

# VTB 18: photoelectric proximity switch with background suppression



handling, throughout the commissioning process.

- **Reliable detection even of dark or small objects.** The system's high performance) and a small light spot ensure that even critical objects are reliably detected.
- **Visible, red emitted light and a small light spot** support the user during mounting, adjustment and commissioning.
- **Of course, with standardised mounting** using M18 housings and M12 device plugs or connection cables.

VTB 18: perfect solutions for varied detection tasks in automation engineering.

Long scanning distances, precise and adjustable: VTB18 are photoelectric proximity switches with background suppression (BGS). The strengths of this VTB18 series are:

- **Above-average scanning distances from 30 to 130 mm.**  
The long scanning distance makes the VTB18 suitable for a wide range of applications.
- **Precise switching point, i.e. small crossover zone from scanning distance to background suppression.** This feature ensures the reliable detection of target objects within the operating range, whilst ignoring reflections from objects a short distance away in the background.
- **Scanning distance adjustable by potentiometer.** The potentiometer offers the user flexible and easy

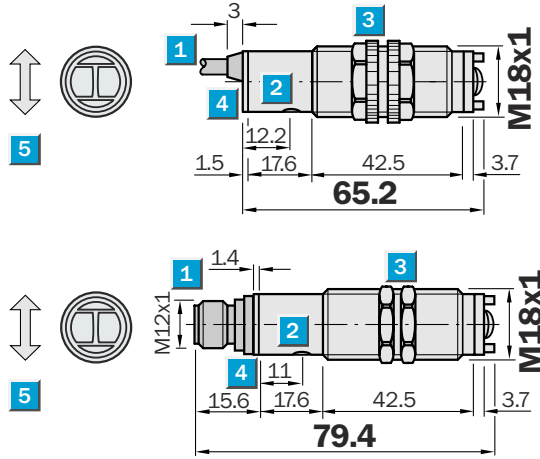
Scanning distance  
25 ... 140 mm

Photoelectric proximity switch

- Precise background suppression
- Scanning distance adjustable from 30 to 130 mm
- Scanning distance / background suppression crossover zone is very small and largely unaffected by the texture of the target object
- High switching frequency 1,000 Hz
- Visible emitted light LED (red) and small light spot

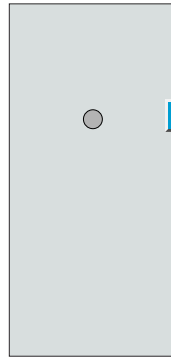


Dimensional drawing



Adjustments possible

- VTB18-4N1212
- VTB18-4N1240
- VTB18-4P1212
- VTB18-4P1240

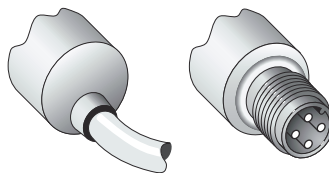


- 1 Connector
- 2 Scanning distance adjuster 270°
- 3 Mounting nuts, SW 24
- 4 Yellow LED indicator; lights continuously: light received  $\geq$  switching threshold; no light: light received  $<$  switching threshold; blinks slowly: short circuit detected
- 5 Standard direction of material being scanned



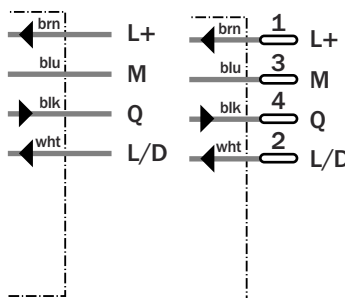
Connection type

VTB18-4N1212	VTB18-4N1240
VTB18-4P1212	VTB18-4P1240



Accessories  
Connector, M12, 4-pin  
Mounting systems

4 x 0.14 mm<sup>2</sup>      M12, 4-pin



VTB18-4		N1212	N1240	P1212	P1240
<b>Scanning distance typ. max.</b>	25 ... 140 mm <sup>1)</sup>				
<b>Operating distance</b>	30 ... 130 mm <sup>1)</sup>				
Adjustment of operating distance	Potentiometer				
<b>Light source, light type</b>	LED, Red light, 660 nm <sup>2)</sup>				
Light spot diameter	Approx. 12 mm at 130 mm distance				
Angle of dispersion	Ca. 5 °				
<b>Supply voltage V<sub>s</sub></b>	DC 10 ... 30 V <sup>3)</sup>				
Ripple	≤ 10 % <sup>4)</sup>				
Power consumption	≤ 30 mA <sup>5)</sup>				
<b>Switching outputs</b>	NPN: open collector: Q PNP: open collector: Q				
Switching mode	Light-/dark-switching via L/D control cable <sup>6)</sup> +V <sub>s</sub> = light-switching 0 V = dark-switching				
Output current I <sub>a</sub> max	≤ 100 mA				
Response time	≤ 0,5 ms <sup>7)</sup>				
Switching frequency	1,000 Hz <sup>8)</sup>				
<b>Connection type</b>	Cable, Ø 5 mm, PVC, 2 m <sup>9)</sup>				
	Connector, M12, 4-pin				
<b>VDE protection class</b>	□ <sup>10)</sup>				
<b>Circuit protection</b>	V <sub>s</sub> connections reverse-polarity protected / In-/outputs short-circuit protected / Interference pulse suppression / Output Q short-circuit protected				
<b>Enclosure rating</b>	IP 67				
<b>Ambient temperature operation</b>	-25 °C ... +70 °C				
<b>Ambient temperature storage</b>	-55 °C ... +80 °C				
<b>Weight</b>	Ca. 240 g				
	Ca. 200 g				
<b>Housing material</b>	Brass nickel-plated, plastic, PMMA				

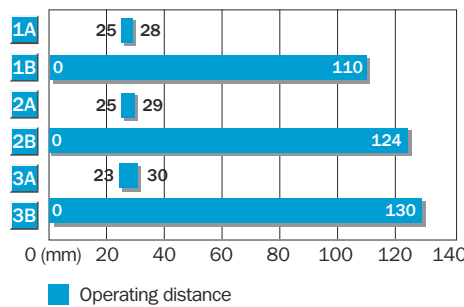
<sup>1)</sup> Object with 90% remission (based on standard white to DIN 5033)  
<sup>2)</sup> Average service life 100,000 h at T<sub>a</sub> = +25°C

<sup>3)</sup> ± 10%  
<sup>4)</sup> May not exceed or fall short of short of V<sub>s</sub> tolerances  
<sup>5)</sup> Without load

<sup>6)</sup> Control wire open: NPN: light-switching, PNP: dark-switching  
<sup>7)</sup> Signal transit time with resistive load  
<sup>8)</sup> With light/dark ratio 1:1

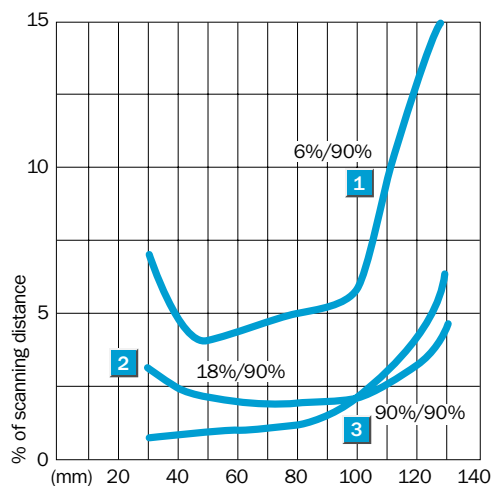
<sup>9)</sup> Do not bend below 0 °C  
<sup>10)</sup> Reference voltage 50 V DC

**Scanning distance**



- 1 Scanning distance on black, 6% remission
- 2 Scanning distance on grey, 18% remission
- 3 Scanning distance on white, 90% remission
- A Scanning distance adjuster on MIN
- B Scanning distance adjuster on MAX

**Scanning distance / background suppression**



**Ordering information**

Type	Order No.
VTB18-4N1212	6 030 190
VTB18-4N1240	6 030 191
VTB18-4P1212	6 030 188
VTB18-4P1240	6 030 189

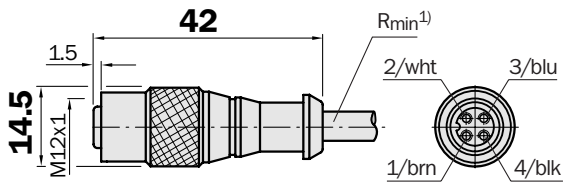
Dimensional drawings and order information

SENSICK screw-in system M12, 4-pin, enclosure rating IP 67

Female connector M12, 4-pin, straight

Cable diameter 5 mm, 4 x 0.25 mm<sup>2</sup>, sheath PVC

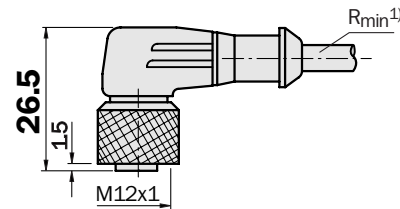
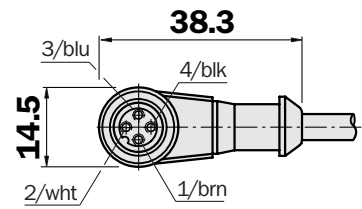
Type	Order no.	Contacts	Cable length
DOL-1204-G02M	6 009 382	4	2 m
DOL-1204-G05M	6 009 866	4	5 m
DOL-1204-G10M	6 010 543	4	10 m
DOL-1204-G15M	6 010 753	4	15 m



Female connector M12, 4-pin, angled

Cable diameter 5 mm, 4 x 0.25 mm<sup>2</sup>, sheath PVC

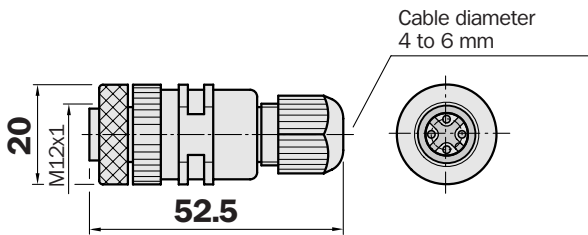
Type	Order no.	Contacts	Cable length
DOL-1204-W02M	6 009 383	4	2 m
DOL-1204-W05M	6 009 867	4	5 m
DOL-1204-W10M	6 010 541	4	10 m



<sup>1)</sup> Minimum bend radius in dynamic use  
 $R_{min} = 20 \times \text{cable diameter}$

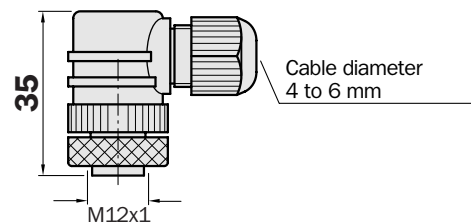
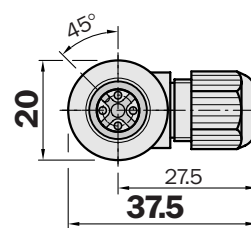
Female connector M12, 4-pin, straight

Type	Order no.	Contacts	Can be adapted for cables Ø 4.5 to 6.5 mm
DOS-1204-G	6 007 302	4	



Female connector M12, 4-pin, angled

Type	Order no.	Contacts	Can be adapted for cables Ø 4.5 to 6.5 mm
DOS-1204-W	6 007 303	4	



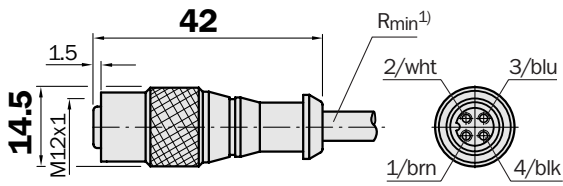
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Female connector M12, 4-pin, straight

Cable diameter 5 mm, 4 x 0.25 mm<sup>2</sup>, sheath PVC

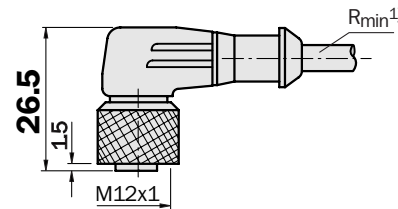
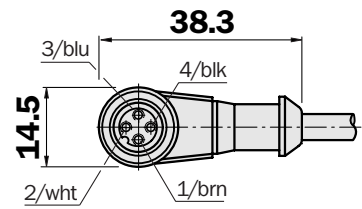
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Cable diameter 5 mm, 4 x 0.25 mm<sup>2</sup>, sheath PVC

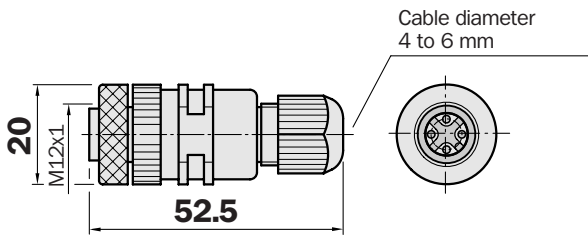
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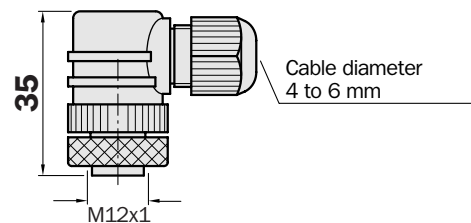
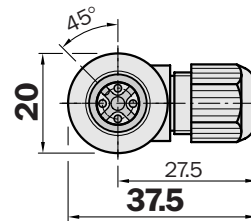
Female connector M12, 4-pin, straight

Type	Order no.	Contacts	Can be adapted for cables Ø 4.5 to 6.5 mm
DOS-1204-G	6 007 302	4	



Female connector M12, 4-pin, angled

Type	Order no.	Contacts	Can be adapted for cables Ø 4.5 to 6.5 mm
DOS-1204-W	6 007 303	4	



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