



Ordering information

Type	part no.
DL1000-S11101	1075438

Other models and accessories → www.sick.com/Dx1000



Detailed technical data

Features

Measurement principle	HDDM ⁺
Measuring range	0.2 m ... 1,500 m, on "diamond grade" reflective tape ^{1) 2) 3)}
Target	Reflector
Resolution	0.001 mm ... 100 mm, adjustable ⁴⁾
Repeatability	≥ 1 mm, See repeatability characteristic lines ^{1) 5) 6) 7)}
Measurement accuracy	Typ. ± 15 mm, See measurement accuracy diagram ⁸⁾
Response time	3 ms ... 384 ms ⁷⁾
Measurement cycle time	1 ms 4 ms 16 ms
Output time	≥ 1 ms ⁹⁾
Light source	Infrared light (905 nm, measuring laser) Visible red light (650 nm, Adjustment aid)
Laser class	1, even with simultaneous operation of measurement and alignment laser (IEC 60825-1:2014, EN 60825-1:2014)
Typ. light spot size (distance)	5 mm x 20 mm (at 1 m) ¹⁰⁾ 20 mm x 20 mm (at 5 m) ¹⁰⁾ 35 mm x 25 mm (at 10 m) ¹⁰⁾ 150 mm x 50 mm (at 50 m) ¹⁰⁾

¹⁾ With max. ambient light 100 kLux sunlight.

²⁾ See measuring range diagram.

³⁾ Dependent on reflector size and measuring cycle time.

⁴⁾ Data interface resolution.

⁵⁾ Statistical error 1 σ , environmental conditions constant, min. warm-up time > about 15 min.

⁶⁾ On "diamond grade" reflective tape.

⁷⁾ Dependent on selected filter settings and measuring cycle time.

⁸⁾ At T = +23 °C and after warm-up time > about 15 min.

⁹⁾ Depending on interface used.

¹⁰⁾ See light spot size diagram.

¹¹⁾ Measuring laser.

	290 mm x 80 mm (at 100 m) ¹⁰⁾ 4,200 mm x 920 mm (≥ 1,500 mm) ¹⁰⁾
Filter	Rain and snow filter Fog filter Moving average distance value Kalman filter Moving average speed value
Additional function	Selection of relevant distance and signal level range Selection of first or last echo in selected distance and signal level range
Average laser service life (at 25 °C)	100,000 h ¹¹⁾
Max. movement speed	128 m/s
Safety-related parameters	
	MTTF _D 101 years
	DC _{avg} 0%

1) With max. ambient light 100 kLux sunlight.

2) See measuring range diagram.

3) Dependent on reflector size and measuring cycle time.

4) Data interface resolution.

5) Statistical error 1 σ, environmental conditions constant, min. warm-up time > about 15 min.

6) On "diamond grade" reflective tape.

7) Dependent on selected filter settings and measuring cycle time.

8) At T = +23 °C and after warm-up time > about 15 min.

9) Depending on interface used.

10) See light spot size diagram.

11) Measuring laser.

Interfaces

Ethernet	✓, TCP/IP
	Function Parameterization, output of measurement data
	Data transmission rate 10/100 MBit/s
Serial	✓, RS-422
	Remark Switchable to SSI
	Function Parameterization, output of measurement data
SSI	✓
	Remark Switchable to RS-422
	Function Output of measurement data
Inputs/outputs	
	In1/Q1 Digital input, digital output (Switchable)
	QA/Q2 Analog output, digital output (Switchable)
	Q3 Digital output
	Q4 Digital output
	In2 Digital input
Digital input	Internal pull-down circuit HIGH switching voltage: min. 13 V ... max. supply voltage LOW switching voltage: max. 5 V switching functions: deactivate measuring laser, activate alignment laser, preset

1) Short-circuit protected, switching voltage U_V - 4 V.

2) Internal pull-down switching, switching voltage HIGH: min. 13 V ... max. supply voltage, switching voltage LOW: max. 5 V.

3) Max. load = (U_V - 7 V) / 21.5 mA.

Digital output	Number	2 ... 4 ^{1) 2)}
	Type	Push-pull: PNP/NPN
	Maximum output current I_A	≤ 100 mA
Analog output	Number	1
	Type	Current output
	Current	4 mA ... 20 mA ³⁾
	Resolution	16 bit

¹⁾ Short-circuit protected, switching voltage $U_V - 4$ V.

²⁾ Internal pull-down switching, switching voltage HIGH: min. 13 V ... max. supply voltage, switching voltage LOW: max. 5 V.

³⁾ Max. load = $(U_V - 7 \text{ V}) / 21.5 \text{ mA}$.

Electronics

Supply voltage U_B	DC 18 V ... 30 V, reverse polarity protected
Power consumption	≤ 22 W, With heating switched off ¹⁾ ≤ 35 W, With heating switched on ¹⁾
Ripple	≤ 5 V _{pp} ²⁾
Initialization time	> 15 s
Indication	Graphical, resistive touch display, status LEDs
Enclosure rating	IP65 ³⁾ IP67 ³⁾
Protection class	III (EN 61140)

¹⁾ With external load.

²⁾ May not fall short of or exceed V_S tolerances.

³⁾ When plugged in with a suitable mating connector.

Mechanics

Dimensions (W x H x D)	84 mm x 104.4 mm x 140.5 mm
Housing material	Metal (Aluminum alloy (AlSi12))
Window material	Glass
Weight	980 g
Connection type	Round connector M12 x 1

Ambient data

Ambient temperature, operation	-40 °C ... +55 °C ¹⁾ -40 °C ... +95 °C, operation with cooling case
Ambient temperature, storage	-40 °C ... +75 °C
Max. rel. humidity (not condensing)	≤ 95 %
Effect of air pressure	0.3 ppm/hPa
Effect of air temperature	-1 ppm/K
Temperature drift	Typ. 0.25 mm/K
Typ. Ambient light immunity	$\leq 100,000$ lx

¹⁾ At a temperature of -40 °C, a warm-up time of typ. 20 minutes is required (when supply voltage $V_S = 24$ V).

Mechanical load	Shock: 30 g / 6 ms according to DIN EN 60068-2-27 (Ea), 6 axes Continuous shock: 25 g / 6 ms according to DIN EN 60068-2-27 (fatigue), 500 shocks, 6 axes
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¹⁾ At a temperature of -40 °C, a warm-up time of typ. 20 minutes is required (when supply voltage $V_s = 24$ V).

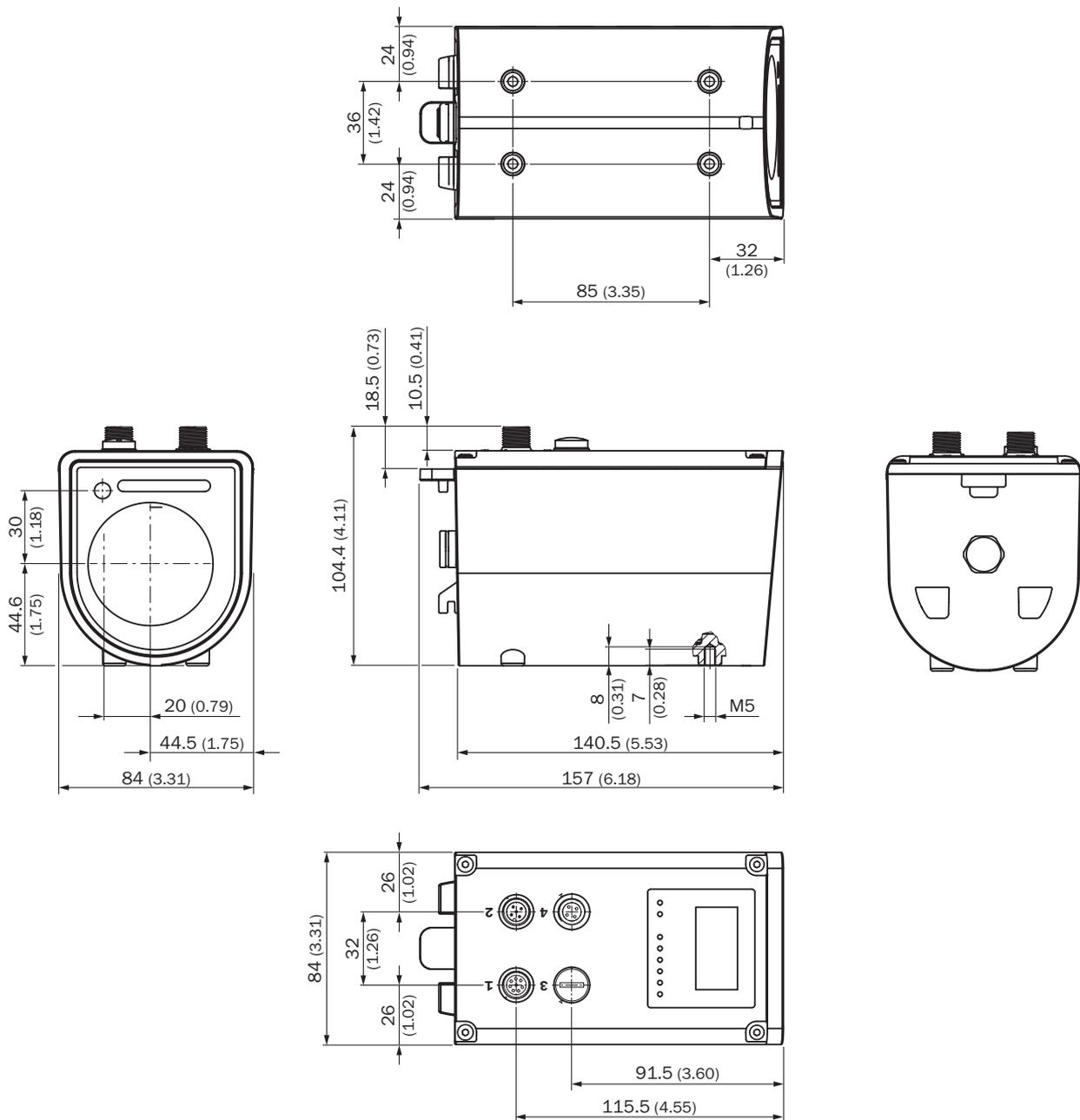
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China RoHS	✓
cULus certificate	✓
Information according to Art. 3 of Data Act (Regulation EU 2023/2854)	✓

Classifications

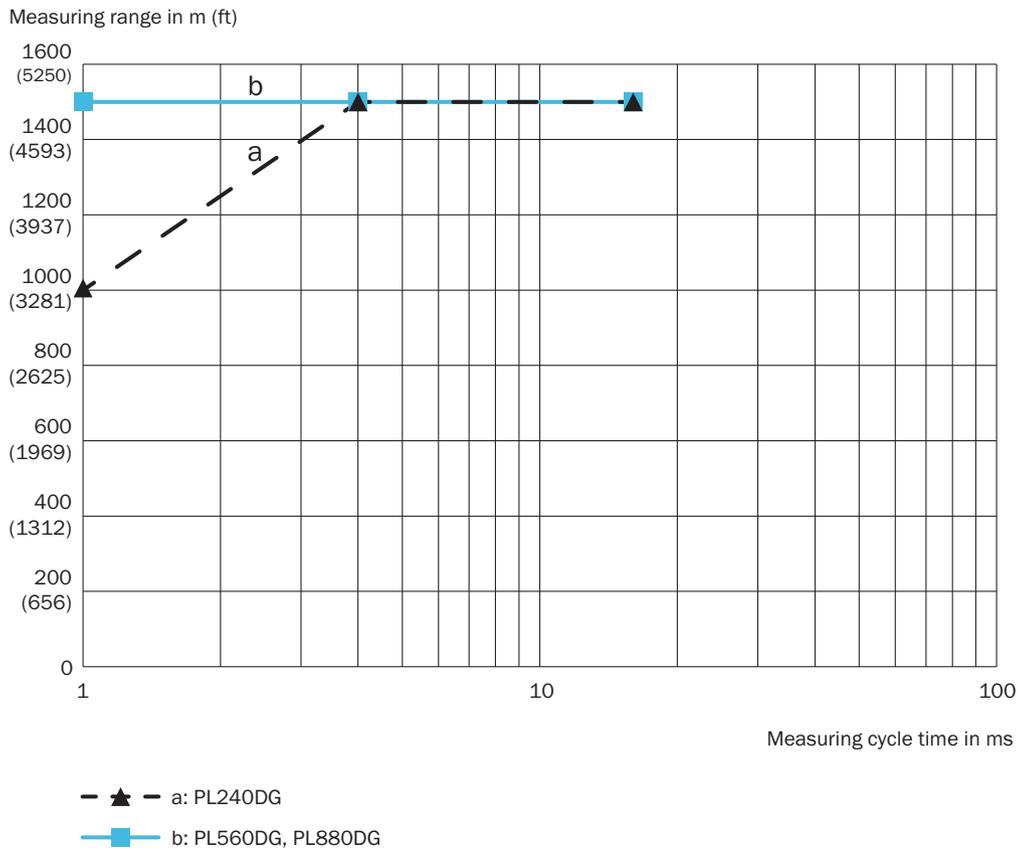
ECLASS 5.0	27270801
ECLASS 5.1.4	27270801
ECLASS 6.0	27270801
ECLASS 6.2	27270801
ECLASS 7.0	27270801
ECLASS 8.0	27270801
ECLASS 8.1	27270801
ECLASS 9.0	27270801
ECLASS 10.0	27270801
ECLASS 11.0	27270801
ECLASS 12.0	27270916
ETIM 5.0	EC001825
ETIM 6.0	EC001825
ETIM 7.0	EC001825
ETIM 8.0	EC001825
UNSPSC 16.0901	41111613

Dimensional drawing

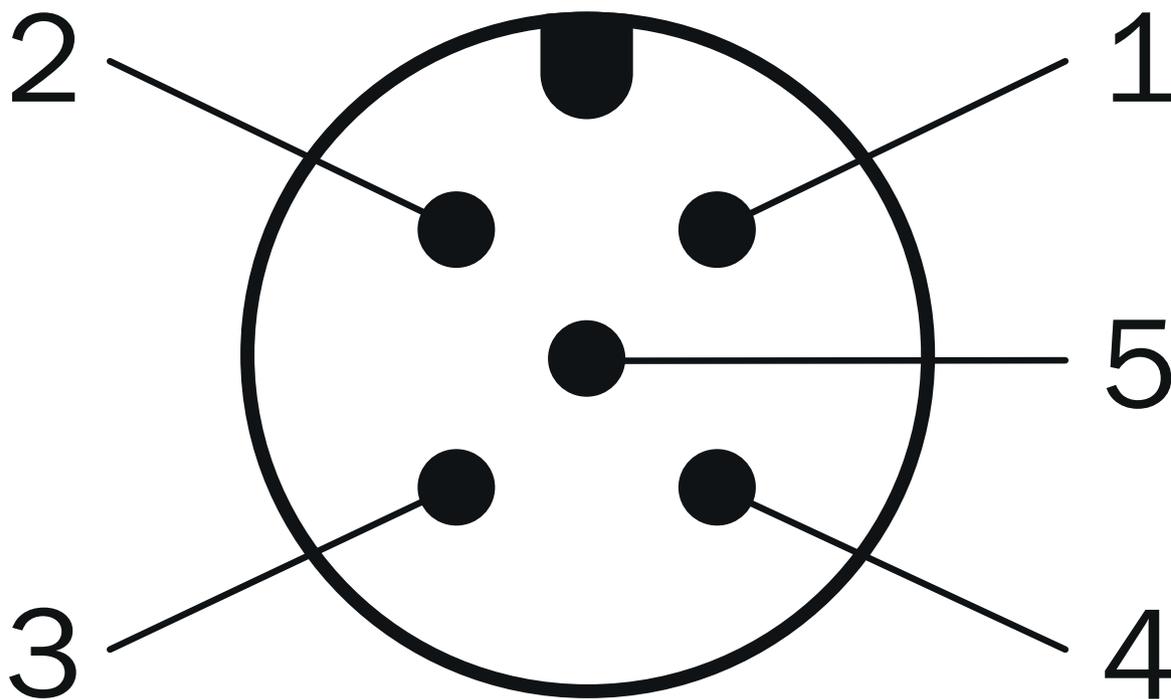


Dimensions in mm (inch)

Working range diagram DL1000 measuring range based on measurement cycle time and reflector type



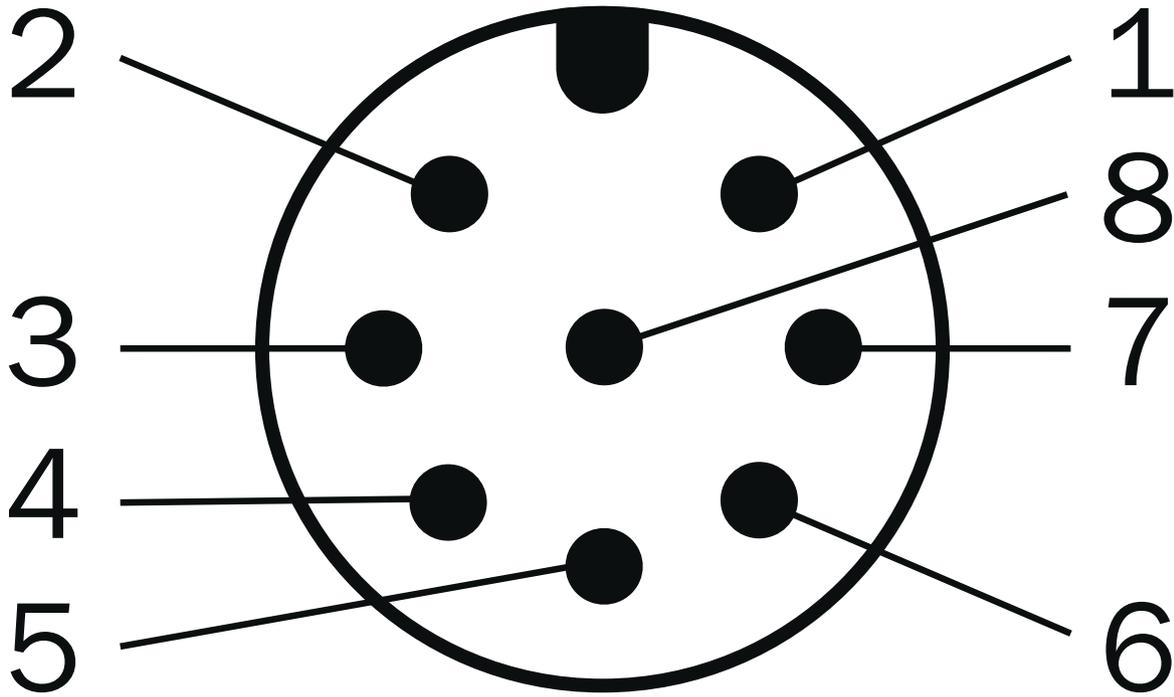
Connection type Connection 2: Auxiliary



Connector M12, 5-pin, A-coded

- ① nc
- ② Q₃
- ③ nc
- ④ Q₄
- ⑤ In₂

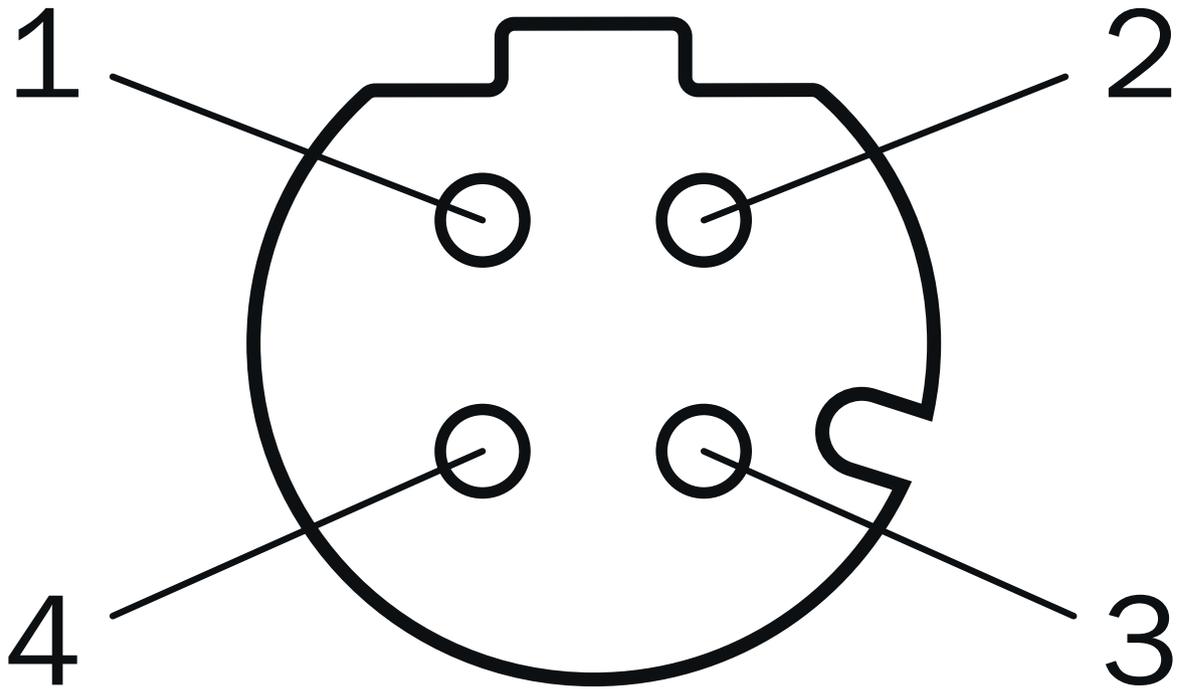
PIN assignment Connection 1: power, RS-422/SSI, Q1/In1, Q2/QA



Connector M12, 8-pin, A-coded

- ① Q1/In1
- ② L+
- ③ RX-/CLK-
- ④ RX+/CLK+
- ⑤ TX-/Data-
- ⑥ TX+/Data+
- ⑦ M
- ⑧ Q₂/Q_A

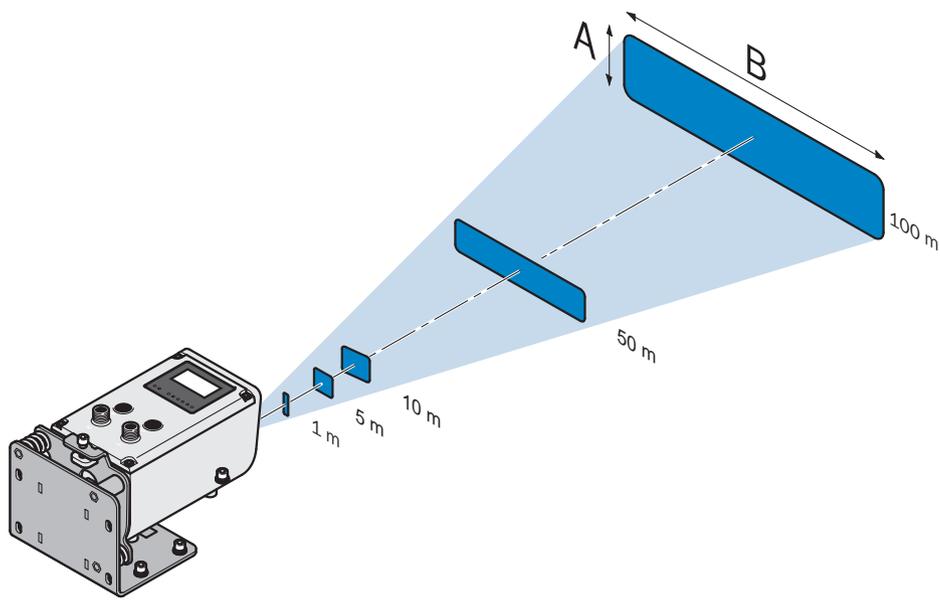
PIN assignment Connection 4: Ethernet



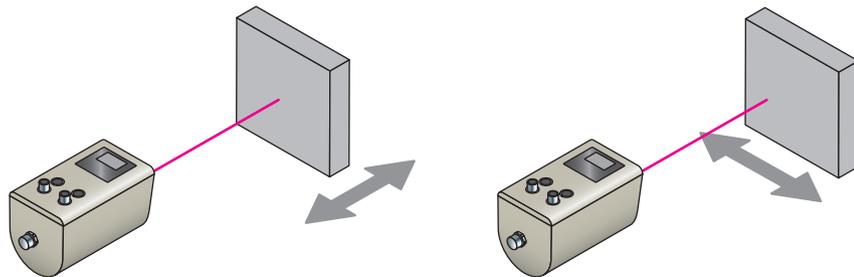
M12 female connector, 4-pin, D-coded

- ① TX+
- ② RX+
- ③ TX-
- ④ RX-

Light spot size

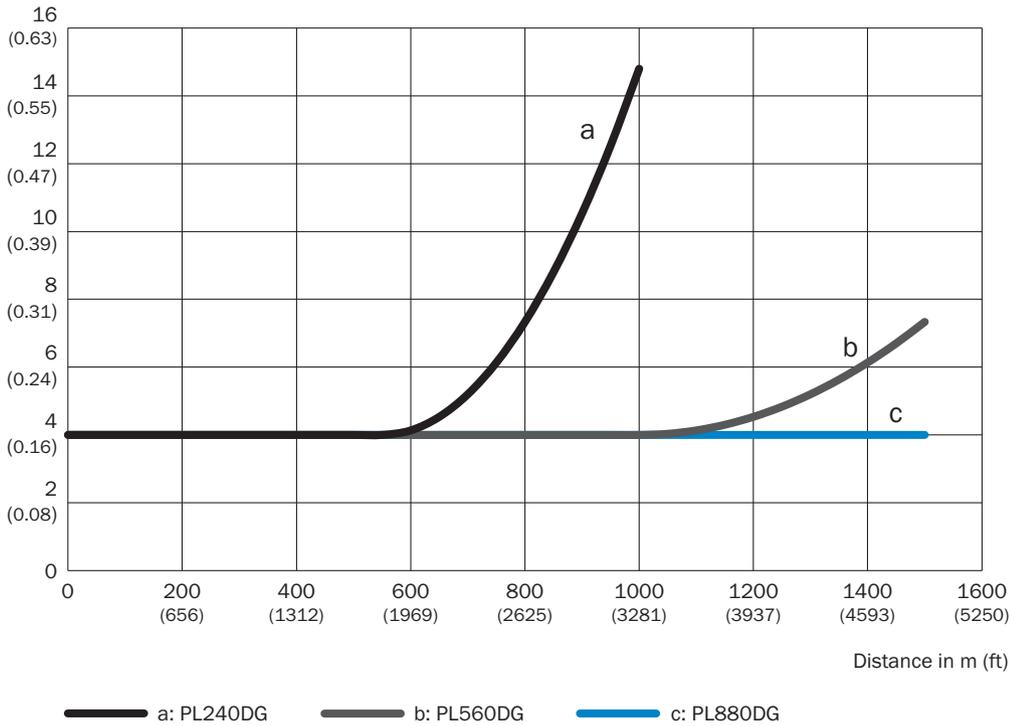


Functional principle



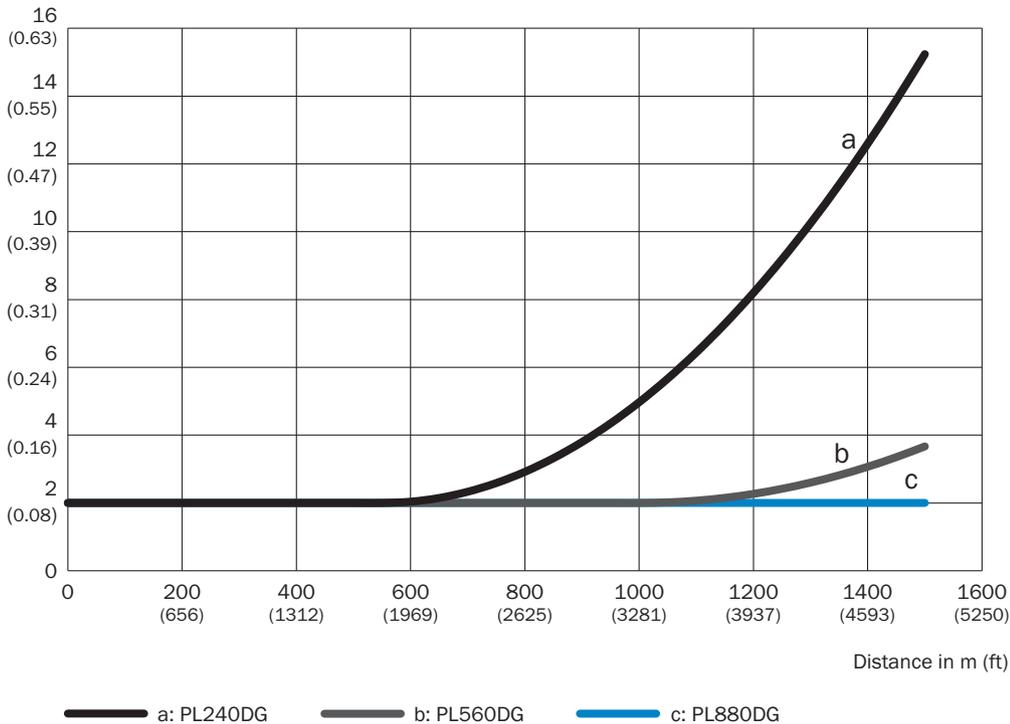
Repeatability DL1000 for various reflector types, with 1 ms measurement cycle time

Typ. repeatability in mm (inch)



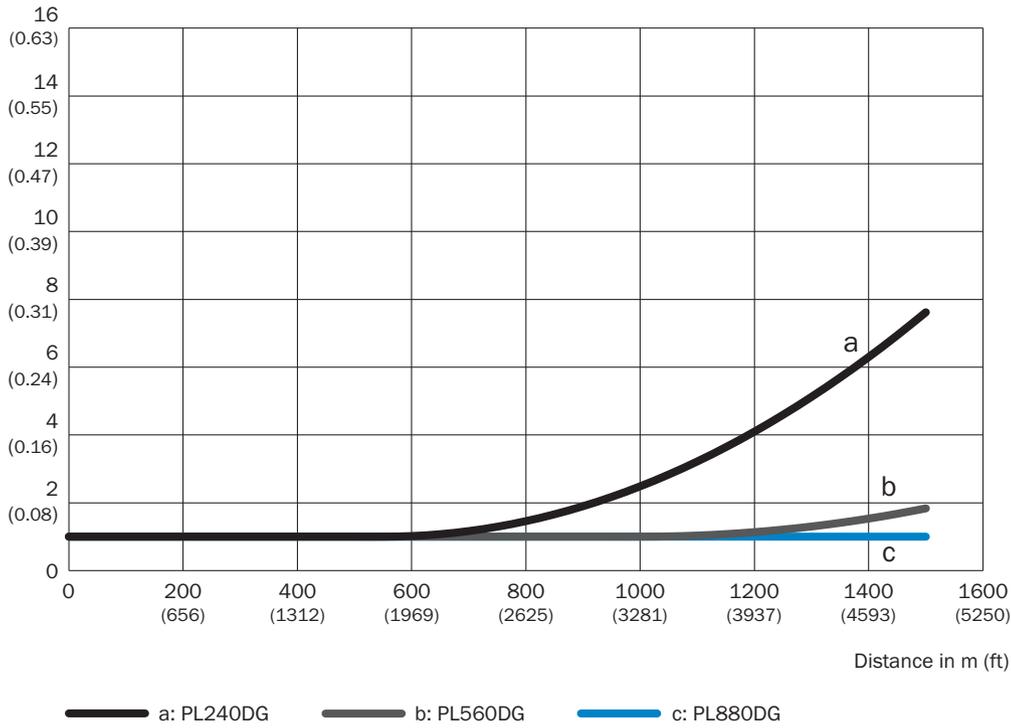
Repeatability DL1000 for various reflector types, with 4 ms measurement cycle time

Typ. repeatability in mm (inch)

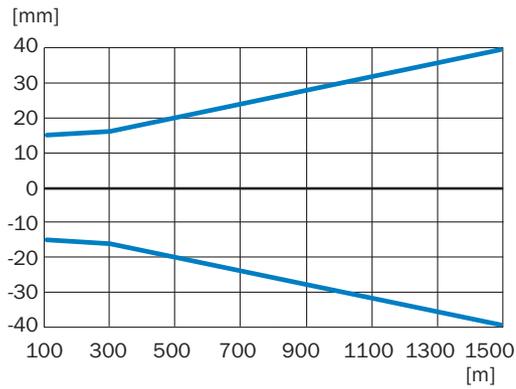


Repeatability DL1000 for various reflector types, with 16 ms measurement cycle time

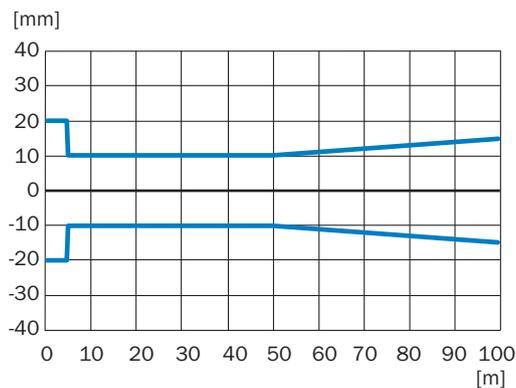
Typ. repeatability in mm (inch)



Measurement accuracy Typically DL1000, x-axis: Distance, y-axis: Typical measurement accuracy



Measurement accuracy Typically DL1000, x-axis: Distance, y-axis: Typical measurement accuracy



Recommended accessories

Other models and accessories → www.sick.com/Dx1000

	Brief description	Type	part no.
device protection and care			
	<ul style="list-style-type: none"> Description: Can be opened upward without tools. Conductor for connections on the back. Due to space constraints, connecting cables with 90° angled, pre-assembled male connectors/female connectors are required. Items supplied: Weatherproof housing (BEF-AH-DX1000, tube for weatherproof housing and rain cover for protective housing are not included with delivery) 	Weatherproof housing	2087690
connectors and cables			
	<ul style="list-style-type: none"> Connection type head A: Female connector, M12, 8-pin, angled Connection type head B: Flying leads Signal type: RS-422, SSI Cable: 10 m, 8-wire, PUR, halogen-free Description: RS-422, shielded, SSI 	YG2A68-100XXXXLECX	6051482
Mounting systems			
	<ul style="list-style-type: none"> Description: Alignment bracket for mounting and precise alignment of the sensor in a horizontal and vertical direction Material: Stainless steel Details: Stainless steel Items supplied: Mounting hardware included 	BEF-AH-DX1000	2080392
reflectors and optics			
	<ul style="list-style-type: none"> Description: Reflector plate, "diamond grade" reflective tape, 665 mm x 665 mm, base plate material: aluminum, screw connection Ambient operating temperature: -25 °C ... +65 °C 	PL560DG	1016806

SICK AT A GLANCE

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