



V180-2

M18 cylindrical photoelectric sensors family:
a rounded concept, not only economically



EASILY ADJUSTABLE

- Emitter LED with visible red light

PERFORMANCE AND RELIABILITY

- High-quality background suppression (BGS)
- Available as of September 2011



A WIDE RANGE OF PRODUCTS

- Complete sensor family: proximity sensors (energetic and BGS), photoelectric retro-reflective sensor and through-beam photoelectric sensor
- Axial and radial (90°) optics
- Metal and plastic housing

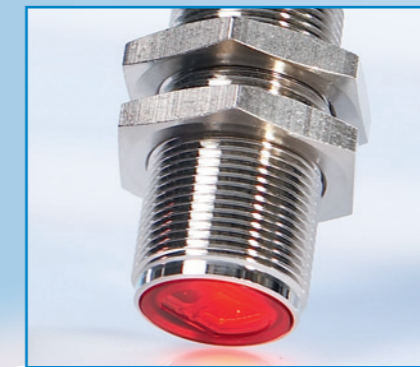


VARIABLE, SPACE-SAVING INSTALLATION

- Axial or radial (90°) optics

RUGGED

- Metal housing
- IP 67



EASY MOUNTING

- Standard M18 housing

EASY FUNCTION MONITORING

- 360° indicator LED



EASY ADJUSTMENT

- Adjustment potentiometer 270°

EASY CONNECTION

- Standard connection technology: M12 plug or cable

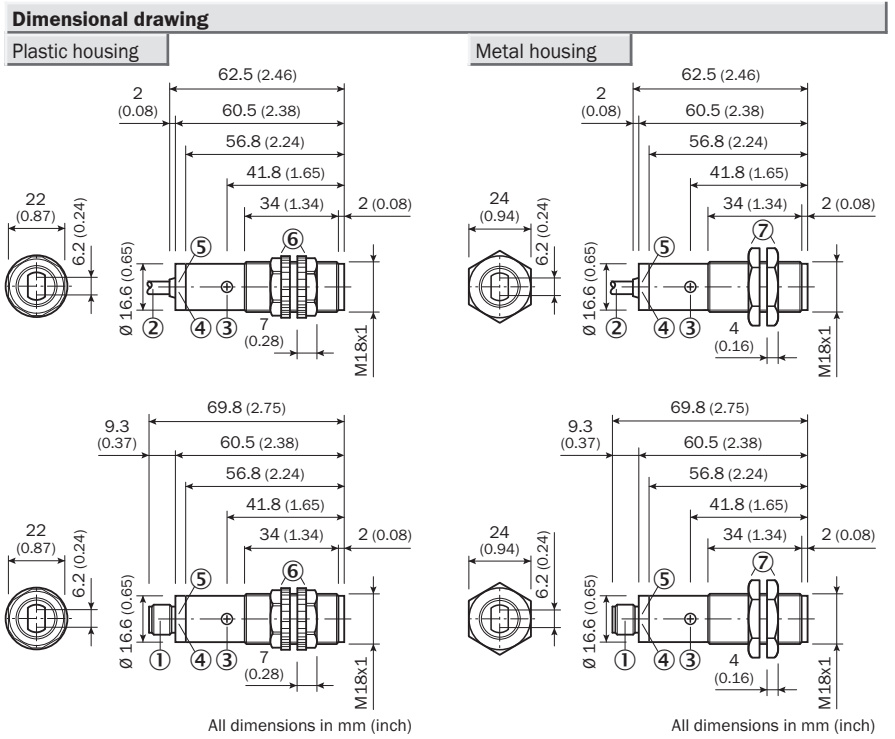


www.sick.com/V180-2

Sensing distance
1 ... 140 mm

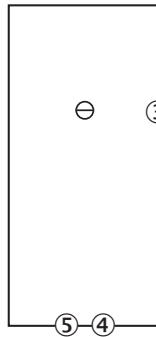
Photoelectric proximity sensor BGB

- Photoelectric proximity sensor with focused optics, enabling background blanking (BGB)
- Red light to aid alignment
- Adjustable sensitivity
- Indicator LED: switching output active and operating reserve
- Choice of plastic or metal housing



Adjustments

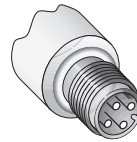
All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9/> 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

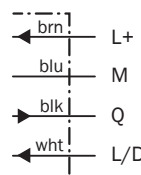
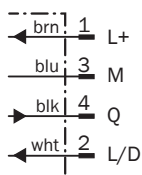
VTF180-2N42417	VTF180-2F32417	VTF180-2N41117
VTF180-2P42417	VTF180-2F32412	VTF180-2P41117
VTF180-2N42412		VTF180-2N41112
VTF180-2P42412		VTF180-2P41112



M12, 4-pin

M12, 4-pin

4 x 0.18 mm²



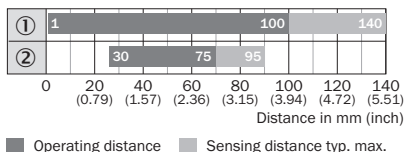
Accessories

- Connection systems
- Mounting systems

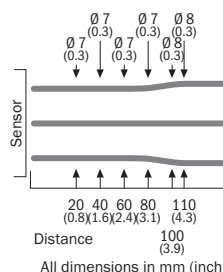
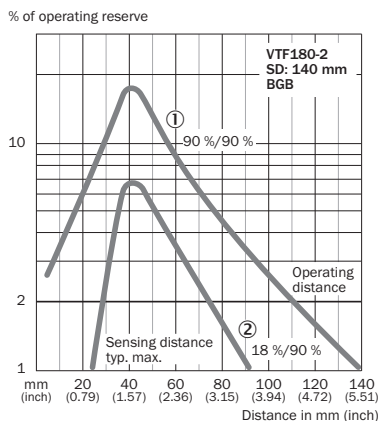
Technical data	VTF180-2	P41117	P42417	N41117	N42417	F32417	P41112	P42412	N41112	N42412	F32412
Sensing distance SD , typ. max. ¹⁾	1 ... 140 mm										
Operating distance ¹⁾	1 ... 100 mm										
Light spot diameter	Approx. 8 mm at a distance of 110 mm										
Sender aperture angle	Approx. 7 mm at distance of 60 mm when focused										
Light sender ²⁾ , light source	LED red light, 645 nm										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: Light received < 0.9/> 1.1										
	LED off: Light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Light-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	⊕										
Enclosure rating	IP 67										
Protective circuits ¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

- 1) Object to be sensed with 90% remission (based on standard white according to DIN 5033); 100 x 100 mm.
- 2) Average service life: 100,000 h at T_a = +25 °C.
- 3) Limit values.
- 4) Must not exceed or fall below V_S tolerances.
- 5) Without load.
- 6) L/D control cable switching type:
L/D = + V_S: light-switching L.ON
L/D = 0 V: dark-switching D.ON
control cable open
NPN: light-switching L.ON
PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.
- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.
- 10) A = V_S connections reverse polarity protected
B = inputs/outputs reverse polarity protected
C = Outputs overcurrent and short-circuit protected.

Sensing distance



- ① Sensing distance on white, 90% remission
- ② Sensing distance on gray, 18% remission



Ordering information

Model name	Part no.
VTF180-2N41117	6037477
VTF180-2N42417	6037478
VTF180-2P41117	6037479
VTF180-2P42417	6037480
VTF180-2F32417	6044022
VTF180-2N41112	6041799
VTF180-2N42412	6041801
VTF180-2P41112	6041802
VTF180-2P42412	6041803
VTF180-2F32412	6044021

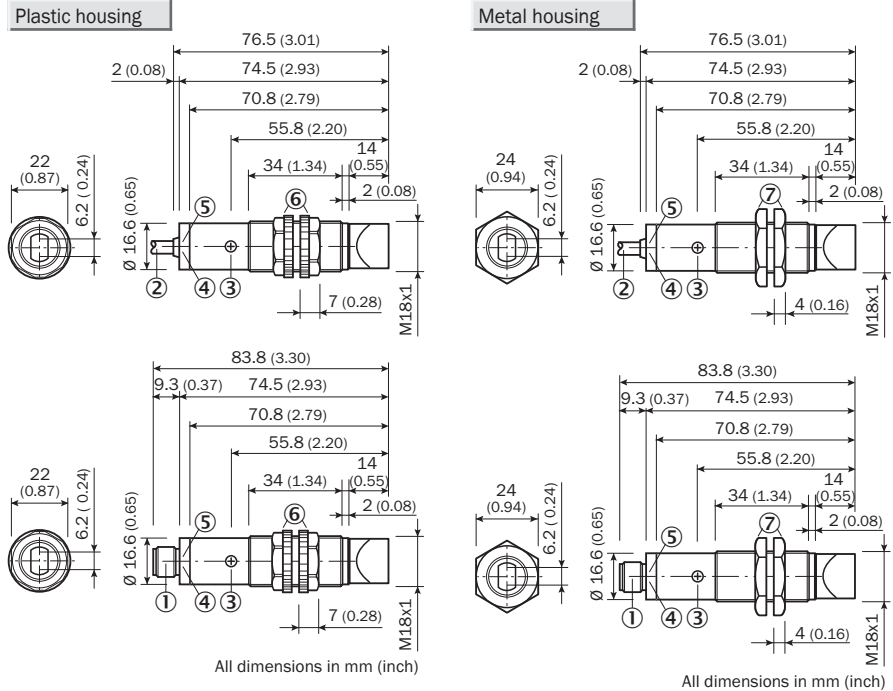
Sensing distance
1 ... 130 mm

Photoelectric proximity sensor BGB

- Photoelectric proximity sensor with focused optics, enabling background blanking (BGB)
- Red light to aid alignment
- Adjustable sensitivity
- Indicator LED: switching output active and operating reserve
- Choice of plastic or metal housing

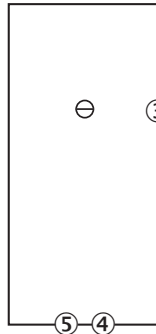


Dimensional drawing



Adjustments

All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9/> 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

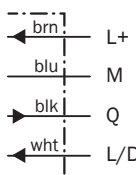
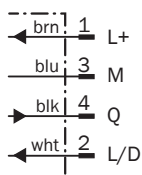
VTF180-2N42419	VTF180-2F32419	VTF180-2N41119
VTF180-2P42419	VTF180-2F32414	VTF180-2P41119
VTF180-2N42414		VTF180-2N41114
VTF180-2P42414		VTF180-2P41114



M12, 4-pin

M12, 4-pin

4 x 0.18 mm²



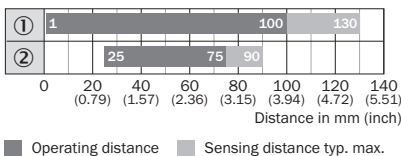
Accessories

- Connection systems
- Mounting systems

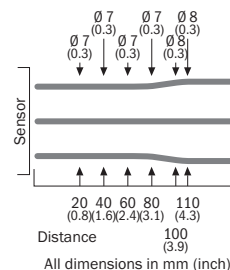
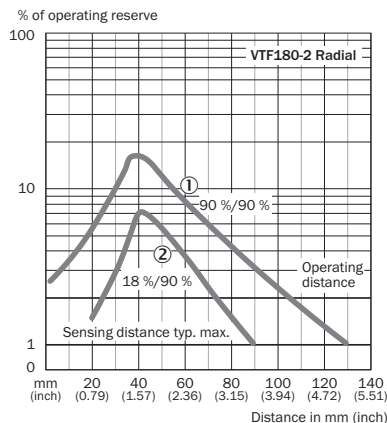
Technical data	VTF180-2	P41119	P42419	N41119	N42419	F32419	P41114	P42414	N41114	N42414	F32414
Sensing distance SD , typ. max. ¹⁾	1 ... 130 mm										
Operating distance ¹⁾	1 ... 100 mm										
Light spot diameter	Approx. 8 mm at a distance of 110 mm										
Sender aperture angle	Approx. 7 mm at distance of 60 mm when focused										
Light sender ²⁾ , light source	LED red light, 645 nm										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Light-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	⊕										
Enclosure rating	IP 67										
Protective circuits ¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

- 1) Object to be sensed with 90% remission (based on standard white according to DIN 5033); 100 x 100 mm.
- 2) Average service life: 100,000 h at T_a = +25 °C.
- 3) Limit values.
- 4) Must not exceed or fall below V_S tolerances.
- 5) Without load.
- 6) L/D control cable switching type:
L/D = + V_S: light-switching L.ON
L/D = 0 V: dark-switching D.ON
control cable open
NPN: light-switching L.ON
PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.
- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.
- 10) A = V_S connections reverse polarity protected
B = Inputs/outputs reverse polarity protected
C = Outputs overcurrent and short-circuit protected.

Sensing distance



- ① Sensing distance on white, 90% remission
- ② Sensing distance on gray, 18% remission



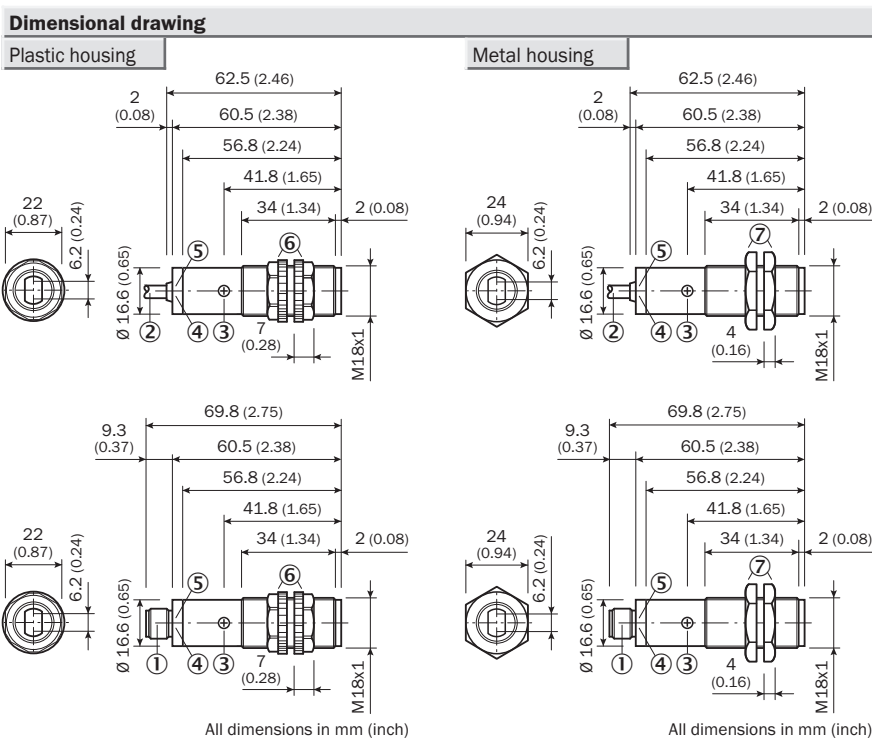
Ordering information

Model name	Part no.
VTF180-2N41119	6043807
VTF180-2N42419	6043808
VTF180-2P41119	6043810
VTF180-2P42419	6043811
VTF180-2F32419	6044024
VTF180-2N41114	6043803
VTF180-2N42414	6043804
VTF180-2P41114	6043805
VTF180-2P42414	6043806
VTF180-2F32414	6044023

Sensing distance
1 ... 450 mm

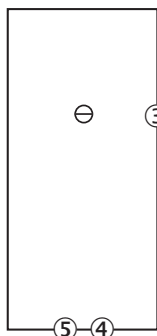
Photoelectric proximity sensor BGB

- Photoelectric proximity sensor with focused optics, enabling background blanking (BGB)
- Red light to aid alignment
- Adjustable sensitivity
- Indicator LED: switching output active and operating reserve
- Choice of plastic or metal housing



Adjustments

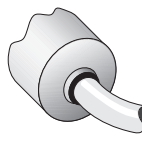
All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9 / > 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

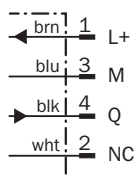
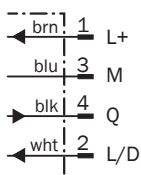
VTE180-2N42447	VTE180-2F32447	VTE180-2N41147
VTE180-2P42447	VTE180-2F32342	VTE180-2P41147
VTE180-2N42442		VTE180-2N41142
VTE180-2P42442		VTE180-2P41142



M12, 4-pin

M12, 4-pin

4 x 0.18 mm²



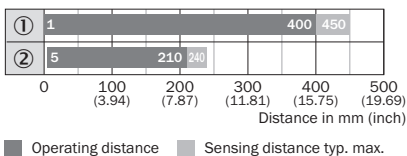
Accessories

- Connection systems
- Mounting systems

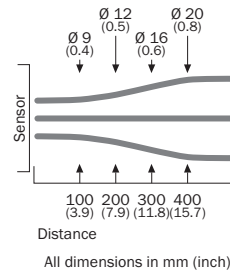
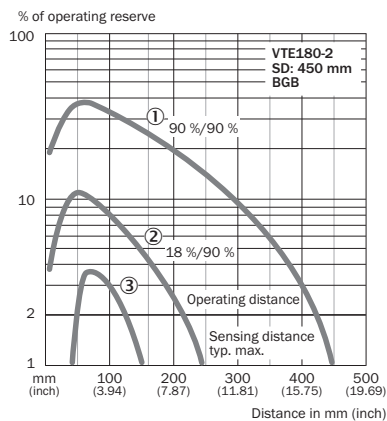
Technical data	VTE180-2	P41147	P42447	N41147	N42447	F32447	P41142	P42442	N41142	N42442	F32342
Sensing distance SD , typ. max. ¹⁾	1 ... 450 mm										
Operating distance ⁴⁾	1 ... 400 mm										
Light spot diameter	Approx. 20 mm at a distance of 400 mm										
Sender aperture angle	Approx. 1.5°										
Light sender ²⁾ , light source	LED red light, 645 nm										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Light-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	⊕										
Enclosure rating	IP 67										
Protective circuits ¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

- 1) Object to be sensed with 90% remission (based on standard white according to DIN 5033); 100 x 100 mm.
- 2) Average service life: 100,000 h at T_a = +25 °C.
- 3) Limit values.
- 4) Must not exceed or fall below V_S tolerances.
- 5) Without load.
- 6) L/D control cable switching type:
L/D = + V_S: light-switching L.ON
L/D = 0 V: dark-switching D.ON
control cable open
NPN: light-switching L.ON
PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.
- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.
- 10) A = V_S connections reverse polarity protected
B = Inputs/outputs reverse polarity protected
C = Outputs overcurrent and short-circuit protected.

Sensing distance



- ① Sensing distance on white, 90% remission
- ② Sensing distance on gray, 18% remission



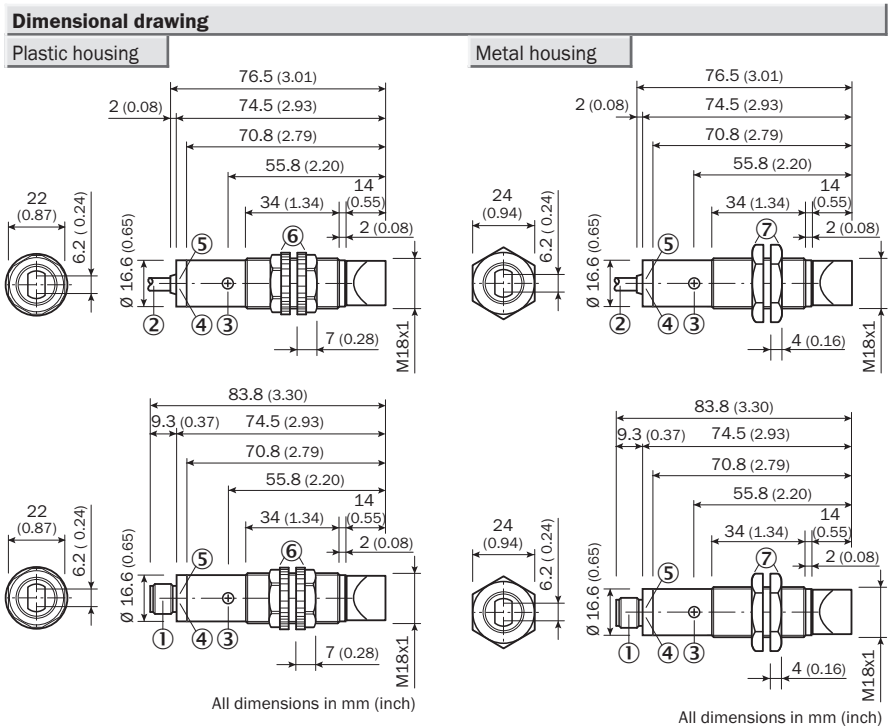
Ordering information

Model name	Part no.
VTE180-2N41147	6037481
VTE180-2N42447	6037482
VTE180-2P41147	6037483
VTE180-2P42447	6037484
VTE180-2F32447	6043946
VTE180-2N41142	6041804
VTE180-2N42442	6041805
VTE180-2P41142	6041806
VTE180-2P42442	6041807
VTE180-2F32342	6042576

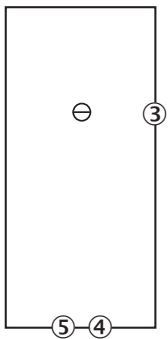
Sensing distance
1 ... 500 mm

Photoelectric proximity sensor BGB

- Photoelectric proximity sensor with focused optics, enabling background blanking (BGB)
- Red light to aid alignment
- Adjustable sensitivity
- Indicator LED: switching output active and operating reserve
- Choice of plastic or metal housing



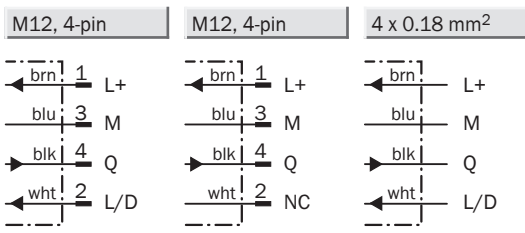
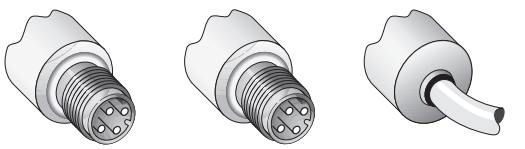
Adjustments
All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9/> 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

VTE180-2N42449	VTE180-2F32449	VTE180-2N41149
VTE180-2P42449	VTE180-2F32444	VTE180-2P41149
VTE180-2N42444		VTE180-2N41144
VTE180-2P42444		VTE180-2P41144



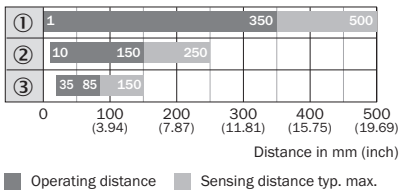
Accessories

Connection systems
Mounting systems

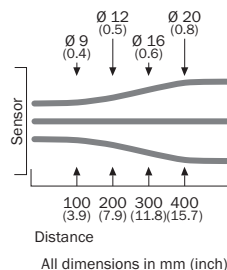
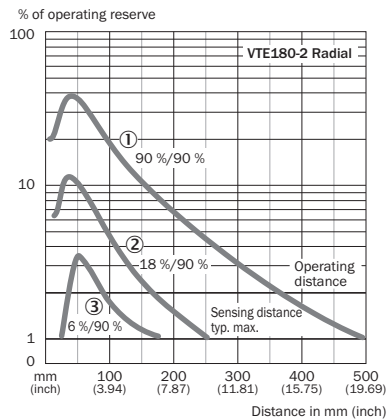
Technical data	VTE180-2	P41149	P42449	N41149	N42449	F32449	P41144	P42444	N41144	N42444	F32444
Sensing distance SD , typ. max. ¹⁾	1 ... 500 mm										
Operating distance ¹⁾	1 ... 350 mm										
Light spot diameter	Approx. 20 mm at a distance of 400 mm										
Sender aperture angle	Approx. 1.5°										
Light sender ²⁾ , light source	LED red light, 645 nm										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Light-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	⊕										
Enclosure rating	IP 67										
Protective circuits ¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

- 1) Object to be sensed with 90% remission (based on standard white according to DIN 5033); 100 x 100 mm.
- 2) Average service life: 100,000 h at T_a = +25 °C.
- 3) Limit values.
- 4) Must not exceed or fall below V_S tolerances.
- 5) Without load.
- 6) L/D control cable switching type:
L/D = + V_S: light-switching L.ON
L/D = 0 V: dark-switching D.ON
control cable open
NPN: light-switching L.ON
PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.
- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.
- 10) A = V_S connections reverse polarity protected
B = Inputs/outputs reverse polarity protected
C = Outputs overcurrent and short-circuit protected.

Sensing distance



- ① Sensing distance on white, 90% remission
- ② Sensing distance on gray, 18% remission
- ③ Sensing distance on black, 6% remission



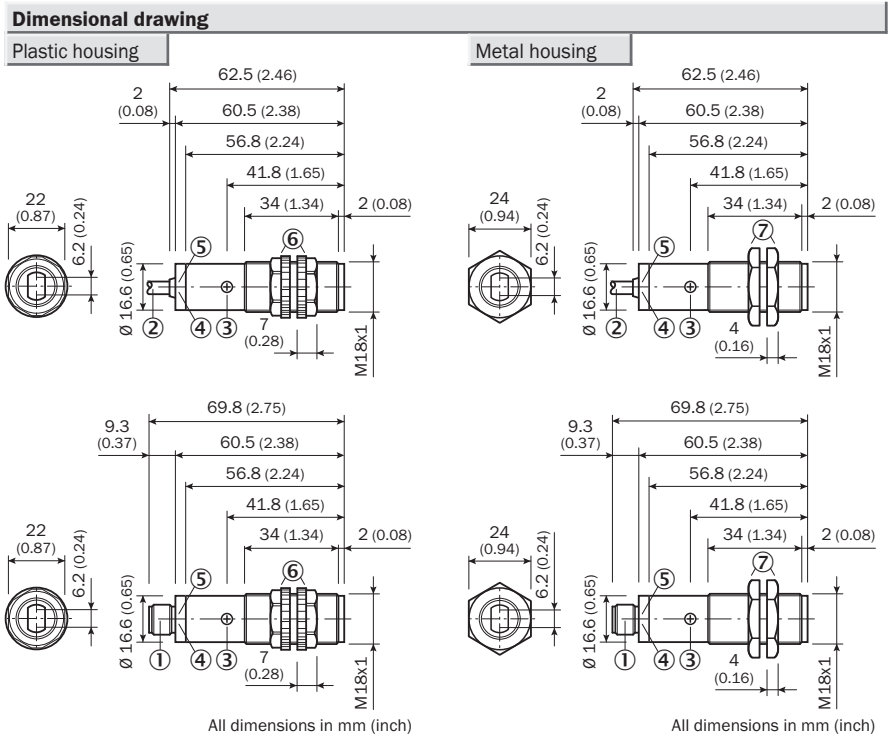
Ordering information

Model name	Part no.
VTE180-2N41149	6043816
VTE180-2N42449	6043817
VTE180-2P41149	6043818
VTE180-2P42449	6043819
VTE180-2F32449	6044026
VTE180-2N41144	6043812
VTE180-2N42444	6043813
VTE180-2P41144	6043814
VTE180-2P42444	6043815
VTE180-2F32444	6044025

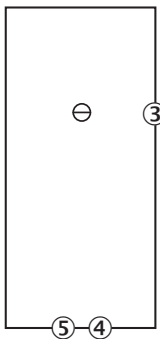
Sensing distance
1 ... 1,100 mm

Photoelectric proximity sensors, energetic

- Photoelectric proximity sensors, energetic
- Large sensing distance
- Red light to aid alignment
- Adjustable sensitivity
- Indicator LED: switching output active and operating reserve
- Choice of plastic or metal housing



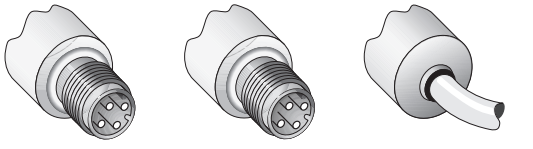
Adjustments
All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9 / > 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

VTE180-2N42487	VTE180-2F32487	VTE180-2N41187
VTE180-2P42487	VTE180-2F32482	VTE180-2P41187
VTE180-2N42482		VTE180-2N41182
VTE180-2P42482		VTE180-2P41182



M12, 4-pin	M12, 4-pin	4 x 0.18 mm ²
<pre> ┌── brn ──┐ 1 L+ ├── blu ──┤ 3 M ├── blk ──┤ 4 Q └── wht ──┘ 2 L/D </pre>	<pre> ┌── brn ──┐ 1 L+ ├── blu ──┤ 3 M ├── blk ──┤ 4 Q └── wht ──┘ 2 NC </pre>	<pre> ┌── brn ──┐ L+ ├── blu ──┤ M ├── blk ──┤ Q └── wht ──┘ L/D </pre>

Accessories

Connection systems
Mounting systems

Technical data	VTE180-2	P41187	P42487	N41187	N42487	F32487	P41182	P42482	N41182	N42482	F32482
Sensing distance SD , typ. max. ¹⁾	1 ... 1,100 mm										
Operating distance ¹⁾	1 ... 800 mm										
Light spot diameter	Approx. 30 mm at a distance of 800 mm										
Sender aperture angle	Approx. 1.2°										
Light sender ²⁾ , light source	LED red light, 645 nm										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Light-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	◆◆										
Enclosure rating	IP 67										
Protective circuits ¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

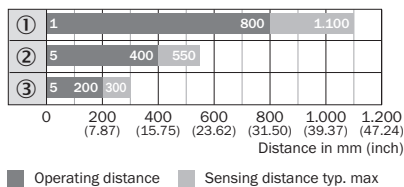
- 1) Object to be sensed with 90% remission (based on standard white according to DIN 5033); 100 x 100 mm.
- 2) Average service life: 100,000 h at T_a = +25 °C.

- 3) Limit values.
- 4) Must not exceed or fall below V_S tolerances.
- 5) Without load.

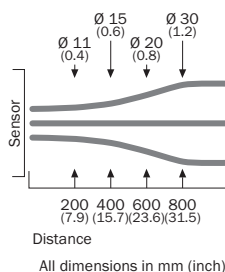
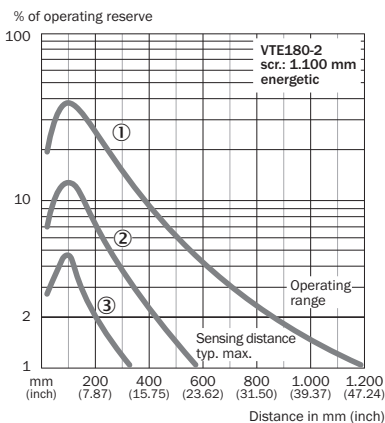
- 6) L/D control cable switching type:
L/D = + V_S: light-switching L.ON
L/D = 0 V: dark-switching D.ON
control cable open
NPN: light-switching L.ON
PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.

- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.
- 10) A = V_S connections reverse polarity protected
B = inputs/outputs reverse polarity protected
C = Outputs overcurrent and short-circuit protected.

Sensing distance



- ① Sensing distance on white, 90 % remission
- ② Sensing distance on gray, 18 % remission
- ③ Sensing distance on black, 6 % remission



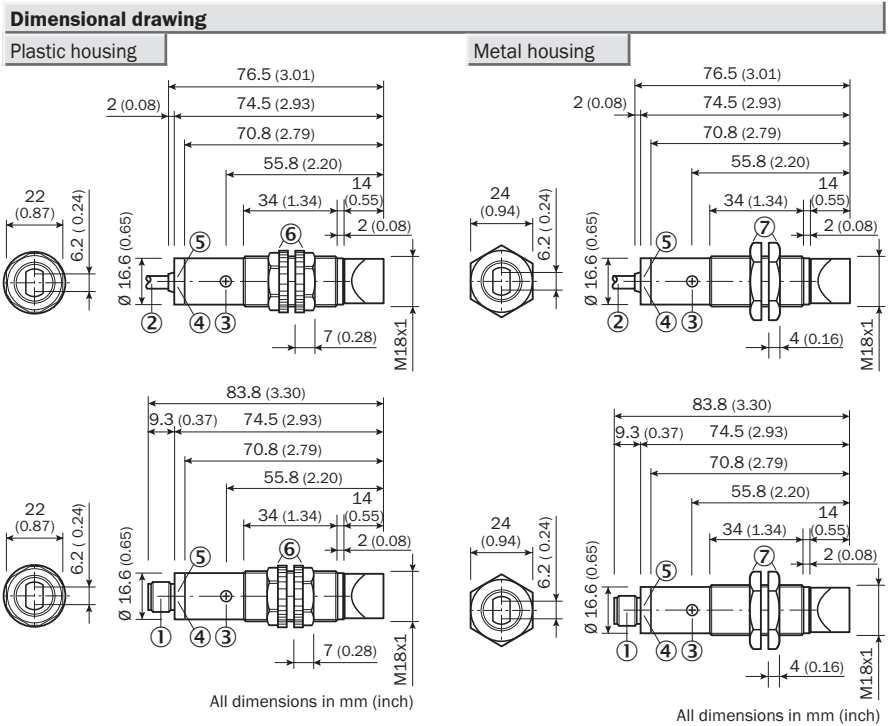
Ordering information

Model name	Part no.
VTE180-2N41187	6037485
VTE180-2N42487	6037486
VTE180-2P41187	6037487
VTE180-2P42487	6037488
VTE180-2F32487	6044027
VTE180-2N41182	6041808
VTE180-2N42482	6041809
VTE180-2P41182	6041810
VTE180-2P42482	6041811
VTE180-2F32482	6043945

Sensing distance
1 ... 900 mm

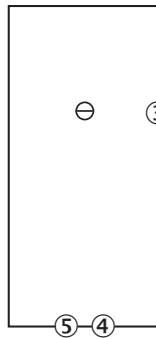
Photoelectric proximity sensors, energetic

- Photoelectric proximity sensors, energetic
- Large sensing distance
- Red light to aid alignment
- Adjustable sensitivity
- Indicator LED: switching output active and operating reserve
- Choice of plastic or metal housing



Adjustments

All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9/> 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

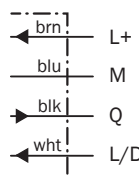
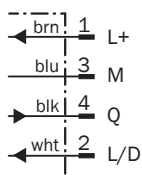
VTE180-2N42489	VTE180-2F32489	VTE180-2N41189
VTE180-2P42489	VTE180-2F32484	VTE180-2P41189
VTE180-2N42484		VTE180-2N41184
VTE180-2P42484		VTE180-2P41184



M12, 4-pin

M12, 4-pin

4 x 0.18 mm²



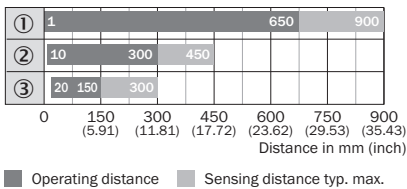
Accessories

- Connection systems
- Mounting systems

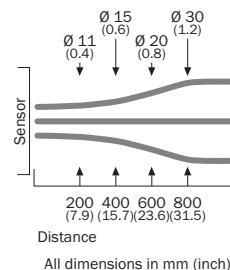
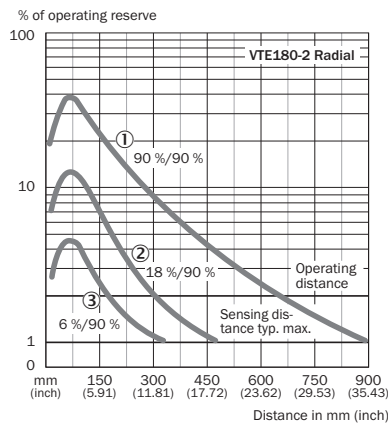
Technical data	VTE180-2	P41189	P42489	N41189	N42489	F32489	P41184	P42484	N41184	N42484	F32484
Sensing distance SD , typ. max. ¹⁾	1 ... 900 mm										
Operating distance ¹⁾	1 ... 650 mm										
Light spot diameter	Approx. 30 mm at a distance of 800 mm										
Sender aperture angle	Approx. 1.2°										
Light sender ²⁾ , light source	LED red light, 645 nm										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Light-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	⊕										
Enclosure rating	IP 67										
Protective circuits ¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

- 1) Object to be sensed with 90% remission (based on standard white according to DIN 5033); 100 x 100 mm.
- 2) Average service life: 100,000 h at T_a = +25 °C.
- 3) Limit values.
- 4) Must not exceed or fall below V_S tolerances.
- 5) Without load.
- 6) L/D control cable switching type:
L/D = + V_S: light-switching L.ON
L/D = 0 V: dark-switching D.ON
control cable open
NPN: light-switching L.ON
PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.
- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.
- 10) A = V_S connections reverse polarity protected
B = Inputs/outputs reverse polarity protected
C = Outputs overcurrent and short-circuit protected.

Sensing distance



- ① Sensing distance on white, 90% remission
- ② Sensing distance on gray, 18% remission
- ③ Sensing distance on black, 6% remission



Ordering information

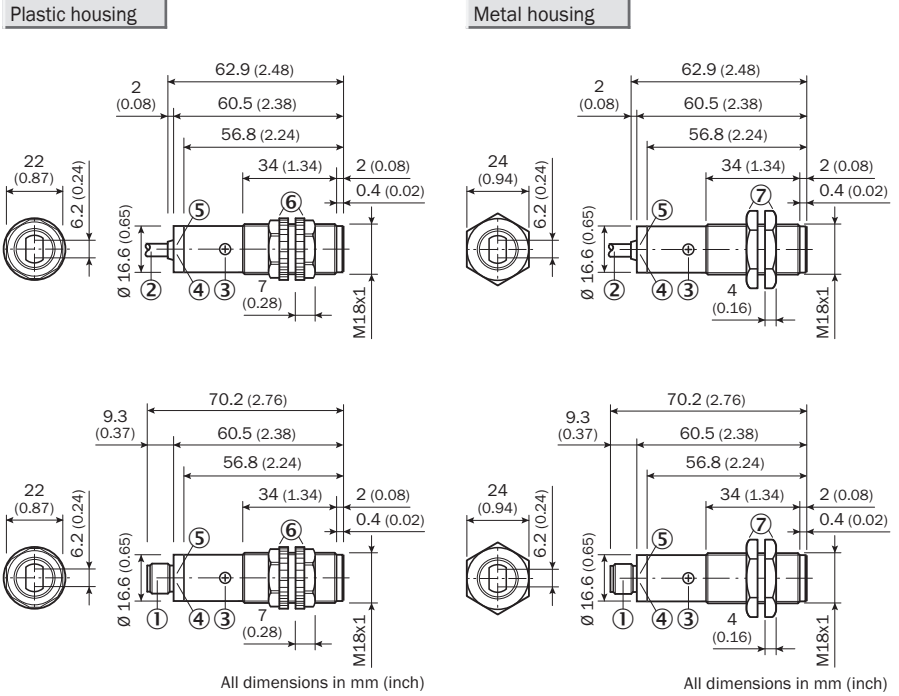
Model name	Part no.
VTE180-2N41189	6043824
VTE180-2N42489	6043825
VTE180-2P41189	6043826
VTE180-2P42489	6043827
VTE180-2F32489	6044029
VTE180-2N41184	6043820
VTE180-2N42484	6043821
VTE180-2P41184	6043822
VTE180-2P42484	6043823
VTE180-2F32484	6044028

Sensing range
0.05 ... 7 m (PL80A)

Photoelectric retro-reflective sensor

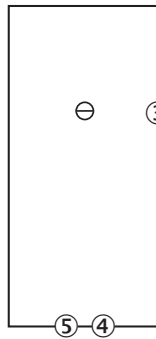
- Polarizing filter for reliable detection of shiny object surfaces
- Indicator LED: switching output active and operating reserve
- Large sensing ranges
- Red light to aid alignment
- Choice of plastic or metal housing

Dimensional drawing



Adjustments

All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9/> 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

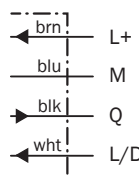
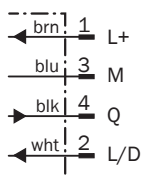
VL180-2N42436	VL180-2P32436	VL180-2N41136
VL180-2P42436	VL180-2P32431	VL180-2P41136
VL180-2N42431		VL180-2N41131
VL180-2P42431		VL180-2P41131



M12, 4-pin

M12, 4-pin

4 x 0.18 mm²



Accessories

- Connection systems
- Mounting systems

Technical data	VL180-2	P41136	P42436	N41136	N42436	P32436	P41131	P42431	N41131	N42431	P32431
Sensing 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. 270 mm at a distance of 4 m										
Sender aperture angle	Approx. 4.5°										
Light sender ²⁾ , light source	LED red light, 645 nm										
Polarizing filter	Yes										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S /< 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Dark-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	◆◆										
Enclosure rating	IP 67										
Protective circuits¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

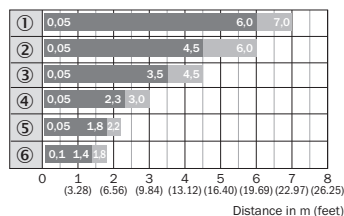
- 1) P250 reflector included.
- 2) Average service life: 100,000 h at T_a = +25 °C.
- 3) Limit values.

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

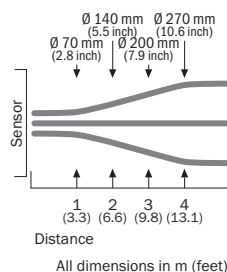
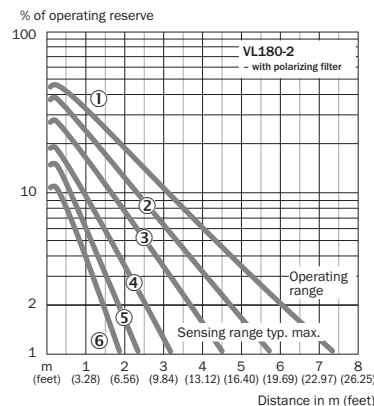
- control cable open
- NPN: light-switching L.ON
- PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.
- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.

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

Sensing range and operating reserve



- Reflector type
- 1) PL80A
- 2) P250/PL40A/PL50A/C110A
- 3) PL30A/PL31A
- 4) PL20A
- 5) P45
- 6) Reflective tape "Diamond Grade"



Ordering information

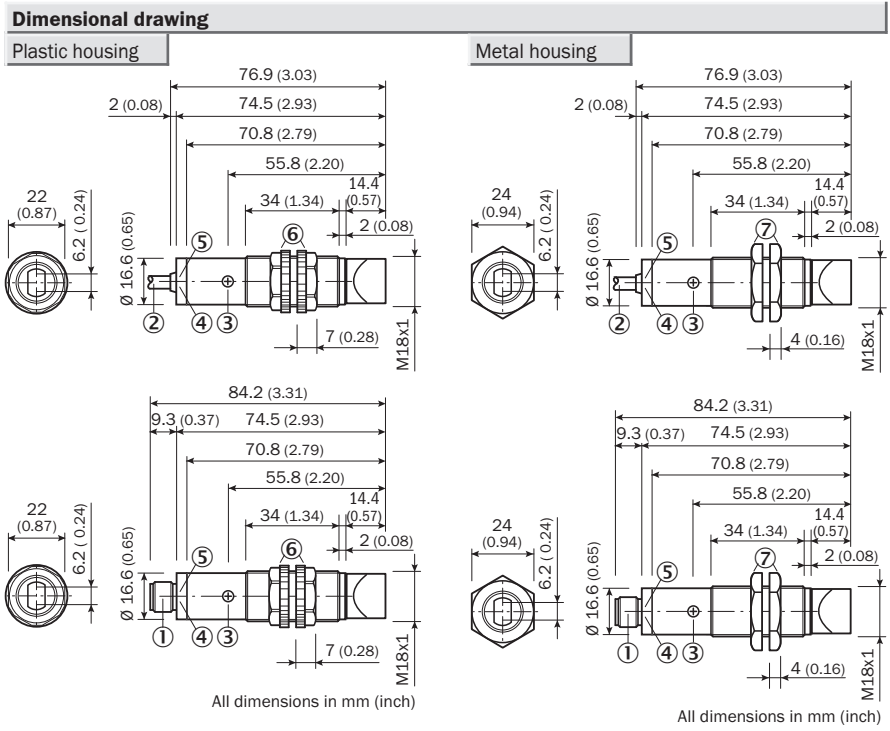
Model name	Part no. *)
VL180-2N41136	6037493
VL180-2N42436	6037494
VL180-2P41136	6037495
VL180-2P42436	6037496
VL180-2P32436	6044031
VL180-2N41131	6041816
VL180-2N42431	6041817
VL180-2P41131	6041818
VL180-2P42431	6041819
VL180-2P32431	6044030

*) P250 reflector included.

Sensing range
0.05 ... 5.5 m (PL80A)

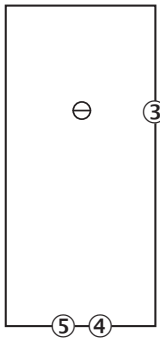
Photoelectric retro-reflective sensor

- Polarizing filter for reliable detection of shiny object surfaces
- Indicator LED: switching output active and operating reserve
- Large sensing ranges
- Red light to aid alignment
- Choice of plastic or metal housing



Adjustments

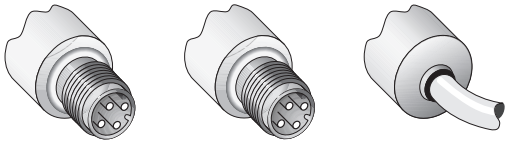
All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control
- ④ Orange indicator LED: switching output active
- ⑤ Green indicator LED, stability indicator:
 - LED lights up continuously: light received < 0.9 / > 1.1
 - LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing, fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

VL180-2N42438	VL180-2P32438	VL180-2N41138
VL180-2P42438	VL180-2P32433	VL180-2P41138
VL180-2N42433		VL180-2N41133
VL180-2P42433		VL180-2P41133



M12, 4-pin	M12, 4-pin	4 x 0.18 mm ²

Accessories

Connection systems
Mounting systems

Technical data	VL180-2	P41138	P42438	N41138	N42438	P32438	P41133	P42433	N41133	N42433	P32433
Sensing range SD , typ. max. (reflect.)	0.05 ... 5.5 m (PL80A)/... 4.5 m (P250) ¹⁾										
Operating range	0.05 ... 4.5 m (PL80A)/... 3.5 m (P250) ¹⁾										
Light spot diameter	Approx. 270 mm at a distance of 4 m										
Sender aperture angle	Approx. 4.5°										
Light sender ²⁾ , light source	LED red light, 645 nm										
Polarizing filter	Yes										
Adjustable sensitivity	270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ³⁾										
Residual ripple ⁴⁾	± 10%										
Power consumption ⁵⁾	≤ 30 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S /< 1.8 V										
Switching type	Selectable light-/dark-switching ⁶⁾										
	Dark-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁷⁾	≤ 0.5 ms										
Max. switching frequency ⁸⁾	1,000/s										
Connection type	M12 plug connector, 4-pin										
	Cable ⁹⁾ , PVC, 2 m, 4 x 0.18 mm ² , Ø 3.8 mm										
Protection class	◆◆										
Enclosure rating	IP 67										
Protective circuits¹⁰⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

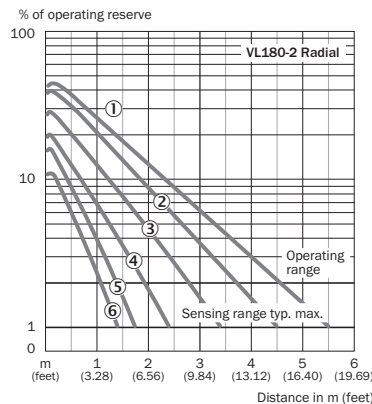
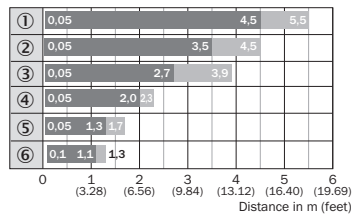
- 1) P250 reflector included.
- 2) Average service life: 100,000 h at T_a = +25 °C.
- 3) Limit values.

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

- control cable open
- NPN: light-switching L.ON
- PNP: dark-switching D.ON.
- 7) Signal delay time with resistive load.
- 8) When light/dark ratio 1:1.
- 9) Do not bend cable below 0 °C.

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

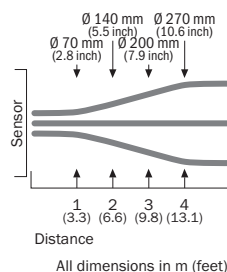
Sensing range and operating reserve



- Reflector type
- 1) PL80A
 - 2) P250/PL40A/PL50A
 - 3) PL30A/PL31A
 - 4) PL20A
 - 5) P45A
 - 6) Reflective tape "Diamond Grade"

Ordering information

Model name	Part no.*)
VL180-2N41138	6043835
VL180-2N42438	6043836
VL180-2P41138	6043837
VL180-2P42438	6043838
VL180-2P32438	6044033
VL180-2N41133	6043828
VL180-2N42433	6043830
VL180-2P41133	6043832
VL180-2P42433	6043834
VL180-2P32433	6044032



* P250 reflector included.

VSE180-2 axial through-beam photoelectric sensor, red light

Sensing range
0 ... 28 m

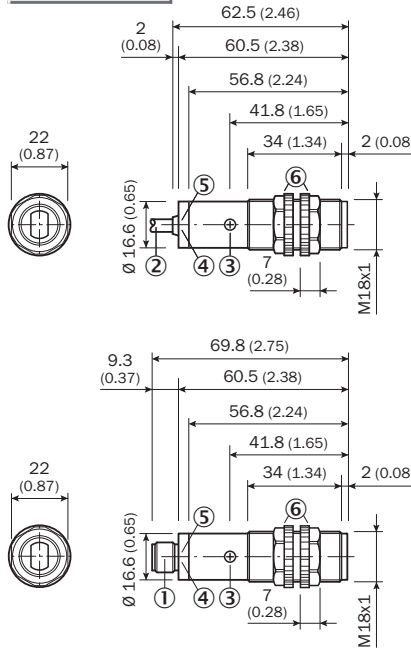
Through-beam photoelectric sensor

- Very long sensing ranges
- Adjustable sensitivity
- VE180-2 indicator LED for switching output active and operating reserve
- Red light to aid alignment
- Choice of plastic or metal housing

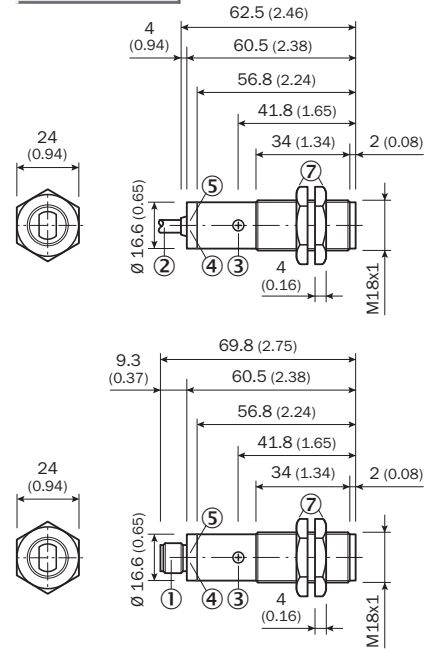


Dimensional drawing

Plastic housing



Metal housing

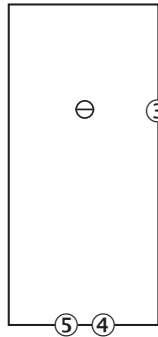


All dimensions in mm (inch)

All dimensions in mm (inch)

Adjustments

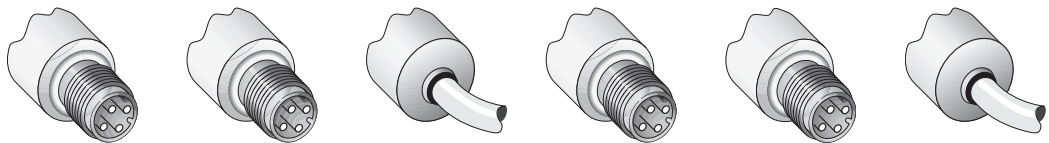
All types



- ① M12 device connector, 4-pin
M12 device connector, 3-pin
- ② 2 m connecting cable
- ③ 270° sensitivity control, VE180-2 only
- ④ Orange indicator LED, VE180-2 only
- ⑤ Switching output active
Green indicator LED, VE180-2 only, stability indicator:
- LED lights up continuously:
light received < 0.9 / > 1.1
- LED off: light received > 0.9 ... < 1.1
- ⑥ Plastic housing,
fastening nuts (2x); SW22, PC
- ⑦ Metal housing, fastening nuts (2x); SW24

Connection types

VSE180-2N42437	VSE180-2P32437	VSE180-2N41137	VSE180-2N42437	VSE180-2P32437	VSE180-2N41137
VSE180-2P42437	VSE180-2P32432	VSE180-2P41137	VSE180-2P42437	VSE180-2P32432	VSE180-2P41137
VSE180-2N42432		VSE180-2N41132	VSE180-2N42432		VSE180-2N41132
VSE180-2P42432		VSE180-2P41132	VSE180-2P42432		VSE180-2P41132



Accessories

- Connection systems
- Mounting systems

Sender	Sender	Sender	Receiver	Receiver	Receiver
M12, 4-pin	M12, 4-pin	2 x 0.18 mm ²	M12, 4-pin	M12, 4-pin	4 x 0.18 mm ²

Technical data	VSE180-2	P41137	P42437	N41137	N42437	P32437	P41132	P42432	N41132	N42432	P32432
Sensing range SR , typ. max.	0 ... 28 m										
Operating range	0 ... 20 m										
Light spot diameter	Approx. 1,100 mm at a distance of 20 m										
Sender aperture angle	Approx. 5°										
Light sender ¹⁾ , light source	LED red light, 645 nm										
Adjustable sensitivity	VE180-2 receiver: 270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ²⁾										
Residual ripple ³⁾	± 10%										
Sender power consumption ⁴⁾	≤ 20 mA										
Receiver power consumption ⁴⁾	≤ 15 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Receiver switching type	Selectable light-/dark-switching ⁵⁾										
	Dark-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁶⁾	≤ 0.5 ms										
Max. switching frequency ⁷⁾	1,000/s										
Connection type	M12 plug connector, 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										
Protection class	⏏										
Enclosure rating	IP 67										
Protective circuits ⁹⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing ¹⁰⁾	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing ¹⁰⁾	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

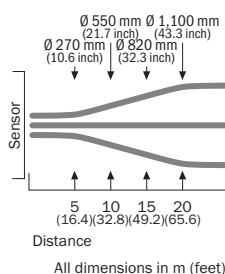
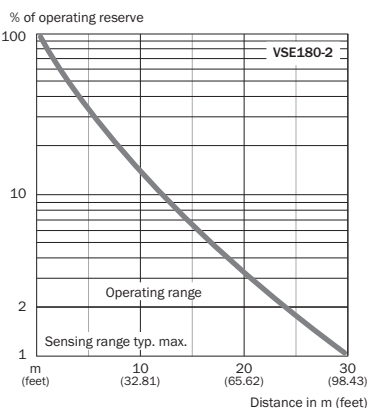
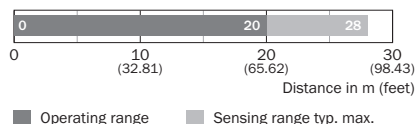
- 1) Average service life: 100,000 h at T_a = +25 °C.
- 2) Limit values.
- 3) Must not exceed or fall below V_S tolerances.

- 4) Without load.
- 5) L/D control cable switching type:
L/D = + V_S: light-switching L.ON
L/D = 0 V: dark-switching D.ON control cable open

- NPN: light-switching L.ON
PNP: dark-switching D.ON.
- 6) Signal delay time with resistive load.
- 7) When light/dark ratio 1:1.
- 8) Do not bend cable below 0 °C.

- 9) A = V_S connections reverse polarity protected
B = inputs/outputs reverse polarity protected
C = Outputs overcurrent and short-circuit protected.

Sensing range and operating reserve



Ordering information

Model name	Part no. *)
VSE180-2N41137	6037497
VSE180-2N42437	6037498
VSE180-2P41137	6037499
VSE180-2P42437	6037500
VSE180-2P32437	6044035
VSE180-2N41132	6041820
VSE180-2N42432	6041821
VSE180-2P41132	6041822
VSE180-2P42432	6041823
VSE180-2P32432	6044034

*) Order no. contains sender and receiver (pair).

VSE180-2 radial through-beam photoelectric sensor, red light

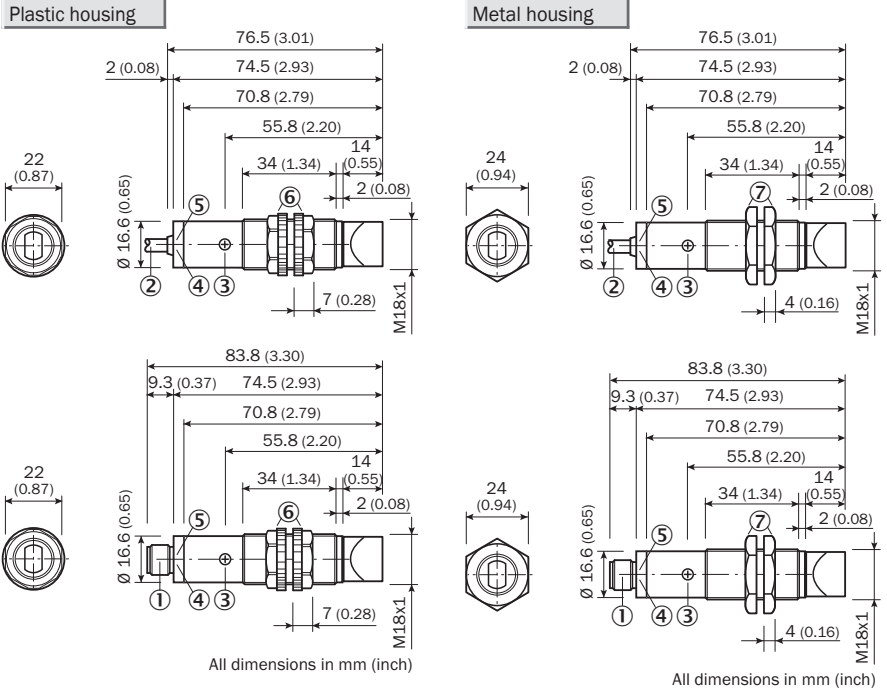
Sensing range
0 ... 25 m

Through-beam photoelectric sensor

- Very long sensing ranges
- Adjustable sensitivity
- VE180-2 indicator LED for switching output active and operating reserve
- Red light to aid alignment
- Choice of plastic or metal housing

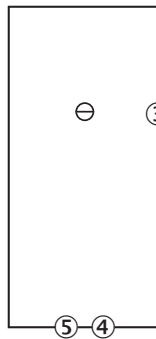


Dimensional drawing



Adjustments

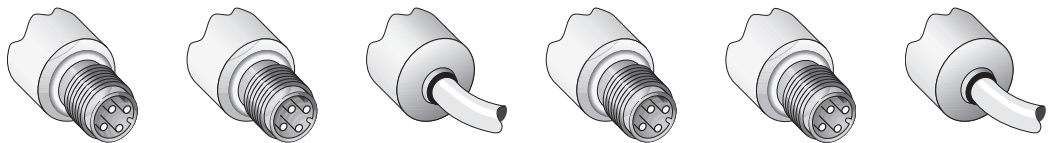
All types



- M12 device connector, 4-pin
M12 device connector, 3-pin
- 2 m connecting cable
- 270° sensitivity control, VE180-2 only
- Orange indicator LED, VE180-2 only
switching output active
- Green indicator LED, VE180-2 only, stability indicator:
 - LED lights up continuously: light received < 0.9 / > 1.1
 - LED off: light received > 0.9 ... < 1.1
- Plastic housing, fastening nuts (2x); SW22, PC
- Metal housing, fastening nuts (2x); SW24

Connection types

VSE180-2N42439	VSE180-2P32439	VSE180-2N41139	VSE180-2N42439	VSE180-2P32439	VSE180-2N41139
VSE180-2P42439	VSE180-2P32434	VSE180-2P41139	VSE180-2P42439	VSE180-2P32434	VSE180-2P41139
VSE180-2N42434		VSE180-2N41134	VSE180-2N42434		VSE180-2N41134
VSE180-2P42434		VSE180-2P41134	VSE180-2P42434		VSE180-2P41134



Accessories

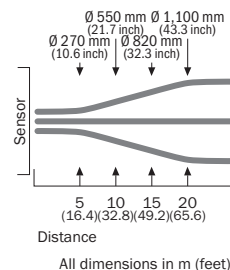
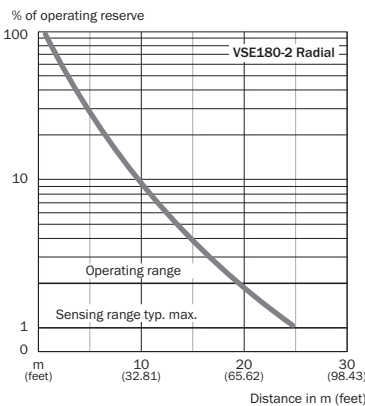
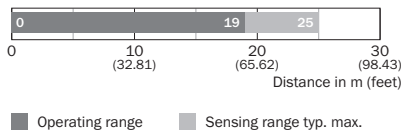
Connection systems
Mounting systems

Sender	Sender	Sender	Receiver	Receiver	Receiver
M12, 4-pin	M12, 4-pin	2 x 0.18 mm ²	M12, 4-pin	M12, 4-pin	4 x 0.18 mm ²

Technical data	VSE180-2	P41139	P42439	N41139	N42439	P32439	P41134	P42434	N41134	N42434	P32434
Sensing range SR , typ. max.	0 ... 25 m										
Operating range	0 ... 19 m										
Light spot diameter	Approx. 1,100 mm at a distance of 20 m										
Sender aperture angle	Approx. 5°										
Light sender ¹⁾ , light source	LED red light, 645 nm										
Sensitivity control	VE180-2 receiver: 270° potentiometer										
Orange indicator LED	Switching output active										
Green indicator LED	Stability indicator for light received										
	LED illuminates: light received < 0.9/> 1.1										
	LED off: light received > 0.9 ... < 1.1										
Supply voltage V_S	10 ... 30 V DC ²⁾										
Residual ripple ³⁾	± 10%										
Sender power consumption ⁴⁾	≤ 20 mA										
Receiver power consumption ⁴⁾	≤ 15 mA										
Switching outputs	Q: PNP, open collector										
PNP signal voltage (HIGH/LOW)	V _S - 1.8 V _{max} /approx. 0 V										
	Q: NPN, open collector										
NPN signal voltage (HIGH/LOW)	Approx. V _S / < 1.8 V										
Receiver switching type	Selectable light-/dark-switching ⁵⁾										
	Dark-switching										
Output current I_A max.	≤ 100 mA										
Response time ⁶⁾	≤ 0.5 ms										
Max. switching frequency ⁷⁾	1,000/s										
Connection type	M12 plug connector, 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										
Protection class	⚡										
Enclosure rating	IP 67										
Protective circuits ⁹⁾	A, B, C										
Ambient temperature T_a	Operation -25 °C ... +55 °C										
	Storage -40 °C ... +70 °C										
Weight of plastic housing ¹⁰⁾	With M12 plug connector, approx. 18 g										
	With 2 m connecting cable, approx. 62 g										
Weight of metal housing ¹⁰⁾	With M12 plug connector, approx. 47 g										
	With 2 m connecting cable, approx. 95 g										
Housing material	Housing: PBT and PC										
	Housing: nickel-plated brass and PC										
	Optics: PMMA										

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

Sensing range and operating reserve



Ordering information

Model name	Part no.*)
VSE180-2N41139	6043851
VSE180-2N42439	6043852
VSE180-2P41139	6043853
VSE180-2P42439	6043854
VSE180-2P32439	6044037
VSE180-2N41134	6043847
VSE180-2N42434	6043848
VSE180-2P41134	6043849
VSE180-2P42434	6043850
VSE180-2P32434	6044036

* Order no. contains sender and receiver (pair).

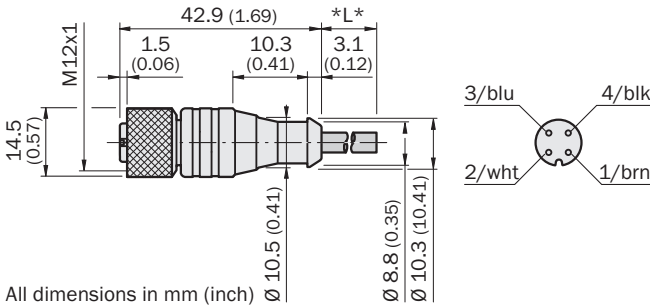
Dimensional drawings and ordering information

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

Cable socket, M12, 4-pin, straight¹⁾

Cable diameter 5 mm, 4 x 0.25 mm², PVC sheath

Model name	Part no.	Contacts	Cable length *L*
DOL-1204-G02M	6009382	4	2 m
DOL-1204-G05M	6009866	4	5 m
DOL-1204-G10M	6010543	4	10 m
DOL-1204-G15M	6010753	4	15 m



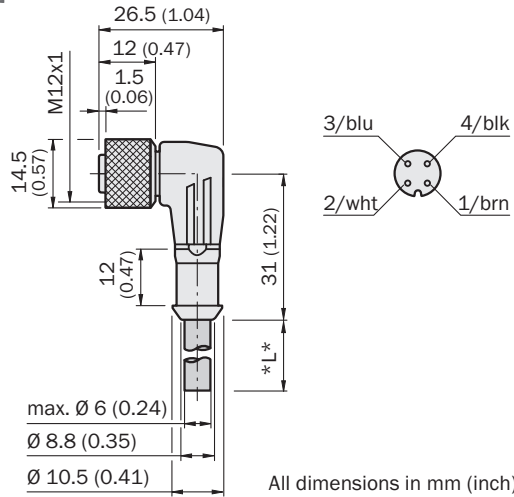
All dimensions in mm (inch)

¹⁾ Max. tightening torque of 0.5 Nm

Cable socket, M12, 4-pin, angled¹⁾

Cable diameter 5 mm, 4 x 0.25 mm², PVC sheath

Model name	Part no.	Contacts	Cable length *L*
DOL-1204-W02M	6009383	4	2 m
DOL-1204-W05M	6009867	4	5 m
DOL-1204-W10M	6010541	4	10 m

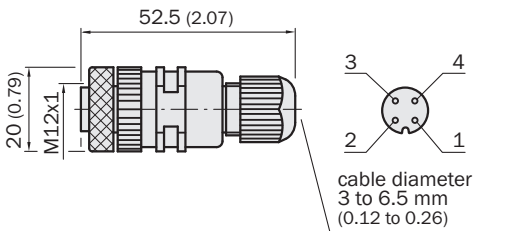


All dimensions in mm (inch)

¹⁾ Max. tightening torque of 0.5 Nm

Cable socket, M12, 4-pin, straight

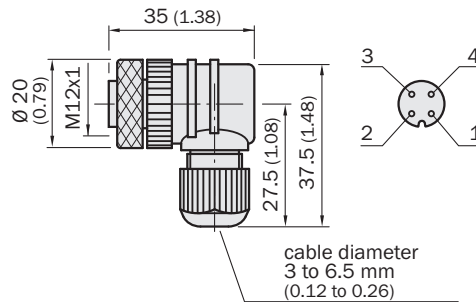
Model name	Part no.	Contacts	Can be customized for cables from
DOS-1204-G	6007302	4	Ø 4.5 to 6.5 mm



All dimensions in mm (inch)

Cable socket, M12, 4-pin, angled

Model name	Part no.	Contacts	Can be customized for cables from
DOS-1204-W	6007303	4	Ø 4.5 to 6.5 mm



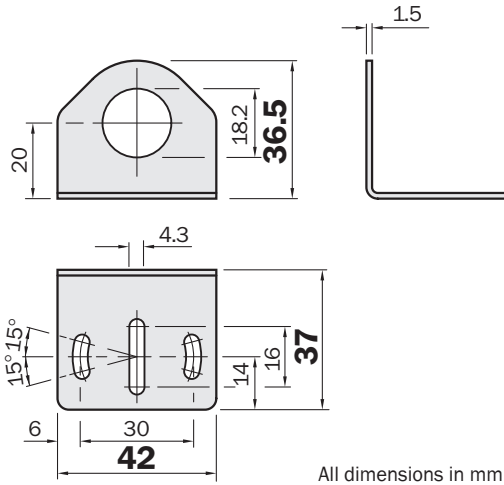
All dimensions in mm (inch)

Dimensional drawings and ordering information

Mounting systems

Mounting bracket

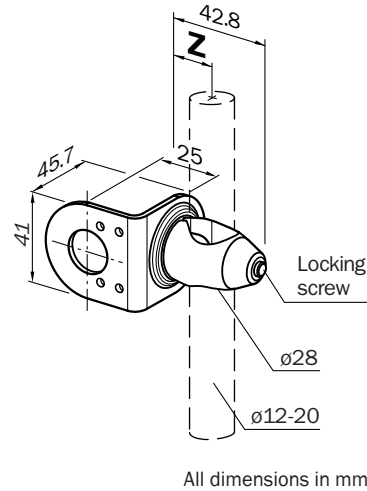
Model name	Part no.
BEF-WN-M18	5308446



Universal bracket for mounting bars for sensors

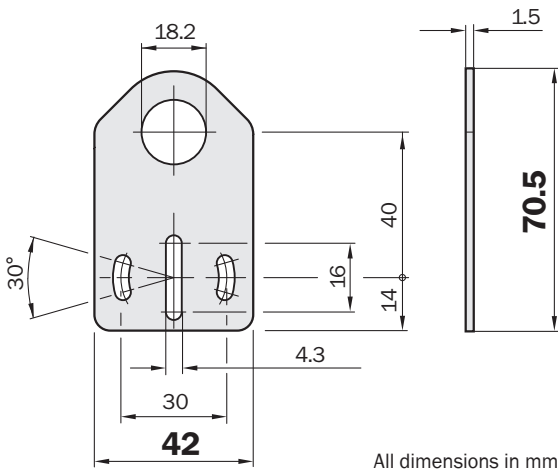
Distance Z: middle of bar - plate (inside)

Model name	Part no.	Bar Ø (mm)	Distance Z (mm)
BEF-KHS-H01	2022465	12	15.0
		14	16.4
		15	17.1
		18	19.2
		20	20.7

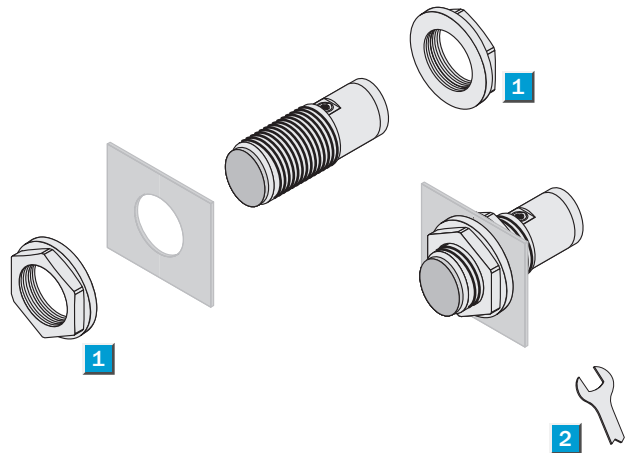


Mounting plate, zinc-plated steel

Model name	Part no.
BEF-WG-M18	5321870



Mounting kit for V180-2 (included with product)



V180-2 plastic housing

- 1 2x nut, RDL M18x1 (SW22); (part no. 4040270); supplied with V180-2
- 2 Maximum tightening torque of 1.5 Nm

V180-2 metal housing

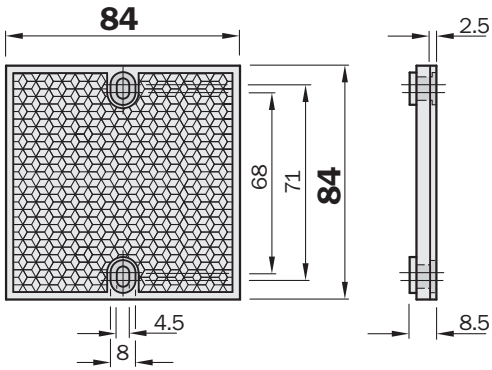
- 1 2x M18 nut (SW24); (part no. 7900436); supplied with V180-2
- 2 Maximum tightening torque of 20 Nm

Dimensional drawings and ordering information

Reflectors for V180-2, plastic version for temperatures up to 65 °C

Reflector 80 x 80 mm, screw connection

Model name	Part no.
PL80A	1003865

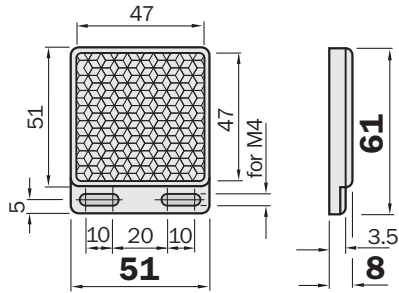


All dimensions in mm

Reflector 47 x 47 mm, screw connection

Model name	Part no.
P250	5304812*

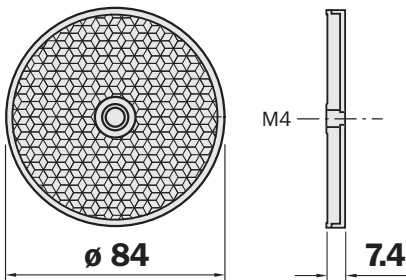
* Supplied with VL180-2



All dimensions in mm

Reflector, 83 mm diameter, center hole mounting

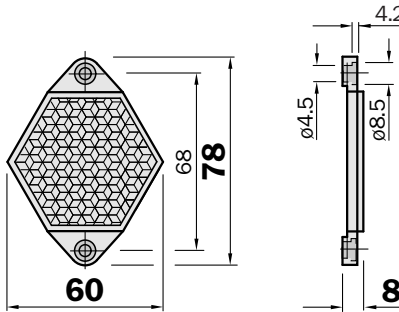
Model name	Part no.
C110A	5304549



All dimensions in mm

Reflector, 6-sided, 48 mm width across flats

Model name	Part no.
PL50A	1000132

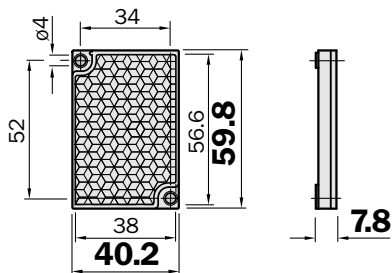


All dimensions in mm

Heated version also available:
continuous heater: PL50HK,
part no. 1001545
Controlled heating: PL50HS,
part no. 1009871

Reflector 38 x 56 mm, screw connection

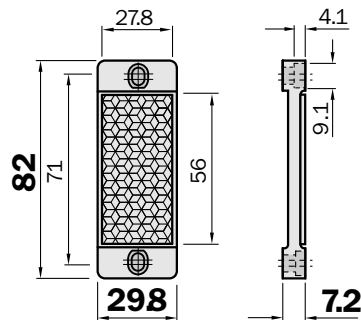
Model name	Part no.
PL40A	1012720



All dimensions in mm

Reflector 28 x 56 mm, screw connection

Model name	Part no.
PL30A	1002314



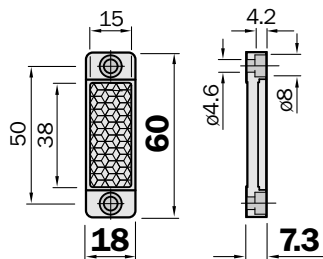
All dimensions in mm

Dimensional drawings and ordering information

Reflectors for V180-2, plastic version for temperatures up to 65 °C

Reflector 15 x 38 mm, screw connection

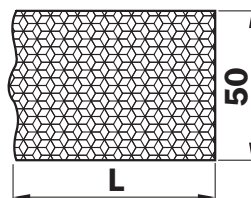
Model name	Part no.
PL20A	1012719



All dimensions in mm

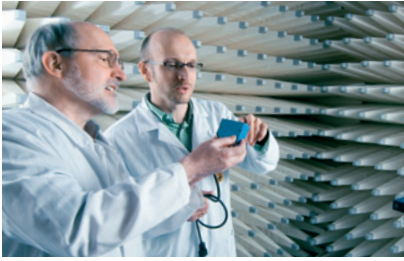
Reflective tape

Model name	Part no.	
REF-Plus-R50	5319981	Roll: 50 mm x 22.8 m
REF-Plus-R50-K	4051185	Pre-assembled: 50 mm x L (mm)



All dimensions in mm

SICK at a glance



Leading technologies

With a staff of more than 5,000 and over 50 subsidiaries and representations worldwide, SICK is one of the leading and most successful manufacturers of sensor technology. The power of innovation and solution competency have made SICK the global market leader. No matter what the project and industry may be, talking with an expert from SICK will provide you with an ideal basis for your plans – there is no need to settle for anything less than the best.



Unique product range

- Non-contact detecting, counting, classifying, positioning and measuring of any type of object or media
- Accident and operator protection with sensors, safety software and services
- Automatic identification with bar code and RFID readers
- Laser measurement technology for detecting the volume, position and contour of people and objects
- Complete system solutions for analysis and flow measurement of gases and liquids



Comprehensive services

- SICK LifeTime Services – for safety and productivity
- Application centers in Europe, Asia and North America for the development of system solutions under real-world conditions
- E-Business Partner Portal www.mysick.com – price and availability of products, requests for quotation and online orders

Worldwide presence with subsidiaries in the following countries:

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Japan

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