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

For Illustration purposes only

Contents

Technical data

Basic data

Series	412B
Operating principle	Throughbeam principle
Device type	Transmitter

Special version

Special version	Deactivation input

Optical data

Operating range	0 ... 50 m
Operating range	Guaranteed operating range
Operating range limit	Typical operating range
Operating range limit	0 ... 50 m
Beam path	Collimated
Light source	Laser, Red
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

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
Stainless steel housing	V2A
Lens cover material	Glass
Net weight	32 g
Housing color	Silver

Environmental data

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

Certifications

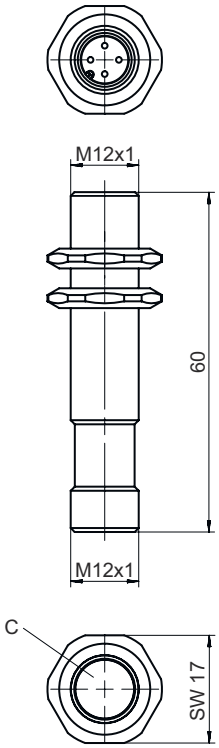
Degree of protection	IP 67
Protection class	III
Certifications	c UL US
Standards applied	IEC 60947-5-2

Classification

Customs tariff number	85365019
ECLASS 5.1.4	27270901
ECLASS 8.0	27270901
ECLASS 9.0	27270901
ECLASS 10.0	27270901
ECLASS 11.0	27270901
ECLASS 12.0	27270901
ECLASS 13.0	27270901
ECLASS 14.0	27270901
ETIM 5.0	EC002716
ETIM 6.0	EC002716
ETIM 7.0	EC002716
ETIM 8.0	EC002716
ETIM 9.0	EC002716

Dimensioned drawings

All dimensions in millimeters



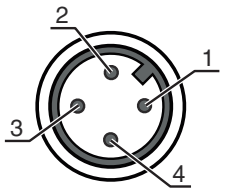
C Optical axis

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
	50140163	LE412BL2.1/4X-M12	Throughbeam photoelectric sensor receiver	Operating range limit: 0 ... 50 m 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	Operating range limit: 0 ... 50 m 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	Operating range limit: 0 ... 50 m 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
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 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.

Notes

ATTENTION! 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 Connector, LED: No 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 Connector, LED: No 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

Note

- A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.