



# DML40-2-1211

DML

LONG RANGE DISTANCE SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

| Type         | Part no. |
|--------------|----------|
| DML40-2-1211 | 1027608  |

Other models and accessories → [www.sick.com/DML](http://www.sick.com/DML)



### Detailed technical data

#### Mechanics/electronics

|                                        |                                           |
|----------------------------------------|-------------------------------------------|
| <b>Supply voltage <math>V_s</math></b> | DC 18 V ... 30 V, limit values            |
| <b>Ripple</b>                          | 5 V <sub>pp</sub> <sup>1)</sup>           |
| <b>Power consumption</b>               | ≤ 6 W <sup>2)</sup>                       |
| <b>Initialization time</b>             | 6 s                                       |
| <b>Connection type</b>                 | 1 x terminal connection, 1 x Sub D, 9-pin |
| <b>Weight</b>                          | Approx. 1,200 g                           |
| <b>Enclosure rating</b>                | IP65                                      |
| <b>Protection class</b>                | III <sup>3)</sup>                         |

<sup>1)</sup> May not fall short of or exceed  $V_s$  tolerances.

<sup>2)</sup> Without load.

<sup>3)</sup> Reference voltage DC 50 V PELV-voltage (EN 50178).

#### Performance

|                               |                                                                                                                                                                                  |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Measuring range</b>        | 0.5 m ... 600 m, on reflective tape "Diamond Grade" <sup>1)</sup><br>0.5 m ... 800 m, on reflector PL880FS01 <sup>2)</sup><br>0.5 m ... 1,200 m, on reflector OP60 <sup>3)</sup> |
| <b>Target</b>                 | Reflector                                                                                                                                                                        |
| <b>Resolution</b>             | ≤ 1 mm                                                                                                                                                                           |
| <b>Repeatability</b>          | 6 mm <sup>4) 5)</sup>                                                                                                                                                            |
| <b>Accuracy</b>               | ± 10 mm <sup>6) 7)</sup>                                                                                                                                                         |
| <b>Response time</b>          | 1 ms ... 600 ms <sup>8)</sup>                                                                                                                                                    |
| <b>Measurement cycle time</b> | 0.195 ms                                                                                                                                                                         |
| <b>Average depth</b>          | 1/16/64/256/1,024                                                                                                                                                                |

<sup>1)</sup> On reflective tape "Diamond Grade".

<sup>2)</sup> On reflector PL880FS01.

<sup>3)</sup> On reflector OP60.

<sup>4)</sup> 6 % ... 90 % remission.

<sup>5)</sup> Environmental conditions constant, min. warm-up time 30 min, average depth 1,024, statistical error 1 σ.

<sup>6)</sup> 23 °C air temperature, 977 hPa, min. warm-up time 30 min.

<sup>7)</sup> When operating in ambient temperatures between +40 °C ... +55 °C the accuracy can decrease by factor 2.5.

<sup>8)</sup> Dependent on averaging method, averaging depth, timeout, baud rate, data output, and output format.

|                                        |                                       |
|----------------------------------------|---------------------------------------|
| <b>Output time</b>                     | 1 ms ... 600 ms <sup>8)</sup>         |
| <b>Light source</b>                    | Laser, infrared                       |
| <b>Laser class</b>                     | 1 (IEC 60825-1:2014, EN 60825-1:2014) |
| <b>Typ. light spot size (distance)</b> | 20 mm (+ 5 x distance in m)           |

<sup>1)</sup> On reflective tape "Diamond Grade".

<sup>2)</sup> On reflector PL880FS01.

<sup>3)</sup> On reflector OP60.

<sup>4)</sup> 6 % ... 90 % remission.

<sup>5)</sup> Environmental conditions constant, min. warm-up time 30 min, average depth 1,024, statistical error 1  $\sigma$ .

<sup>6)</sup> 23 °C air temperature, 977 hPa, min. warm-up time 30 min.

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<sup>8)</sup> Dependent on averaging method, averaging depth, timeout, baud rate, data output, and output format.

## Interfaces

|                        |          |
|------------------------|----------|
| <b>PROFIBUS DP</b>     | ✓        |
| Data transmission rate | 12 MBaud |

## Ambient data

|                                            |                                                                     |
|--------------------------------------------|---------------------------------------------------------------------|
| <b>Electromagnetic compatibility (EMC)</b> | EN 55011:1998 Kl. B, Gr.1<br>EN 6100-6-2:1999                       |
| <b>Ambient temperature operation</b>       | -10 °C ... +55 °C<br>-10 °C ... +75 °C, operation with cooling case |
| <b>Ambient storage temperature</b>         | -25 °C ... +75 °C                                                   |
| <b>Temperature drift</b>                   | Typ. 0.6 mm/K <sup>1)</sup><br>Typ. 0.3 mm/K <sup>2)</sup>          |
| <b>Mechanical load</b>                     | Shock: (IEC 60068-2-27, -2-29)<br>Sine: (IEC 60068-2-6)             |

<sup>1)</sup> -10° C ... 0° C, +40 °C ... +55 °C.

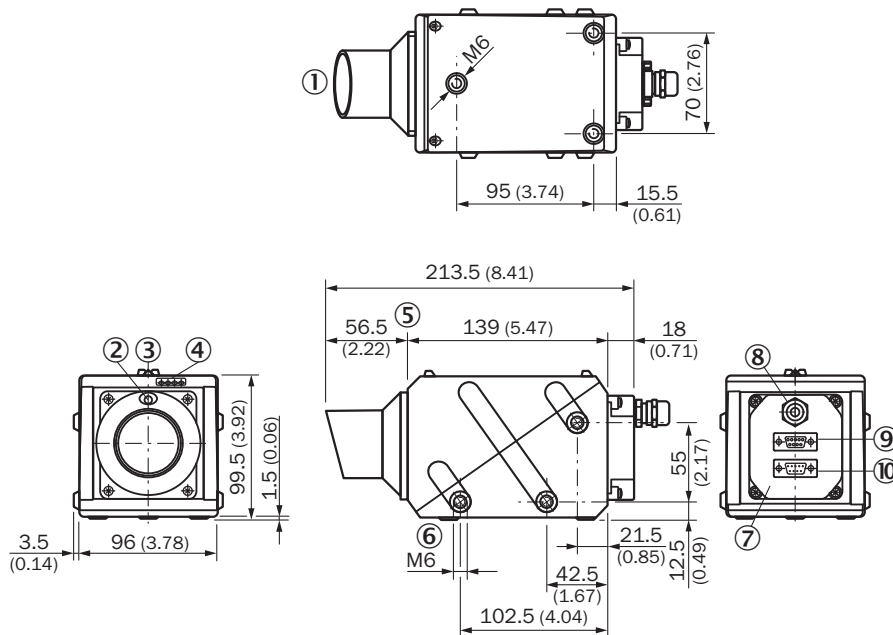
<sup>2)</sup> 0 °C ... +40 °C.

## Classifications

|                       |          |
|-----------------------|----------|
| <b>ECI@ss 5.0</b>     | 27270801 |
| <b>ECI@ss 5.1.4</b>   | 27270801 |
| <b>ECI@ss 6.0</b>     | 27270801 |
| <b>ECI@ss 6.2</b>     | 27270801 |
| <b>ECI@ss 7.0</b>     | 27270801 |
| <b>ECI@ss 8.0</b>     | 27270801 |
| <b>ECI@ss 8.1</b>     | 27270801 |
| <b>ECI@ss 9.0</b>     | 27270801 |
| <b>ETIM 5.0</b>       | EC001825 |
| <b>ETIM 6.0</b>       | EC001825 |
| <b>UNSPSC 16.0901</b> | 41111613 |

### Dimensional drawing (Dimensions in mm (inch))

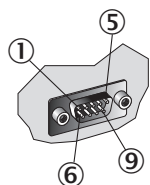
DMT10-2-x2xx DML40-2-x2xx



- ① Dust protection tube
- ② Laser pointer pilot light
- ③ Alignment sight
- ④ Function indicator
- ⑤ Zero level
- ⑥ Mounting hole M6 threaded - 6 mm deep
- ⑦ Connector cover
- ⑧ PG9
- ⑨ Sub-D, 9-pin
- ⑩ Sub-D, 9-pin

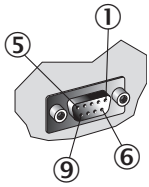
### Connection type

DMxxx-2 RS-232/PROFIBUS connection type, connector



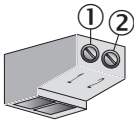
- ① nReset
- ⑤ M
- ⑥ NC = normally closed
- ⑨ NC = normally closed

DMxxx-2 RS-232/PROFIBUS connection type, female connector



- ① NC = normally closed
- ⑤ M
- ⑥ L+
- ⑨ NC = normally closed

Connection type RS-232/PROFIBUS

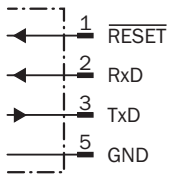


- ① Pin 1
- ② Pin 2

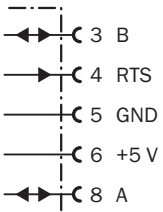
## Connection diagram

Connection diagram DMxxx-2-x21x RS-232

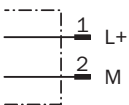
### RS-232



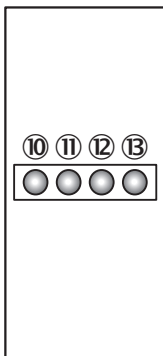
Connection type DMxxx-2 RS-232/PROFIBUS, socket



Connection type RS-232/PROFIBUS



## Adjustment possible



- ⑩ Q2 function indicator
- ⑪ Q1 function indicator
- ⑫ Operating indicator, green
- ⑬ Plausibility (measurement error) red

## Recommended accessories

Other models and accessories → [www.sick.com/DML](http://www.sick.com/DML)

|                                                                                     | Brief description                                                                                                                             | Type              | Part no. |
|-------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------|----------|
| Terminal and alignment brackets                                                     |                                                                                                                                               |                   |          |
|  | Alignment unit for DMT/DML, incl. mounting material, steel, zinc coated, mounting hardware included                                           | BEF-GH-DME        | 5309130  |
| Plug connectors and cables                                                          |                                                                                                                                               |                   |          |
|  | Head A: female connector, D-Sub, 9-pin, straight<br>Head B: Flying leads<br>Cable: serial, unshielded, 3 m                                    | YFDSA9-030XXXLEBX | 2020319  |
| Reflectors                                                                          |                                                                                                                                               |                   |          |
|  | Reflector plate, "diamond grade" reflective tape, 665 mm x 665 mm, base plate material: aluminum, screw connection, Screw-on, 4 hole mounting | PL560DG           | 1016806  |

## Recommended services

Additional services → [www.sick.com/DML](http://www.sick.com/DML)

|                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Type                        | Part no. |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------|
| Warranty extensions                                                                                                                                                                                                                                                                                                                                                                                                                                |                             |          |
| <ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, Vision, Distance sensors, Detection and ranging solutions</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms and conditions of purchase), Long-term protection for calculable lump sum.</li> <li>• <b>Duration:</b> Five-year warranty from date of purchase.</li> </ul> | Five-year extended warranty | 1680671  |

## SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

**For us, that is “Sensor Intelligence.”**

## WORLDWIDE PRESENCE:

Contacts and other locations –[www.sick.com](http://www.sick.com)