



## Short range distance sensors (displacement) DT20

DT20-P130B4000



**Model Name** > [DT20-P130B4000](#)  
**Part No.** > [1028722](#)



**At a glance**

- Different measuring ranges from 90 mm ... 1,000 mm
- Repeatability up to  $\pm 1.5$  mm
- Infrared sender, which is not visible to the human eye
- Analog and switching output provide distance and out of range information
- Plug and play sensor that is factory-programmed based on customer specifications
- High output rate - distance outputs are provided every millisecond
- Rugged, metal housing

**Your benefits**

- Fast, easy commissioning based on customer-specific presets saves time
- Tamper-proof sensor concept ensures high machine availability
- Inconspicuous and therefore non distracting by use of infrared light
- High ambient light immunity increases machine availability
- Solid, IP 67-rated metal housing permits operation in harsh environments, making the sensor suitable for a wide range of applications



**Performance**

Measuring range:	400 mm ... 1,000 mm, 18 % ... 90 % remission. On 6 % remission the maximal measurable distance is 820 mm.
Resolution:	1 mm/2 mm <sup>1)</sup>
Repeatability:	$\pm 1.5$ mm/ $\pm 3$ mm <sup>2)</sup>
Response time <sup>3)</sup> :	10 ms/15 ms
Light source:	LED, infrared
Typ. light spot size (distance):	15 mm x 15 mm (at 1 m)
Additional function:	Customer specific scaled measuring range, Plug & Play, Switching output to monitor the measuring range
Output rate:	1 ms
Accuracy:	$\pm 4$ mm <sup>4) 5)</sup>
Service life:	100,000 h

<sup>1) 3)</sup> Depending on measurement range: 90 ... 600 mm / > 600 mm. <sup>2)</sup> 18 % ... 90 % remission. On 6 % remission the maximal measurable distance is 820 mm. <sup>4)</sup> 6 % ... 90 % remission <sup>5)</sup>  $\pm 4$  mm u to 600 mm;  $\leq \pm 7$  mm for distances larger < 600 mm; refer to accuracy diagram

**Interfaces**

Output type <sup>1)</sup> :	1 x PNP (100 mA)
Analog output:	1 x 4 mA ... 20 mA ( $\leq 300 \Omega$ )

1) PNP: HIGH =  $V_S$  - (< 2 V)/LOW = 0 V

### Mechanics/electronics

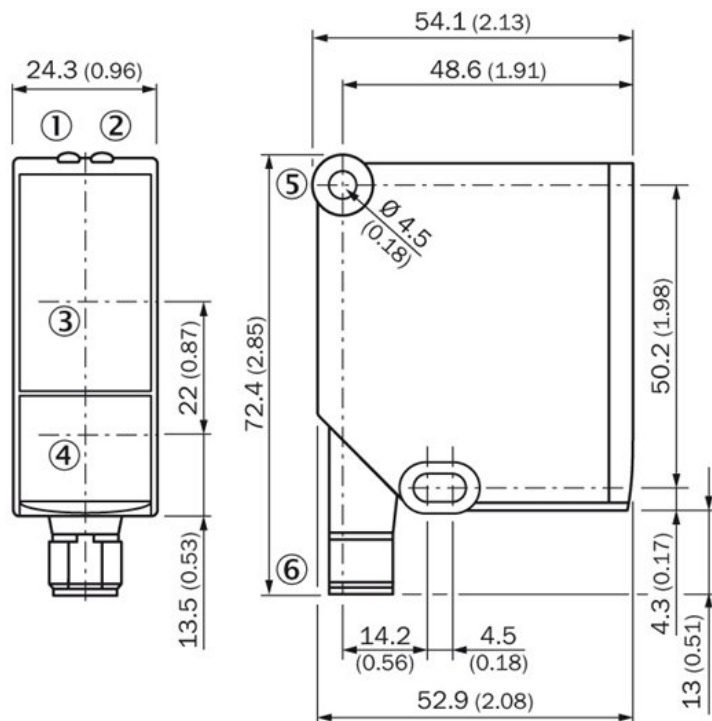
Connection type:	Connector M12, 5-pin
Supply voltage $V_S$ <sup>1)</sup> :	DC 10 V ... 30 V
Power consumption <sup>2)</sup> :	≤ 1.5 W
Warm-up time:	≤ 30 min
Indication:	2 x LED
Weight:	135 g
Housing material:	Metal housing with PMMA lens
Initialization time:	≤ 250 ms
Ripple:	≤ 5 Vpp <sup>3)</sup>

1) Limit values, reverse-polarity protected, operation in short-circuit protected network, max. 8 A <sup>2)</sup> Without load <sup>3)</sup> May not fall short of or exceed  $V_S$  tolerances

### Ambient data

Enclosure rating:	IP 65
Protection class:	II
Ambient temperature:	Operation: -25 ... 55 °C, Storage: -40 ... 75 °C
Temperature drift:	0.25 mm/K
Vibration resistance:	EN 60068-2-6/-2-64
Shock resistance:	EN 60068-2-27

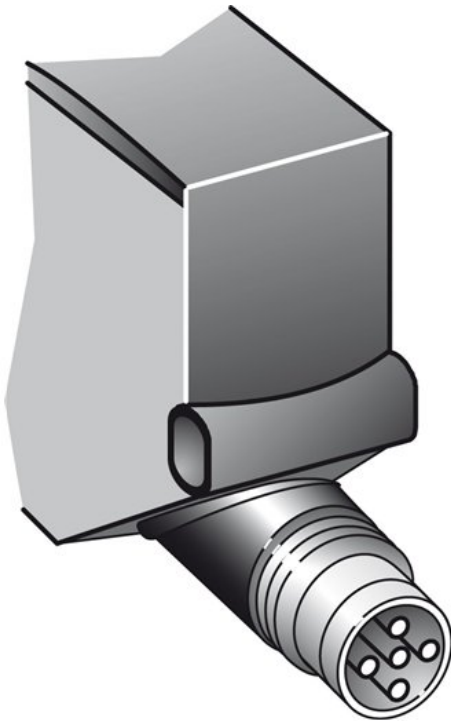
### Dimensional drawing



- [1] Status indicator power on (green)
- [2] Status indicator switching output (orange)
- [3] Optical axis, receiver
- [4] Optical axis, sender
- [5] Mounting hole
- [6] Connector M12, 5-pin

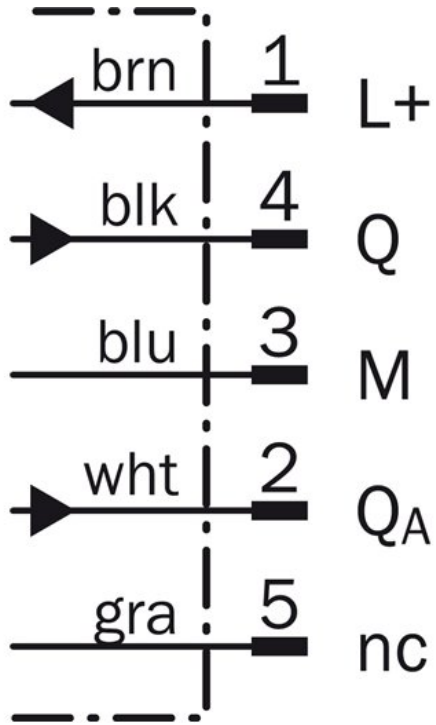
Connection type

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Connection diagram

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## Einstellung der Tastensperre

The DT20 can be scaled ex factory for specific measurement ranges based on the type code.

The type code is: „DT20-X130Xbbe“. The „bbe“ part defines the measurement range as follows:

**bb** (begin)  $\hat{=}$  distance value chosen by the customer for 4 mA output. The „bb“ value is in cm.

**ee** (end)  $\hat{=}$  distance value chosen by the customer for 20 mA output. The „ee“ value is in cm.

### Measurement ranges

-90 mm ... 600 mm, any configuration within this range can be chosen. (e.g. 0919, 4060, etc.).

-100 mm ... 1000 mm, any configuration within this range can be chosen. (e.g. 1070, 7000, etc.).

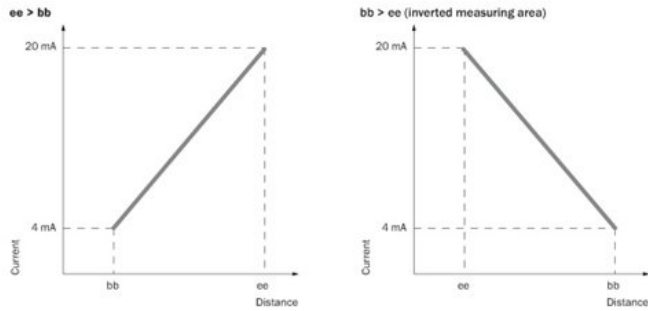
### Examples

bbee  $\hat{=}$  0960  $\hat{=}$  measurement range of sensor: 90 mm ... 600 mm with 4 mA output at 9 cm and 20 mA output at 60 cm.

bbbe  $\hat{=}$  7020  $\hat{=}$  measurement range of sensor: 700 mm ... 200 mm (inverted measurement range).

Be aware: ee/bb  $\hat{=}$  00  $\hat{=}$  100 cm. (E.g.: bbee = 1000  $\hat{=}$  measurement range of 100 mm ... 1000 mm).

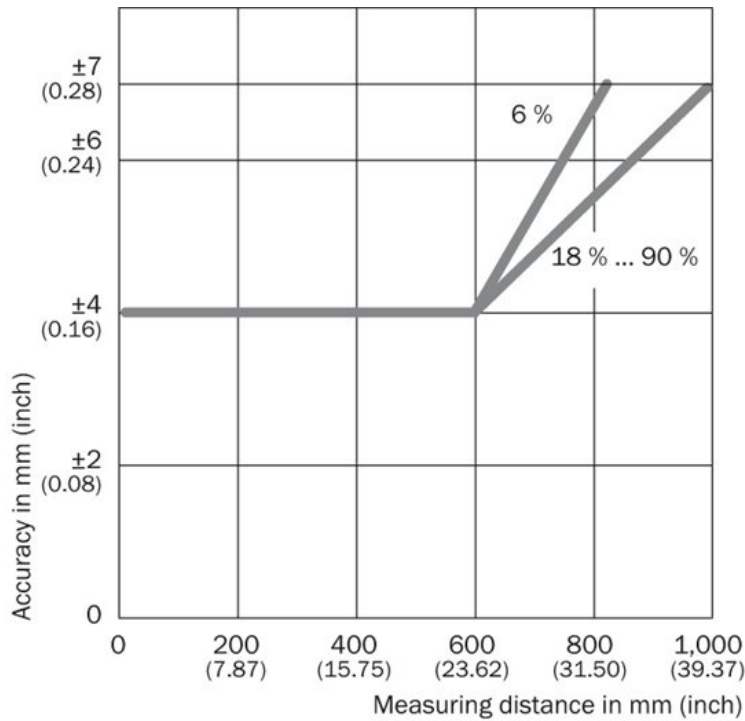
Model name	Description
DT20-P130B1000	DT20, switching output PNP, measurement range 100 mm ... 1.000 mm (4 mA ... 20 mA)
DT20-N130B0990	DT20, switching output NPN, measurement range 90 mm ... 900 mm (4 mA ... 20 mA)
DT20-P130B0009	DT20, switching output PNP, measurement range (inverted measuring area) 600 mm ... 90 mm (4 mA ... 20 mA)



### Please be aware:

There is a minimum difference between „bb“ and „ee“ of at least 10 units (100 mm). (e.g. bb  $\hat{=}$  09  $\rightarrow$  min. ee  $\hat{=}$  19)

## Characteristic curve: accuracy



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