



Mid range distance sensors
Dx50, DS50

DS50-N1112



Model Name > [DS50-N1112](#)
Part No. > [1047404](#)

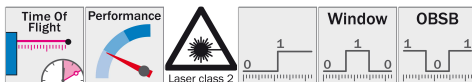


At a glance

- HDDM™ technology provides the best reliability, safety to ambient light and price/performance ratio
- Reliable detection up to 10 m
- High switching repeatability (2.5 mm)
- Two discrete outputs with up to 50 Hz switching frequency
- Three switching modes: “Distance to Object,” “Window” or “Object Between Sensor and Background” - detect any object
- Immune to cross talk for use with multiple sensors
- Superior background suppression

Your benefits

- Precise detection at a safe distance reduces scrap and increases throughput
- Immune to any type of ambient light - allows for use in optically challenging environments
- Widest temperature range allows for outdoor use without additional cooling or heating
- Intuitive setup via display or remote teach reduces installation time and costs
- Red light and an optional alignment bracket reduces installation time
- Metal housing withstands harsh environments, saving replacement costs
- Dx50 product family is based on a common platform, which offers multiple performance levels, making it easy to accommodate future changes
- Low investment costs and high performance guarantee short return on investment



Performance

Measurement range:	200 mm ... 10,000 mm, 90 % remission 200 mm ... 4,000 mm, 6 % remission 200 mm ... 6,000 mm, 18 % remission
Resolution ¹⁾ :	1 mm
Repeatability ²⁾ , ³⁾ , ⁴⁾ :	5 mm/2.5 mm
Accuracy ⁵⁾ , ⁶⁾ :	± 10 mm
Response time ⁷⁾ :	10 ms/50 ms
Switching frequency ⁸⁾ :	50 Hz/10 Hz
Light source ⁹⁾ :	Laser, red
Typ. light spot size (distance):	15 mm x 15 mm (10 m)

Additional function: Switch-off display
 Unique measurement value
 Set switching mode: Distance to object (DtO)/switching window (Wnd)/
 Object Between Sensor and Background (ObSB)
 Set moving average: fast/slow
 Set hysteresis
 Crosstalk safety
 Lock user interface
 Reset to factory default
 Teach-in, scaling and inversion of switching output
 Multifunctional input: laser off/external teach/deactivated
 Laser class: 2 (EN 60825-1)¹⁰⁾

Laser service life (MTTF at 25 °C): 100,000 h

^{1) 5)} Related to distance value on the display ²⁾ Equivalent to 1 σ ³⁾ 6 % ... 90 % remission ^{4) 7) 8)} Dependent on the set average: fast/slow ⁶⁾ 90 % remission ^{9) 10)}

Wavelength: 658 nm; max. output: 180 mW; pulse duration: 5 ns; pulse repetition rate: 1/200

Interfaces

Output type ^{1), 2)}: 2 x NPN (100 mA)
 Hysteresis: 1 mm ... 9,999 mm
 Multifunctional input (MF) ^{3), 4)}: 1 x
¹⁾ Output Q short-circuit protected ²⁾ NPN: HIGH = < 2.5 V/LOW = V_S ³⁾ Response time ≤ 60 ms ⁴⁾ NPN: HIGH = ≤ 2.5 V/LOW = V_S

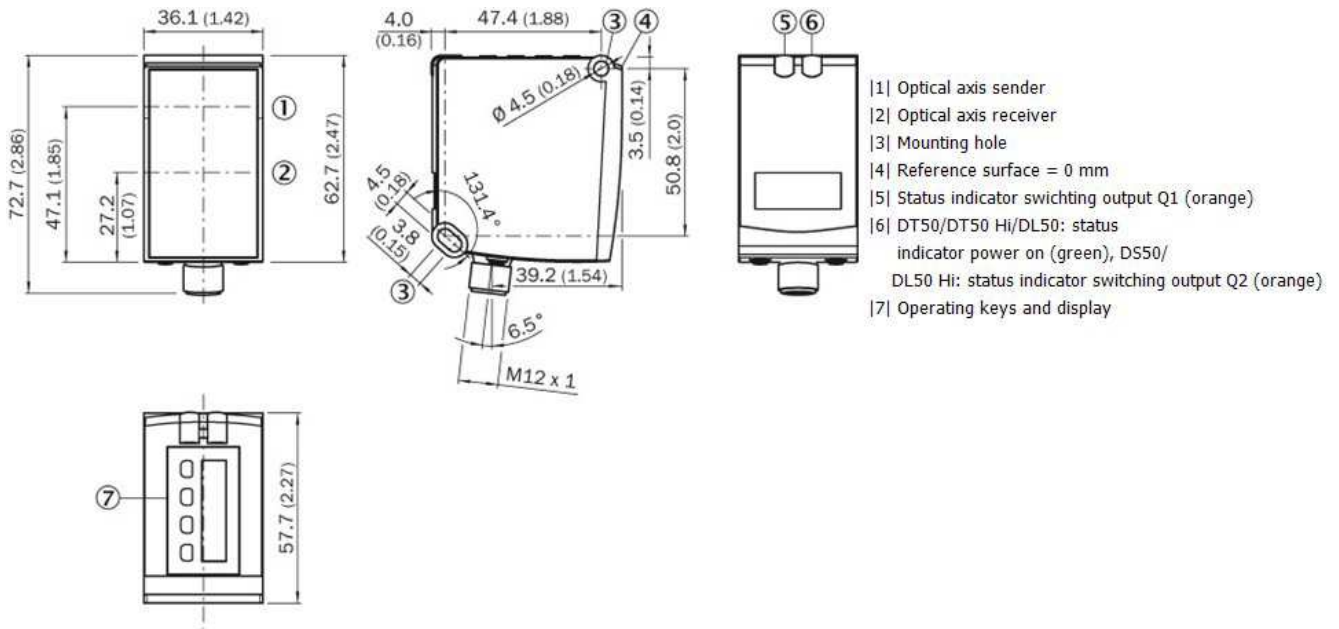
Mechanics/electronics

Supply voltage V_s ¹⁾: DC 10 V ... 30 V
 Ripple ²⁾: ≤ 5 V_{pp}
 Power consumption ³⁾: ≤ 1.85 W
 Initialization time: ≤ 350 ms
 Warm-up time: ≤ 15 min
 Housing material: Die-cast zinc housing (ZNAL4CU1)
 acrylic glass (PMMA)
 Connection type: Male connector, M12, 5-pin
 Indication: 2 x LED, LC display
 Weight: 200 g
¹⁾ Limit values, reverse-polarity protected, operation in short-circuit protected network: max. 8 A ²⁾ May not fall short of or exceed V_S tolerances ³⁾ Without load

Ambient data

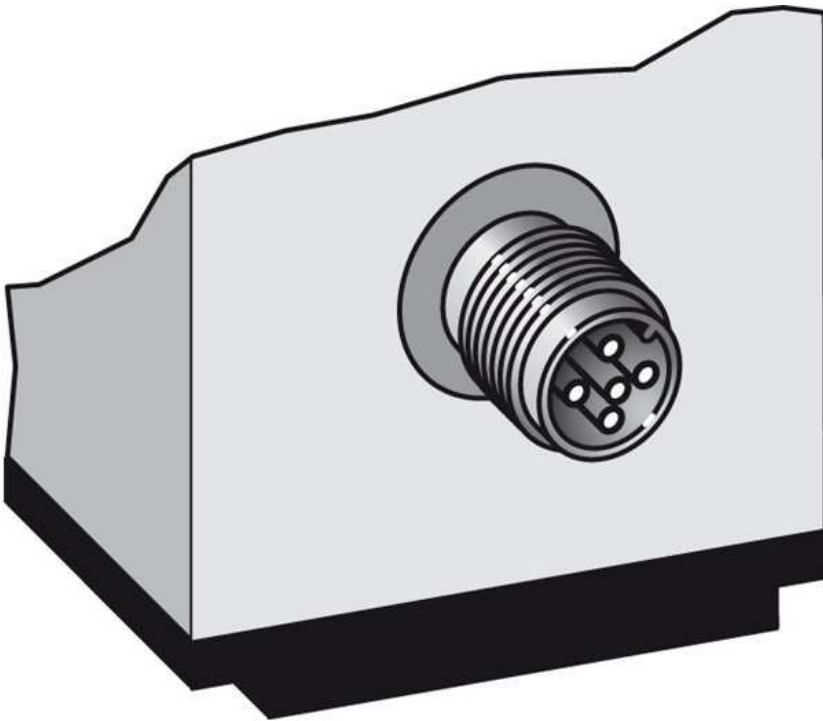
Enclosure rating: IP 65
 Protection class: III
 Ambient temperature: Operation: -30 ... +65 °C, Storage: -40 ... +75 °C
 Max. rel. humidity (not condensing): ≤ 95 %
 Vibration resistance: EN 60068-2-6/EN 60068-2-64
 Shock resistance: EN 60068-2-27
 Typ. ambient light safety: 40 klx

Dimensional drawing

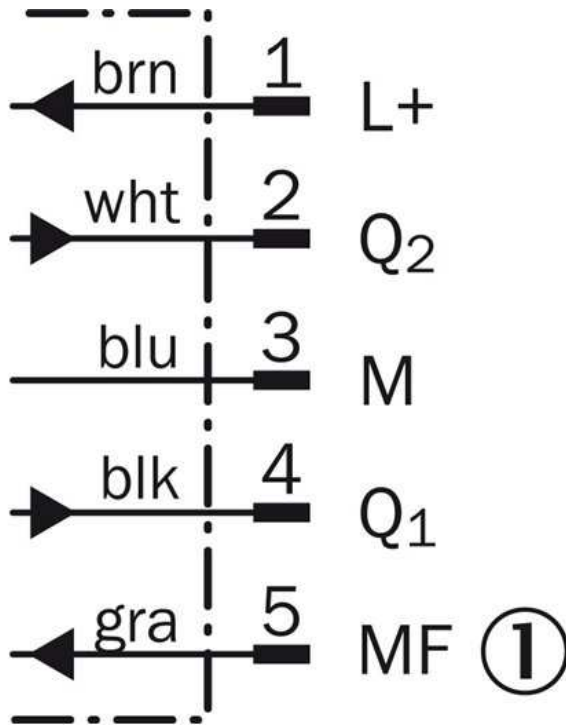


- |1| Optical axis sender
- |2| Optical axis receiver
- |3| Mounting hole
- |4| Reference surface = 0 mm
- |5| Status indicator switching output Q1 (orange)
- |6| DT50/DT50 Hi/DL50: status indicator power on (green), DS50/DL50 Hi: status indicator switching output Q2 (orange)
- |7| Operating keys and display

Connection type



Connection diagram



[1] Multifunctional input (MF)

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