



# DL35-B15552

Dx35

TIME-OF-FLIGHT SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	part no.
DL35-B15552	1057657

Other models and accessories → [www.sick.com/Dx35](http://www.sick.com/Dx35)



## Detailed technical data

## Features

<b>Measuring range</b>	200 mm ... 35,000 mm, on “diamond grade” reflective tape <sup>1)</sup>
<b>Target</b>	Reflector
<b>Resolution</b>	100 µm
<b>Repeatability</b>	≥ 0.5 mm <sup>1) 2)</sup>
<b>Measurement accuracy</b>	Typ. ± 15 mm <sup>3)</sup>
<b>Response time</b>	2.5 ms ... 96.5 ms, 2.5 ms / 6.5 ms / 12.5 ms / 24.5 ms / 96.5 ms <sup>4) 5)</sup>
<b>Switching frequency</b>	333 Hz / 100 Hz / 50 Hz / 25 Hz / 6 Hz <sup>4) 5)</sup>
<b>Output time</b>	1 ms ... 32 ms, 1 ms/2 ms/4 ms/8 ms/32 ms <sup>4) 6)</sup>
<b>Emitted beam</b>	
Light source	Laser, red <sup>7)</sup>
Type of light	Visible red light
Typ. light spot size (distance)	15 mm x 15 mm (at 2 m)
<b>Key laser figures</b>	
Normative reference	IEC 60825-1:2014, EN 60825-1:2014
Laser class	1 <sup>8)</sup>
Average laser service life (at 25 °C)	100,000 h
<b>Additional function</b>	Set speed: Super Fast ... Super Slow

<sup>1)</sup> See repeatability characteristic lines.

<sup>2)</sup> Equivalent to 1  $\sigma$ .

<sup>3)</sup> On “diamond grade” reflective tape.

<sup>4)</sup> Depending on the set speed: Super Fast ... Super Slow.

<sup>5)</sup> Lateral entry of the object into the measuring range.

<sup>6)</sup> Continuous change of distance in measuring range.

<sup>7)</sup> Wavelength: 658 nm; max. output: 120 mW; pulse duration: 4 ns; duty cycle: 1/250.

<sup>8)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

		Teach-in of analog output and invertible analog output Output Q <sub>2</sub> adaptable: Current output / Voltage output / Digital output Switching mode: Distance to reflective tape (DtR) / switching window (Wnd) / 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
<b>Safety-related parameters</b>	MTTF <sub>D</sub>	101 years
	DC <sub>avg</sub>	0%

- 1) See repeatability characteristic lines.
- 2) Equivalent to 1  $\sigma$ .
- 3) On "diamond grade" reflective tape.
- 4) Depending on the set speed: Super Fast ... Super Slow.
- 5) Lateral entry of the object into the measuring range.
- 6) Continuous change of distance in measuring range.
- 7) Wavelength: 658 nm; max. output: 120 mW; pulse duration: 4 ns; duty cycle: 1/250.
- 8) Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

## Interfaces

<b>IO-Link</b>		✓ , IO-Link V1.1
	Function	Process data, parameterization, diagnosis
	Data transmission rate	38.4 kbit/s
<b>Digital output</b>		
	Number	1 ... 2 <sup>1) 2)</sup>
	Type	Push-pull: PNP/NPN
	Function	Output Q <sub>2</sub> adaptable: Current output / Voltage output / Digital output / Q <sub>1</sub> not / deactivated
	Maximum output current I <sub>A</sub>	≤ 100 mA
<b>Analog output</b>		
	Number	1
	Type	Current output / voltage output
	Function	Output Q <sub>2</sub> adaptable: Current output / Voltage output / Digital output
	Current	4 mA ... 20 mA, ≤ 450 $\Omega$
	Voltage	0 V ... 10 V, ≥ 50,000 $\Omega$
	Resolution	12 bit
<b>Multifunctional input (MF)</b>		1 x <sup>3)</sup>
<b>Hysteresis</b>		0 mm ... 34,950 mm <sup>4)</sup>

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

## Electronics

<b>Supply voltage U<sub>B</sub></b>	DC 12 V ... 30 V <sup>1) 2)</sup>
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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<sub>S</sub> > 18 V. When using analog voltage output V<sub>S</sub> > 13 V.
- 3) Without load, at +20 °C.
- 4) May not fall short of or exceed V<sub>S</sub> tolerances.

<b>Power consumption</b>	$\leq 1.7 \text{ W}^{3)}$
<b>Ripple</b>	$\leq 5 \text{ V}_{pp}^{4)}$
<b>Initialization time</b>	$\leq 500 \text{ ms}$
<b>Warm-up time</b>	$\leq 20 \text{ min}$
<b>Display</b>	LEDs
<b>Enclosure rating</b>	IP65 IP67
<b>Protection class</b>	III
<b>Connection type</b>	Male connector, M12, 5-pin

<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A.

<sup>2)</sup> When using IO-Link output  $V_S > 18 \text{ V}$ . When using analog voltage output  $V_S > 13 \text{ V}$ .

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

<sup>4)</sup> May not fall short of or exceed  $V_S$  tolerances.

## Mechanics

<b>Dimensions (W x H x D)</b>	32 mm x 58.67 mm x 42.7 mm
<b>Housing material</b>	Plastic (ABS/PC)
<b>Window material</b>	Plastic (PMMA)
<b>Weight</b>	65 g

## Ambient data

<b>Ambient temperature, operation</b>	$-30 \text{ }^\circ\text{C} \dots +55 \text{ }^\circ\text{C}$ , $U_V \leq 24 \text{ V}$
<b>Ambient temperature, storage</b>	$-40 \text{ }^\circ\text{C} \dots +75 \text{ }^\circ\text{C}$
<b>Max. rel. humidity (not condensing)</b>	$\leq 95 \%$
<b>Typ. Ambient light immunity</b>	40 klx
<b>Vibration resistance</b>	EN 60068-2-6, EN 60068-2-64
<b>Shock resistance</b>	EN 60068-2-27
<b>Electromagnetic compatibility (EMC)</b>	EN 61000-6-2, EN 61000-6-3, EN 61000-6-4 <sup>1)</sup>

<sup>1)</sup> This is a Class A device. This device can cause radio interference in living quarters.

## Certificates

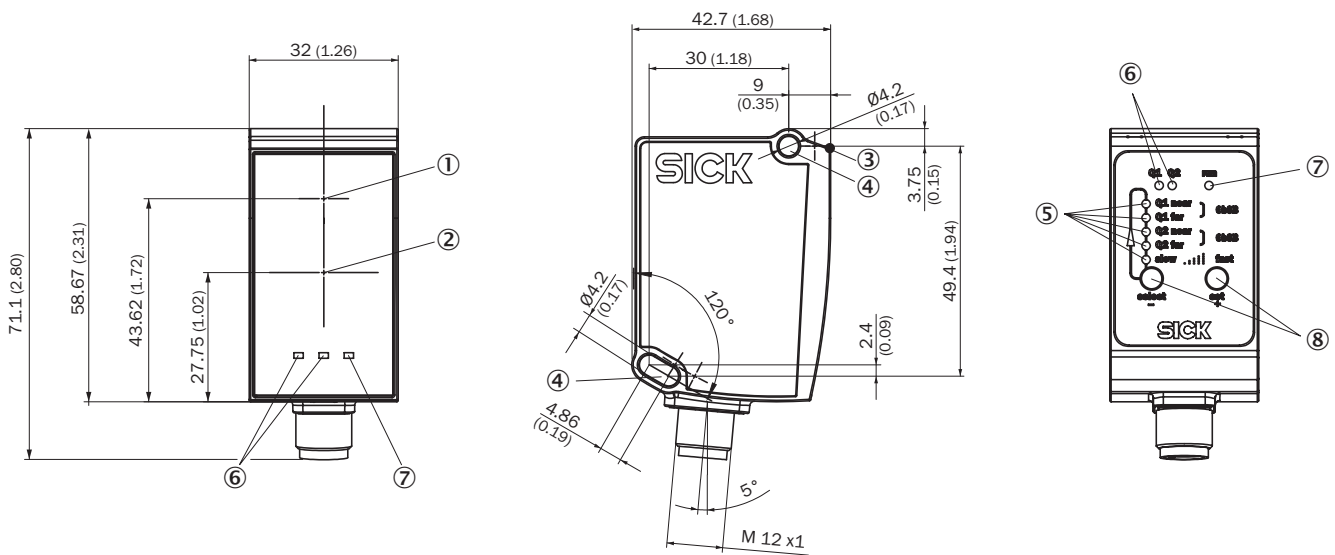
<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cTUVus certificate</b>	✓
<b>Information according to Art. 3 of Data Act (Regulation EU 2023/2854)</b>	✓

## Classifications

<b>ECLASS 5.0</b>	27270801
<b>ECLASS 5.1.4</b>	27270801
<b>ECLASS 6.0</b>	27270801

<b>ECLASS 6.2</b>	27270801
<b>ECLASS 7.0</b>	27270801
<b>ECLASS 8.0</b>	27270801
<b>ECLASS 8.1</b>	27270801
<b>ECLASS 9.0</b>	27270801
<b>ECLASS 10.0</b>	27270801
<b>ECLASS 11.0</b>	27270801
<b>ECLASS 12.0</b>	27270916
<b>ETIM 5.0</b>	EC001825
<b>ETIM 6.0</b>	EC001825
<b>ETIM 7.0</b>	EC001825
<b>ETIM 8.0</b>	EC001825
<b>UNSPSC 16.0901</b>	41111613

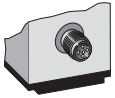
**Dimensional drawing**



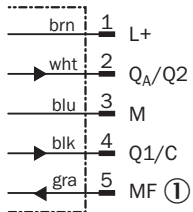
Dimensions in mm (inch)

- 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<sub>1</sub>
- ⑦ Operating indicator
- ⑧ Control elements

Connection type Plug, M12, 5-pin



Connection diagram

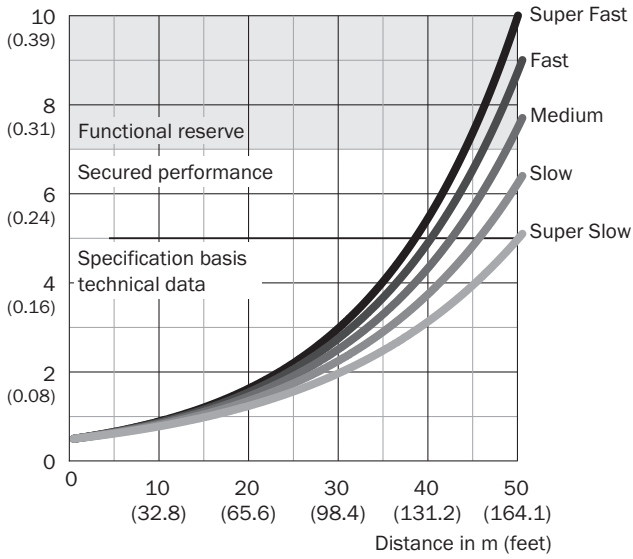


① Multifunctional input (MF)

characteristic curve 1) Super Slow ... 5) Super Fast




**Super Slow ... Super Fast**

Repeatability in mm (inch)





## Recommended accessories

Other models and accessories → [www.sick.com/Dx35](http://www.sick.com/Dx35)

	Brief description	Type	part no.
Mounting systems			
	<ul style="list-style-type: none"> <li><b>Description:</b> Alignment unit</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Mounting hardware for the sensor included</li> </ul>	BEF-AH-DX50	2048397
	<ul style="list-style-type: none"> <li><b>Description:</b> Plate N02 for universal clamp bracket</li> <li><b>Material:</b> Steel, zinc diecast</li> <li><b>Details:</b> Zinc plated steel (sheet), Zinc die cast (clamping bracket)</li> <li><b>Items supplied:</b> Universal clamp (5322626), mounting hardware</li> <li><b>Usable for:</b> 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</li> </ul>	BEF-KHS-N02	2051608
	<ul style="list-style-type: none"> <li><b>Description:</b> Mounting bracket: horizontal sending axis for ceiling or floor installation or vertical sending axis for wall installation, steel, zinc coated, incl. mounting material</li> <li><b>Material:</b> Steel</li> <li><b>Details:</b> Steel, zinc coated</li> <li><b>Items supplied:</b> Mounting hardware for the sensor included</li> </ul>	BEF-WN-DX35	2069592

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Male connector, M12, 5-pin, straight, A-coded</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 5-wire, PUR, halogen-free</li> <li><b>Application:</b> Drag chain operation, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-020UB5M2A15	2096009
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-020VB5XLEAX	2096215
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 2 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-020VB5XLEAX	2096239
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-C60VB5XLEAX	2145573
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 1 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-010VB5XLEAX	2145574
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, angled, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YG2A15-030VB5XLEAX	2145575
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 0.6 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-C60VB5XLEAX	2145570
	<ul style="list-style-type: none"> <li><b>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li><b>Connection type head B:</b> Flying leads</li> <li><b>Signal type:</b> Sensor/actuator cable</li> <li><b>Cable:</b> 3 m, 5-wire, PVC</li> <li><b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-030VB5XLEAX	2145572
device protection and care			
	<ul style="list-style-type: none"> <li><b>Description:</b> Weather protection hood for Dx35 / Dx50 / Dx50-2 / Dx80</li> </ul>	OBW-KHS-M02	2050205

	Brief description	Type	part no.
reflectors and optics			
	<ul style="list-style-type: none"> <li><b>Description:</b> "Diamond grade" reflective tape, self-adhesive, can be assembled from the sheet</li> <li><b>Dimensions:</b> 74.9 cm 91.4 cm</li> <li><b>Ambient operating temperature:</b> -34 °C ... +70 °C</li> </ul>	REF-DG-K	4019634
	<ul style="list-style-type: none"> <li><b>Description:</b> Reflector plate, "diamond grade" reflective tape, 330 mm x 330 mm, base plate material: aluminum, screw connection</li> <li><b>Ambient operating temperature:</b> -34 °C ... +70 °C</li> </ul>	PL240DG	1017910