

DME 3000-1 Reflex

Distance Sensors



0.3...1640 ft (0.1...500 m)

sensing range



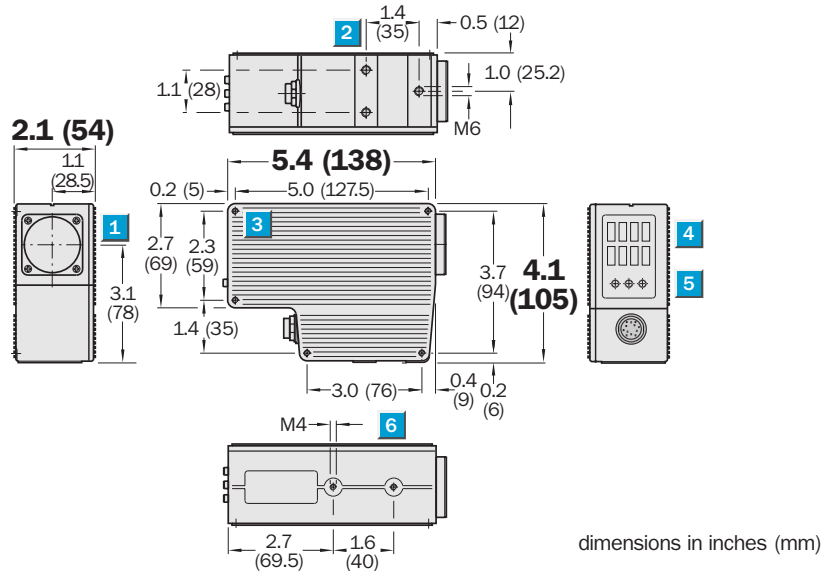
Highlights

- Visible red light for easy alignment
- Super-long distance measurement with a reflector
- Remote programmability for system flexibility
- Two programmable discrete outputs (invertible)
- Plausibility and service outputs

DME 3000-1



Dimensional Drawing



Measurement Range, Repeatability, Accuracy

Repeatability **0.5 mm**

Measurement range with reflector

Reflective tape 3290	0.1 m... 20 m
Reflective tape 7610	0.1 m... 40 m
Reflective tape «Diamond Grade»	3.0 m... 90 m
Multi-reflector PL240F	0.1 m... 250 m
Multi-reflector PL560F	0.1 m... 270 m
Multi-reflector PL880F	10 m... 300 m

Repeatability **2 mm**

Measurement range with reflector

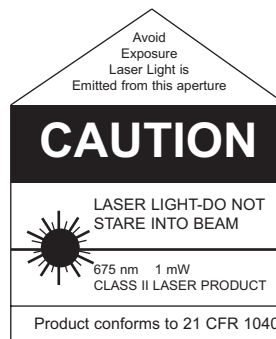
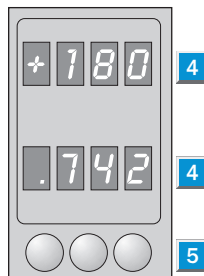
Reflective tape 3290	0.1 m... 40 m
Reflective tape 7610	0.1 m... 90 m
Reflective tape «Diamond Grade»	0.5 m... 250 m
Multi-reflector PL240F	0.1 m... 300 m
Multi-reflector PL560F	0.1 m... 350 m
Multi-reflector PL880F	8.0 m... 500 m

Note: See page 1012 for metric to English conversions.

Adjustments

All types

- 1 Center 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 signal indicator
- 5 Keypad
- 6 M4 threaded mounting hole, 6 mm deep



Order Information

Type	Part no.
DME 3000-111S01	1 015 921
DME 3000-311S14	1 022 082
DME 3000-111P01	1 018 575

Accessories

Accessories	page
Cables and connectors	912
Mounting brackets	934
Reflectors	936
Special Accessories	
Dust shield	956
Cooling plates	958
Electric heating/cooling	959

Technical Data

DME 3000-

111 S01	311 S14	111 P01							
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Sensing range	0.3...1640 ft (0.1...500 m), dependent on reflector, see measurement range chart on prior page			
Light source⁴⁾, light type	Laser diode, red light			
Light spot diameter	3.3 ft at 1640 ft (1 m at 500 m)			
Laser category	Class II (IEC 825-1/EN 60825-1) 21 CFR 1040.10			
Accuracy^{1) 2)}	± 0.2 in (5 mm)			
Repeatability³⁾	0.5 mm max. dependent on range, see prior page			
Resolution	SSI: 0.005 in (0.125 mm); RS 422: 0.04 in (1 mm)			
Supply voltage V_S	18...30 V DC ⁵⁾			
Ripple	≤ 5 V _{PP} ⁶⁾			
Power consumption ⁷⁾	Standard: ≤ 6 W ⁷⁾ Profibus: ≤ 8 W ⁷⁾			
Circuit protection⁹⁾	A, B			
Outputs Output type	PNP/NPN			
Voltage	Active: V _S - ≤ 2 V; Deactive: ≤ 2 V			
Maximum current I _A	100 mA			
Switching distance	Limit adjustable in 1 mm increments			
Switching hysteresis	Hysteresis adjustable in 2 mm increments 0...254 mm			
Output logic	Invertible Q/ \bar{Q}			
Plausibility Q _P	Active: measurement correct; Deactive: error			
Service Q _S	Active: device OK; Deactive: early failure warning			
Effect of compressed air	0.3 ppm/mbar			
Effect of air temperature	1 ppm/K			
Temperature drift	Typical 0.3 mm/K			
	Typical 0.2 mm/K			
Interfaces				
SSI	SSI: GRAY/BINARY, 24 or 25 bits			
Serial interface	RS 422: 4.8/9.6/19.2/38.4 kBaud			
Profibus	Uses RS 485, automatic baud rate detection, Max. 12 MBaud			
Measurement output rate				
SSI	1 ms			
Serial interface	RS 422 at 38.4 kBaud = 5 ms			
Profibus	1.5 ms			
Initialization period	4 s			
Max. running speed	10 m/s			
Connection type	Plug			
VDE protection class⁸⁾	<input type="checkbox"/>			
Enclosure rating	IP 65/NEMA 4			
Ambient temperature T_A	Operation 14...113°F (-10...45°C) Storage -13...167°F (-25...75°C)			
Mechanical load	IEC 68			
Approximate weight	2.2 lb (980 g)			

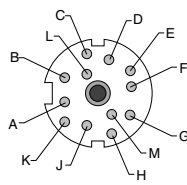
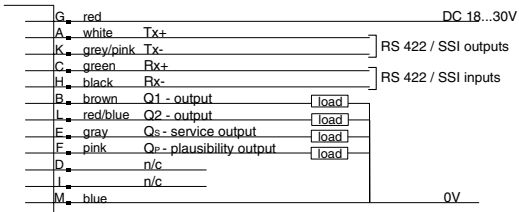
- 1) 23°C air temperature, 977 hPa, min warm-up period 30 min
- 2) Re-calibration recommended after 25,000 h

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

- 6) May not exceed or fall short of V_S tolerances
- 7) Without load

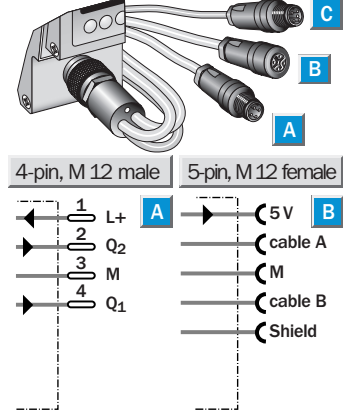
- 8) Reference voltage 32 V DC
- 9) A = V_S connections reverse-polarity protected
B = Output Q short-circuit protected

Connection Diagram - Standard

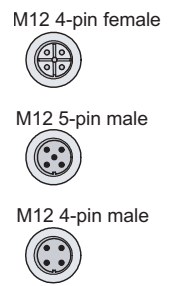


wire colors refer to standard cable, not included

Connection Diagram - Profibus



Adapter not included in delivery



DME 3000-2 Proximity

Distance Sensors



3.9...314.9 in (100...8000 mm)

sensing range



RS 422



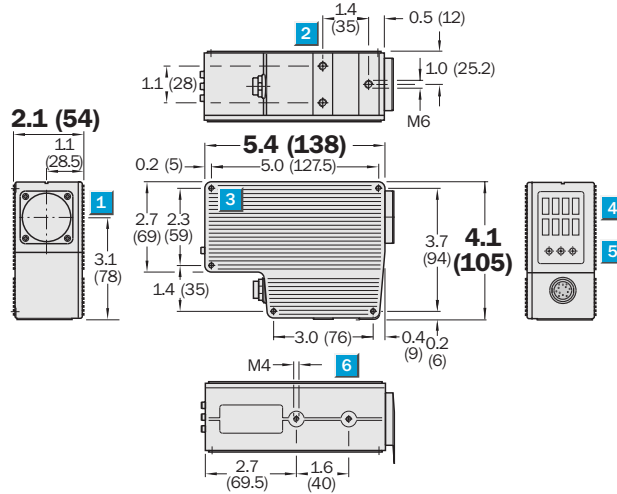
Highlights

- Visible red light for easy alignment
- Non-contact distance measurement on any surface
- Remote programmability for system flexibility
- Two programmable discrete outputs (invertible)
- Plausibility and service outputs

DME 3000-2



Dimensional Drawing



dimensions in inches (mm)

Measurement Range, Repeatability, Accuracy

Measurement distance	1 m	2 m
Repeatability¹⁾		
White, 90% remission	1 mm	2 mm
Grey, 18% remission	2 mm	5 mm
Black, 6% remission	5 mm	25 mm
Accuracy^{2,3)}		
White, 90% remission	±5 mm	±5 mm
Grey, 18% remission	±5 mm	±10 mm
Black, 6% remission	±10 mm	±20 mm

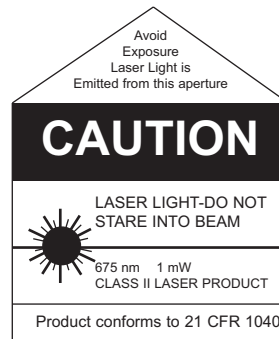
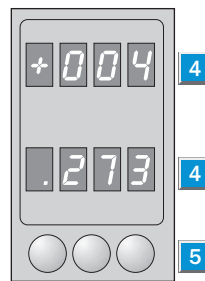
Measurement distance	4 m	6 m
Repeatability¹⁾		
White, 90% remission	5 mm	10 mm
Grey, 18% remission	25 mm	—
Black, 6% remission	—	—
Accuracy^{2,3)}		
White, 90% remission	±10 mm	±20 mm
Grey, 18% remission	±30 mm	—
Black, 6% remission	—	—

Measurement distance	8 m
Repeatability¹⁾	
White, 90% remission	25 mm
Accuracy^{2,3)}	
White, 90% remission	±30 mm

Adjustments

All types

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



Order Information

Type	Part no.
DME 3000-211S02	1 015 922
DME 3000-212	1 015 906
DME 3000-211P02	1 018 576

Accessories

Accessories	page
Cables and connectors	912
Mounting brackets	934
Special Accessories	
Dust covers	956
Cooling plates	958
Electric heating/cooling	959

Note: See page 1012 for metric to English conversions.

Technical Data

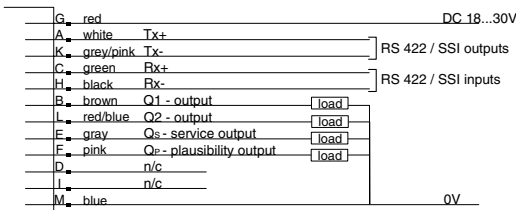
DME 3000-

211 S02	212	211 P02							
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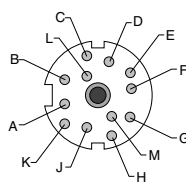
Sensing range	3.9...314.9 in (100...800 mm), dependent on reflector, see measurement range chart on prior page			
Light source⁴⁾, light type	Laser diode, red light			
Light spot diameter	0.2 in at 26.2 ft (5 mm at 8 m)			
Laser category	Class II (IEC 825-1/EN 60825-1) 21 CFR 1040.10			
NIR blocking filter, high temp. targets	For high temp. targets up to 1600°F			
Accuracy^{2) 3)}	± 0.2 in (5 mm), see prior page			
Repeatability¹⁾	1 mm max. see prior page			
Resolution	SSI: 0.005 in (0.125 mm)/RS 422: 0.04 in (1 mm)			
Supply voltage V_S	18...30 V DC ⁵⁾			
Ripple	≤ 5 V _{PP} ⁶⁾			
Power consumption ⁷⁾	Standard: ≤ 6 W Profibus: ≤ 8 W			
Circuit protection⁹⁾	A, B			
Outputs Output type	PNP/NPN			
Voltage	Active: V _S - ≤ 2 V; Deactive: ≤ 2 V			
Maximum current I _A	100 mA			
Switching distance	Limit adjustable in 1 mm increments			
Switching hysteresis	Hysteresis adjustable in 2 mm increments 0...254 mm			
Output logic	Invertible Q/Q̄			
Averaging	1, 2, 4, 8, 16, 32, 64, 128 values; moving avg. output			
Plausibility Q _P	Active: measurement correct/ Deactive: error			
Service Q _S	Active: device OK/ Deactive: early failure warning			
Temperature drift	Typical 0.3 mm/K			
Interfaces				
SSI	SSI: GRAY/BINARY, 24 or 25 bit			
Serial interface	RS 422: 4.8/9.6/19.2/38.4 kBaud			
Profibus	Uses RS 485, automatic baud rate detection, Max. 12 MBaud			
Measurement output rate				
SSI	21 ms min.			
Serial interface	RS 422 at 19.2 kBaud and higher: 21 ms min.			
Profibus	21 ms min.			
Initialization period	5 s			
Connection type	Plug			
VDE protection class⁸⁾	□			
Enclosure rating	IP 65/NEMA 4			
Ambient temperature T_A	Operation 14...113°F (-10...45°C) Storage -13...167°F (-25...75°C)			
Mechanical load	IEC 68			
Approximate weight	2.2 lb (980 g)			

- | | | | |
|---|---|--|--|
| 1) Environmental conditions constant, min. switching period 30 min. | 3) Re-calibration recommended after 25,000 h. | 5) Limit values | 8) Reference voltage 32 V DC |
| 2) 23°C air temp, 977 hPa, min. switching period 30 min. | 4) Average service life 50,000 h at T _A = 25°C | 6) May not exceed or fall short of V _S tolerances | 9) A=V _S connections reverse-polarity protected
B = Output Q short-circuit protected |
| | | 7) Without load | |

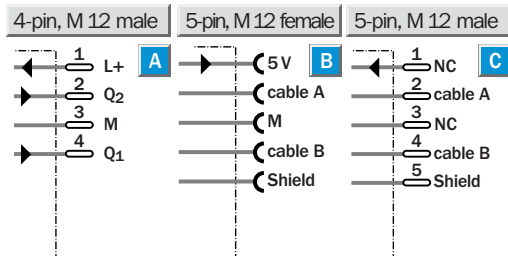
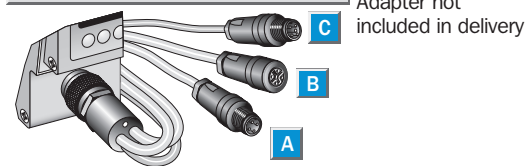
Connection Diagram - Standard



wire colors refer to standard cable, not included



Connection Diagram - Profibus



- M12 4-pin female
- M12 5-pin male
- M12 4-pin male