Product overview

Dx1000

Optical distance sensors for indoor and outdoor measurements up to 1.5 km

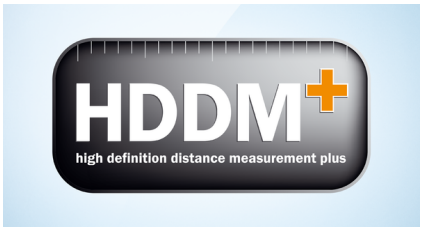
SICK
Sensor Intelligence.

Advantages

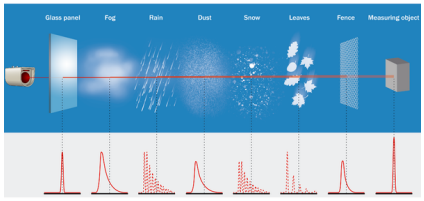
Innovative technology ensures reliable measurement results

When it comes to taking reliable measurements of extremely long distances both indoors and out, the Dx1000 long range distance sensor is particularly impressive thanks to its exceptional performance. Equipped with the modern HDDM$^+$ technology, the Dx1000 ensures stable measurement results in a rugged housing, even in inclement weather. Designed by SICK, this measuring technology is the ideal choice for adverse ambient conditions and offers a flexible range of applications at high speeds.

Reliable distance measurements in inclement weather



The innovative HDDM$^+$ technology of the Dx1000 enables measurement at long distances and is characterized by low noise in the measured value data as well as multi-echo capability



Very high resistance to ambient light and faults in the measurement path which could be caused by environmental factors such as rain, snow or fog

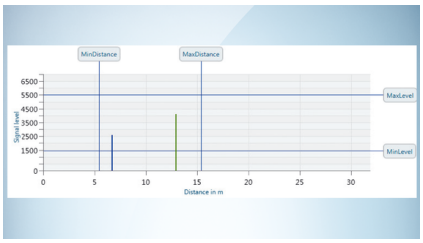
Housing made of corrosion-resistant aluminum alloy, dust- and water-resistant according to IP65 and IP67 - connection via industrial-grade M12 plug connector

High reliability even under adverse ambient conditions

High measurement uncertainty with intuitive operation

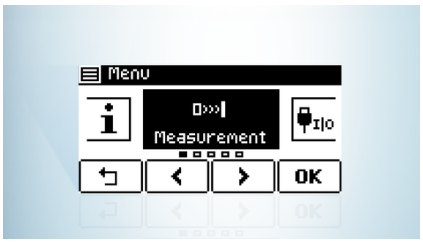
In most applications, the distance sensor receives exactly one echo from the reflection on the measuring object and converts this into a distance value. In real application situations, protective windows or environmental influences such as precipitation in the measurement path could cause unwanted echos. Thanks to HDDM$^+$ with multi-echo technology, the useful echo can be identified and selected for distance measurement. This enables distance measurements with high measurement reliability, even in the presence of multiple echoes.

Make the right selection quickly and easily



Graphic selection of the useful echo
With the convenient SOPAS ET user interface, the useful echo can be identified graphically from the PC and selected for distance measurement

Dx1000 – high definition distance measurement plus
Reliable fill level measurement of liquid aluminum thanks to the multi-echo technology of the Dx1000



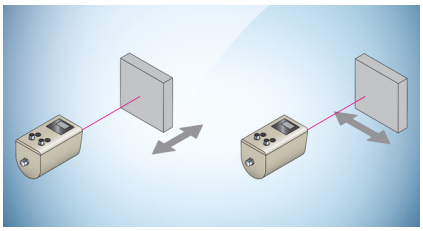
Simple and intuitive operation
The wide variety of adjustments possible with the Dx1000 can be performed quickly, easily, and with a high degree of reliability – either directly on the device via the display using the graphical touch display or using the SOPAS ET system

Intuitive for reliable measurement thanks to multi-echo technology

Innovative distance measurement in compact housing

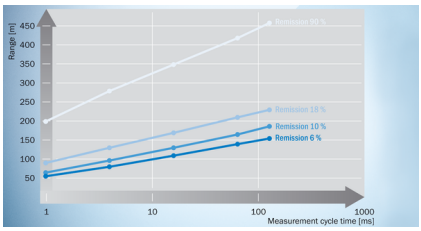
The Dx1000 with HDDM+ is perfectly suited for the measurement of very long distances - with relatively short measurement cycle times as little as 1 ms and low noise in measurement value data. The sensor variants DT1000 for distance measurement on natural objects and DL1000 for measuring on reflectors cover a wide spectrum of uses and offer high flexibility in application. When measuring on natural objects, the DT1000 reaches distances of over 450 m. The DL1000 has a maximum sensing range of 1,500 m when measuring on "diamond-grade" reflective tape.

Designed for all kinds of requirements



In addition to axial object tracking, whereby the measuring object moves continuously along the laser beam, the Dx1000 is also suited for applications in which the measuring object enters the laser beam from the side, e.g., when measuring edges

The measurement technology of the DT1000 is designed for distance measurements on hot surfaces, meaning it is perfectly suited for non-contact measurement or positioning hot steel slabs



The scalability of the measuring range represents a key feature of the DT1000: When measuring on natural objects, the sensing range of the sensor can be increased and optimally adjusted to the measuring task by setting a longer measurement cycle time

High level of application flexibility

SICK LifeTime Services

SICK's services increase machine and plant productivity, enhance the safety of people all over the world, provide a solid foundation for a sustainable business operation, and protect investment goods. In addition to its usual consulting services, SICK provides direct on-site support during the conceptual design and commissioning phases as well as during operation.

The range of services not only covers aspects like maintenance and inspection, but also includes performance checks as well as upgrades and retrofits. Modular or customized service contracts extend the service life of plants and therefore increase their availability. If faults occur or limit values are exceeded, these are detected at all times by the corresponding sensors and systems.

Consulting and design
Application-specific advice on the product, its integration and the application itself.

commissioning and maintenance
Application-optimized and sustainable — thanks to professional commissioning and maintenance by a trained SICK service technician.

service contracts
Extended warranty, SICK Remote Service, 24-hour helpdesk, maintenance, availability guarantees and other modular components can be individually combined on request.

Technical data overview

Resolution	≥ 1 µmadjustable
Repeatability	≥ 1 mm
Response time	3 ms ... 384 ms [1]
Output time	≥ 1 ms [2]
Analog output	4 mA ... 20 mA [3]
Digital output	
Type	Push-pull: PNP/NPN
Ethernet	✓, TCP/IP
PROFIBUS DP	✓
Serial	✓, RS-422
SSI	✓
EtherNet/IP™	✓
PROFINET	✓
Enclosure rating	IP65 [4] IP67 [4]
Ambient temperature, operation	–40 °C ... +55 °C [5] –40 °C ... +95 °C, operation with cooling case

[1] Dependent on selected filter settings and measuring cycle time.

[2] Depending on interface used.

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

[4] When plugged in with a suitable mating connector.

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

Product description

For reliable distance measurement, both indoors and outdoors: The Dx1000 long range distance sensor with infrared laser is ideal for use on cranes, for detecting vehicles in traffic applications, and for measuring hot steel slabs in a steel mill. The Dx1000 features exceptional versatility in any application – HDDM$^+$ (High Definition Distance Measurement with multi-echo technology) enables distance measurements with high measurement accuracy, even in the presence of ambient light, rain, snow, and fog. It excels at axial object tracking and quickly detecting the edges of objects moved in from the side. The device does all this at measurement cycle times of down to one millisecond, making it ideal for use in control loops.

At a glance

- Long range distance sensor with infrared laser featuring HDDM$^+$ technology
- Measures natural objects (DT1000) or reflectors (DL1000)
- Dust-proof and waterproof housing (IP 65 and IP 67) made of highly corrosion-resistant aluminum alloy
- Configurable digital inputs and outputs, analog output and fieldbus interfaces (dependent on variant)
- Measures hot surfaces (DT1000)

Your benefits

- Reliable distance measurement indoors and outdoors enables high system availability
- Multi-echo technology can suppress undesirable reflections – enabling use in a wider range of applications
- Comprehensive options for adjustments enable perfect adaptation to the individual measuring task
- Fast, safe commissioning using a graphical touch display, convenient SOPAS ET user interface and red alignment laser
- A small number of device variants (standardization) accommodating a wide range of requirements keeps costs down
- Laser class 1 and therefore eye-safe

Fields of application

- Collision avoidance on rail mounted ship-to-shore cranes and gantry cranes in ports (STS and RMG)
- Measurement of container stacks
- Positioning of industrial cranes
- Measurement of hot steel slabs
- Positioning of rail mounted vehicles

Ordering information

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

- **Repeatability:** ≥ 1 mm, See repeatability characteristic lines
- **Type of analog output:** Current output

Accuracy	Communication interface	Target	Measuring range	Type	Part no.
Typ. ± 15 mm See measurement accuracy diagram [1]	Ethernet, PROFIBUS DP, Serial, SSI	Reflector	0.2 m ... 1,500 m, on “diamond grade” reflective tape	DL1000-S11102	1075439
	Ethernet, Serial, SSI	Reflector		DL1000-S11101	1075438
	Ethernet, Serial, SSI, EtherNet/IP™	Reflector		DL1000-S11110	1100075
	Ethernet, Serial, SSI, PROFINET	Reflector		DL1000-S11112	1099756
Typ. ± 15 mm [1] [2]	Ethernet, PROFIBUS DP, Serial, SSI	Natural objects	0.2 m ... 155 m, 6% remission factor 0.2 m ... 460 m, 90% remission factor	DT1000-S11102	1075437
	Ethernet, Serial, SSI	Natural objects		DT1000-S11101	1075436
	Ethernet, Serial, SSI, EtherNet/IP™	Natural objects		DT1000-S11110	1100074
	Ethernet, Serial, SSI, PROFINET	Natural objects		DT1000-S11112	1097425

[1] At T = +23 °C and after warm-up time > about 15 min.

[2] See measurement accuracy diagram.

SICK AT A GLANCE

SICK is one of the leading manufacturers of intelligent sensors and sensor solutions for industrial applications. A unique range of products and services creates the perfect basis for controlling processes securely and efficiently, protecting individuals from accidents and preventing damage to the environment.

We have extensive experience in a wide range of industries and understand their processes and requirements. With intelligent sensors, we can deliver exactly what our customers need. In application centers in Europe, Asia and North America, system solutions are tested and optimized in accordance with customer specifications. All this makes us a reliable supplier and development partner.

Comprehensive services complete our offering: SICK LifeTime Services provide support throughout the machine life cycle and ensure safety and productivity.

For us, that is “Sensor Intelligence.”

WORLDWIDE PRESENCE:

Contacts and other locations –www.sick.com

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