



Model number

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

Distance sensor
with 4-pin, M12 x 1 connector

Features

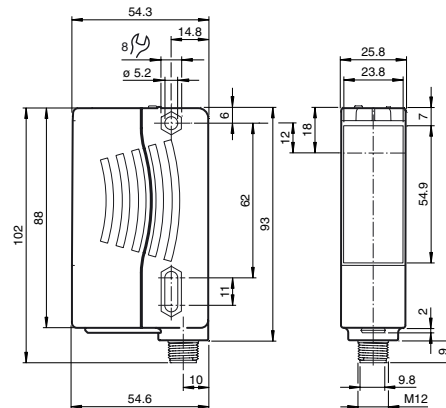
- Operates reliably with Pulse Ranging Technology (PRT)
- Red laser as the light emitter
- Analogue output 0/4 mA ... 20 mA
- Smallest device with PRT for applications as measuring sensor
- High reproducibility irrespective of the surface
- Minimal black-white difference
- IO-link interface for service and process data
- Not sensitive to ambient light, even with energy saving lamps

Description

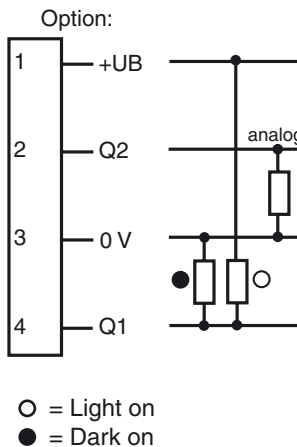
The VDM28 distance measurement device employs Pulse Ranging Technology (PRT). It has a repeat accuracy of 5 mm with an operating range of 0.2 ... 8 m and an absolute accuracy of 25 mm.

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.

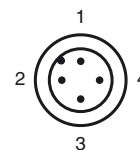
Dimensions



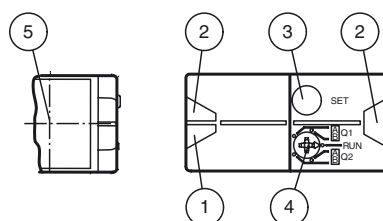
Electrical connection



Pinout



Indicators/operating means



1	Operating display	green
2	Signal display	yellow
3	TEACH-IN button	
4	Mode rotary switch	
5	Optical axis emitter	

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Subject to modifications without notice

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Technical data**General specifications**

Light source	laser diode red , 660 nm typ. service life 85,000 h at Ta = +25 °C
Angle deviation	max. ± 2°
Approvals	CE
Laser class	2
Measuring method	Pulse Ranging Technology (PRT)
Measuring range	0.2 ... 8 m
Reference target	Kodak white (90%)
Light type	red, modulated light
Diameter of the light spot	< 10 mm at a distance of 8 m at 20 °C (293 K)
Ambient light limit	50000 Lux
Temperature influence	typ. ≤ 0.25 mm/K

Indicators/operating means

Operating display	LED green
Function display	2 LEDs yellow for switching state
Teach-In indication	Teach-In: LED yellow/green; equiphase flashing, 2,5 Hz Teach Error: LED green/yellow non equiphase flashing; 8.0 Hz
Operating elements	5-step rotary switch for operating modes selection (threshold setting and operating modes)
Operating elements	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
Protection class		II, rated voltage ≤ 250 V AC with pollution degree 1-2 according to IEC 60664-1
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 proof, protected against reverse polarity	
Switching voltage	max. 30 V DC	
Switching current	max. 100 mA	
Measurement output	1 analogue 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

Standard conformity

Standards	EN 60947-5-2
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Ambient conditions

Ambient temperature	-30 ... 50 °C (243 ... 323 K)
Storage temperature	-30 ... 70 °C (243 ... 343 K)

Mechanical specifications

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

Accessories**IO-Link-Master-USB DTM**

DTM collection

OMH-05

Mounting aid

OMH-07

Mounting aid

OMH-21

Mounting aid

OMH-22

Mounting aid

OMH-MLV11-K

Mounting aid

OMH-RLK29

Mounting aid

OMH-RLK29-HW

Mounting aid

OMH-RL28-C

Mounting aid

IO-Link-Master01-USB

IO-Link Master

OMH-K01

Mounting aid

OMH-K03

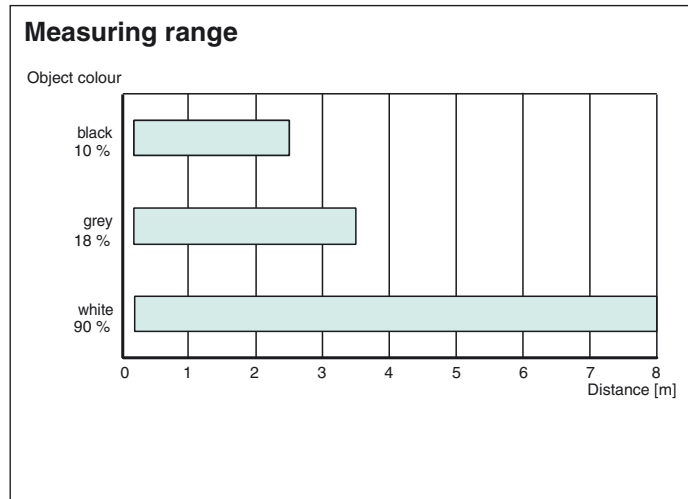
Mounting aid

VDM28-IO-Link DTM

DTM collection

Additional accessories can be found in the Internet.

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.

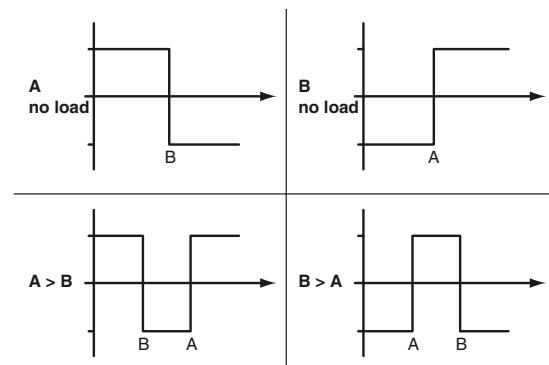
Unsuccessful teach-in is indicated by alternating flashing (8 Hz).

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.

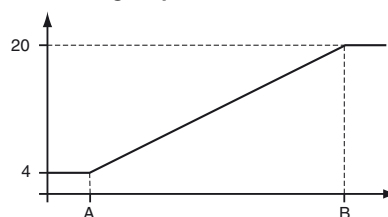
The teach-in of the minimum and maximum value for the analog output **Q2** is set in the same way as the switching output:

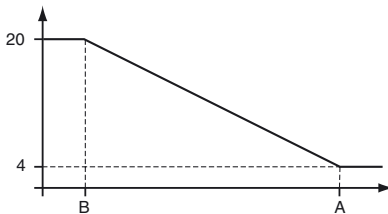
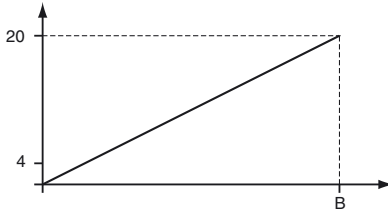
For: A = 4 mA

B = 20 mA

With this three different modes are achieved:

A < B -> rising slope



A > B -> falling slope**A leer -> 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.