



Short range distance sensors (displacement) DT20 Hi

DT20-P214BS03



Model Name > DT20-P214BS03
Part No. > 1051547



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: | 100 mm ... 600 mm, 6 % ... 90 % remission |
| Resolution ¹⁾ : | 0.5 mm |
| Repeatability ^{2), 3), 4)} : | 2 mm / 1 mm / 0.5 mm |
| Linearity ^{5), 6)} : | ± 2 mm |
| Response time ⁷⁾ : | 5 ms / 20 ms / 80 ms |
| Measuring frequency: | 200 Hz |
| Light source: | Laser, red |
| Typ. light spot size (distance): | 3 mm x 6 mm (600 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: | 1 (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 PNP (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⁾ |

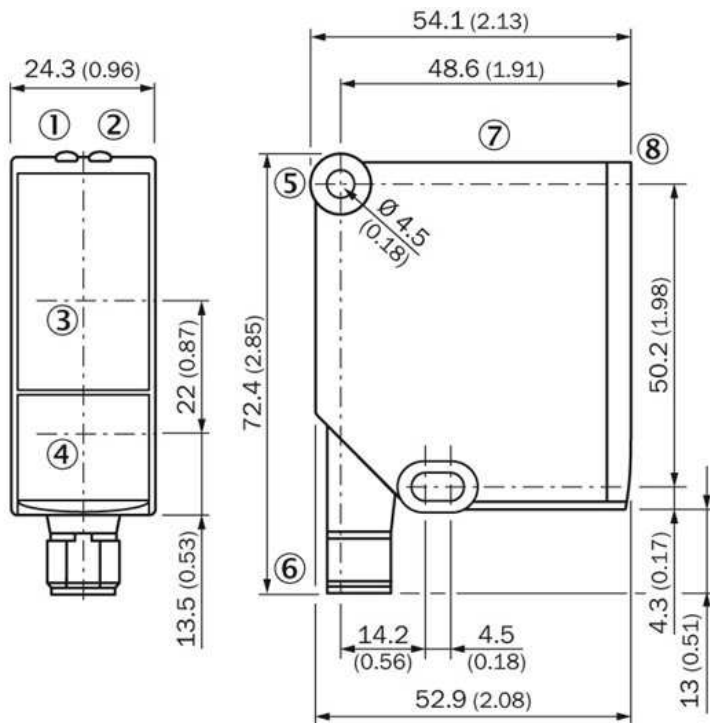
¹⁾ Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A ²⁾ Without load ³⁾ May not fall short of or exceed V_S tolerances

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: $\leq 10,000 \text{ lx}$ |

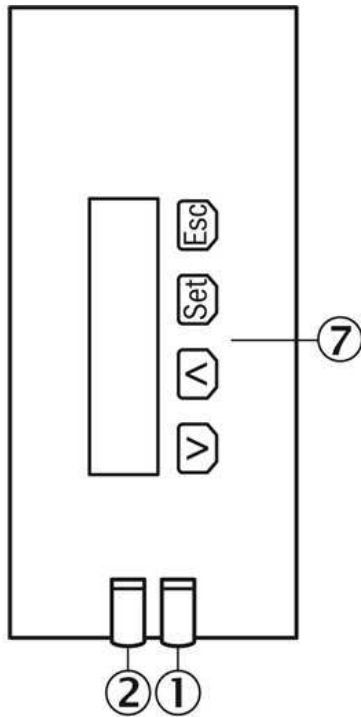
¹⁾ Operating temperature at $V_S = 24 V$ ²⁾ 0,5 mm/K: for distances $> 600 \text{ mm}$

Dimensional drawing



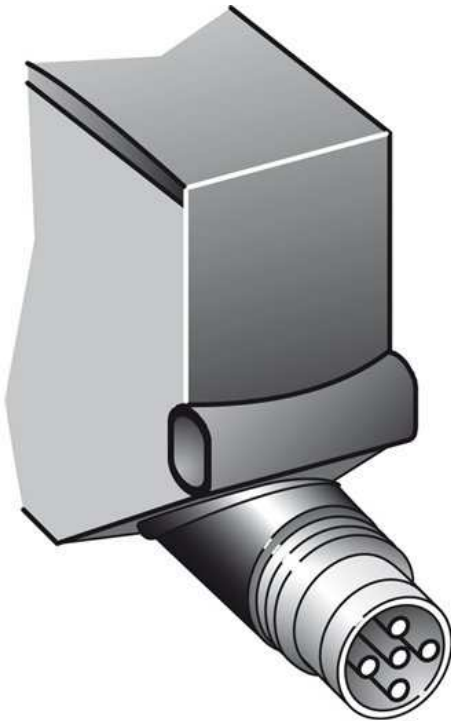
- |1| Status indicator power on (green)
- |2| Status indicator switching output (orange)
- |3| Optical axis, receiver
- |4| Optical axis, sender
- |5| Mounting hole
- |6| Connector M12, 5-pin, turnable
- |7| Operating keys and display
- |8| Reference surface = 0 mm

Adjustments

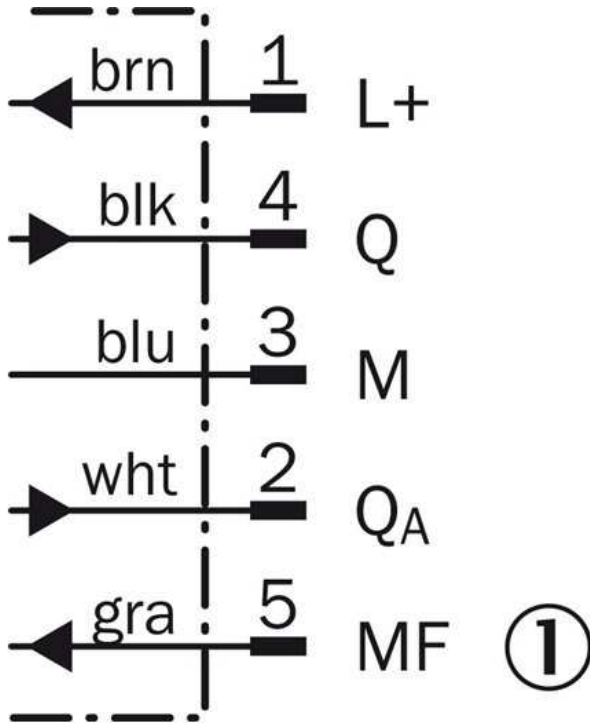


- |1| Status indicator power on (green)
- |2| Status indicator switching output (orange)
- |7| Operating keys and display

Connection type



Connection diagram



[1] Multifunctional input (MF)

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