



Part no.: 50140160
LS412BL2/DX-M12
Throughbeam photoelectric sensor
transmitter



Figure can vary

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Technical data

Basic data	
Series	412B
Operating principle	Throughbeam principle
Device type	Transmitter
Special design	
Special design	Deactivation input
Optical data	
Operating range	Guaranteed operating range
Operating range	0 ... 50 m
Beam profile	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
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)
Deactivation inputs	
Voltage type	DC
Deactivation input 1	
Assignment	Connection 1, pin 4
Active switching state	Low
Connection	
Connection 1	
Type of connection	Connector
Function	Signal IN Voltage supply
Thread size	M12
Type	Male
Material	Metal
No. of pins	4 -pin
Encoding	A-coded
Mechanical data	

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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

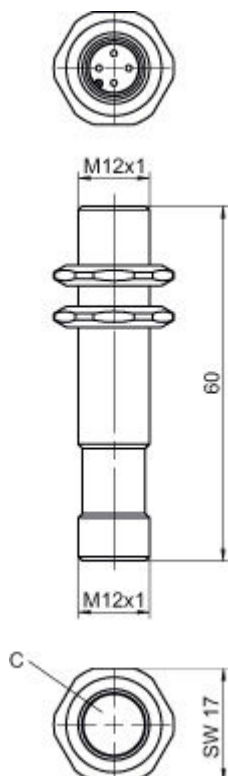
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

Classification

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

Dimensioned drawings

All dimensions in millimeters



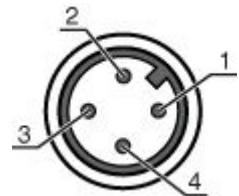
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C Optical axis





Electrical connection

Connection 1	
Type of connection	Connector
Function	Signal IN 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	IN 1



Suitable receivers

	Part no.	Designation	Article	Description
	50140161	LE412BL2.1/2X-M12	Throughbeam photoelectric sensor receiver	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

AAA412B	Operating principle / construction: LS412B: throughbeam photoelectric sensor transmitter LE412B: throughbeam photoelectric sensor receiver ET412B: energetic diffuse reflection sensor PRK412B: retro-reflective photoelectric sensor with polarization filter
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GG	Light source: n/a: LED L2: laser class 2
H	Operating range adjustment: 1: 270° potentiometer
ii	Switching output / function / OUT1OUT2 (OUT1 = pin 4, OUT2 = pin 2): 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	Electrical connection: 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.

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.


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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