Product data sheet

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

Features

Measuring range	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)

[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.

Average laser service life (at 25 °C)	100,000 h
Safety-related parameters	
$MTTF_D$	101 years

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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
Current	4 mA ... 20 mA, ≤ 450 Ω
Voltage	0 V ... 10 V, ≥ 10,000 Ω
Resolution	16 bit

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

Electronics

Supply voltage U_B	12 V ... 30 V [1) 2)]
Power consumption	≤ 2 W [3)]
Ripple	≤ 5 V_{pp} [4)]
Initialization time	1,100 ms
Warm-up time	≤ 1 min
Indication	4 x LED, Full color LCD display

[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] At ambient temperature ≥ 0 °C.
[4] May not fall short of or exceed V_S tolerances.

Enclosure rating	IP65, IP67
Protection class	III

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[2] When using IO-Link output V_S > 18 V. When using analog voltage output V_S > 13 V.
[3] At ambient temperature ≥ 0 °C.
[4] May not fall short of or exceed V_S tolerances.

Mechanics

Dimensions (W x H x D)	33 mm x 65 mm x 57.04 mm
Housing material	Metal (zinc diecast)
Window material	Plastic (PMMA)
Weight	280 g
Connection type	Cable with male connector, M12, 5-pin, 300 mm

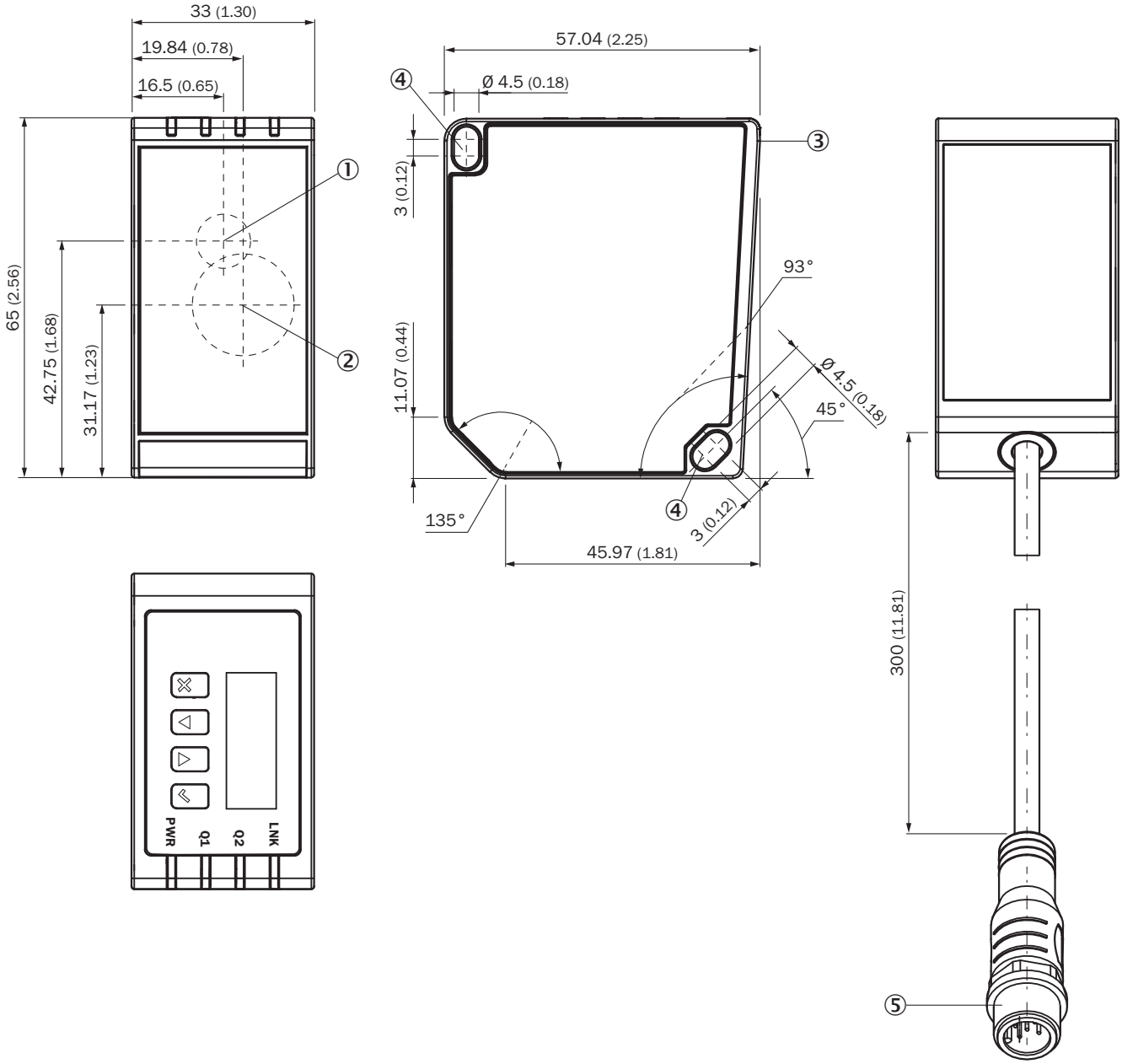
Ambient data

Ambient temperature, operation	–10 °C ... +50 °C, U_V ≤ 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, ± 100,000 shocks / axis
Electromagnetic compatibility (EMC)	EN 61000-6-2, EN 61000-6-3

Classifications

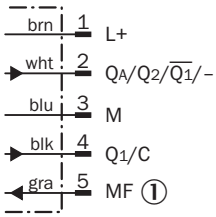
ECLASS 5.0	27270801
ECLASS 5.1.4	27270801
ECLASS 6.0	27270801
ECLASS 6.2	27270801
ECLASS 7.0	27270801
ECLASS 8.0	27270801
ECLASS 8.1	27270801
ECLASS 9.0	27270801
ECLASS 10.0	27270801
ECLASS 11.0	27270801
ECLASS 12.0	27270916
ETIM 5.0	EC001825
ETIM 6.0	EC001825
ETIM 7.0	EC001825
ETIM 8.0	EC001825
UNSPSC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

Dimensional drawing (Dimensions in mm (inch))



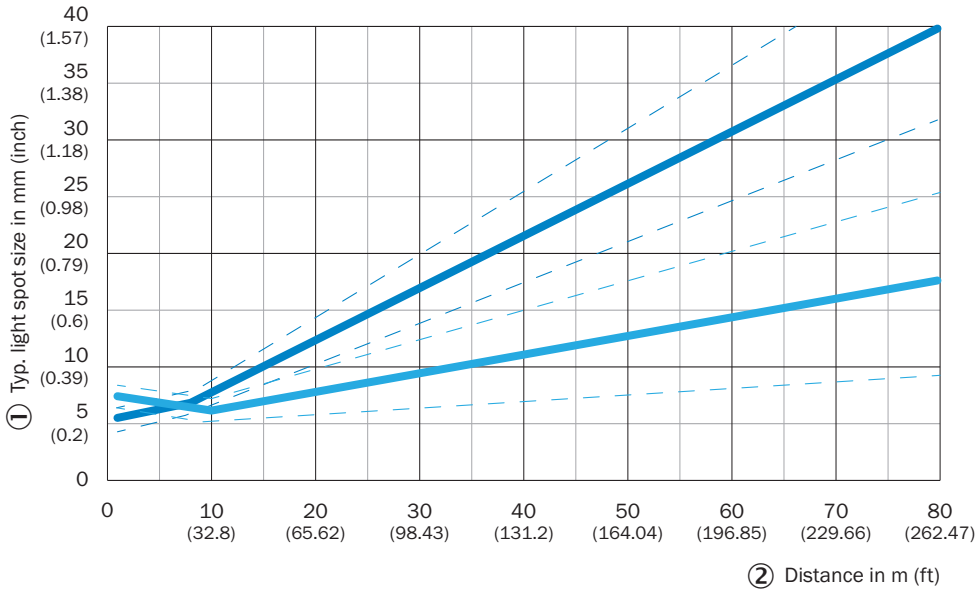
① Optical axis, sender
② Optical axis, receiver
③ Reference surface (corresponds to distance 0 mm)
④ M4 fixing holes
⑤ Cable with plug M12, 5-pin

Connection diagram



① Multifunctional input (MF)

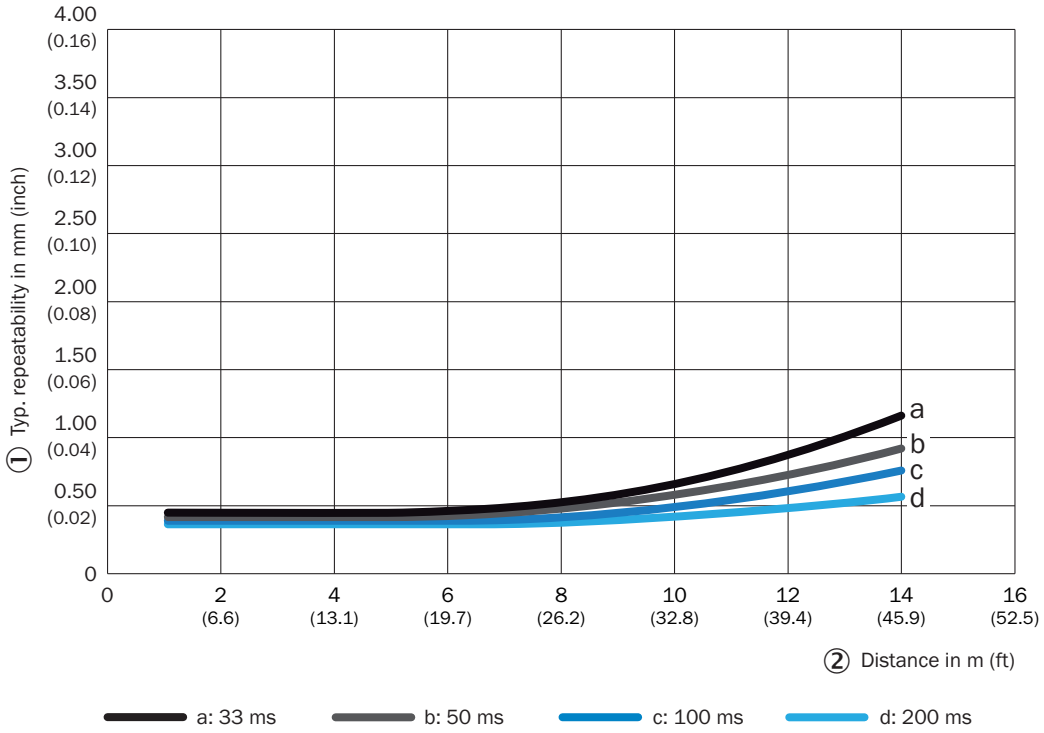
Light spot size



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

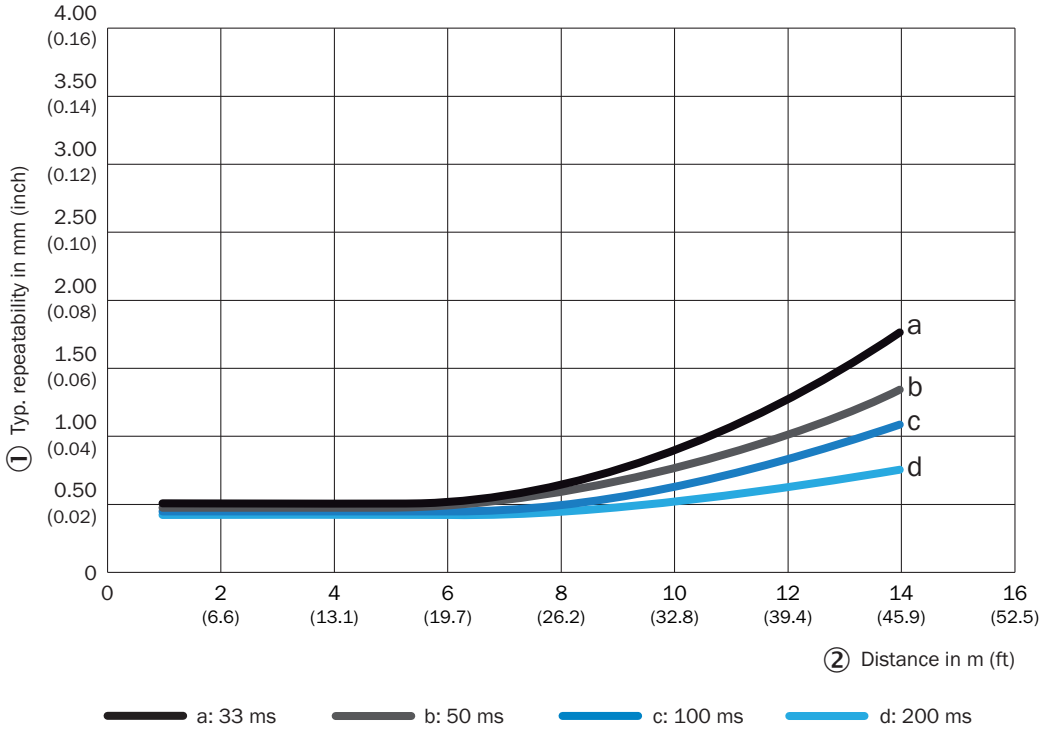
Repeatability

Repeatability, 6% remission, 10,000 Lux



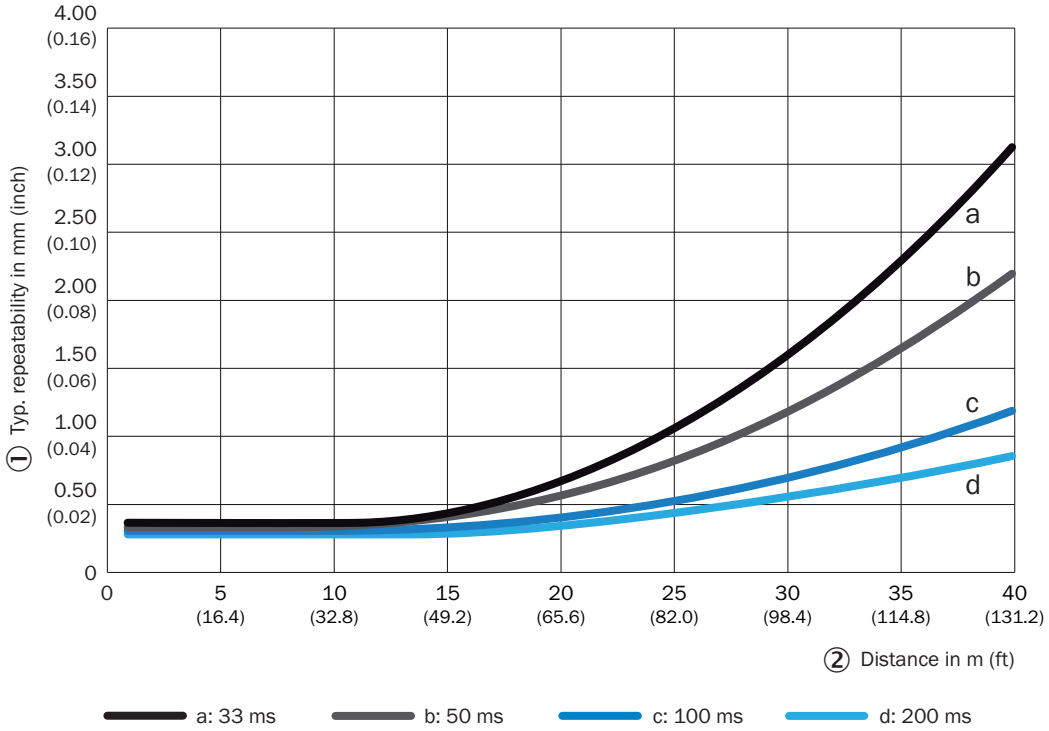
① Typical repeatability in mm (inches)
② Distance in meters (feet)

Repeatability, 6% remission, 30,000 Lux



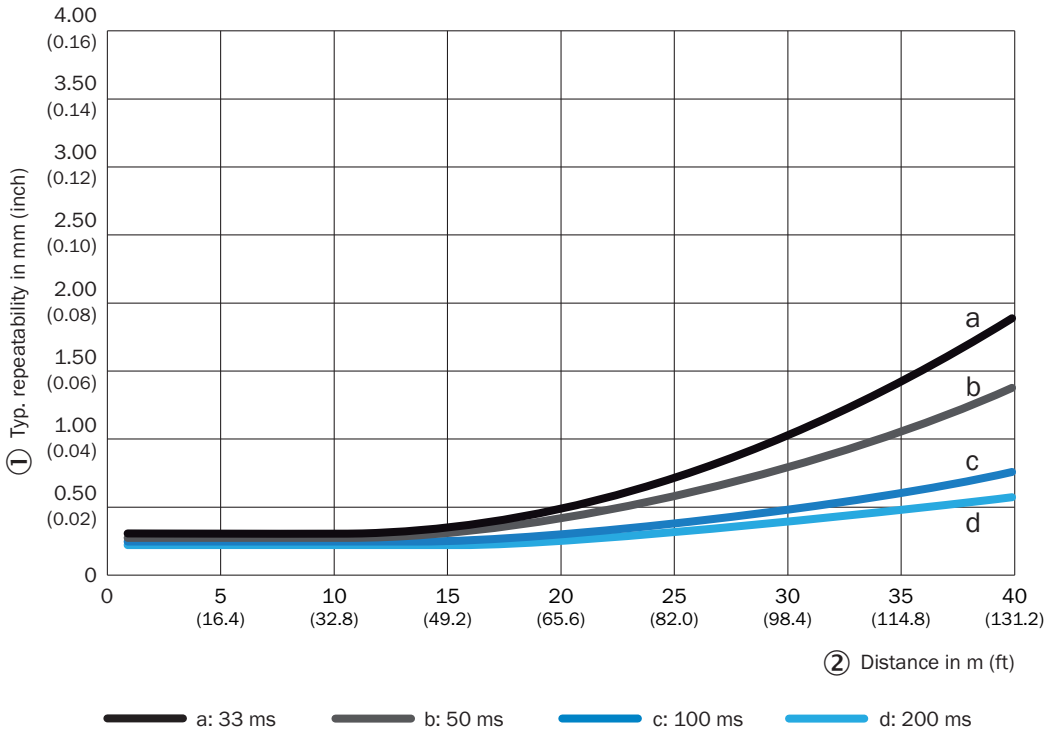
① Typical repeatability in mm (inches)
② Distance in meters (feet)

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.
Heating and cooling devices			
	Cooling plate for Dx80 laser distance sensor	BEF-KP-Dx80	2138205
Mounting brackets and plates			
	• **Description:** Mounting bracket, steel, zinc coated • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware for the sensor included	BEF-WN-DX50	2048370
Protection filter			
	Heat protection screen for Dx80 with NIR filter for use with 2x BEF-KP-Dx80 cooling plate	Heat protection filter for Dx80	2137825
Terminal and alignment brackets			
	• **Description:** Alignment unit • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware for the sensor included	BEF-AH-DX50	2048397
Others			
	• **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	YF2A15-050UE3M2A15	2140039
	• **Cable:** 5 m, 5-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, shielded • **Application:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A85-050UB6M2A85	2096119
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 5 m, 5-wire, PUR, halogen-free • **Description:** Sensor/actuator cable, shielded • **Application:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A15-050UE3XLEAX YF2A25-050UB6XLEAX	2140038 2095733

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.”

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