

Dx35

## TIME-OF-FLIGHT SENSORS

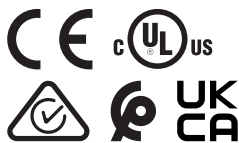
**SICK**  
Sensor Intelligence.



Ordering information

Type	part no.
DT35-B15251-KFJDHHFPDKK7382FJS7U	1139908

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



Detailed technical data

Features

Measuring range	50 mm ... 12,000 mm, 90% remission factor <sup>1) 2)</sup> 50 mm ... 5,300 mm, 18% reflection factor 50 mm ... 3,100 mm, 6% remission factor
Target	Natural objects
Resolution	100 µm
Repeatability	≥ 0.5 mm <sup>2) 3) 4)</sup>
Measurement accuracy	Typ. ± 10 mm <sup>4)</sup>
Response time	96.5 ms
Switching frequency	6 Hz
Output time	32 ms
Emitted beam	
Light source	Laser, red <sup>5)</sup>
Type of light	Visible red light
Typ. light spot size (distance)	15 mm x 15 mm (at 2 m)
Key laser figures	
Normative reference	IEC 60825-1:2014, EN 60825-1:2014
Laser class	2
Average laser service life (at 25 °C)	100,000 h
Additional function	Set speed: Super Fast ... Super Slow Teach-in of analog output and invertible analog output Output Q <sub>2</sub> adaptable: Current output / Voltage output / Digital output

<sup>1)</sup> For speed setting Slow.  
<sup>2)</sup> See repeatability characteristic lines.  
<sup>3)</sup> Equivalent to 1 σ.  
<sup>4)</sup> 6% ... 90% remission factor.  
<sup>5)</sup> 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
<b>Safety-related parameters</b>	MTTF <sub>D</sub>	101 years
	DC <sub>avg</sub>	0%

- 1) For speed setting Slow.  
 2) See repeatability characteristic lines.  
 3) Equivalent to 1  $\sigma$ .  
 4) 6% ... 90% remission factor.  
 5) Wavelength: 658 nm; max. output: 250 mW; pulse duration: 4 ns; duty cycle: 1/250.

## 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
	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 ... 11,950 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>
<b>Power consumption</b>	≤ 1.7 W <sup>3)</sup>
<b>Ripple</b>	≤ 5 V <sub>pp</sub> <sup>4)</sup>
<b>Initialization time</b>	≤ 500 ms

- 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>Warm-up time</b>	≤ 20 min
<b>Display</b>	LEDs
<b>Enclosure rating</b>	IP65 IP67
<b>Protection class</b>	III
<b>Connection type</b>	Male connector

<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  $V_S > 18$  V. When using analog voltage output  $V_S > 13$  V.

<sup>3)</sup> Without load, at +20 °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

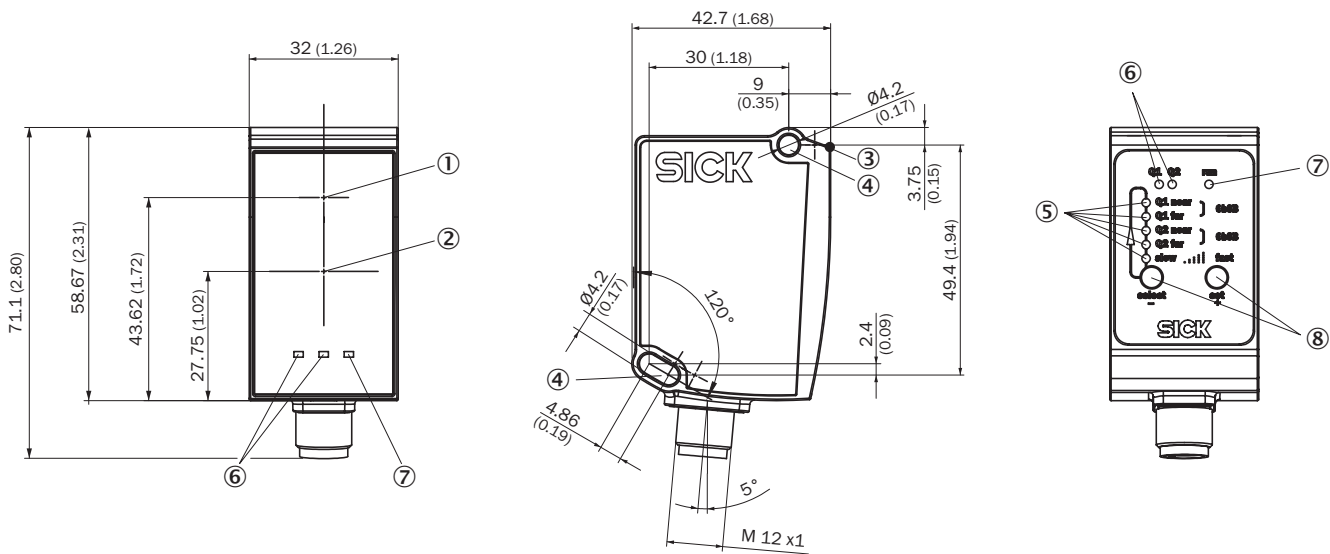
<b>Ambient temperature, operation</b>	−30 °C ... +55 °C, $U_V \leq 24$ V
<b>Ambient temperature, storage</b>	−40 °C ... +75 °C
<b>Max. rel. humidity (not condensing)</b>	≤ 95 %
<b>Vibration resistance</b>	EN 60068-2-6, EN 60068-2-64
<b>Shock resistance</b>	EN 60068-2-27
<b>Electromagnetic compatibility (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.

## Classifications

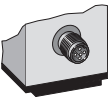
<b>ECLASS 5.0</b>	27270801
<b>ECLASS 5.1.4</b>	27270801
<b>ECLASS 6.0</b>	27270801
<b>ECLASS 6.2</b>	27270801
<b>ECLASS 7.0</b>	27270801
<b>ECLASS 8.0</b>	27270801
<b>ECLASS 8.1</b>	27270801
<b>ECLASS 9.0</b>	27270801
<b>ECLASS 10.0</b>	27270801
<b>ECLASS 11.0</b>	27270801
<b>ECLASS 12.0</b>	27270916
<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

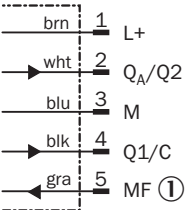


- Dimensions in mm (inch)
- ① Optical axis, sender
  - ② Optical axis, receiver
  - ③ Zero level
  - ④ Mounting hole M4
  - ⑤ status indicator output Qa/Q2
  - ⑥ Status LEDs output Q<sub>1</sub>
  - ⑦ Operating indicator
  - ⑧ Control elements

Connection type Plug, M12, 5-pin



Connection diagram

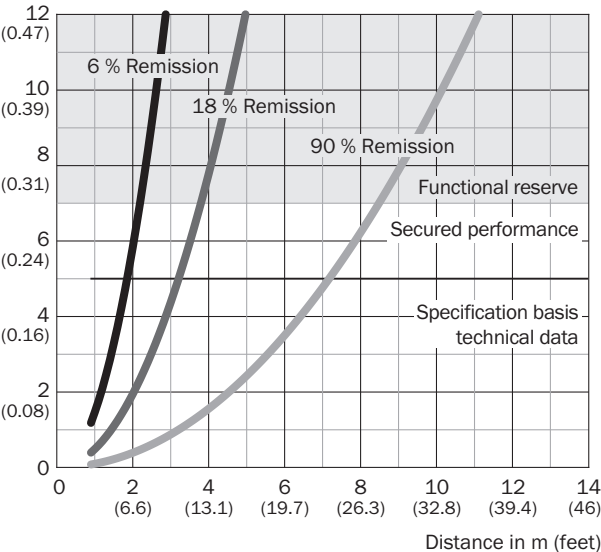


① Multifunctional input (MF)

characteristic curve 3) Medium

Medium

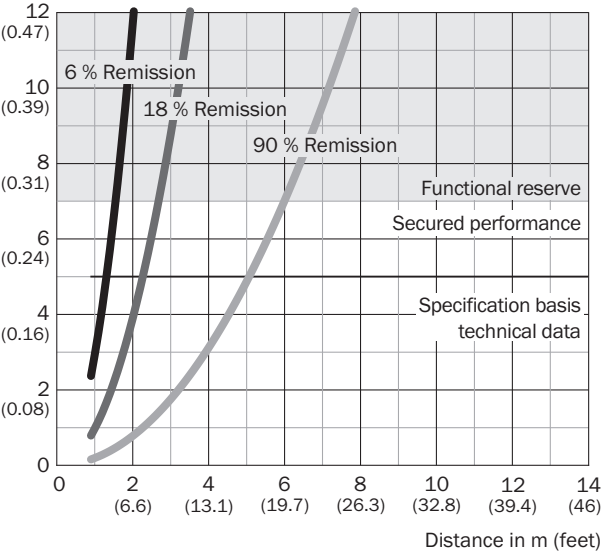
Repeatability in mm (inch)



characteristic curve 5) Super Fast

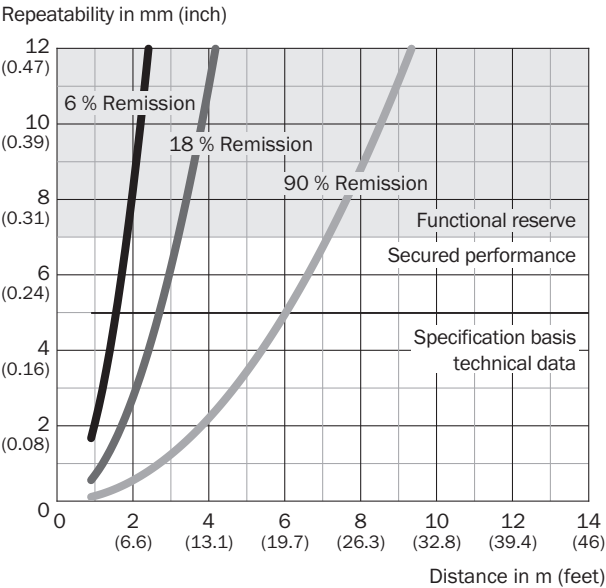
Super Fast

Repeatability in mm (inch)



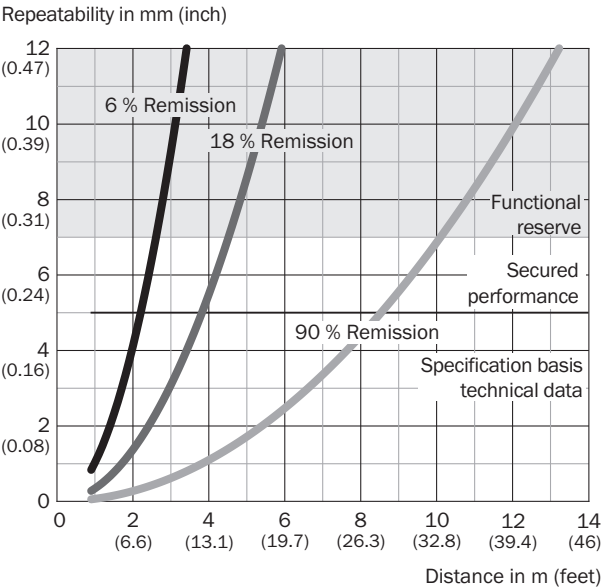
characteristic curve 4) Fast

Fast



characteristic curve 2) Slow

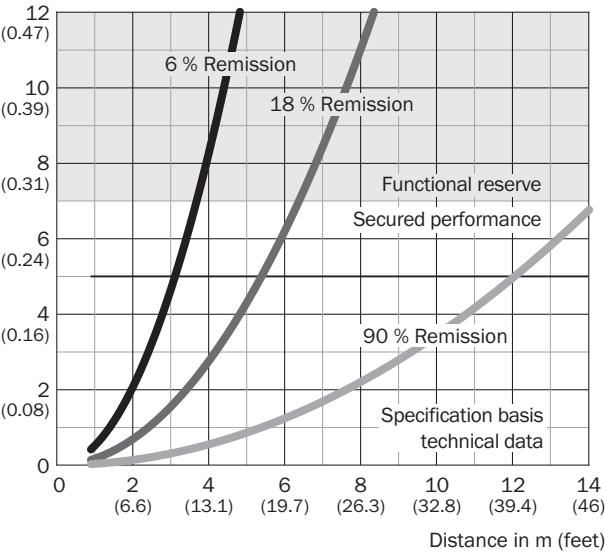
Slow



characteristic curve 1) Super Slow



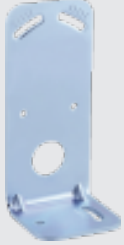
Super Slow

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>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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Uncontaminated zones, Zones with oils and lubricants, Robot, Drag chain operation</li> </ul>	YF2A15-020UB5M2A15	2096009
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YG2A15-020VB5XLEAX	2096215
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A15-020VB5XLEAX	2096239
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YG2A15-C60VB5XLEAX	2145573
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YG2A15-010VB5XLEAX	2145574
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YG2A15-030VB5XLEAX	2145575
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A15-C60VB5XLEAX	2145570
	<ul style="list-style-type: none"> <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>Description:</b> Sensor/actuator cable, unshielded</li> <li><b>Application:</b> Zones with chemicals, Uncontaminated zones</li> </ul>	YF2A15-030VB5XLEAX	2145572
device protection and care			
	<ul style="list-style-type: none"> <li><b>Description:</b> Weather Cover for Dx35/Dx50/Dx50-2/Dx80</li> </ul>	OBW-KHS-M02	2050205

## 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:

Contacts and other locations –[www.sick.com](http://www.sick.com)