Low-cost cylindrical M18 Laser photoelectric sensor

Product description

The V18 Laser family of photoelectric sensors offers modern laser technology with a small, highly visible light spot that detects small parts and offers precise sensing. These laser class 1 sensors provide long sensing distances and short response times.

Yellow and green indicator LEDs ensure easy mounting, commissioning, adjustment and maintenance. Sensitivity can be set in several ways - either manually via a teach-in pushbutton or electronically using control input C.

At a glance

- Laser emitter LED enclosed in a cylindrical M18 housing
- Laser class 1
- Fast response time
- Straight or right-angle housing
- Durable metal housing
- IP 67
- Small visible light spot to detect small objects

Your benefits

- Lowest-cost laser sensor in M18 cylindrical housing saves installation costs
- Time-saving installation and alignment with highly visible light spot
- Laser class 1 does not require increased safety measures or markings, reducing installation costs
- Fast response time ensures reliable object detection at high speeds and increases machine throughput

Additional information

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→ **www.mysick.com/en/V18_Laser**

For more information, just enter the link or scan the QR code and get direct access to technical data, CAD design models, operating instructions, software, application examples and much more.

Detailed technical data

Features

	VTE18L	VL18L	VSE18L
Sensor principle	Photoelectric proximity sensor	Photoelectric retro-reflective sensor	Through-beam photoelectric sensor
Detection principle	Energetic	Standard optics	–
Housing design (light emission)	Cylindrical, straight; cylindrical, angled (depending on type)		
Housing length	97.7 mm/107.7 mm (depending on type)		
Thread diameter (housing)	M18 x 1		
Sensing range max.			
Axial	0 mm ... 400 mm [1]	0.1 m ... 35 m [2]	0 m ... 60 m
Radial	2 mm ... 250 mm [1]	0.1 m ... 35 m [2]	0 m ... 60 m
Sensing range			
Axial	5 mm ... 300 mm	0.1 m ... 30 m [2]	0 m ... 50 m
Radial	5 mm ... 200 mm	0.1 m ... 30 m [2]	0 m ... 50 m
Focus [3]		–	
Type of light	Visible red light		
Light source [4]	Laser		
Angle of dispersion	–	0.04°	0.06°
Wave length	650 nm		
Laser class	1 (IEC 60825-1)		
Adjustment	Cable, Single teach-in button		Potentiometer, 270 °

[1] Object with 90 % reflectance (referred to standard white, DIN 5033)
[2] P250F.
[3] Focused, focus at 100 mm.
[4] Average service life of 100,000 h at T_A = +25 °C.

Mechanics/electronics

	VTE18L	VL18L	VSE18L
Supply voltage [1]	10 V DC ... 30 V DC		
Ripple [2]	≤ 10 %		
Power consumption [3]	≤ 30 mA	≤ 20 mA	≤ 25 mA
Output type	PNP/NPN (depending on type)		
Switching mode	Light/dark-switching		
Switching mode selector	Selectable via control input C		Selectable via L/D control wire
Output current $I_{max.}$	≤ 100 mA		
Response time [4]	≤ 0.625 ms		≤ 0.5 ms
Switching frequency [5]	800 Hz		1,000 Hz
Angle of reception	–		0.08°
Connection type	Male connector, M12		
Circuit protection	A [6], B [7], C [8], D [9]		
Protection class	III		
Weight	60 g		120 g
Polarisation filter	–	✔	–
Housing material	Nickel-plated brass/PC		
Optics material	PC with protective glass pane		

	VTE18L	VL18L	VSE18L
Enclosure rating	IP 67		
Test input sender off	–		“Test” to 0V
Ambient operating temperature	–15 °C ... +55 °C		
Ambient storage temperature	–25 °C ... +70 °C		

[1] Limit values.
[2] May not exceed or fall short of V_S tolerances.
[3] Without load.
[4] Signal transit time with resistive load.
[5] With light/dark ratio 1:1.
[6] A = V_S connections reverse-polarity protected.
[7] B = inputs and output reverse-polarity protected.
[8] C = interference suppression.
[9] D = outputs overcurrent and short-circuit protected.

Ordering information

Other models available at www.mysick.com/en/V18_Laser

VTE18L

- **Sensor principle:** photoelectric proximity sensor
- **Detection principle:** energetic
- **Adjustment:** cable, single teach-in button

Housing design	Sensing range max. [1]	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
Axial	0 mm ... 400 mm	Ø 8 mm (300 mm)	PNP	Light/dark-switching	Connector M12, 4-pin	Cd-099	VTE18L-4P324	6027418
			NPN	Light/dark-switching	Connector M12, 4-pin	Cd-099	VTE18L-4N324	6027420
Radial	2 mm ... 250 mm	Ø 5 mm (200 mm)	PNP	Light/dark-switching	Connector M12, 4-pin	Cd-099	VTE18L-4P344	6027422
			NPN	Light/dark-switching	Connector M12, 4-pin	Cd-099	VTE18L-4N344	6027424

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

VL18L

- **Sensor principle:** photoelectric retro-reflective sensor
- **Detection principle:** standard optics
- **Adjustment:** cable, single teach-in button

Housing design	Sensing range max. [1]	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
Axial	0.1 m ... 35 m	Ø 9 mm (35 mm)	PNP	Light/dark-switching	Connector M12, 4-pin	Cd-099	VL18L-4P324	6027430
				Light switching	Connector M12, 4-pin	Cd-066	VL18L-3F324	6034330
			NPN	Light/dark-switching	Connector M12, 4-pin	Cd-099	VL18L-4N324	6027432
Radial	0.1 m ... 35 m	Ø 9 mm (35 mm)	PNP	Light/dark-switching	Connector M12, 4-pin	Cd-099	VL18L-4P344	6027434
			NPN	Light/dark-switching	Connector M12, 4-pin	Cd-099	VL18L-4N344	6027436

[1] P250F.

VSE18L

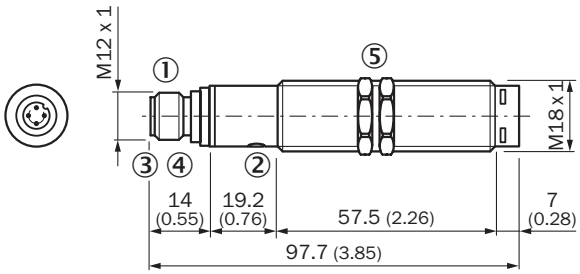
- **Sensor principle:** through-beam photoelectric sensor
- **Adjustment:** potentiometer, 270 °

Housing design	Sensing range max.	Light spot size (distance)	Output type	Switching mode	Connection	Connection diagram	Model name	Part no.
Axial	0 m ... 60 m	Ø 40 mm (50 mm)	PNP	Light/dark-switching	Connector M12, 4-pin	Cd-219	VSE18L-4P324	6027931
			NPN	Light/dark-switching	Connector M12, 4-pin	Cd-219	VSE18L-4N324	6027933
Radial	0 m ... 60 m	Ø 40 mm (50 mm)	PNP	Light/dark-switching	Connector M12, 4-pin	Cd-219	VSE18L-4P344	6027935
			NPN	Light/dark-switching	Connector M12, 4-pin	Cd-219	VSE18L-4N344	6027937

Dimensional drawings

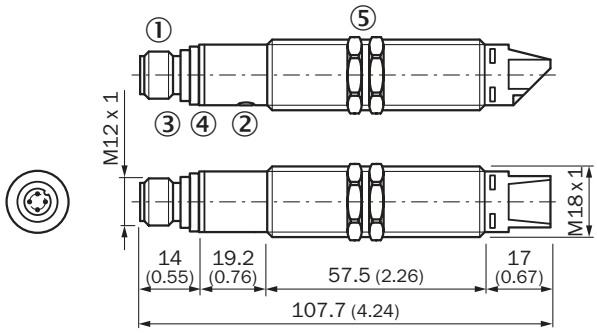
Dimensions in mm (inch)

Axial



① Connector M12, 4-pin
② Sensitivity setting; single teach-in button
③ Green LED indicator: V_S supply voltage feed
④ Yellow LED indicator:- lights continuously: Reception signal> reserve factor 2- blinks: Reception signal< reserve factor 2 but > switching threshold 1
⑤ Fastening nuts (2 x); width across 24, metal(included with delivery)

Radial



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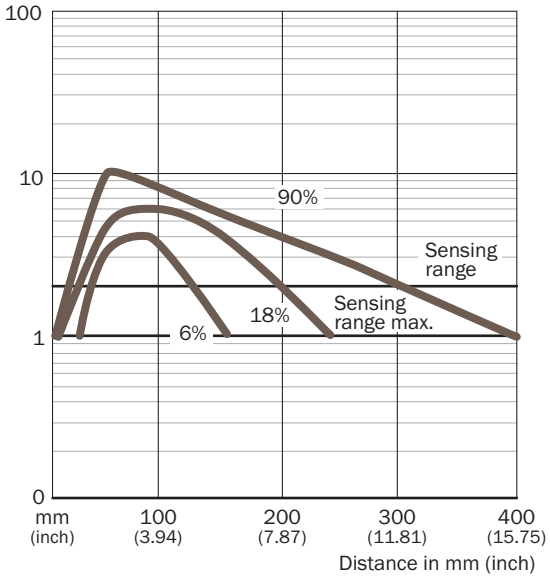
⑤ Fastening nuts (2 x); width across 24, metal(included with delivery)

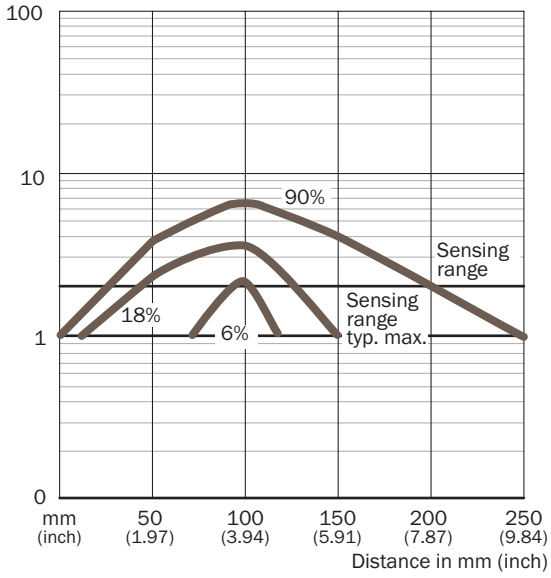
Characteristic curves

Black-white shift

VTE18L, axial

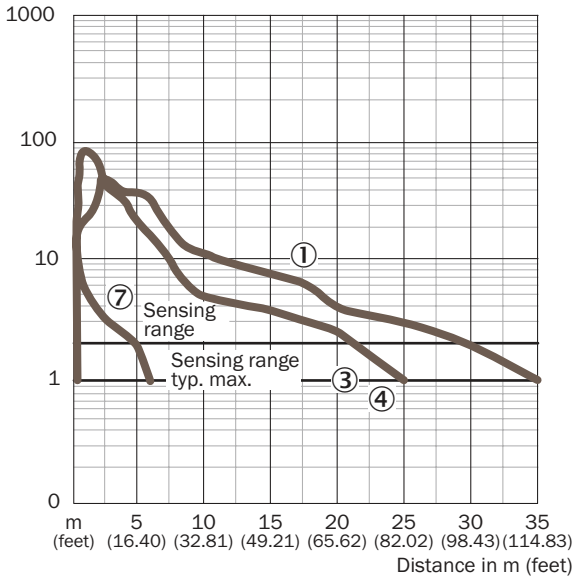


VTE18L, radial

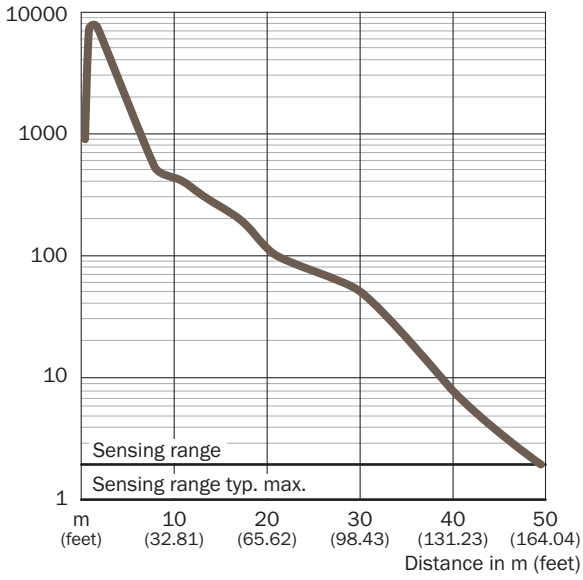


Operating reserve

VL18L



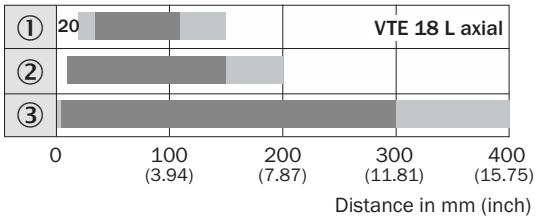
VSE18L

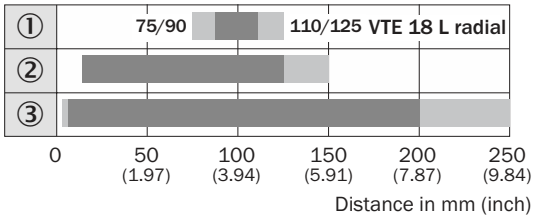


① P250F
③ PL80A
④ P250
⑦ Reflective tape Diamond Grade

Bar diagrams

VTE18L

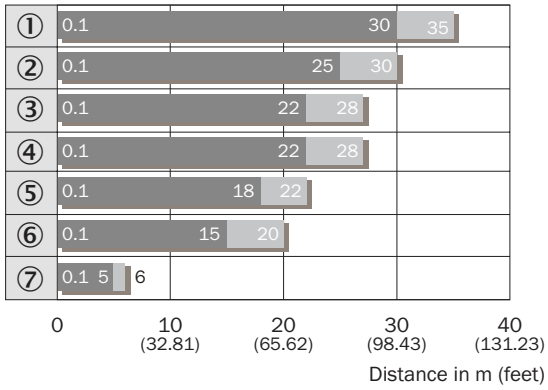




Sensing range Sensing range max.

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

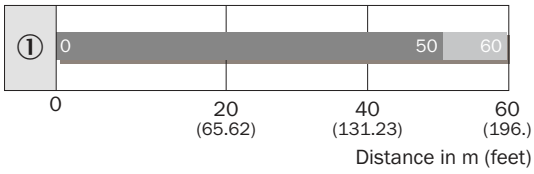
VL18L



Sensing range Sensing range max.

① P250F
② PL10F
③ PL80A
④ P250
⑤ C110A
⑥ PL20F
⑦ Reflective tape Diamond Grade

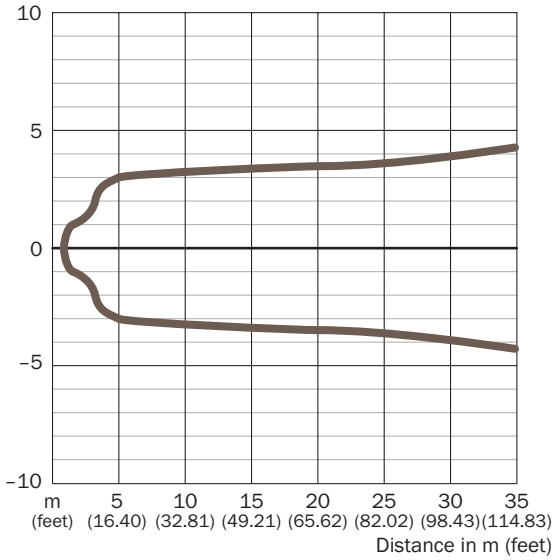
VSE18L



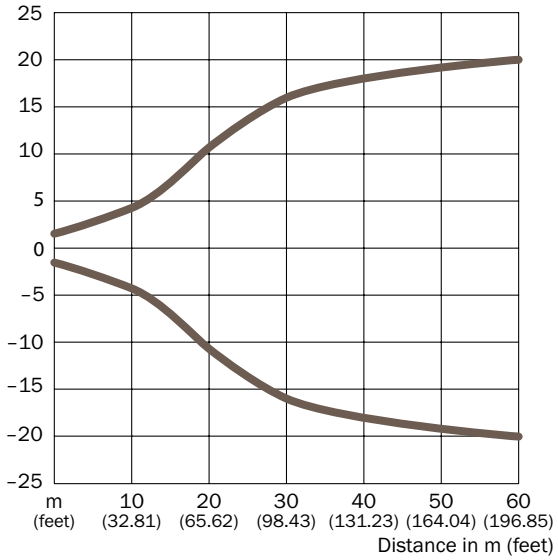
Sensing range Sensing range max.

Light spot diameter

VL18L

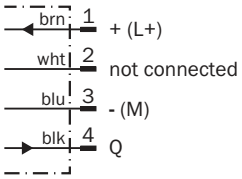


VSE18L

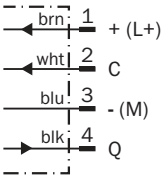


Connection diagram

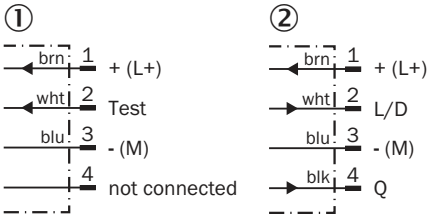
Cd-066



Cd-099



Cd-219



① Sender
② Receiver

Recommended accessories

Mounting brackets/plates

Mounting brackets

Figure	Material	Description	Model name	Part no.
	Steel, zinc coated	Mounting plate for M18 sensors	BEF-WG-M18	5321870
		Mounting bracket, M18 thread	BEF-WN-M18	5308446

Plug connectors and cables

Connecting cable (female connector-open)

- **Cable material:** PVC
- **Connector material:** TPU

Figure	Connection type head A	Connection type head B	Connecting cable	Enclosure rating	Model name	Part no.
	Female connector, M12, 4-pin, straight	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-1204-G02M	6009382
			5 m, 4-wire	IP 67	DOL-1204-G05M	6009866
	Female connector, M12, 4-pin, angled	Cable, open conductor heads	2 m, 4-wire	IP 67	DOL-1204-W02M	6009383
			5 m, 4-wire	IP 67	DOL-1204-W05M	6009867

Female connector (ready to assemble)

Figure	Connection type head A	Connection type head B	Connector material	Enclosure rating	Model name	Part no.
	Female connector, M12, 4-pin, straight	Screw-type terminals	PBT	IP 67	DOS-1204-G	6007302
	Female connector, M12, 4-pin, angled	Screw-type terminals	PBT	IP 67	DOS-1204-W	6007303

Universal bar clamp systems

Figure	Material	Description	Model name	Part no.
	Zinc plated steel (sheet), Diecast zinc (clamp)	Plate N06 for universal clamp bracket	BEF-KHS-N06	2051612

Reflectors

Angular

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Rectangular, screw connection, 47 mm x 47 mm	P250	5304812
		Rectangular, screw connection, 80 mm x 80 mm	PL80A	1003865

Fine triple reflectors

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Fine triple, screw connection, suitable for laser sensors, 47 mm x 47 mm	P250F	5308843
		Fine triple, screw connection, suitable for laser sensors, 18 mm x 18 mm	PL10F	5311210
		Fine triple, screw connection, suitable for laser sensors, 38 mm x 16 mm	PL20F	5308844
		Fine triple, screw connection, suitable for laser sensors, 56 mm x 28 mm	PL30F	5326523

Round

Figure	Material	Description	Model name	Part no.
	PMMA/ABS	Round, screw connection	C110A	5304549

Terminal and alignment brackets

Alignment brackets

Figure	Material	Description	Model name	Part no.
	Plastic	Mounting bracket with ball-and-socket	BEF-WN-M18-ST02	5312973

Terminal brackets

Figure	Material	Description	Model name	Part no.
	Plastic (PA12), glass-fiber reinforced	Clamping block for round sensors M18, without fixed stop	BEF-KH-M18	2051481
		Clamping block for round sensors M18, with fixed stop	BEF-KHF-M18	2051482

→ **For additional accessories, please see page L-861**