

# 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



### APPLICATIONS

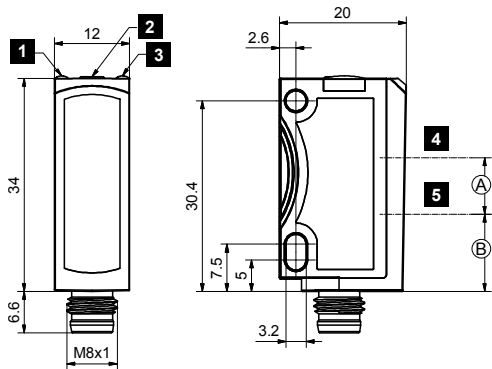
- Processing and Packaging machinery
- Cosmetic and Pharmaceutical industry
- Electronics assembling
- Conveyor lines, material handling
- Automotive industry
- Print and paper industry
- Small part detection with maximum accuracy

S45		
<b>Through beam</b>	20m. (Laser Class1) 15m. (Red Led)	
<b>Polarized Retroreflective</b>	15m. (Laser Class1) 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) 800mm. (Red Led)	
<b>Background suppressor</b>	120mm. (Laser Class 1) 200mm. (Red Led) 400mm. (Red Led)	
<b>Distance sensor</b>	80mm. (Red Led) 200mm. (Red Led)	
<b>Contrast Sensor</b>	12mm. (White) 12mm. (RGB)	
<b>Power Supply</b>	Vdc	10...30Vdc (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	

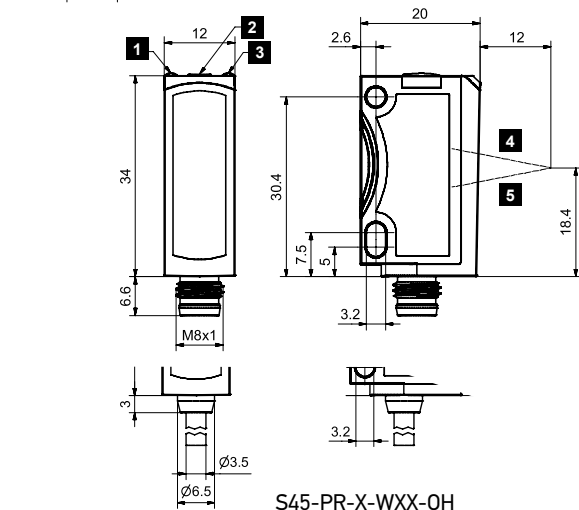
# TECHNICAL DATA

<b>Power supply</b>	10...30Vdc (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 Volatage LED Yellow Ouput Status
<b>Output</b>	NPN, PNP, Push Pull
<b>Output current</b>	100 mA
<b>Saturation voltage</b>	2 V max
<b>Response time</b>	500 μs 333 μs (C03 Laser) 250 μs (F/G Laser) 50 μs (W03, W33) 20 μs (W13, W43)
<b>Switching frequency</b>	≤ 1000Hz ≤ 1500Hz (C03 Laser) ≤ 2000 Hz (F/G Laser) ≤ 10 kHz (W03, W33) ≤ 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

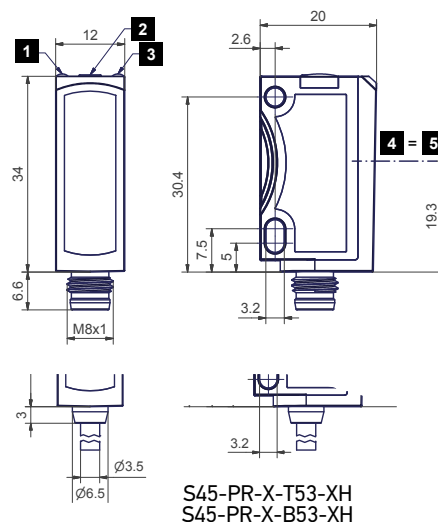
# DIMENSIONS



	S45-PR-2(5)-M03	S45-PR-2(5)-M13	S45-PR-2(5)-C03	S45-PH-5-M03	S45-PH-5-C03	S45-PR-G00	S45-PH-G00	S45-PR(PH)-F03
<b>A</b>	9	11.75	10.8	8.8	8.8	11.5	13.5	
<b>B</b>	12.3	11	11.5	12.5	13.5			22.3



S45-PR-X-WXX-OH



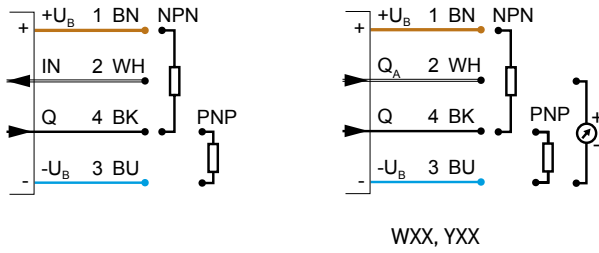
S45-PR-X-T53-XH  
S45-PR-X-B53-XH

<b>1</b>	Yellow LED 1)
<b>2</b>	Button
<b>3</b>	Green LED 2)
<b>4</b>	Receiver axis
<b>5</b>	Emitter axis

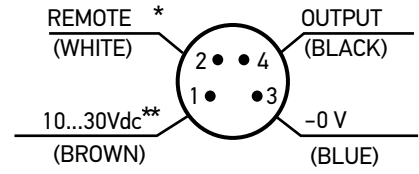
1) switching output indicator  
2) operating voltage indicator

# CONNECTIONS

## CABLE



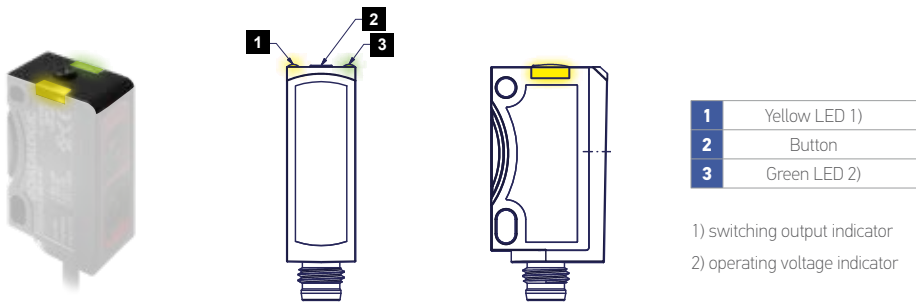
## M8 CONNECTOR



\* Analog out YXX

\*\* 13...30Vdc Y models

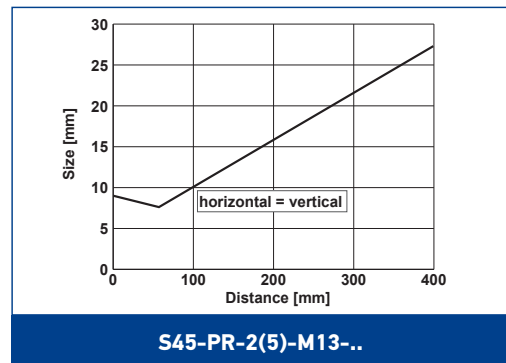
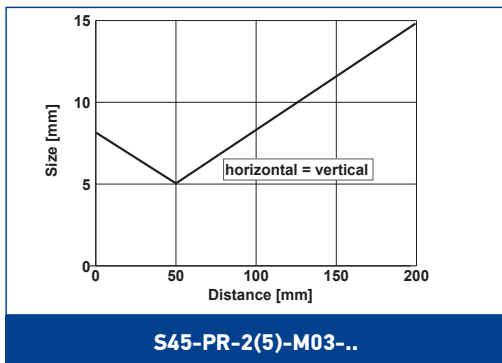
# INDICATORS AND SETTINGS



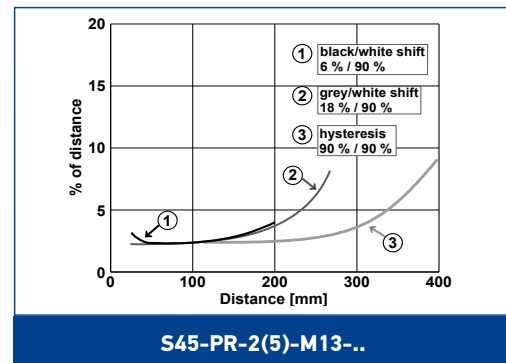
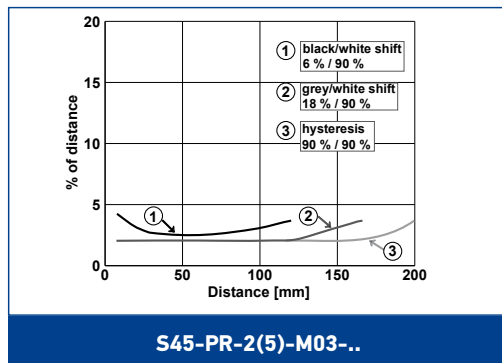
# DETECTION DIAGRAMS

## BACKGROUND SUPPRESSOR

### DETECTION SPOT SIZE

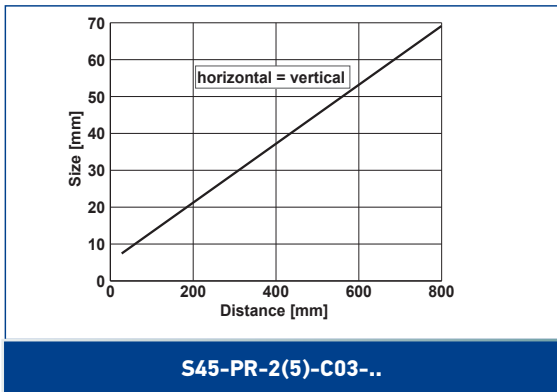


### B/W SHIFT

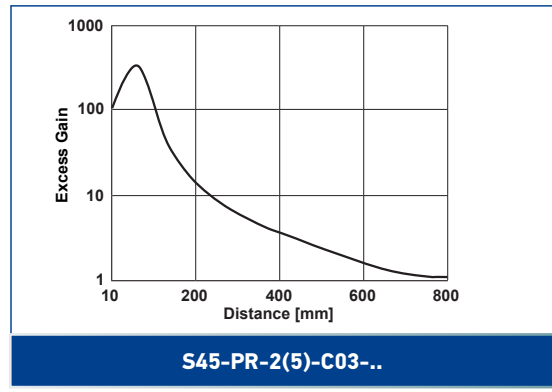


## ENERGETIC DIFFUSED

DETECTION SPOT SIZE

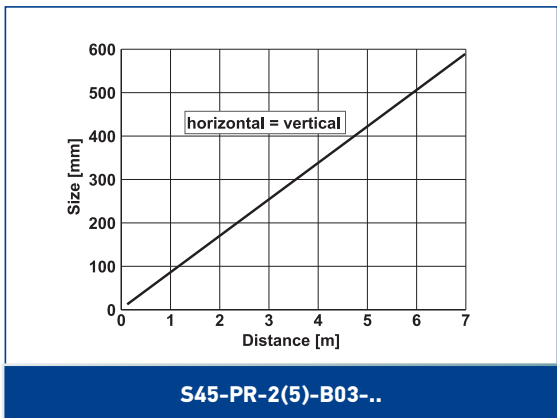


EXCESS GAIN

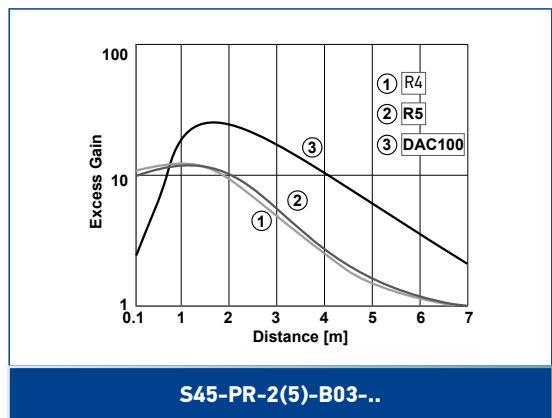


## RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE

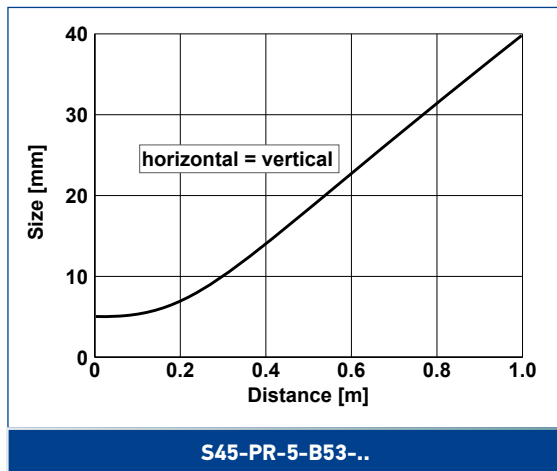


EXCESS GAIN



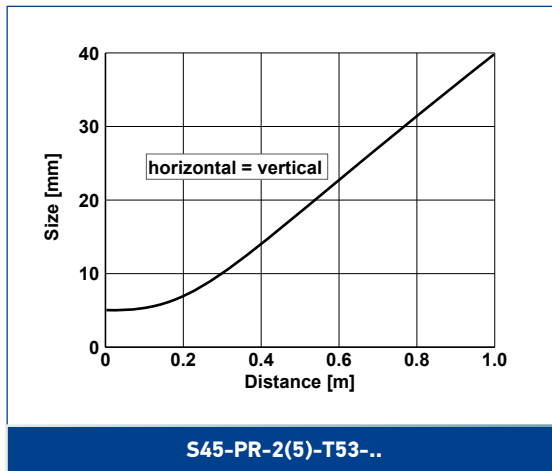
## COAXIAL RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE



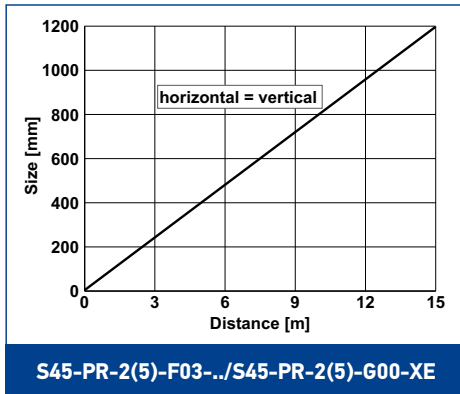
## RETROREFLECTIVE FOR TRANSPARENT

DETECTION SPOT SIZE

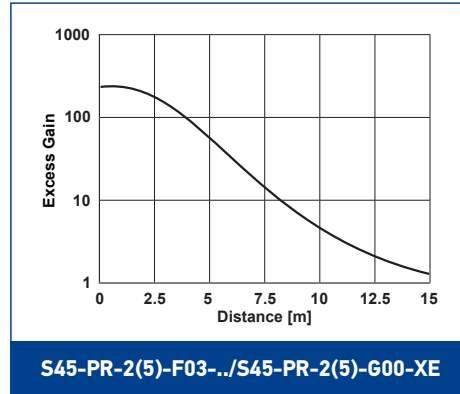


## THROUGH BEAM

DETECTION SPOT SIZE

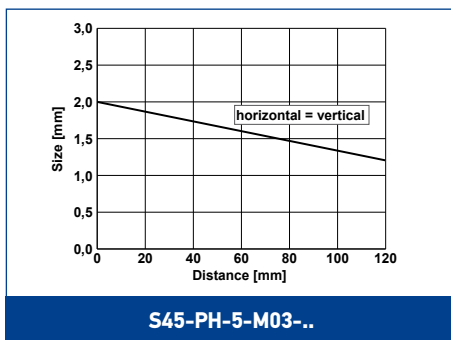


EXCESS GAIN

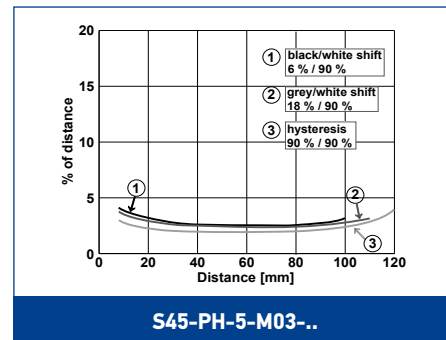


## LASER BACKGROUND SUPPRESSOR

DETECTION SPOT SIZE

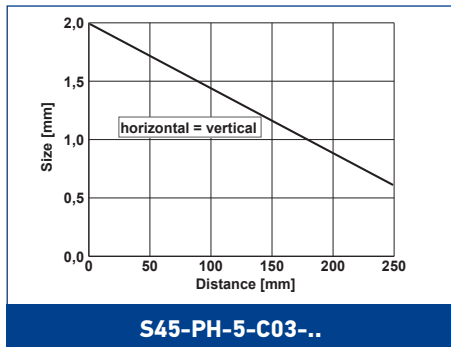


B/W SHIFT

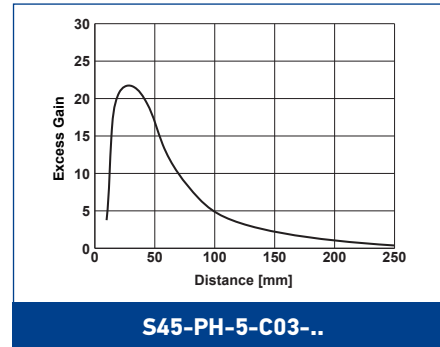


## LASER ENERGETIC DIFFUSED

DETECTION SPOT SIZE

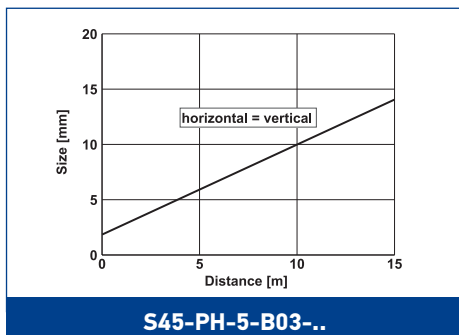


EXCESS GAIN

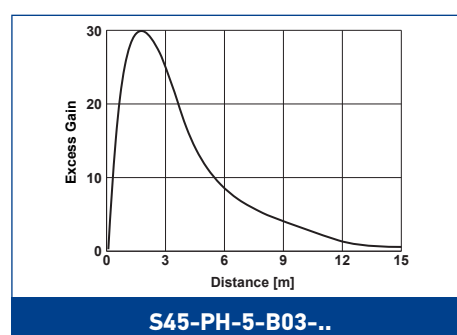


## LASER RETROREFLECTIVE POLARIZED

DETECTION SPOT SIZE

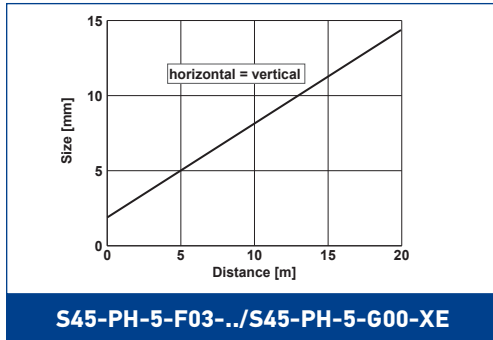


EXCESS GAIN

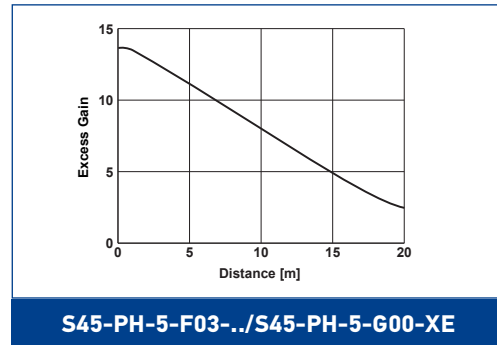


## LASER THROUGH BEAM

### DETECTION SPOT SIZE

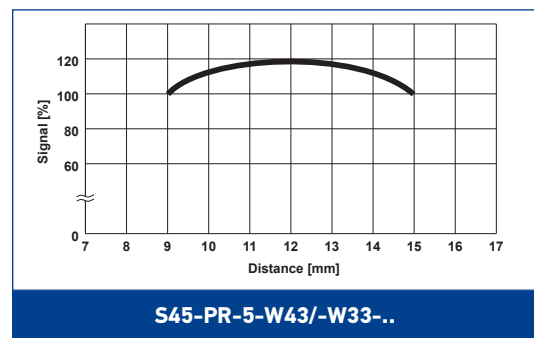
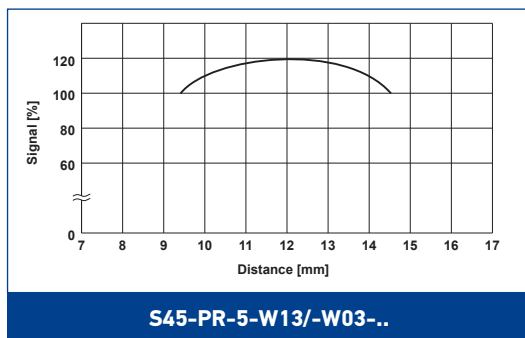


### EXCESS GAIN



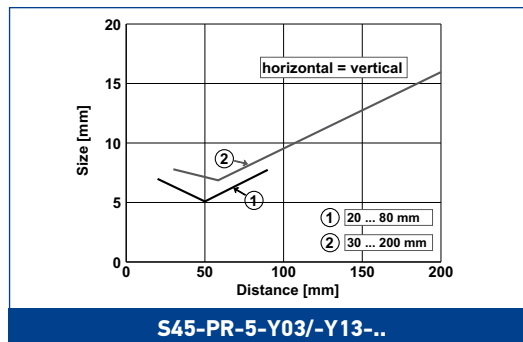
## CONTRAST SENSOR

### READING DIAGRAM

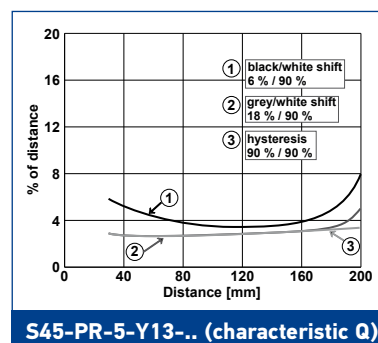
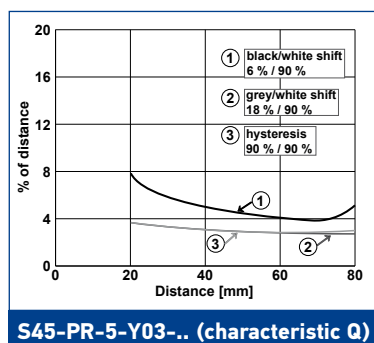


## DISTANCE SENSOR

### DETECTION SPOT SIZE



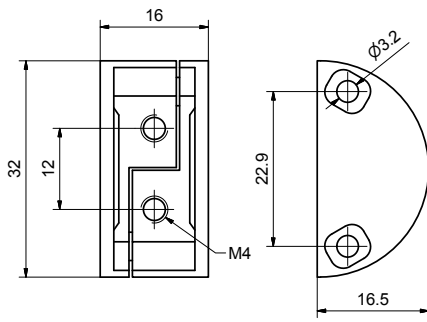
## SCANNING PROPERTIES



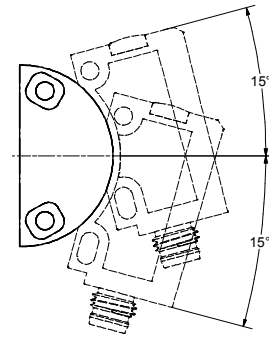
# MODEL SELECTION AND ORDER INFORMATION

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	PUSH-PULL	S45-PR-5-W03-OH
Contrast Sensor 10kHz	RGB	M8	PUSH-PULL	S45-PR-5-W13-OH	950411410
	WHITE		PUSH-PULL	S45-PR-5-W33-OH	950411440
Contrast Sensor 25kHz	RGB	M8	PUSH-PULL	S45-PR-5-W43-OH	950411430

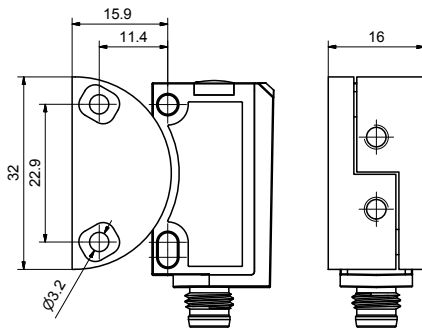
# ACCESSORIES



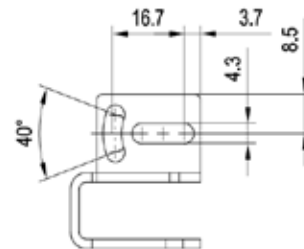
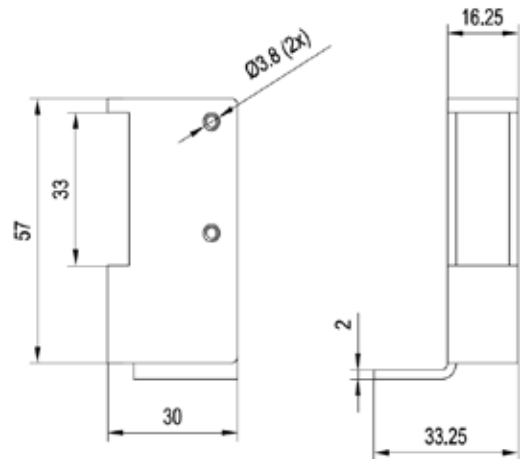
ST-S45-DVT



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
		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