



## Mid range distance sensors Dx35, DT35, IO-Link

DT35-B15851



**Model Name** > [DT35-B15851](#)  
**Part No.** > [1057653](#)

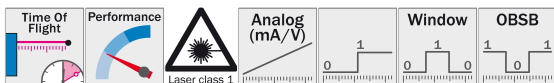


#### At a glance

- Maximum reliability, immunity to ambient light, and best price/performance ratio thanks to HDDM™ technology
- Reliable detection and broad measuring range of 0.05 m to 12 m
- Very good accuracy of  $\pm 10$  mm
- Fast measurement with a output rate of down to 1 ms or 2 ms
- Small housing size
- IO-Link as well as analog and switching output
- Choice of infrared or red lasers in class 1 or class 2

#### Your benefits

- Precise and reliable measurement regardless of object color extends run time and process quality
- Optimum application solution thanks to flexible settings for speed, range and repeatability
- A small size and blind zone make flexible mounting possible when space is limited
- Many interfaces available in one device, reducing stock-keeping: 4 mA to 20 mA, 0 V to 10 V, PNP output, NPN output, and IO-Link
- Offering easy alignment, optimal performance or inconspicuous measurement, versatile light senders make it an ideal solution for all scenarios
- Low investment costs and high performance levels guarantee a quick return on investment
- A wide variety of control options ensures rapid commissioning and fast batch changes
- IO-Link offers full process control, from commissioning to service



#### Performance

|                                          |                                                                                                                |
|------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Measuring range <sup>1), 2)</sup> :      | 50 mm ... 12,000 mm, 90 % remission<br>50 mm ... 3,100 mm, 6 % remission<br>50 mm ... 5,300 mm, 18 % remission |
| Resolution:                              | 0.1 mm                                                                                                         |
| Repeatability <sup>3), 4), 5)</sup> :    | 0,5 mm ... 5 mm                                                                                                |
| Accuracy <sup>6)</sup> :                 | Typ. $\pm 10$ mm                                                                                               |
| Response time <sup>7), 8)</sup> :        | 2.5 ms/6.5 ms/12.5 ms/24.5 ms/96.5 ms                                                                          |
| Switching frequency <sup>9), 10)</sup> : | 333 Hz/100 Hz/50 Hz/25 Hz/6 Hz                                                                                 |
| Output rate <sup>11), 12)</sup> :        | 1 ms/2 ms/4 ms/8 ms/32 ms                                                                                      |
| Light source <sup>13)</sup> :            | Laser, infrared                                                                                                |

|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Typ. light spot size (distance):                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 15 mm x 15 mm (at 2 m)                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Additional function:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Set speed: Super Fast ... Super Slow<br>Teach-in of analog output<br>Teach-in of switching output<br>IO-Link<br>Reset to factory default<br>Multifunctional input: laser off/external teach/inactive<br>Output Q2, selectable: 4 mA ... 20 mA/0 V ... 10 V/switching output<br>Invertible analog output<br>Switching output invertible<br>Switching mode: Distance to Object (DtO)/switching window (Wnd)/object between sensor and background (OBSB) |
| Laser class:                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 1 (EN 60825-1)                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Laser service life (MTTF at 25 °C):                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 100,000 h                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <sup>1)</sup> For speed setting Super Slow <sup>2) 4)</sup> See characteristic curves repeatability <sup>3)</sup> Equivalent to 1 $\sigma$ <sup>5) 6)</sup> 6 % ... 90 % remission <sup>7) 9) 12)</sup> Dependent on the set speed:<br>Super Fast ... Super Slow <sup>8) 10)</sup> Lateral entry of object into measuring range <sup>11)</sup> Continuous change of distance in measuring range. <sup>13)</sup> Wavelength: 827 nm; max.<br>output: 130 mW; pulse duration: 3.5 ns; pulse repetition rate: 1/250 |                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

## Interfaces

|                                                                                                                                                                                                                                                                            |                                                                                           |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| Analog output <sup>1)</sup> :                                                                                                                                                                                                                                              | 1 x 4 mA ... 20 mA ( $\leq 450 \Omega$ )/1 x 0 V ... 10 V ( $\geq 50 \text{ k}\Omega$ )/- |
| Resolution analog output:                                                                                                                                                                                                                                                  | 12 bit                                                                                    |
| Output type:::                                                                                                                                                                                                                                                             | 1 x/1 x/2 x push-pull: PNP/NPN (100 mA), IO-Link <sup>2) 3) 4)</sup>                      |
| Hysteresis <sup>5)</sup> :                                                                                                                                                                                                                                                 | 0 mm ... 11,950 mm                                                                        |
| Data interface:                                                                                                                                                                                                                                                            | IO-Link                                                                                   |
| Multifunctional input (MF) <sup>6)</sup> :                                                                                                                                                                                                                                 | 1 x                                                                                       |
| <sup>1) 4)</sup> Output Q <sub>2</sub> , selectable: 4 mA ... 20 mA/0 V ... 10 V/switching output <sup>2)</sup> Output Q short-circuit protected <sup>3)</sup> Voltage drop < 3 V <sup>5)</sup> Adjustable via IO-Link <sup>6)</sup><br>Response time $\leq 60 \text{ ms}$ |                                                                                           |

## Mechanics/electronics

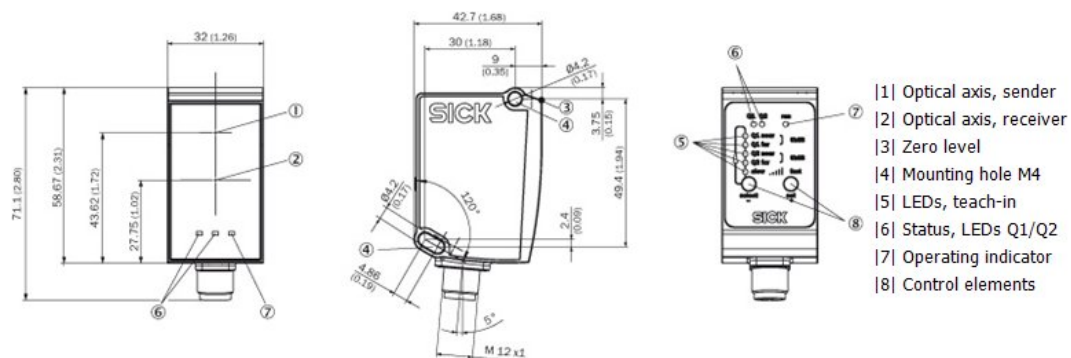
|                                                                                                                                                                                                                                                                                                                                                                    |                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------|
| Supply voltage V <sub>s</sub> <sup>1), 2)</sup> :                                                                                                                                                                                                                                                                                                                  | DC 12 V ... 30 V                             |
| Ripple <sup>3)</sup> :                                                                                                                                                                                                                                                                                                                                             | $\leq 5 \text{ Vpp}$                         |
| Power consumption <sup>4), 5)</sup> :                                                                                                                                                                                                                                                                                                                              | $\leq 1.7 \text{ W}$                         |
| Initialization time:                                                                                                                                                                                                                                                                                                                                               | $\leq 500 \text{ ms}$                        |
| Warm-up time:                                                                                                                                                                                                                                                                                                                                                      | $\leq 20 \text{ min}$                        |
| Housing material:                                                                                                                                                                                                                                                                                                                                                  | Plastic (ABS and PC)<br>acrylic glass (PMMA) |
| Connection type:                                                                                                                                                                                                                                                                                                                                                   | Connector M12, 5-pin                         |
| Indication:                                                                                                                                                                                                                                                                                                                                                        | LEDs                                         |
| Weight:                                                                                                                                                                                                                                                                                                                                                            | 65 g                                         |
| <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 <sub>s</sub> > 18 V. When using analog voltage<br>output V <sub>s</sub> > 13 V. <sup>3)</sup> May not fall short of or exceed V <sub>s</sub> tolerances <sup>4)</sup> At 20 °C <sup>5)</sup> Without load |                                              |

## Ambient data

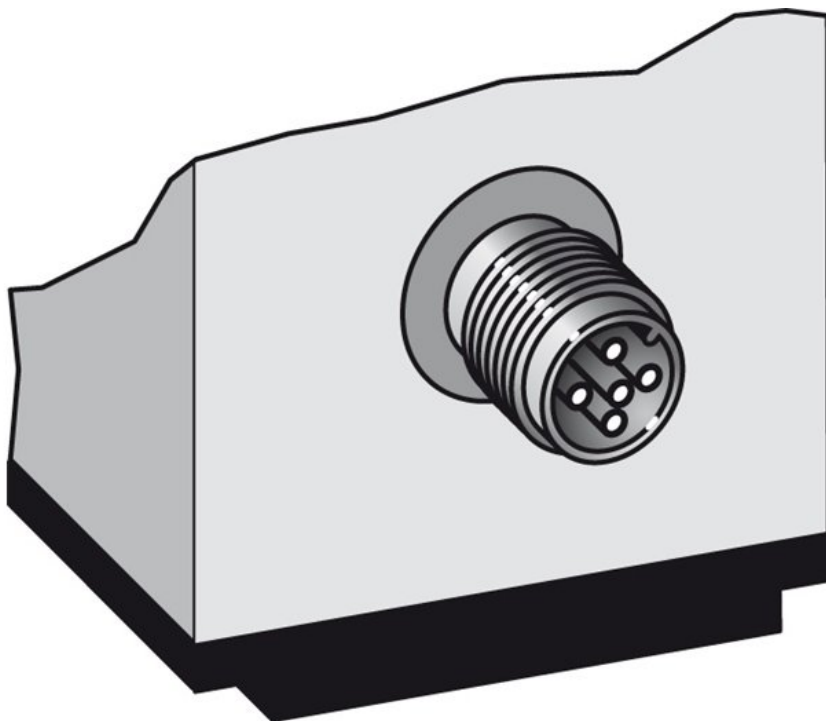
|                                     |                                                  |
|-------------------------------------|--------------------------------------------------|
| Enclosure rating:                   | IP 65, IP 67                                     |
| Protection class:                   | III                                              |
| Ambient temperature <sup>1)</sup> : | Operation: -30 ... 55 °C, Storage: -40 ... 75 °C |
| Vibration resistance:               | EN 60068-2-6/EN 60068-2-64                       |
| Shock resistance:                   | EN 60068-2-27                                    |
| Typ. ambient light safety:          | 40 klx                                           |

1)  $U_v \leq 24\text{ V}$

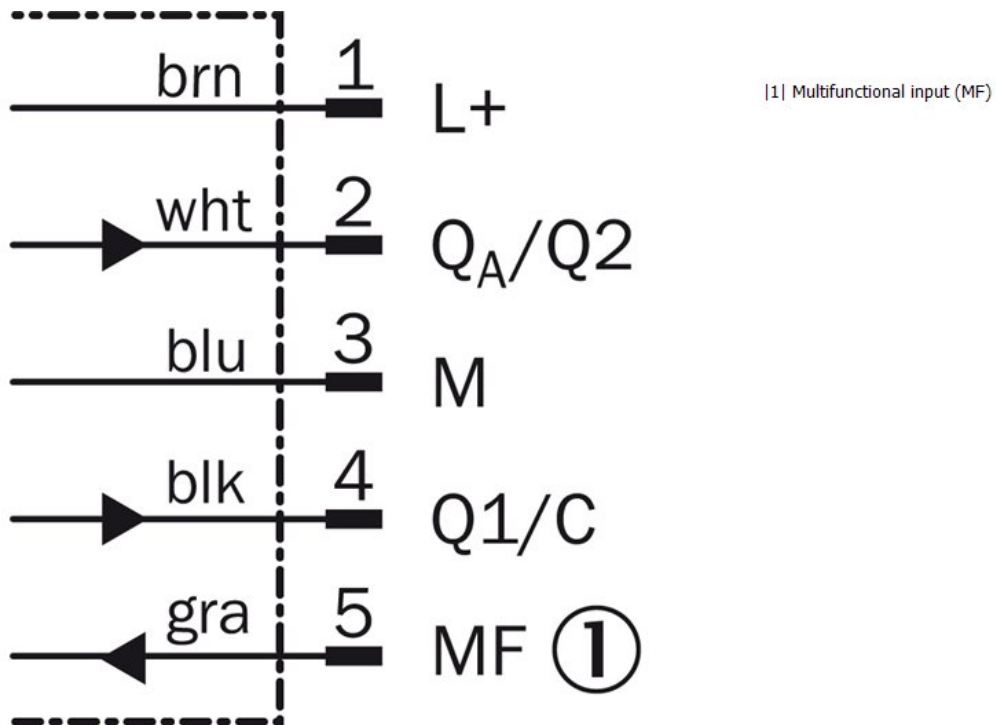
## Dimensional drawing



## Connection type



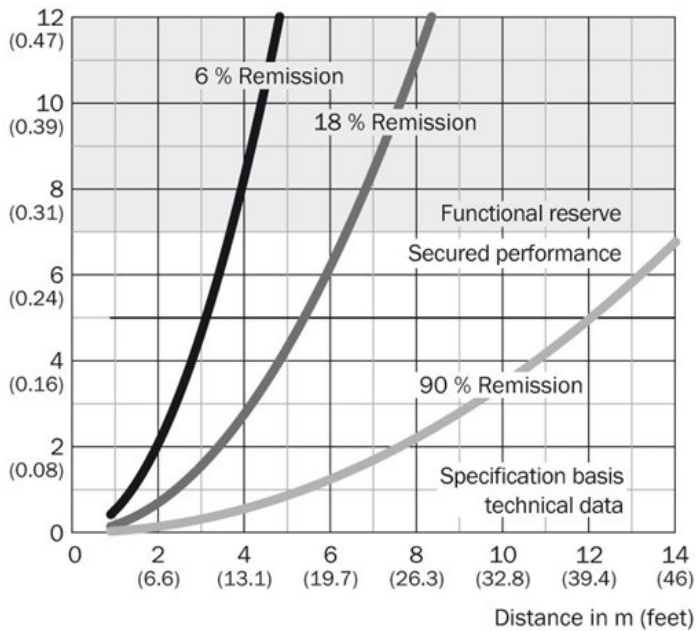
## Connection diagram



## Characteristic curve 1) Super Slow

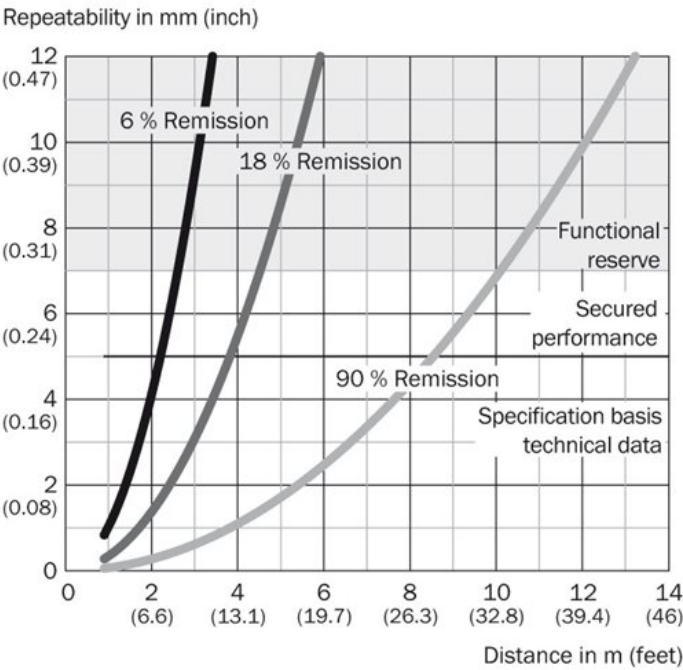
### Super Slow

Repeatability in mm (inch)



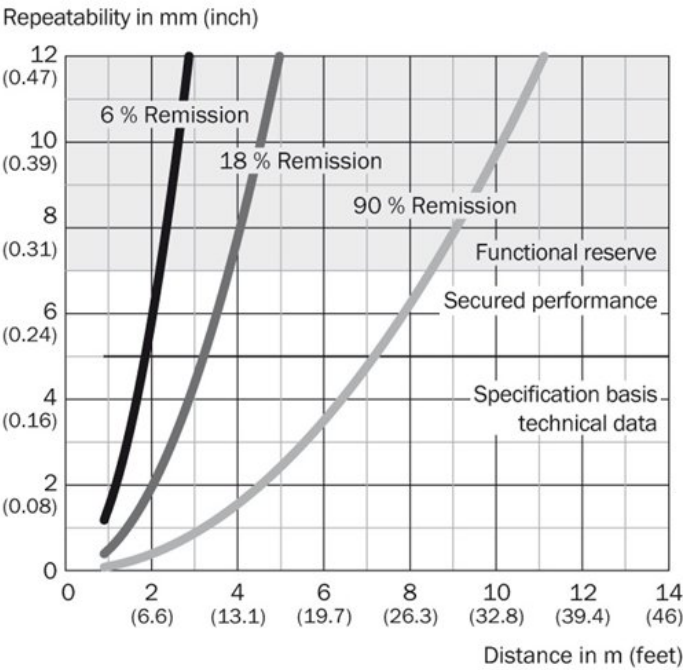
Characteristic curve 2) Slow

Slow



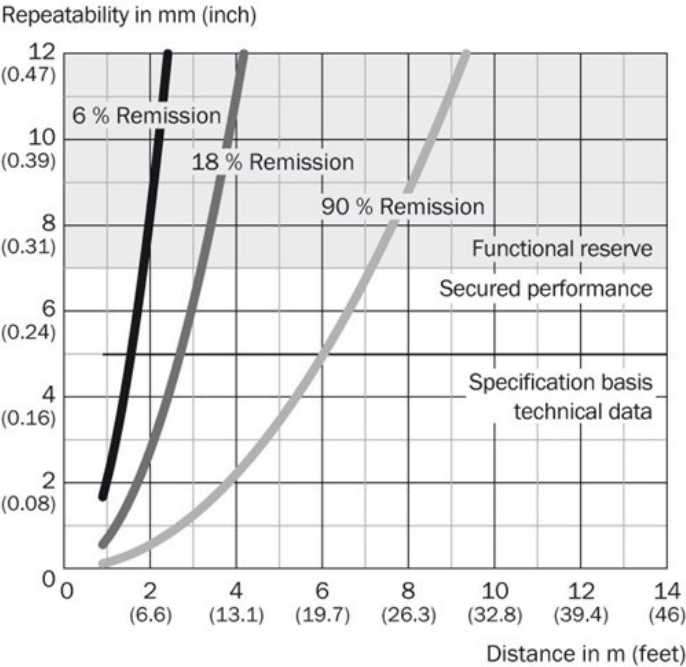
Characteristic curve 3) Medium

Medium



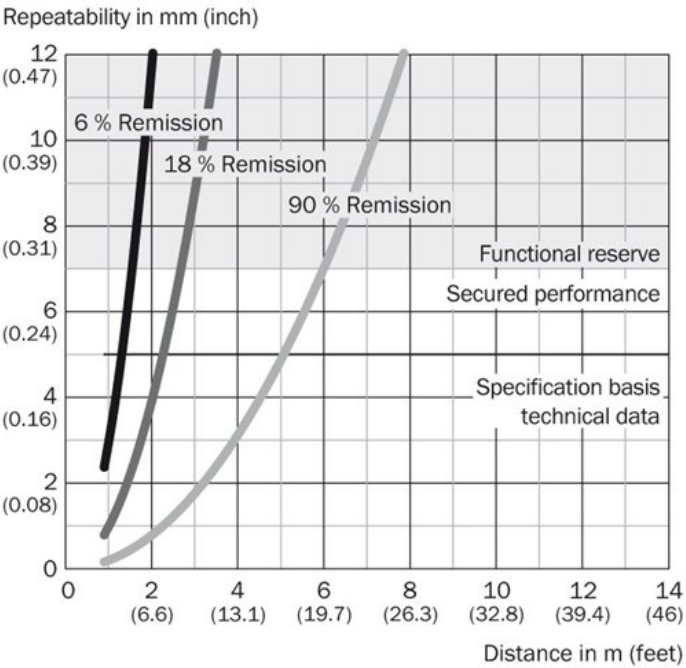
Characteristic curve 4) Fast

Fast



Characteristic curve 5) Super Fast

Super Fast



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