SM123 SERIES

The new **SM123** series offers a complete line of subminiature amplified photoelectric sensors, ideal for mounting in reduced spaces or in presence of particular mechanical obstacles. The extremely compact dimensions do not limit the detection performances, that suit most of the applications on automatic machinery for packaging, assembling, printing and so on, such as in automatic distribution and vending machines. The **SM1** models are 20 mm fixed focus proximity that, thanks to the thin housing with side optics, represent a valid alternative to fibre-optic systems. The **SM2** models present instead an ultra-flat format with a thickness inferior to 5 mm and offer a 170 mm diffuse proximity, as well as a through beam with an operating distance reaching 1.2 m. The **SM3** models also present a thin housing with lateral optics, but offer a 50 cm coaxial polarised retroreflex or a 1.2 m through beam optic function. All the subminiature sensors of the **SM123** series have visibile red emission and are available in the NPN or PNP versions, both with 3 wires 2 m cable connection. The plastic ABS housing guarantees an IP67 protection degree.





HIGHLIGHTS

- 20 and 170 mm proximity, 50 cm polarised retroreflex and 1.2 m through beam
- Thin housing with side optics or ultra-flat format
- Visible red emission on all models for easy alignment
- Amplified NPN or PNP output with 3-wire connection

APPLICATIONS

Automotive



Beverage & Bottling



Packaging lines





SM1: a complete sensor with fibre-optic dimensions

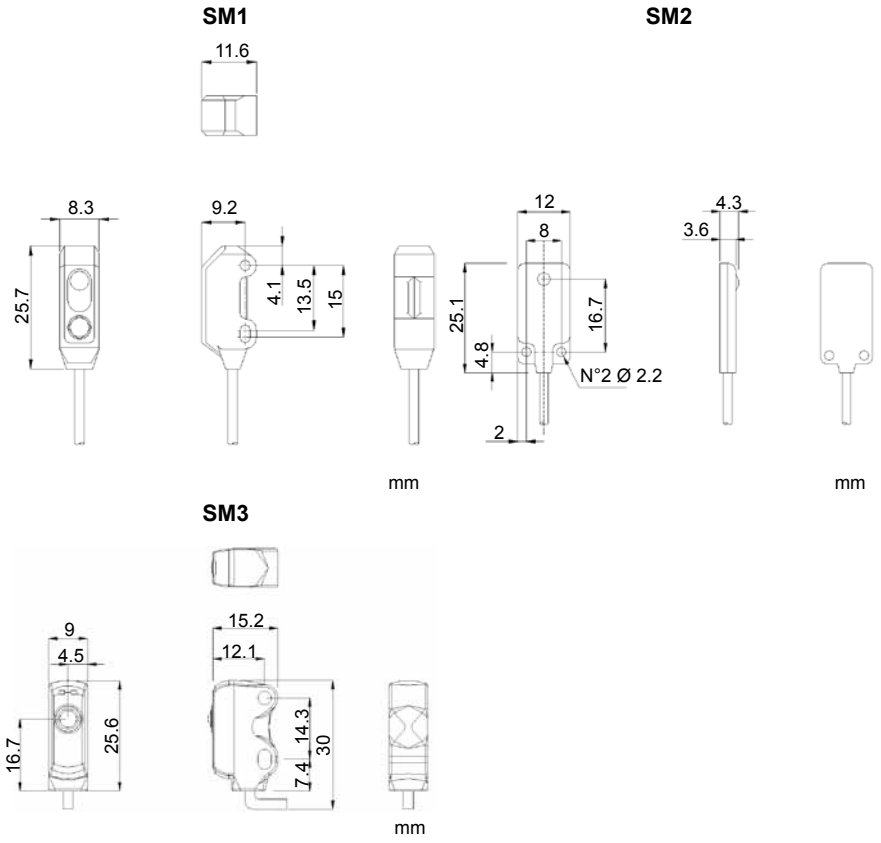


SM2: a complete sensor with stamp dimensions



SM3: coaxial polarised retroreflex and through beam sensors in a subminiature format for high-resolution detection

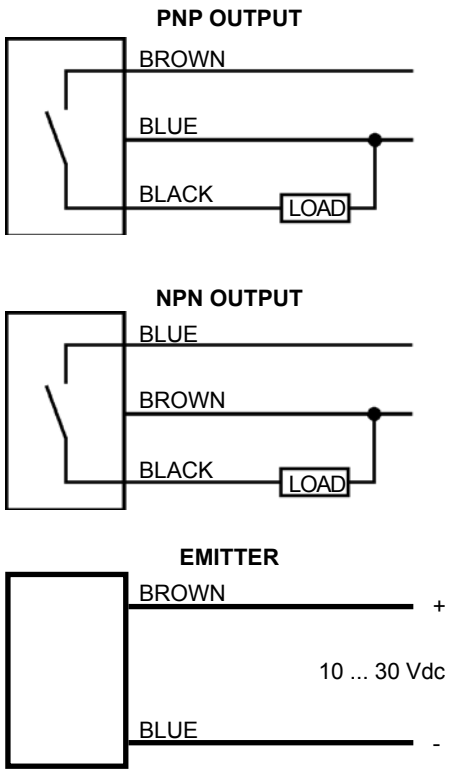
DIMENSIONS



ACCESSORIES

For dedicated accessories refer to the ACCESSORIES section of this catalogue.

CONNECTIONS



Versions and options: refer to **MODEL SELECTION TABLE**

TECHNICAL DATA

		SM1-PR-2-D00-PL	SM1-PR-2-D00-NL	SM2-PR-2-FG00-PD	SM2-PR-2-FG00-ND	SM2-PR-2-D00-PL	SM2-PR-2-D00-NL	SM3-PR-2-FG00-PD	SM3-PR-2-FG00-ND	SM3-PR-2-B00-PL	SM3-PR-2-B00-NL	SM3-PR-2-B00-PD	SM3-PR-2-B00-ND
Power supply:	10 ... 30 Vdc	●	●	●	●	●	●	●	●	●	●	●	●
Consumption:	25 mA max.	●	●	●	●	●	●	●	●	●	●	●	●
Light emission:	630 nm	●	●										
	660 nm			●	●	●	●	●	●				
	680 nm									●	●	●	●
Fixed focus proximity operating distance:	3 ... 20 mm	●	●										
Diffuse proximity operating distance:	3 ... 170 mm					●	●						
Polarised retroreflex operating distance:	0 ... 50 cm (on R20)									●	●	●	●
Through beam operating distance:	0 ... 1.2 m				●	●		●	●				
Indicators:	yellow OUTPUT LED	●	●	●	●	●	●	●	●	●	●	●	●
	yellow STABILITY LED	●	●	●	●			●	●				
	green POWER/ERROR LED	●	●	●	●	●	●	●	●	●	●	●	●
Output type:	PNP	●		●		●		●		●		●	
	NPN		●		●		●		●		●		●
Operating mode:	dark			●	●			●	●			●	●
	light	●	●			●	●			●	●		
Saturation voltage:	< 0.5 V at 50 mA	●	●	●	●	●	●	●	●	●	●	●	●
Output current:	50 mA max.	●	●	●	●	●	●	●	●	●	●	●	●
Response time:	1 ms	●	●	●	●	●	●	●	●	●	●	●	●
Switching frequency:	500 Hz	●	●	●	●	●	●	●	●	●	●	●	●
Connection:	2 m cable	●	●	●	●	●	●	●	●	●	●	●	●
Electrical protection:	class 2	●	●	●	●	●	●	●	●	●	●	●	●
Mechanical protection:	IP67	●	●	●	●	●	●	●	●	●	●	●	●
Protection devices:	A, B	●	●	●	●	●	●	●	●	●	●	●	●
Housing material:	ABS	●	●	●	●	●	●	●	●	●	●	●	●
Lens material:	PMMA	●	●	●	●	●	●	●	●				
	glass									●	●	●	●
Weight:	16 g	●	●			●	●						
	18 g									●	●	●	●
	33 g			●	●			●	●				
Operating temperature:	-20 ... +55°C	●	●	●	●	●	●	●	●	●	●	●	●
Storage temperature:	-25 ... +70°C	●	●	●	●	●	●	●	●	●	●	●	●
Reference standard:	EN 60947-5-2	●	●	●	●	●	●	●	●	●	●	●	●

CE

SELECTION TABLE

fixed focus proximity		
SM1-PR-2-D00-PL	PNP - light	95B000100
SM1-PR-2-D00-NL	NPN - light	95B000110

diffuse proximity		
SM2-PR-2-D00-PL	PNP - light	95B000220
SM2-PR-2-D00-NL	NPN - light	95B000230

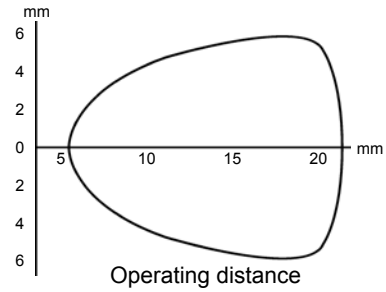
through beam		
SM2-PR-2-FG00-PD	PNP - dark	95B000200
SM2-PR-2-FG00-ND	NPN - dark	95B000210
SM3-PR-2-FG00-PD	PNP - dark	95B000300
SM3-PR-2-FG00-ND	NPN - dark	95B000310

coaxial polarised retroreflex		
SM3-PR-2-B00-PL	PNP - light	95B000320
SM3-PR-2-B00-NL	NPN - light	95B000330
SM3-PR-2-B00-PD	PNP - dark	95B000340
SM3-PR-2-B00-ND	NPN - dark	95B000350

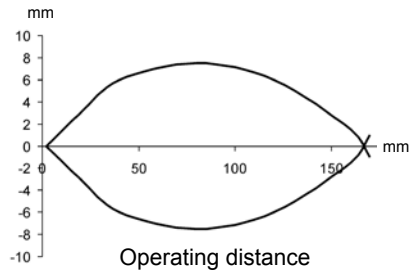
TECHNICAL NOTES

1. On white 90 % target
2. Limit value
3. Micro-prismatic reflectors have to be used with the polarised retroflex with coaxial optics; the operating distance is reduced to 30 cm using R7 and R8 reflectors. The coaxial optics eliminates the 'blind' area at a close distance
4. A - reverse polarity protection
   B - overload and short-circuit protection

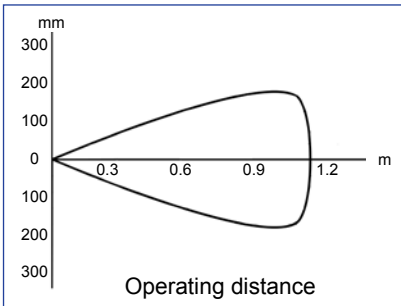
DETECTION DIAGRAMS



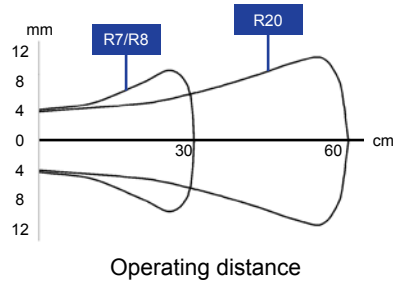
SM1 - fixed focus proximity



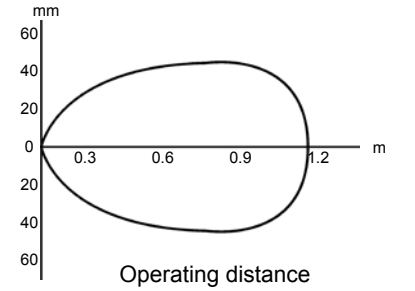
SM2 - diffused proximity



SM2 - through beam



SM3 - polarised retroreflex



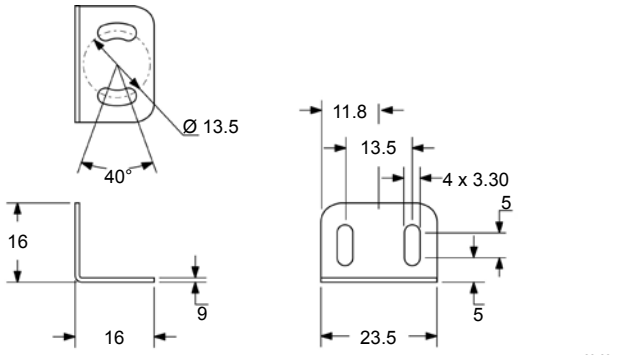
SM3 - through beam

MODEL SELECTION AND ORDER INFORMATION

MODEL	FUNCTION	OUTPUT	ORDER N°
SM1-PR-2-D00-PL	20 mm fixed focus proximity	PNP - light	95B000100
SM1-PR-2-D00-NL	20 mm fixed focus proximity	NPN - light	95B000110
SM2-PR-2-FG00-PD	1.2 m through beam	PNP - dark	95B000200
SM2-PR-2-FG00-ND	1.2 m through beam	NPN - dark	95B000210
SM2-PR-2-D00-PL	170 mm diffuse proximity	PNP - light	95B000220
SM2-PR-2-D00-NL	170 mm diffuse proximity	NPN - light	95B000230
SM3-PR-2-FG00-PD	1.2 m through beam	PNP - dark	95B000300
SM3-PR-2-FG00-ND	1.2 m through beam	NPN - dark	95B000310
SM3-PR-2-B00-PL	50 cm coaxial polarised retroreflex	PNP - light	95B000320
SM3-PR-2-B00-NL	50 cm coaxial polarised retroreflex	NPN - light	95B000330
SM3-PR-2-B00-PD	50 cm coaxial polarised retroreflex	PNP - dark	95B000340
SM3-PR-2-B00-ND	50 cm coaxial polarised retroreflex	NPN - dark	95B000350

DIMENSIONS

ST-5036



ACCESSORY SELECTION

MODEL	DESCRIPTION	ORDER N°
ST-5036	L-shaped fixing bracket for SM1 and SM3	95ACC5720

The company endeavours to continuously improve and renew its products; for this reason the technical data and contents of this catalogue may undergo variations without prior notice. For correct installation and use, the company can guarantee only the data indicated in the instruction manual supplied with the products.