



**Model Number**

**VDM28-50-R-IO/73c/110/122**

Distance sensor  
with 4-pin, M12 x 1 connector

**Features**

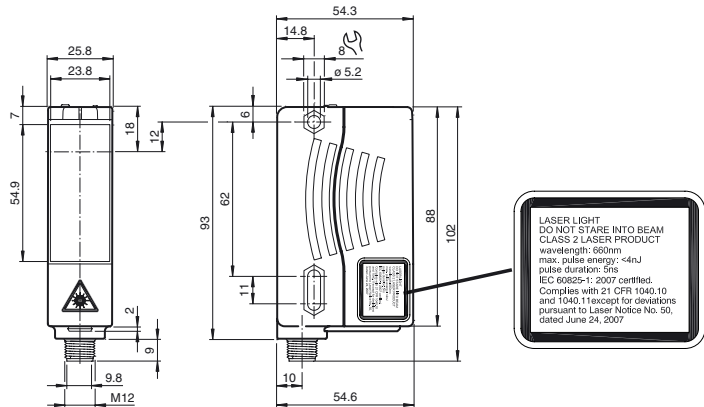
- Operates reliably with Pulse Ranging Technology (PRT)
- Red laser as the light emitter
- Analog output 0/4 mA ... 20 mA
- Smallest device with PRT for applications as measuring sensor
- IO-link interface for service and process data
- 2 Switching points per output
- Not sensitive to ambient light, even with energy saving lamps

**Description**

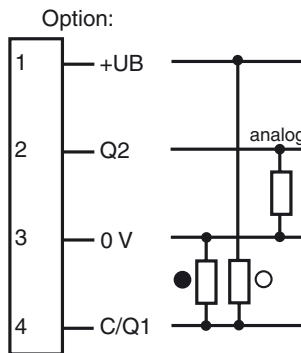
The VDM28 distance measurement device employs Pulse Ranging Technology (PRT). It has a repeat accuracy of 5 mm with an operating range of 0.2 ... 50 m and an absolute accuracy of 25 mm. The sensor is highly resistant to ambient conditions. The compact housing of the Series 28 photoelectric sensors, with dimensions of 88 mm (height), 26 mm (width) and 54 mm (depth), make it the smallest device available in its class.

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**Dimensions**

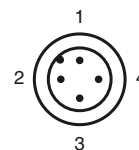


**Electrical connection**

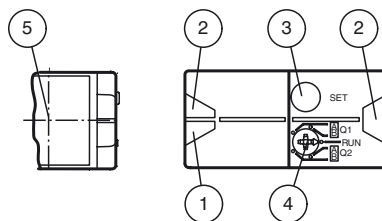


- = Light on
- = Dark on

**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	

**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 <sub>d</sub>	200 a
Mission Time (T <sub>M</sub> )	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 <sub>B</sub>	10 ... 30 V DC / when operating in IO-Link mode: 18 ... 30 V
Ripple		10 % within the supply tolerance
No-load supply current	I <sub>0</sub>	≤ 70 mA / 24 V DC

**Interface**

Interface type	IO-Link
Protocol	IO link V1.0
Cycle time	min. 2.3 ms
Mode	COM 2 (38.4 kBaud)
Process data width	16 bit
SIO mode support	yes

**Output**

Signal output	Push-pull output, short-circuit proof, protected against reverse polarity	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
Measurement output	1 analog output 4 ... 20 mA, short-circuit/overload protected	
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****Accessories****IO-Link-Master-USB DTM**

Communication DTM for use of IO-Link-Master

**OMH-05**

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

**PACTware 4.X****VDM28-IO-Link DTM**

Device DTM for communication with VDM28-IO-Link sensors

**OMH-07**

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

**OMH-21**

Mounting bracket

**IODD Interpreter**

Software for the integration of IODDs in a frame application (e. g. PACTware)

**OMH-22**

Mounting bracket

**IO-Link-Master01-USB**

IO-Link Master

**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

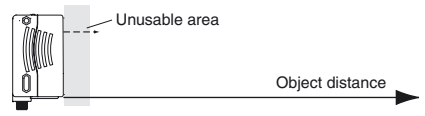
**REFLEKTOR MH78**

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

Additional accessories can be found in the Internet.

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

### Switching output programming



The teach-in process are equal for Q1 and Q2

#### Switching point and window

Switching threshold A empty B

Switching threshold B empty A

Switching threshold A > B B A

Switching threshold B > A A B

### 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.