



IO-Link

Model Number

VDM28-8-L-IO/73c/110/122

Distance sensor
with 4-pin, M12 x 1 connector

Features

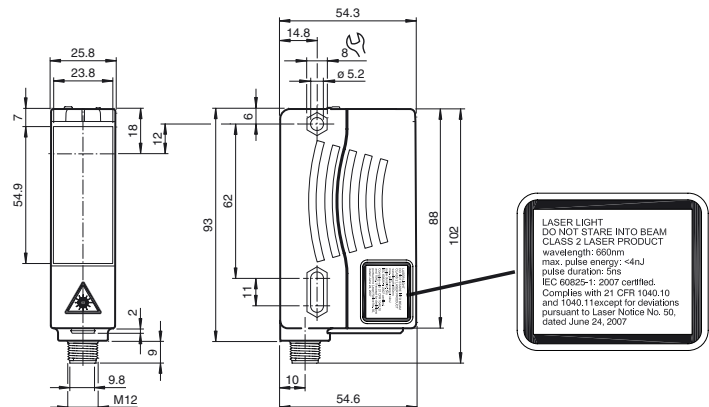
- Operates reliably with Pulse Ranging Technology (PRT)
- Red laser as the light emitter
- Analog output 0/4 mA ... 20 mA
- Protected against mutual interference (no crosstalk)
- High reproducibility irrespective of the surface
- IO-link interface for service and process data
- Minimal black/white difference
- Not sensitive to ambient light, even with energy saving lamps

Product information

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 ... 8 m and an absolute accuracy of 25 mm.

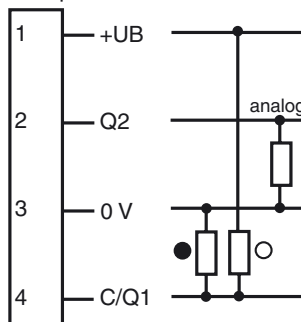
The sensor is highly resistant to ambient conditions. The compact housing of the Series 28 photoelectric sensors, with dimensions of 88 mm (height), 26 mm (width) and 54 mm (depth), make it the smallest device available in its class.

Dimensions



Electrical connection

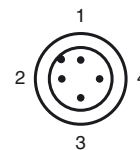
Option:



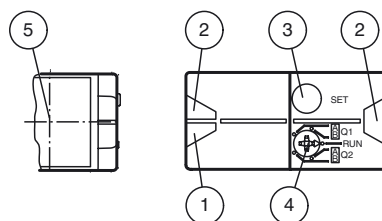
○ = Light on

● = 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	

Technical data**General specifications**

Measurement range	0.2 ... 8 m
Reference target	Kodak white (90%)
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	< 10 mm at a distance of 8 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 / when operating in IO-Link mode: 18 ... 30 V
Ripple		10 % within the supply tolerance
No-load supply current	I ₀	≤ 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 protected, reverse polarity protected
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

Measurement accuracy

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-VDM28-01-B**PACTware 4.X****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

VDM28-IO-Link DTM

Device DTM for communication with VDM28-IO-Link sensors

IODD Interpreter

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

OMH-21

Mounting bracket

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

OMH-VDM28-01-A**OMH-VDM28-01**

Additional accessories can be found in the Internet.

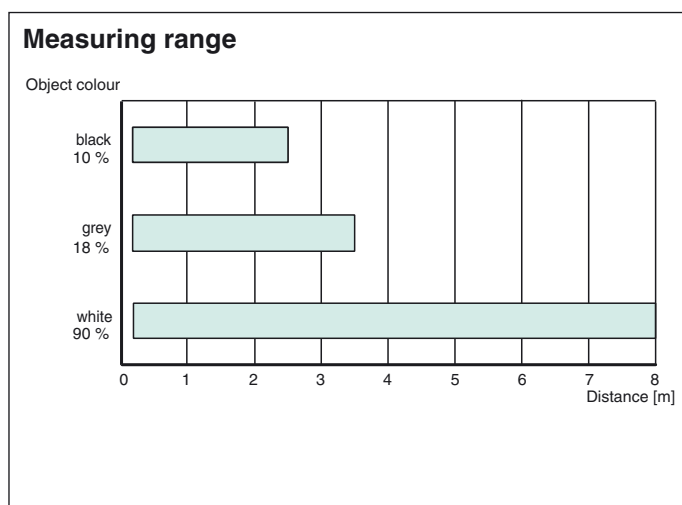
Protection class

II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1

UL approval

cULus Listed, Class 2 Power Source, Type 1 enclosure

Curves/Diagrams



Adjustment

Teach-in

With the rotary switch, you can select output Q1 and the relevant switching threshold A and/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.

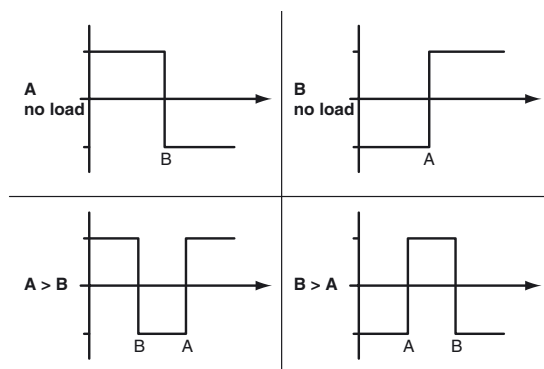
Unsuccessful teach-in is indicated by alternating flashing (8 Hz).

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.

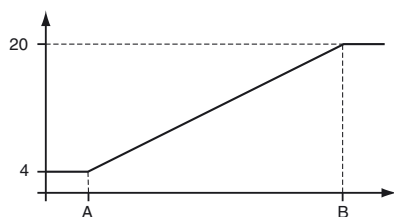
By pressing the "SET" button for > 5 s, the taught-in value is deleted. This procedure is indicated when the LEDs go out simultaneously. The teach-in of the minimum and maximum value for the analog output **Q2** is set in the same way as the switching output:

For: A = 4 mA

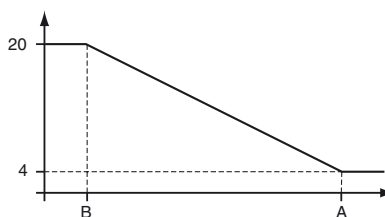
B = 20 mA

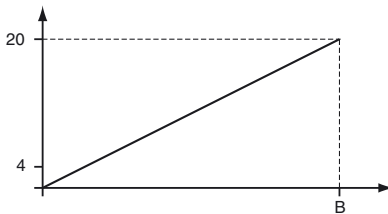
With this three different modes are achieved:

A < B -> rising slope



A > B -> falling slope



A empty -> zero point straight**Default setting analog output Q2**

A = 200 mm

B = 5000 mm



It is not possible to delete value B.

By deleting value A you reach mode „zero point straight“

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 especially 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.