



Short range distance sensors (displacement) DT20 Hi

DT20-N254B



Model Name > **DT20-N254B**
Part No. > **1041279**



At a glance

- Four measuring ranges from 50 mm up to 1,000 mm
- Very high linearity of up to ± 0.5 mm
- CMOS receiving element enables accurate distance measurement independent of color or shininess
- Red laser
- Scaleable analog and switching output
- Display with easy to use setup menu
- Advanced settings (e.g., averaging function, external laser-off, etc.)

Your benefits

- Reliable, precise measurement, independent of surface, increases production quality
- Reliable and consistent measurements, regardless of color, reduce changeover time
- Advanced settings provide increased application flexibility to easily solve customer-specific applications
- Fast commissioning via button, remote or numerical teach
- Easy, precise alignment and verification based on red laser light and LC display, decreasing commissioning time
- Tough metal housing permits operation in harsh environments



Performance

Measurement range:	50 mm ... 150 mm, 6 % ... 90 % remission
Resolution ¹⁾ :	0.1 mm
Repeatability ^{2), 3), 4)} :	0.5 mm/0.25 mm/0.125 mm
Linearity ^{5), 6)} :	± 0.5 mm
Response time ⁷⁾ :	2,5 ms/10 ms/40 ms
Measuring frequency:	400 Hz
Light source:	Laser, red
Typ. light spot size (distance):	2 mm x 4 mm (150 mm)
Additional function:	Switch-off display, Teach-in of analog output, Teach-in of switching output, Set moving average fast/medium/slow, Invertible analog output, Switching output invertible, Multifunctional input: laser off/external teach-in/deactivated, Switching mode: distance to object (DtO), Lock user interface
Laser class:	2 (EN 60825-1)
Output time:	< 2.8 ms

1) 2) 6 % ... 90 % remission 3) 7) Dependent on the set average: fast/medium/slow 4) 6) When calibrated in the application regularly 5) 90 % remission

Interfaces

Output type ¹⁾ :	1 x NPN (100 mA)
Analog output:	1 x 4 mA ... 20 mA ($\leq 300 \Omega$)
Resolution analog output:	12 bit
Multifunctional input (MF) ²⁾ :	1 x MF

¹⁾ PNP: HIGH = $V_S - (< 2 V)$ /LOW = $< 2 V$; NPN: HIGH = $< 2 V$ /LOW = V_S ²⁾ MF can be used as laser-off, external teach-in or deactivated

Mechanics/electronics

Connection type:	Male connector, M12, 5-pin
Supply voltage V_S ¹⁾ :	DC 10 V ... 30 V
Power consumption ²⁾ :	$\leq 1.8 W$
Warm-up time:	$\leq 10 \text{ min}$
Indication:	2 x LED, LC display
Weight:	135 g
Housing material:	Metal housing with PMMA lens
Ripple:	$\leq 5 V_{pp}$ ³⁾

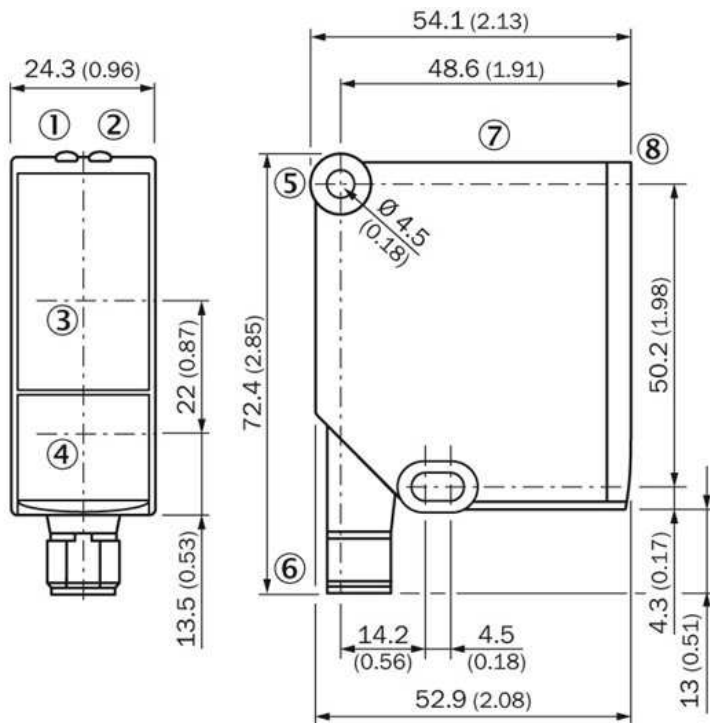
¹⁾ Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A ²⁾ Without load ³⁾ May not fall short of or exceed V_S tolerances

Ambient data

Enclosure rating:	IP 65
Protection class:	II
Ambient temperature:	Operation: $-20 \dots +55 \text{ }^\circ\text{C}$, Storage: $-40 \dots +60 \text{ }^\circ\text{C}$ ¹⁾
Temperature drift ²⁾ :	0.25 mm/K
Vibration resistance:	EN 60068-2-6/EN 60068-2-64
Shock resistance:	EN 60068-2-27
Typ. ambient light safety:	Artificial light: $\leq 3,000 \text{ lx}$, Sunlight: $\leq 10,000 \text{ lx}$

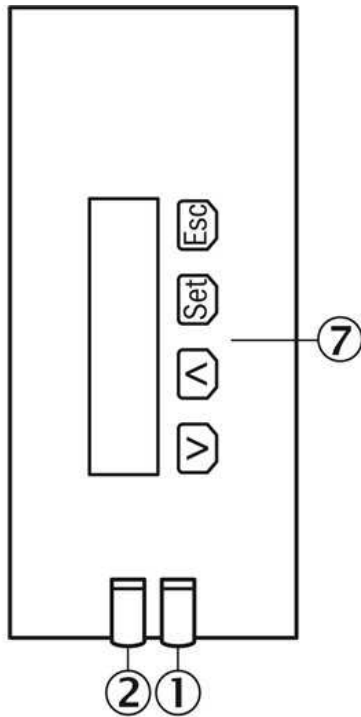
¹⁾ Operating temperature at $V_S = 24 V$ ²⁾ 0,5 mm/K: for distances > 600 mm

Dimensional drawing



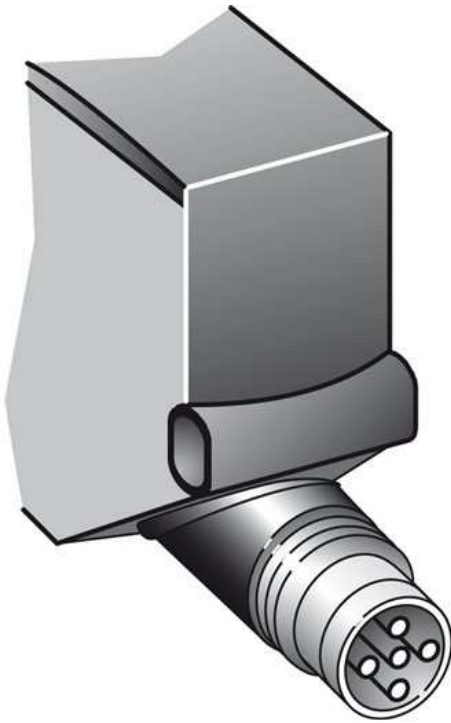
- |1| Status indicator power on (green)
- |2| Status indicator switching output (orange)
- |3| Optical axis, receiver
- |4| Optical axis, sender
- |5| Mounting hole
- |6| Connector M12, 5-pin, turnable
- |7| Operating keys and display
- |8| Reference surface = 0 mm

Adjustments

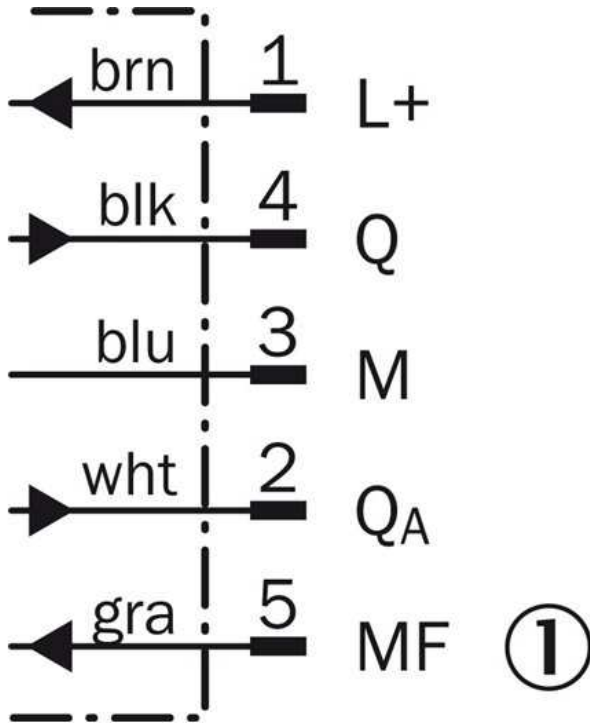


- |1| Status indicator power on (green)
- |2| Status indicator switching output (orange)
- |7| Operating keys and display

Connection type



Connection diagram



[1] Multifunctional input (MF)

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