



Short range distance sensors (displacement) DT20

DT20-P130B3000



Model Name > **DT20-P130B3000**
Part No. > **1029970**



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:	300 mm ... 820 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 = $V_S - (< 2 \text{ V})$ / LOW = 0 V

Mechanics/electronics

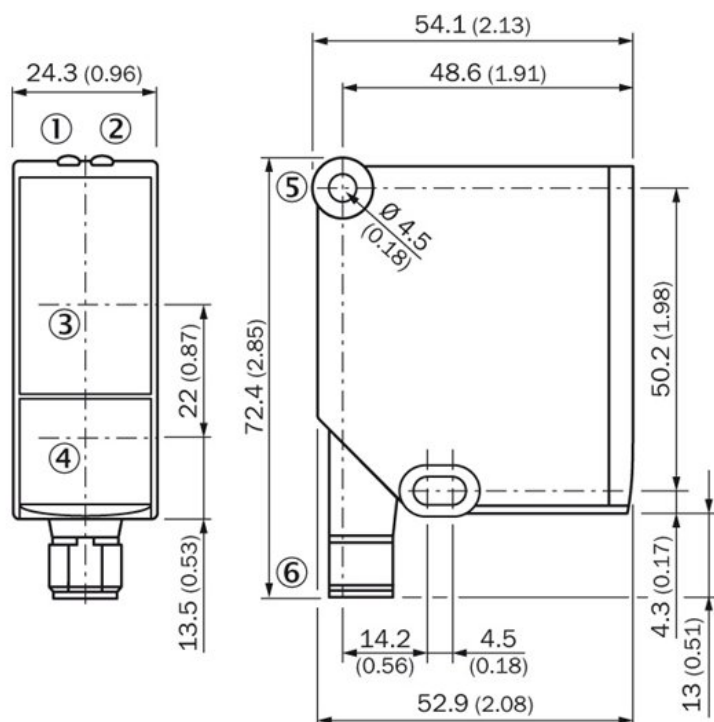
Connection type:	Connector M12, 5-pin
Supply voltage V_S ¹⁾ :	DC 10 V ... 30 V
Power consumption ²⁾ :	$\leq 1.5 \text{ W}$
Warm-up time:	$\leq 30 \text{ min}$
Indication:	2 x LED
Weight:	135 g
Housing material:	Metal housing with PMMA lens
Initialization time:	$\leq 250 \text{ ms}$
Ripple:	$\leq 5 \text{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

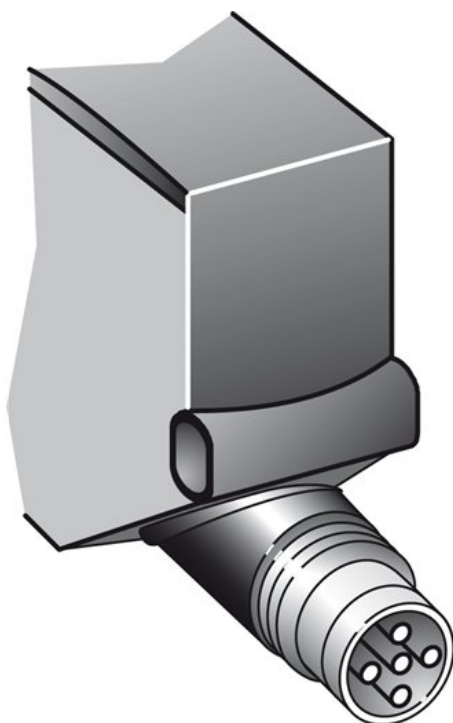
Enclosure rating:	IP 65
Protection class:	II
Ambient temperature:	Operation: -25 ... 55 °C, Storage: -40 ... 75 °C
Temperature drift:	0.25 mm/K
Vibration resistance:	EN 60068-2-6/-2-64
Shock resistance:	EN 60068-2-27

Dimensional drawing

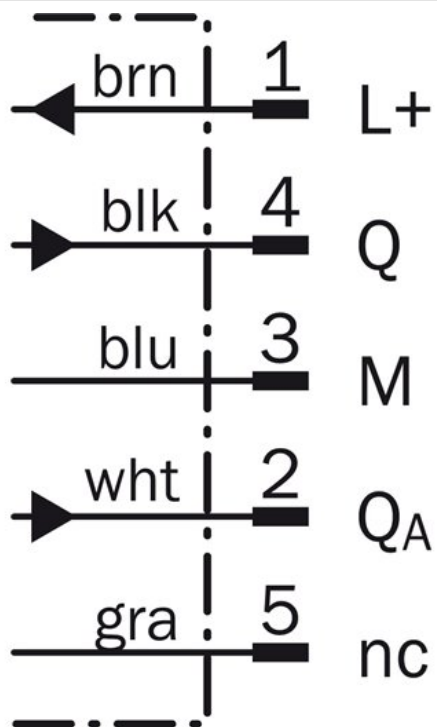


- [1] Status indicator power on (green)
- [2] Status indicator switching output (orange)
- [3] Optical axis, receiver
- [4] Optical axis, sender
- [5] Mounting hole
- [6] Connector M12, 5-pin

Connection type



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-X130Xbb“. The „bb“ part defines the measurement range as follows:
bb (begin) = distance value chosen by the customer for 4 mA output. The „bb“ value is in cm.
ee (end) = distance value chosen by the customer for 20 mA output. The „ee“ value is in cm.

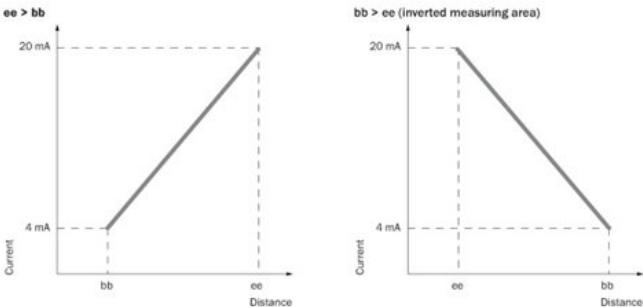
Measurement ranges

-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

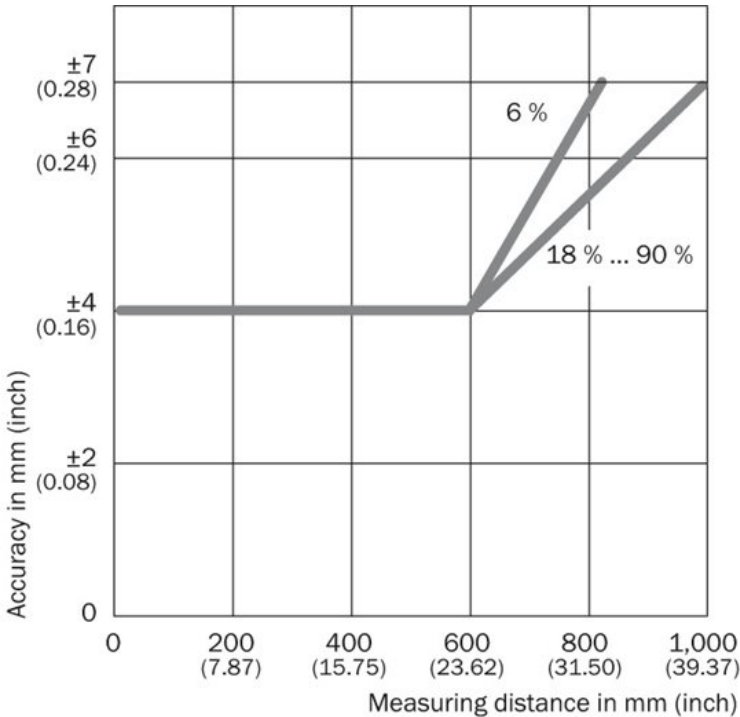
bbee = 0960 = measurement range of sensor: 90 mm ... 600 mm with 4 mA output at 9 cm and 20 mA output at 60 cm.
bb = 7020 = measurement range of sensor: 700 mm ... 200 mm (inverted measurement range).
Be aware: ee/bb = 00 = 100 cm. (E.g.: bbee = 1000 = measurement range of 100 mm ... 1000 mm).

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-P130B009	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 = 09 → min. ee = 19)

Characteristic curve: accuracy



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