



DT80-311111

Dx80

MID RANGE DISTANCE SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	Part no.
DT80-311111	1118113

Other models and accessories → www.sick.com/Dx80



Detailed technical data

Mechanics/electronics

Supply voltage V_s	12 V ... 30 V ^{1) 2)}
Ripple	$\leq 5 V_{pp}$ ³⁾
Power consumption	$\leq 2 W$ ⁴⁾
Initialization time	1,100 ms
Warm-up time	≤ 1 min
Housing material	Metal (zinc diecast)
Window material	Plastic (PMMA)
Connection type	Cable with male connector, M12, 5-pin, 300 mm
Indication	4 x LED, Full color LCD display
Weight	280 g
Dimensions (W x H x D)	33 mm x 65 mm x 57.04 mm
Enclosure rating	IP65, IP67
Protection class	III

¹⁾ Limit values, reverse-polarity protected. Short circuit-protected mains operation: max. 5 A at 30 V DC.

²⁾ When using IO-Link output $V_s > 18 V$. When using analog voltage output $V_s > 13 V$.

³⁾ May not fall short of or exceed V_s tolerances.

⁴⁾ At ambient temperature ≥ 0 °C.

Safety-related parameters

MTTF_D	101 years
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Performance

Measurement range min ... max:	50 mm ... 80,000 mm, 90% remission factor ¹⁾ 50 mm ... 40,000 mm, 90% remission factor 50 mm ... 14,000 mm, 6% remission factor ²⁾
Target	Natural objects
Resolution	0.1 mm
Repeatability	≥ 0.2 mm ^{3) 4) 5)}
Measurement accuracy	± 2 mm ^{5) 6)}
Response time	33 ms ... 68 ms ⁷⁾
Output time	33 ms, 50 ms, 100 ms, 200 ms ... 3000 ms ⁸⁾
Light source	Laser, red ⁹⁾
Laser class	2 (IEC 60825-1:2014, EN 60825-1:2014+A11:2021)
Typ. light spot size (distance)	5.5 mm x 7.5 mm (at 1 m) ¹⁰⁾ 6.5 mm x 7 mm (at 5 m) 7.5 mm x 6.5 mm (at 10 m) 12.5 mm x 8 mm (at 20 m) 21.5 mm x 11 mm (At 40 m)
Average laser service life (at 25 °C)	100,000 h

- ¹⁾ At good ambient conditions, at measurement cycle time ≤ 3,000 ms.
²⁾ At the maximum permissible ambient temperature, the maximum measuring range may be reduced by up to 40%.
³⁾ See diagrams for repeatability.
⁴⁾ Equivalent to 1 σ.
⁵⁾ 6% ... 90% remission factor.
⁶⁾ Typical temperature drift: 0.05 mm/K.
⁷⁾ Dependent on remission and measuring cycle time.
⁸⁾ Continuously changing data output.
⁹⁾ Wavelength: 655 nm, max. average power: < 1 mW, pulse length: > 400 ps.
¹⁰⁾ See light spot size diagram.

Interfaces

IO-Link	✓, IO-Link V1.1, COM3 (230,4 kBaud)
Function	Process data, parameterization, diagnosis, data storage
Digital input	1 Response time depends on the measuring speed
Digital output	Number 1 ... 2 ^{1) 2) 3)} Type Push-pull: PNP/NPN Function Complementary digital outputs (Q, \bar{Q}) Output Q ₂ adaptable: Current output / Voltage output / Digital output / Q ₁ not / deactivated Maximum output current I _A ≤ 100 mA
Analog output	Number 1 Type Current output / voltage output Function Output Q ₂ adaptable: Current output / Voltage output / Digital output / Q ₁ not / deactivated

- ¹⁾ Output Q short-circuit protected.
²⁾ Voltage drop < 3 V.
³⁾ Max. total output current < 200 mA.

Current	4 mA ... 20 mA, $\leq 450 \Omega$
Voltage	0 V ... 10 V, $\geq 10,000 \Omega$
Resolution	16 bit

¹⁾ Output Q short-circuit protected.

²⁾ Voltage drop < 3 V.

³⁾ Max. total output current < 200 mA.

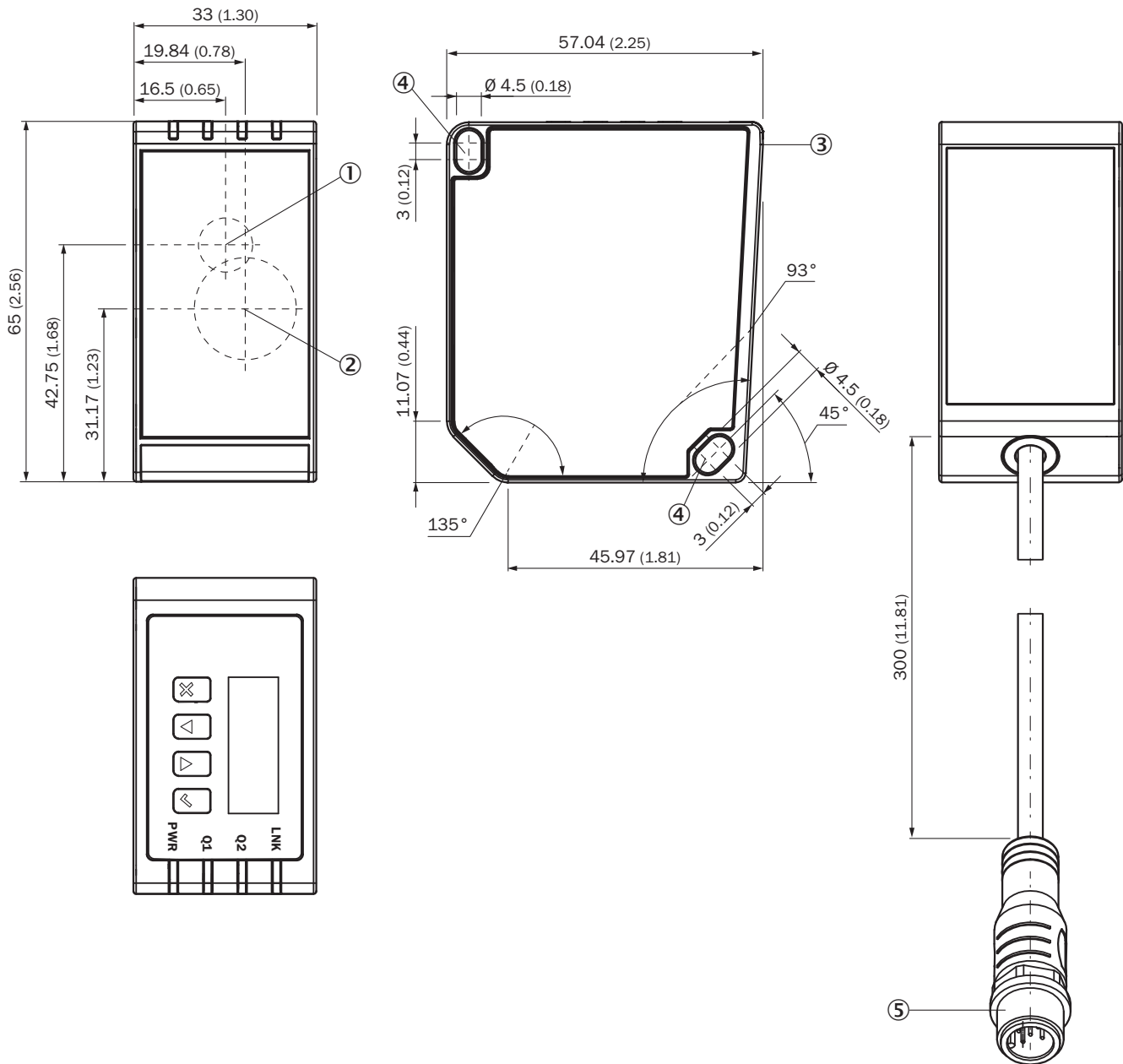
Ambient data

Ambient temperature, operation	-10 °C ... +50 °C, $U_v \leq 30 V$
Ambient temperature, storage	-40 °C ... +75 °C
Temperature drift	Typ. 0.05 mm/K
Typ. Ambient light immunity	30,000 lx
Vibration resistance	(IEC 60068-2-6:2007) Sinusoidal resonance measurement: 10 Hz ... 1,000 Hz (IEC 60068-2-64:2008) Noise test: 20 Hz ... 500 Hz, 10 g RMS, 2 h / axis
Shock resistance	(IEC 60068-2-27:2008) 30 g, 11 ms, 6 axes, ± 3 single shocks / axis, (IEC 60068-2-27:2008) 10 g, 6 ms, 6 axes, ± 500 shocks / axis, (IEC 60068-2-27:2008) 70 g, 6 ms, 1 axis, $\pm 100,000$ shocks / axis

Classifications

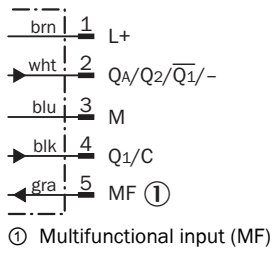
ECLASS 5.0	27270801
ECLASS 5.1.4	27270801
ECLASS 6.0	27270801
ECLASS 6.2	27270801
ECLASS 7.0	27270801
ECLASS 8.0	27270801
ECLASS 8.1	27270801
ECLASS 9.0	27270801
ECLASS 10.0	27270801
ECLASS 11.0	27270801
ECLASS 12.0	27270916
ETIM 5.0	EC001825
ETIM 6.0	EC001825
ETIM 7.0	EC001825
ETIM 8.0	EC001825
UNSPSC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

Dimensional drawing (Dimensions in mm (inch))

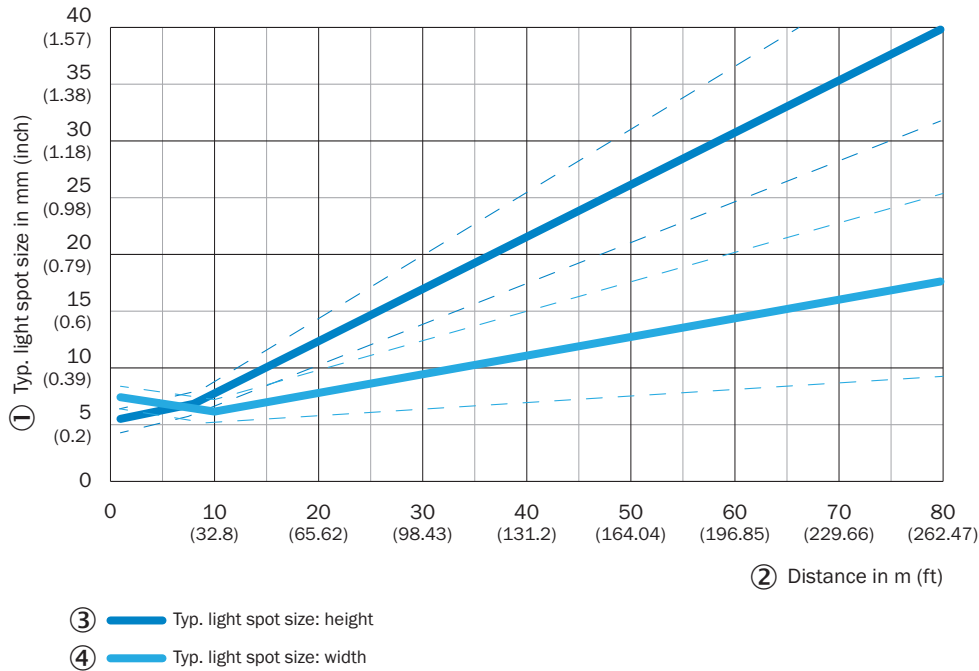


- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Reference surface (corresponds to distance 0 mm)
- ④ M4 fixing holes
- ⑤ Cable with plug M12, 5-pin

Connection diagram



Light spot size

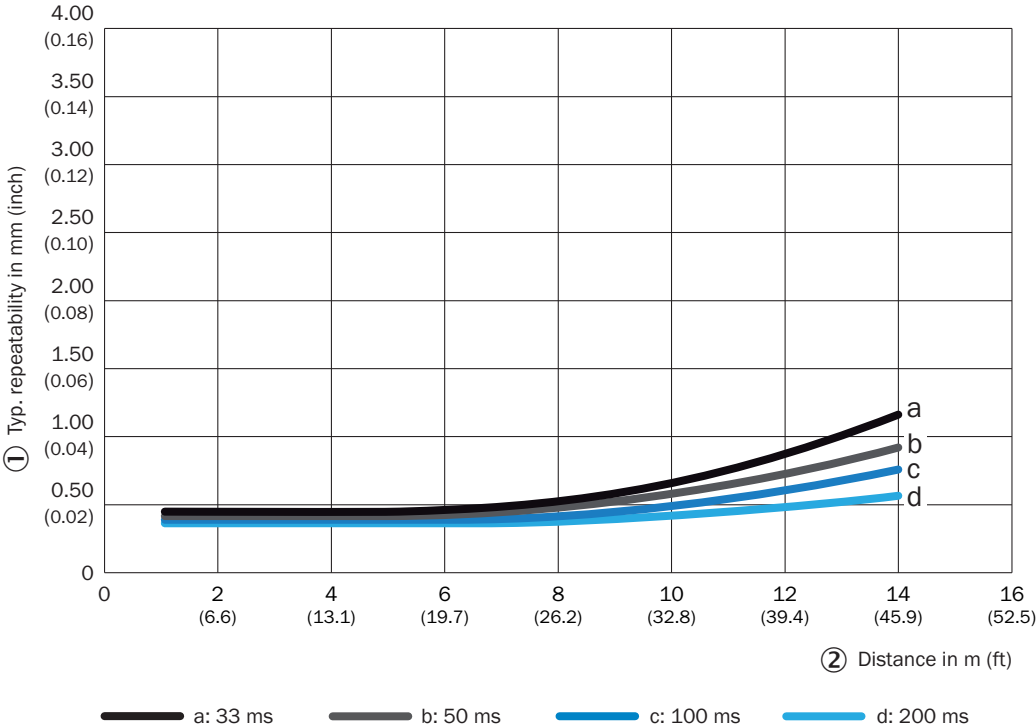


Light spot size at different distances

- ① Typ. light spot size in mm (inch)
- ② Distance in meters (feet)
- ③ Typ. light spot size: Height
- ④ Typ. light spot size: Width

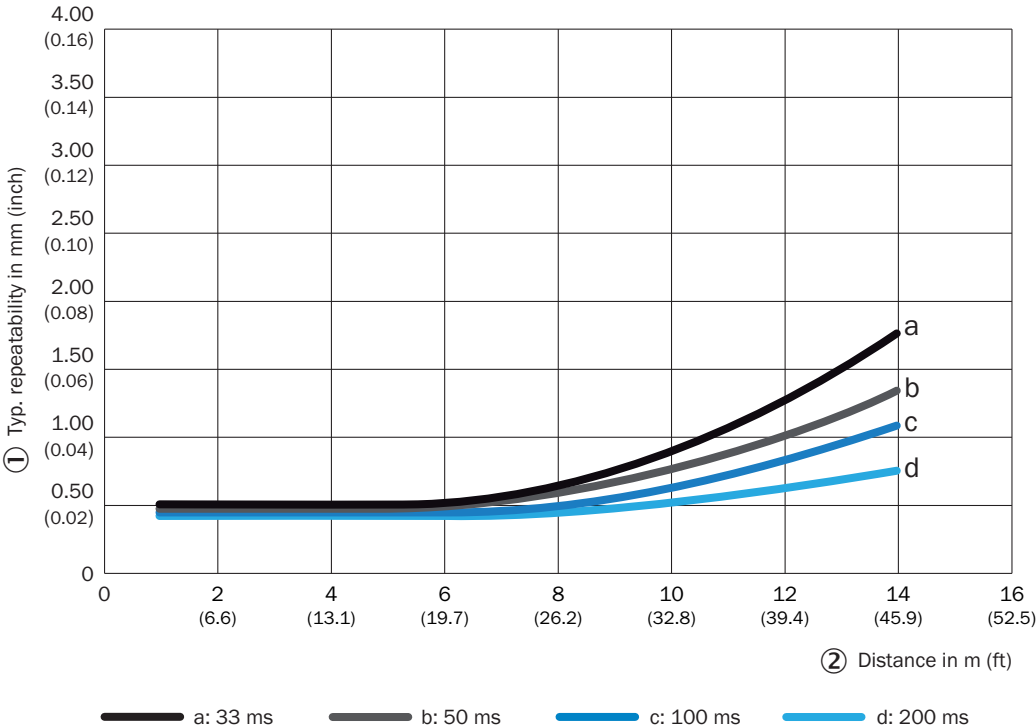
Repeatability

Repeatability, 6% remission, 10,000 Lux



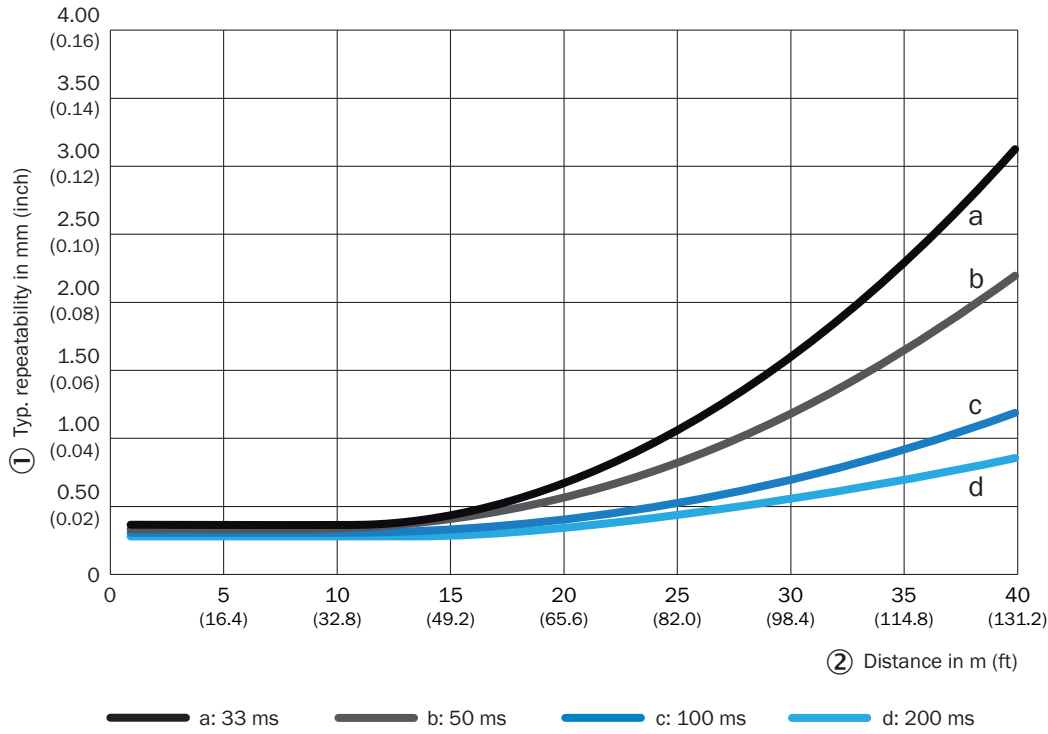
- ① Typical repeatability in mm (inches)
- ② Distance in meters (feet)

Repeatability, 6% remission, 30,000 Lux



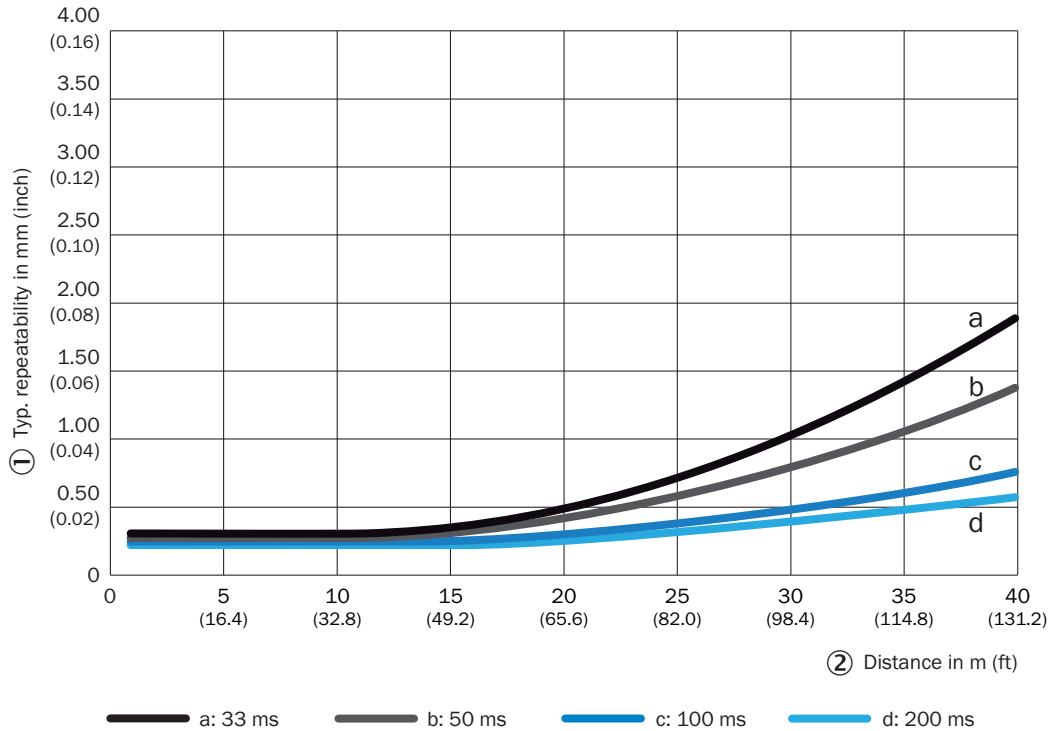
- ① Typical repeatability in mm (inches)
- ② Distance in meters (feet)

Repeatability, 90% remission, 30,000 Lux



① Typical repeatability in mm (inches)
 ② Distance in meters (feet)





Repeatability, 90% remission, 10,000 Lux



① Typical repeatability in mm (inches)
 ② Distance in meters (feet)

Recommended accessories

Other models and accessories → www.sick.com/Dx80

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket, steel, zinc coated, steel, zinc coated, mounting hardware for the sensor included	BEF-WN-DX50	2048370
Terminal and alignment brackets			
	Alignment unit, steel, zinc coated, mounting hardware for the sensor included	BEF-AH-DX50	2048397
Others			
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Male connector, M12, 5-pin, straight, A-coded • Signal type: Sensor/actuator cable • Cable: 2 m, 5-wire, PUR, halogen-free • Description: Sensor/actuator cable, unshielded • Application: Zones with oils and lubricants, Drag chain operation, Robot 	YF2A15-020UB5M2A15	2096009
	<ul style="list-style-type: none"> • Connection type head A: Female connector, M12, 5-pin, straight, A-coded • Connection type head B: Flying leads • Signal type: Sensor/actuator cable • Cable: 2 m, 5-wire, PVC • Description: Sensor/actuator cable, unshielded • Application: Zones with chemicals 	YF2A15-020VB5XLEAX	2096239

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:

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