DME 2000/DME 3000: Precise non-contact distance determination

In handling systems, DME distance measuring devices are the perfect alternative to control components that are subject to wear, such as rotary transducers. They allow high-bay stackers, cranes, lift cabins or automated guided vehicle systems to be positioned with precision.

The visible red light of the Class 2 laser sender facilitates alignment and handling. Adjustment and adaptation to individual automation tasks can be carried out quickly and easily by means of programming buttons on the device, an eight-digit display and the user-friendly menu-driven dialogue.

Two versions are available. The DME 2000 measures distances of up to 130 metres and, in proximity mode (i.e. without reflector), up to 2 metres. The DME 3000 has a scanning range of 500 metres – distances of up to ten metres can be measured in the proximity version.

Serial interfaces permit external further processing of the measured values. Interfacing to Profibus is also possible and the DME can be connected to warehouse control circuits via the SSI interface.
Positioning high-bay stackers with the DME 3000 distance measuring device.

DME process information: The weight of a coil can be determined from its diameter.

Non-wearing, precise and flexible: A DME 3000 sensor used for positioning a rail-mounted rack-serving unit with millimetre precision; mechanical switches are no longer required, new docking points can be set quickly without any assembly requirements.

Crane monitoring with DME: The distance measuring device triggers the emergency stop when a minimum distance is undershot.

Positioning high-bay stackers with the DME 3000 distance measuring device.

A DME distance measuring device used to detect drill holes as part of inspection/quality control.

DME process information: The weight of a coil can be determined from its diameter.
**DME 2000 Distance measuring devices**

- Excellent measurement accuracy and reproducibility thanks to time-of-flight measurement
- Simple adjustment using visible red light
- Freely programmable parameters
  - 2 switching outputs
  - pre-failure signalling output
  - plausibility control
- RS 232 serial interface
- Analogue output

### Measurement range
- **100...2047 mm**
- **0.1...130 m**

### Accessories
- Remote positioning tubes
- Cooling plates
- Dust covers
- Accessories page 556

### Laser class 2

### Connection type

#### DME 2000-000

- Data terminal ready (RS 232 output)
- Q1 switching output
- Clear to send (RS 232 input)
- Q4 analogue output
- Q5 service output
- Q6 plausibility output
- +18...30 V DC V5
- 18...30 V DC V6
- T x D (send data, RS 232 output)
- Q2 switching output
- 0 V (earth)
### Technical Data

#### Light source and light type
- Laser diode, red light

#### Laser category
- Type 2 (IEC 825-1/EN 60825-1)

#### Supply voltage $V_S$
- $18...30 \text{ V DC}^{*}$

#### Ripple
- $< 5 \% V_S$

#### Power consumption
- $< 6 \text{ W}^{*}$

#### Resolution
- $1 \text{ mm}$

#### Light spot dimensions
- Approx. $3 \text{ mm} / 2 \text{ m}$

#### Effect of compressed air
- $0.3 \text{ ppm/mbar}$

#### Effect of air temperature
- $1 \text{ ppm/K}$

#### Measured value output cycle
- $29 \text{ ms}$

#### Target remission
- $> 6...< 36000 \text{ %}$

#### Reproducibility
- $1 \text{ mm} (= 90 \text{ % remission})$
- $2 \text{ mm}$

#### Statistical error $1 \sigma$
- $3 \text{ mm} (= 18 \text{ % remission})$
- $3...130 \text{ m APM reflective tape}$
- $25 \text{ mm} (= 6 \text{ % remission})$
- $3...100 \text{ m Diamond Grade}$

#### Statistical error $3 \sigma$
- Typical $1 \text{ mm}$; max. $2 \text{ mm}$
- $0.1...90 \text{ m reflective tape}$
- $0.1...40 \text{ m reflective tape}$

#### Accuracy
- $\pm 5 \text{ mm} (= 90 \text{ % remission})$
- $+ 5/– 20 \text{ mm}$
- $\pm 11 \text{ mm} (= 18 \text{ % remission})$
- In range as below
- $\pm 65 \text{ mm} (= 6 \text{ % remission})$
- Reproducibility stated

### Mode 1.1: Proximity mode

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>100...2047 mm</th>
<th>0.1...130 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>1 mm</td>
<td>1 mm</td>
</tr>
<tr>
<td>Light spot dimensions</td>
<td>Approx. 3 mm/2 m</td>
<td>Approx. 250 mm/130 m</td>
</tr>
<tr>
<td>Effect of compressed air</td>
<td>0.3 ppm/mbar</td>
<td>0.3 ppm/mbar</td>
</tr>
<tr>
<td>Effect of air temperature</td>
<td>1 ppm/K</td>
<td>1 ppm/K</td>
</tr>
<tr>
<td>Measured value output cycle</td>
<td>29 ms</td>
<td>100 ms</td>
</tr>
<tr>
<td>Target remission</td>
<td>$&gt; 6...&lt; 36000 %$</td>
<td>Reflective tape</td>
</tr>
<tr>
<td>Max. running speed</td>
<td>3 m/s</td>
<td></td>
</tr>
</tbody>
</table>

### Mode 2.1: Reflector mode

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>0.1...2047 mm</th>
<th>0.1...130 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resolution</td>
<td>1 mm</td>
<td>1 mm</td>
</tr>
<tr>
<td>Light spot dimensions</td>
<td>Approx. 3 mm/2 m</td>
<td>Approx. 250 mm/130 m</td>
</tr>
<tr>
<td>Effect of compressed air</td>
<td>0.3 ppm/mbar</td>
<td>0.3 ppm/mbar</td>
</tr>
<tr>
<td>Effect of air temperature</td>
<td>1 ppm/K</td>
<td>1 ppm/K</td>
</tr>
<tr>
<td>Measured value output cycle</td>
<td>29 ms</td>
<td>100 ms</td>
</tr>
<tr>
<td>Target remission</td>
<td>$&gt; 6...&lt; 36000 %$</td>
<td>Reflective tape</td>
</tr>
<tr>
<td>Max. running speed</td>
<td>3 m/s</td>
<td></td>
</tr>
</tbody>
</table>

### Order information

<table>
<thead>
<tr>
<th>Standard type</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DME 2000-000</td>
<td>1 010 578</td>
</tr>
</tbody>
</table>

1) Average service life 50,000 h
2) Limit values
3) May not exceed or fall short of $V_S$ tolerances
4) Without load
5) Reference voltage 50 V DC

6) $A = V_S$ connections reverse-polarity protected
   $B = $ Output Q reverse-polarity protected
   $C = $ Interference pulse suppression

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DME 2000-000

Standard type

Order information

DME 2000-000

Part no.

1 010 578

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1) Relative to front edge of object
2) Environmental conditions constant at 30 min. minimum switching period
3) Measurement distance 1 m, 90 % remission
4) Without load
5) Reference voltage 50 V DC

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SENSICK CATALOGUE 453
**DME 3000-1 Distance measuring devices**

- Excellent measurement accuracy and reproducibility thanks to time-of-flight measurement
- Simple adjustment using visible red light
- Easy handling due to programmable parameters
  - 2 switching outputs
  - pre-failure signalling output
  - plausibility control
- RS 422 serial interface and SSI interface
- Profinet
- Gateway to Interbus, DeviceNet

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**Dimensional drawing**

- Centre of optical axis
- M6 threaded mounting hole, 10 mm deep
- M4 threaded mounting hole, 14 mm deep (this side only)
- 8-digit alphanumeric signal indicator
- Programming switches
- M4 threaded mounting hole, 6 mm deep

**Adjustments possible**

<table>
<thead>
<tr>
<th>DME 3000-111</th>
<th>DME 3000-111P</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Centre of optical axis</td>
</tr>
<tr>
<td>2</td>
<td>M6 threaded mounting hole, 10 mm deep</td>
</tr>
<tr>
<td>3</td>
<td>M4 threaded mounting hole, 14 mm deep (this side only)</td>
</tr>
<tr>
<td>4</td>
<td>8-digit alphanumeric signal indicator</td>
</tr>
<tr>
<td>5</td>
<td>Programming switches</td>
</tr>
<tr>
<td>6</td>
<td>M4 threaded mounting hole, 6 mm deep</td>
</tr>
</tbody>
</table>

**Connection types**

<table>
<thead>
<tr>
<th>DME 3000-111</th>
<th>DME 3000-311</th>
</tr>
</thead>
<tbody>
<tr>
<td>12-pin, M 16</td>
<td>4-pin, M 12</td>
</tr>
<tr>
<td>5-pin, M 12</td>
<td>5-pin, M 12</td>
</tr>
</tbody>
</table>

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**Adapters not included in delivery**

- 5 V
- 1 NC
- 2 cable A
- 3 cable A
- 4 cable B
- 5 cable B
- Shield
- Shield

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**Accessories**

<table>
<thead>
<tr>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable receptacles</td>
</tr>
<tr>
<td>Mounting brackets</td>
</tr>
<tr>
<td>Link mountings</td>
</tr>
<tr>
<td>Reflectors</td>
</tr>
<tr>
<td>Special accessories</td>
</tr>
</tbody>
</table>

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- Laser class 2
- Cool set
- Dust covers
- Cooling plates
- Remote positioning tube
## Technical Data

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>DME 3000-111</th>
<th>311</th>
<th>111P</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.1...500 m²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>depending on reflector, see below</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Accuracy*</th>
<th>± 5 mm</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reproducibility*</th>
<th>Depending on measurement range, see below</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Light spot diameter</th>
<th>1 m (measurement distance 500 m)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Resolution</th>
<th>0.125 mm</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Light source*, light type</th>
<th>Laser diode, red light</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Laser category</th>
<th>2 (iEC 825-1/EN 60825-1)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Supply voltage $V_S$</th>
<th>18...30 V DC</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ripple</th>
<th>$&lt; 5 V_{SS}$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Power consumption</th>
<th>$\leq 6 , W$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Switching outputs</th>
<th>PNP/NPN</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>$Q_1, Q_2, Q_0, Q_S$</th>
<th>HIGH = $V_S - &lt; 2 , V$/LOW = $&lt; 2 , V$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Output current $I_{max}$</th>
<th>100 mA</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>$Q_1$ and $Q_2$ switching outputs</th>
<th>Reversible $Q/Q$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Switching limit/switching hysteresis</th>
<th>Adjustable</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>$Q_P$ plausibility output</th>
<th>HIGH: measurement correct/ LOW: measurement error</th>
</tr>
</thead>
</table>

| $Q_S$ service output | HIGH: OK / LOW: pre-failure signalling |

<table>
<thead>
<tr>
<th>Connection type</th>
<th>Plug</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>VDE protection class*</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Circuit protection A, B, C</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Enclosure rating</th>
<th>IP 65</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Ambient temperature $T_A$</th>
<th>Operation $-10 , ^\circ C...+ 45 , ^\circ C$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Storage</th>
<th>$-25 , ^\circ C...+ 75 , ^\circ C$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>Approx. 980 g</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Interfaces</th>
<th>SSI: GRIS/BINARY adjust., 24 or 25 bits</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Serial interface</th>
<th>RS 422: 4.8/9.6/19.2/38.4 kBaud</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Profibus</th>
<th>Max. 12 MBaud</th>
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</table>

<table>
<thead>
<tr>
<th>Effect of compressed air</th>
<th>0.3 ppm/hPa</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Effect of air temperature</th>
<th>1 ppm/K</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>Temperature drift</th>
<th>Typical 0.4 mm/K</th>
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</thead>
</table>

<table>
<thead>
<tr>
<th>Measured value output</th>
<th>Typical 0.2 mm/K</th>
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</table>

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<thead>
<tr>
<th>Interfaces</th>
<th>SSI/Profibus 1.5 ms</th>
</tr>
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</table>

<table>
<thead>
<tr>
<th>RS 422, 38.4 kBaud</th>
<th>18 ms</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Initialisation period</th>
<th>6 s</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Max. running speed</th>
<th>6 m/s</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Effect of compressed air</th>
<th>$0.3 , ppm/hPa$</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Effect of air temperature</th>
<th>$1 , ppm/K$</th>
</tr>
</thead>
</table>

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<tr>
<th>Temperature drift</th>
<th>Typical 0.4 mm/K</th>
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<tr>
<th>Measured value output</th>
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<tr>
<th>Effect of compressed air</th>
<th>$0.3 , ppm/hPa$</th>
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<thead>
<tr>
<th>Effect of air temperature</th>
<th>$1 , ppm/K$</th>
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</thead>
</table>

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<tr>
<th>Temperature drift</th>
<th>Typical 0.4 mm/K</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Measured value output</th>
<th>Typical 0.2 mm/K</th>
</tr>
</thead>
</table>

| Order information |
|-------------------|-----------------|

<table>
<thead>
<tr>
<th>Type</th>
<th>Part no.</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DME 3000-111</th>
<th>1 013 110</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DME 3000-311</th>
<th>1 016 283</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>DME 3000-111P</th>
<th>1 018 063</th>
</tr>
</thead>
</table>

### Measurement range

<table>
<thead>
<tr>
<th>Reproducibility</th>
<th>0.5 mm</th>
<th>2 mm</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Statistical error $1 \sigma$ (switching period min. 30 min, environmental conditions constant)</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Measurement range with reflector</th>
<th></th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reflective tape 3290</th>
<th>0.1 m... 20 m</th>
<th>0.1 m... 40 m</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reflective tape 7610</th>
<th>0.1 m... 40 m</th>
<th>0.1 m... 90 m</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reflective tape «Diamond Grade»</th>
<th>2.0 m... 70 m</th>
<th>0.5 m... 250 m</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Reflective tape APM</th>
<th>2.0 m... 90 m</th>
<th>1.0 m... 200 m</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Multi-reflector PL240F</th>
<th>0.1 m... 250 m</th>
<th>0.1 m... 300 m</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Multi-reflector PL560F</th>
<th>0.1 m... 270 m</th>
<th>0.1 m... 350 m</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Multi-reflector PL880F</th>
<th>10 m... 300 m</th>
<th>8.0 m... 500 m</th>
</tr>
</thead>
</table>

DME 3000-1
Distance measuring devices

- Excellent measurement accuracy and reproducibility thanks to time-of-flight measurement
- Simple adjustment using visible red light
- Easy handling due to programmable parameters
  - 2 switching outputs
  - pre-failure signalling output
  - plausibility control
- RS 422 serial interface and SSI interface
- Profibus
- Gateway to Interbus, DeviceNet

Adjustments possible

- Centre of optical axis
- M6 threaded mounting hole, 10 mm deep
- M4 threaded mounting hole, 14 mm deep
  (this side only)
- 8-digit alphanumeric indicator
- Programming switches
- M4 threaded mounting hole, 6 mm deep

Connection types

- DME 3000-211
- DME 3000-212
- DME 3000-232

- Adapter not included in delivery

Accessories

- Cable receptacles
- Mounting brackets
- Link mountings
- Special accessories
- Dust covers
- Cooling plates
- Remote positioning tubes

Measurement range

- up to 10 m

Laser class 2, 3B
### Technical Data

<table>
<thead>
<tr>
<th>Measurement range</th>
<th>DME3000-211</th>
<th>DME3000-212</th>
<th>DME3000-232</th>
<th>DME3000-211P</th>
</tr>
</thead>
<tbody>
<tr>
<td>100...8,000 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100...10,000 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light spot diameter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5 mm (measurement distance 8 m)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Resolution</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0.125 mm</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Light source², light type</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diode laser, red light</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser category</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2 (IEC 825-1/EN 60825-1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laser category</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3 B (IEC 825-1/EN 60825-1)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Service life (at 25 °C)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>MTTF 50,000 h</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NIR blocking filter</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supply voltage Vₛ</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18...30 V DC²</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ripple</td>
<td>&lt; 5 Vₛ²</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Power consumption</td>
<td>≤ 6 W²</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Switching outputs</th>
<th>PNP/NPN</th>
</tr>
</thead>
<tbody>
<tr>
<td>Q₁, Q₂, Q₉, Qₛ</td>
<td>HIGH = Vₛ – &lt; 2 V/LOW = &lt; 2 V</td>
</tr>
<tr>
<td>Output current Iₛ max.</td>
<td>100 mA</td>
</tr>
<tr>
<td>Q₂ and Q₃ switching outputs</td>
<td>Reversible Q/Q</td>
</tr>
<tr>
<td>Switching limit/switching hysteresis</td>
<td>Adjustable</td>
</tr>
<tr>
<td>Qₛ plausibility output</td>
<td>HIGH: measurement correct/</td>
</tr>
<tr>
<td>Qₛ service output</td>
<td>LOW: measurement error</td>
</tr>
<tr>
<td>Types of connections</td>
<td>Reversible Q/Q</td>
</tr>
<tr>
<td>A = VS connections reverse-polarity protected</td>
<td></td>
</tr>
<tr>
<td>B = Output Q short-circuit protected</td>
<td></td>
</tr>
<tr>
<td>C = Interference pulse suppression</td>
<td></td>
</tr>
</tbody>
</table>

| Connection type | Plug |
| VDE protection class² |   |
| Circuit protection¹ | A, B, C |
| Enclosure rating | IP 65 |
| Ambient temperature Tₐ | Operation – 10 °C...+ 45 °C |
|                       | Storage – 25 °C...+ 75 °C |
| Weight | Approx. 980 g |
| Interfaces | SSI: GRIS/BINARY adjust., 24 or 25 bits |
| Serial interface | RS 422: 4.8/9.6/19.2/38.4 kBaud |
| Profinet | Max. 12 MByte |
| Temperature drift | Typical 0.4 mm/K |
|                   | (compensation on request) |

| Measured value output | SSI/Profibus | 21 ms |
| RS 422, 38.4 kBaud | 21 ms |
| Initialisation period | 6 s |

1) Relative to front edge of object
2) Average service life 50,000 h at Tₐ = + 25 °C
3) Limit values
4) May not exceed or fall short of VS tolerances
5) Without load
6) Reference voltage 50 V DC
7) A = VS connections reverse-polarity protected
8) Environmental conditions constant, min. switching period 30 min.
9) 23 °C air temp, 977 hPA, min. switching period 30 min.
10) Re-calibration recommended after 25,000 h.

### Reproducibility and accuracy as a function of measurement distance

<table>
<thead>
<tr>
<th>DME 3000-2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measurement distance</td>
</tr>
<tr>
<td>Reproducibility⁶</td>
</tr>
<tr>
<td>Grey, 18 % remission</td>
</tr>
<tr>
<td>Black, 6 % remission</td>
</tr>
</tbody>
</table>

### Accuracy³⁵⁶

| White, 90 % remission | ±5 mm | ±5 mm | ±5 mm | ±10 mm | ±5 mm | ±20 mm | ±5 mm | ±30 mm | ±20 mm |
| Grey, 18 % remission | ±5 mm | ±5 mm | ±10 mm | ±30 mm | ±10 mm | – | ±25 mm | – | – | – |
| Black, 6 % remission | ±10 mm | ±5 mm | ±20 mm | ±10 mm | – | ±10 mm | – | – | – |

### Order information

<table>
<thead>
<tr>
<th>Type</th>
<th>Part no.</th>
</tr>
</thead>
<tbody>
<tr>
<td>DME 3000-211</td>
<td>1 013 782</td>
</tr>
<tr>
<td>DME 3000-212</td>
<td>1 015 906</td>
</tr>
<tr>
<td>DME 3000-232</td>
<td>1 015 794</td>
</tr>
<tr>
<td>DME 3000-211P</td>
<td>1 018 064</td>
</tr>
</tbody>
</table>