

### US18 SERIES

The range of measurement devices is enriched by M18x1 ABS tubular ultrasonic sensors of the **US18** series. Models with axial or radial acoustic emission and with discrete bipolar output (1 NPN and 1 PNP) or with 4-20 mA or 0-10 V analogue output are available. The extremely reduced blind zone and the unequalled 5 ms response speed are only two of the many features that are worth highlighting. The sensors are easily configured through the Teach-in function, while the operating status is visibly signalled by 2 bi-coloured LEDs.

The temperature compensation function corrects the sound speed changes due to temperature variations, so the sensor precision remains unchanged in all situations and a 0.5 mm resolution is guaranteed. The electrical connection is accomplished through standard M12 5-pole connectors. The **US18** ultrasonic sensors detect all objects independent from the non sound-absorbent material, reflectivity, transparency and colour, thus perfectly suiting applications.

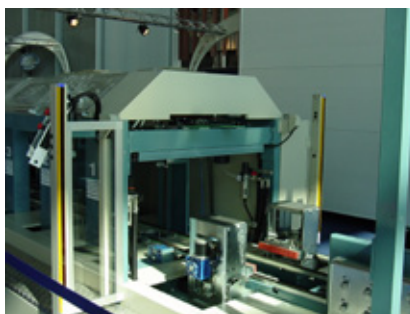


### HIGHLIGHTS

- High precision and switching frequency
- Colour independence and transparent object detection
- Easy Teach-in setting and 2 bi-coloured signalling LEDs
- Models with digital NPN - PNP and 0 - 10 V or 4- 20 mA analogue outputs
- Temperature compensation function

### APPLICATIONS

#### Ceramics



#### Transportation lines



#### Beverage & Bottling



#### Packaging lines



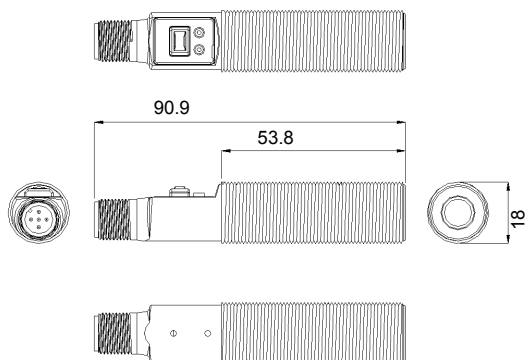
Models with discrete output are excellent foreground and/or background suppressors. The Teach-in procedure allows to fix a switching window with 10 mm width and to detect minimum and maximum values.

The models with analogue output are conceived as distance sensors: the analogue output can be scaled on windows of any width inside the operating range, or positioned at the centre of a detection window with a fixed width of 100 mm.

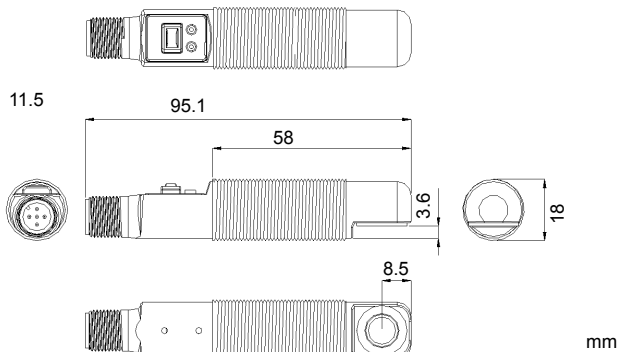


## DIMENSIONS

### AXIAL VERSION

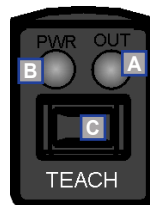


### RADIAL VERSION



mm

## INDICATORS AND SETTING



- A** OUT LED
- B** Power / signal intensity LED
- C** Teach-in push-button

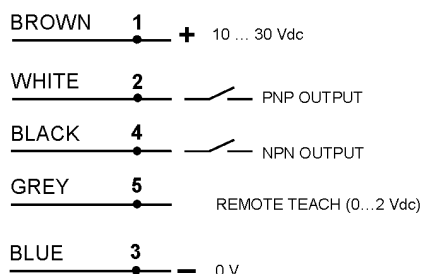
## ACCESSORIES

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

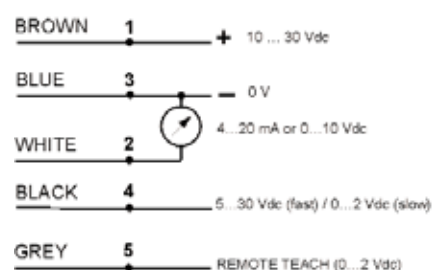
Refer also to **Connectors** and **Fixing Brackets** and **Supports** of the **General Catalogue**.

## CONNECTIONS

### DIGITAL VERSION



### ANALOGUE VERSION



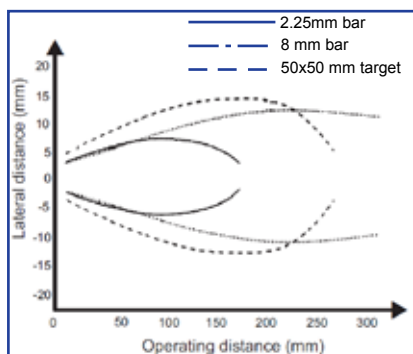
## TECHNICAL DATA

	Models with discrete output	Models with analogue output
Operating distance (typical values):	30 ... 300 mm	
Power supply:	10 ... 30 Vdc (limit values), polarity inversion protection	
Ripple:	≤2 Vpp	
Consumption:	65 mA max., 40 mA typical at 25 Vdc	
Output type:	NPN and PNP	0...10 Vdc or 4...20 mA
Output current:	100 mA max., short-circuit protection	
Saturation voltage:	PNP < 1.2 V at 10 mA, < 1.6 V at 100 mA	
	NPN < 200 mV at 10 mA, < 600 mV at 100 mA	
Load resistance:		voltage output: 2.5 kΩ min.
		current output: 1 kΩ max.
Response time:	5 ms	2.5 ms (black wire at 0-2 Vdc or unconnected) 30 ms (black wire at 5-30 Vdc)
Switching frequency:	100 Hz	200 Hz (black wire at 0-2 Vdc or unconnected) 16 Hz (black wire at 5-30 Vdc)
Delay at powering:	300 ms	
Indicators:	yellow-green bi-coloured OUTPUT LED	
	red POWER LED	
Setting:	Teach-in or remote input	
Ultrasonic emission frequency:	300 KHz, repeated each 2.5 ms	
Temperature drift:	minor than 1.7 % at detection distance	
Repeatability:	0.5 mm	
Minimum detection window:	5 mm	
Hysteresis:	0.7 mm	
Resolution *:	±1 mm with 2.5 ms response time	
	±0.5 mm with 30 ms response time	
Minimum detection window dimension:	5 mm	
Operating temperature:	-25 ... 55 °C	
Storage temperature:	-25 ... 70 °C	
Electrical protection:	Class 2	
Housing material:	Thermoplastic polyester	
Mechanical protection:	IP67	
Connections:	M12 5-pole connector	
Weight:	25 g	
Standard reference:	EN 60068-2-6, EN 60068-2-27	

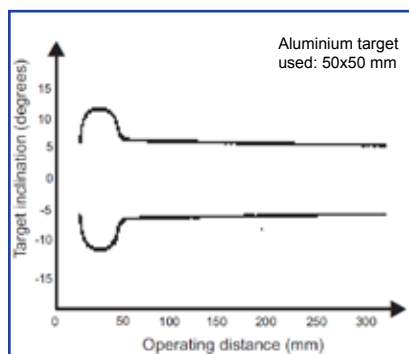
\* with 50x50 mm aluminium target at 22°C and constant operating conditions



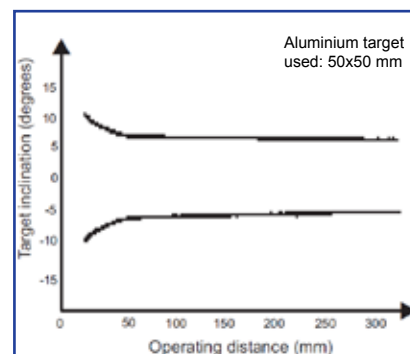
## DETECTION DIAGRAMS



Beam - distance variation  
(typical values)



Maximum target inclination  
(models with discrete output)

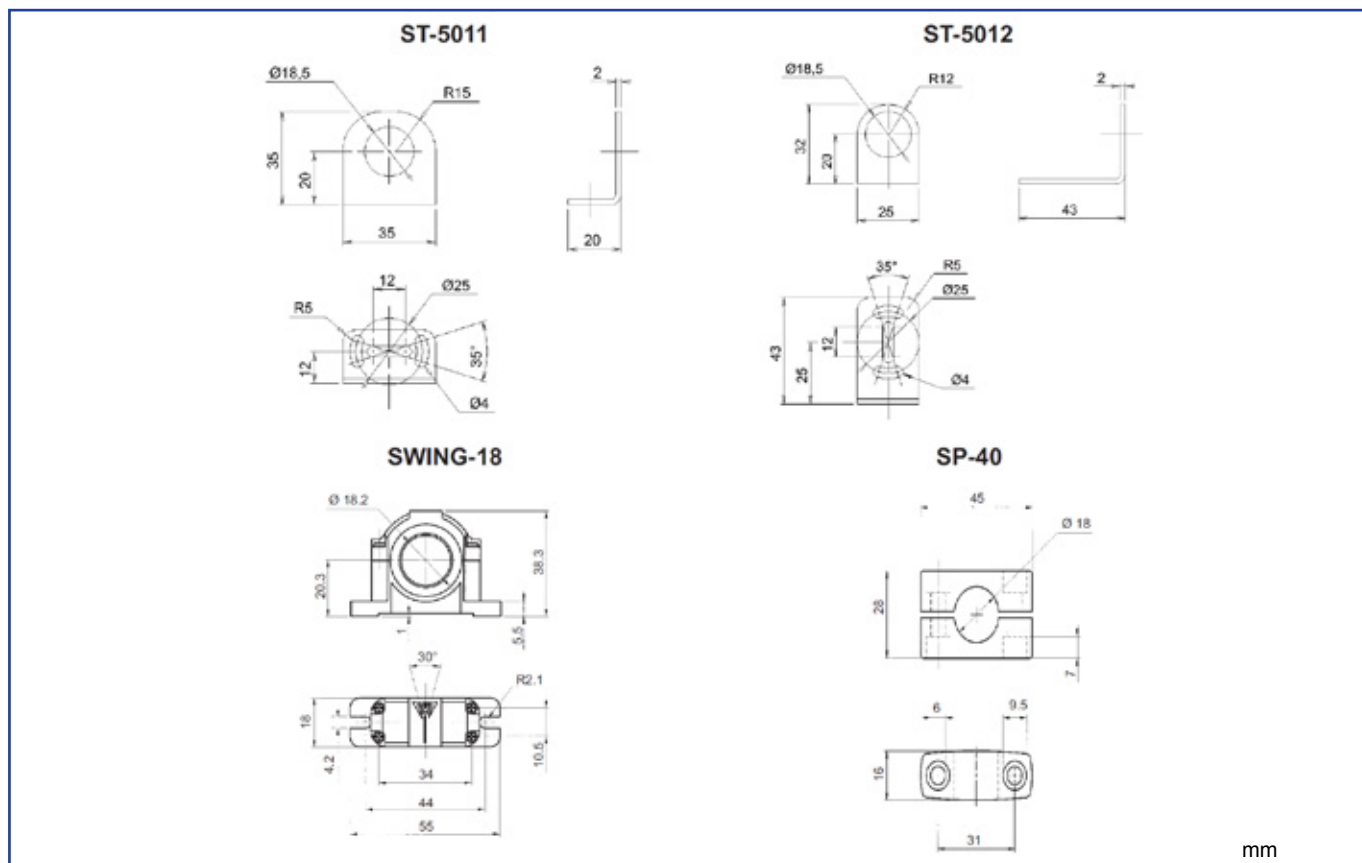


Maximum target inclination  
(models with analogue output)

## MODEL SELECTION AND ORDER INFORMATION

MODEL	HOUSING TYPE	OUTPUT	ORDER N°
US18-PA-5-N03-OH	axial	NPN and PNP	95B040000
US18-PR-5-N03-OH	radial	NPN and PNP	95B040010
US18-PA-5-N03-IH	axial	4-20 mA analogue	95B040020
US18-PR-5-N03-IH	radial	4-20 mA analogue	95B040030
US18-PA-5-N03-VH	axial	0-10 V analogue	95B040040
US18-PR-5-N03-VH	radial	0-10 V analogue	95B040050

## ACCESSORY DIMENSIONS



## ACCESSORY SELECTION AND ORDER INFORMATION

MODEL	DESCRIPTION	ORDER N°
ST-5011	M18 fixing bracket	95ACC5240
ST-5012	M18 fixing bracket	95ACC5250
SWING-18	adjustable support for plastic tubular M18 sensors	895000006
SP-40	fixed support for tubular M18 sensors	95ACC1370
CS-A1-03-G-03	axial M12 5 pole unshielded 3 m connector	95ACC2110
CS-A1-03-G-05	axial M12 5 pole unshielded 5 m connector	95ACC2120



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.