



## Mid range distance sensors Dx50-2, DT50-2 Pro

DT50-2B215252



**Model Name** > **DT50-2B215252**  
**Part No.** > **1065661**

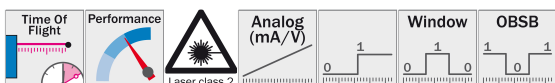


#### At a glance

- Measuring range up to 10 m on black targets and up to 30 m on white targets within a compact housing
- Output rate up to 3,000/s
- Repeatability: 0.5 mm to 5 mm
- Reliable, patented HDDM™ time-of-flight technology
- Withstands extreme temperatures from -40 °C to +65 °C thanks to rugged metal housing
- Shape comparison integrated in sensor
- IO-Link, analog and switching output (three switching modes available for selection)
- Enclosure rating IP 65 and IP 67

#### Your benefits

- A wide measuring range and a compact housing increase the number of application possibilities
- Very high throughput thanks to a high measuring frequency
- Precise and reliable measurement regardless of object color improves uptime and process quality
- Withstands harsh ambient conditions thanks to ruggedness, a wide operating temperature, and ambient light immunity
- Integrated shape comparison for straightforward checking and sorting of objects
- Fast and easy commissioning via intuitive menu structure, easy teach option, WiFi, multifunctional input, or IO-Link saves time
- Full process control with IO-Link from commissioning to maintenance
- Three switching modes provide a simple solution for demanding applications



#### Performance

Measuring range <sup>1), 2)</sup> :	200 mm ... 10,000 mm, 6 % remission 200 mm ... 17,000 mm, 18 % remission 200 mm ... 30,000 mm, 90 % remission
Resolution:	0.1 mm
Repeatability <sup>3), 4), 5)</sup> :	0.5 mm ... 5 mm
Accuracy <sup>6)</sup> :	± 7 mm
Response time <sup>7), 8)</sup> :	0.83 ms/3.33 ms/8.33 ms/25 ms/75 ms
Switching frequency <sup>9), 10)</sup> :	1,000 Hz/250 Hz/100 Hz/33 Hz/11 Hz
Light source <sup>11)</sup> :	Laser, red
Typ. light spot size (distance):	10 mm x 10 mm (at 10 m)

Additional function:	Set speed: Super Fast ... Super Slow Reset to factory default Teach-in, scaling and inversion of analog output Teach-in, scaling and inversion of switching output Multifunctional input: laser off/external teach/deactivated Switch-off or lock display Output Q2, selectable: 4 mA ... 20 mA/0 V ... 10 V/switching output/Q1 not/ deactivated Easy teach option Shape comparison: based on the distance measured over a period of time IO-Link V1.1 (incl. data storage) Hold measurement value Switching mode: Distance to Object (DtO)/switching window/object between sensor and background (ObSB)
Laser class:	2 (EN 60825-1)
Laser service life (MTTF at 25 °C):	100,000 h
Output time <sup>12)</sup> <sup>13)</sup> :	0.33 ms/1.33 ms/3.33 ms/10 ms/30 ms
<sup>1)</sup> For speed setting Slow <sup>2)</sup> <sup>4)</sup> See characteristic curves repeatability <sup>3)</sup> Equivalent to 1 $\sigma$ <sup>5)</sup> <sup>6)</sup> 6 % ... 90 % remission <sup>7)</sup> <sup>9)</sup> <sup>13)</sup> Dependent on the set speed: Super Fast ... Super Slow <sup>8)</sup> <sup>10)</sup> Lateral entry of object into measuring range <sup>11)</sup> Wavelength: 658 nm; max. output: 250 mW; pulse duration: 3 ns; pulse repetition rate: 1/250 <sup>12)</sup> Continuous change of distance in measuring range.	

## 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:	16 bit
Output type <sup>2)</sup> <sup>3)</sup> <sup>4)</sup> :	1 x/2 x complementary/2 x push-pull: PNP/NPN (100 mA), IO-Link
Hysteresis:	0 mm ... 29,950 mm
Multifunctional input (MF) <sup>5)</sup> :	1 x
IO-Link:	✓
Function (IO-Link):	Process data, parameterization, diagnosis, data storage
Data transmission rate (IO-Link):	230.4 Baud
Protocol (IO-Link):	V1.1
<sup>1)</sup> <sup>4)</sup> Output Q <sub>2</sub> , selectable: 4 mA ... 20 mA/0 V ... 10 V/switching output/Q <sub>1</sub> not/ deactivated <sup>2)</sup> Output Q short-circuit protected <sup>3)</sup> Voltage drop < 3 V <sup>5)</sup> Response time $\leq 60 \text{ ms}$	

## Mechanics/electronics

Supply voltage V <sub>s</sub> <sup>1)</sup> <sup>2)</sup> :	DC 10 V ... 30 V
Ripple <sup>3)</sup> :	$\leq 5 \text{ Vpp}$
Power consumption <sup>4)</sup> <sup>5)</sup> :	$\leq 1.7 \text{ W}$
Initialization time:	$\leq 250 \text{ ms}$
Warm-up time:	$\leq 15 \text{ min}$
Housing material:	Die-cast zinc acrylic glass (PMMA)
Connection type:	Male connector, M12, 5-pin
Indication:	3 x LED, LC display
Weight:	235 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 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 $\geq 0^\circ\text{C}$ <sup>5)</sup> Without load	

## Ambient data

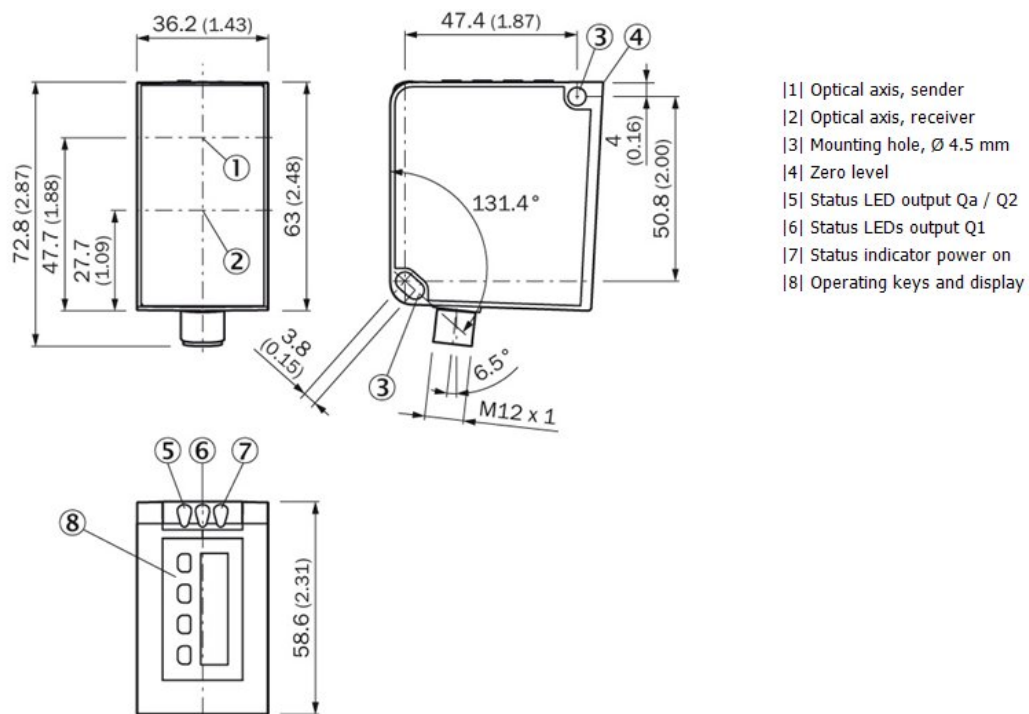
Enclosure rating:	IP 65, IP 67
Protection class:	III

Ambient temperature <sup>1)</sup>:  
 Vibration resistance:  
 Shock resistance:  
 Typ. ambient light safety:

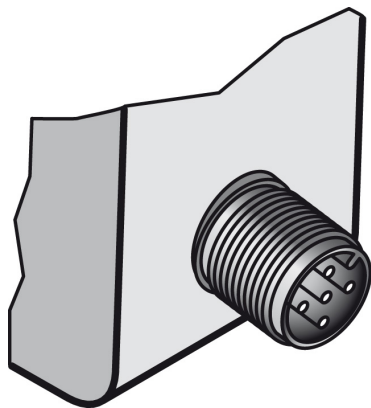
Operation: -40 ... +65 °C, Storage: -40 ... +75 °C  
 EN 60068-2-6/EN 60068-2-64  
 EN 60068-2-27  
 40 klx

<sup>1)</sup>  $U_V \leq 24 \text{ V}$

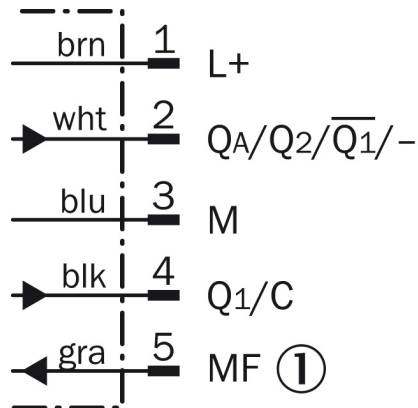
## Dimensional drawing



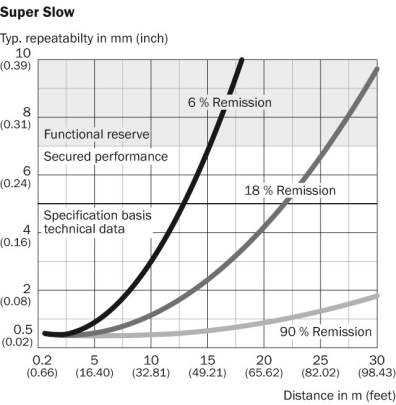
## Connection type



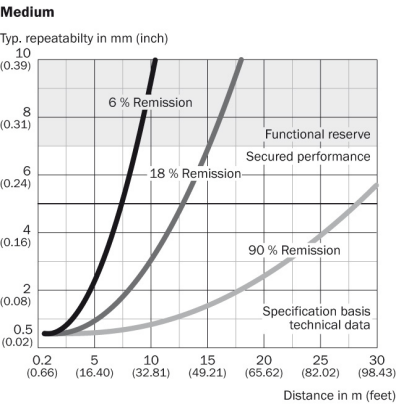
## Connection diagram



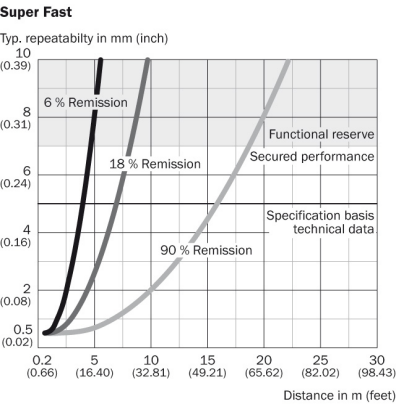
Characteristic curve 1) Super Slow



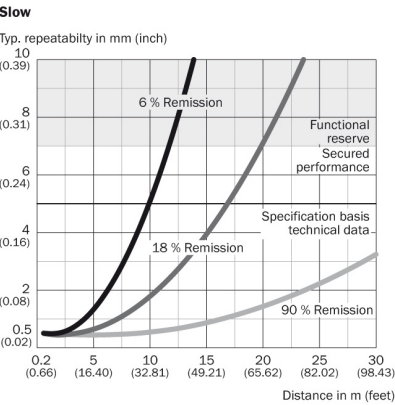
Characteristic curve 3) Medium



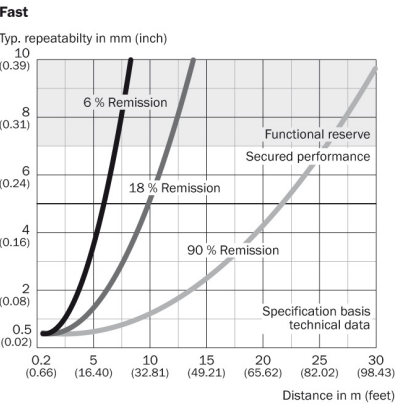
Characteristic curve 5) Super Fast



Characteristic curve 2) Slow



Characteristic curve 4) Fast



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