



Part no.: 50135690
LCS-1M12M-F04NNO-M12
Capacitive sensor



Figure can vary

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Technical data

Basic data	
Series	LCS-1
Switching distance S_n	1 ... 4 mm
Assured switching distance	4 mm

Electrical data	
Protective circuit	Polarity reversal protection Short circuit protected

Performance data	
Supply voltage U_B	10 ... 30 V , DC
Residual ripple	0 ... 10 % , From U_B
Open-circuit current	15 mA
Temperature drift, max. (in % of S_r)	20 %
Repeatability, max. (in % of S_r)	2 %
Rated operating current	100 mA

Outputs	
Number of digital switching outputs	1 Piece(s)

Switching outputs	
Type	Digital switching output
Voltage type	DC

Switching output 1	
Assignment	Connection 1, pin 2
Switching element	Transistor , NPN
Switching principle	NO (normally open)

Timing	
Switching frequency	100 Hz

Connection	
Number of connections	1 Piece(s)

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

Mechanical data	
Design	Cylindrical
Thread size	M12 x 1 mm
Dimension (\varnothing x L)	12 mm x 75 mm
Type of installation	Embedded
Housing material	Metal Stainless steel , V2A
Sensing face material	Plastic , Polybutylene (PBT)

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Cover material	Plastic , Polybutylene (PBT)/polyamide (PA 12)
Net weight	25 g

Operation and display

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	Multiturn potentiometer (12 turns)
Function of the operational control	Sensitivity adjustment
Switching distance, adjustable	Yes

Environmental data

Ambient temperature, operation	-25 ... 85 °C
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Certifications

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

Correction factors

Acetone	0.75
Acrylic resin	0.1 ... 0.25
Alcohol	0.85
Ammonia	0.7 ... 0.85
Aniline	0.4
Gasoline	0.1
Celluloid	0.15
Liquid chlorine	0.1
Ebonite	0.15
Epoxy resin	0.15 ... 0.35
Crude oil	0.05
Ethanol	0.85
Ethylene glycol	0.93
Freon R22 and 502 (liquid)	0.35
Grain	0.15 ... 0.3
Glass	0.2 ... 0.55
Glycerin	0.98
Rubber	0.15 ... 0.9
Wood, wet	0.6 ... 0.85
Wood, dry	0.1 ... 0.4
Carbon dioxide	0
Air	0
Marble	0.5
Flour	0.05
Melamine resin	0.25 ... 0.55
Milk powder	0.2
Nylon	0.2 ... 0.3
Oil-containing paper	0.25
Paper	0.1

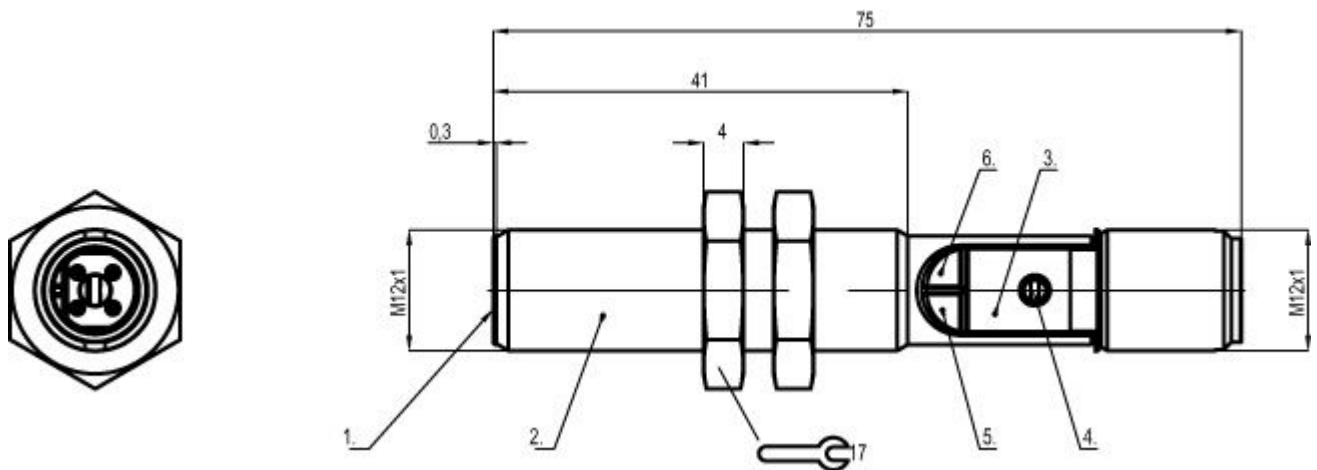
Polyamide	0.3
Polyester resin	0.15 ... 0.5
Pressboard	0.1 ... 0.3
PTFE	0.1
Quartz glass	0.2
Salt	0.35
Sand	0.15 ... 0.3
Water	1
Cement dust	0.25
Sugar	0.15

Classification

Customs tariff number	85365019
eCl@ss 8.0	27270102
eCl@ss 9.0	27270102
ETIM 5.0	EC002715
ETIM 6.0	EC002715

Dimensioned drawings

All dimensions in millimeters



- 1 Active surface
- 2 Housing
- 3 Cover
- 4 Potentiometer
- 5 Green LED, operating voltage display
- 6 Yellow LED, function indicator

Electrical connection

Connection 1	
Type of connection	Connector
Function	Signal OUT Voltage supply

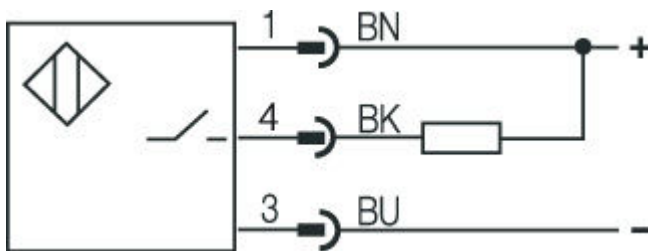
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Connection 1	
Thread size	M12
Type	Male
Material	Plastic
No. of pins	4 -pin
Encoding	A-coded

Pin	Pin assignment	Conductor color
1	+10...30 V DC	Brown
2	n.c.	-
3	GND	Blue
4	OUT	Black



Circuit diagrams



Operation and display

LEDs

LED	Display	Meaning
1	Green, continuous light	Ready
2	Yellow, continuous light	Switching output/switching state

Part number code

Part designation: **LCS-ABBBC-DDDEFF-GHHHIJJJ KK**

LCS	Operating principle: LCS: capacitive sensor
A	Series: 1: series 1 "Extended" 2: series 2 "Advanced"
BBB	Design: M12: series with M12 x 1 external thread M18: series with M18 x 1 external thread M30: series with M30 x 1.5 external thread Q40: series in cubic design, length 40 mm Q54: series in cubic design, length 54 mm

C	Housing material: B: brass M: metal P: plastic/PBT T: PTFE
DDD	Measurement range / type of installation: F03: typ. range limit 3.0 mm / embedded installation F04: typ. range limit 4.0 mm / embedded installation F05: typ. range limit 5.0 mm / embedded installation F06: typ. range limit 6.0 mm / embedded installation F08: typ. range limit 8.0 mm / embedded installation F10: typ. range limit 10.0 mm / embedded installation F15: typ. range limit 15.0 mm / embedded installation F20: typ. range limit 20.0 mm / embedded installation N06: typ. range limit 6.0 mm / non-embedded installation N08: typ. range limit 8.0 mm / non-embedded installation N15: typ. range limit 15.0 mm / non-embedded installation N25: typ. range limit 25.0 mm / non-embedded installation N30: typ. range limit 30.0 mm / non-embedded installation
E	Output function: B: NC and NO contact N: NPN P: PNP
FF	Switching: NC: normally closed contact NO: normally open contact NP: programmable
G	Connection cable: K: cable n/a: no cable
HHH	Cable length: 020: length 2,000 mm 003: length 300 mm n/a: no cable
I	Cable material: P: PUR T: PTFE V: PVC
JJJ	Electrical connection: M08: M8 connector, 3-pin M12: M12 connector, 4-pin (plug)
KK	Special equipment: L: IO-Link interface T: teach-in n/a: no special equipment

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.



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Accessories

Connection technology - Connection cables

	Part no.	Designation	Article	Description
	50130654	KD U-M12-4A-P1-020	Connection cable	Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin Connection 2: Open end Shielded: No Cable length: 2,000 mm Sheathing material: PUR
	50130657	KD U-M12-4A-P1-050	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: PUR

Mounting technology - Other

	Part no.	Designation	Article	Description
	50132729	AC D18M-CS	Clamp	Contains: 2x M24 mounting nut Diameter, inner: 18 mm Design of mounting device: Mounting clamp Fastening, at system: Screw type, Through-hole mounting Mounting bracket, at device: insertable, Clampable with limit stop Type of mounting device: Clampable, With limit stop Material: Metal
	50111499	MC 012K	Clamp	Diameter, inner: 12 mm Design of mounting device: Mounting clamp Fastening, at system: Through-hole mounting Mounting bracket, at device: Clampable Type of mounting device: Rigid Material: Plastic