



DT35-B15251

Filling level monitoring

DIGITAL SOLUTIONS FOR INTEGRATION

SICK
Sensor Intelligence.



Ordering information

| Type | Part no. |
|-------------|----------|
| DT35-B15251 | 1057652 |

Other models and accessories → www.sick.com/Filling_level_monitoring



Detailed technical data

Mechanics/electronics

| | |
|--|-----------------------------------|
| Supply voltage V_s | DC 12 V ... 30 V ^{1) 2)} |
| Ripple | $\leq 5 V_{pp}$ ³⁾ |
| Power consumption | $\leq 1.7 W$ ⁴⁾ |
| Initialization time | $\leq 500 ms$ |
| Warm-up time | $\leq 20 min$ |
| Housing material | Plastic (ABS/PC) |
| Window material | Plastic (PMMA) |
| Connection type | Male connector, M12, 5-pin |
| Indication | LEDs |
| Weight | 65 g |
| Dimensions (W x H x D) | 32 mm x 58.67 mm x 42.7 mm |
| 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 $V_s > 18 V$. When using analog voltage output $V_s > 13 V$.

³⁾ May not fall short of or exceed V_s tolerances.

⁴⁾ Without load, at +20 °C.

Performance

| | |
|--|---|
| Measuring range | 50 mm ... 12,000 mm, 90 % remission ^{1) 2)} 50 mm ... 5,300 mm, 18 % remission 50 mm ... 3,100 mm, 6 % remission |
| Target | Natural objects |
| Resolution | 0.1 mm |
| Repeatability | ≥ 0.5 mm ^{2) 3) 4)} |
| 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 |
| 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, 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 |

¹⁾ For speed setting Slow.

²⁾ See repeatability characteristic lines.

³⁾ Equivalent to 1 σ .

⁴⁾ 6 % ... 90 % remission.

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: 3 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 |

¹⁾ Output Q short-circuit protected.

²⁾ Voltage drop < 3 V.

³⁾ Response time ≤ 60 ms.

⁴⁾ Configurable via IO-Link.

| | | |
|-----------------------------------|------------|------------------------------------|
| | Current | 4 mA ... 20 mA, $\leq 450 \Omega$ |
| | Voltage | 0 V ... 10 V, $\geq 50,000 \Omega$ |
| | Resolution | 12 bit |
| Multifunctional input (MF) | | $1 \times$ 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.

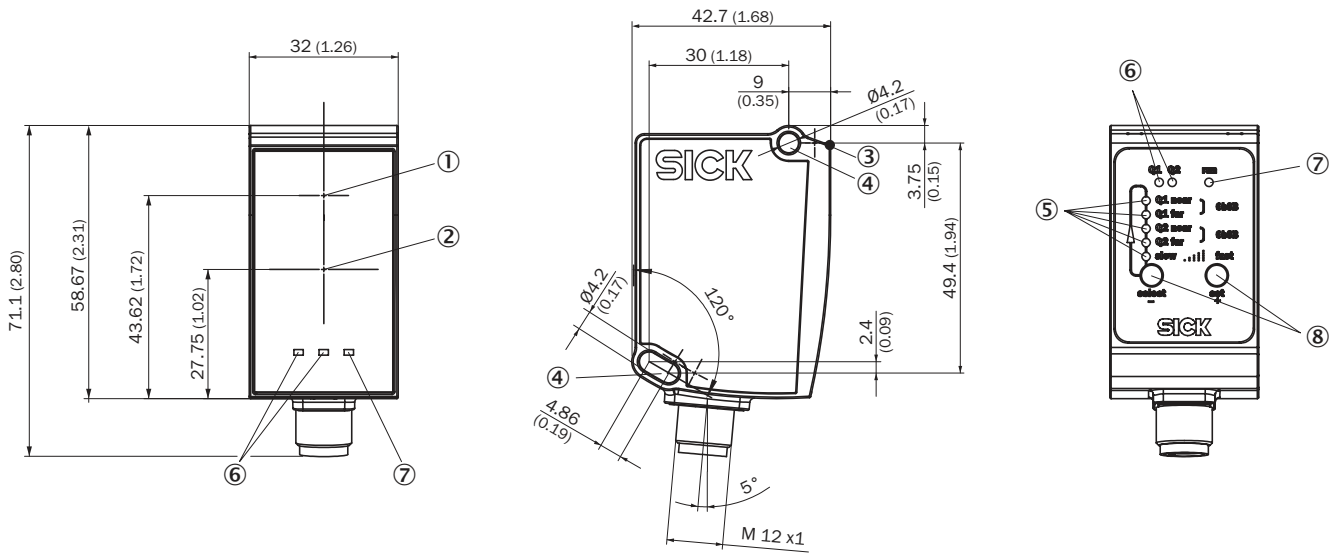
Ambient data

| | |
|--|------------------------------------|
| Ambient temperature, operation | -30 °C ... +55 °C, $U_v \leq 24$ 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 |

Classifications

| | |
|-----------------------|----------|
| eCl@ss 5.0 | 27270801 |
| eCl@ss 5.1.4 | 27270801 |
| eCl@ss 6.0 | 27270801 |
| eCl@ss 6.2 | 27270801 |
| eCl@ss 7.0 | 27270801 |
| eCl@ss 8.0 | 27270801 |
| eCl@ss 8.1 | 27270801 |
| eCl@ss 9.0 | 27270801 |
| eCl@ss 10.0 | 27270801 |
| eCl@ss 11.0 | 27270801 |
| eCl@ss 12.0 | 27270916 |
| ETIM 5.0 | EC001825 |
| ETIM 6.0 | EC001825 |
| ETIM 7.0 | EC001825 |
| ETIM 8.0 | EC001825 |
| UNSPSC 16.0901 | 41111613 |

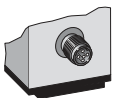
Dimensional drawing (Dimensions in mm (inch))



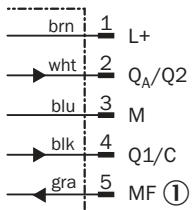
- ① Optical axis, sender
- ② Optical axis, receiver
- ③ Zero level
- ④ Mounting hole M4
- ⑤ Status indicator output Qa/Q2
- ⑥ Status LEDs output Q1
- ⑦ Operating indicator
- ⑧ Control elements

Connection type

Male connector M12, 5-pin



Connection diagram



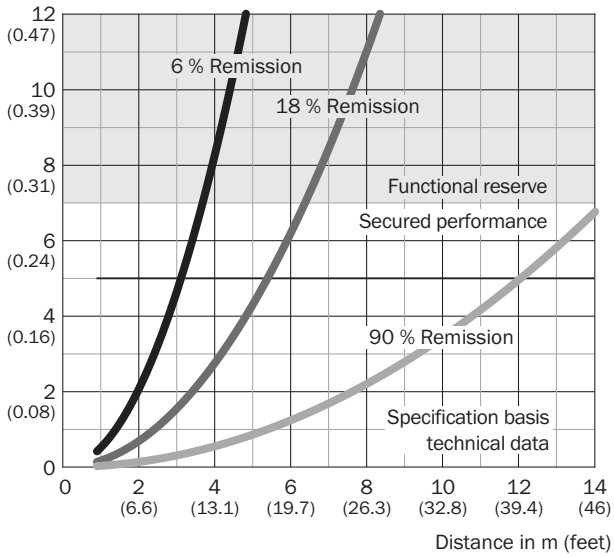
- ① Multifunctional input (MF)

Repeatability

Characteristic curve 1) Super Slow

Super Slow

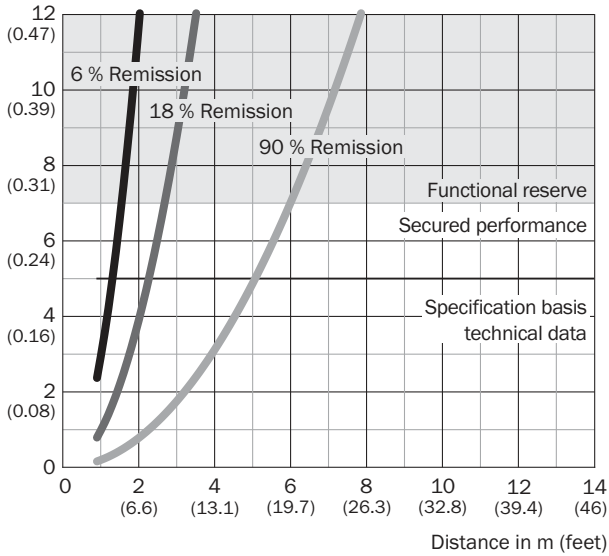
Repeatability in mm (inch)



Characteristic curve 5) Super Fast

Super Fast

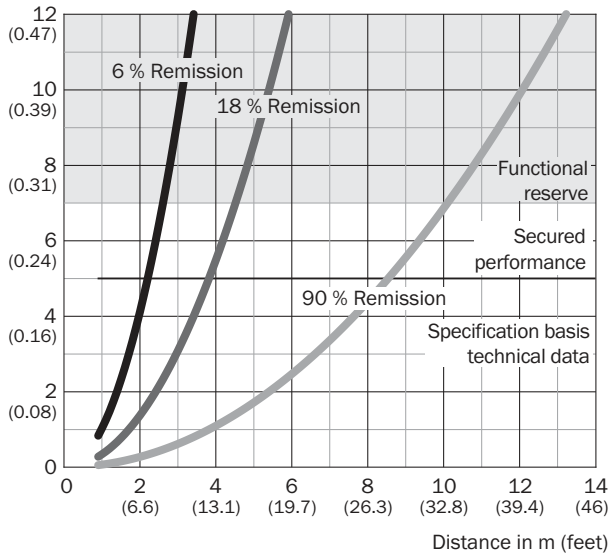
Repeatability in mm (inch)



Characteristic curve 2) Slow

Slow

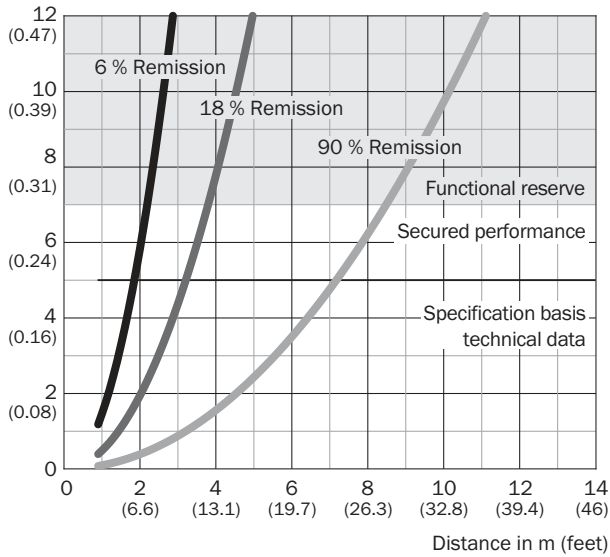
Repeatability in mm (inch)



Characteristic curve 3) Medium

Medium

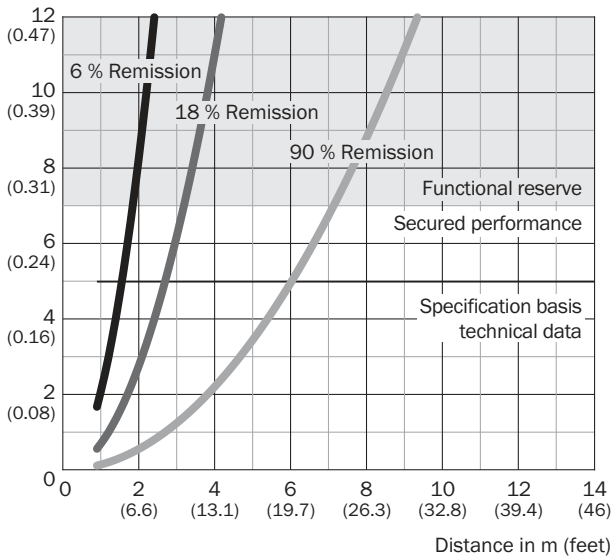
Repeatability in mm (inch)



Characteristic curve 4) Fast







Fast

Repeatability in mm (inch)



Recommended accessories

Other models and accessories → www.sick.com/Filling_level_monitoring

| | Brief description | Type | Part no. |
|---|--|--------------------|----------|
| Universal bar clamp systems | | | |
|  | Plate N02 for universal clamp bracket, Zinc plated steel (sheet), Zinc die cast (clamping bracket), Universal clamp (5322626), mounting hardware | BEF-KHS-N02 | 2051608 |
| Mounting brackets and plates | | | |
|  | Mounting bracket: horizontal sending axis for ceiling or floor installation or vertical sending axis for wall installation, steel, zinc coated, incl. mounting material, steel, zinc coated, mounting hardware for the sensor included | BEF-WN-DX35 | 2069592 |
| Plug connectors and cables | | | |
|  | Head A: female connector, M12, 5-pin, straight, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YF2A15-020VB5XLEAX | 2096239 |
|  | Head A: female connector, M12, 5-pin, angled, A-coded Head B: Flying leads Cable: Sensor/actuator cable, PVC, unshielded, 2 m | YG2A15-020VB5XLEAX | 2096215 |
|  | Head A: female connector, M12, 5-pin, straight, A-coded Head B: male connector, M12, 5-pin, straight, A-coded Cable: Sensor/actuator cable, PUR, halogen-free, unshielded, 2 m | YF2A15-020UB5M2A15 | 2096009 |
| Terminal and alignment brackets | | | |
|  | Alignment unit, steel, zinc coated, mounting hardware for the sensor included | BEF-AH-DX50 | 2048397 |

Recommended services

Additional services → www.sick.com/Filling_level_monitoring

| | Type | Part no. |
|--|--|----------|
| Extended warranty | | |
| <ul style="list-style-type: none">• Product area: Identification solutions, machine vision, Distance sensors, Detection and ranging solutions• Range of services: The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).• Duration: Five-year warranty from delivery date. | Extended warranty for a total of five years from delivery date | 1680671 |

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