
	Distance sensors Proximity mode
	Distance sensors Reflector mode

DME5000/DME3000/ DME2000: distance measurement in millisecond cycles



Distance measurement systems such as the DME5000 are used in automated storage technology for detecting the position of storage and retrieval devices. In order to do this, the sensor moves with the vehicle and constantly measures the time-of-flight of an emitted light impulse to the end of the shelf aisle and back. The electronics unit determines the position of the storage and retrieval unit from this time and passes it on to the vehicle control system. Highly dynamic and accurate measurement; multi-functional switching outputs and inputs for standby, preset and other system functions; a device display with all important information available at a

glance; and a particularly user-friendly mounting and alignment concept are the most important advantages of the new DME5000 laser distance measurement system. The compact device is available in three versions that have been specially optimised for automatic small part stock, for pallets in high-bay warehouses or cranes. The DME5000's ambient temperature range has been designed for -10°C to $+55^{\circ}\text{C}$. A variant with internal heating achieves -40°C to $+55^{\circ}\text{C}$. Thus the distance measurement device is also suitable for use in deepfreeze storage systems. Warehouse type-specific versions for positioning processes at maximum speeds. Two warehouse types of differing sizes predominate: automatic small part stock for containers of varying dimensions, and structurally larger high-bay warehouses for Euro and, sometimes, system-specific pallets. The new DME5000 is suitable for approach speeds of up to 10 m/s and takes the differing requirements of the two types of warehouses into account with its two range-optimised versions for 70 m and 150 m. Specially for cranes a 300 m version is available.

► Positioning high-bay stackers with the DME3000 distance measuring device.

▼ Indexing car position – millimetre precision with the DME5000.



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



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

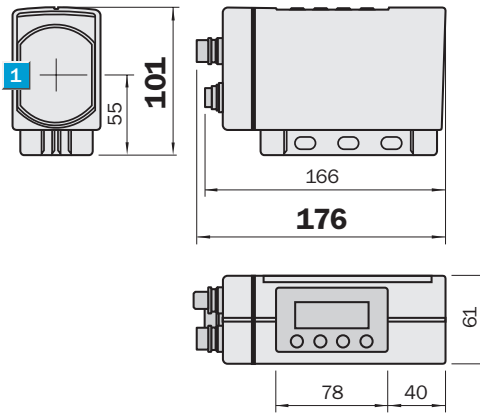
	Measurement range
	0,15 ... 70/0,15 ... 150/
	0,15 ... 300 m
Distance measuring device	

- Short positioning processes: very fast measuring time
- High degree of system availability: highest accuracy and reproducibility
- Convenient operation startup: illuminated LCD display with diagnosis information
- Easy assembly and alignment concept: alignment bracket with spring/visible red light

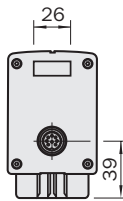


Dimensional drawing

All types

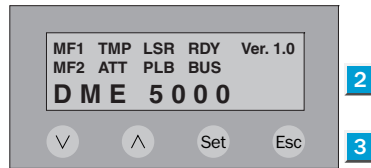


Back sight



Adjustments possible

All types



- 1** Centre of optical axis
- 2** LC display
- 3** Entry range

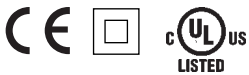
Connection type



Connections

8-pin, M16

pnk	1	Data+
		(TX+)
wht	2	MF 1
brn	3	L+
gra	4	Data-
		(TX-)
blk	5	MF 2
vio	6	CLK+
		(RX+)
blu	7	M
red	8	CLK-
		(RX-)



See chapter Accessories

Connectors

Mounting systems

Technical Data		DME5000-	111	121	211	221	311	321				
Measurement range ¹⁾	0.15 ... 70 m		■	■								
	0.15 ... 150 m				■	■						
	0.15 ... 300 m						■	■				
Accuracy	±2 mm		■	■								
	±3 mm				■	■						
	±5 mm						■	■				
Reproducibility ²⁾	0.5 mm		■	■								
	1 mm				■	■						
	2 mm						■	■				
Light spot diameter	max. 130 mm at 70 m		■	■								
	max. 270 mm at 150 m				■	■						
	max. 550 mm at 300 m						■	■				
Resolution (adjustable)	0.05 ... 5 mm		■	■	■	■	■	■				
Light source ³⁾ , light type	Laser diode, red light		■	■	■	■	■	■				
Laser category	2 (IEC 60825-1/C.D.R.H.)		■	■	■	■	■	■				
Supply voltage V_S ⁴⁾	18 ... 30 V DC		■	■	■	■	■	■				
Residual ripple ⁵⁾	5 V _{PP}		■	■	■	■	■	■				
Current consumption	< 250 mA at 24 V DC		■	■	■	■	■	■				
	with heating < 1000 mA			■	■	■	■	■				
Switching outputs MF1, MF2	B (push/pull)		■	■	■	■	■	■				
Output (MF1/MF2)	HIGH: $U_V < 3$ V; LOW < 2 V		■	■	■	■	■	■				
Input (MF1) ⁶⁾	HIGH: > 12 V; LOW < 3 V		■	■	■	■	■	■				
Output current I_A max. ⁷⁾	100 mA (short-circuit/overload protected)		■	■	■	■	■	■				
Connection type	Plug		■	■	■	■	■	■				
VDE protection class ⁸⁾	□		■	■	■	■	■	■				
Enclosure rating	IP 65		■	■	■	■	■	■				
Ambient temperature	Operation -10 °C ... +55 °C		■	■	■	■	■	■				
	with heating Operation -40 °C ... +55 °C			■	■	■	■	■				
	Storage -25 °C ... +75 °C		■	■	■	■	■	■				
Weight	approx. 1650 g		■	■	■	■	■	■				
Effect of air pressure	0.3 ppm/hPa		■	■	■	■	■	■				
Effect of air temperature	1 ppm/K		■	■	■	■	■	■				
Temperature drift	typ. 0.1 mm/K		■	■	■	■	■	■				
Measurement value output	1 ms		■	■								
	2 ms				■	■	■	■				
Initialisation period	500 ms		■	■	■	■						
	800 ms						■	■				
Max. running speed	5 m/s						■	■				
	10 m/s		■	■	■	■						
EMC	EN 61000-6-2, EN 55011: class B		■	■	■	■	■	■				
Mechanical load	Shock: EN 600 68-2-27/-2-29		■	■	■	■	■	■				
	Sine: EN 600 68-2-6		■	■	■	■	■	■				
	Noise: EN 600 68-2-64		■	■	■	■	■	■				

¹⁾ On reflective tape "Diamond Grade"
²⁾ Statistical error 1σ , environmental conditions constant, minimal warm-up time: 10 min.

³⁾ Average service life 50,000 h at $T_A = +25$ °C
⁴⁾ Limit values

⁵⁾ May not exceed or fall short of V_S tolerances
⁶⁾ Not reverse-polarity protected

⁷⁾ Max. 100 nF/20 mH
⁸⁾ Reference voltage 32 V DC

Order information	
Type	Order no.
DME5000-111	1022949
DME5000-121	1024083
DME5000-211	1024081
DME5000-221	1024085
DME5000-311	1025244
DME5000-321	1025246

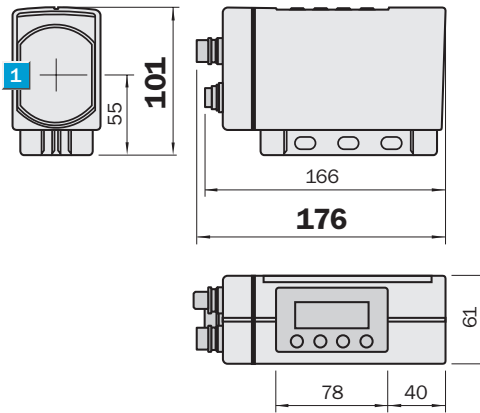
	Measurement range
	0,15 ... 70/0,15 ... 150/ 0,15 ... 300 m
	Distance measuring device

- Short positioning processes: very fast measuring time
- High degree of system availability: highest accuracy and reproducibility
- Convenient operation startup: illuminated LCD display with diagnosis information
- Easy assembly and alignment concept: alignment bracket with spring/visible red light

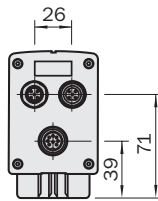


Dimensional drawing

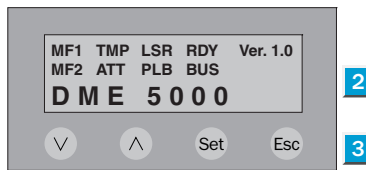
All types



Back sight

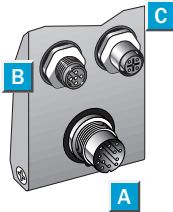


Adjustments possible



- 1** Centre of optical axis
- 2** LC display
- 3** Entry range

Connection type



Connections

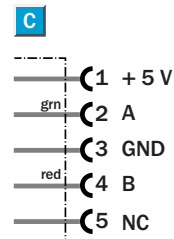
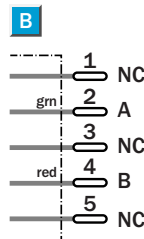
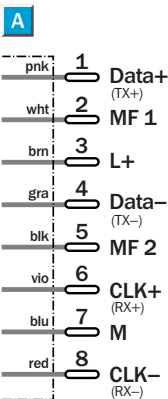
8-pin, M16

5-pin, M12

5-pin, M12

Bus in

Bus out



PROFI
BUS



See chapter Accessories

- Connectors
- Mounting systems

Technical Data		DME5000-	112	122	212	222	312	322				
Measurement range ¹⁾	0.15 ... 70 m		■	■								
	0.15 ... 150 m				■	■						
	0.15 ... 300 m						■	■				
Accuracy	±2 mm		■	■								
	±3 mm				■	■						
	±5 mm						■	■				
Reproducibility ²⁾	0.5 mm		■	■								
	1 mm				■	■						
	2 mm						■	■				
Light spot diameter	max. 130 mm at 70 m		■	■								
	max. 270 mm at 150 m				■	■						
	max. 550 mm at 300 m						■	■				
Resolution (adjustable)	0.05 ... 5 mm		■	■	■	■	■	■				
Light source ³⁾ , light type	Laser diode, red light		■	■	■	■	■	■				
Laser category	2 (IEC 60825-1/C.D.R.H.)		■	■	■	■	■	■				
Supply voltage V_S ⁴⁾	18 ... 30 V DC		■	■	■	■	■	■				
Residual ripple ⁵⁾	5 V _{PP}		■	■	■	■	■	■				
Current consumption	< 250 mA at 24 V DC		■	■	■	■	■	■				
	with heating < 1000 mA			■	■	■	■	■				
Switching outputs MF1, MF2	B (push/pull)		■	■	■	■	■	■				
Output (MF1/MF2)	HIGH: $U_V < 3$ V; LOW < 2 V		■	■	■	■	■	■				
Input (MF1) ⁶⁾	HIGH: > 12 V; LOW < 3 V		■	■	■	■	■	■				
Output current I_A max. ⁷⁾	100 mA (short-circuit/overload protected)		■	■	■	■	■	■				
Connection type	Plug		■	■	■	■	■	■				
VDE protection class ⁸⁾	□		■	■	■	■	■	■				
Enclosure rating	IP 65		■	■	■	■	■	■				
Ambient temperature	Operation -10 °C ... +55 °C		■	■	■	■	■	■				
	with heating Operation -40 °C ... +55 °C			■	■	■	■	■				
	Storage -25 °C ... +75 °C		■	■	■	■	■	■				
Weight	approx. 1650 g		■	■	■	■	■	■				
Effect of air pressure	0.3 ppm/hPa		■	■	■	■	■	■				
Effect of air temperature	1 ppm/K		■	■	■	■	■	■				
Temperature drift	typ. 0.1 mm/K		■	■	■	■	■	■				
Measurement value output	2 ms		■	■	■	■	■	■				
Initialisation period	500 ms		■	■	■	■	■	■				
	800 ms						■	■				
Max. running speed	5 m/s						■	■				
	10 m/s		■	■	■	■	■	■				
EMC	EN 61000-6-2, EN 55011: class B		■	■	■	■	■	■				
Mechanical load	Shock: EN 600 68-2-27/-2-29		■	■	■	■	■	■				
	Sine: EN 600 68-2-6		■	■	■	■	■	■				
	Noise: EN 600 68-2-64		■	■	■	■	■	■				

¹⁾ On reflective tape "Diamond Grade"

²⁾ Statistical error 1σ , environmental conditions constant, minimal warm-up time: 10 min.

³⁾ Average service life 50,000 h at $T_A = +25$ °C

⁴⁾ Limit values

⁵⁾ May not exceed or fall short of V_S tolerances

⁶⁾ Not reverse-polarity protected

⁷⁾ Max. 100 nF/20 mH

⁸⁾ Reference voltage 32 V DC

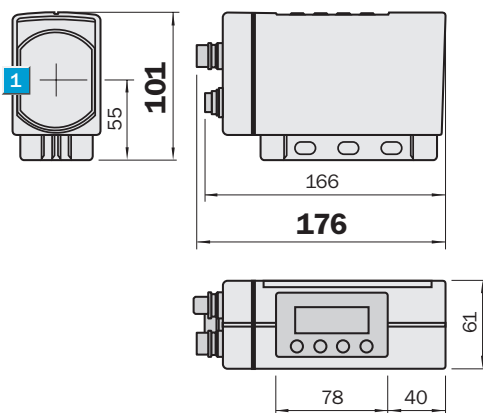
Order information	
Type	Order no.
DME5000-112	1023668
DME5000-122	1024084
DME5000-212	1024082
DME5000-222	1024086
DME5000-312	1025245
DME5000-322	1025247

	Measurement range
	0,15 ... 70/0,15 ... 150/
	0,15 ... 300 m
Distance measuring device	

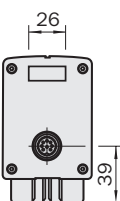
- Short positioning processes: very fast measuring time
- High degree of system availability: highest accuracy and reproducibility
- Convenient operation startup: illuminated LCD display with diagnosis information
- Easy assembly and alignment concept: alignment bracket with spring/visible red light

Dimensional drawing

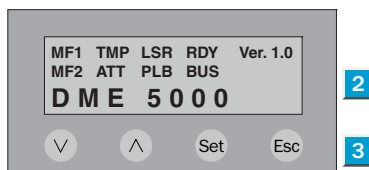
All types



Back sight



Adjustments possible



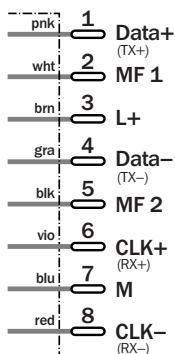
- 1 Centre of optical axis
- 2 LC display
- 3 Entry range

Connection type

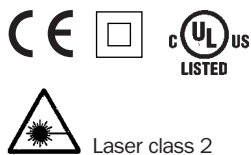


Connections

8-pin, M16



RS 422



See chapter Accessories

- Connectors
- Mounting systems

Technical Data		DME5000-	113	123	213	223	313	323				
Measurement range ¹⁾	0.15 ... 70 m		■	■								
	0.15 ... 150 m				■	■						
	0.15 ... 300 m						■	■				
Accuracy	±2 mm		■	■								
	±3 mm				■	■						
	±5 mm						■	■				
Reproducibility ²⁾	0.5 mm		■	■								
	1 mm				■	■						
	2 mm						■	■				
Light spot diameter	max. 130 mm at 70 m		■	■								
	max. 270 mm at 150 m				■	■						
	max. 550 mm at 300 m						■	■				
Resolution (adjustable)	0.05 ... 5 mm		■	■	■	■	■	■				
Light source ³⁾ , light type	Laser diode, red light		■	■	■	■	■	■				
Laser category	2 (IEC 60825-1/C.D.R.H.)		■	■	■	■	■	■				
Supply voltage V_S ⁴⁾	18 ... 30 V DC		■	■	■	■	■	■				
Residual ripple ⁵⁾	5 V _{PP}		■	■	■	■	■	■				
Current consumption	< 250 mA at 24 V DC		■	■	■	■	■	■				
	with heating < 1000 mA			■	■	■	■	■				
Switching outputs MF1, MF2	B (push/pull)		■	■	■	■	■	■				
Output (MF1/MF2)	HIGH: $U_V < 3$ V; LOW < 2 V		■	■	■	■	■	■				
Input (MF1) ⁶⁾	HIGH: > 12 V; LOW < 3 V		■	■	■	■	■	■				
Output current I_A max. ⁷⁾	100 mA (short-circuit/overload protected)		■	■	■	■	■	■				
Connection type	Plug		■	■	■	■	■	■				
VDE protection class ⁸⁾	□		■	■	■	■	■	■				
Enclosure rating	IP 65		■	■	■	■	■	■				
Ambient temperature	Operation -10 °C ... +55 °C		■	■	■	■	■	■				
	with heating Operation -40 °C ... +55 °C			■	■	■	■	■				
	Storage -25 °C ... +75 °C		■	■	■	■	■	■				
Weight	approx. 1650 g		■	■	■	■	■	■				
Effect of air pressure	0.3 ppm/hPa		■	■	■	■	■	■				
Effect of air temperature	1 ppm/K		■	■	■	■	■	■				
Temperature drift	typ. 0.1 mm/K		■	■	■	■	■	■				
Measurement value output	2 ms		■	■	■	■	■	■				
Initialisation period	500 ms		■	■	■	■	■	■				
	800 ms						■	■				
Max. running speed	5 m/s						■	■				
	10 m/s		■	■	■	■	■	■				
EMC	EN 61000-6-2, EN 55011: class B		■	■	■	■	■	■				
Mechanical load	Shock: EN 600 68-2-27/-2-29		■	■	■	■	■	■				
	Sine: EN 600 68-2-6		■	■	■	■	■	■				
	Noise: EN 600 68-2-64		■	■	■	■	■	■				

¹⁾ On reflective tape "Diamond Grade"

²⁾ Statistical error 1σ , environmental conditions constant, minimal warm-up time: 10 min.

³⁾ Average service life 50,000 h at $T_A = +25$ °C

⁴⁾ Limit values

⁵⁾ May not exceed or fall short of V_S tolerances

⁶⁾ Not reverse-polarity protected

⁷⁾ Max. 100 nF/20 mH

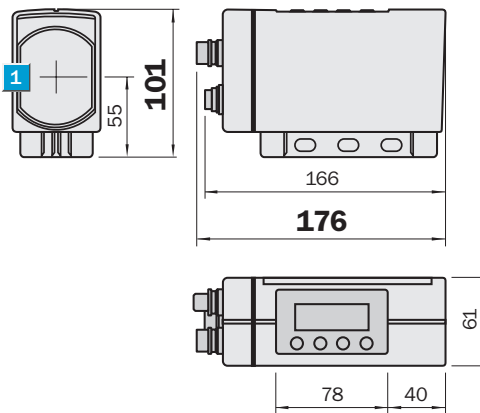
⁸⁾ Reference voltage 32 V DC

Order information	
Type	Order no.
DME5000-113	1025048
DME5000-123	1025249
DME5000-213	1025050
DME5000-223	1025251
DME5000-313	1025252
DME5000-323	1025253

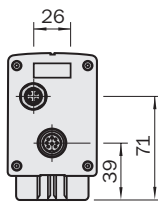
	Measurement range 0,15 ... 70/0,15 ... 150/ 0,15 ... 300 m
Distance measuring device	

- Short positioning processes: very fast measuring time
- High degree of system availability: highest accuracy and reproducibility
- Convenient operation startup: illuminated LCD display with diagnosis information
- Easy assembly and alignment concept: alignment bracket with spring/visible red light

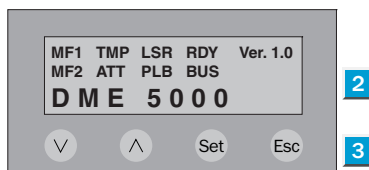
Dimensional drawing



Back sight

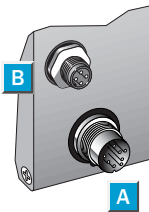


Adjustments possible



- 1** Centre of optical axis
- 2** LC display
- 3** Entry range

Connection type

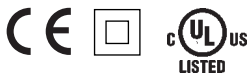


Connections

8-pin, M12	4-pin, M12
A	B
wht 1 REF sin	brn 1 L+
brn 2 + sin	wht 2 MF2
grn 3 REF cos	blu 3 M
yel 4 + cos	blk 4 MF1
gra 5 Data +	
pnk 6 Data -	
blu 7 GND	
8 NC	



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See chapter Accessories

- Connectors
- Mounting systems
- Reflectors
- Special accessories

Technical Data		DME5000-	117	127	217	227	317	327				
Measurement range ¹⁾	0.15 ... 70 m		■	■								
	0.15 ... 150 m				■	■						
	0.15 ... 300 m						■	■				
Accuracy	±2 mm		■	■								
	±3 mm				■	■						
	±5 mm						■	■				
Reproducibility ²⁾	0.5 mm		■	■								
	1 mm				■	■						
	2 mm						■	■				
Light spot diameter	max. 130 mm at 70 m		■	■								
	max. 270 mm at 150 m				■	■						
	max. 550 mm at 300 m						■	■				
Resolution (adjustable)	0.05 ... 5 mm		■	■	■	■	■	■				
Light source ³⁾ , light type	Laser diode, red light		■	■	■	■	■	■				
Laser category	2 (IEC 60825-1/C.D.R.H.)		■	■	■	■	■	■				
Supply voltage V_S ⁴⁾	18 ... 30 V DC		■	■	■	■	■	■				
Residual ripple ⁵⁾	5 V _{PP}		■	■	■	■	■	■				
Current consumption	< 250 mA at 24 V DC		■	■	■	■	■	■				
	with heating < 1000 mA			■	■	■	■	■				
Switching outputs MF1, MF2	B (push/pull)		■	■	■	■	■	■				
Output (MF1/MF2)	HIGH: $U_V < 3$ V; LOW < 2 V		■	■	■	■	■	■				
Input (MF1) ⁶⁾	HIGH: > 12 V; LOW < 3 V		■	■	■	■	■	■				
Output current I_A max. ⁷⁾	100 mA (short-circuit/overload protected)		■	■	■	■	■	■				
Connection type	Plug		■	■	■	■	■	■				
VDE protection class ⁸⁾	□		■	■	■	■	■	■				
Enclosure rating	IP 65		■	■	■	■	■	■				
Ambient temperature	Operation -10 °C ... +55 °C		■	■	■	■	■	■				
	with heating Operation -40 °C ... +55 °C			■	■	■	■	■				
	Storage -25 °C ... +75 °C		■	■	■	■	■	■				
Weight	approx. 1650 g		■	■	■	■	■	■				
Effect of air pressure	0.3 ppm/hPa		■	■	■	■	■	■				
Effect of air temperature	1 ppm/K		■	■	■	■	■	■				
Temperature drift	typ. 0.1 mm/K		■	■	■	■	■	■				
Measurement value output	2 ms		■	■	■	■	■	■				
Initialisation period	900 ms		■	■	■	■	■	■				
Max. running speed	5 m/s		■	■	■	■	■	■				
	10 m/s		■	■	■	■	■	■				
EMC	EN 61000-6-2, EN 55011: class B		■	■	■	■	■	■				
Mechanical load	Shock: EN 600 68-2-27/-2-29		■	■	■	■	■	■				
	Sine: EN 600 68-2-6		■	■	■	■	■	■				
	Noise: EN 600 68-2-64		■	■	■	■	■	■				

¹⁾ On reflective tape "Diamond Grade"
²⁾ Statistical error 1 σ , environmental conditions constant, minimal warm-up time: 10 min.

³⁾ Average service life 50,000 h at $T_A = +25$ °C
⁴⁾ Limit values

⁵⁾ May not exceed or fall short of V_S tolerances
⁶⁾ Not reverse-polarity protected

⁷⁾ Max. 100 nF/20 mH
⁸⁾ Reference voltage 32 V DC

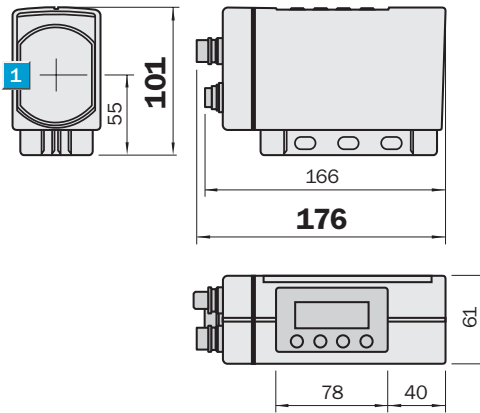
Order information	
Type	Order no.
DME5000-117	1028243
DME5000-127	1028244
DME5000-217	1028245
DME5000-227	1028246
DME5000-317	1028247
DME5000-327	1028248

	Measurement range
	0,15 ... 70/0,15 ... 150/
	0,15 ... 300 m
Distance measuring device	

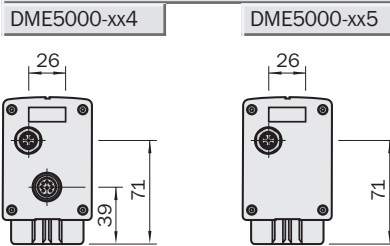
- Short positioning processes: very fast measuring time
- High degree of system availability: highest accuracy and reproducibility
- Convenient operation startup: illuminated LCD display with diagnosis information
- Easy assembly and alignment concept: alignment bracket with spring/visible red light



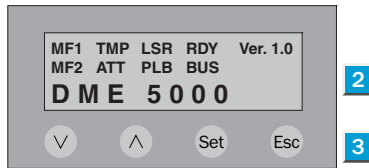
Dimensional drawing



Back sight

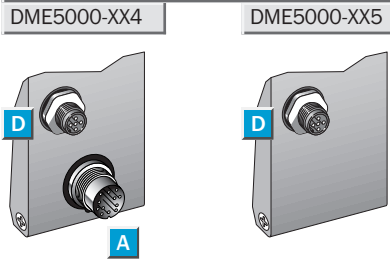


Adjustments possible

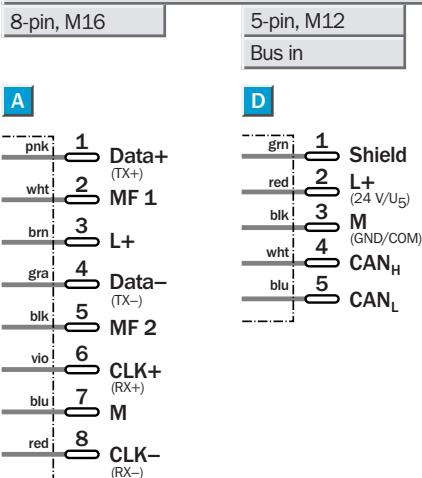


- 1** Centre of optical axis
- 2** LC display
- 3** Entry range

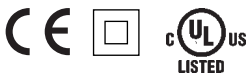
Connection type



Connections



DeviceNet



See chapter Accessories

Connectors
Mounting systems
Special accessories

Technical Data		DME5000-	114	115	124	214	215	224	314	315	324
Measurement range ¹⁾	0.15 ... 70 m										
	0.15 ... 150 m										
	0.15 ... 300 m										
Accuracy	±2 mm										
	±3 mm										
	±5 mm										
Reproducibility ²⁾	0.5 mm										
	1 mm										
	2 mm										
Light spot diameter	max. 130 mm at 70 m										
	max. 270 mm at 150 m										
	max. 550 mm at 300 m										
Resolution (adjustable)	0.05 ... 5 mm										
Light source ³⁾ , light type	Laser diode, red light										
Laser category	2 (IEC 60825-1/C.D.R.H.)										
Supply voltage V_S ⁴⁾	18 ... 30 V DC										
Residual ripple ⁵⁾	5 V _{PP}										
Current consumption	< 250 mA at 24 V DC										
	with heating < 1000 mA										
Switching outputs MF1, MF2	B (push/pull)										
Output (MF1/MF2)	HIGH: $U_V < 3$ V; LOW < 2 V										
Input (MF1) ⁶⁾	HIGH: > 12 V; LOW < 3 V										
Output current I_A max. ⁷⁾	100 mA (short-circuit/overload protected)										
Connection type	Plug										
VDE protection class ⁸⁾	□										
Enclosure rating	IP 65										
Ambient temperature	Operation	-10 °C ... +55 °C									
	with heating	Operation	-40 °C ... +55 °C								
	Storage	-25 °C ... +75 °C									
Weight	approx. 1650 g										
Effect of air pressure	0.3 ppm/hPa										
Effect of air temperature	1 ppm/K										
Temperature drift	typ. 0.1 mm/K										
Measurement value output	2 ms										
Initialisation period	500 ms										
	800 ms										
Max. running speed	5 m/s										
	10 m/s										
EMC	EN 61000-6-2, EN 55011: class B										
Mechanical load	Shock: EN 600 68-2-27/-2-29										
	Sine: EN 600 68-2-6										
	Noise: EN 600 68-2-64										

¹⁾ On reflective tape "Diamond Grade"

²⁾ Statistical error 1σ , environmental conditions constant, minimal warm-up time: 10 min.

³⁾ Average service life 50,000 h at $T_A = +25$ °C

⁴⁾ Limit values

⁵⁾ May not exceed or fall short of V_S tolerances

⁶⁾ Not reverse-polarity protected

⁷⁾ Max. 100 nF/20 mH

⁸⁾ Reference voltage 32 V DC

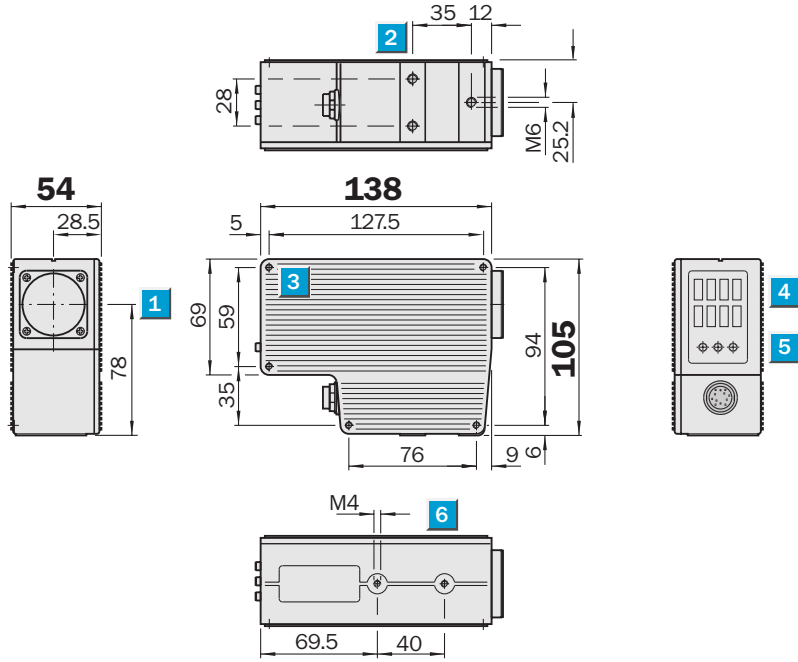
Order information	
Type	Order no.
DME5000-114	1025832
DME5000-115	1025833
DME5000-124	1025836
DME5000-214	1025834
DME5000-215	1025835
DME5000-224	1025837
DME5000-314	1026002
DME5000-315	1026003
DME5000-324	1026004

Measurement range up to 500 m

Distance measuring device

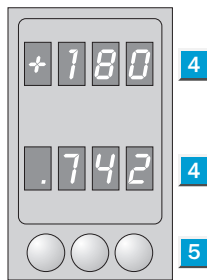
- Excellent measurement accuracy and reproducibility thanks to time-of-flight measurement
- Simple adjustment using visible red light
- Easy handling due to integrated display
 - 2 switching outputs
 - pre-failure signalling output
 - plausibility control
- Gateway to Interbus, DeviceNet

Dimensional drawing



Adjustments possible

All types



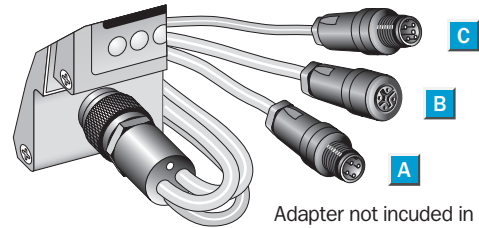
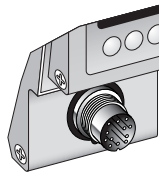
- 1** Centre of optical axis
- 2** M6 threaded mounting hole, 10 mm deep
- 3** M4 threaded mounting hole, 14 mm deep (this side only)
- 4** 8-digit alphanumeric indicator
- 5** Programming switches
- 6** M4 threaded mounting hole, 6 mm deep



Connection type

DME3000-111
DME3000-111S01
DME3000-311

DME3000-111P
DME3000-111P01
DME3000-311P
DME3000-311P03

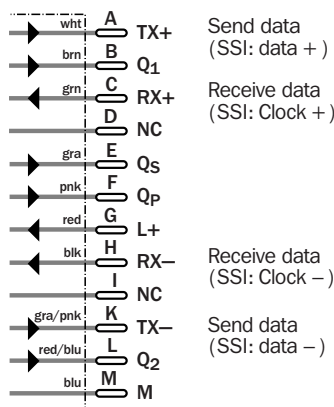


CE **SSI** RS 422

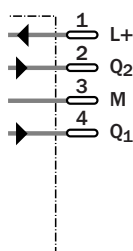
Laser class 2

See chapter Accessories
Cables and connectors
Mounting systems
Reflectors
Special accessories

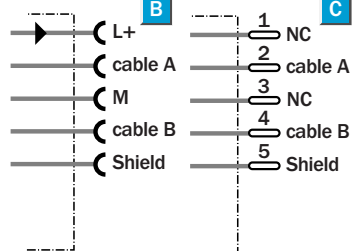
12-pin, M16



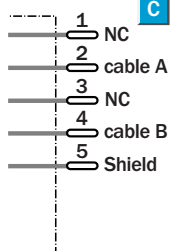
4-pin, M12



5-pin, M12



5-pin, M12



Technical data		DME3000-	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)								
Reproducibility⁴⁾	Depending on measurement range, see below								
Light spot diameter	1 m (measurement distance 500 m)								
Resolution	0.125 mm								
Light source⁵⁾, 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 class⁹⁾	□								
Circuit protection¹⁰⁾	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

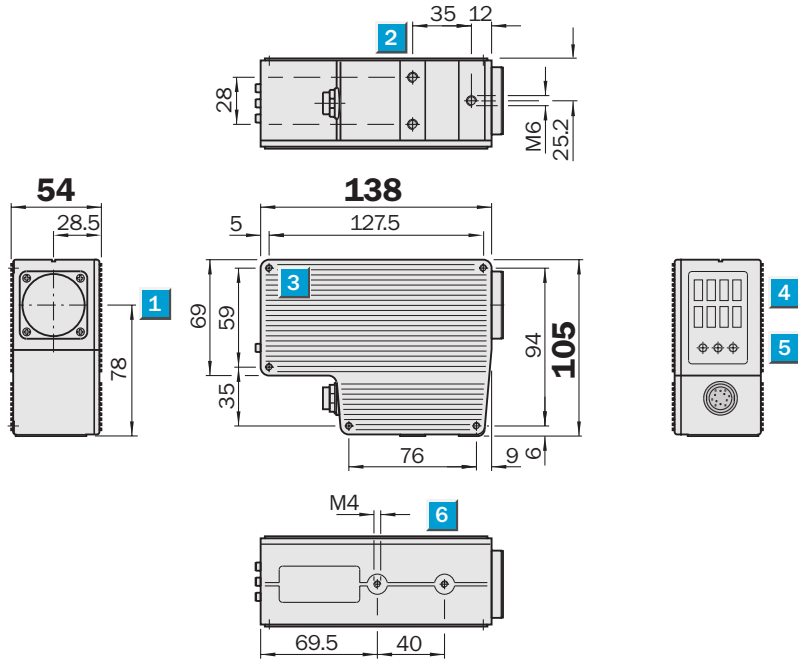
Order information	
Type	Order no.
DME3000-111	1013110
DME3000-111S01	1015921
DME3000-311	1016283
DME3000-111P	1018063
DME3000-111P01	1018575
DME3000-311P	1018542
DME3000-311P03	1019305

 **Measurement range up to 10 m**

Distance measuring device

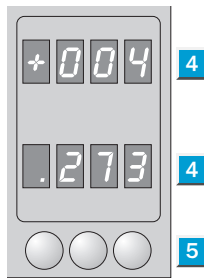
- Excellent measurement accuracy and reproducibility thanks to time-of-flight measurement
- Simple adjustment using visible red light
- Easy handling due to programmable parameters
 - 2 switching outputs
 - pre-failure signalling output
 - plausibility control
- RS 422 serial interface and SSI interface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

Dimensional drawing



Adjustments possible

All types



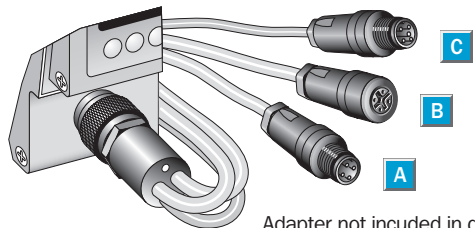
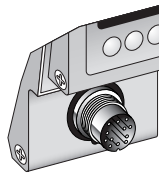
- 1 Centre of optical axis
- 2 M6 threaded mounting hole, 10 mm deep
- 3 M4 threaded mounting hole, 14 mm deep (this side only)
- 4 8-digit alphanumeric indicator
- 5 Programming switches
- 6 M4 threaded mounting hole, 6 mm deep



Connection type

DME3000-211
DME3000-212
DME3000-232

DME3000-211P DME3000-212P04
DME3000-411P DME3000-232P



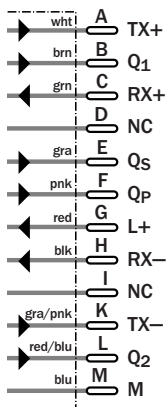
Adapter not included in delivery

12-pin, M16

4-pin, M12

5-pin, M12

5-pin, M12

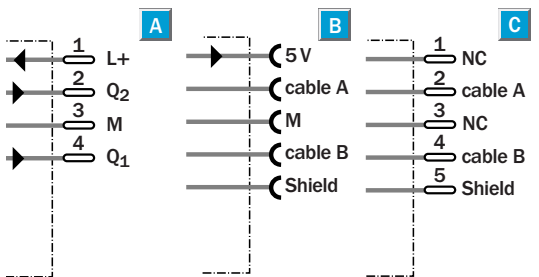


Send data (SSI: Data +)

Receive data (SSI: Clock +)

Receive data (SSI: Clock -)

Send data (SSI: Data -)



See chapter Accessories

- Cables and connectors
- Mounting systems
- Special accessories

Technical data		DME 3000-		211	212	232	211P	411P	212P04	232P			
Measurement range	100...8,000 mm												
	100...10,000 mm												
Light spot diameter	5 mm (measurement distance 8 m)												
Resolution	0.125 mm												
Light source²⁾, light type	Diode laser, red light												
Laser category	2 (IEC 825-1/EN 60825-1)												
Laser category	3 B (IEC 825-1/EN 60825-1)												
Service life (at 25 °C)	MTTF 50,000 h												
NIR blocking filter													
Supply voltage V_S	18...30 V DC ³⁾												
Ripple	< 5 V _{SS} ⁴⁾												
Power consumption	≤ 6 W ⁵⁾												
Switching outputs	PNP/NPN												
Q ₁ , Q ₂ , Q _P , Q _S	HIGH = U _V - ≤ 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 class⁶⁾	□												
Circuit protection⁷⁾	A, B, C												
Enclosure rating	IP 65												
	IP 68												
Ambient temperature T_A	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												
Profibus	Max. 12 MBaud												
Temperature drift	typ. 0.2 mm/K												
	typ. 0.4 mm/K (compensation on request)												
Measured value output													
SSI/Profibus	21 ms												
RS 422, 38.4 kBaud	21 ms												
Initialisation period	5 s												

- 1) Relative to front edge of object
- 2) Average service life 50,000 h at T_A = + 25 °C
- 3) Limit values
- 4) May not exceed or fall short of V_S tolerances
- 5) Without load
- 6) Reference voltage 50 V DC
- 7) A = V_S connections reverse-polarity protected
B = Output Q short-circuit protected
C = Interference pulse suppression
- 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												
	DME3000-											
	21..	232	21..	232	21..	232	21..	232	21..	232		
Measurement distance	1 m		2 m		4 m		6 m		8 m		10 m	
Reproducibility⁸⁾												
White, 90 % remission	1 mm	0.5 mm	2 mm	1 mm	5 mm	2 mm	10 mm	5 mm	25 mm	20 mm		
Grey, 18 % remission	2 mm	1 mm	5 mm	2.5 mm	25 mm	5 mm	-	25 mm	-	-		
Black, 6 % remission	5 mm	2 mm	25 mm	8 mm	-	25 mm	-	-	-	-		
Accuracy⁹⁾10)												
White, 90 % remission	±5 mm	±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	±5 mm	±30 mm	±10 mm	-	±25 mm	-	-		
Black, 6 % remission	±10 mm	±5 mm	±20 mm	±10 mm	-	±10 mm	-	-	-	-		

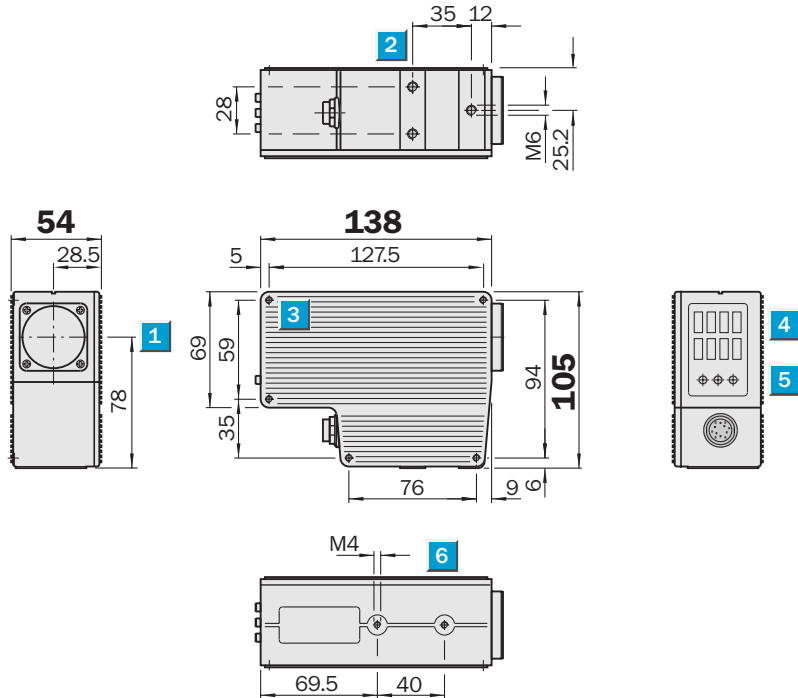
Order information	
Types	Order no.
DME3000-211	1013782
DME3000-212	1015906
DME3000-232	1015794
DME3000-211P	1018064
DME3000-411P	1019149
DME3000-212P04	1019697
DME3000-232P	1018958

	Measurement range 100...2047 mm
	Measurement range 0.1...130 mm
Distance measuring device	

- 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

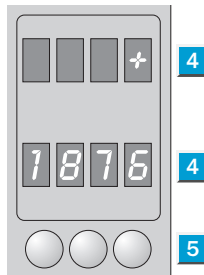


Dimensional drawing



Adjustments possible

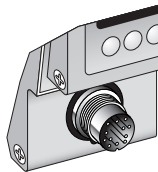
DME2000-000



- 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

DME2000-000



12-pin, M16

wht!	A	DTR	Data terminal ready (RS 232 output)
brn	B	Q ₁	Q ₁ switching output
grn	C	CTS	Clear to send (RS 232 input)
yel	D	Q _A	Q _A analogue output
gra!	E	Q _S	Q _S service output
pnk!	F	Q _P	Q _P plausibility output
red	G	L+	+ 18...30 V DC V _S
blk	H	RXD	R x D (receive data, RS 232 input)
vio	I	S&H	Blanking input
gra/pnk	K	TXD	T x D (send data, RS 232 output)
red/blu	L	Q ₂	Q ₂ switching output
blu!	M	M	0 V (earth)



Laser class 2

See chapter Accessories

- Cables and connectors
- Mounting systems
- Special accessories

Technical data		DME2000-	000										
Light source¹⁾, light type	Laser diode, red light												
Laser category	2 (IEC 825-1/EN 60825-1)												
Supply voltage V_S	18...30 V DC ²⁾												
Ripple	< 5 V _{SS} ³⁾												
Power consumption	< 6 W ⁴⁾												
Switching outputs													
Q ₁ , Q ₂ , Q _P , Q _S	PNP												
Output voltage	HIGH = V _S - ≤ 2 V/LOW = 2 V												
Output current I _A	100 mA												
Q ₁ and Q ₂ switching outputs	Reversible												
Switching limit	Adjustable in 1 mm increments												
Switching hysteresis	Adjustable in 2mm increments, 0...254 mm												
Q _P plausibility output	HIGH: measurement correct/ LOW: measurement error												
Q _S service output	HIGH: device has no faults/ LOW: pre-failure signalling output												
Blanking input S/H	HIGH: ≥ 10 V; ≤ V _S / LOW: ≤ 2 V or unswitched;												
	HIGH: Measured value stored/ LOW: free-running												
Analogue output	0...20 mA or 4...20 mA												
Connection type	Plug												
VDE protection class⁵⁾	□												
Circuit protection⁶⁾	A, B, C												
Enclosure rating	IP 65 (IEC 529)												
Ambient temperature T_A	Operation - 10 °C...+ 45 °C Storage - 25 °C...+ 75 °C												
Weight	Approx. 980 g												
Shock load	To IEC 68												
Serial interface	RS 232 (4.8/9.6, 19.2 kBaud)												
Temperature drift	Type 0.4 mm/K												

¹⁾ Average service life 50,000 h
at T_A = +25 °C

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

	Mode 1.1: Proximity mode	Mode 2.1: Reflector mode
Measurement range⁷⁾	100...2047 mm	0.1...130 m
Resolution	1 mm	1 mm
Light spot dimensions	Approx. 3 mm/2 m	Approx. 250 mm/130 m
Effect of compressed air		0.3 ppm/mbar
Effect of air temperature		1 ppm/K
Measured value output cycle	29 ms	100 ms
Target remission	> 6...< 36000 %	Reflective tape
Max. running speed		3 m/s
Reproducibility⁸⁾	1 mm (= 90 % remission)	2 mm
Statistical error 1 σ	3 mm (> 18 % remission) 25 mm (> 6 % remission)	3...130 m APM reflective tape 3...100 m Diamond Grade
Statistical error 3 σ ⁹⁾	Typical 1 mm; max. 2 mm	0.1...90 m reflective tape 7610 0.1...40 m reflective tape 3290
Accuracy¹⁰⁾	± 5 mm (= 90 % remission) ± 11 mm (> 18 % remission) ± 65 mm (> 6 % remission)	+ 5/- 20 mm In range as below reproducibility stated

⁷⁾ Relative to front edge of object
⁸⁾ Environmental conditions constant at
30 min. minimum switching period
⁹⁾ Measurement distance 1 m,
90 % remission

¹⁰⁾ 20 °C ambient temperature,
1013 mbar, 30 min. switching period,
re-calibration recommended after
25,000 h

Order information	
Standard type	Order no.
DME2000-000	1010578