Data sheet



DS35-B15221

Dx35

TIME-OF-FLIGHT SENSORS

SICK
Sensor Intelligence.



Ordering information

Type	part no.
DS35-B15221	1057655

Other models and accessories ➜ www.sick.com/Dx35

Detailed technical data

Features

Measuring range	50 mm ... 12,000 mm, 90% remission factor [1) 2)] 50 mm ... 5,300 mm, 18 % remission 50 mm ... 3,100 mm, 6% remission factor
Target	Natural objects
Resolution	0.1 mm
Repeatability	≥ 0.5 mm [2) 3)]
Measurement accuracy	Typ. ± 10 mm [4)]
Response time	2.5 ms ... 96.5 ms, 2.5 ms / 6.5 ms / 12.5 ms / 24.5 ms / 96.5 ms [5) 6)]
Switching frequency	333 Hz / 100 Hz / 50 Hz / 25 Hz / 6 Hz [5) 6)]
Output time	1 ms ... 32 ms, 1 ms/2 ms/4 ms/8 ms/32 ms [5) 7)]
Light source	Laser, red [8)] visible red light
Type of light	Visible red light
Laser class	2 (IEC 60825-1:2014, EN 60825-1:2014)
Typ. light spot size (distance)	15 mm x 15 mm (at 2 m)
Additional function	Set speed: Super Fast ... Super Slow Switching mode: Distance to Object (DtO) / switching window / object between sensor and background (ObSB) Teach-in of digital output and digital output invertible Multifunctional input: laser off / external teach / deactivated Reset to factory default

1) For speed setting Slow.
2) See repeatability characteristic lines.
3) Equivalent to 1 σ.
4) 6% ... 90% remission factor.
5) Depending on the set speed: Super Fast ... Super Slow.
6) Lateral entry of the object into the measuring range.
7) Continuous change of distance in measuring range.
8) Wavelength: 658 nm; max. output: 250 mW; pulse duration: 4 ns; duty cycle: 1/250.

Average laser service life (at 25 °C)	100,000 h
Safety-related parameters	
$MTTF_D$	101 years
DC_{avg}	0%

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Interfaces

IO-Link	✓ , IO-Link V1.1
Function	Process data, parameterization, diagnosis
Data transmission rate	38.4 kbit/s
Digital output	
Number	2 [1] [2]
Type	Push-pull: PNP/NPN
Function	Output Q_2, adaptable: digital output/Q_1 not/deactivated
Maximum output current I_A	≤ 100 mA
Multifunctional input (MF)	1 x [3]
Hysteresis	0 mm ... 11,950 mm [4]

[1] Output Q short-circuit protected.
[2] Voltage drop < 3 V.
[3] Response time ≤ 60 ms.
[4] Configurable via IO-Link.

Electronics

Supply voltage U_B	DC 12 V ... 30 V [1] [2]
Power consumption	≤ 1.7 W [3]
Ripple	≤ 5 V_{pp} [4]
Initialization time	≤ 500 ms
Warm-up time	≤ 20 min
Indication	LEDs
Enclosure rating	IP65 IP67
Protection class	III

[1] Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.
[2] When using IO-Link output V_S > 18 V.
[3] Without load, at +20 °C.
[4] May not fall short of or exceed V_S tolerances.

Mechanics

Dimensions (W x H x D)	32 mm x 58.67 mm x 42.7 mm

Housing material	Plastic (ABS/PC)
Window material	Plastic (PMMA)
Weight	65 g
Connection type	Male connector, M12, 5-pin

Ambient data

Ambient temperature, operation	–30 °C ... +55 °C, U_V ≤ 24 V
Ambient temperature, storage	–40 °C ... +75 °C
Max. rel. humidity (not condensing)	≤ 95 %
Vibration resistance	EN 60068-2-6, EN 60068-2-64
Shock resistance	EN 60068-2-27
Electromagnetic compatibility (EMC)	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4 [1]

[1] This is a Class A device. This device can cause radio interference in living quarters.

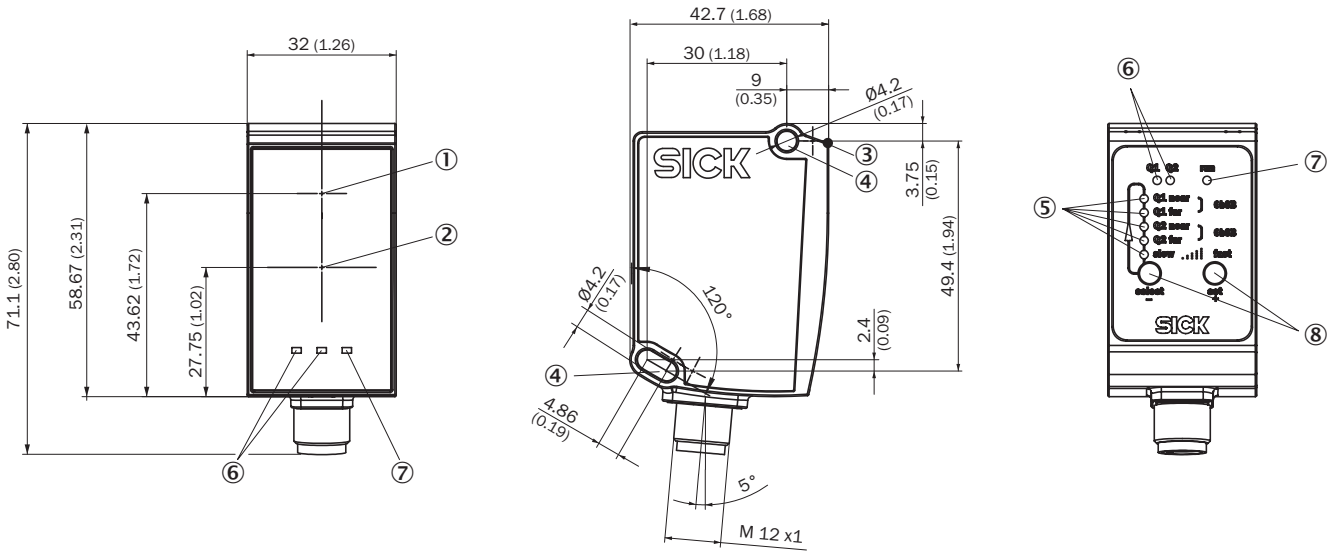
Certificates

EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cULus certificate	✓
cTUVus certificate	✓

Classifications

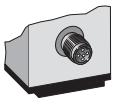
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ECLASS 5.1.4	27270801
ECLASS 6.0	27270801
ECLASS 6.2	27270801
ECLASS 7.0	27270801
ECLASS 8.0	27270801
ECLASS 8.1	27270801
ECLASS 9.0	27270801
ECLASS 10.0	27270801
ECLASS 11.0	27270801
ECLASS 12.0	27270916
ETIM 5.0	EC001825
ETIM 6.0	EC001825
ETIM 7.0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

Dimensional drawing

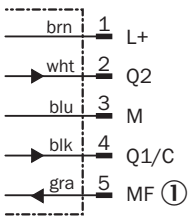


Dimensions in mm (inch)
① Optical axis, sender
② Optical axis, receiver
③ Zero level
④ Mounting hole M4
⑤ status indicator output Qa/Q2
⑥ Status LEDs output Q_1
⑦ Operating indicator
⑧ Control elements

Connection type Male connector M12, 5-pin



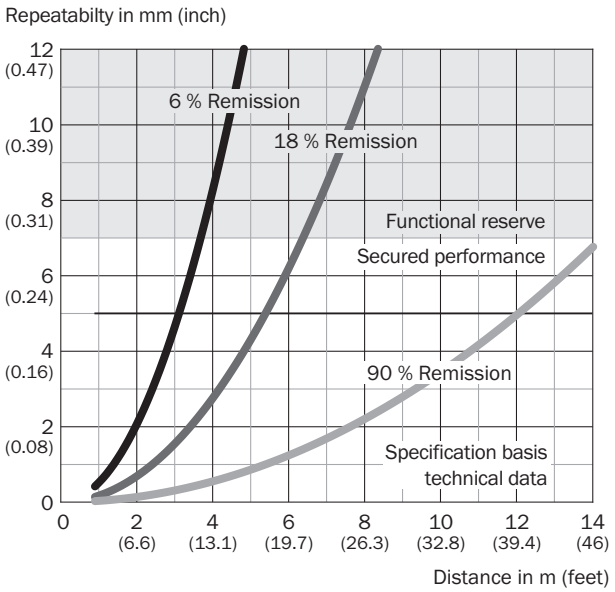
Connection diagram



① Multifunctional input (MF)

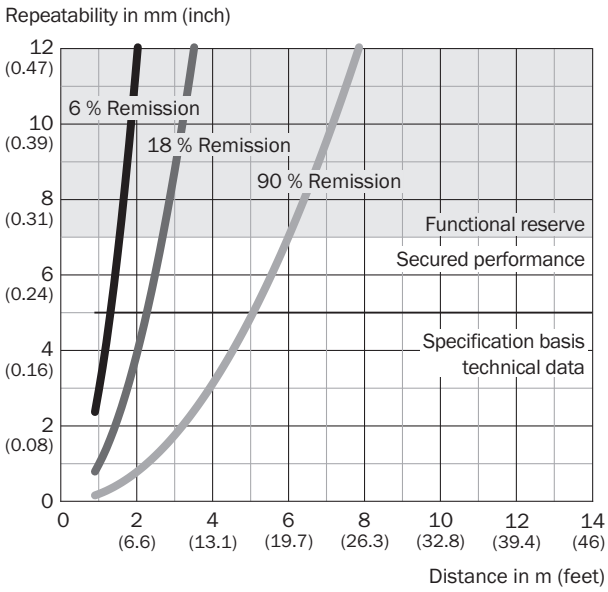
characteristic curve 1) Super Slow

Super Slow



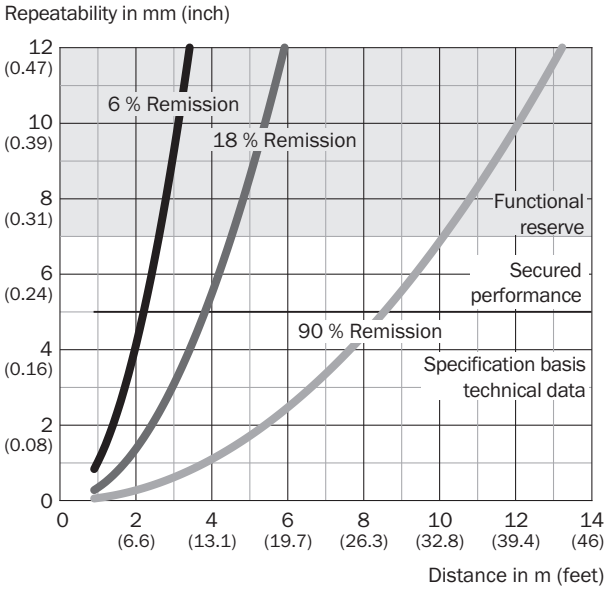
characteristic curve 5) Super Fast

Super Fast



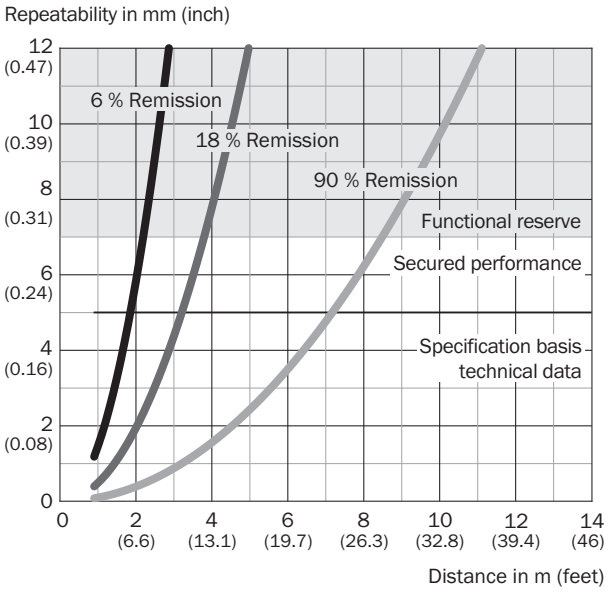
characteristic curve 2) Slow

Slow



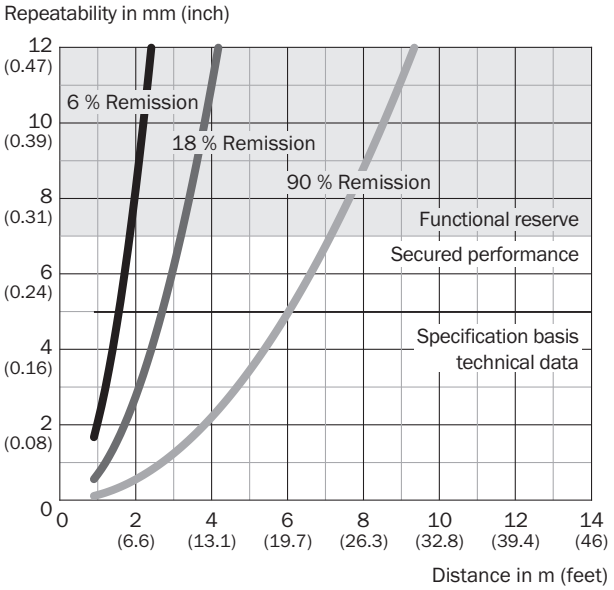
characteristic curve 3) Medium

Medium



characteristic curve 4) Fast

Fast



Recommended accessories

Other models and accessories ➜ www.sick.com/Dx35

	Brief description	Type	part no.
Mounting systems			
	• **Description:** Alignment unit • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware for the sensor included	BEF-AH-DX50	2048397
	• **Description:** Plate N02 for universal clamp bracket • **Material:** Steel, zinc diecast • **Details:** Zinc plated steel (sheet), Zinc die cast (clamping bracket) • **Items supplied:** Universal clamp (5322626), mounting hardware • **Usable for:** W4S-3 Glass, W10, W4SLG-3, W4S-3 Inox, W4S-3 Inox Glass, W9, W11-2, W12-3, W12-2 Laser, W12G, W12 Teflon, W16, W250, W250-2, PowerProx, W11G-2, TranspaTect, WTT12, UC12, P250, G6 Inox, W4S, W4SL-3V, W4SLG-3V, W4SL-3H	BEF-KHS-N02	2051608
	• **Description:** Mounting bracket: horizontal sending axis for ceiling or floor installation or vertical sending axis for wall installation, steel, zinc coated, incl. mounting material • **Material:** Steel • **Details:** Steel, zinc coated • **Items supplied:** Mounting hardware for the sensor included	BEF-WN-DX35	2069592

	Brief description	Type	part no.
connectors and cables			
	• **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:** Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation	YF2A15-020UB5M2A15	2096009
	• **Connection type head A:** Female connector, M12, 5-pin, angled, 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, Uncontaminated zones	YG2A15-020VB5XLEAX	2096215
	• **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, Uncontaminated zones	YF2A15-020VB5XLEAX	2096239
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 0.6 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-C60VB5XLEAX	2145573
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 1 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-010VB5XLEAX	2145574
	• **Connection type head A:** Female connector, M12, 5-pin, angled, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 3 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YG2A15-030VB5XLEAX	2145575
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 0.6 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF2A15-C60VB5XLEAX	2145570
	• **Connection type head A:** Female connector, M12, 5-pin, straight, A-coded • **Connection type head B:** Flying leads • **Signal type:** Sensor/actuator cable • **Cable:** 3 m, 5-wire, PVC • **Description:** Sensor/actuator cable, unshielded • **Application:** Zones with chemicals, Uncontaminated zones	YF2A15-030VB5XLEAX	2145572

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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