



# DT20-P224B

DT20 Hi

DISPLACEMENT MEASUREMENT SENSORS

**SICK**  
Sensor Intelligence.



### Ordering information

Type	Part no.
DT20-P224B	1040405

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>	$\leq 10 \text{ min}$
<b>Housing material</b>	Metal
<b>Window material</b>	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>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.

#### Performance

<b>Measuring range</b>	100 mm ... 1,000 mm <sup>1)</sup>
<b>Target</b>	Natural objects
<b>Repeatability</b>	$\geq 2.5 \text{ mm}$ <sup>1) 2) 3) 4)</sup>
<b>Linearity</b>	$\pm 6 \text{ mm}$ <sup>3) 4) 5)</sup>
<b>Response time</b>	$\geq 2.5 \text{ ms}$ <sup>2)</sup>

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

<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.

<b>Measuring frequency</b>	≤ 400 Hz <sup>1)</sup>
<b>Output time</b>	≥ 2.5 ms
<b>Light source</b>	Laser, red
<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.

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<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.

## Interfaces

<b>Digital output</b>		
	Number	1 <sup>1)</sup>
	Type	PNP
	Maximum output current I <sub>A</sub>	≤ 100 mA
<b>Analog output</b>		
	Number	1
	Type	Power 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 storage temperature</b>	-40 °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

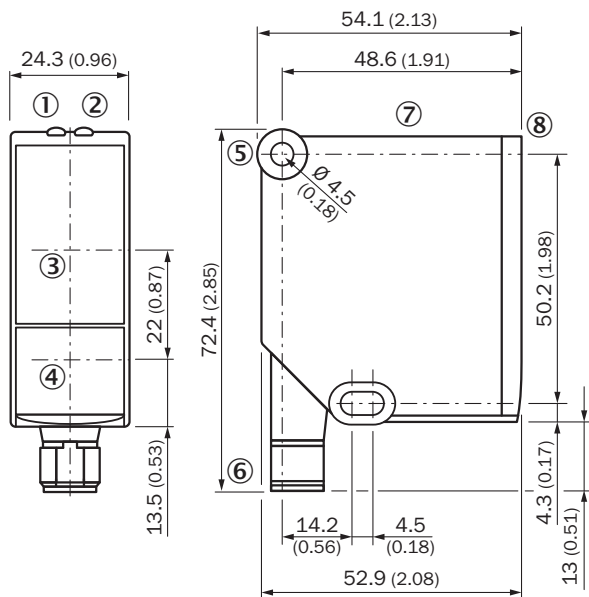
<sup>1)</sup> 0,5 mm/K: for distances > 600 mm.

## Classifications

<b>ECI@ss 5.0</b>	27270801
<b>ECI@ss 5.1.4</b>	27270801
<b>ECI@ss 6.0</b>	27270801
<b>ECI@ss 6.2</b>	27270801
<b>ECI@ss 7.0</b>	27270801

<b>ECI@ss 8.0</b>	27270801
<b>ECI@ss 8.1</b>	27270801
<b>ECI@ss 9.0</b>	27270801
<b>ETIM 5.0</b>	EC001825
<b>ETIM 6.0</b>	EC001825
<b>UNSPSC 16.0901</b>	41111613

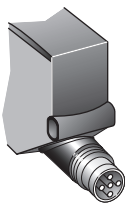
### Dimensional drawing (Dimensions in mm (inch))



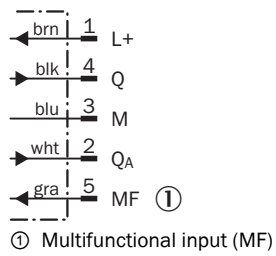
- ① Status display for supply voltage active (green)
- ② Status indicator digital output (orange)
- ③ Optical axis, receiver
- ④ Optical axis, sender
- ⑤ Fixing hole
- ⑥ Connector M12, 5-pin, turnable
- ⑦ Operating keys and display
- ⑧ Reference surface = 0 mm

### Connection type

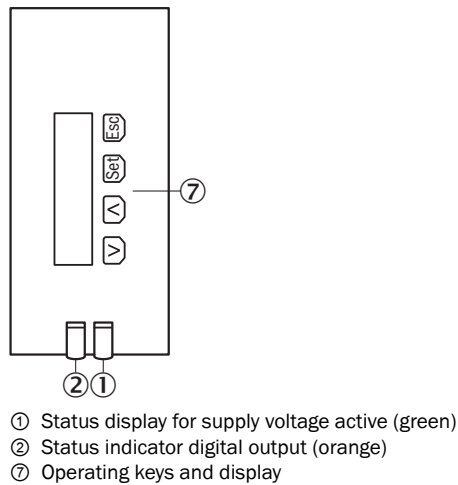
Male connector M12, 5-pin



## Connection diagram



## Adjustment possible



## Recommended accessories

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

	Brief description	Type	Part no.
Mounting brackets and plates			
	Mounting bracket, stainless steel, without mounting material, for DT20 Hi, without mounting hardware	BEF-WN-DT20	4043524
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

### Recommended services

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

	Type	Part no.
Warranty extensions		
<ul style="list-style-type: none"> <li>• <b>Product area:</b> Identification solutions, 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 and conditions of purchase), Long-term protection for calculable lump sum.</li> <li>• <b>Duration:</b> Five-year warranty from date of purchase.</li> </ul>	Five-year extended warranty	1680671
Commissioning		
<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 verification 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>Documentation:</b> Archiving of product parameters in a SICK database, Documentation of performance, Creation of a commissioning log</li> <li>• <b>Duration:</b> Additional work will be invoiced separately based on time spent</li> <li>• <b>Travel expenses:</b> The prices do not include expenses or costs for the travel time, travel costs, such as flight or hotel expenses, are not included</li> </ul>	DT20 Hi/OD/OL commissioning	1612241

## 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)