

Photoelectric proximity sensor

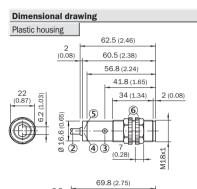


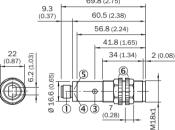
- Photoelectric proximity sensors with focussed optics and background blanking (BGB)
- Red light as alignment aid
- Adjustable sensitivity
- LED indicator: switching output active and operation reserve
- Material optionally made of plastic or metal

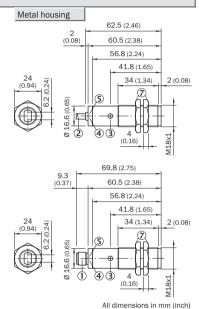


CE 🗇

Accessories
Cables and connectors
Mounting systems







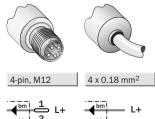


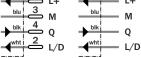
- 1 M12 plug, 4-pin
- 2 Connector cable 2 m
- 3 Sensitivity control 270°
- $\textcircled{4} \quad \text{Orange LED indicator: switching output active}$
- (5) Green LED indicator, stability indicator:
 - LED lights continuously:
 - light reception < 0.9/> 1.1
 - LED off: light reception > 0.9 ... < 1.1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

 Connection types

 VTF180-2N42412F38
 VTF180-2N41112F38

 VTF180-2P42412F38
 VTF180-2P41112F38

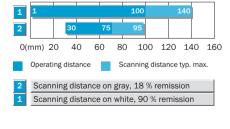


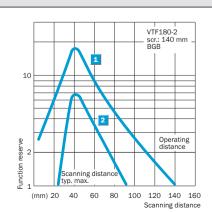




Technical data	VTF180-2	P41112 P42412 N41112 N42412	
		F38 F38 F38 F38	
Scanning distance SD, typ. max. 1)	1 140 mm		
Operating distance SD ¹⁾	1 100 mm		
Light spot diameter	Approx. 8 mm at 100 mm		
Angle of dispersion sender	Focussed approx. 7 mm at 60 mm		
Light source ²⁾ , light type	LED, red light, 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			
Circuit protection ¹⁰	A, B, C		
Ambient temperature T _A	Operation -25 °C +55 °C		
A	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		
 Object with 90 % remission (based on standard white DIN 5033); 100 x 100 mm Average service life 100,000 h at T_A = +25 °C 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	 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

Scanning distance



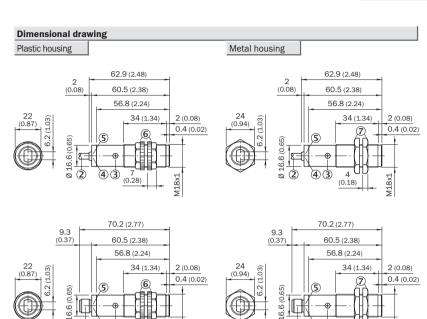


	Ordering information			
-	Model name	Part No.		
	VTF180-2N41112F38	7295094		
	VTF180-2N42412F38	7295090		
	VTF180-2P41112F38	7295107		
	VTF180-2P42412F38	7295104		



Scanning range 0.05 ... 7 m (PL80A)

- 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



M18x1

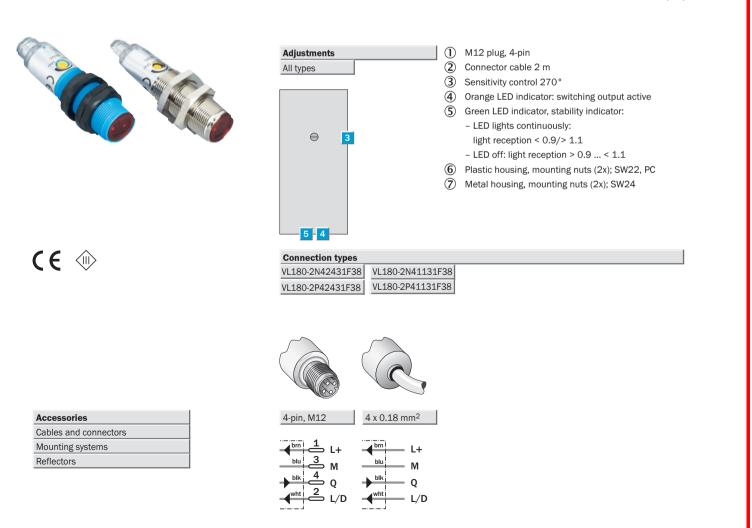
(0.28)

All dimensions in mm (inch)

M18x1

(4)

(0.18)



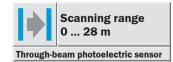
RS, Professionally Approved Products, gives you professional quality parts across all products categories. Our range has been testified by engineers as giving comparable quality to that of the leading brands without paying a premium price.

ENGLISH



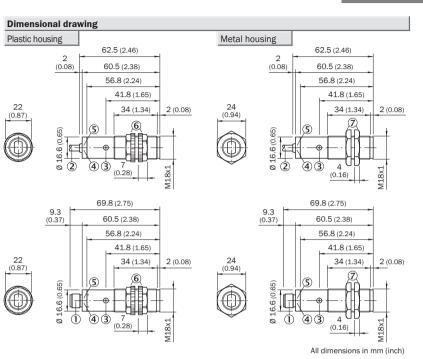
Technical data		P41131 P4 F38 F3	12431 N4113 88 F38	31 N42431 F38		
canning range SR, typ. max./reflect.	0.05 7 m (PL80A)/ 6 m (P250) ¹⁾					
)perating range	0.05 6 m (PL80A)/ 4.5 m (P250) ¹)					
ight spot diameter	Approx. 400 mm at 6 m					
angle of dispersion sender	Approx. 4.5°					
ight source ²⁾ , light type	LED, red light, 645 nm					
Polarizing filter	Yes					
Sensitivity adjustable	Potentiometer 270°					
Drange LED indicator	Switching output active					
areen 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					
witching outputs	Q: PNP, open collector					
ignal voltage PNP HIGH/LOW	$V_{\rm S}$ – 1.8 $V_{\rm max}$ /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⁾					
Dutput 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		_			
/DE protection class	(b)					
Enclosure rating	IP 67					
Circuit protection ¹⁰⁾	A, B, C					
Ambient temperature T _A	Operation -25 °C +55 °C					
A	Storage -40 °C +70 °C					
Veight plastic housing	With plug M12, approx. 18 g					
	With cable 2 m, approx. 62 g					
Veight metal housing	With plug M12, approx. 47 g					
	With cable 2 m, approx. 95 g		_			
lousing material	Housing: PBT and PC					
	Housing: brass nickel-pated and PC		ĺ			
	Optic: PMMA					
Reflector P250 included with delivery	 ⁴⁾ May not exceed or fall short of 	Control	line enen		$10) \Lambda = V$ connections	rovoroo polority
VL180-2	V _S tolerances		line open ht-switching	L.ON	10) A = V _S connections protected	s reverse-polarity
Average service life 100,000 h	5) Without load	PNP: da	rk-switching	D.ON		puts reverse-polarity
				the second structure of the second structure s		
at $T_A = +25 \text{ °C}$	6) L/D-switching type control line:			ith resistive load 1:1	protected C = Outputs overcu	urrent and short-
	⁶⁾ L/D-switching type control line: L/D = $+V_S$: light-switching L.ON	3) With lig	ransit time w	1:1		
at $T_A = +25 \text{ °C}$	6) L/D-switching type control line: L/D = $+V_S$: light-switching L.ON L/D = 0 V: dark-switching D.ON	3) With lig	ransit time w nt/dark ratio	1:1	C = Outputs overcu	
at T _A = +25 °C Limit values	⁶⁾ L/D-switching type control line: L/D = $+ V_{S}$: light-switching L.ON L/D = $0 V$: dark-switching D.ON Ve	3) With lig	ransit time w nt/dark ratio	1:1	C = Outputs overcu	
at T _A = +25 °C) Limit values Scanning range and operating reser	6) L/D-switching type control line: L/D = $+V_S$: light-switching L.ON L/D = 0 V: dark-switching D.ON	With lig Do not	ransit time w nt/dark ratio pend below C	1:1	C = Outputs overcu circuit protecte	Part No.*)
at T _A = +25 °C) Limit values Scanning range and operating reser	6) L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON Ve	With lig Do not	ransit time w nt/dark ratio bend below C	1:1	C = Outputs overcu circuit protecte	Part No.*) 7295110
at $T_A = +25 \text{ °C}$) Limit values Scanning range and operating reser	⁶⁾ L/D-switching type control line: L/D = $+ V_{S}$: light-switching L.ON L/D = $0 V$: dark-switching D.ON Ve	With lig Do not	ransit time w nt/dark ratio pend below C	1:1	C = Outputs overce circuit protecte Model name VL180-2N41131F38	Part No.*) 7295110 7295101
at T _A = +25 °C) Limit values Scanning range and operating reser	6) L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON Ve	With lig Do not	ransit time w nt/dark ratio pend below C	1:1	C = Outputs overce circuit protecte Model name VL180-2N41131F38 VL180-2N42431F38	Part No.*) 7295110 7295101 7295101 7295117
at $T_A = +25 \degree C$) Limit values Scanning range and operating reser 1 005 60 70 2 005 45 60 3 005 23 30	6) L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON Ve	With lig Do not	ransit time w nt/dark ratio pend below C	1:1	C = Outputs overce circuit protecte Model name VL180-2N41131F38 VL180-2N42431F38 VL180-2P41131F38	Part No.*) 7295110 7295101 7295101 7295117 7295113
at $T_A = +25 \text{ °C}$) Limit values Scanning range and operating reser	6) L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON Ve	With lig Do not	ransit time w nt/dark ratio pend below C	1:1	C = Outputs overce circuit protects Model name VL180-2N41131F38 VL180-2N42431F38 VL180-2P41131F38 VL180-2P42431F38	Part No.*) 7295110 7295101 7295101 7295117 7295113 ided
at $T_A = +25 \ ^{\circ}C$) Limit values Scanning range and operating reser	⁶⁾ L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON ve	With lig Do not	ransit time w nt/dark ratio pend below C	1:1	C = Outputs overce circuit protects Model name VL180-2N41131F38 VL180-2N42431F38 VL180-2P41131F38 VL180-2P42431F38 *) Reflector P250 inclu	Part No.*) 7295110 7295101 7295101 7295117 7295113 ided
at $T_A = +25 \text{ °C}$) Limit values Scanning range and operating reser	⁶⁾ L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON ve 100 10 10 10 10 10 10	With lig Do not	ansit time w ty/dark ratio bend below C	1:1	C = Outputs overce circuit protects Model name VL180-2N41131F38 VL180-2N42431F38 VL180-2P41131F38 VL180-2P42431F38 *) Reflector P250 inclu	Part No.*) 7295110 7295101 7295101 7295117 7295113 ided
at $T_A = +25 \ ^{\circ}C$) Limit values Scanning range and operating reser 1 005 45 60 70 1 005 45 60 70 1 005 45 60 70 1 005 45 60 70 1 005 45 60 70 1 1 2 005 45 60 70 1 1 2 005 45 60 70 1 1 2 005 45 60 70 1 1 2 1 005 45 60 70 1 1 2 1 1 1 1 1 1 1 1 1 1	⁶⁾ L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON ve 100 10 10 10 10 10 10	With lig Do not	ransit time w nt/dark ratio pend below C	1:1	C = Outputs overce circuit protects Model name VL180-2N41131F38 VL180-2N42431F38 VL180-2P41131F38 VL180-2P42431F38 *) Reflector P250 inclu	Part No.*) 7295110 7295101 7295101 7295117 7295113 ided
at $T_A = +25 \degree C$) Limit values Scanning range and operating reser 1 005 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	⁶⁾ L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON ve 100 10 10 10 10 10 10	With lig Do not	ansit time w tt/dark ratio bend below C	1:1	C = Outputs overce circuit protects Model name VL180-2N41131F38 VL180-2N42431F38 VL180-2P41131F38 VL180-2P42431F38 *) Reflector P250 inclu	Part No.*) 7295110 7295101 7295101 7295117 7295113 ided
at T _A = +25 °C Limit values Scanning range and operating reser	⁶⁾ L/D-switching type control line: L/D = + V _S : light-switching L.ON L/D = 0 V: dark-switching D.ON Ve 100	With lig Do not	ansit time w tt/dark ratio bend below C	1:1 °C	C = Outputs overce circuit protects Model name VL180-2N41131F38 VL180-2N42431F38 VL180-2P41131F38 VL180-2P42431F38 *) Reflector P250 inclu	Part No.*) 7295110 7295101 7295101 7295117 7295113 ided





- 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



M12 plug, 4-pin

(2) Connector cable 2 m

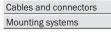
- 3 Sensitivity control 270°, only VE180-2
- Orange LED indicator, only VE180-2: switching output active
- Green LED indicator, only VE180-2, stability indicator:
 LED lights continuously:

M Q L/D

- 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

CE (1)

5 4			
Connection types			
VSE180-2N42432F38	VSE180-2N41132F38	VSE180-2N42432F38	VSE180-2N41132F38
VSE180-2P42432F38	VSE180-2P41132F38	VSE180-2P42432F38	VSE180-2P41132F38
			Ċ,
nder 4-pin, M12	2 x 0.18 mm ² Receive	er 4-pin, M12	4 x 0.18 mm ²
	→ brn L+		L+



Accessories

ting systems			brn
	M		blk
		whti ² L/D	wht
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Adjustments

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All types



	F3	38 F38 F38 F38		
Scanning range SR, typ. max.	0 28 m			
Operating range	0 20 m			
_ight 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°			
Drange 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	$V_{\rm S}$ - 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	5) L/D-switching type control line: 6)	Signal transit time with resistive load	B = Inputs and output	s reverse-polarit
at T _A = +25 °C	$L/D = + V_S$: light-switching L.ON ⁷	With light/dark ratio 1:1	protected	
 Limit values May not exceed or fall short of 	L/D = 0 V: dark-switching D.ON ⁸⁾ Control line open ⁹⁾		C = Outputs overcurre circuit protected	ent and short-
V _s tolerances	NPN: light-switching L.ON	protected	10) Per sender or receiver	r
⁴⁾ Without load	PNP: dark-switching D.ON			
Scanning range and operating rea	serve		Ordering information	
	100		Model name	Part No.*)
0 20	28	VSE180-2	VSE180-2N41132F38	7295129
D(m) 10 20	30		VSE180-2N42432F38	7295126
			VSE180-2P41132F38	7295132
Operating range Scanning rang	ge typ. max.		VSE180-2P42432F38	7295123
	10			
			 *) Part No. includes sende (pair) 	er and receiver
	•		(pui)	
	2 Operating range			
	(m) 10	20 30		
		Scanning range		