



**Part no.: 50140163**  
**LE412BL2.1/4X-M12**  
**Throughbeam photoelectric sensor receiver**



Figure can vary

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## Technical data

<b>Basic data</b>	
Series	412B
Operating principle	Throughbeam principle
Device type	Receiver
<b>Optical data</b>	
Operating range	Guaranteed operating range
Operating range	0 ... 50 m
Max. laser power	0.001 W
Pulse duration	4.6 µs
<b>Electrical data</b>	
Protective circuit	Polarity reversal protection Short circuit protected
<b>Performance data</b>	
Supply voltage $U_B$	10 ... 36 V , DC , Incl. residual ripple
Residual ripple	0 ... 20 % , From $U_B$
Open-circuit current	0 ... 10 mA
<b>Outputs</b>	
Number of digital switching outputs	1 Piece(s)
<b>Switching outputs</b>	
Voltage type	DC
Switching current, max.	200 mA
<b>Switching output 1</b>	
Assignment	Connection 1, pin 4
Switching element	Transistor , PNP
Switching principle	Light switching
<b>Timing</b>	
Switching frequency	5,000 Hz
Response time	0.1 ms
Readiness delay	20 ms
<b>Connection</b>	
<b>Connection 1</b>	
Type of connection	Connector
Function	Signal OUT Voltage supply
Thread size	M12
Type	Male
Material	Metal
No. of pins	4 -pin
Encoding	A-coded
<b>Mechanical data</b>	
Thread size	M12 x 1 mm
Dimension (Ø x L)	12 mm x 60 mm
Housing material	Stainless steel , V2A

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Lens cover material	Glass
Net weight	32 g
Housing color	Silver

**Operation and display**

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	270° potentiometer
Function of the operational control	Sensitivity adjustment

**Environmental data**

Ambient temperature, operation	-10 ... 50 °C
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**Certifications**

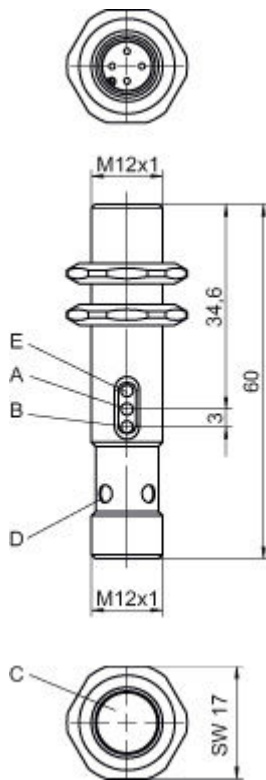
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

**Classification**

Customs tariff number	85365019
eCl@ss 8.0	27270901
eCl@ss 9.0	27270901
ETIM 5.0	EC002716

## Dimensioned drawings

All dimensions in millimeters

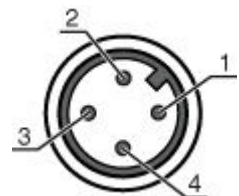


- A Green LED
- B Yellow LED
- C Optical axis
- D Yellow LED
- E Potentiometer

## Electrical connection

Connection 1	
Type of connection	Connector
Function	Signal OUT Voltage supply
Thread size	M12
Type	Male
Material	Metal
No. of pins	4 -pin
Encoding	A-coded

Pin	Pin assignment
1	V+
2	n.c.
3	GND
4	OUT 1




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## Operation and display

### LEDs

LED	Display	Meaning
1	Green, continuous light	Function reserve
2	Yellow, continuous light	Switching output/switching state active

### Suitable transmitters

	Part no.	Designation	Article	Description
	50140160	LS412BL2/DX-M12	Throughbeam photoelectric sensor transmitter	Special design: Deactivation input Light source: Laser, Red Supply voltage: DC Deactivation inputs: 1 Piece(s) Connection: Connector, M12, Metal, 4 -pin

### Part number code

Part designation: **AAA412BGG.H/ii-K**

AAA412B	<b>Operating principle / construction:</b> LS412B: throughbeam photoelectric sensor transmitter LE412B: throughbeam photoelectric sensor receiver ET412B: energetic diffuse reflection sensor PRK412B: retro-reflective photoelectric sensor with polarization filter
GG	<b>Light source:</b> n/a: LED L2: laser class 2
H	<b>Operating range adjustment:</b> 1: 270° potentiometer
ii	<b>Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2):</b> 2: NPN transistor output, light switching N: NPN transistor output, dark switching 4: PNP transistor output, light switching P: PNP transistor output, dark switching D: deactivation input (deactivation with low signal) X: pin not used
K	<b>Electrical connection:</b> n/a: cable, standard length 2000 mm, 3-wire M12: M12 connector, 4-pin (plug)

#### Note

A list with all available device types can be found on the Leuze electronic website at [www.leuze.com](http://www.leuze.com).

### Notes

#### Observe intended use!

- This product is not a safety sensor and is not intended as personnel protection.
- The product may only be put into operation by competent persons.
- Only use the product in accordance with its intended use.

**WARNING! LASER RADIATION – LASER CLASS 2**



**Never look directly into the beam!**

The device satisfies the requirements of IEC 60825-1:2007 (EN 60825-1:2007) safety regulations for a product of **laser class 2** as well as the U.S. 21 CFR 1040.10 regulations with deviations corresponding to "Laser Notice No. 50" from June 24, 2007.


- Never look directly into the laser beam or in the direction of reflected laser beams! If you look into the beam path over a longer time period, there is a risk of injury to the retina.
- Do not point the laser beam of the device at persons!
- Interrupt the laser beam using a non-transparent, non-reflective object if the laser beam is accidentally directed towards a person.
- When mounting and aligning the device, avoid reflections of the laser beam off reflective surfaces!
- CAUTION! Use of controls or adjustments or performance of procedures other than specified herein may result in hazardous light exposure.
- Observe the applicable statutory and local laser protection regulations.
- The device must not be tampered with and must not be changed in any way.  
There are no user-serviceable parts inside the device.  
Repairs must only be performed by Leuze electronic GmbH + Co. KG.

## Accessories

### Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130652	KD U-M12-4A-V1-050	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC
	50130690	KD U-M12-4W-V1-050	Connection cable	Connection 1: Connector, M12, Angled, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 5,000 mm Sheathing material: PVC

### Mounting technology - Mounting brackets

	Part no.	Designation	Article	Description
	50113549	BT D12M.5	Mounting bracket	Diameter, inner: 12 mm Design of mounting device: Angle, L-shape Fastening, at system: Through-hole mounting Mounting bracket, at device: Screw type Type of mounting device: Rigid Material: Stainless steel