



# DT20-P254B

DT20 Hi

DISPLACEMENT SENSORS

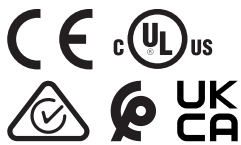
**SICK**  
Sensor Intelligence.



Ordering information

Type	part no.
DT20-P254B	1041278

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



Detailed technical data

Features

<b>Measuring range</b>	50 mm ... 150 mm <sup>1)</sup>
<b>Repeatability</b>	≥ 0.125 mm <sup>1) 2) 3)</sup>
<b>Linearity</b>	± 500 µm ... ± 0.5 mm <sup>3) 4)</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>Emitted beam</b>	
Light source	Laser, red
Typ. light spot size (distance)	2 mm x 4 mm (150 mm)
<b>Key laser figures</b>	
Normative reference	IEC 60825-1:2014, EN 60825-1:2014
Laser class	2 <sup>5)</sup>
<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
<b>Safety-related parameters</b>	

<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> 90% remission factor.

<sup>5)</sup> Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

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

- 1) 6% ... 90% remission factor.  
2) Dependent on the set average or sensitivity.  
3) When calibrated in the application regularly.  
4) 90% remission factor.  
5) Do not intentionally look into the laser beam. Never point the laser beam at people's eyes.

## 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	Current output
Current	4 mA ... 20 mA, ≤ 300 Ω
Resolution	12 bit
<b>Multifunctional input (MF)</b>	1 x MF <sup>2)</sup>

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

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

## Electronics

<b>Supply voltage U<sub>B</sub></b>	DC 10 V ... 30 V <sup>1)</sup>
<b>Power consumption</b>	≤ 1.8 W <sup>2)</sup>
<b>Ripple</b>	≤ 5 V <sub>pp</sub> <sup>3)</sup>
<b>Warm-up time</b>	≤ 10 min
<b>Display</b>	LC display, 2 x LED
<b>Enclosure rating</b>	IP65 (EN 60529)
<b>Protection class</b>	II
<b>Connection type</b>	Male connector

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

2) Without load.

3) May not fall short of or exceed V<sub>S</sub> tolerances.

## Mechanics

<b>Dimensions (W x H x D)</b>	24.3 mm x 72.4 mm x 54.1 mm
<b>Housing material</b>	Metal (zinc diecast)
<b>Window material</b>	Plastic (PMMA)
<b>Weight</b>	135 g

## Ambient data

<b>Ambient temperature, operation</b>	-20 °C ... +55 °C, Operating temperature at V <sub>S</sub> = 24 V
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1) 0,5 mm/K: for distances > 600 mm.

<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.

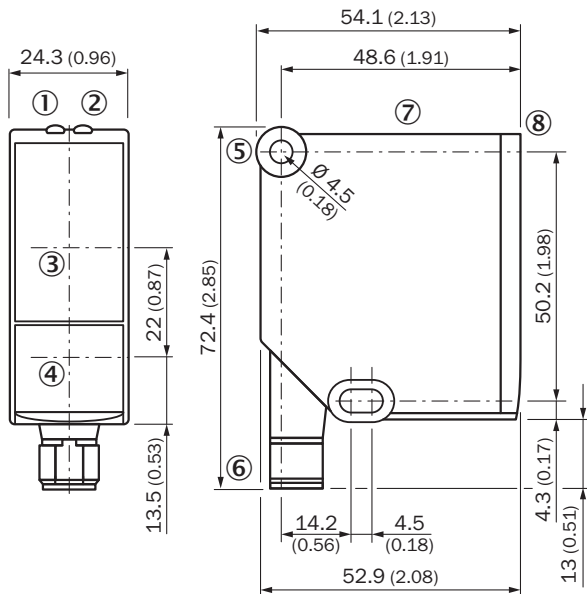
## Classifications

<b>ECLASS 5.0</b>	27270801
<b>ECLASS 5.1.4</b>	27270801
<b>ECLASS 6.0</b>	27270801
<b>ECLASS 6.2</b>	27270801
<b>ECLASS 7.0</b>	27270801
<b>ECLASS 8.0</b>	27270801
<b>ECLASS 8.1</b>	27270801
<b>ECLASS 9.0</b>	27270801
<b>ECLASS 10.0</b>	27270801
<b>ECLASS 11.0</b>	27270801
<b>ECLASS 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

## Certificates

<b>EU declaration of conformity</b>	✓
<b>UK declaration of conformity</b>	✓
<b>ACMA declaration of conformity</b>	✓
<b>Moroccan declaration of conformity</b>	✓
<b>China RoHS</b>	✓
<b>cULus certificate</b>	✓

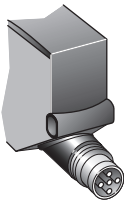
## Dimensional drawing



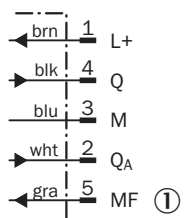
Dimensions in mm (inch)

- 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 Plug, M12, 5-pin

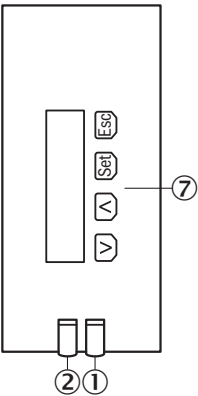


## Connection diagram



- 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.
Mounting systems			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Mounting bracket, stainless steel, without mounting material, for DT20 Hi</li><li>• <b>Items supplied:</b> Without mounting hardware</li></ul>	BEF-WN-DT20	4043524
device protection and care			
	<ul style="list-style-type: none"><li>• <b>Description:</b> Cooling plate for Dx50/Dx50-2/DT20 (for water cooling)</li><li>• <b>Usable for:</b> DT20 Hi, Dx50, Dx50-2</li></ul>	BEF-KP-Dx50/DT20	2055755

	Brief description	Type	part no.
connectors and cables			
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 2 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-020VB5XLEAX	2096239
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 0.6 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-C60VB5XLEAX	2145570
	<ul style="list-style-type: none"> <li>• <b>Connection type head A:</b> Female connector, M12, 5-pin, straight, A-coded</li> <li>• <b>Connection type head B:</b> Flying leads</li> <li>• <b>Signal type:</b> Sensor/actuator cable</li> <li>• <b>Cable:</b> 3 m, 5-wire, PVC</li> <li>• <b>Description:</b> Sensor/actuator cable, unshielded</li> <li>• <b>Application:</b> Uncontaminated zones, Zones with chemicals</li> </ul>	YF2A15-030VB5XLEAX	2145572

## 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)