



Model Number

VDM28-50-R/73c/136

Distance sensor
with 4-pin, M12 x 1 connector

Features

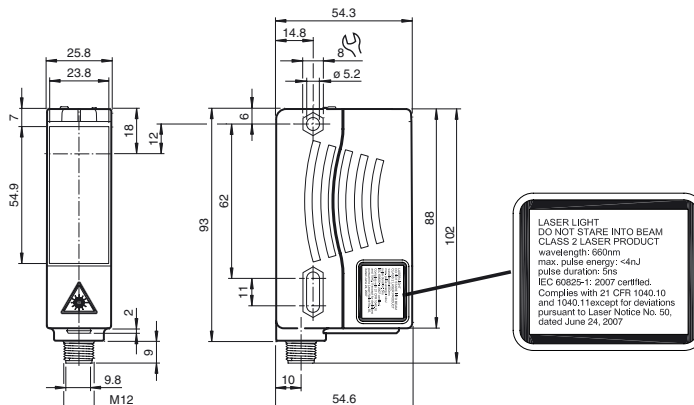
- Operates reliably with Pulse Ranging Technology (PRT)
- Red laser as the light emitter
- Smallest device with PRT for applications as measuring sensor
- IO-link interface for service and process data
- 2 Switching points per output
- Not sensitive to ambient light, even with energy saving lamps

Description

The VDM28 distance measurement device employs Pulse Ranging Technology (PRT). It has a repeat accuracy of 5 mm with an operating range of 0.2 ... 50 m and an absolute accuracy of 25 mm.

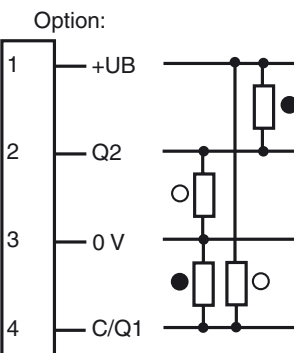
The sensor is highly resistant to ambient conditions. The compact housing of the Series 28 photoelectric sensors, with dimensions of 88 mm (height), 26 mm (width) and 54 mm (depth), make it the smallest device available in its class.

Dimensions



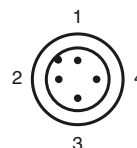
LASER LIGHT
DO NOT STARE INTO BEAM
CLASS 2 LASER PRODUCT
wavelength: 660nm
max. pulse energy: $4\mu\text{J}$
pulse duration: 5ns
IEC 60825-1: 2007 certified.
Complies with 21 CFR 1040.10
and 1040.11 except for deviations
pursuant to Laser Notice No. 50,
dated June 24, 2007.

Electrical connection

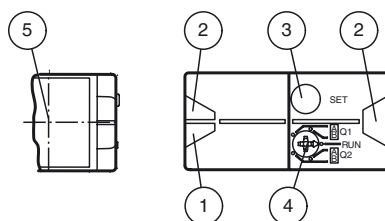


○ = Light on
● = Dark on

Pinout



Indicators/operating means



1	Operating display	green
2	Signal display	yellow
3	TEACH-IN button	
4	Mode rotary switch	
5	Laser output, Class 2 Laser	

Release date: 2010-07-22 13:02 Date of issue: 2010-07-22 223676_ENG.xml

Technical data**General specifications**

Measurement range	0.2 ... 50 m
Reference target	OFR-100/100
Light source	laser diode typ. service life 85,000 h at Ta = +25 °C
Light type	modulated visible red light
Laser nominal ratings	
Note	LASER LIGHT , DO NOT STARE INTO BEAM
Laser class	2
wave length	660 nm
Beam divergence	1 mrad
Pulse length	5 ns
Repetition rate	250 kHz
max. pulse energy	< 4 nJ
Angle deviation	max. ± 2°
Measuring method	Pulse Ranging Technology (PRT)
Diameter of the light spot	< 50 mm at a distance of 50 m at 20 °C
Ambient light limit	50000 Lux
Temperature influence	typ. ≤ 0.25 mm/K

Functional safety related parameters

MTTF _d	200 a
Mission Time (T _M)	10 a
Diagnostic Coverage (DC)	0 %

Indicators/operating means

Operating display	LED green
Function display	2 LEDs yellow for switching state
TEACH-IN indication	TEACH-IN: LED green/yellow equiphase flashing; 2.5 Hz Teach Error: LED green/yellow non equiphase flashing; 8.0 Hz
Controls	5-step rotary switch for operating modes selection (threshold setting and operating modes)
Controls	Switch for setting the threshold values

Electrical specifications

Operating voltage	U _B	10 ... 30 V DC , class 2
Ripple		10 % within the supply tolerance
No-load supply current	I ₀	≤ 70 mA / 24 V DC

Output

Signal output		2 Push-pull outputs, short-circuit proof, reverse polarity protection
Switching voltage		max. 30 V DC
Switching current		max. 100 mA
Switching frequency	f	50 Hz
Response time		10 ms

Performance characteristics

Absolute accuracy		± 25 mm
Repeat accuracy		< 5 mm

Ambient conditions

Ambient temperature		-30 ... 50 °C (-22 ... 122 °F)
Storage temperature		-30 ... 70 °C (-22 ... 158 °F)

Mechanical specifications

Protection degree		IP65
Connection		connector M12 x 1, 4-pin
Material		
Housing		Plastic ABS
Optical face		Plastic pane
Mass		90 g

Compliance with standards and directives

Directive conformity		EMC Directive 2004/108/EC
Standard conformity		
Product standard		EN 60947-5-2:2007 IEC 60947-5-2:2007
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

Protection class		II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
UL approval		cULus Listed , Class 2 power source

Accessories**OMH-05**

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-07

Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm

OMH-21

Mounting bracket

OMH-22

Mounting bracket

OMH-MLV11-K

dove tail mounting clamp

OMH-RLK29

Mounting bracket

OMH-RLK29-HW

Mounting bracket for rear wall mounting

OMH-RL28-C

Protective cover

OMH-K01

dove tail mounting clamp

OMH-K03

dove tail mounting clamp

OFR-100/100

Reflective tape 100 mm x 100 mm

REFLEKTOR MH82

Reflector with Micro-structure, rectangular 82 mm x 60 mm, mounting holes

REFLEKTOR MH50

Reflector with Micro-structure, rectangular 50.9 mm x 50.9 mm, mounting holes, fixing strap

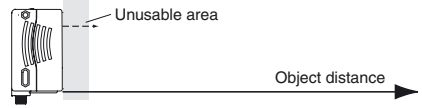
REFLEKTOR MH78

Reflector with Micro-structure, hexagonal 78 mm x 61 mm, mounting holes

Additional accessories can be found in the Internet.

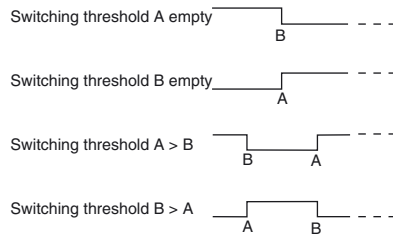
Curves/Diagrams

Switching output programming



The teach-in process are equal for Q1 and Q2

Switching point and window



Adjustment

Teach-in

With the rotary switch, you can select output Q1 or Q2 and the relevant switching threshold A or B. The yellow LEDs indicate the current state of the selected output.

To store the switching threshold (distance value) press the "SET" button until the LEDs flash in phase (approx. 2 s). Teach-in starts when the "SET" button is released.

Successful teach-in is indicated by alternating flashing (2.5 Hz) of the yellow and green LEDs.

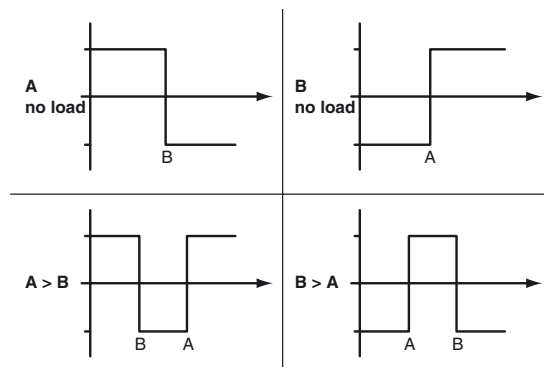
Unsuccessful teach-in is indicated by alternating flashing (8 Hz).

After successful teach-in, the output and LED change their status.

After unsuccessful teach-in, the sensor continues to operate with the previous valid setting after the relevant error message is issued.

This procedure can be repeated for all switching points.

Different switching modes can be selected by choosing different switching points.



Every taught-in value can be re-taught (overwritten) by pressing the SET button again.

By pressing the "SET" button for > 5 s, the taught-in value is deleted. This procedure is indicated when the LEDs go out simultaneously.

Default setting

In general, no switching points are set at the factory. The outputs are switched to low.

Reset to default settings

- Set the rotary switch to the "RUN" position.
- Press the "SET" button until the in-phase flashing of the LEDs stops (approx. 10 s)
- If the green LED lights up, the procedure is complete.

Error messages

- Short circuit: In the event of a short circuit, the green LED flashes with a frequency of approx. 4 Hz.
- Teach error: In the event of a teach error, both LEDs flash alternately with a frequency of approx. 8 Hz.

Laser notice laser class 2

- The irradiation can lead to irritation even in a dark environment. Do not point at people!
- Caution: Do not look into the beam!
- Maintenance and repairs should only be carried out by authorized service personnel!
- Attach the device so that the warning is clearly visible and readable.
- Caution – Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.