



## Mid range distance sensors Dx60, DL60

DL60-P111B



**Model Name** > [DL60-P111B](#)  
**Part No.** > [1025848](#)



**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**

Measuring range <sup>1)</sup> :	300 mm ... 24,000 mm
Resolution:	(7 mm)
Accuracy <sup>2)</sup> :	± 15 mm
Response time:	130 ms
Cycle time:	8
Output rate:	< 8 ms
Light source:	Laser, red
Laser protection class:	2 (EN 60825-1)
Typ. light spot size (distance):	20 mm x 20 mm (at 2 m)
Additional function:	Inverted switching output
Service life:	50,000 h

<sup>1)</sup> On reflector REF-3930-K2 <sup>2)</sup>

**Interfaces**

Analog output:	4 mA ... 20 mA
Resolution analog output:	12 bit
Multifunctional input:	1x Laser off
Switching output (max. output current):	1 x PNP (100 mA)

Output Q short-circuit protected; PNP: HIGH = Vs - (< 2 V), LOW = 0;

### Mechanics/electronics

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Supply voltage Vs <sup>1)</sup> :	DC 11 V ... 30 V
Ripple <sup>2)</sup> :	≤ 5 Vpp
Power consumption <sup>3)</sup> :	≤ 3 W
Initialization time:	550 ms
Warm-up time:	≤ 30 min
Connection type:	Connector M12, 5-pin
Indication:	Status LED
Weight:	202 g

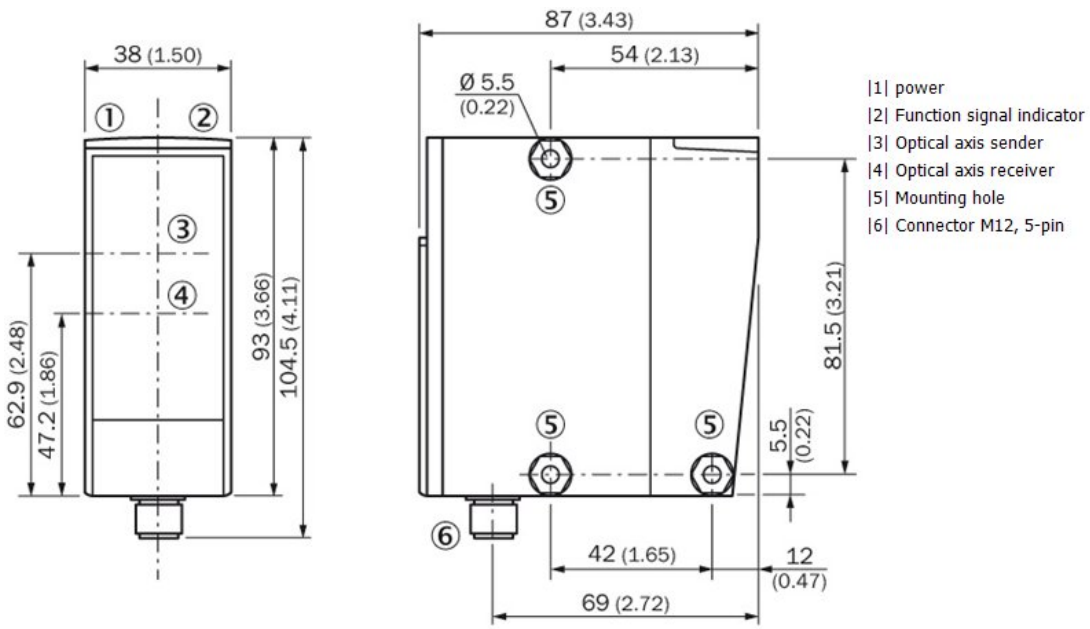
<sup>1)</sup> Limit values, reverse-polarity protected, operation in short-circuit protected network, max. 8 A <sup>2)</sup> May not fall short of or exceed V<sub>S</sub> tolerances <sup>3)</sup> Without load

### Ambient data

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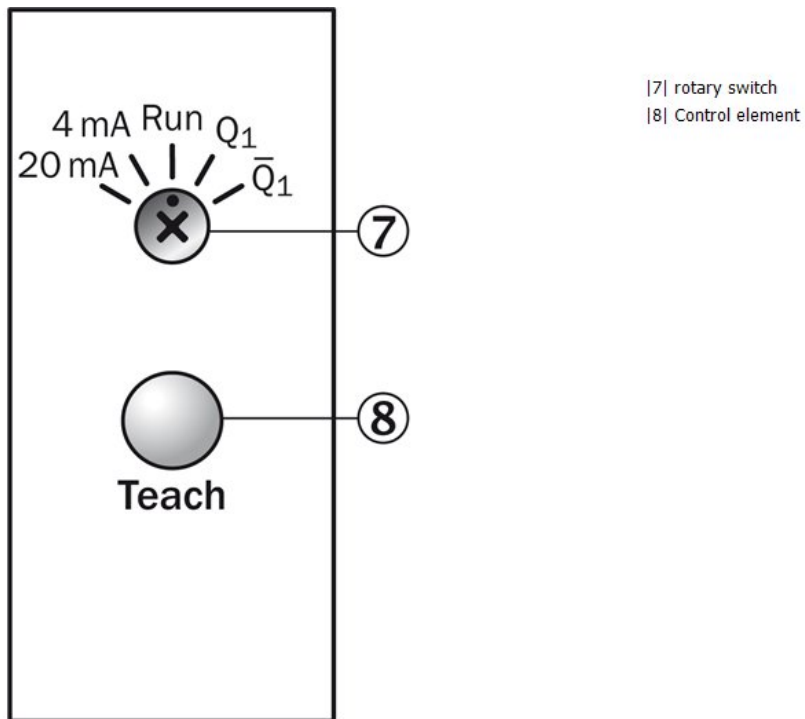
Enclosure rating:	IP 67
Protection class:	II
EMC:	EN 61000-6-2 EN 60947-5-2
Ambient temperature:	Operation: -25 ... 55 °C Storage: -25 ... 75 °C

**Dimensional drawing**

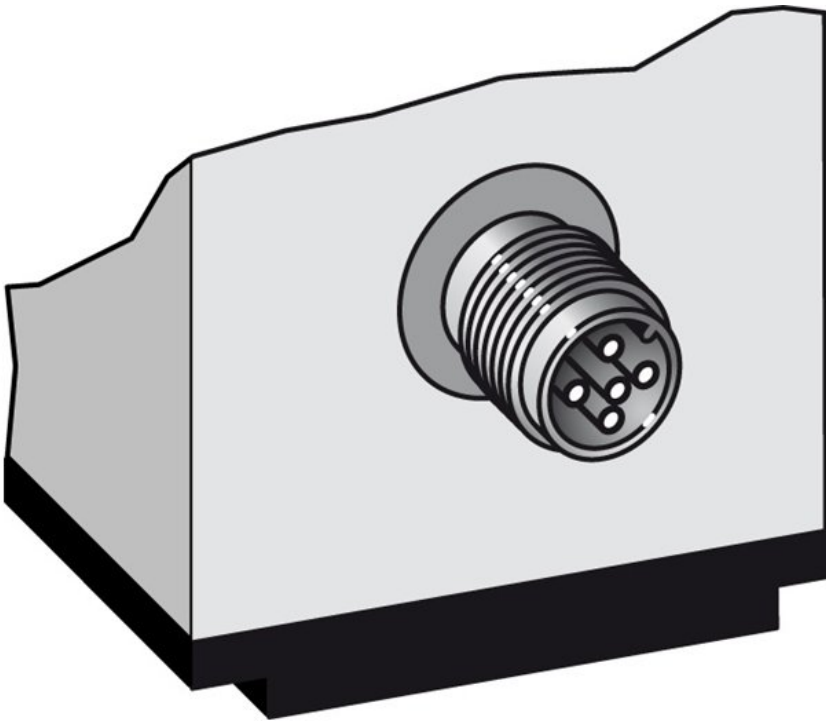


All dimensions in mm (inch)

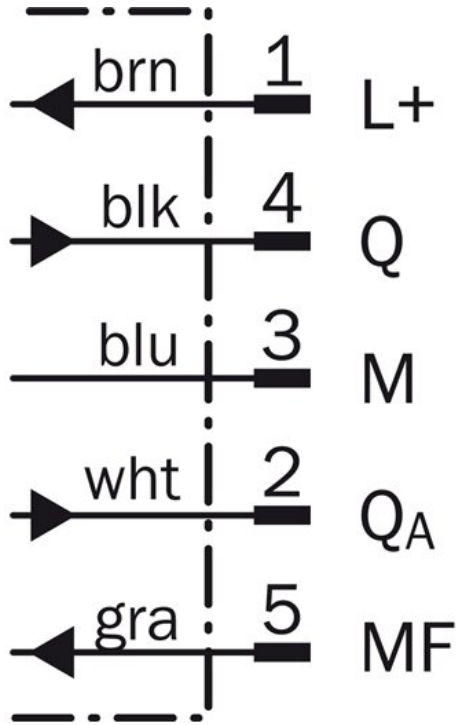
**Adjustment possible**



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)  $\hat{=}$  distance value chosen by the customer to be output with 4 mA. The "bb"-value is defined in m.

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

**Be aware**

ee/bb  $\hat{=}$  00  $\hat{=}$  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  $\hat{=}$  02  $\rightarrow$  ee  $\hat{\geq}$  03)

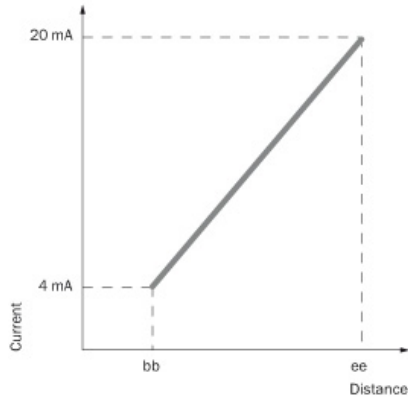
**Range of values**

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

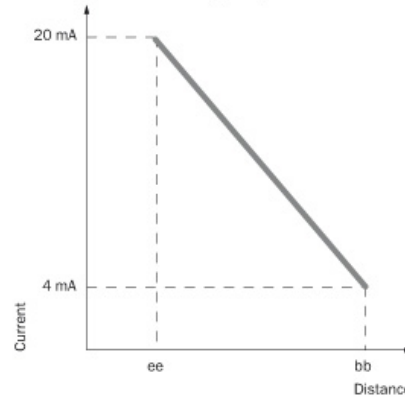
**Examples**

Model name	Description
<b>DL60-P111B0010</b>	DL60, switching output PNP, measurement range 300 mm ... 10,000 mm (4 mA $\hat{=}$ 0.3 m ... 20 mA $\hat{=}$ 10 m)
<b>DL60-N111B0915</b>	DL60, switching output NPN, measurement range 9,000 mm ... 15,000 mm (4 mA $\hat{=}$ 9 m ... 20 mA $\hat{=}$ 15 m)
<b>DL60-P111B2402</b>	DL60, switching output PNP, measurement range 24,000 mm ... 2,000 mm (inverted measuring area) (4 mA $\hat{=}$ 24 m ... 20 mA $\hat{=}$ 2 m)

**ee > bb**



**bb > ee (inverted measuring area)**



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