

TIME-OF-FLIGHT SENSORS



Ordering information

Type	part no.
DT35-B15251	1057652

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) 4)}
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 Teach-in of analog output and invertible analog output Output Q ₂ adaptable: Current output / Voltage output / Digital output

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.

		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
Average laser service life (at 25 °C)		100,000 h
Safety-related parameters		
	MTTF _D	101 years
	DC _{avg}	0%

- 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.

Interfaces

IO-Link		✓ , IO-Link V1.1
	Function	Process data, parameterization, diagnosis
	Data transmission rate	38.4 kbit/s
Digital output		
	Number	1 ... 2 ^{1) 2)}
	Type	Push-pull: PNP/NPN
	Function	Output Q ₂ adaptable: Current output / Voltage output / Digital output
	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
	Current	4 mA ... 20 mA, ≤ 450 Ω
	Voltage	0 V ... 10 V, ≥ 50,000 Ω
	Resolution	12 bit
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)}
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- 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. When using analog voltage output V_S > 13 V.
3) Without load, at +20 °C.
4) May not fall short of or exceed V_S tolerances.

Power consumption	$\leq 1.7 \text{ W}^{3)}$
Ripple	$\leq 5 \text{ V}_{\text{pp}}^{4)}$
Initialization time	$\leq 500 \text{ ms}$
Warm-up time	$\leq 20 \text{ min}$
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 $V_s > 18 \text{ V}$. When using analog voltage output $V_s > 13 \text{ V}$.

3) Without load, at $+20^\circ \text{C}$.

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	$-30^\circ \text{C} \dots +55^\circ \text{C}$, $U_v \leq 24 \text{ V}$
Ambient temperature, storage	$-40^\circ \text{C} \dots +75^\circ \text{C}$
Max. rel. humidity (not condensing)	$\leq 95 \%$
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

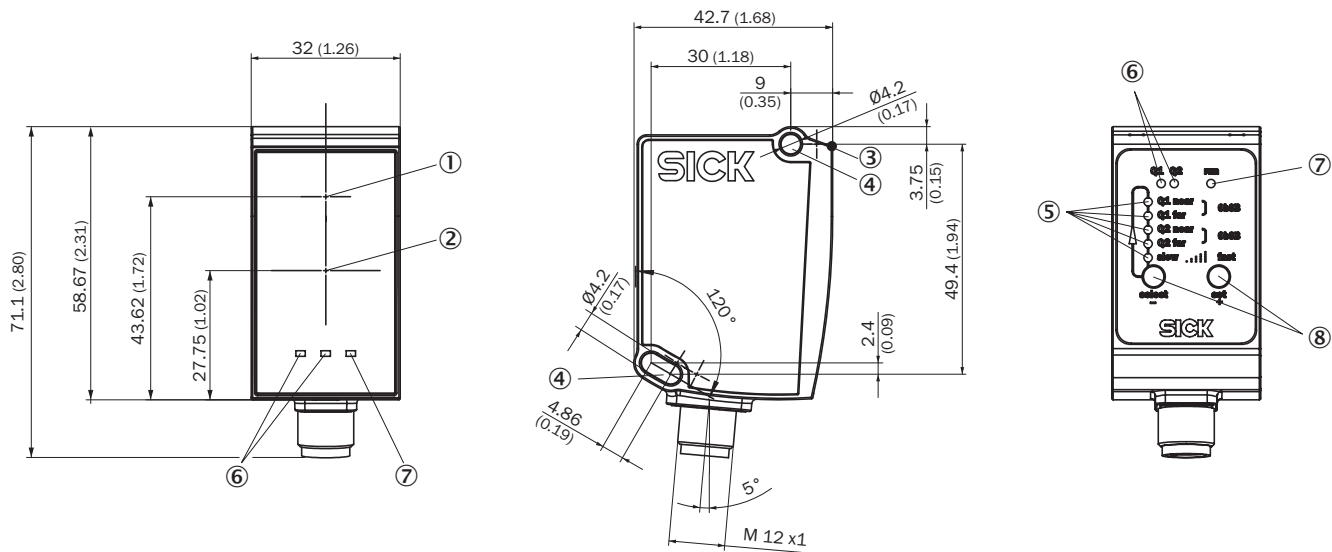
EU declaration of conformity	✓
UK declaration of conformity	✓
ACMA declaration of conformity	✓
Moroccan declaration of conformity	✓
China-RoHS	✓
cULus certificate	✓
cTUVus certificate	✓

Classifications

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

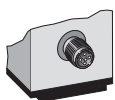
Dimensional drawing



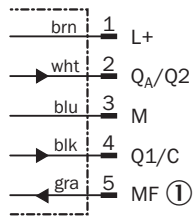
Dimensions in mm (inch)

- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Zero level
- ④ Mounting hole M4
- ⑤ status indicator output Qa/Q2
- ⑥ Status LEDs output Q₁
- ⑦ Operating indicator
- ⑧ Control elements

Connection type Male connector M12, 5-pin



Connection diagram

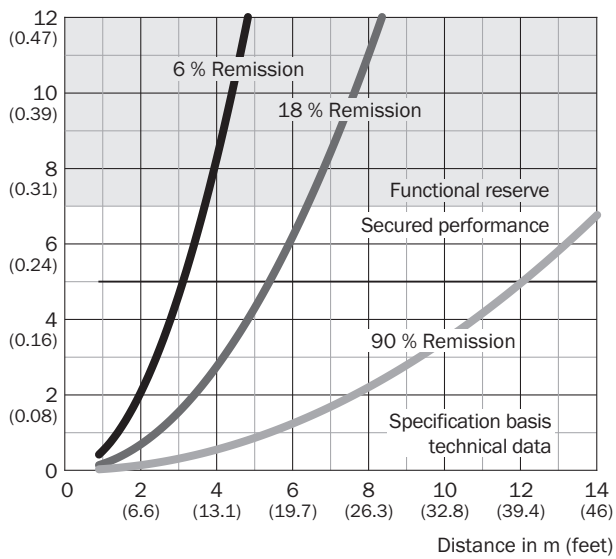


① Multifunctional input (MF)

characteristic curve 1) Super Slow

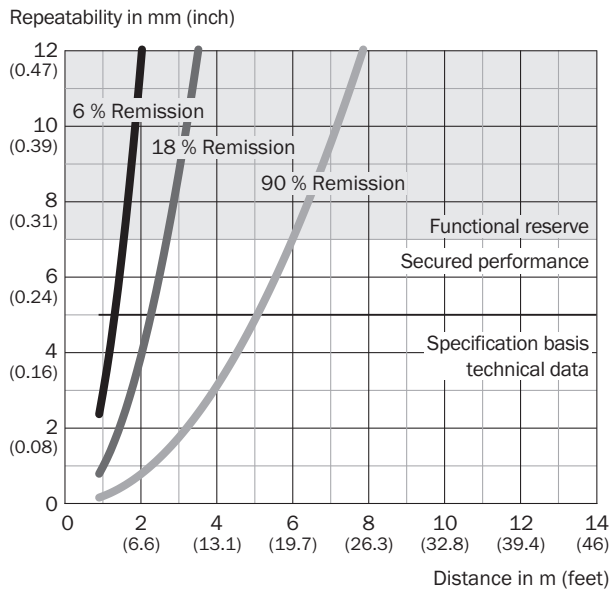
Super Slow

Repeatability in mm (inch)



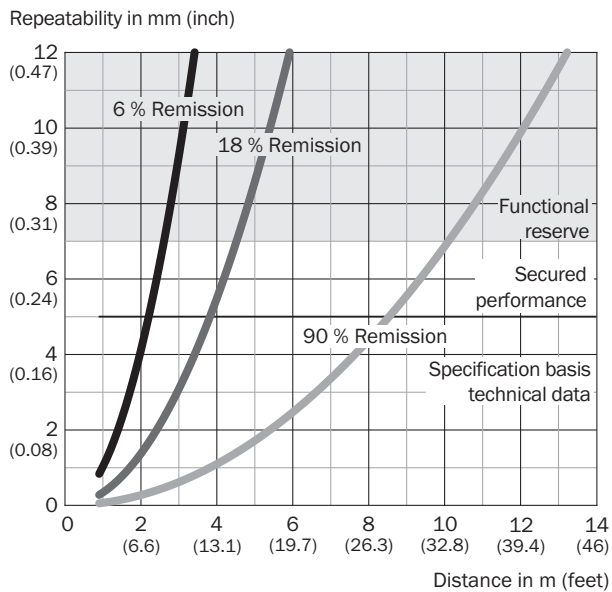
characteristic curve 5) Super Fast

Super Fast



characteristic curve 2) Slow

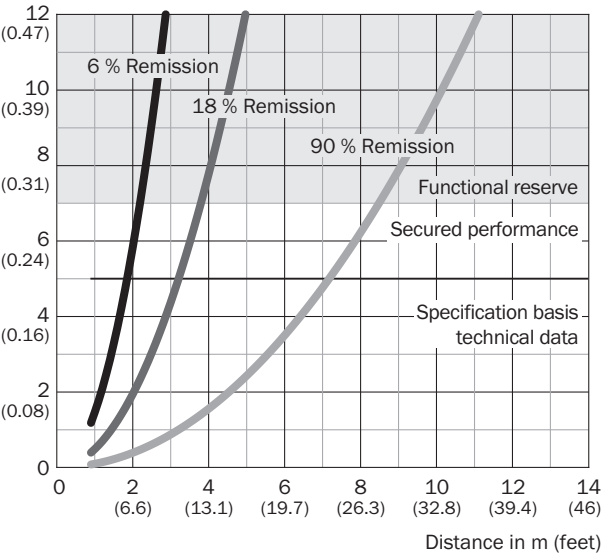
Slow



characteristic curve 3) Medium

Medium

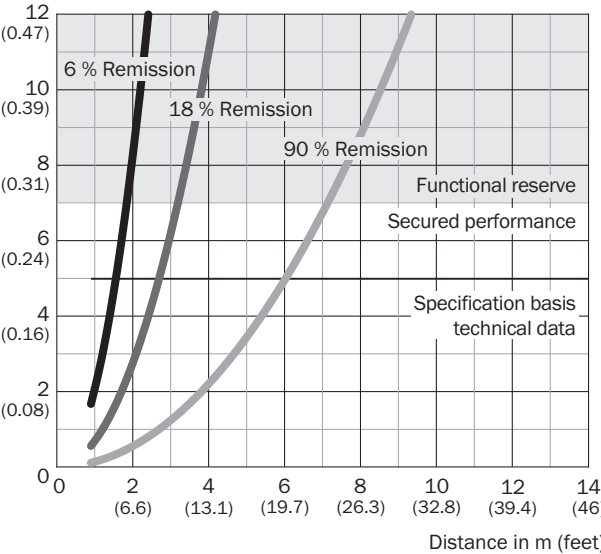
Repeatability in mm (inch)



characteristic curve 4) Fast

Fast

Repeatability in mm (inch)



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.

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For us, that is “Sensor Intelligence.”

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