 100 mm  | 400 mm with white target 200 x 200 mm | 800 mm with white target 400 x 400 mm | 5 m with reflector RL 110 | 4 m with reflector RL 110 |              |
| emission                    | infrared (880 nm)   |                                       |                                       |                           |                           | red (660 nm) |
| differential travel         | ≤ 10 %  |                                       |                                       |                           |                           |              |
| repeatability               | 5 %   |                                       |                                       |                           |                           |              |
| operating voltage           | 10...30 Vdc   |                                       |                                       |                           |                           |              |
| ripple                      | ≤ 10 %  |                                       |                                       |                           |                           |              |
| supply current              | 30 mA   |                                       |                                       |                           |                           |              |
| load current                | 100 mA  |                                       |                                       |                           |                           |              |
| leakage current             | 10 µA   |                                       |                                       |                           |                           |              |
| output voltage drop         | 1.2 V max. IL = 100 mA  |                                       |                                       |                           |                           |              |
| output type                 | NPN or PNP - LO/DO selectable   |                                       |                                       |                           |                           |              |
| switching frequency         | 250 Hz  |                                       |                                       |                           |                           |              |
| power on delay              | 200 ms  |                                       |                                       |                           |                           |              |
| power supply protections    | polarity reversal, transient  |                                       |                                       |                           |                           |              |
| output protection           | short circuit (autoreset)   |                                       |                                       |                           |                           |              |
| sensibility adjustment      | -   | ●                                     |                                       |                           | -                         | ●            |
| operating temperature range | - 25°C...+ 70°C (without freeze)  |                                       |                                       |                           |                           |              |
| temperature drift           | 10 % Sr   |                                       |                                       |                           |                           |              |
| protection degree           | IP67 (EN60529) <sup>(1)</sup>   |                                       |                                       |                           |                           |              |
| EMC                         | in conformity with the EMC Directive according to EN 60947-5-2                                  |                                       |                                       |                           |                           |              |
| external light interference | 3,000 lux (incandescence lamp), 10,000 lux (sunlight)   |                                       |                                       |                           |                           |              |
| LEDs                        | yellow  |                                       |                                       |                           |                           |              |
| housing material            | PBT (plastic) / nicked plated brass / PC (cable exit)   |                                       |                                       |                           |                           |              |
| optic material              | plastic   |                                       |                                       |                           |                           |              |
| tightening torque           | 1 Nm (plastic housing), 25 Nm (metal housing)   |                                       |                                       |                           |                           |              |
| weight (approx)             | plastic version: 30 g connector / 70 g cable<br>metallic version: 100 g connector / 130 g cable |                                       |                                       |                           |                           |              |

<sup>(1)</sup> Protection guaranteed only with plug cable well mounted



# technical specification

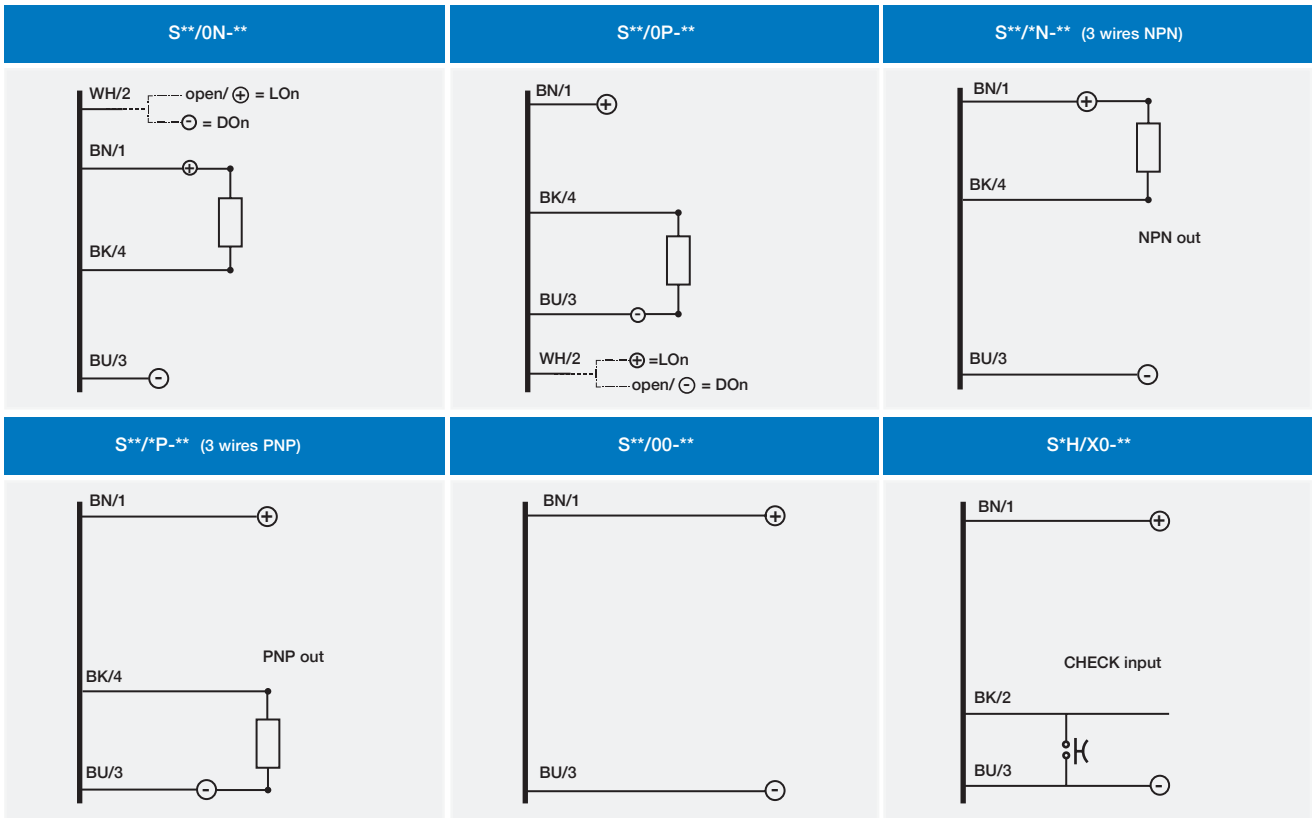
## through beam models

M18 DC with lateral adjustment

|                             | standard beam   |           |           | barrier for small and ultra-small objects |           |           |
|-----------------------------|---|-----------|-----------|---|-----------|-----------|
|                             | emitter   | receiver  | receiver  | emitter                                   | receiver  | receiver  |
|                             | S*H/*0-**   | S*Z/**_** | S*D/**_** | S*U/*0-**                                 | S*G/**_** | S*V/**_** |
|                             |   |           |           |   |           |           |
| nominal sensing distance    | 14 m  |           |           | -   | 8 m       | 3 m       |
| minimum detectable object   | -   |           |           | -   | Ø 4 mm    | Ø 1 mm    |
| emission                    | red (660)   |           |           |   |           |           |
| tolerance                   | -   |           |           | 90% - 200% @ Eg = 1,5                     |           |           |
| dfferential travel          | ≤ 10 %  |           |           |   |           |           |
| repeatability               | 5 %   |           |           |   |           |           |
| operating voltage           | 10...30 Vdc   |           |           |   |           |           |
| ripple                      | ≤ 10 %  |           |           |   |           |           |
| supply current              | 40 mA   | 30 mA     |           | 25 mA                                     | 20 mA     |           |
| load current                | 100 mA  |           |           |   |           |           |
| leakage current             | 10 µA   |           |           |   |           |           |
| output voltage drop         | 2.5 V max. IL = 100 mA  |           |           |   |           |           |
| output type                 | NPN or PNP - LO/DO selectable   |           |           | NPN or PNP - NO or NC                     |           |           |
| switching frequency         | 250 Hz  |           |           |   |           |           |
| power on delay              | 200 ms  |           |           |   |           |           |
| power supply protections    | polarity reversal, transient  |           |           |   |           |           |
| output protection           | short circuit (autoreset)   |           |           |   |           |           |
| sensibility adjustment      | -   | ●         |           |   |           | -         |
| operating temperature range | - 25°C...+ 75°C (without freeze)  |           |           |   |           |           |
| temperature drift           | 10 % Sr   |           |           | ≤ 10 % Sr                                 |           |           |
| protection degree           | IP67 (EN60529) <sup>(1)</sup>   |           |           |   |           |           |
| EMC                         | in conformity with the EMC Directive according to EN 60947-5-2                                  |           |           |   |           |           |
| external light interference | 3,000 lux (incandescent lamp), 10,000 lux (sunlight)  |           |           |   |           |           |
| LEDs                        | yellow  |           |           | red (activated output)                    |           |           |
| housing material            | PBT (plastic) / nicked plated brass / PC (cable exit)   |           |           |   |           |           |
| optic material              | plastic   |           |           |   |           |           |
| tightening torque           | 1 Nm (plastic housing), 25 Nm (metallic housing)  |           |           |   |           |           |
| weight (approx)             | plastic version: 30 g connector / 70 g cable<br>metallic version: 100 g connector / 130 g cable |           |           |   |           |           |

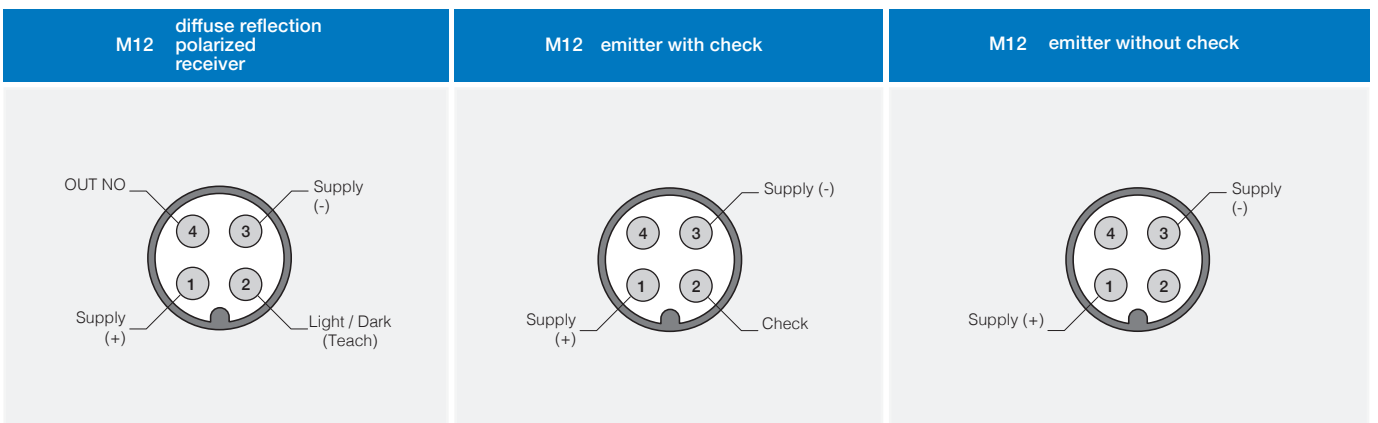
<sup>(1)</sup> Protection guaranteed only with plug cable well mounted





- BN** brown
- BU** blue
- BK** black
- WH** white
- PK** pink
- GY** grey

plug

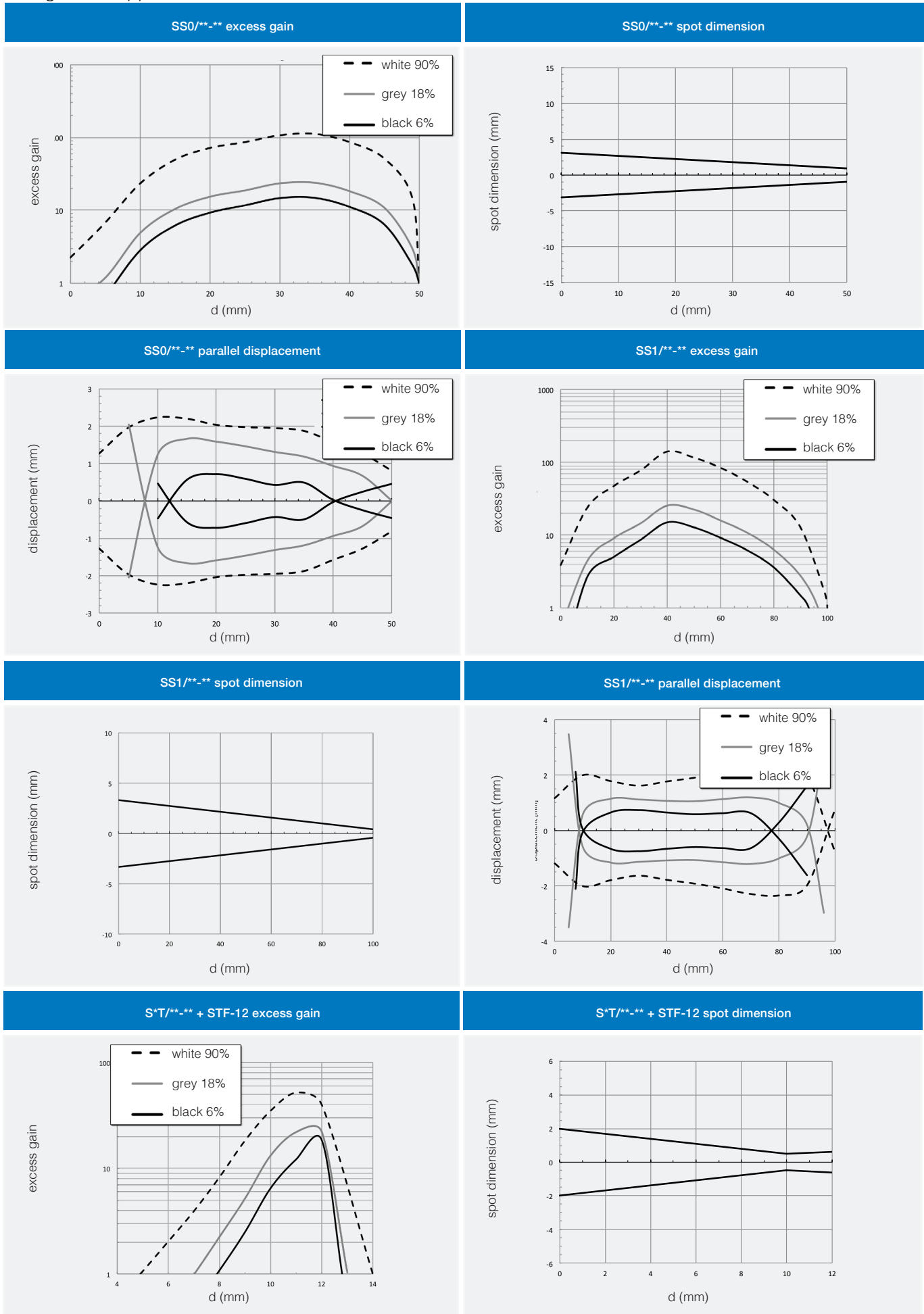




# response diagrams

## background suppression models

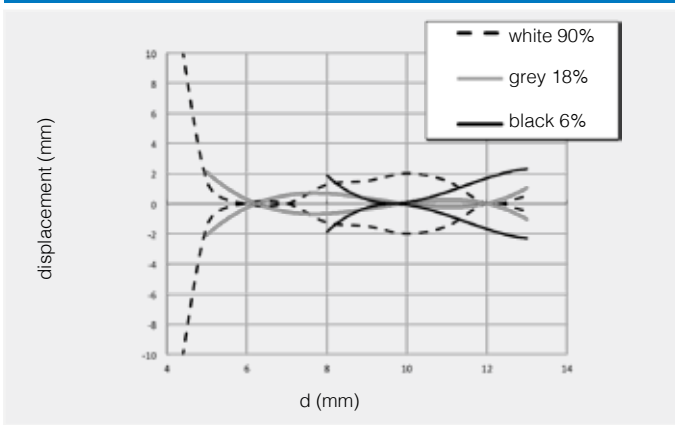
M18 DC with lateral adjustment



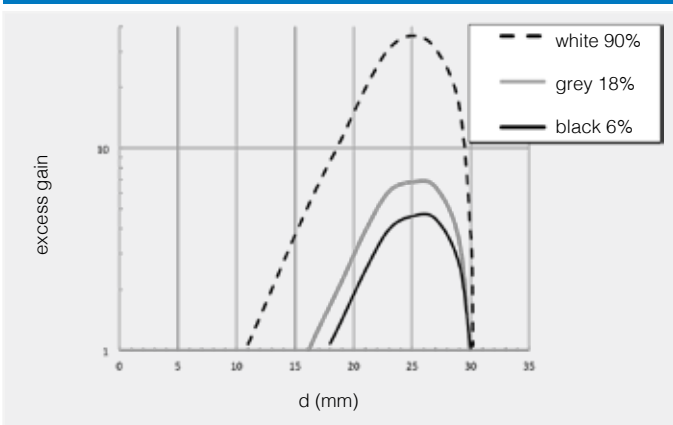
SS - SP



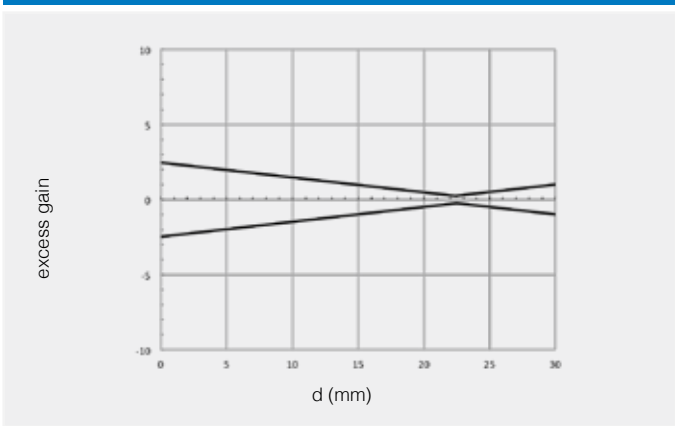
S\*T/\*\*-\*\* + STF-12 parallel displacement



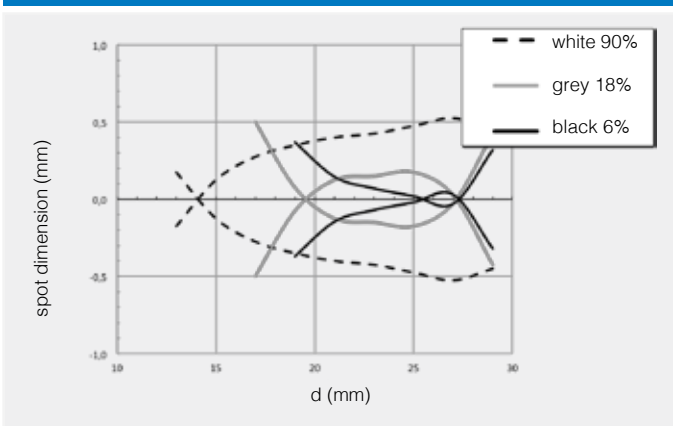
S\*T/\*\*-\*\* + STF-25 excess gain



S\*T/\*\*-\*\* + STF-25 spot dimension



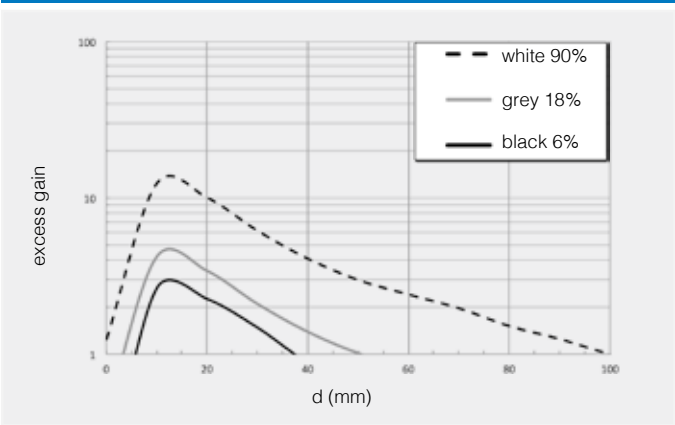
S\*T/\*\*-\*\* + STF-25 parallel displacement



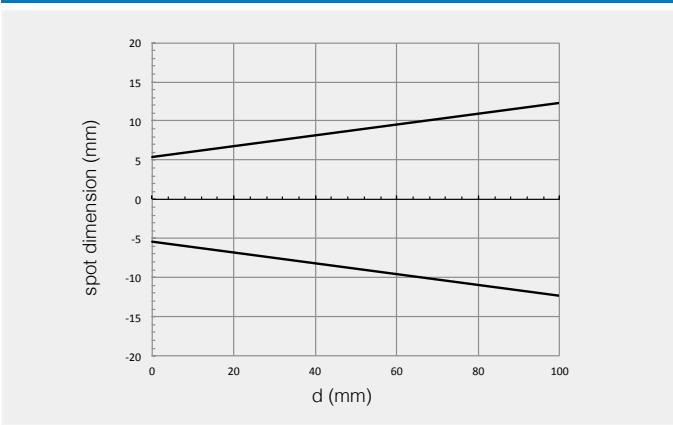
## response diagrams

retro-reflective models

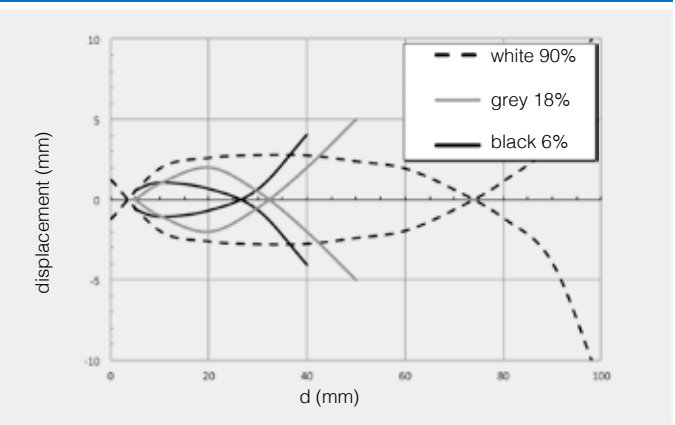
SS2,SS3/\*\*-\*\* excess gain



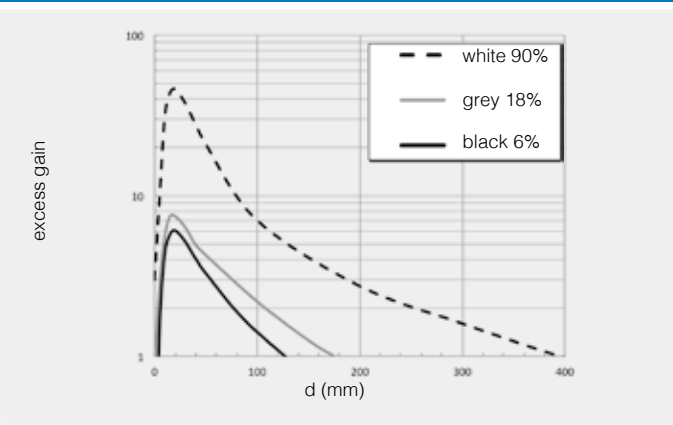
SS2,SS3/\*\*-\*\* spot dimension



SS2,SS3/\*\*-\*\* parallel displacement



SS6,SS7/\*\*-\*\* excess gain



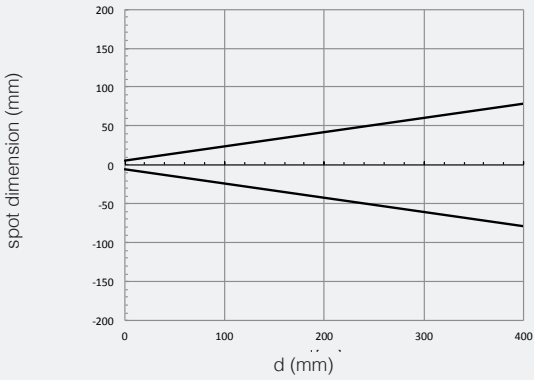


# response diagrams

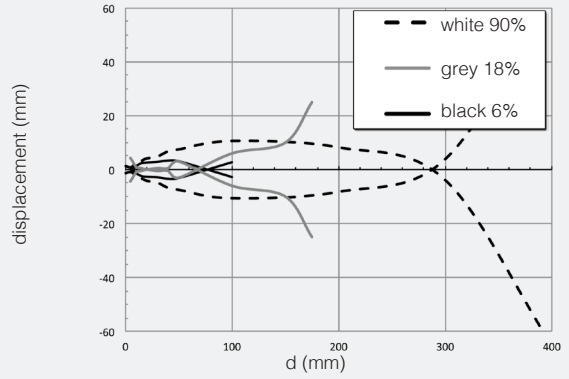
## retro-reflective models

M18 DC with lateral adjustment

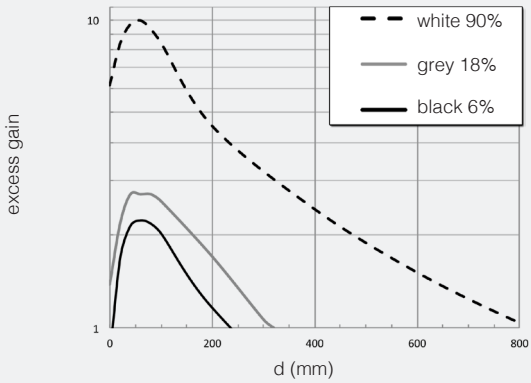
SS6/\*\*-\*\*,SS7/\*\*-\*\* spot dimension



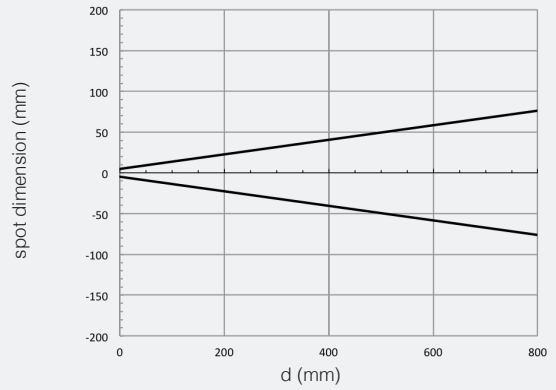
SS6/\*\*-\*\*,SS7/\*\*-\*\* parallel displacement



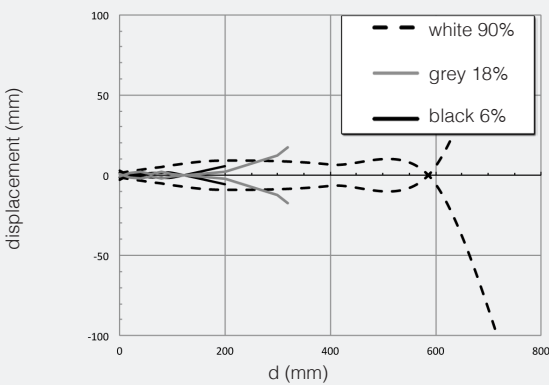
SS8/\*\*-\*\* excess gain



SS8/\*\*-\*\* spot dimension



SS8/\*\*-\*\* parallel displacement

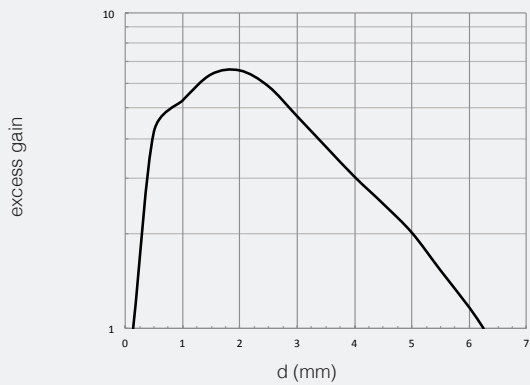


## response diagrams

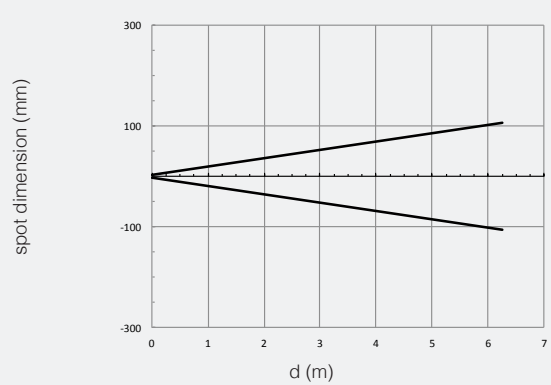
retro-reflective models (diagrams measured using RL100)



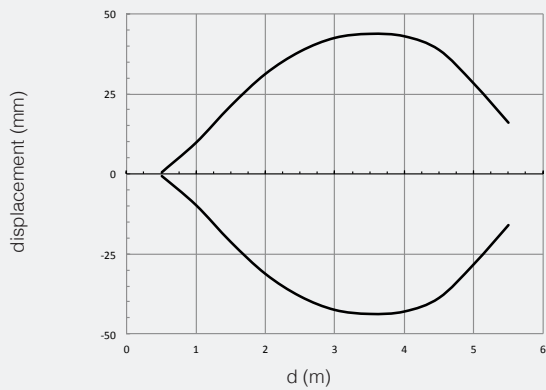
SSC/\*\*-\*\* excess gain



SSC/\*\*-\*\* spot dimension



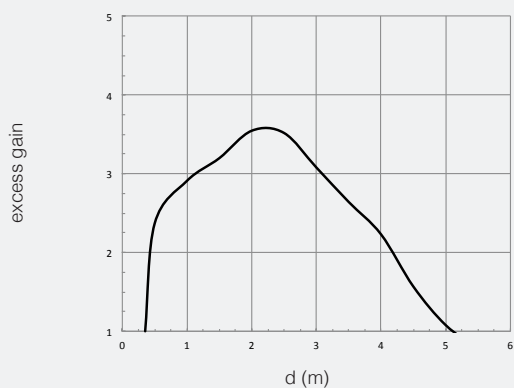
SSC/\*\*-\*\* parallel displacement



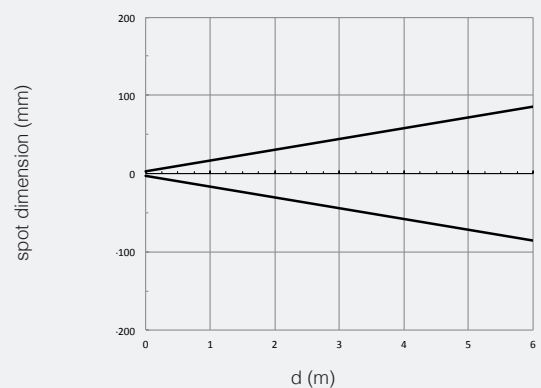
## response diagrams

polarized models (diagrams measured using RL100)

S\*P/\*\*-\*\* excess gain



S\*P/\*\*-\*\* spot dimension



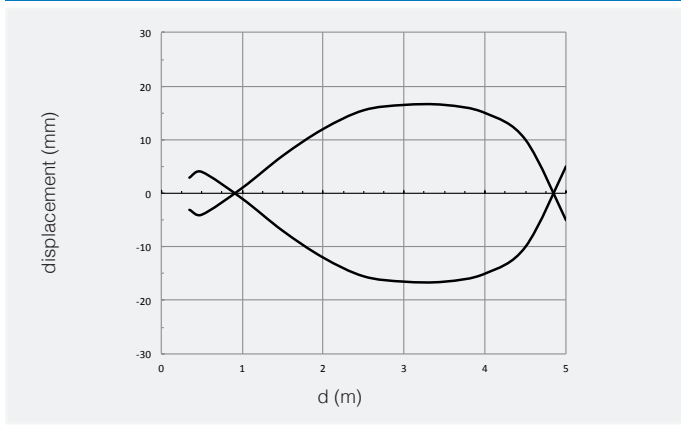


# response diagrams

polarized models (diagrams measured using RL100)

M18 DC with lateral adjustment

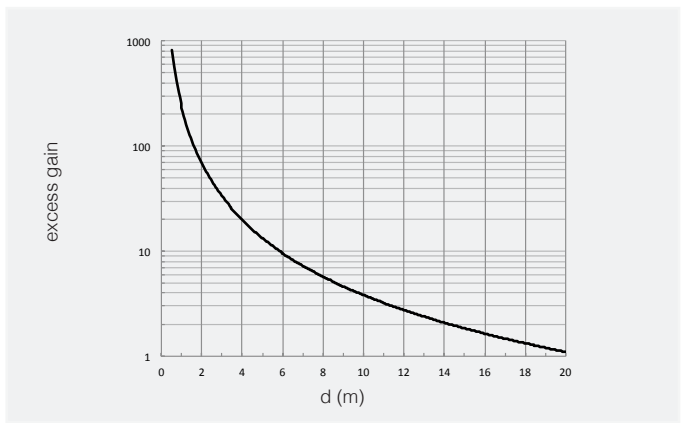
S\*P/\*\*-\*\* parallel displacement



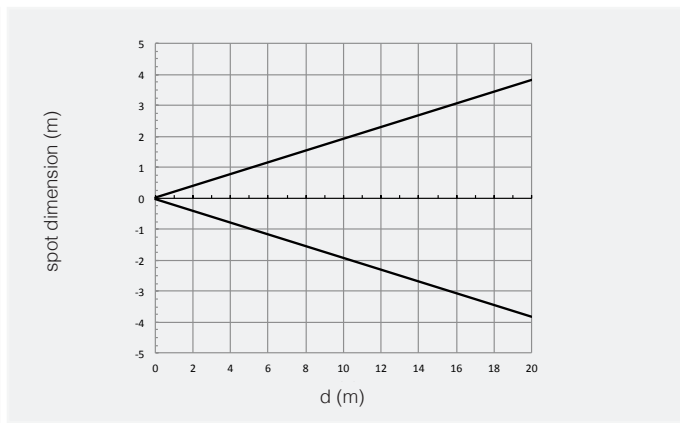
# response diagrams

through beam models

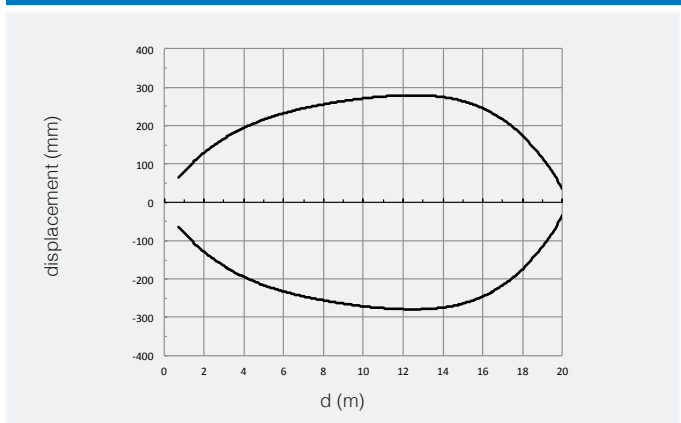
S\*H/\*\*-(0,1)\*, S\*D/\*\*-(0,1)\* excess gain



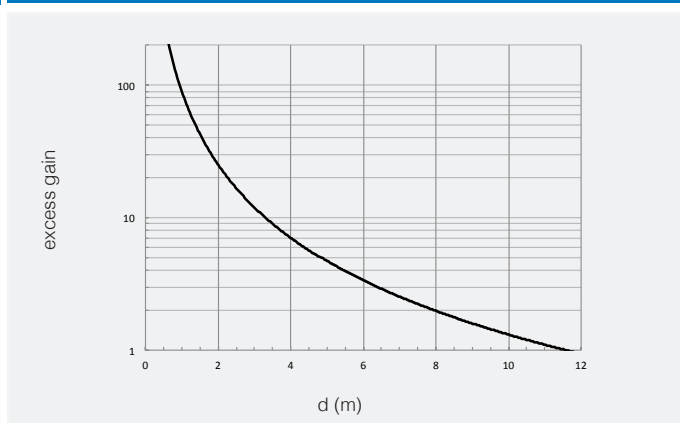
S\*H/\*\*-(0,1)\*, S\*D/\*\*-(0,1)\* spot dimension



S\*H/\*\*-(0,1)\*, S\*D/\*\*-(0,1)\* parallel displacement



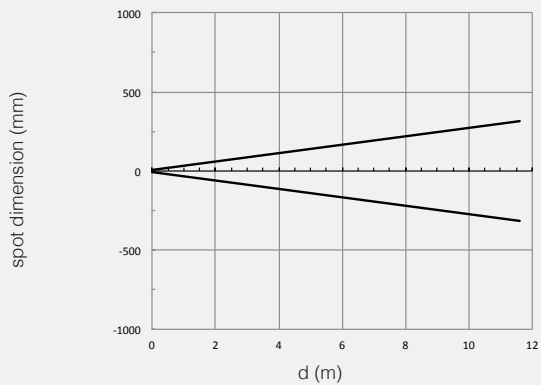
S\*U/\*\*-\*\*, S\*G/\*\*-\*\* excess gain



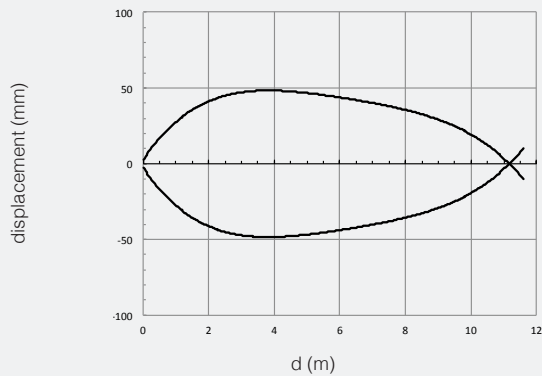
SS - SP



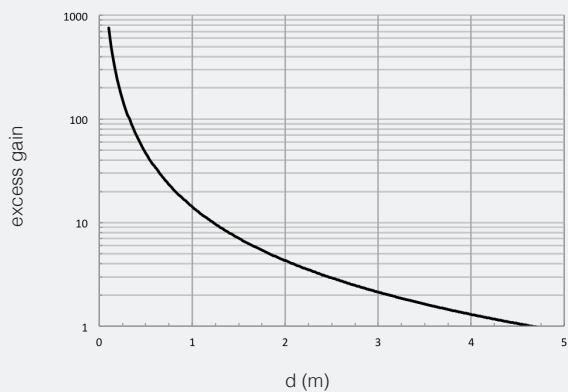
$S^*U/^{**}_{-}{}^{**}$ ,  $S^*G/^{**}_{-}{}^{**}$  spot dimension



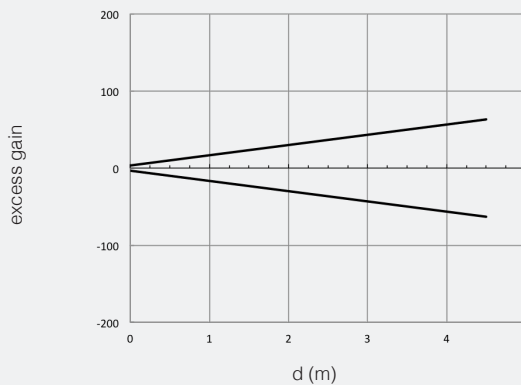
$S^*U/^{**}_{-}{}^{**}$ ,  $S^*G/^{**}_{-}{}^{**}$  parallel displacement



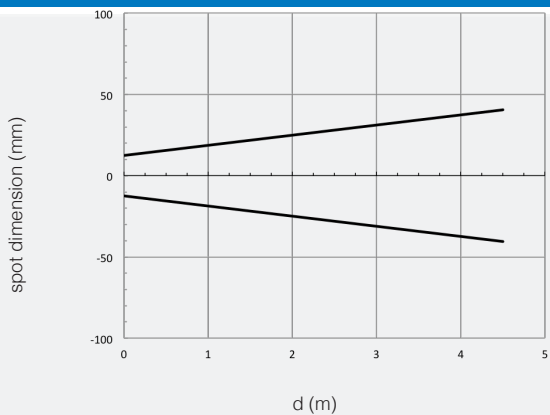
$S^*U/^{**}_{-}{}^{**}$   $S^*V/^{**}_{-}{}^{**}$  excess gain



$S^*U/^{**}_{-}{}^{**}$   $S^*V/^{**}_{-}{}^{**}$  excess gain



$S^*U/^{**}_{-}{}^{**}$   $S^*V/^{**}_{-}{}^{**}$  spot dimension

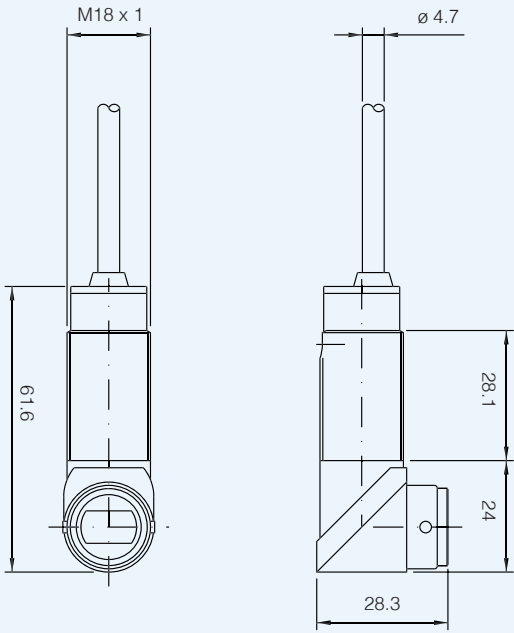




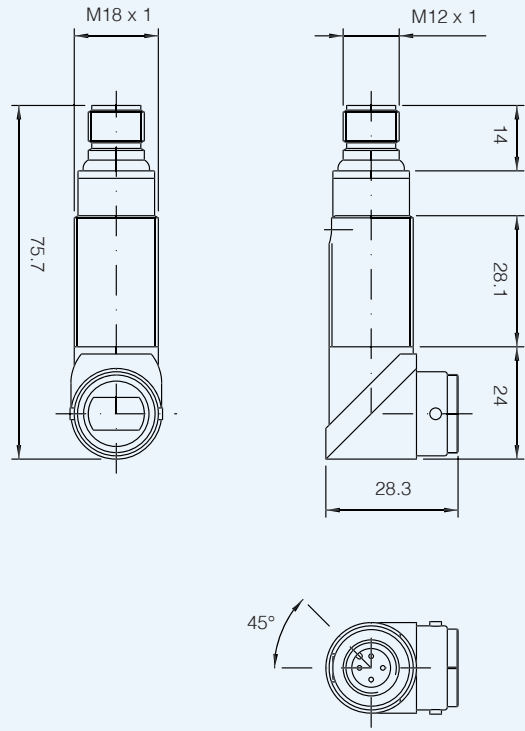
# dimensions (mm)

M18 DC with lateral adjustment

SP\*/\*\*-\*A

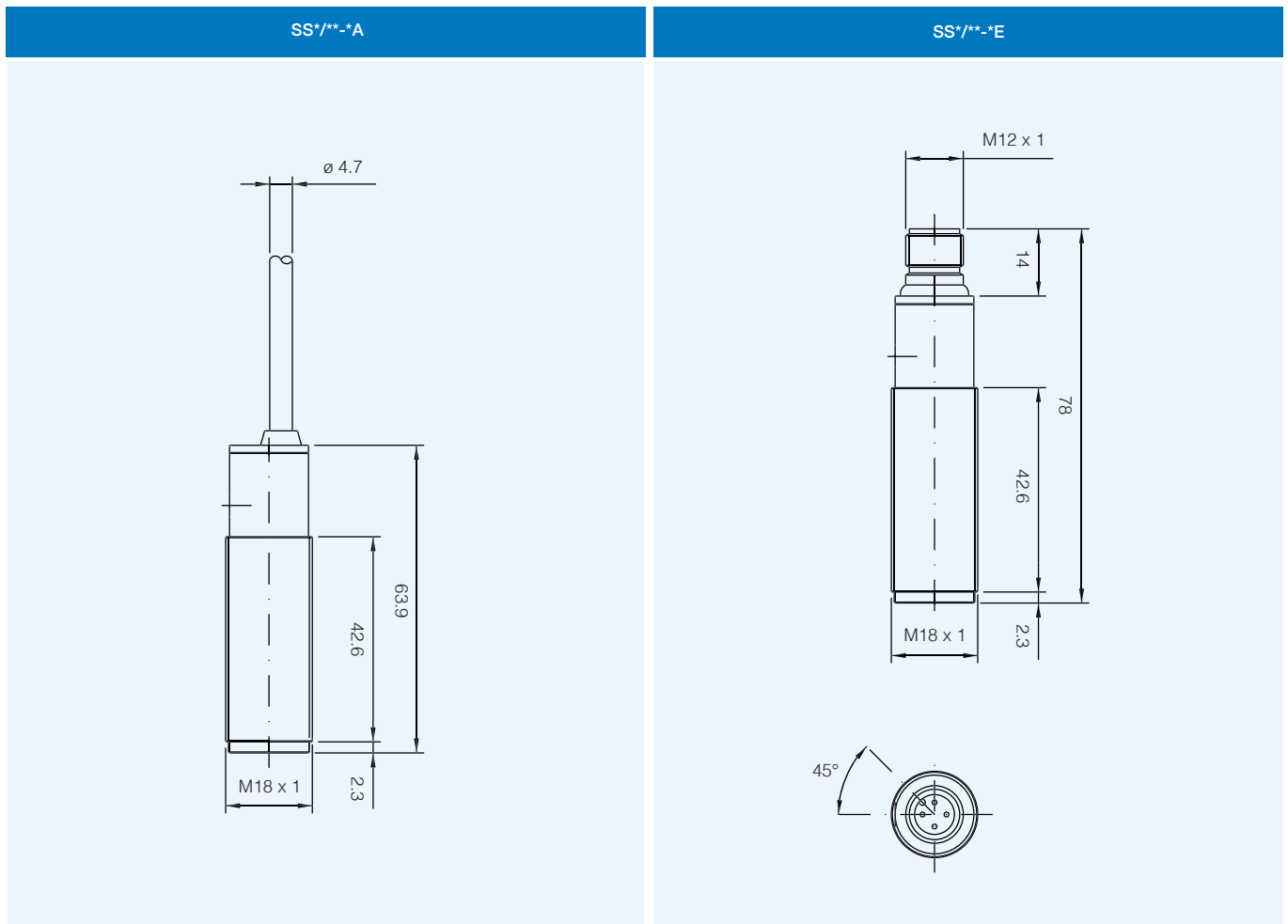


SP\*/\*\*-\*E



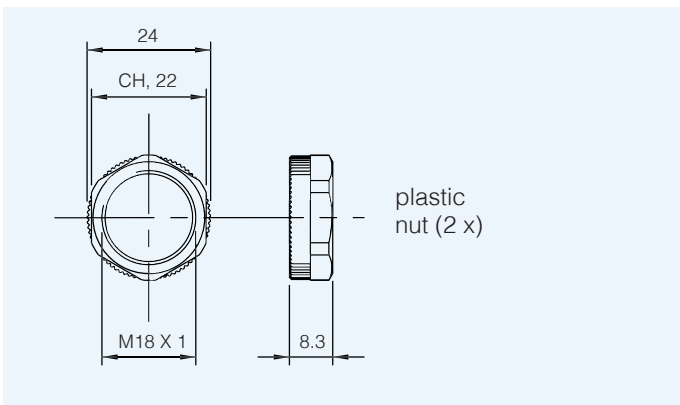


## dimensions (mm)



## dimensions (mm)

accessories included in all plastic models



## dimensions (mm)

accessories included in all metallic models

