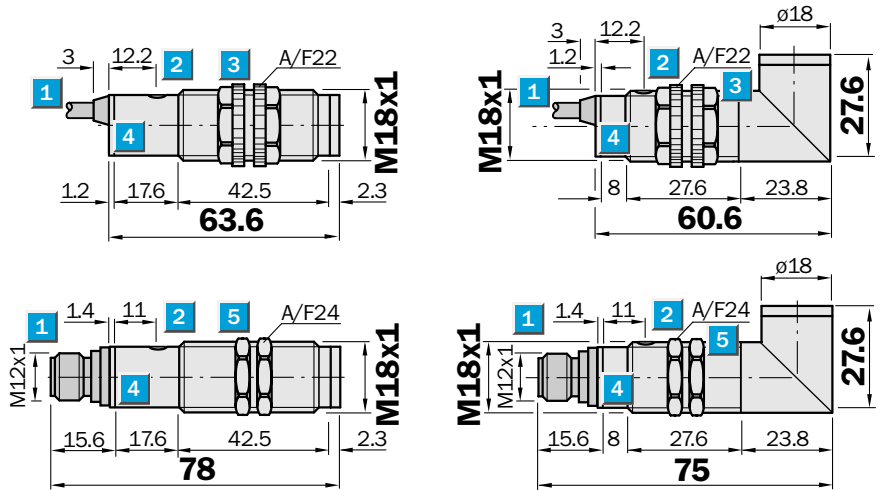


**Scanning range**  
20 m

Through-beam photoelectric switch

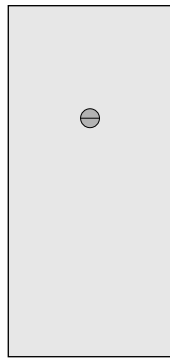
- Large range
- Optionally VS/VE 18-3 in 3-line model or VS/VE with light/dark control line
- Many other options

**Dimensional drawing**



**Adjustments possible**

See selection table on page 371

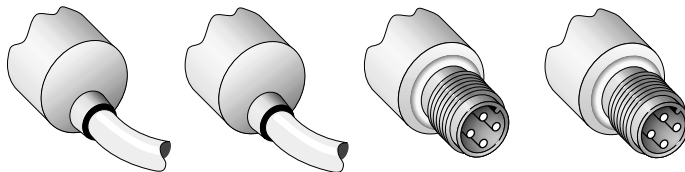


- Connecting cable or plug
- Sensitivity control
- Fastening nut, width across 22 mm, made of plastic for equipment with plastic housing
- Operating display for VS, LED, yellow  
Signal strength indicator for VE, LED, yellow
- Fastening nut, width across 24 mm, made of metal for equipment with metal housing

**Connection types**

VS/VE 18-3	VS/VE 18-4	VS/VE 18-3	VS/VE 18-4
------------	------------	------------	------------

Variants, equipment options: See selection table on page 371 for type name and part no.



Accessories	page
Cable receptacle	496
Mounting brackets	510

Sender	3 x 0.14 mm <sup>2</sup> VS 18-OD...	3 x 0.14 mm <sup>2</sup> VS 18-OD...	4-pin, M 12 VS 18-OD...	4-pin, M 12 VS 18-OD...
Receiver	3 x 0.14 mm <sup>2</sup> VE 18-3...	4 x 0.14 mm <sup>2</sup> VE 18-4...	4-pin, M 12 VE 18-3...	4-pin, M 12 VE 18-4...

Technical data		VS/VE 18-	3...	4...							
<b>Housing</b>	Straight										
	Angled, 90°										
<b>Scanning range</b> , max. typical	0 ... 20 m										
<b>Operating range</b>	0 ... 14 m										
Light spot diameter	Approx. 700 mm at a distance of 14 m										
Angle of dispersion of sender	2.8°										
Sensitivity adjustable (optional)	Potentiometer 270°										
<b>Light source<sup>1)</sup>, light type</b>	LED, infrared light										
<b>Supply voltage V<sub>S</sub></b>	10 ... 30 V DC <sup>2)</sup>										
Ripple <sup>3)</sup>	± 10 %										
Current consumption <sup>4)</sup>	≤ 30 mA										
<b>Switching outputs</b> (optional)	PNP/NPN; open collector: Q										
Switching mode	Q, dark-switching										
	Q, light-switching										
via control wire L/D <sup>5)</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>6)</sup>	≤ 2 ms										
Max. switching frequency <sup>7)</sup>	250/s										
<b>Test input "TE"</b> , VS sender off	PNP, NPN: TE to 0 V										
<b>Connection types</b>											
Cable 2 m <sup>8)</sup>	sender VS 18-OD...:	PVC, 3 x 0.14 mm <sup>2</sup> , ø 3.1 mm									
	receiver VE 18...:	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	sender VS 18-OD...:	4-pin, M 12									
	receiver VE 18...:	4-pin, M 12									
<b>VDE protection class<sup>9)</sup></b>	□										
<b>Circuit protection<sup>10)</sup></b>	A, B, C, D										
<b>Enclosure rating</b>	IP 67										
<b>Ambient temperature T<sub>A</sub></b>	- 25 °C... + 70 °C										
<b>Weight</b>	metal housing	Sender and receiver each approx. 120 g									
	plastic housing	Sender and receiver each approx. 100 g									
<b>Housing material</b>											
	metal housing	Nickel-plated brass; PBT/PC									
	plastic housing	PBT/PC									
	optic	PMMA									

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

2) Limit values

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

4) Without load

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

6) With resistive load

7) With light/dark ratio 1:1

8) Do not bend below 0 °C

9) Reference voltage 50 V DC

10) A = 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 371

## Order data V 18 DC (10...30 V)

<b>1 Basic type</b>	Through-beam photoelectric switch (sender only)	VS							
	Through-beam photoelectric switch (receiver only)	VE							
	Through-beam photoelectric switch (sender and receiver)	VS/VE							
	Photoelectric reflex switch	VL							
	Photoelectric proximity switch (F = focussed)	VTF							
	Photoelectric proximity switch (E = energetic)	VTE							
<b>2 Size and series</b>	Housing M 18 (V 18 Series)		18						
<b>3 Switching outputs and switching mode</b>	Sender only VS (with test input)					0D			
	3 line; Q = PNP, dark-switching (D.ON)					3P			
	3 line; Q = PNP, light-switching (L.ON)					3F			
	3 line; Q = NPN, dark-switching (D.ON)					3N			
	3 line; Q = NPN, light-switching (L.ON)					3E			
	4 line; Q = PNP, L.ON or D.ON selectable via control wire					4P			
	4 line; Q = NPN, L.ON oder D.ON selectable via control wire					4N			
<b>4 Scanning range and light source</b>	Sender VS: infrared light; Receiver VE for infrared light								
	Photoelectric reflex switch VL: red light and polarising filter						3		
	Photoelectric proximity switch VTF: scanning distance 50 mm, infrared light						5		
	Photoelectric proximity switch VTF: scanning distance 100 mm, infrared light						1		
	Photoelectric proximity switch VTE: scanning distance 200 mm, infrared light						2		
	Photoelectric proximity switch VTE: scanning distance 400 mm, infrared light						4		
	Photoelectric proximity switch VTE: scanning distance 800 mm, infrared light						8		
<b>5 Housing (material and form), sensitivity control</b>	Metal, axial, without potentiometer							1	
	Metal, axial, with potentiometer							2	
	Metal, 90°, without potentiometer							3	
	Metal, 90°, with potentiometer							4	
	Plastic, axial, without potentiometer							6	
	Plastic, axial, with potentiometer							7	
	Plastic, 90°, without potentiometer							8	
	Plastic, 90°, with potentiometer							9	
<b>6 Connection type</b>	Cable, 2 m								12
	M 12 plug, 4-pin								40

## How to find your sensor

<b>1 Example</b>	
<b>1 Base type photoelectric reflex switch</b> Photoelectric proximity switch (E = energetic)	→ <b>VTE</b>
<b>2 Model of housing</b> Housing M 18 (V 18 Series)	→ <b>18</b>
<b>3 Switching outputs and switching mode</b> 3 line; Q = PNP, light-switching (L.ON)	→ <b>3F</b>
<b>4 Scanning range and light source</b> Photoelectric proximity switch VTE: scanning distance 200 mm, infrared light	→ <b>2</b>
<b>5 Housing (material and models) sensitivity control</b> Metal, 90°, without potentiometer	→ <b>3</b>
<b>6 Connection type</b> M 12 plug, 4-pin	→ <b>40</b>

<b>2 Define type</b>	
	<b>VTE</b> <b>18</b> - <b>3F</b> <b>2</b> <b>3</b> <b>40</b>
<b>3 Select part number</b> (see register page 609)	
	<b>Type</b> <b>Part no.</b>
	VTE 18-3F 2340 6 013 422

**Scanning range 20 m**

**VS/VE 18-3, VS/VE 18-4 selection table, through-beam photoelectric switch, pair**

Switching mode	Connection type
----------------	-----------------

Without sensitivity control				With sensitivity control			
NPN output		PNP output		NPN output		PNP output	
Type	Part no.	Type	Part no.	Type	Part no.	Type	Part no.

3 wire	
<b>VS/VE 18-3</b> Q = D.ON	Cable 2 m M 12 plug, 4-pin
<b>VS/VE 18-3</b> Q = L.ON	Cable 2 m M 12 plug, 4-pin
4 wire, L/D control wire	
<b>VS/VE 18-4</b> L.ON/D.ON	Cable 2 m M 12 plug, 4-pin

<b>Housing material: metal</b>							
<b>Optical axis: axial</b>							
VS/VE18-3N3112	6 013 660	VS/VE18-3P3112	6 013 669	VS/VE18-3N3212	6 013 678	VS/VE18-3P3212	6 013 687
VS/VE18-3N3140	6 013 662	VS/VE18-3P3140	6 013 671	VS/VE18-3N3240	6 013 680	VS/VE18-3P3240	6 013 689
VS/VE18-3E3112	6 013 663	VS/VE18-3F3112	6 013 672	VS/VE18-3E3212	6 013 681	VS/VE18-3F3212	6 013 690
VS/VE18-3E3140	6 013 665	VS/VE18-3F3140	6 013 674	VS/VE18-3E3240	6 013 683	VS/VE18-3F3240	6 013 692
VS/VE18-4N3112	6 013 666	VS/VE18-4P3112	6 013 675	VS/VE18-4N3212	6 013 684	VS/VE18-4P3212	6 013 693
VS/VE18-4N3140	6 013 668	VS/VE18-4P3140	6 013 677	VS/VE18-4N3240	6 013 686	VS/VE18-4P3240	6 013 695

3 wire	
<b>VS/VE 18-3</b> Q = D.ON	Cable 2 m M 12 plug, 4-pin
<b>VS/VE 18-3</b> Q = L.ON	Cable 2 m M 12 plug, 4-pin
4 wire, L/D control wire	
<b>VS/VE 18-4</b> L.ON/D.ON	Cable 2 m M 12 plug, 4-pin

<b>Optical axis: 90°</b>							
VS/VE18-3N3312	6 013 696	VS/VE18-3P3312	6 013 705	VS/VE18-3N3412	6 013 714	VS/VE18-3P3412	6 013 723
VS/VE18-3N3340	6 013 698	VS/VE18-3P3340	6 013 707	VS/VE18-3N3440	6 013 716	VS/VE18-3P3440	6 013 725
VS/VE18-3E3312	6 013 699	VS/VE18-3F3312	6 013 708	VS/VE18-3E3412	6 013 717	VS/VE18-3F3412	6 013 726
VS/VE18-3E3340	6 013 701	VS/VE18-3F3340	6 013 710	VS/VE18-3E3440	6 013 719	VS/VE18-3F3440	6 013 728
VS/VE18-4N3312	6 013 702	VS/VE18-4P3312	6 013 711	VS/VE18-4N3412	6 013 720	VS/VE18-4P3412	6 013 729
VS/VE18-4N3340	6 013 704	VS/VE18-4P3340	6 013 713	VS/VE18-4N3440	6 013 722	VS/VE18-4P3440	6 013 731

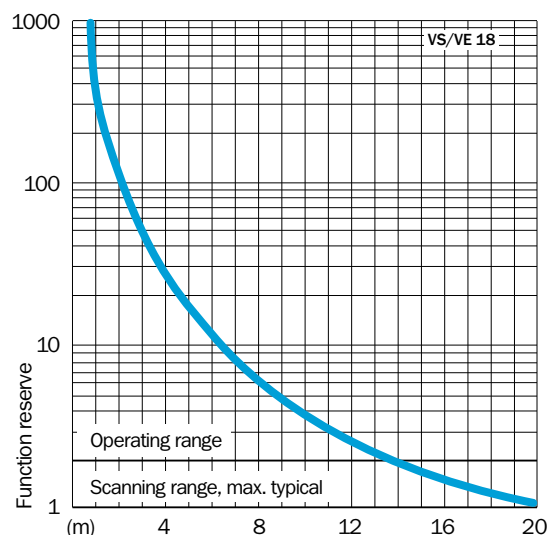
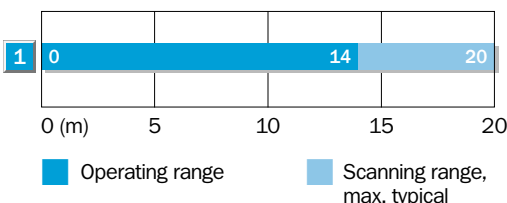
3 wire	
<b>VS/VE 18-3</b> Q = D.ON	Cable 2 m M 12 plug, 4-pin
<b>VS/VE 18-3</b> Q = L.ON	Cable 2 m M 12 plug, 4-pin
4 wire, L/D control wire	
<b>VS/VE 18-4</b> L.ON/D.ON	Cable 2 m M 12 plug, 4-pin

<b>Housing material: plastic</b>							
<b>Optical axis: axial</b>							
VS/VE18-3N3612	6 013 732	VS/VE18-3P3612	6 013 741	VS/VE18-3N3712	6 013 750	VS/VE18-3P3712	6 013 759
VS/VE18-3N3640	6 013 734	VS/VE18-3P3640	6 013 743	VS/VE18-3N3740	6 013 752	VS/VE18-3P3740	6 013 761
VS/VE18-3E3612	6 013 735	VS/VE18-3F3612	6 013 744	VS/VE18-3E3712	6 013 753	VS/VE18-3F3712	6 013 762
VS/VE18-3E3640	6 013 737	VS/VE18-3F3640	6 013 746	VS/VE18-3E3740	6 013 755	VS/VE18-3F3740	6 013 764
VS/VE18-4N3612	6 013 738	VS/VE18-4P3612	6 013 747	VS/VE18-4N3712	6 013 756	VS/VE18-4P3712	6 013 765
VS/VE18-4N3640	6 013 740	VS/VE18-4P3640	6 013 749	VS/VE18-4N3740	6 013 758	VS/VE18-4P3740	6 013 767

3 wire	
<b>VS/VE 18-3</b> Q = D.ON	Cable 2 m M 12 plug, 4-pin
<b>VS/VE 18-3</b> Q = L.ON	Cable 2 m M 12 plug, 4-pin
4 wire, L/D control wire	
<b>VS/VE 18-4</b> L.ON/D.ON	Cable 2 m M 12 plug, 4-pin

<b>Optical axis: 90°</b>							
VS/VE18-3N3812	6 013 768	VS/VE18-3P3812	6 013 777	VS/VE18-3N3912	6 013 786	VS/VE18-3P3912	6 013 795
VS/VE18-3N3840	6 013 770	VS/VE18-3P3840	6 013 779	VS/VE18-3N3940	6 013 788	VS/VE18-3P3940	6 013 797
VS/VE18-3E3812	6 013 771	VS/VE18-3F3812	6 013 780	VS/VE18-3E3912	6 013 789	VS/VE18-3F3912	6 013 798
VS/VE18-3E3840	6 013 773	VS/VE18-3F3840	6 013 782	VS/VE18-3E3940	6 013 791	VS/VE18-3F3940	6 013 800
VS/VE18-4N3812	6 013 774	VS/VE18-4P3812	6 013 783	VS/VE18-4N3912	6 013 792	VS/VE18-4P3912	6 013 801
VS/VE18-4N3840	6 013 776	VS/VE18-4P3840	6 013 785	VS/VE18-4N3940	6 013 794	VS/VE18-4P3940	6 013 803

**Operating range and function reserve**



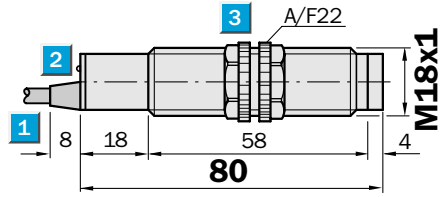
**Scanning range**  
22 m

Through-beam photoelectric switch

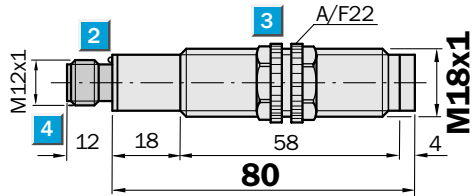
- Stable plastic housing
- Voltage supply 20...253 V AC; triac switching output
- Cable or plug M 12, 4 pin

**Dimensional drawing**

VS 18-2U 3132  
VE 18-2T 2132



VS 18-2U 3430  
VE 18-2T 2430



- 1 Connecting cable
- 2 Signal strength indicator (VE)
- 3 Fastening nuts, width across 22 mm, (included)
- 4 Equipment plug M 12, 4-pin

**Connection types**

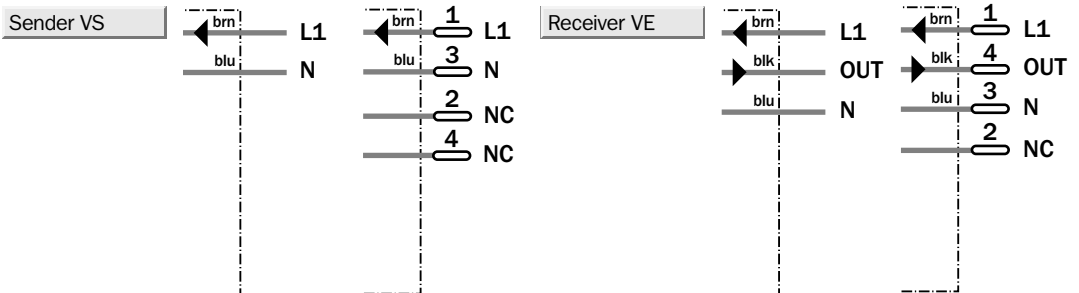
VS 18-2U 3132    VS 18-2U 3430    VE 18-2T 2132    VE 18-2T 2430



2 x 0.34 mm<sup>2</sup>    4-pin, M 12

3 x 0.34 mm<sup>2</sup>    4-pin, M 12

Accessories	page
Cable receptacle	496
Mounting brackets	510



Technical data		VS/VE 18-2T	2132	2430							
<b>Housing</b>	M 18, straight										
<b>Scanning range</b> , max. typical	22 m										
<b>Recommended operating range</b>	16 m										
Light source <sup>1)</sup> , light type	LED, infrared light										
Light spot diameter	Approx. 800 mm at 16 m										
Angle of dispersion of sender	Approx. 2,9°										
Angle of reception of receiver	Approx. 20°										
<b>Supply voltage <math>V_S</math><sup>2)</sup></b>	20 ... 253 V AC/50 ... 60 Hz										
Current consumption <sup>3)</sup> sender	≤ 30 mA										
receiver	≤ 15 mA										
<b>Switching output</b>	TRIAC										
Switching current $I_A$ max.	5...300 mA										
voltage drop	3 V max. (U = 250 V AC)										
max. switching current	6 A/10 ms; f = 10 Hz										
leakage current	Max. 1.5 mA ( $V_S = 250$ V AC)										
Switching voltage	$V_S$										
Light receiver, switching mode	Dark-switching										
Response time <sup>4)</sup>	≤ 20 ms										
Max. switching frequency <sup>5)</sup>	25/s										
<b>Connection types</b> cable	PVC, 2 m <sup>6)</sup>										
	Sender VS: 2 x 0.34 mm <sup>2</sup> , $\phi$ 4.7 mm										
	Receiver VE: 3 x 0.34 mm <sup>2</sup> , $\phi$ 4.7 mm										
plug	M 12, 4-pin										
<b>VDE protection class<sup>7)</sup></b>	□										
<b>Circuit protection<sup>8)</sup></b>	C										
<b>Enclosure rating</b>	IP 67										
<b>Ambient temperatur <math>T_A</math></b>	- 25 °C... + 70 °C										
<b>Weight</b> with cable	Sender: approx. 95 g; Receiver: approx. 95 g										
with plug	Sender: approx. 30 g; Receiver: approx. 30 g										
<b>Housing material</b>	Housing: PBT/PC; optic: PMMA										

1) Average service life 100,000 h at  $T_A = + 25$  °C  
 2) Limit values  
 3) Without load

4) With resistive load  
 5) With light/dark ratio 1:1  
 6) Do not bend below 0 °C

7) Reference voltage 250 V AC  
 8) C = Interference suppression

Operating range and function reserve		Order information	
<p>0 (m)      5      10      15      20</p> <p>■ Operating range      ■ Scanning range, max. typical</p>		<b>Type</b>	<b>Part no.</b>
		VS/VE 18-2T 2132	6 011 380
		VS/VE 18-2T 2430	6 011 381

