



S45

High Performance european style miniature sensor all-in-one family

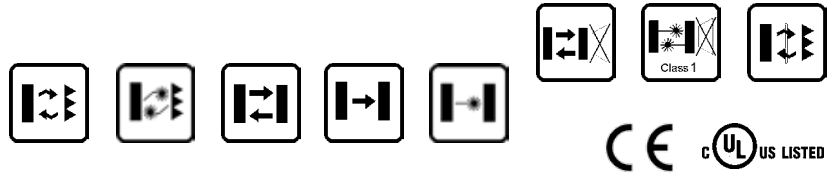
- Red LED and Laser emissions
- Precise risk free laser class 1 emission
- Diffused LED proximity 800mm
- Background Suppression 400mm
- Retroreflective Class 1 Laser 15m/Red LED 7m
- Through beam Class 1 Laser 20m/Red LED 15m
- IP69K housing
- 2m Cable or metal M8 4 pole version
- PNP or NPN output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



SENSORS

APPLICATIONS

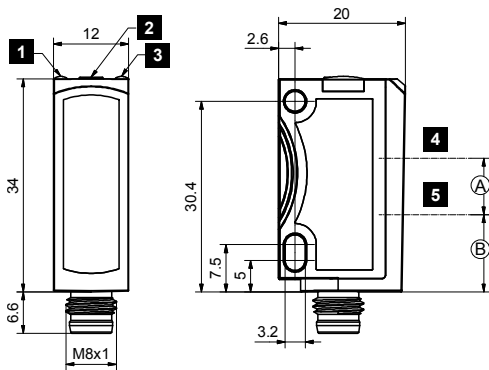
- Processing and Packaging machinery
- Cosmetic and Pharmaceutical industry
- Electronics assembling
- Conveyor lines, material handling
- Automotive industry
- Print and paper industry
- Small part detection with maximum accuracy



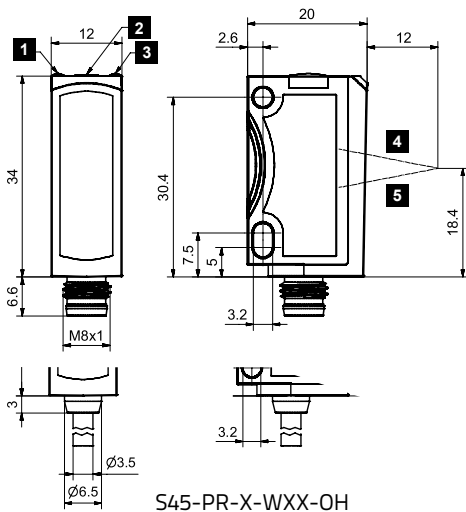
| S45 | | |
|--|-----------|--|
| Through beam | | 20m. (Laser Class1) 15m. (Red Led) |
| Polarized Retroreflective | | 15m. (Laser Class1) 7m. (Red Led) |
| Autocollimated Retroreflective for Transparent objects | | 2m. (Red Led) |
| Autocollimated Retroreflective | | 2m. (Red Led) |
| Diffused proximty | | 250mm. (Laser Class1) 800mm. (Red Led) |
| Background suppressor | | 120mm. (Laser Class 1) 200mm. (Red Led) 400mm. (Red Led) |
| Distance sensor | | 80mm. (Red Led) 200mm. (Red Led) |
| Contrast Sensor | | 12mm. (White) 12mm. (RGB) |
| Pwer Supply | Vdc | 10...30 V |
| | Vac | |
| | Vac/Vdc | |
| Output | PNP | ▪ |
| | NPN | ▪ |
| | NPN/PNP | |
| | relay | |
| | other | Push Pull (Wxx, Yxx), Analog 0...10 V (Yxx) |
| Connection | cable | ▪ |
| | connector | ▪ |
| | pig-tail | |
| Approximate dimensions (mm) | | 34mm. x 20mm. X 12mm. |
| Housing material | | ABS(Housing), PMMA (Optics) |
| Mechanical protection | | IP67 & IP69K |

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

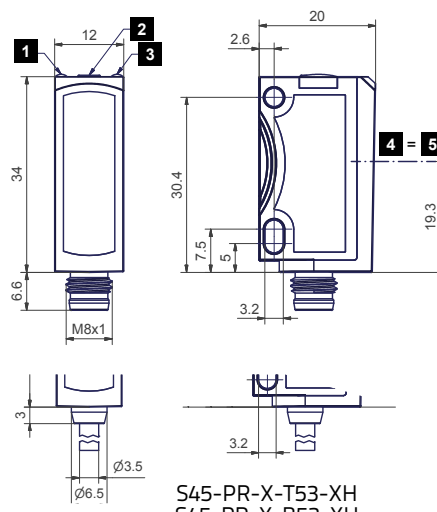
DIMENSIONS



| | S45-PR-2(5)-M03 S45-PR-5-Y03 | S45-PR-2(5)-M13 S45-PR-5-Y13 | S45-PR-2(5)-C03 S45-PR-B03 | S45-PH-5-M03 | S45-PH-5-C03 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



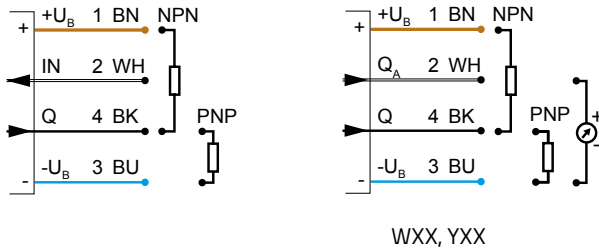
S45-PR-X-T53-XH
S45-PR-X-B53-XH

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

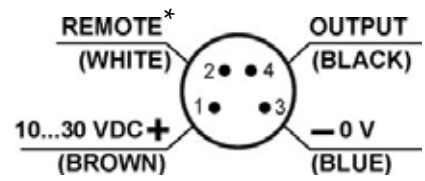
1) switching output indicator
2) operating voltage indicator

CONNECTIONS

CABLE

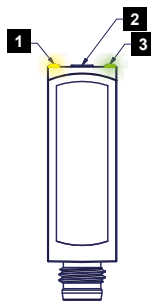


M8 CONNECTOR



* Analog out YXX

INDICATORS AND SETTINGS



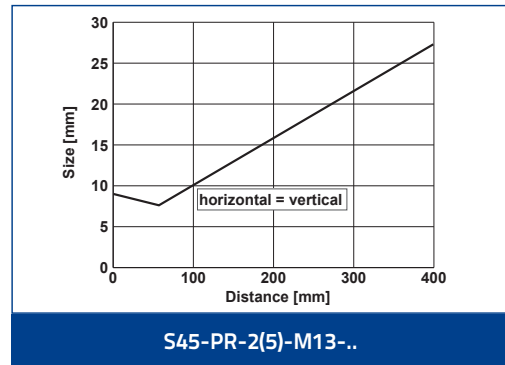
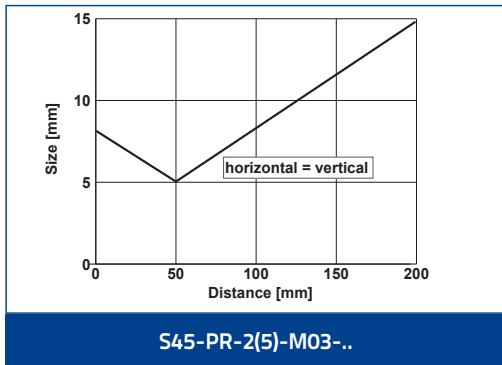
| | |
|---|---------------|
| 1 | Yellow LED 1) |
| 2 | Button |
| 3 | Green LED 2) |

1) switching output indicator
2) operating voltage indicator

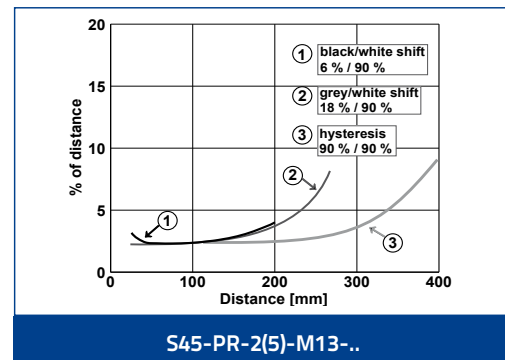
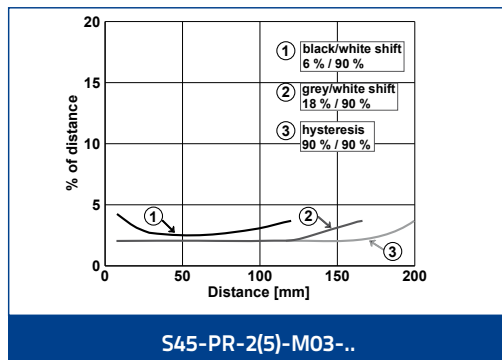
DETECTION DIAGRAMS

BACKGROUND SUPPRESSOR

DETECTION SPOT SIZE

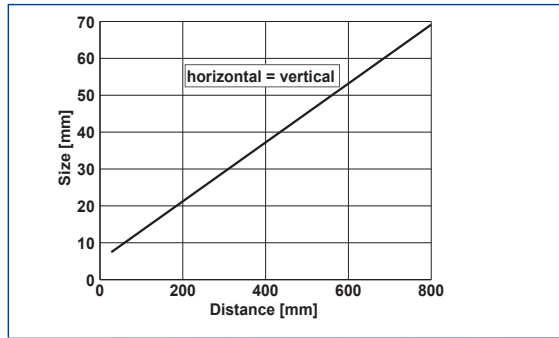


B/W SHIFT



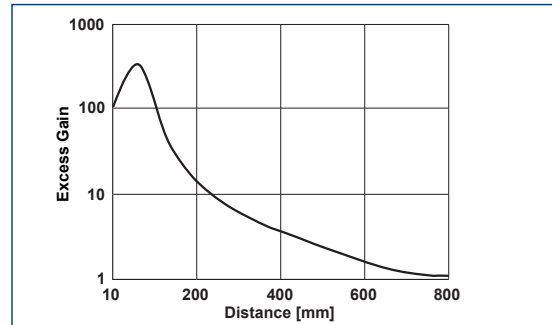
ENERGETIC DIFFUSED

DETECTION SPOT SIZE



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

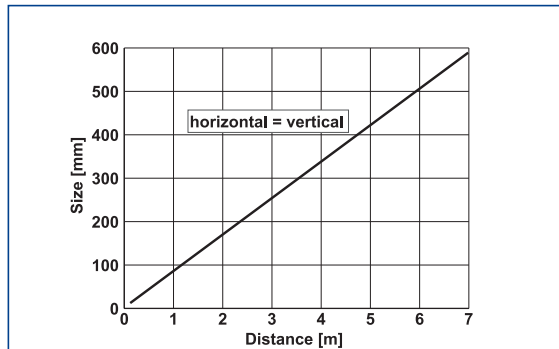
EXCESS GAIN



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

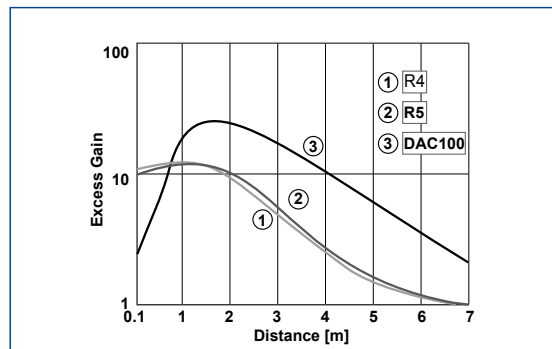
RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE



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

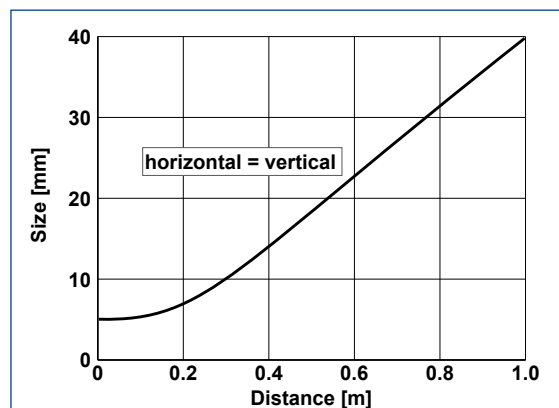
EXCESS GAIN



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

COAXIAL RETROREFLECTIVE POLARIZED

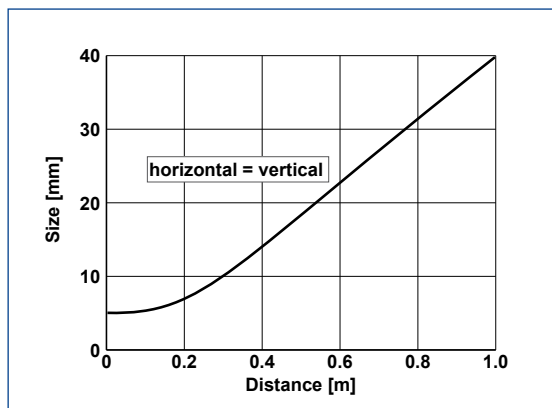
DETECTION SPOT SIZE



S45-PR-5-B53-..

RETROREFLECTIVE FOR TRANSPARENT

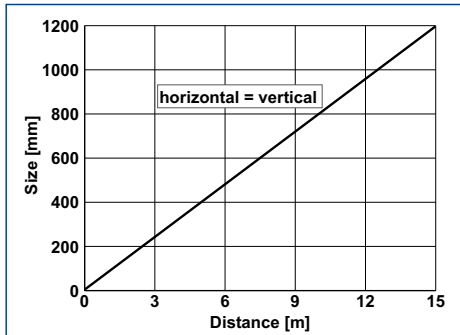
DETECTION SPOT SIZE



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

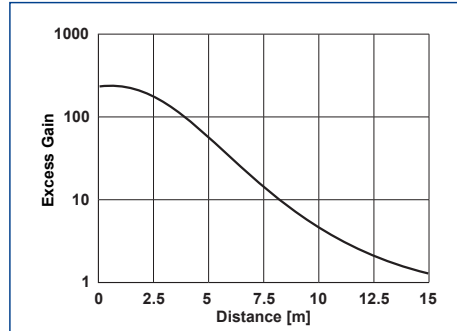
THROUGH BEAM

DETECTION SPOT SIZE



S45-PR-2(5)-F03-../S45-PR-2(5)-G00-XE

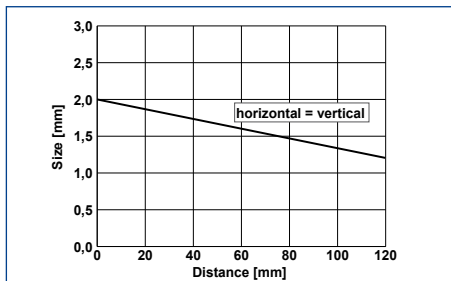
EXCESS GAIN



S45-PR-2(5)-F03-../S45-PR-2(5)-G00-XE

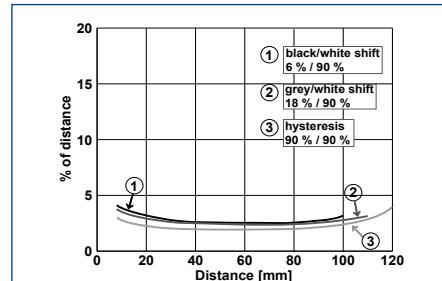
LASER BACKGROUND SUPPRESSOR

DETECTION SPOT SIZE



S45-PH-5-M03-..

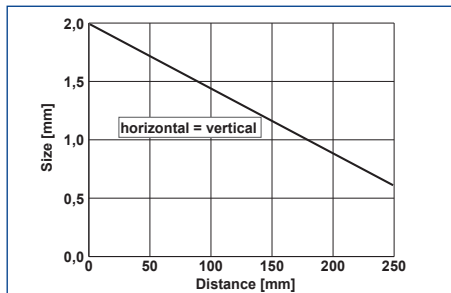
B/W SHIFT



S45-PH-5-M03-..

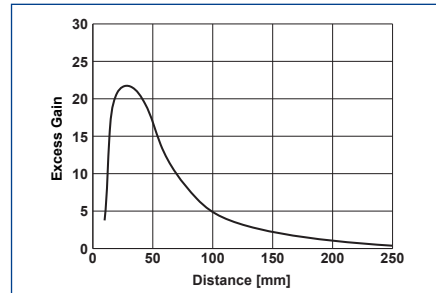
LASER ENERGETIC DIFFUSED

DETECTION SPOT SIZE



S45-PH-5-C03-..

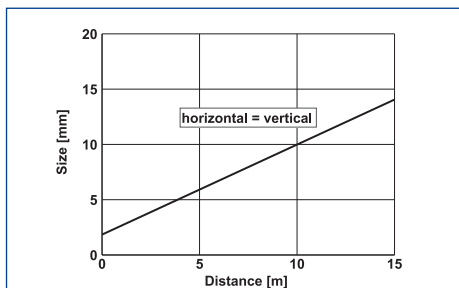
EXCESS GAIN



S45-PH-5-C03-..

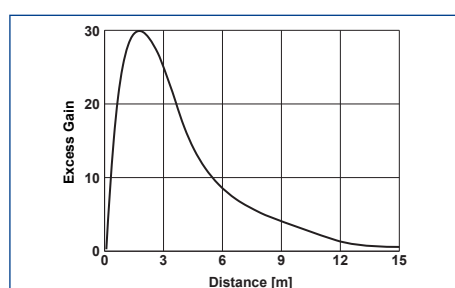
LASER RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE



S45-PH-5-B03-..

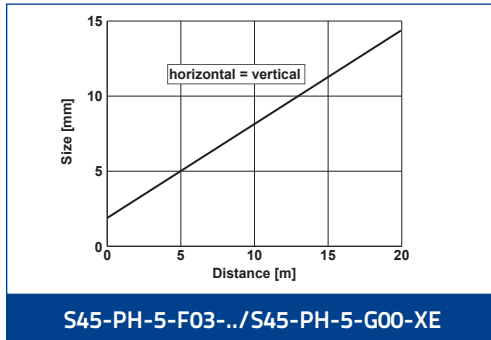
EXCESS GAIN



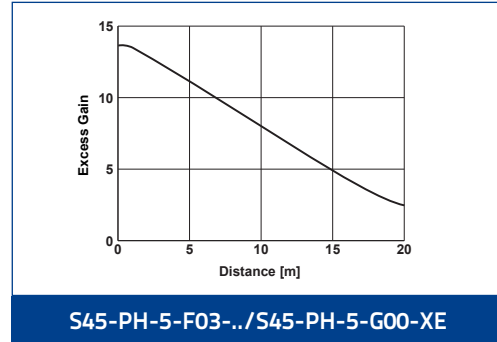
S45-PH-5-B03-..

LASER THROUGH BEAM

DETECTION SPOT SIZE

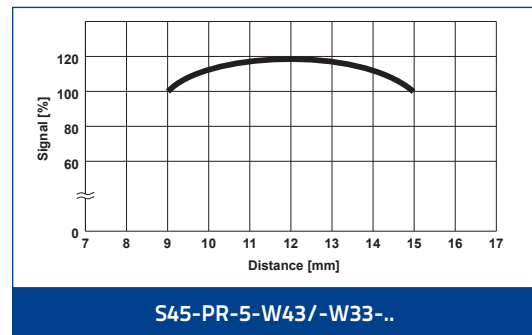
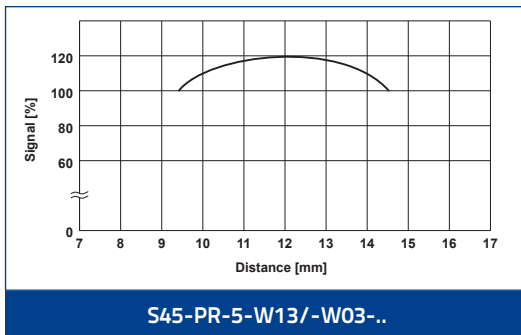


EXCESS GAIN



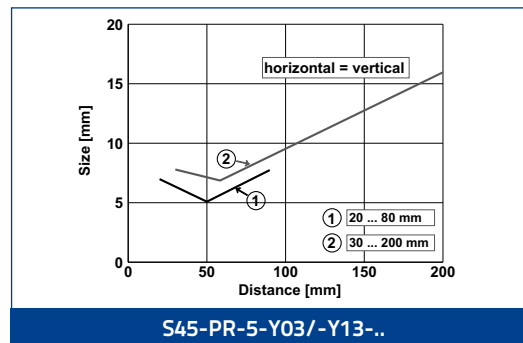
CONTRAST SENSOR

READING DIAGRAM

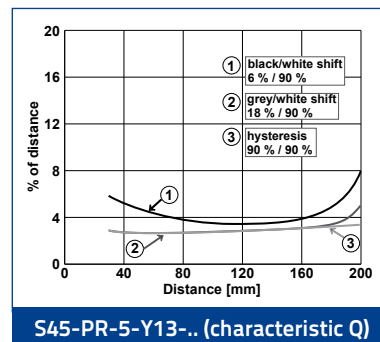
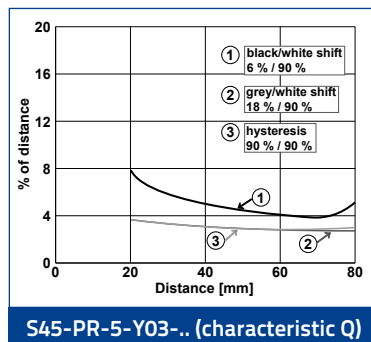


DISTANCE SENSOR

DETECTION SPOT SIZE



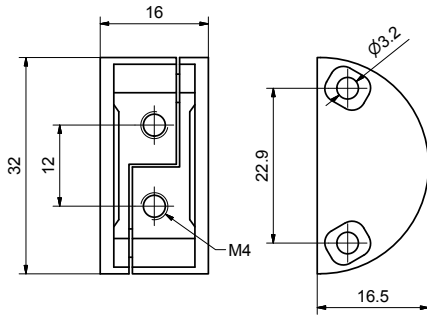
SCANNING PROPERTIES



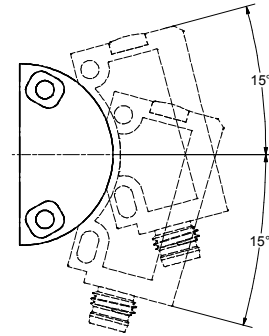
MODEL SELECTION AND ORDER INFORMATION

| 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 |
| | | | NPN | S45-PH-5-F03-NH | 950411070 |
| | | | PNP | S45-PR-2-M03-PH | 950411280 |
| Background suppressor 200mm | LED | 2m Cable | NPN | S45-PR-2-M03-NH | 950411270 |
| | | | PNP | S45-PR-5-M03-PH | 950411300 |
| | | M8 | NPN | S45-PR-5-M03-NH | 950411290 |
| | | | PNP | S45-PR-2-M13-PH | 950411320 |
| Background suppressor 400mm | LED | 2m Cable | NPN | S45-PR-2-M13-NH | 950411310 |
| | | | PNP | S45-PR-5-M13-PH | 950411340 |
| | | M8 | NPN | S45-PR-5-M13-NH | 950411330 |
| | | | PNP | S45-PH-5-M03-PH | 950411360 |
| Background suppressor laser | LASER | M8 | NPN | S45-PH-5-M03-NH | 950411350 |
| | | | PNP | S45-PR-5-Y03-PV | 950411380 |
| Distance sensor | LED | M8 | NPN | S45-PR-5-Y03-NV | 950411370 |
| | | | PNP | S45-PR-5-Y13-PV | 950411400 |
| Distance sensor | LED | M8 | NPN | S45-PR-5-Y13-NV | 950411390 |
| | | | WHITE | M8 | PUSH-PULL |
| Contrast Sensor 10kHz | RGB | M8 | PUSH-PULL | | S45-PR-5-W13-OH |
| | WHITE | | M8 | PUSH-PULL | S45-PR-5-W33-OH |
| Contrast Sensor 25kHz | RGB | M8 | | PUSH-PULL | S45-PR-5-W43-OH |

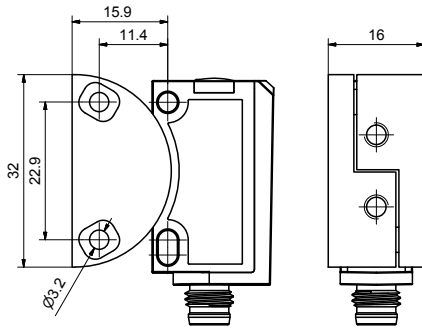
ACCESSORIES



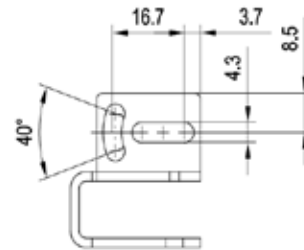
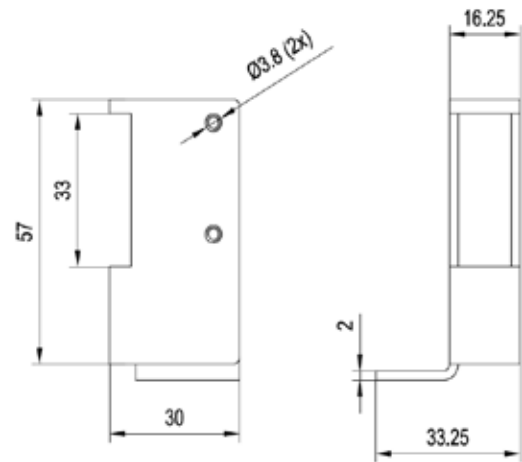
ST-S45-DVT



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 |
| | | 5 m | CS-B1-02-R-05 | 95A251640 |
| Radial M8 Connector | 4-pole, grey, P.V.C. | 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 |