

DME 3000: Precise non-contact distance determination



tion 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.

Depending on the reflector, the DME 3000 has a range of up to 500 m. A measurement range of 0.5 to 250 m is possible with simple Diamond Grade reflective tape.

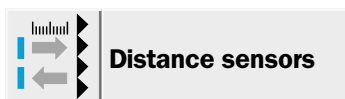
Serial interfaces permit external further processing of the measured values. Interfacing to Profibus is also possible and the DME can be connected to warehouse control circuits via the SSI interface.

■ Now even faster!

Version V3.0 (starting 0108) with substantially reduced cycle time gets things going in conveyor engineering. This benefits fast stock loops in small parts warehouses as well as high-bay warehouses for pallets with reduced transport time.

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 automa-





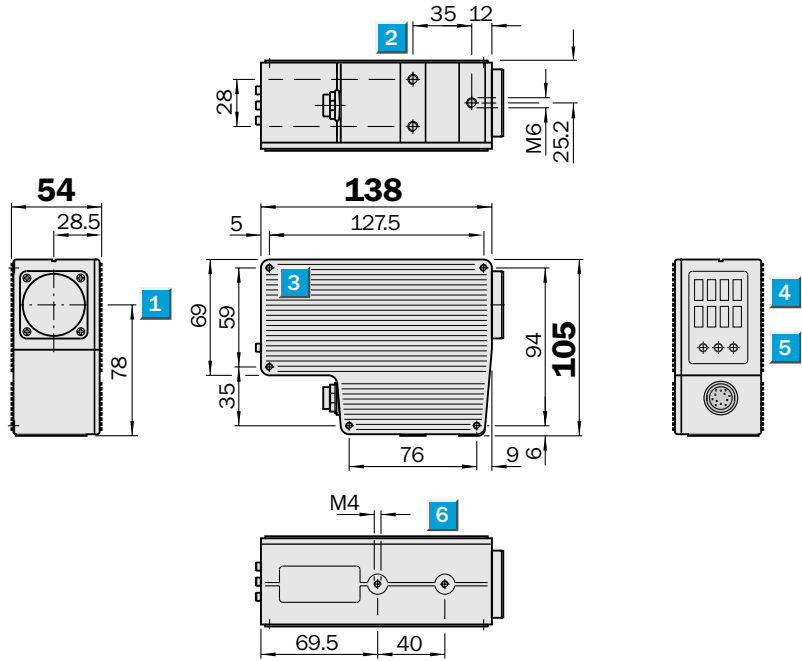
Measurement range up to 500 m

Distance measuring devices

- Excellent measurement accuracy and reproducibility thanks to time-of-flight measurement
- Simple adjustment using visible red light
- Easy handling due to integrated display
 - 2 switching outputs
 - pre-failure signalling output
 - plausibility control
- Gateway to Interbus, DeviceNet

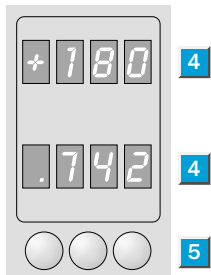


Dimensional drawing



Adjustments possible

All types

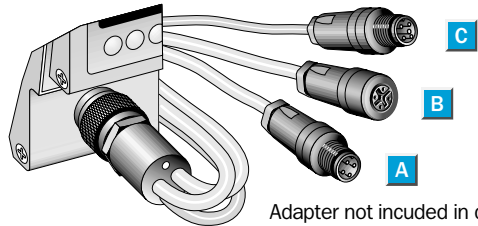
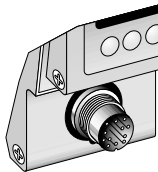


- 1** Centre of optical axis
- 2** M6 threaded mounting hole, 10 mm deep
- 3** M4 threaded mounting hole, 14 mm deep (this side only)
- 4** 8-digit alphanumeric indicator
- 5** Programming switches
- 6** M4 threaded mounting hole, 6 mm deep

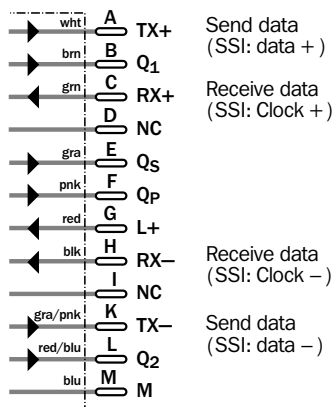
Connection type

DME 3000-111
DME 3000-111S01
DME 3000-311

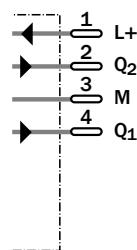
DME 3000-111P
DME 3000-111P01
DME 3000-311P
DME 3000-311P03



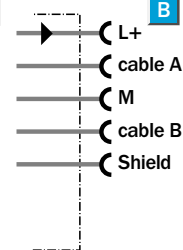
12-pin, M 16



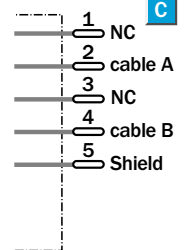
4-pin, M 12



5-pin, M 12



5-pin, M 12



SSI RS 422



Accessories

Connectors
Mounting systems
Reflectors
Special accessories

Technical Data		DME 3000-		111	111 S01	311	111P	111 P01	311P	311 P03
Measurement range	0.1... 500 m ¹⁾ , dep. on reflector, s. b.									
Accuracy ^{2) 3)}	± 5 mm (measurement distance > 200 mm)									
Reproducibility ⁴⁾	Depending on measurement range, see below									
Light spot diameter	1 m (measurement distance 500 m)									
Resolution	0.125 mm									
Light source ⁵⁾ , light type	Laser diode, red light									
Laser category	2 (IEC 825-1/EN 60825-1)									
	CDRH									
Supply voltage V _s	18... 30 V DC ⁶⁾									
Ripple	< 5 V _{SS} ⁷⁾									
Power consumption	≤ 6 W ⁸⁾									
Switching outputs	PNP/NPN									
Q ₁ , Q ₂ , Q _p , Q _s	HIGH = V _s - < 2 V / LOW = < 2 V									
Output current I _A max.	100 mA									
Q ₁ and Q ₂ switching outputs	Reversible Q/ \bar{Q}									
Switching limit/switching hysteresis	Adjustable									
Q _p plausibility output	HIGH: measurement correct/ LOW: measurement error									
Q _s service output	HIGH: OK / LOW: pre-failure signalling output									
Connection type	Plug									
VDE protection class ⁹⁾										
Circuit protection ¹⁰⁾	A, B, C									
Enclosure rating	IP 65									
Ambient temperature T _A	Operation - 10 °C... + 45 °C Storage - 25 °C... + 75 °C									
Weight	Approx. 980 g									
Interfaces	SSI: GRAY/BINARY adjust., 24 or 25 bits									
Serial interface	RS 422: 4.8/9.6/19.2/38.4 kBaud									
Profibus	Max. 12 MBaud									
Effect of air pressure	0.3 ppm/hPa									
Effect of air temperature	1 ppm/K									
Temperature drift	Typical 0.3 mm/K Typical 0.2 mm/K									
Meas. value output SSI	1 ms									
Profibus	1.5 ms									
RS 422, 38.4 kBaud	5 ms									
Initialisation period	4 s									
Max. running speed	10 m/s									

- ¹⁾ Relative to front edge of object
²⁾ 23 °C air temperature, 977 hPa, min. switching period 30 min
³⁾ Re-calibration recommended after 25,000 h

- ⁴⁾ Environmental conditions constant, min. switching period 30 min.
⁵⁾ Average service life 50,000 h at T_A = +25 °C
⁶⁾ Limit values

- ⁷⁾ May not exceed or fall short of V_s tolerances
⁸⁾ Without load
⁹⁾ Reference voltage 32 V DC

- ¹⁰⁾ A = V_s connections reverse-polarity protected
 B = Output Q short-circuit protected
 C = Interference pulse suppression

Measurement range		
Reproducibility	0.5 mm	2 mm
Statistical error 1 σ (switching period min. 30 min, environmental conditions constant)		
Measurement range with reflector		
Reflective tape 3290	0.1 m... 20 m	0.1 m... 40 m
Reflective tape 7610	0.1 m... 40 m	0.1 m... 90 m
Reflective tape "Diamond Grade"	3.0 m... 90 m	0.5 m... 250 m
Multi-reflector PL240F	0.1 m... 250 m	0.1 m... 300 m
Multi-reflector PL560F	0.1 m... 270 m	0.1 m... 350 m
Multi-reflector PL880F	10 m... 300 m	8.0 m... 500 m

Order information	
Type	Part no.
DME 3000-111	1 013 110
DME 3000-111S01	1 015 921
DME 3000-311	1 016 283
DME 3000-111P	1 018 063
DME 3000-111P01	1 018 575
DME 3000-311P	1 018 542
DME 3000-311P03	1 019 305

Order information

Dust protection tube

Type	Part no.
OBS-DME	2 014 458



For use in heavily soiled environments.

Cooling plate assembly kit

Type	Part no.
BEF-KPM-DME	2 014 457



Water cooling for use in ambient temperatures of + 140 °C. Combination with dust protection tube possible.

Peltier cooling unit with lid

Type	Part no.
BEF-KE-DME	2 019 912



Electric cooling for ambient temperatures of up to +55 °C. Combination with dust protection tube possible.

Heating element

Type	Part no.
BEF-HE-DME	2 021 269



Electrical heating for use to – 38 °C.

Articulated mounting

Type	Part no.
BEF-GH-DME	2 015 229



Joint bracket for simple adjustment and alignment.

Target telescope and adjustment device

Type	Part no.
OBZ-DME	2 014 194
OBZ-DME-J	2 014 191



Target telescope for alignment when very large distances are involved.

Order information

Corner mirror

Type	Part no.
USP-DME	2 016 330



Corner mirror for deflecting ray downward.

Corner mirror

Type	Part no.
USP-DME-2	2 022 848



Corner mirror for deflecting ray upward.

Reflectors

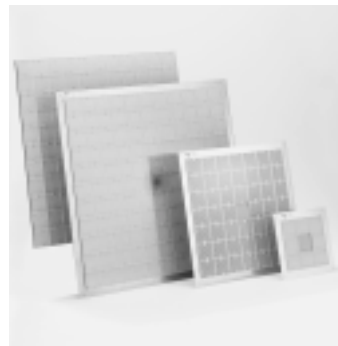
Type	Part no.	Size (mm)
PL 880 DG	1 018 975	1000 x 1000
PL 560 DG	1 016 806	665 x 665
PL 240 DG	1 017 910	330 x 330
PL 240-7610	1 019 012	330 x 330



Ready-mounted reflectors in various sizes.
 DG: Diamond Grade
 7610: Film for the measurement range from 0.1 m

Combi-reflectors

Type	Part no.	Size (mm)
PL 880 FS01	1 017 865	1000 x 1000 (can be set in series)
PL 880 F	1 013 786	1000 x 1000
PL 560 F	1 013 785	665 x 665
PL 240 F	1 013 784	330 x 330



Combi-reflectors for large scanning ranges.
 Note: The light spot must remain in the center of the reflector between 0.1 and 30 m (80 x 80 mm).

Profibus connection cable with female connectors M 16, 12-pin; M 12, 5-pin; M 12, 4-pin; male connector M 12, 5-pin

Type	Part no.	Length
PR-ADPT-DME-1	2 022 431	0.5 m
PR-ADPT-DME	2 021 463	0.25 m



Profibus connection adapter:
 2x M 12 5-pin shielded metal model (Profibus)
 1x M 12 4-pin voltage supply/digital outputs

Order information

Profibus terminal resistor

Type	Part no.
PR-STE-END	6 021 156



Connection resistance:
if the DME is at the end of a
Profibus cable.

Profibus male connector M 12, 5-pin

Type	Part no.
PR-STE-1205-G	6 021 354



Profibus connector:
is required if another Profibus
user is connected from DME.

Profibus male connector M 12, 5-pin

Type	Part no.
PR-DOS-1205-G	6 021 353



Profibus connector:
connects incoming Profibus
with the DME.

Female connector M 16, 12-pin, straight

Cable Ø 7.5 mm, 10 x 0.25 mm², sheath PVC

Type	Part no.	Length
DOL-1612-5M-2	2 013 353	5 m



SSI/RS 422 paired and shielded
connection cable.

Female connector M 16, 12-pin, straight

Type	Part no.
DOS-1612-G	6 007 092



Female connector M 16, 12-pin, right angle

Type	Part no.
DOS-1612-W	6 007 988



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