

**S45****DATALOGIC**

## HIGH PERFORMANCE EUROPEAN STYLE MINIATURE SENSOR ALL-IN-ONE FAMILY

- Red LED and Laser emissions
- Precise risk free laser class 1 emission
- Diffused LED proximity 800mm
- Background Suppression 400mm
- Retroreflective Class 1 Laser 15m/Red LED 7m
- Through beam Class 1 Laser 20m/Red LED 15m
- IP69K housing
- 2m Cable or metal M8 4 pole version
- PNP or NPN output with remote teach in input
- High speed RGB and white emission contrast sensor
- High precision distance sensor up to 200 mm



### APPLICATIONS

- Processing and Packaging machinery
- Cosmetic and Pharmaceutical industry
- Electronics assembling
- Conveyor lines, material handling
- Automotive industry
- Print and paper industry
- Small part detection with maximum accuracy

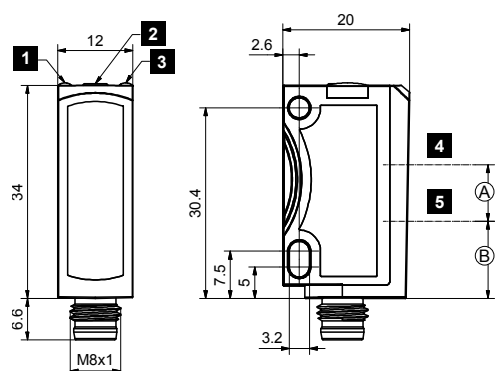
### S45

|                                                               |           |                                                                |
|---------------------------------------------------------------|-----------|----------------------------------------------------------------|
| <b>Through beam</b>                                           |           | 20m. (Laser Class1)<br>15m. (Red Led)                          |
| <b>Polarized Retroreflective</b>                              |           | 15m. (Laser Class1)<br>7m. (Red Led)                           |
| <b>Autocollimated Retroreflective for Transparent objects</b> |           | 2m. (Red Led)                                                  |
| <b>Autocollimated Retroreflective</b>                         |           | 2m. (Red Led)                                                  |
| <b>Diffused proximity</b>                                     |           | 250mm. (Laser Class1)<br>800mm. (Red Led)                      |
| <b>Background suppressor</b>                                  |           | 120mm. (Laser Class 1)<br>200mm. (Red Led)<br>400mm. (Red Led) |
| <b>Distance sensor</b>                                        |           | 80mm. (Red Led)<br>200mm. (Red Led)                            |
| <b>Contrast Sensor</b>                                        |           | 12mm. (White)<br>12mm. (RGB)                                   |
| <b>Power Supply</b>                                           | Vdc       | 10...30Vdc<br>(13...30Vdc Y models)                            |
|                                                               | Vac       |                                                                |
|                                                               | Vac/Vdc   |                                                                |
| <b>Output</b>                                                 | PNP       | •                                                              |
|                                                               | NPN       | •                                                              |
|                                                               | NPN/PNP   |                                                                |
|                                                               | relay     |                                                                |
|                                                               | other     | Push Pull (Wxx, Yxx), Analog 0...10 V (Yxx)                    |
| <b>Connection</b>                                             | cable     | •                                                              |
|                                                               | connector | •                                                              |
|                                                               | pig-tail  |                                                                |
| <b>Approximate dimensions (mm)</b>                            |           | 34mm. x 20mm. X 12mm.                                          |
| <b>Housing material</b>                                       |           | ABS(Housing), PMMA (Optics)                                    |
| <b>Mechanical protection</b>                                  |           | IP67 & IP69K                                                   |

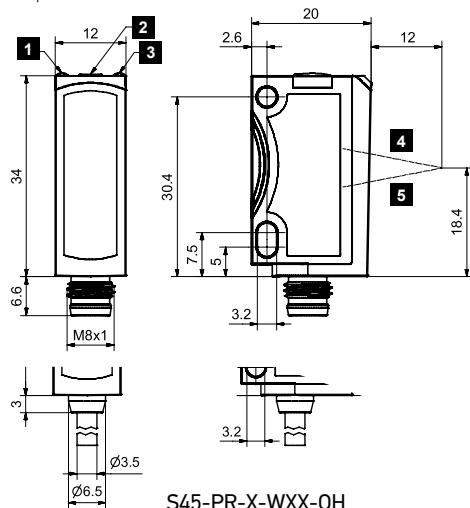
# TECHNICAL DATA

|                                            |                                                                                                         |
|--------------------------------------------|---------------------------------------------------------------------------------------------------------|
| <b>Power supply</b>                        | 10...30Vdc<br>(13...30Vdc Y models)                                                                     |
| <b>Ripple</b>                              | 10% max.                                                                                                |
| <b>Consumption (Load current excluded)</b> | ≤ 30 mA                                                                                                 |
| <b>Light emission</b>                      | Red LED 632 nm, Red Laser 650 nm                                                                        |
| <b>Setting</b>                             | Push Button TEACH-IN                                                                                    |
| <b>Indicators</b>                          | LED Green Operating Voltage<br>LED Yellow Output Status                                                 |
| <b>Output</b>                              | NPN, PNP, Push Pull (Wxx, Yxx), Analog 0...10 V (Yxx)                                                   |
| <b>Output current</b>                      | 100 mA                                                                                                  |
| <b>Saturation voltage</b>                  | 2 V max                                                                                                 |
| <b>Response time</b>                       | 500 µs<br>333 µs (C03 Laser)<br>250 µs (F/G Laser)<br>50 µs (W03, W33)<br>20 µs (W13, W43)              |
| <b>Switching frequency</b>                 | ≤ 1000Hz<br>≤ 1500Hz (C03 Laser)<br>≤ 2000 Hz (F/G Laser)<br>≤ 10 kHz (W03, W33)<br>≤ 25 kHz (W13, W43) |
| <b>Connection</b>                          | Plastic M8 4-pole connector, Metal M8 4-pole connector 2 m cable                                        |
| <b>Dielectric strength</b>                 | 500 Vac, 1min between electronic and housing                                                            |
| <b>Insulating resistance</b>               | >20M OHM, 500 Vdc between electronic and housing                                                        |
| <b>Electrical protection</b>               | class 2                                                                                                 |
| <b>Mechanical protection</b>               | IP67 & IP69K                                                                                            |
| <b>Ambient light rejection</b>             | according to EN 60947-5-2                                                                               |
| <b>Vibrations</b>                          | 0,5mm amplitude, 10...55Hz frequency , for every axis (EN60068-2-6)                                     |
| <b>Shock resistance</b>                    | 11 ms (30G) 6 shock for every axis (EN60068-2-27)                                                       |
| <b>Housing material</b>                    | ABS                                                                                                     |
| <b>Lens material</b>                       | PMMA                                                                                                    |
| <b>Operating temperature</b>               | -20...+60 °C                                                                                            |
| <b>Storage temperature</b>                 | -20...+80 °C                                                                                            |
| <b>Weight</b>                              | 10g. with connector, 40g. with cable                                                                    |

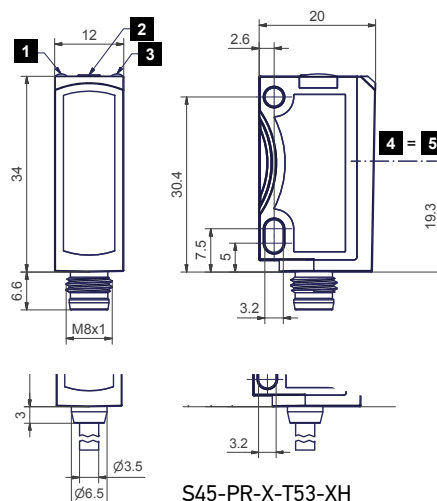
# DIMENSIONS



|   | S45-PR-2(5)-M03<br>S45-PR-5-Y03 | S45-PR-2(5)-M13<br>S45-PR-5-Y13 | S45-PR-2(5)-C03<br>S45-PR-B03 | S45-PH-5-M03 | S45-PH-5-C03<br>S45-PH-B03 | S45-PR-G00 | S45-PH-G00 | S45-PR(PH)-F03 |
|---|---------------------------------|---------------------------------|-------------------------------|--------------|----------------------------|------------|------------|----------------|
| A | 9                               | 11.75                           | 10.8                          | 8.8          | 8.8                        | 11.5       | 13.5       |                |
| B | 12.3                            | 11                              | 11.5                          | 12.5         | 13.5                       |            |            | 22.3           |



S45-PR-X-WXX-OH

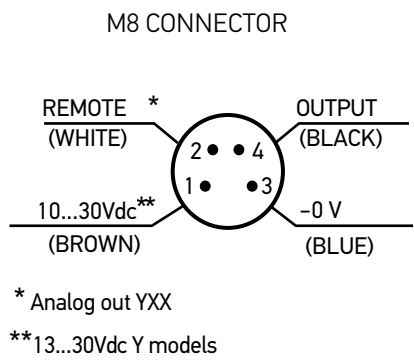
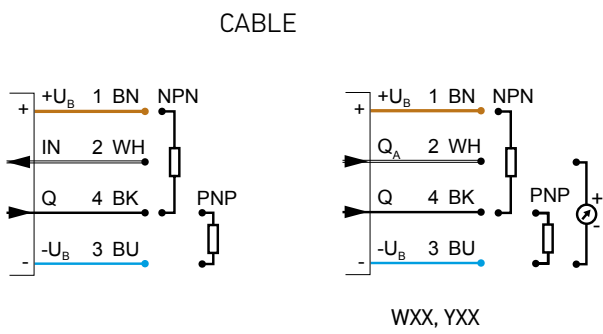


S45-PR-X-T53-XH  
S45-PR-X-B53-XH

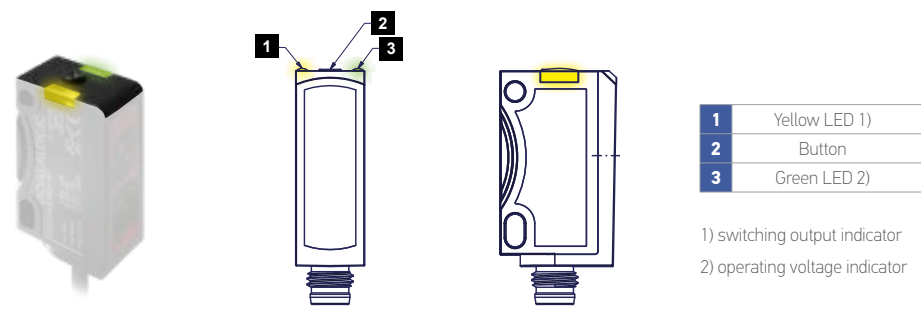
|   |               |
|---|---------------|
| 1 | Yellow LED 1) |
| 2 | Button        |
| 3 | Green LED 2)  |
| 4 | Receiver axis |
| 5 | Emitter axis  |

- 1) switching output indicator  
2) operating voltage indicator

# CONNECTIONS



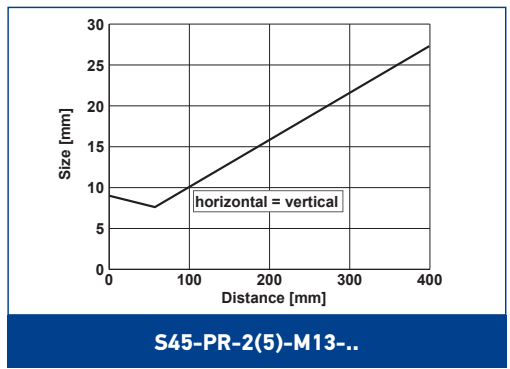
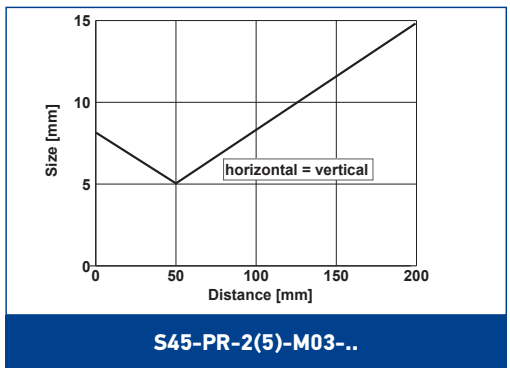
# INDICATORS AND SETTINGS



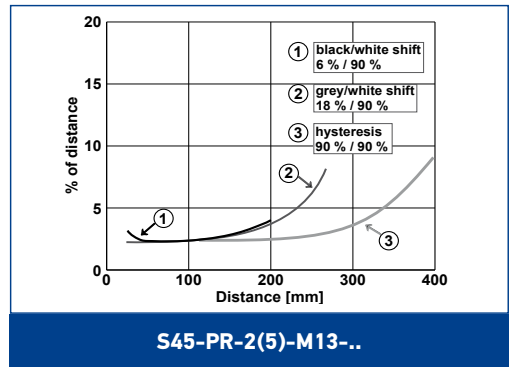
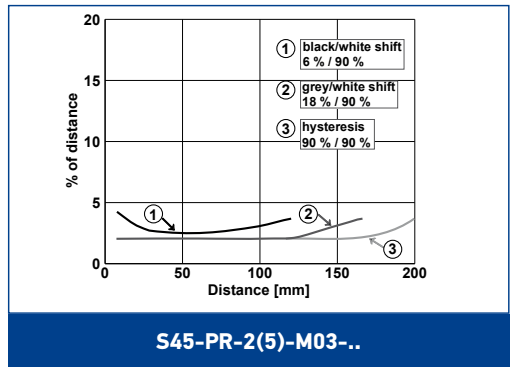
# DETECTION DIAGRAMS

## BACKGROUND SUPPRESSOR

### DETECTION SPOT SIZE

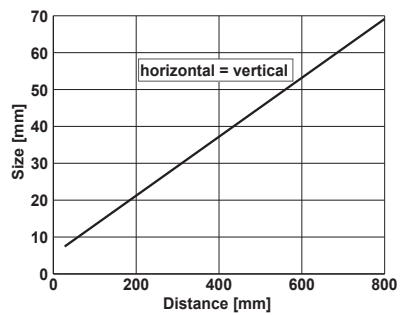


### B/W SHIFT



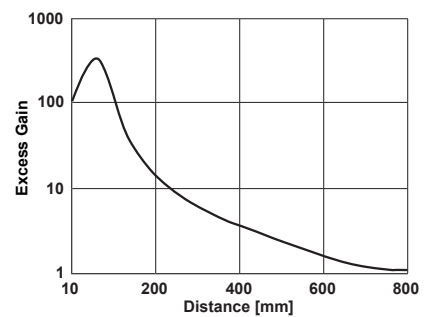
## ENERGETIC DIFFUSED

DETECTION SPOT SIZE



S45-PR-2(5)-C03-..

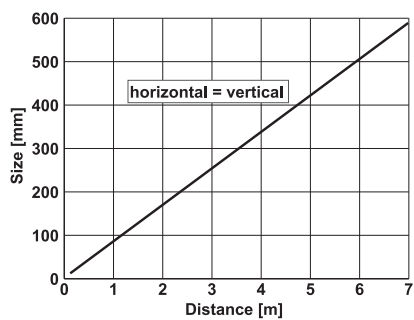
EXCESS GAIN



S45-PR-2(5)-C03-..

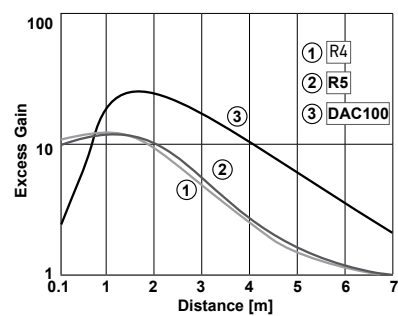
## RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE



S45-PR-2(5)-B03-..

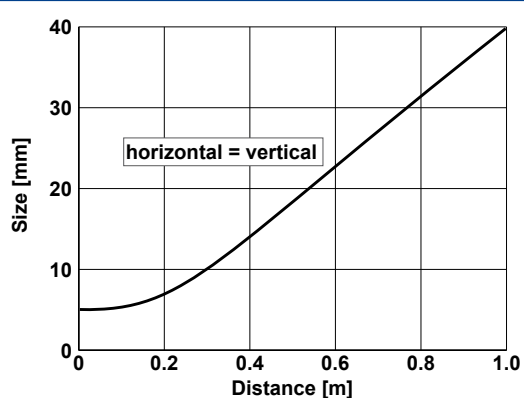
EXCESS GAIN



S45-PR-2(5)-B03-..

## COAXIAL RETROREFLECTIVE POLARIZED

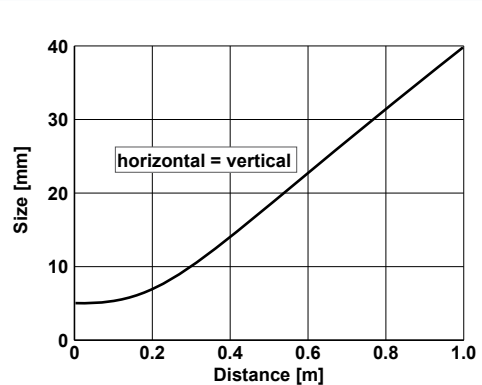
DETECTION SPOT SIZE



S45-PR-5-B53-..

## RETROREFLECTIVE FOR TRANSPARENT

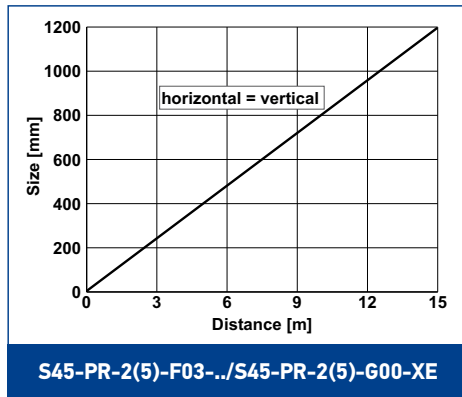
DETECTION SPOT SIZE



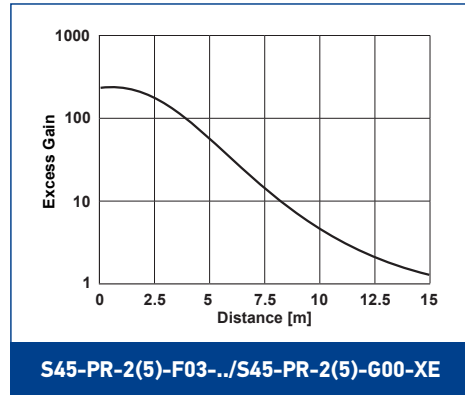
S45-PR-2(5)-T53-..

## THROUGH BEAM

DETECTION SPOT SIZE

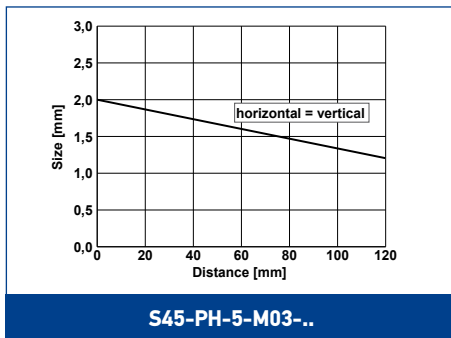


EXCESS GAIN

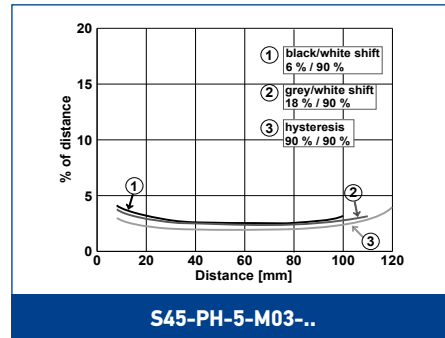


## LASER BACKGROUND SUPPRESSOR

DETECTION SPOT SIZE

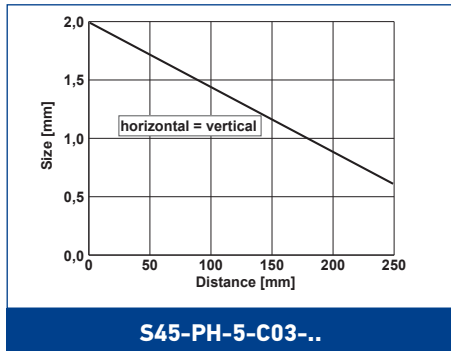


B/W SHIFT

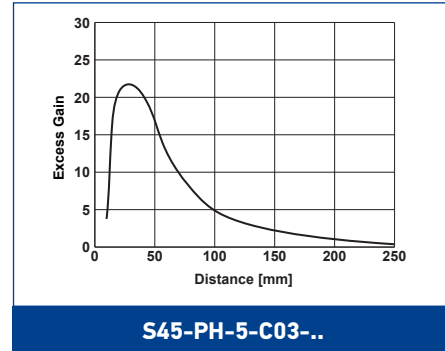


## LASER ENERGETIC DIFFUSED

DETECTION SPOT SIZE

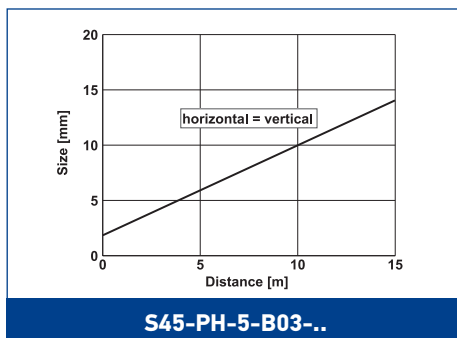


EXCESS GAIN

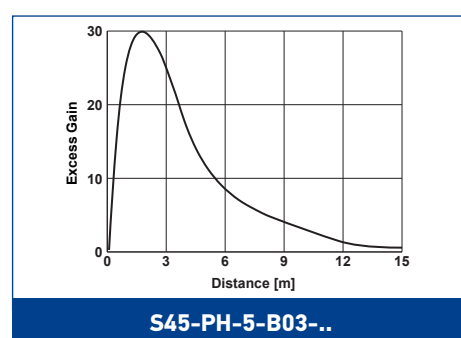


## LASER RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE

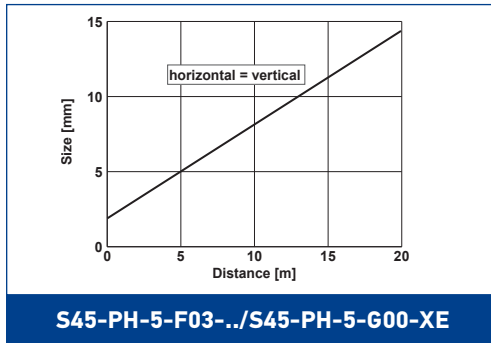


EXCESS GAIN

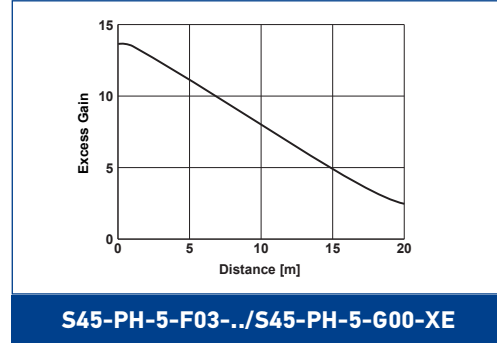


## LASER THROUGH BEAM

### DETECTION SPOT SIZE

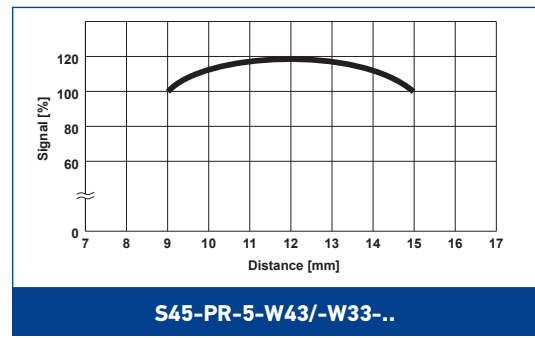
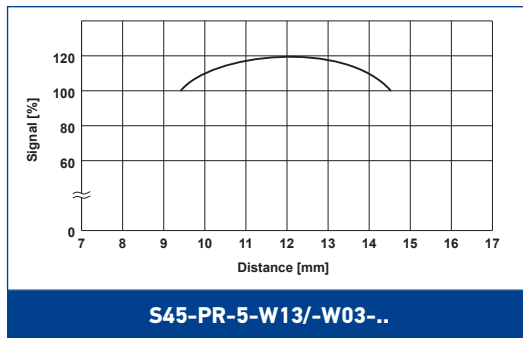


### EXCESS GAIN



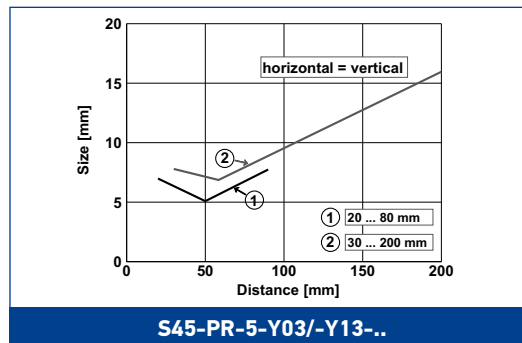
## CONTRAST SENSOR

### READING DIAGRAM

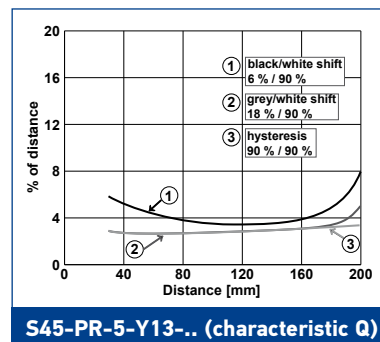
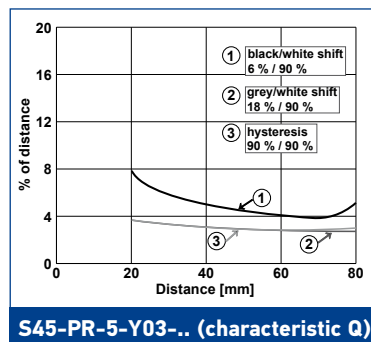


## DISTANCE SENSOR

### DETECTION SPOT SIZE



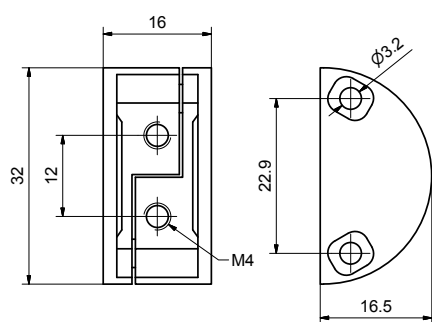
### READING DIAGRAM



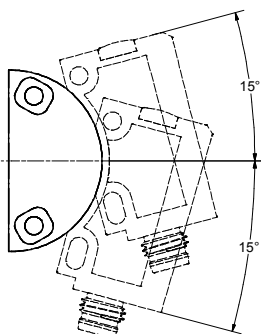
# MODEL SELECTION AND ORDER INFORMATION

| OPTIC FUNCTION                                           | EMISSION | CONNECTION | OUTPUT    | MODEL           | ORDER NO. |
|----------------------------------------------------------|----------|------------|-----------|-----------------|-----------|
| Diffused proximity                                       | LED      | 2m Cable   | PNP       | S45-PR-2-C03-PH | 950411220 |
|                                                          |          |            | NPN       | S45-PR-2-C03-NH | 950411210 |
|                                                          |          | M8         | PNP       | S45-PR-5-C03-PH | 950411240 |
|                                                          |          |            | NPN       | S45-PR-5-C03-NH | 950411230 |
|                                                          | LASER    | M8         | PNP       | S45-PH-5-C03-PH | 950411260 |
|                                                          |          |            | NPN       | S45-PH-5-C03-NH | 950411250 |
| Polarized Retroreflective                                | LED      | 2m Cable   | PNP       | S45-PR-2-B03-PH | 950411100 |
|                                                          |          |            | NPN       | S45-PR-2-B03-NH | 950411090 |
|                                                          |          | M8         | PNP       | S45-PR-5-B03-PH | 950411120 |
|                                                          |          |            | NPN       | S45-PR-5-B03-NH | 950411110 |
|                                                          | LASER    | M8         | PNP       | S45-PH-5-B03-PH | 950411140 |
|                                                          |          |            | NPN       | S45-PH-5-B03-NH | 950411130 |
| Polarized retroreflective autocollimated for transparent | LED      | 2m Cable   | PNP       | S45-PR-2-T53-PH | 950411160 |
|                                                          |          |            | NPN       | S45-PR-2-T53-NH | 950411150 |
|                                                          |          | M8         | PNP       | S45-PR-5-T53-PH | 950411180 |
|                                                          |          |            | NPN       | S45-PR-5-T53-NH | 950411170 |
| Polarized retroreflective autocollimated                 | LED      | M8         | PNP       | S45-PR-5-B53-PH | 950411200 |
|                                                          |          |            | NPN       | S45-PR-5-B53-NH | 950411190 |
| Through beam                                             | LED      | 2m Cable   | -         | S45-PR-2-G00-XE | 950411000 |
|                                                          |          |            | PNP       | S45-PR-2-F03-PH | 950411020 |
|                                                          |          |            | NPN       | S45-PR-2-F03-NH | 950411010 |
|                                                          |          | M8         | -         | S45-PR-5-G00-XE | 950411030 |
|                                                          |          |            | PNP       | S45-PR-5-F03-PH | 950411050 |
|                                                          |          |            | NPN       | S45-PR-5-F03-NH | 950411040 |
|                                                          | LASER    | M8         | -         | S45-PH-5-G00-XE | 950411060 |
|                                                          |          |            | PNP       | S45-PH-5-F03-PH | 950411080 |
| Background suppressor 200mm                              | LED      | 2m Cable   | PNP       | S45-PR-2-M03-PH | 950411280 |
|                                                          |          |            | NPN       | S45-PR-2-M03-NH | 950411270 |
|                                                          |          | M8         | PNP       | S45-PR-5-M03-PH | 950411300 |
|                                                          |          |            | NPN       | S45-PR-5-M03-NH | 950411290 |
| Background suppressor 400mm                              | LED      | 2m Cable   | PNP       | S45-PR-2-M13-PH | 950411320 |
|                                                          |          |            | NPN       | S45-PR-2-M13-NH | 950411310 |
|                                                          |          | M8         | PNP       | S45-PR-5-M13-PH | 950411340 |
|                                                          |          |            | NPN       | S45-PR-5-M13-NH | 950411330 |
| Background suppressor laser                              | LASER    | M8         | PNP       | S45-PH-5-M03-PH | 950411360 |
|                                                          |          |            | NPN       | S45-PH-5-M03-NH | 950411350 |
| Distance sensor                                          | LED      | M8         | PNP       | S45-PR-5-Y03-PV | 950411380 |
|                                                          |          |            | NPN       | S45-PR-5-Y03-NV | 950411370 |
| Distance sensor                                          | LED      | M8         | PNP       | S45-PR-5-Y13-PV | 950411400 |
|                                                          |          |            | NPN       | S45-PR-5-Y13-NV | 950411390 |
| Contrast Sensor 10kHz                                    | WHITE    | M8         | PUSH-PULL | S45-PR-5-W03-OH | 950411420 |
|                                                          | RGB      |            | PUSH-PULL | S45-PR-5-W13-OH | 950411410 |
| Contrast Sensor 25kHz                                    | WHITE    | M8         | PUSH-PULL | S45-PR-5-W33-OH | 950411440 |
|                                                          | RGB      |            | PUSH-PULL | S45-PR-5-W43-OH | 950411430 |

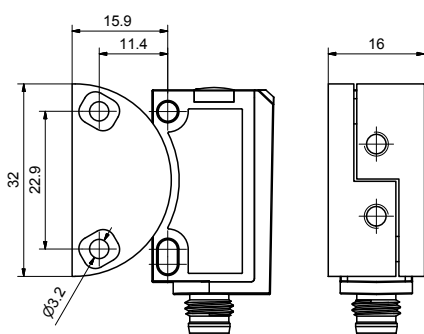
# ACCESSORIES



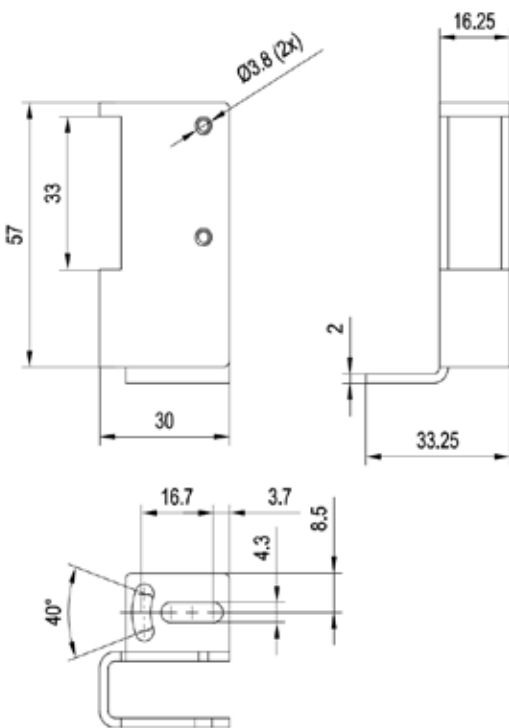
ST-S45-DVT



ST-S45-DVT



ST-S45-DVT



ST-MINI-PRO

| MODEL       | DESCRIPTION             | ORDER NO. |
|-------------|-------------------------|-----------|
| ST-S45-DVT  | S45 DOVE TAIL BRACKET   | 95ACC7970 |
| ST-MINI-PRO | MINI PROTECTIVE BRACKET | 95ACC7980 |

# CABLES

| TYPE                | DESCRIPTION          | LENGTH | MODEL         | ORDER No. |
|---------------------|----------------------|--------|---------------|-----------|
| Axial M8 Connector  | 4-pole, grey, P.V.C. | 3 m    | CS-B1-02-G-03 | 95A251420 |
|                     |                      | 5 m    | CS-B1-02-G-05 | 95A251430 |
|                     |                      | 7 m    | CS-B1-02-G-07 | 95A251440 |
|                     |                      | 10 m   | CS-B1-02-G-10 | 95A251480 |
|                     | 4-pole, P.U.R.       | 2 m    | CS-B1-02-R-02 | 95A251620 |
| Radial M8 Connector | 4-pole, grey, P.V.C. | 5 m    | CS-B1-02-R-05 | 95A251640 |
|                     |                      | 3 m    | CS-B2-02-G-03 | 95A251450 |
|                     |                      | 5 m    | CS-B2-02-G-05 | 95A251460 |
|                     |                      | 7 m    | CS-B2-02-G-07 | 95A251470 |
|                     |                      | 10 m   | CS-B2-02-G-10 | 95A251530 |
|                     | 4-pole, P.U.R.       | 2 m    | CS-B2-02-R-02 | 95A251630 |
|                     |                      | 5 m    | CS-B2-02-R-05 | 95A251650 |