

Photoelectric proximity sensor

7295110

7295101

7295117

7295113

Scanning distance
1 ... 140 mm

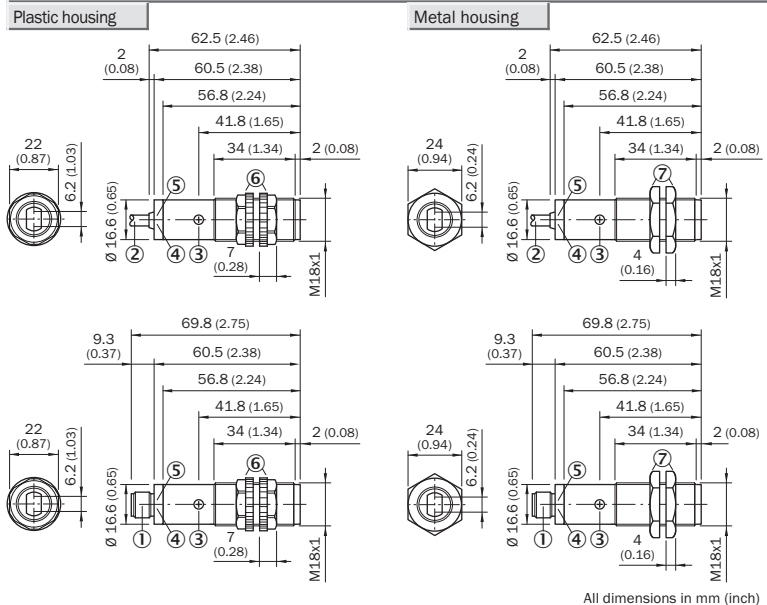
Photoelectric proximity sensor BGB

- Photoelectric proximity sensors with focussed optics and background blanking (BGB)
- Red light as alignment aid
- Adjustable sensitivity
- LED indicator: switching output active and operation reserve
- Material optionally made of plastic or metal



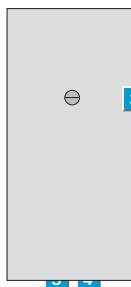
Accessories
Cables and connectors
Mounting systems

Dimensional drawing



Adjustments

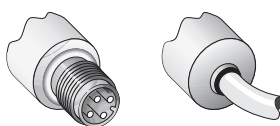
All types



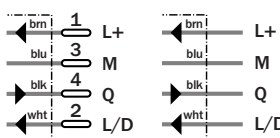
- M12 plug, 4-pin
- Connector cable 2 m
- Sensitivity control 270°
- Orange LED indicator: switching output active
- Green LED indicator, stability indicator:
 - LED lights continuously: light reception < 0.9 / > 1.1
 - LED off: light reception > 0.9 ... < 1.1
- Plastic housing, mounting nuts (2x); SW22, PC
- Metal housing, mounting nuts (2x); SW24

Connection types

VTF180-2N42412F38	VTF180-2N41112F38
VTF180-2P42412F38	VTF180-2P41112F38



4-pin, M12 4 x 0.18 mm²



Technical data		VTF180-2	P41112 F38	P42412 F38	N41112 F38	N42412 F38					
Scanning distance SD , typ. max. ¹⁾	1 ... 140 mm										
Operating distance SD ¹⁾	1 ... 100 mm										
Light spot diameter	Approx. 8 mm at 100 mm										
Angle of dispersion sender	Focussed approx. 7 mm at 60 mm										
Light source ²⁾ , light type	LED, red light, 645 nm										
Sensitivity adjustable	Potentiometer 270°										
Orange LED indicator	Switching output active										
Green LED indicator	Stability indicator light reception										
	LED lights continuously:										
	light reception < 0.9/> 1.1										
	LED off: light reception > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10 %										
Current consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
Signal voltage PNP HIGH/LOW	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
Signal voltage NPN HIGH/LOW	Approx. V _S /< 1.8 V										
Switching mode	Light-/dark-switching, selectable ⁶⁾										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	Plug, M12, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ²										
VDE protection class	⊕										
Enclosure rating	IP 67										
Circuit protection¹⁰⁾	A, B, C										
Ambient temperature T_A	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight plastic housing	With plug M12, approx. 18 g										
	With cable 2 m, approx. 62 g										
Weight metal housing	With plug M12, approx. 47 g										
	With cable 2 m, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: brass nickel-pated and PC										
	Optic: PMMA										

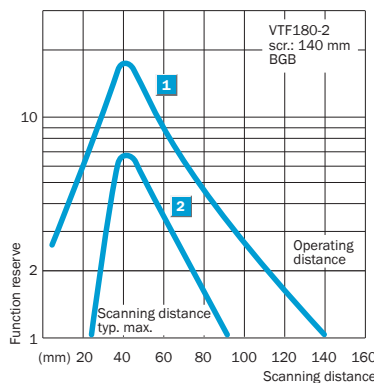
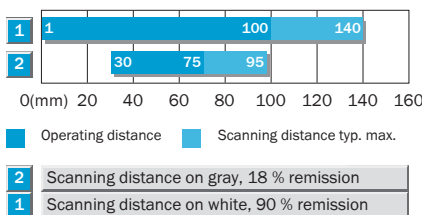
1) Object with 90 % remission (based on standard white DIN 5033); 100 x 100 mm
 2) Average service life 100,000 h at T_A = +25 °C
 3) Limit values

4) May not exceed or fall short of V_S tolerances
 5) Without load
 6) L/D-switching type control line: L/D = + V_S: light-switching L.ON
 L/D = 0 V: dark-switching D.ON

Control line open
 NPN: light-switching L.ON
 PNP: dark-switching D.ON
 7) Signal transit time with resistive load
 8) With light/dark ratio 1:1
 9) Do not bend below 0 °C

10) A = V_S connections reverse-polarity protected
 B = Inputs and outputs reverse-polarity protected
 C = Outputs overcurrent and short-circuit protected

Scanning distance



Ordering information

Model name	Part No.
VTF180-2N41112F38	7295094
VTF180-2N42412F38	7295090
VTF180-2P41112F38	7295107
VTF180-2P42412F38	7295104

Scanning range
0.05 ... 7 m (PL80A)

Photoelectric reflex sensor

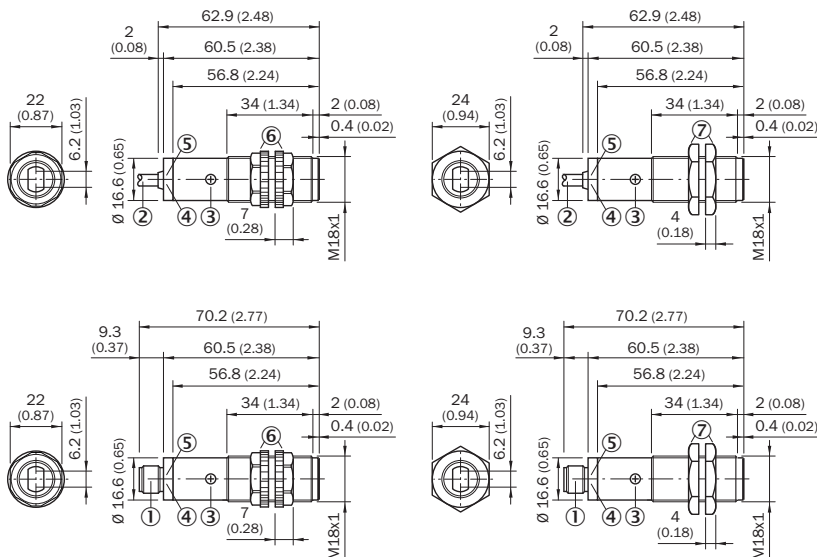
- Polarizing filter for reliable detection of shiny surfaces
- LED indicator: switching output active and operation reserve
- Large ranges
- Red light as alignment aid
- Material optionally made of plastic or metal



Dimensional drawing

Plastic housing

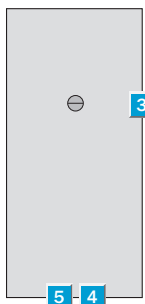
Metal housing



All dimensions in mm (inch)

Adjustments

All types



- ① M12 plug, 4-pin
- ② Connector cable 2 m
- ③ Sensitivity control 270°
- ④ Orange LED indicator: switching output active
- ⑤ Green LED indicator, stability indicator:
 - LED lights continuously: light reception < 0.9 / > 1.1
 - LED off: light reception > 0.9 ... < 1.1
- ⑥ Plastic housing, mounting nuts (2x); SW22, PC
- ⑦ Metal housing, mounting nuts (2x); SW24

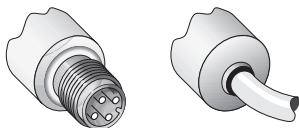
Connection types

VL180-2N42431F38	VL180-2N41131F38
VL180-2P42431F38	VL180-2P41131F38



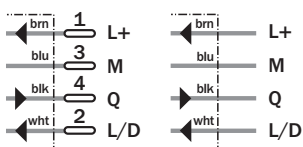
Accessories

- Cables and connectors
- Mounting systems
- Reflectors



4-pin, M12

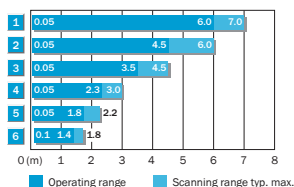
4 x 0.18 mm²



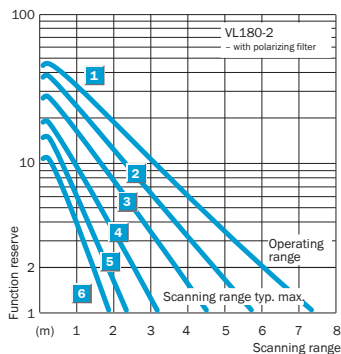
Technical data	VL180-2	P41131 F38	P42431 F38	N41131 F38	N42431 F38					
Scanning range SR , typ. max./reflect.	0.05 ... 7 m (PL80A)/... 6 m (P250) ¹⁾									
Operating range	0.05 ... 6 m (PL80A)/... 4.5 m (P250) ¹⁾									
Light spot diameter	Approx. 400 mm at 6 m									
Angle of dispersion sender	Approx. 4.5°									
Light source ²⁾ , light type	LED, red light, 645 nm									
Polarizing filter	Yes									
Sensitivity adjustable	Potentiometer 270°									
Orange LED indicator	Switching output active									
Green LED indicator	Stability indicator light reception									
	LED lights continuously:									
	light reception < 0.9/> 1.1									
	LED off: light reception > 0.9 ... < 1.1									
Supply voltage V_S	10 ... 30 V DC ³⁾									
Residual ripple ⁴⁾	± 10 %									
Current consumption ⁵⁾	≤ 30 mA									
Switching outputs	Q: PNP, open collector									
Signal voltage PNP HIGH/LOW	V _S - 1.8 V _{max} /approx. 0 V									
	Q: NPN, open collector									
Signal voltage NPN HIGH/LOW	Approx. V _S / < 1.8 V									
Switching mode	Light-/dark-switching, selectable ⁶⁾									
Output current I_A max.	≤ 100 mA									
Response time ⁷⁾	≤ 0.5 ms									
Max. switching frequency ⁸⁾	1,000/s									
Connection type	Plug, M12, 4-pin									
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm									
VDE protection class	⊕									
Enclosure rating	IP 67									
Circuit protection¹⁰⁾	A, B, C									
Ambient temperature T_A	Operation -25 °C ... +55 °C									
	Storage -40 °C ... +70 °C									
Weight plastic housing	With plug M12, approx. 18 g									
	With cable 2 m, approx. 62 g									
Weight metal housing	With plug M12, approx. 47 g									
	With cable 2 m, approx. 95 g									
Housing material	Housing: PBT and PC									
	Housing: brass nickel-pated and PC									
	Optic: PMMA									

- 1) Reflector P250 included with delivery VL180-2
 2) Average service life 100,000 h at T_A = +25 °C
 3) Limit values
 4) May not exceed or fall short of V_S tolerances
 5) Without load
 6) L/D-switching type control line: L/D = + V_S: light-switching L.ON
 L/D = 0 V: dark-switching D.ON
 Control line open
 NPN: light-switching L.ON
 PNP: dark-switching D.ON
 7) Signal transit time with resistive load
 8) With light/dark ratio 1:1
 9) Do not bend below 0 °C
 10) A = V_S connections reverse-polarity protected
 B = Inputs and outputs reverse-polarity protected
 C = Outputs overcurrent and short-circuit protected

Scanning range and operating reserve



Reflector type	Operating range
1 PL80A	0.05 ... 6.0 m
2 P250, PL40A, PL50A, C110A	0.05 ... 4.5 m
3 PL30A, PL31A	0.05 ... 3.5 m
4 PL20A	0.05 ... 2.3 m
5 P45	0.05 ... 1.8 m
6 Reflective tape Diamond Grade	0.1 ... 1.4 m (100 x 100 mm ²)



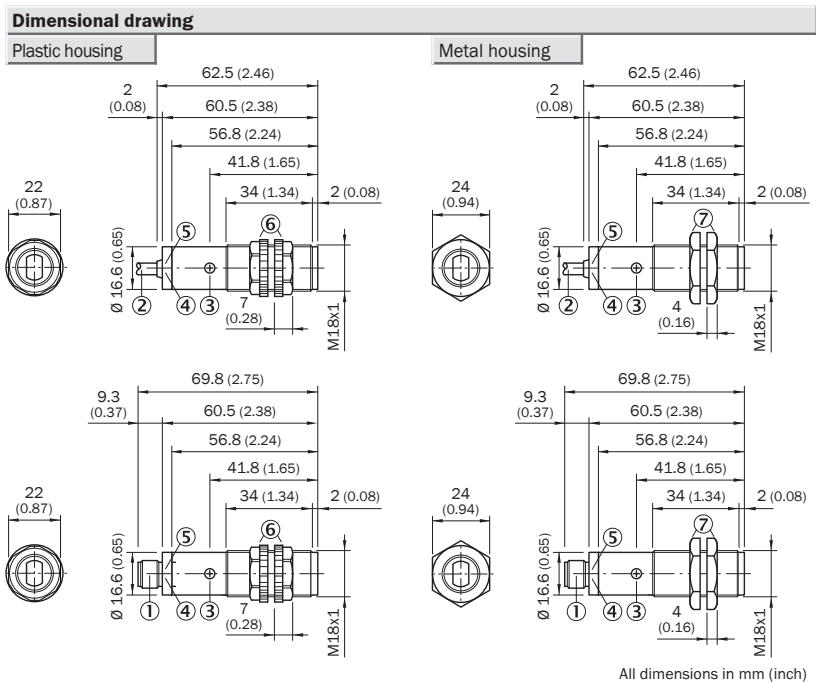
Model name	Part No. *)
VL180-2N41131F38	7295110
VL180-2N42431F38	7295101
VL180-2P41131F38	7295117
VL180-2P42431F38	7295113

*) Reflector P250 included with delivery VL180-2

Scanning range
0 ... 28 m

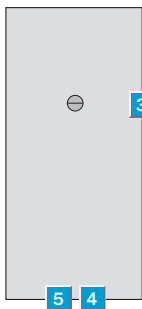
Through-beam photoelectric sensor

- Very large scanning ranges
- Adjustable sensitivity
- LED indicator VE180-2: switching output active and operation reserve
- Red light as alignment aid
- Material optionally made of plastic or metal



Adjustments

All types



- M12 plug, 4-pin
- Connector cable 2 m
- Sensitivity control 270°, only VE180-2
- Orange LED indicator, only VE180-2: switching output active
- Green LED indicator, only VE180-2, stability indicator:
 - LED lights continuously: light reception < 0.9 / > 1.1
 - LED off: light reception > 0.9 ... < 1.1
- Plastic housing, mounting nuts (2x); SW22, PC
- Metal housing, mounting nuts (2x); SW24

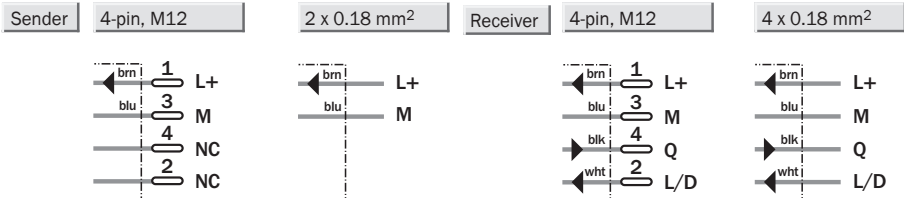


Connection types

VSE180-2N42432F38	VSE180-2N41132F38	VSE180-2N42432F38	VSE180-2N41132F38
VSE180-2P42432F38	VSE180-2P41132F38	VSE180-2P42432F38	VSE180-2P41132F38

Accessories

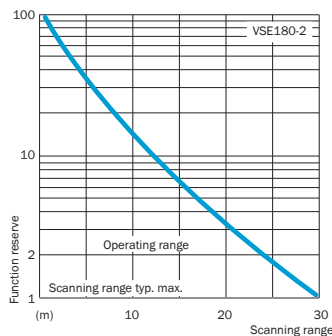
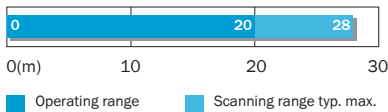
Cables and connectors
Mounting systems



Technical data		VSE180-2	P41132 F38	P42432 F38	N41132 F38	N42432 F38				
Scanning range SR , typ. max.	0 ... 28 m									
Operating range	0 ... 20 m									
Light spot diameter	Approx. 1,100 mm at 20 m									
Angle of dispersion sender	Approx. 5°									
Light source ¹⁾ , light type	LED, red light, 645 nm									
Sensitivity adjustable	Receiver VE180-2: Potentiometer 270°									
Orange LED indicator	Switching output active									
Green LED indicator	Stability indicator light reception									
	LED lights continuously:									
	light reception < 0.9/> 1.1									
	LED off: light reception > 0.9 ... < 1.1									
Supply voltage V_S	10 ... 30 V DC ²⁾									
Residual ripple ³⁾	± 10 %									
Current consumption sender ⁴⁾	≤ 20 mA									
Current consumption receiver ⁴⁾	≤ 15 mA									
Switching outputs	Q: PNP, open collector									
Signal voltage PNP HIGH/LOW	V _S - 1.8 V _{max} /approx. 0 V									
	Q: NPN, open collector									
Signal voltage NPN HIGH/LOW	Approx. V _S / < 1.8 V									
Switching mode Receiver	Light-/dark-switching, selectable ⁵⁾									
Output current I_A max.	≤ 100 mA									
Response time ⁶⁾	≤ 0.5 ms									
Max. switching frequency ⁷⁾	1,000/s									
Connection type	Plug, M12, 4-pin									
Sender	Cable ⁸⁾ , PVC, 2 m, 2 x 0.18 mm ² , Ø 3.8 mm									
Receiver	Cable ⁸⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm									
VDE protection class	ⓘ									
Enclosure rating	IP 67									
Circuit protection ⁹⁾	A, B, C									
Ambient temperature T_A	Operation -25 °C ... +55 °C									
	Storage -40 °C ... +70 °C									
Weight plastic housing ¹⁰⁾	With plug M12, approx. 18 g									
	With cable 2 m, approx. 62 g									
Weight metal housing ¹⁰⁾	With plug M12, approx. 47 g									
	With cable 2 m, approx. 95 g									
Housing material	Housing: PBT and PC									
	Housing: brass nickel-pated and PC									
	Optic: PMMA									

1) Average service life 100,000 h at T_A = +25 °C
 2) Limit values
 3) May not exceed or fall short of V_S tolerances
 4) Without load
 5) L/D-switching type control line:
 L/D = + V_S: light-switching L.ON
 L/D = 0 V: dark-switching D.ON
 Control line open
 NPN: light-switching L.ON
 PNP: dark-switching D.ON
 6) Signal transit time with resistive load
 7) With light/dark ratio 1:1
 8) Do not bend below 0 °C
 9) A = V_S connections reverse-polarity protected
 B = Inputs and outputs reverse-polarity protected
 C = Outputs overcurrent and short-circuit protected
 10) Per sender or receiver

Scanning range and operating reserve



Ordering information

Model name	Part No.*)
VSE180-2N41132F38	7295129
VSE180-2N42432F38	7295126
VSE180-2P41132F38	7295132
VSE180-2P42432F38	7295123

*) Part No. includes sender and receiver (pair)