



Short range distance sensors (displacement) DT20

DT20-P130B1000



Model Name > **DT20-P130B1000**
Part No. > **1028800**



At a glance

- Different measuring ranges from 90 mm ... 1,000 mm
- Repeatability up to ± 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:	100 mm ... 1,000 mm, 18 % ... 90 % remission. On 6 % remission the maximal measurable distance is 820 mm.
Resolution:	1 mm/2 mm ¹⁾
Repeatability:	± 1.5 mm/ ± 3 mm ²⁾
Response time ³⁾ :	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:	± 4 mm ^{4) 5)}
Service life:	100,000 h

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

Interfaces

Output type ¹⁾ :	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

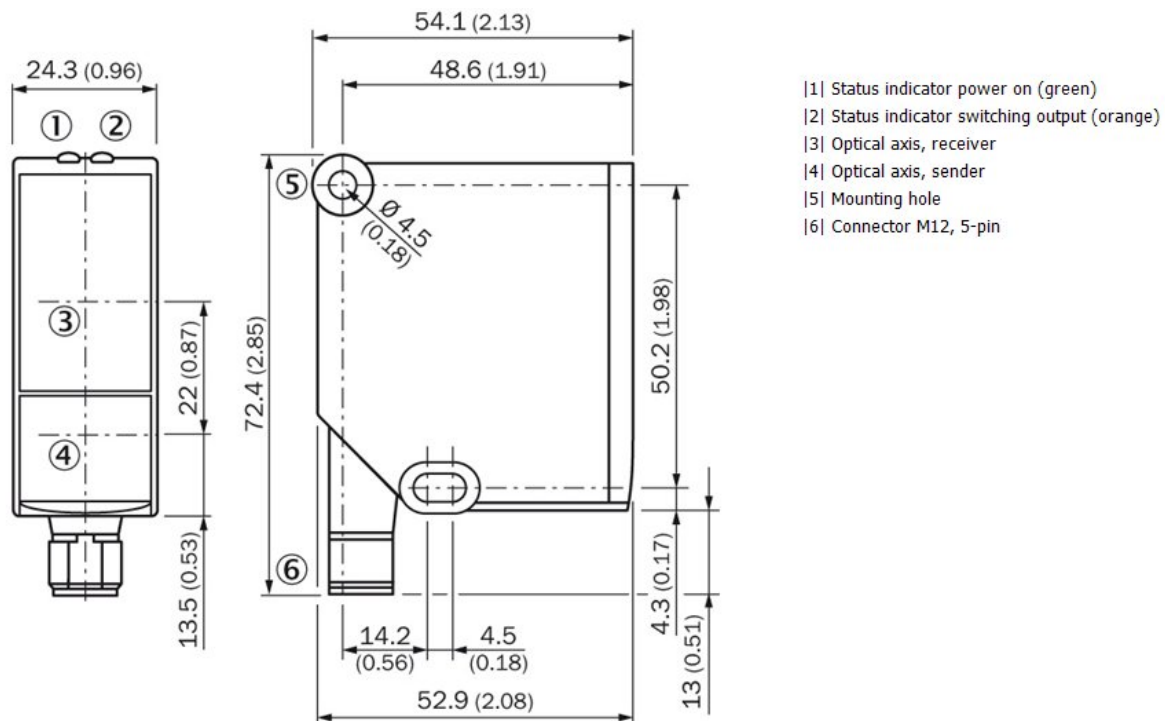
Connection type:	Connector M12, 5-pin
Supply voltage V_S ¹⁾ :	DC 10 V ... 30 V
Power consumption ²⁾ :	≤ 1.5 W
Warm-up time:	≤ 30 min
Indication:	2 x LED
Weight:	135 g
Housing material:	Metal housing with PMMA lens
Initialization time:	≤ 250 ms
Ripple:	≤ 5 Vpp ³⁾

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_S tolerances

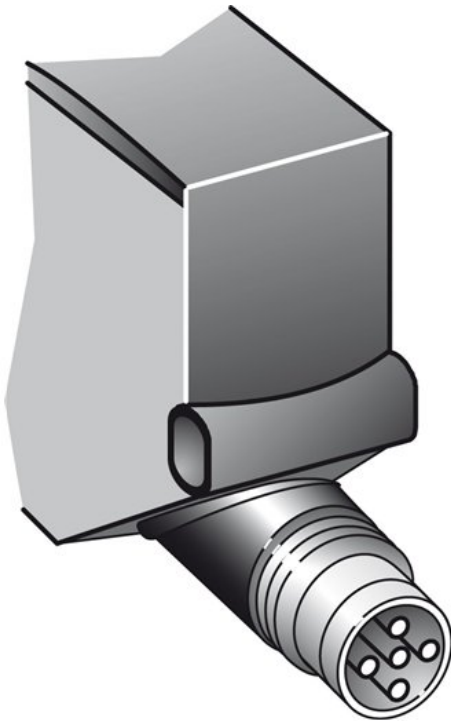
Ambient data

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

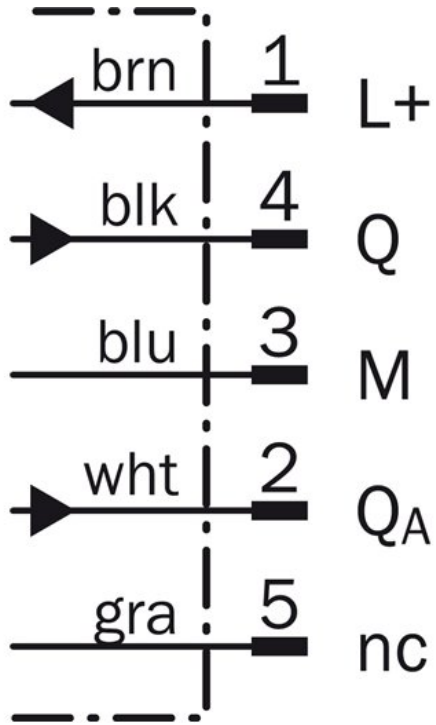
Dimensional drawing



Connection type



Connection diagram



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

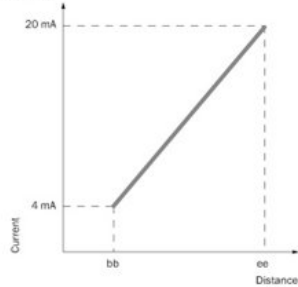
bbee $\hat{=}$ 0960 $\hat{=}$ measurement range of sensor: 90 mm ... 600 mm with 4 mA output at 9 cm and 20 mA output at 60 cm.

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

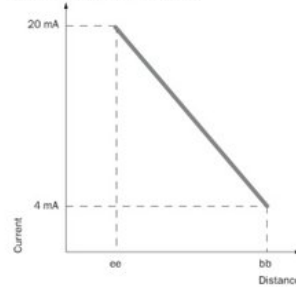
Be aware: ee/bb $\hat{=}$ 00 $\hat{=}$ 100 cm. (E.g.: bbee = 1000 $\hat{=}$ measurement range of 100 mm ... 1000 mm).

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)

ee > bb



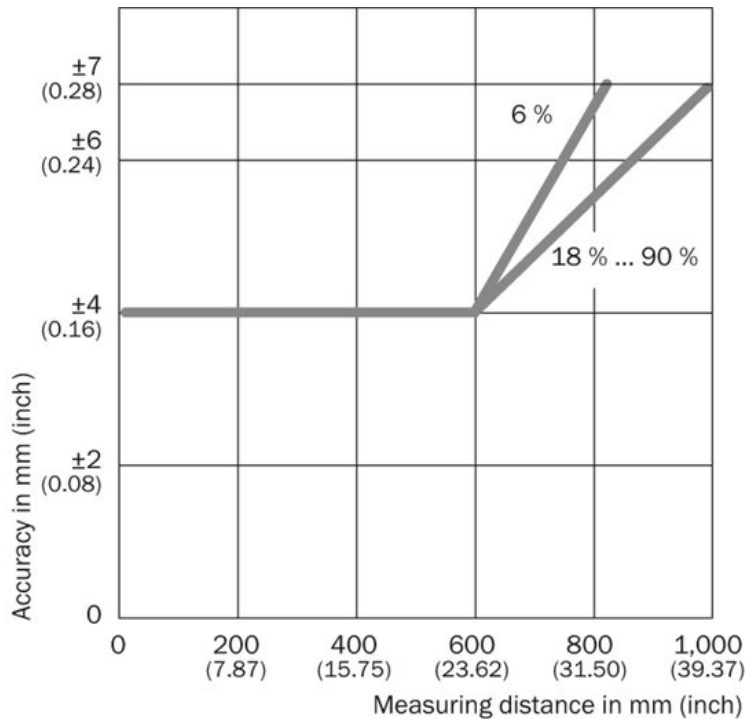
bb > ee (inverted measuring area)



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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