



Mid range distance sensors Dx60, DL60

DL60-N111B



Model Name > [DL60-N111B](#)
Part No. > [1026360](#)



At a glance

- Measuring range: 24 m on reflector
- Analog output: 4 mA ... 20 mA
- Teach-in and plug and play versions
- Time-of-flight technology for reliable results
- Visible red laser light
- Power-on LED

Your benefits

- Measuring range up to 24 m and both analog as well as switching outputs ensure high application flexibility
- Red laser light ensures fast and precise alignment
- Tough, lightweight housing withstands harsh environments
- Easy one-button teach-in offers fast commissioning
- High switching and measuring accuracy increase process reliability, ensuring higher productivity and better quality
- Pre-set plug and play versions ensure immediate commissioning, eliminating any kind of sensor teach-in



Performance

Measurement range ¹⁾ :	300 mm ... 24,000 mm
Resolution:	7 mm
Accuracy ²⁾ :	± 15 mm
Response time:	130 ms
Cycle time:	≤ 8 s
Light source:	Laser, red
Typ. light spot size (distance):	20 mm x 20 mm (at 2 m)
Additional function:	Switching output invertible
Laser class:	2 (EN 60825-1)
Laser service life (MTTF at 25 °C):	50,000 h
Output time:	< 8 ms

¹⁾ On reflector REF-3930-K2 ²⁾

Interfaces

Analog output:	4 mA ... 20 mA
Resolution analog output:	12 bit
Output type ¹⁾ ; ²⁾ :	1 x NPN (100 mA)
Multifunctional input (MF):	1x Laser off

¹⁾ Output Q short-circuit protected ²⁾ NPN: HIGH = $\leq 2\text{ V}$ /LOW = V_S

Mechanics/electronics

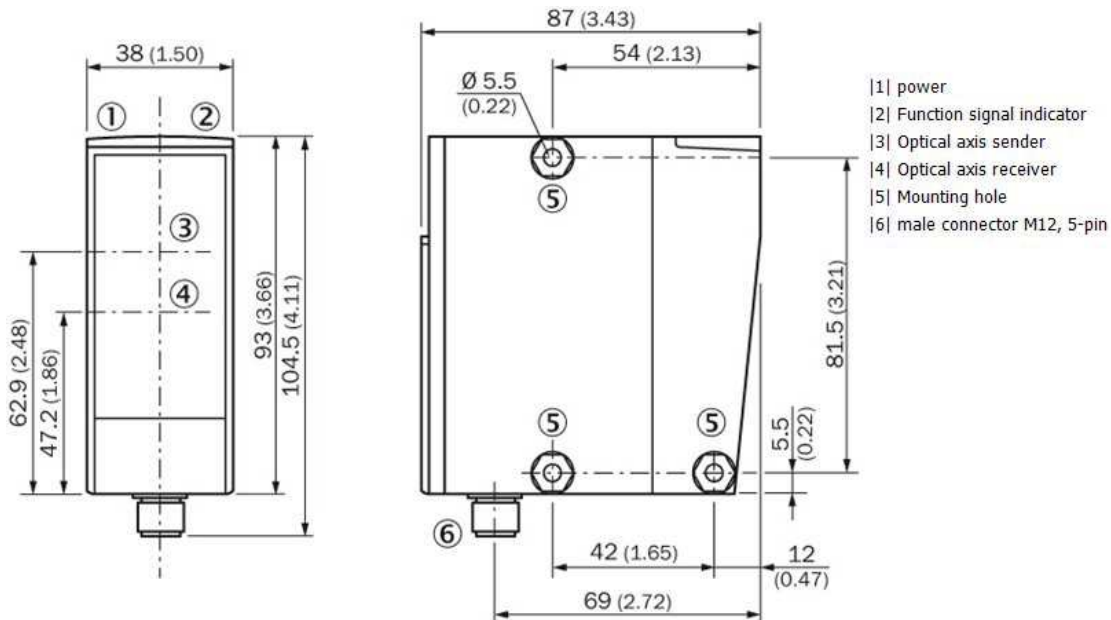
Supply voltage V_S ¹⁾ :	DC 11 V ... 30 V
Ripple ²⁾ :	$\leq 5\text{ Vpp}$
Power consumption ³⁾ :	$\leq 3\text{ W}$
Initialization time:	550 ms
Warm-up time:	$\leq 30\text{ min}$
Connection type:	Male connector, M12, 5-pin
Indication:	Status LED
Weight:	202 g

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

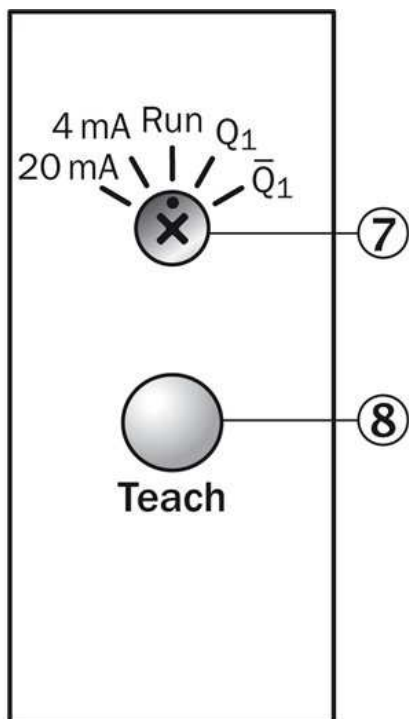
Ambient data

Enclosure rating:	IP 67
Protection class:	II
Ambient temperature:	Operation: $-25 \dots +55\text{ }^\circ\text{C}$, Storage: $-25 \dots +75\text{ }^\circ\text{C}$
Electromagnetic compatibility (EMC):	EN 61000-6-2/EN 60947-5-2

Dimensional drawing

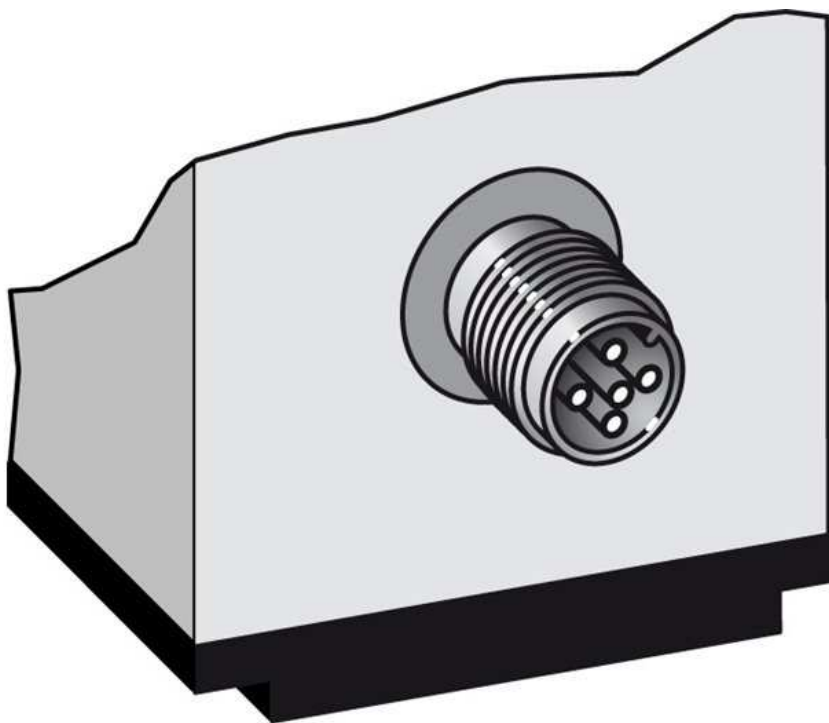


Adjustment possible

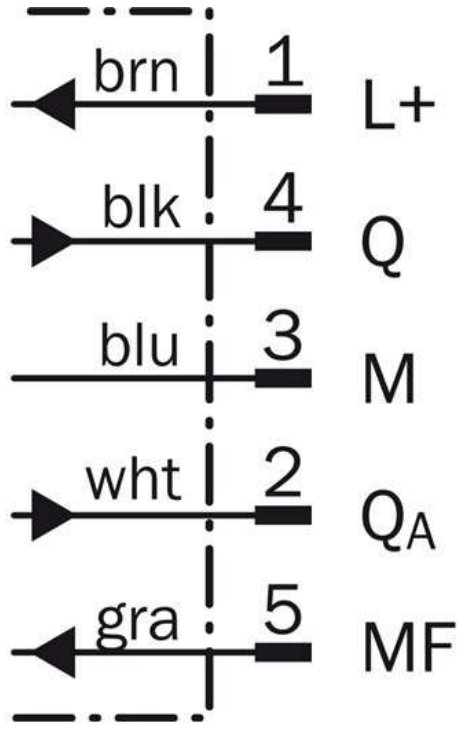


|7| rotary switch
|8| Control element

Connection type



Connection diagram



Plug & Play: How to choose different measurement ranges by the type code (4 mA ... 20 mA)

The DL60 can be factory scaled for customer specific measurement ranges based on the type code.

The type code is: "DL60-x11xBbbee". The „bbee“-part defines the measurement range as follows:

bb (begin) = distance value chosen by the customer to be output with 4 mA. The "bb"-value is defined in m.

ee (end) = distance value chosen by the customer to be output with 20 mA. The "ee"-value is defined in m.

Be aware

ee/bb = 00 = 300 mm (smallest possible distance value).

There is a minimum difference between "bb" and "ee" of at least 1 unit (1,000 mm) (e.g. bb = 02 → ee ≥ 03)

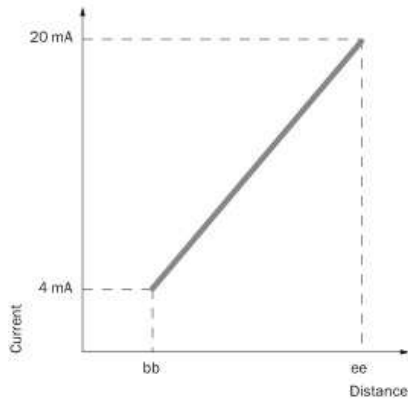
Range of values

00 ... 24 = 300 mm ... 24,000 mm, any configuration within this range can be chosen (e.g. 0010, 0224 etc.).

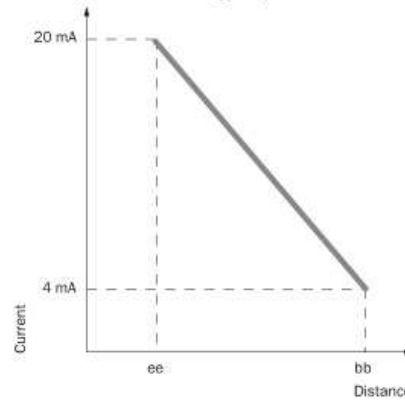
Examples

Model name	Description
DL60-P111B0010	DL60, switching output PNP, measurement range 300 mm ... 10,000 mm (4 mA = 0.3 m ... 20 mA = 10 m)
DL60-N111B0915	DL60, switching output NPN, measurement range 9,000 mm ... 15,000 mm (4 mA = 9 m ... 20 mA = 15 m)
DL60-P111B2402	DL60, switching output PNP, measurement range 24,000 mm ... 2,000 mm (inverted measuring area) (4 mA = 24 m ... 20 mA = 2 m)

ee > bb



bb > ee (inverted measuring area)



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