Thru-beam sensor

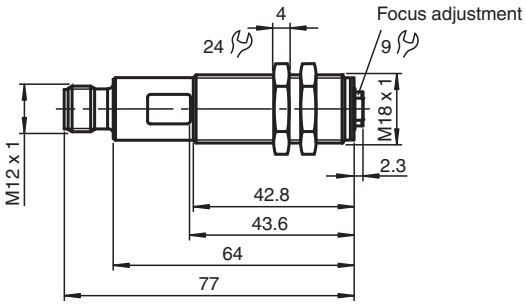
VS18/VSE18-M-LAS/40a/76a/118

- M18 threaded housing made of brass, nickel plated
- Detection of very small parts in the near range
- Visible red light, pulsed LASER light
- Focusable optical system
- Array control panel with highly visible LED display
- Flashing power on LED in case of short-circuit

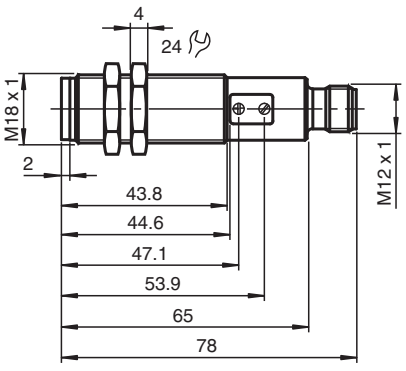
Thru-beam sensor, M18 threaded housing design, nickel-coated brass housing, 60 m detection range, laser light, sensitivity adjuster, light/dark on, DC version, push-pull output, M12 plug

Dimensions

Transmitter



Receiver



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Technical Data

System components		
Emitter		VS18-M-LAS/76a/118
Receiver		VSE18-M-LAS/40a/118/128
General specifications		
Effective detection range		0 ... 60 m
Threshold detection range		85 m
Light source		laser diode
Light type		modulated visible red light
Laser nominal ratings		
Note		LASER LIGHT , DO NOT STARE INTO BEAM
Laser class		1
Wave length		655 nm
Beam divergence		11.7 mrad
Pulse length		2 µs
Repetition rate		50 kHz
max. pulse energy		2.55 nJ
Diameter of the light spot		100 mm x 100 mm at a distance of 85 m
Opening angle		adjustable focal point
Optical face		frontal
Ambient light limit		30000 Lux
Hysteresis	H	< 15 %
Functional safety related parameters		
$MTTF_d$		520 a
Mission Time (T_M)		20 a
Diagnostic Coverage (DC)		90 %
Indicators/operating means		
Operation indicator		LED green, flashes in case of short-circuit
Function indicator		LED yellow, light with free light beam , flashes when falling short of the stability control , OFF when light beam is interrupted (in receiver)
Control elements		Sensitivity adjuster, light/dark switch (receiver)
Electrical specifications		
Operating voltage	U_B	10 ... 30 V DC , class 2
No-load supply current	I_0	Emitter: 20 mA , Receiver: 15 mA
Protection class		II , rated voltage ≤ 50 V AC with pollution degree 1-2 according to IEC 60664-1
Input		
Test input		emitter deactivation at $+U_B$
Output		
Switching type		light/dark on, switchable
Signal output		Push-pull (4 in 1) output short-circuit protected overvoltage protected
Switching voltage		30 V DC
Switching current		max. 200 mA
Voltage drop	U_d	≤ 2.5 V DC
Switching frequency	f	5000 Hz
Response time		100 µs
Conformity		
Product standard		EN 60947-5-2
Compliance with standards and directives		
Standard conformity		
Laser class		IEC 60825-1:2007 Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No. 50, dated June 24, 2007
Approvals and certificates		
EAC conformity		TR CU 020/2011
UL approval		cULus Listed, Type 1 enclosure
CCC approval		CCC approval / marking not required for products rated ≤36 V

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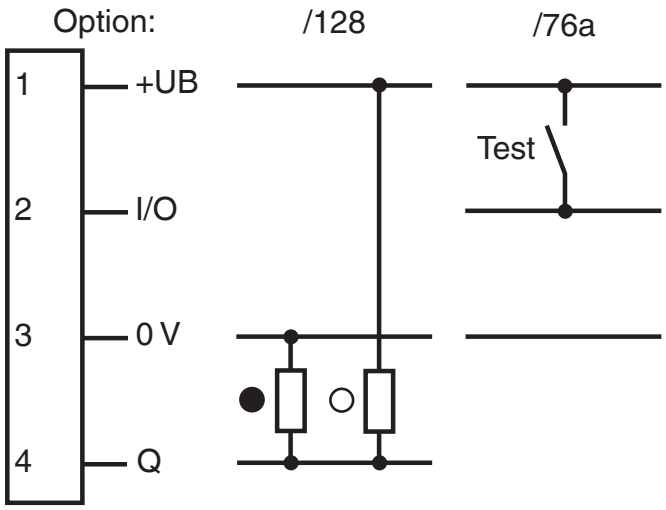
Technical Data

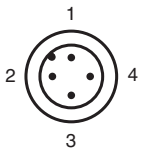
Ambient conditions	
Ambient temperature	-25 ... 55 °C (-13 ... 131 °F)
Storage temperature	-30 ... 70 °C (-22 ... 158 °F)
Shock resistance	b < 30 g, T < 11 ms
Mechanical specifications	
Degree of protection	IP67
Connection	4-pin, M12 x 1 connector
Material	
Housing	brass, nickel-plated
Optical face	plastic
Mass	60 g (device)

Connection Assignment



○ = Light on
● = Dark on

Connection Assignment



Wire colors in accordance with EN 60947-5-2

1	BN	(brown)
2	WH	(white)
3	BU	(blue)
4	BK	(black)

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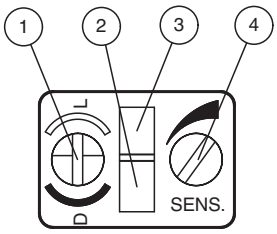
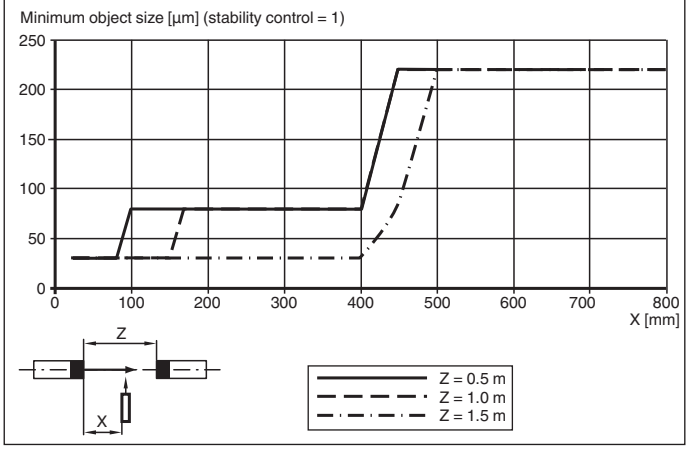
Assembly



1	Light/dark switch	
2	Operating display	green
3	Switch state	yellow
4	Sensitivity adjustment	

Object detection



Safety Information

Laser Class 1 Information
The irradiation can lead to irritation especially in a dark environment. Do not point at people!
Maintenance and repairs should only be carried out by authorized service personnel!
Attach the device so that the warning is clearly visible and readable.
The warning accompanies the device and should be attached in immediate proximity to the device.
Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

Accessories

	**OMH-VL18**	Mounting Bracket with swivel nut
	**BF 18**	Mounting flange, 18 mm
	**BF 18-F**	Plastic mounting adapter, 18 mm
	**BF 5-30**	Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm
	**V1-G-2M-PUR**	Female cordset single-ended M12 straight A-coded, 4-pin, PUR cable grey
	**V1-W-2M-PUR**	Female cordset single-ended M12 angled A-coded, 4-pin, PUR cable grey

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Adjustment

Small object detection

The focal point of the emitter can be adjusted. Very small objects are best detected at the focal point (place of smallest spot size).

Whether a small object can be detected or not depends on the emitter/receiver as well as on the emitter/object distance. Please see the coresponding curves enclosed.

For long distance application, you have to avoid a short focal plane setting. The maximum light spot diameter at the receivers location must not exceed 100 mm for reliable detection with 2-fold function reserve.

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