



# DT20-N224B

DT20 Hi

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
Sensor Intelligence.



## Ordering information

Type	Part no.
DT20-N224B	1044216

Other models and accessories → [www.sick.com/DT20\\_Hi](http://www.sick.com/DT20_Hi)



## Detailed technical data

### Mechanics/electronics

<b>Supply voltage <math>V_s</math></b>	DC 10 V ... 30 V <sup>1)</sup>
<b>Ripple</b>	$\leq 5 V_{pp}$ <sup>2)</sup>
<b>Power consumption</b>	$\leq 1.8 W$ <sup>3)</sup>
<b>Warm-up time</b>	$\leq 10$ min
<b>Housing material</b>	Metal (zinc diecast)
<b>Window material</b>	Plastic (PMMA)
<b>Connection type</b>	Male connector, M12, 5-pin, swivel connector unit
<b>Indication</b>	LC display, 2 x LED
<b>Weight</b>	135 g
<b>Dimensions (W x H x D)</b>	24.3 mm x 72.4 mm x 54.1 mm
<b>Enclosure rating</b>	IP65 (EN 60529)
<b>Protection class</b>	II

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

<sup>2)</sup> May not fall short of or exceed  $V_s$  tolerances.

<sup>3)</sup> Without load.

### Safety-related parameters

<b>MTTF<sub>D</sub></b>	101 years
<b>DC<sub>avg</sub></b>	0%

### Performance

<b>Measurement range min ... max:</b>	100 mm ... 1,000 mm <sup>1)</sup>
<b>Target</b>	Natural objects

<sup>1)</sup> 6% ... 90% remission factor.

<sup>2)</sup> Dependent on the set average or sensitivity.

<sup>3)</sup> When calibrated in the application regularly.

<sup>4)</sup> The models with measuring range of 100 mm ... 1,000 mm meets the specification of the models with measuring range of 100 mm ... 1,000 mm for distances < 600 mm.

<sup>5)</sup> 90% remission factor.

<b>Repeatability</b>	≥ 2.5 mm <sup>1) 2) 3) 4)</sup>
<b>Linearity</b>	± 6 mm <sup>3) 4) 5)</sup>
<b>Response time</b>	≥ 2.5 ms <sup>2)</sup>
<b>Measuring frequency</b>	≤ 400 Hz <sup>1)</sup>
<b>Output time</b>	≥ 2.5 ms
<b>Light source</b>	Laser, red visible red light
<b>Laser class</b>	2 (IEC 60825-1:2014, EN 60825-1:2014)
<b>Typ. light spot size (distance)</b>	6 mm x 12 mm (1000 mm)
<b>Additional function</b>	Set moving average fast/medium/slow, switching mode: distance to object (DtO), teach-in of digital output, invertable digital output, teach-in of analog output, Invertable analog output, Multifunctional input: laser off / external teach-in / deactivated, switch-off display, lock user interface

<sup>1)</sup> 6% ... 90% remission factor.

<sup>2)</sup> Dependent on the set average or sensitivity.

<sup>3)</sup> When calibrated in the application regularly.

<sup>4)</sup> The models with measuring range of 100 mm ... 1,000 mm meets the specification of the models with measuring range of 100 mm ... 1,000 mm for distances < 600 mm.

<sup>5)</sup> 90% remission factor.

## Interfaces

<b>Digital output</b>	
Number	1 <sup>1)</sup>
Type	NPN
Maximum output current I <sub>A</sub>	≤ 100 mA
<b>Analog output</b>	
Number	1
Type	Current output
Current	4 mA ... 20 mA, ≤ 300 Ω
Resolution	12 bit
<b>Multifunctional input (MF)</b>	1 x MF <sup>2)</sup>

<sup>1)</sup> PNP: HIGH = V<sub>S</sub> - (< 2 V) / LOW = < 2 V; NPN: HIGH = < 2 V / LOW = V<sub>S</sub>.

<sup>2)</sup> MF can be used as laser-off, external teach-in or deactivated.

## Ambient data

<b>Ambient temperature, operation</b>	-20 °C ... +55 °C, Operating temperature at V <sub>S</sub> = 24 V
<b>Ambient temperature, storage</b>	-20 °C ... +60 °C
<b>Temperature drift</b>	0.25 mm/K <sup>1)</sup>
<b>Typ. Ambient light immunity</b>	Artificial light: ≤ 3,000 lx Sunlight: ≤ 10,000 lx
<b>Vibration resistance</b>	EN 60068-2-6, EN 60068-2-64
<b>Shock resistance</b>	EN 60068-2-27

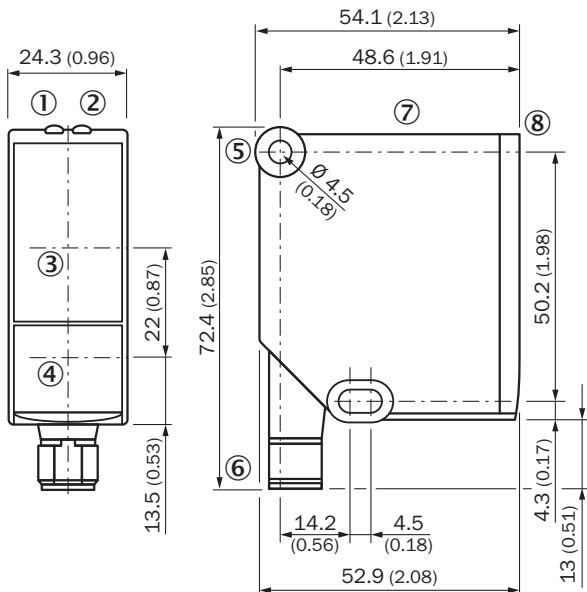
<sup>1)</sup> 0,5 mm/K; for distances > 600 mm.

## Classifications

<b>eCl@ss 5.0</b>	27270801
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<b>eCl@ss 5.1.4</b>	27270801
<b>eCl@ss 6.0</b>	27270801
<b>eCl@ss 6.2</b>	27270801
<b>eCl@ss 7.0</b>	27270801
<b>eCl@ss 8.0</b>	27270801
<b>eCl@ss 8.1</b>	27270801
<b>eCl@ss 9.0</b>	27270801
<b>eCl@ss 10.0</b>	27270801
<b>eCl@ss 11.0</b>	27270801
<b>eCl@ss 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

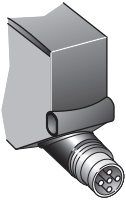
**Dimensional drawing** (Dimensions in mm (inch))



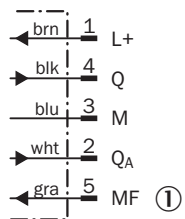
- ① Status display for supply voltage active (green)
- ② Status indicator digital output (orange)
- ③ Optical axis, receiver
- ④ Optical axis, sender
- ⑤ Fixing hole
- ⑥ Connector M12, 5-pin, turnable
- ⑦ Control elements and display
- ⑧ Reference surface = 0 mm

### Connection type

Male connector M12, 5-pin

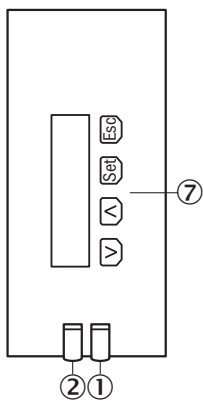


### Connection diagram



① Multifunctional input (MF)



### Adjustment possible



- ① Status display for supply voltage active (green)
- ② Status indicator digital output (orange)
- ⑦ Control elements and display

### Recommended accessories

Other models and accessories → [www.sick.com/DT20\\_Hi](http://www.sick.com/DT20_Hi)

	Brief description	Type	Part no.
<b>Mounting brackets and plates</b>			
	Mounting bracket, stainless steel, without mounting material, for DT20 Hi, without mounting hardware	BEF-WN-DT20	4043524
<b>Plug connectors and cables</b>			
	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

### Recommended services

Additional services → [www.sick.com/DT20\\_Hi](http://www.sick.com/DT20_Hi)

	Type	Part no.
<b>Commissioning</b>		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Displacement measurement sensors</li> <li>• <b>Range of services:</b> Inspection of connection and mounting, optimization of parameters of SICK product as well as tests, set-up of previously defined functions of the scaling of the analog measuring range, switching point position, hysteresis, measuring frequency, measured value filter, signal quality, evaluation function, or communication interface</li> <li>• <b>Travel expenses:</b> The prices do not include travel costs such as hotel, flight, travel time and expenses.</li> <li>• <b>Duration:</b> Additional work will be invoiced separately</li> </ul>	DT20 Hi/OD/OL commissioning	1612241
<b>Extended warranty</b>		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, machine vision, Distance sensors, Detection and ranging solutions</li> <li>• <b>Range of services:</b> The services correspond to the scope of the statutory manufacturer warranty (SICK general terms of delivery).</li> <li>• <b>Duration:</b> Five-year warranty from delivery date.</li> </ul>	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](http://www.sick.com)