

## Technical data sheet

### Throughbeam photoelectric sensor

Part no.: 50140160

LS412BL2/DX-M12

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Figure can vary



## Technical data

### Basic data

Series	412B
Operating principle	Throughbeam principle
Device type	Transmitter

### Special design

Special design	Deactivation input
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### Optical data

Operating range	Guaranteed operating range
Operating range	0 ... 50 m
Beam path	Collimated
Light source	Laser, Red
Laser light wavelength	660 nm
Laser class	2, IEC / EN 60825-1:2014
Max. laser power	0.001 W
Transmitted-signal shape	Pulsed
Pulse duration	4.6 µs
Light spot size [at sensor distance]	2 mm [1,000 mm]
Type of light spot geometry	Round

### Electrical data

Protective circuit	Polarity reversal protection Short circuit protected
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### Performance data

Supply voltage $U_B$	10 ... 36 V, DC, Incl. residual ripple
Residual ripple	0 ... 20 %, From $U_B$
Open-circuit current	0 ... 10 mA

### Inputs

Number of deactivation inputs	1 Piece(s)
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### Deactivation inputs

Voltage type	DC
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### Deactivation input 1

Assignment	Connection 1, pin 4
Active switching state	Low

### Connection 1

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

### Mechanical data

Thread size	M12 x 1 mm
Dimension (Ø x L)	12 mm x 60 mm
Housing material	Stainless steel, V2A
Lens cover material	Glass
Net weight	32 g
Housing color	Silver

### Environmental data

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

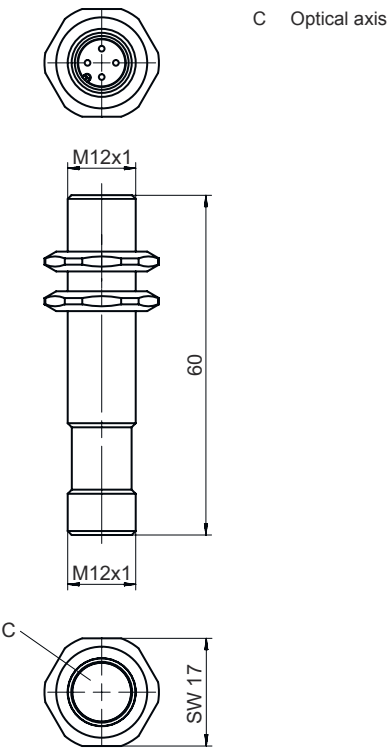
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

### Classification

Customs tariff number	85365019
eCl@ss 8.0	27270901
eCl@ss 9.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716

Dimensioned drawings

All dimensions in millimeters

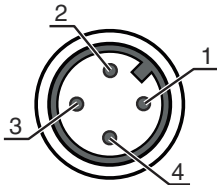


Electrical connection





Connection 1

Function	Signal IN
	Voltage supply
Type of connection	Connector
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	IN 1



## Suitable receivers

	Part no.	Designation	Article	Description
	50140161	LE412BL2.1/2X-M12	Throughbeam photoelectric sensor receiver	Light source: Laser Supply voltage: DC Digital switching outputs: 1 Piece(s) Switching output 1: Transistor, NPN, Light switching Switching frequency: 5,000 Hz Connection: Connector, M12, Metal, 4 -pin Operational controls: 270° potentiometer
	50140163	LE412BL2.1/4X-M12	Throughbeam photoelectric sensor receiver	Supply voltage: DC Digital switching outputs: 1 Piece(s) Switching output 1: Transistor, PNP, Light switching Switching frequency: 5,000 Hz Connection: Connector, M12, Metal, 4 -pin Operational controls: 270° potentiometer
	50140162	LE412BL2.1/NX-M12	Throughbeam photoelectric sensor receiver	Supply voltage: DC Digital switching outputs: 1 Piece(s) Switching output 1: Transistor, NPN, Dark switching Switching frequency: 5,000 Hz Connection: Connector, M12, Metal, 4 -pin Operational controls: 270° potentiometer
	50140164	LE412BL2.1/PX-M12	Throughbeam photoelectric sensor receiver	Supply voltage: DC Digital switching outputs: 1 Piece(s) Switching output 1: Transistor, PNP, Dark switching Switching frequency: 5,000 Hz Connection: Connector, M12, Metal, 4 -pin Operational controls: 270° potentiometer

## Part number code

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

<b>AAA412B</b>	<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
<b>GG</b>	<b>Light source</b> n/a: LED L2: laser class 2
<b>H</b>	<b>Operating range adjustment</b> 1: 270° potentiometer
<b>ii</b>	<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
<b>K</b>	<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 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 – CLASS 2 LASER PRODUCT





#### Do not stare into 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

Accessories

Note	
	<p>A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</p>