

# V 18: The photoelectric switch series with all the necessary options for application-specific functionality

	<b>Photoelectric proximity switches</b>
	<b>Photoelectric reflex switches</b>
	<b>Through-beam photoelectric switches</b>



	<b>Photoelectric switches with fibre-optic cable</b>
	<b>Photoelectric switches with fibre-optic cable</b>

The V 18 photoelectric switch series with round M18 housing is constructed modularly. You determine your needs corresponding to your requirements, and we provide the optimum sensor. For example, optionally with or without sensitivity control, metal or plastic housing, straight or integrated 90° guidance, 3-line or 4-line technique, etc. V 18 photoelectric switches are used in almost all branches, but especially in storage and handling engineering, the packaging industry, the graphic arts industry, assembly and handling technology and in special mechanical engineering.

The versions:

**V 18-3 Basic Line:** Simplest handling thanks to 3-pin technique. The third line is the switching output Q, ideal for further processing with – for example – AS-i switching modules or M12 distributor islands.

**V 18-4 Standard Line:** Minimum variants, variable handling via L.ON/D.ON control line.

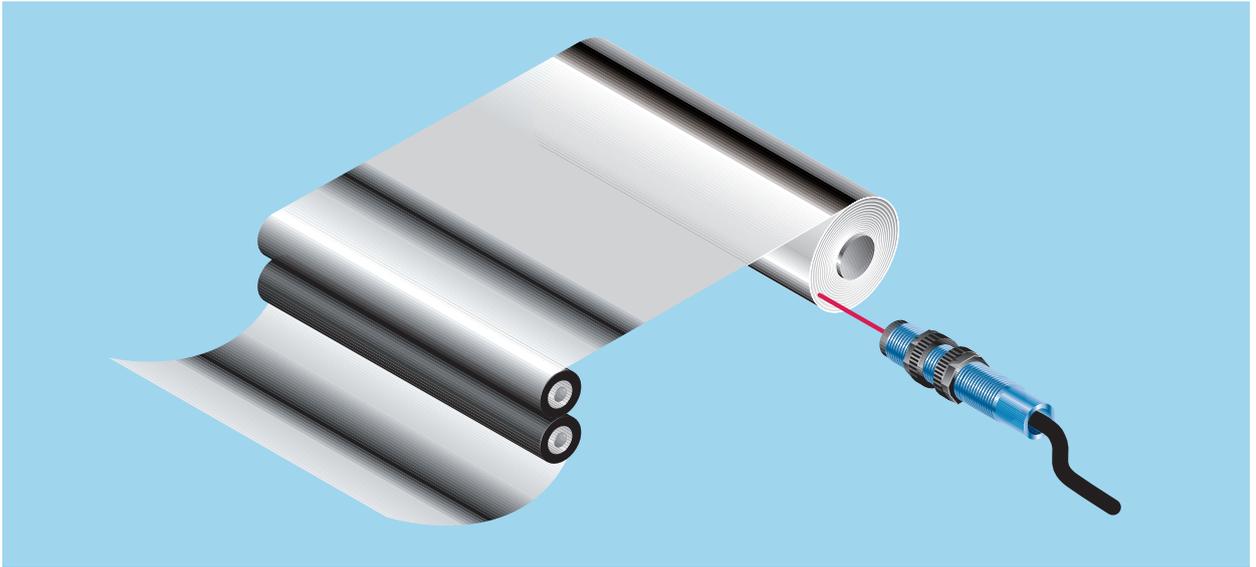
**V 18-2 Power Line:** Alternating voltage AC 20...220 V with TRIAC switching output.

V 18-3 and V 18-4 have the same system parameter.

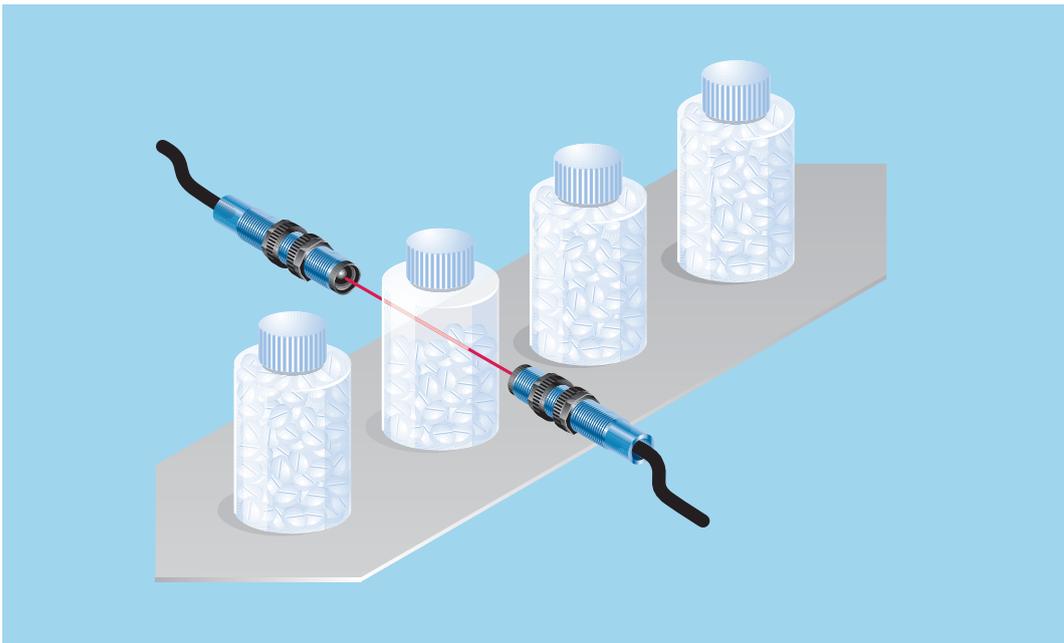
The V 18 variants:

- Photoelectric proximity switch VT 18 with focused optics (VTF 18), with energetic optics (VTE 18),
- photoelectric reflex switch (VL 18) with polarization filter,
- through-beam photoelectric switch (VS/VE 18),
- photoelectric switches with fibre-optic cable (VLL 18T).

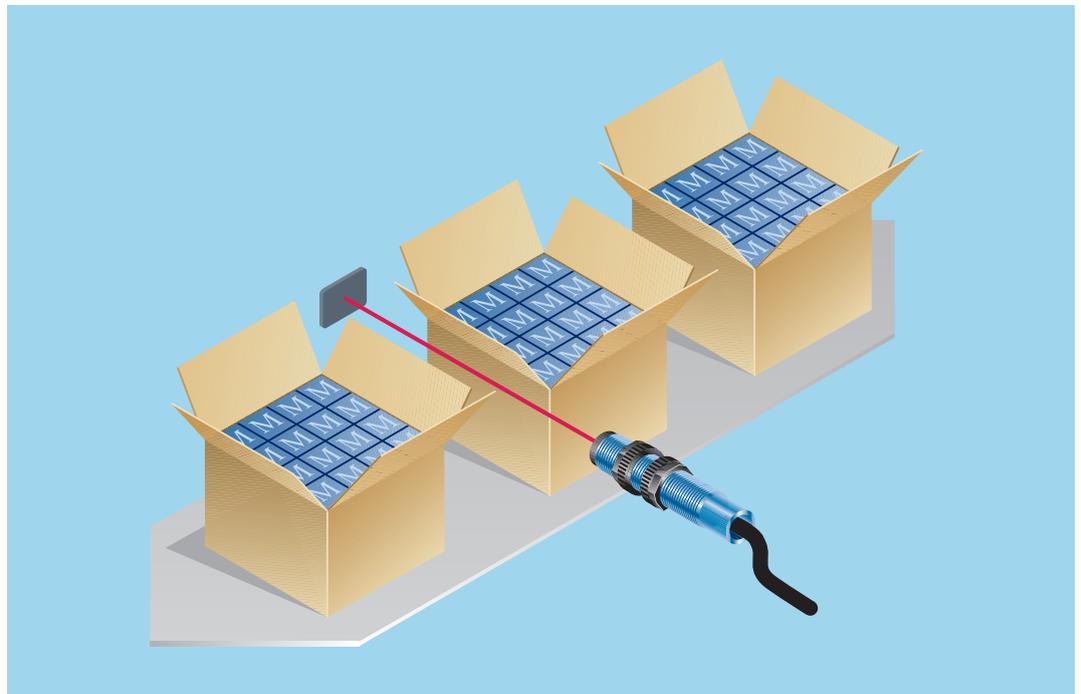
► VT 18 photoelectric proximity switches used to monitor roll feed to ensure that roll changes in paper and film processing systems are signalled in good time.



► Reliable filling level control is indispensable in packaging conveyor systems. VS/VE 18 through-beam photoelectric switches perform this task with a high degree of reliability.



► Reliable detection of conveyed objects using VL 18 reflex photoelectric switches.

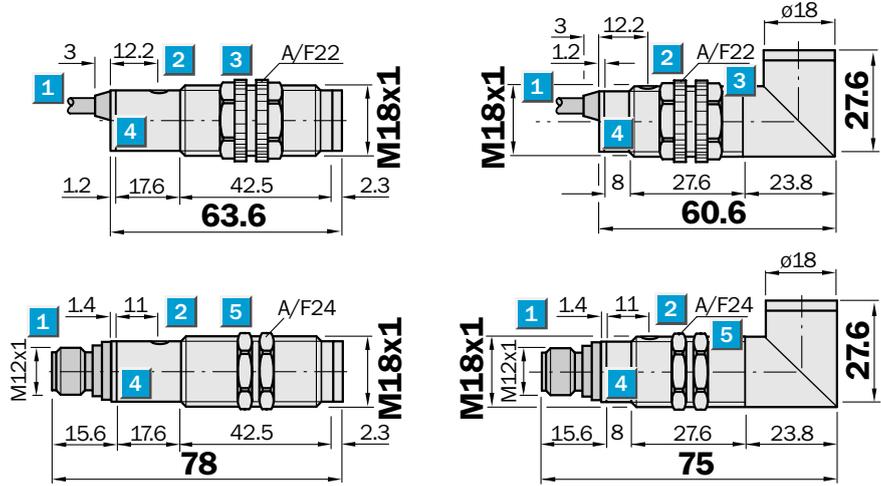


**Scanning distance**  
 0...50 mm/  
 3...100 mm

Photoelectric proximity switches

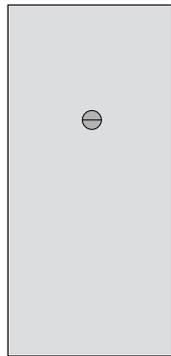
- Focused optics, which provide background blanking and an excellent scanning reliability
- 2 scanning distance options: SD 1 = 50 mm, SD 2 = 100
- Optionally VT 18-3 in 3-line model or VT 18-4 with light/dark control line
- Many other options

**Dimensional drawing**



**Adjustments possible**

See selection table on page 943, 944



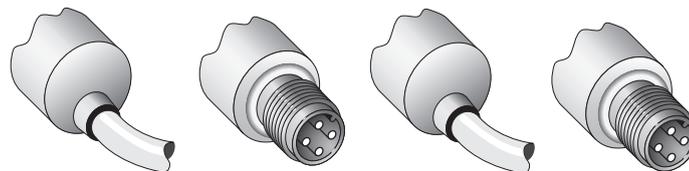
- 1 Connecting cable or plug
- 2 Fastening nut, width across 22 mm, made of **plastic** for equipment with plastic housing  
Fastening nut, width across 24 mm, made of **metal** for equipment with metal housing
- 3 Sensitivity control
- 4 Signal strength indicator, LED, yellow

**Connection types**

VTF 18-3

VTF 18-4

Variants, equipment options: See selection table on pages 943, 944 for type name and order no.

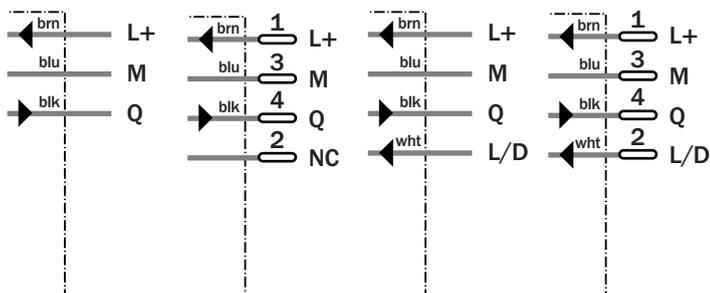


3 x 0.14 mm<sup>2</sup>

4-pin, M12

4 x 0.14 mm<sup>2</sup>

4-pin, M12



**See chapter Accessories**

Cables and connectors

Mounting systems

Technical data		VTF 18-	3x5...	4x5...	3x1...	4x1...							
<b>Housing</b>	Straight												
	Angled, 90°												
<b>VTF 18 Scanning distance 50 mm</b>													
<b>Scanning distance</b> , max. typical <sup>1)</sup>	0...50 mm												
<b>Operating distance</b> <sup>1)</sup>	0...45 mm												
Light spot diameter	Approx. 3 mm at a distance of 25 mm												
Angle of dispersion of sender	Focused, focus 25 mm												
Sensitivity, adjustable (optional)	Potentiometer 270°												
<b>VTF 18 Scanning distance 100 mm</b>													
<b>Scanning distance</b> , max. typical <sup>1)</sup>	3...100 mm												
<b>Operating distance</b> <sup>1)</sup>	3...90 mm												
Light spot diameter	Approx. 3 mm at a distance of 50 mm												
Angle of dispersion of sender	Focused, focus 50 mm												
Sensitivity, adjustable (optional)	Potentiometer 270°												
<b>Light source</b> <sup>2)</sup> , light type	LED, infrared light												
<b>Supply voltage</b> V <sub>S</sub>	10...30 V DC <sup>3)</sup>												
Residual ripple <sup>4)</sup>	± 10 %												
Current consumption <sup>5)</sup>	≤ 30 mA												
<b>Switching outputs</b> (optional)	PNP/NPN												
Switching mode	Q, dark-switching												
	Q, light-switching												
via control wire <sup>6)</sup>	Q, light-/dark-switching												
	+ V <sub>S</sub> = light-switching												
	0 V = dark-switching												
Output current I <sub>A</sub> max.	100 mA												
Response time <sup>7)</sup>	≤ 2 ms												
Max. switching frequency <sup>8)</sup>	250/s												
<b>Connection types</b>													
cable 2 m <sup>9)</sup>	PVC, 3 x 0.14 mm <sup>2</sup> , ø 3.1 mm												
	PVC, 4 x 0.14 mm <sup>2</sup> , ø 5 mm												
plug	4-pin, M12												
<b>VDE protection class</b> <sup>10)</sup>	□												
<b>Circuit protection</b> <sup>11)</sup>	A, B, C, D												
<b>Enclosure rating</b>	IP 67												
<b>Ambient temperature</b> T <sub>A</sub>	- 25 °C... + 70 °C												
<b>Weight</b>	metal housing	Approx. 120 g											
	plastic housing	Approx. 100 g											
<b>Housing material</b>													
metal housing	Nickel-plated brass; PBT/PC												
plastic housing	PBT/PC												
optic	PMMA												

1) Object with 90 % reflectance (referred to standard white DIN 5033)

2) Average service life 100,000 h at T<sub>A</sub> = + 25 °C

3) Limit values

4) Must be within V<sub>S</sub> tolerances

5) Without load

6) Control wire open:  
NPN: light-switching  
PNP: dark-switching

7) With resistive load

8) With light/dark ratio 1:1

9) Do not bend below 0 °C

10) Reference voltage 50 V DC

1.1) A = V<sub>S</sub> connections reverse-polarity protected

B = Inputs/outputs reverse-polarity protected

C = Interference suppression

D = Outputs overcurrent and short-circuit protected

#### Order information

See selection table on page 943, 944