



Part no.: 50135720
LCS-1M18P-F05PNP-M12-LT
Capacitive sensor



Figure can vary

Contents

- Technical data
- Dimensioned drawings
- Electrical connection
- Circuit diagrams
- Operation and display
- Part number code
- Notes
- Accessories

Technical data

Basic data	
Series	LCS-1
Switching distance S_n (embedded installation)	1 ... 5 mm
Switching distance S_n (non-embedded installation)	1 ... 7.5 mm
Assured switching distance (embedded installation)	3.6 mm
Assured switching distance (non-embedded installation)	5.4 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	200 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 4
Switching element	Transistor , PNP
Switching principle	Normally closed contact (NC)/normally open contact (NO), programmable

Timing	
Switching frequency	10 Hz

Interface	
Type	IO-Link
IO-Link	
COM mode	COM2
Frame type	2.2
Specification	1.1

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	5 -pin
Encoding	A-coded

Mechanical data

Design	Cylindrical
Thread size	M18 x 1 mm
Dimension (Ø x L)	18 mm x 87.3 mm
Type of installation	Embedded and non-embedded
Housing material	Plastic , Polyamide (PA 12)
Sensing face material	Plastic , Polyamide (PA 12)
Cover material	Plastic , Polyamide (PA 12)
Net weight	40 g

Operation and display

Type of display	LED
Number of LEDs	1 Piece(s)
Operational controls	Multiturn potentiometer (12 turns) Teach button
Switching distance, adjustable	Yes

Environmental data

Ambient temperature, operation	-25 ... 70 °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

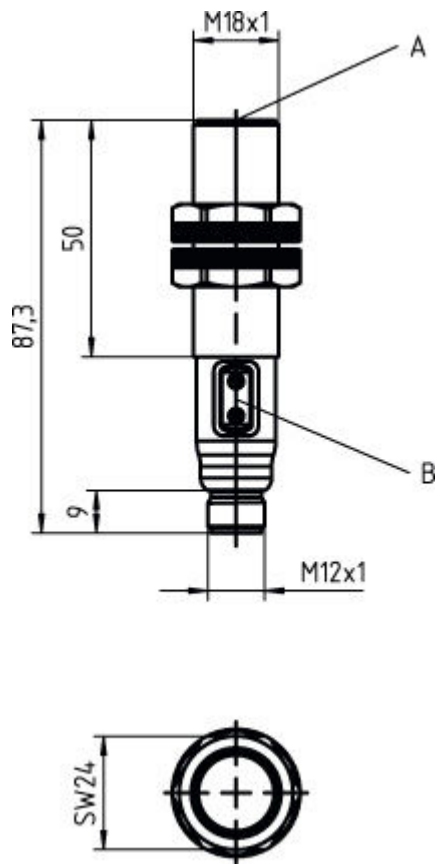
Freon R22 and 502 (liquid)	0.35
Grain	0.15 ... 0.3
Glass	0.2 ... 0.55
Glycerin	0.98
Rubber	0.15 ... 0.9
Wood, wet	0.6 ... 0.85
Wood, dry	0.1 ... 0.4
Carbon dioxide	0
Air	0
Marble	0.5
Flour	0.05
Melamine resin	0.25 ... 0.55
Milk powder	0.2
Nylon	0.2 ... 0.3
Oil-containing paper	0.25
Paper	0.1
Polyamide	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

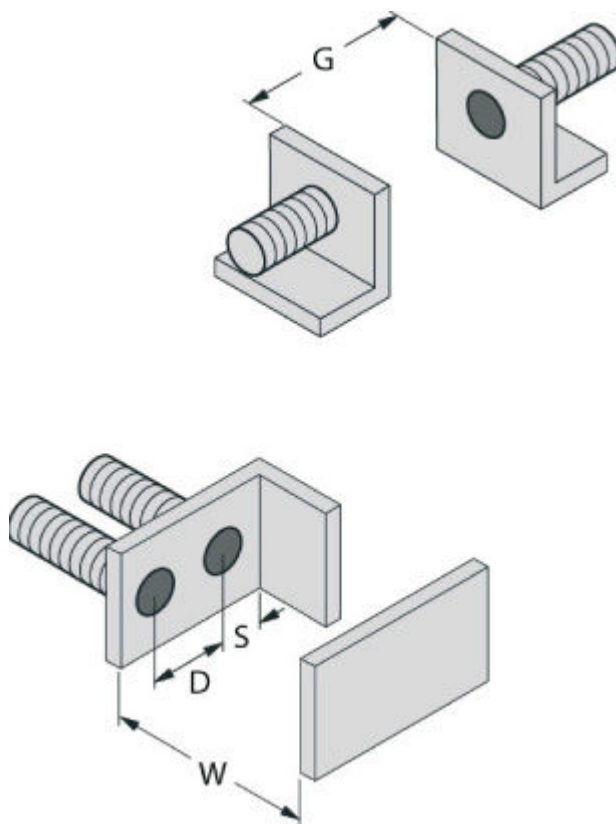
Dimensioned drawings

All dimensions in millimeters



A Active surface
B Teach buttons

Mounting distances

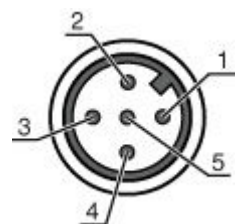


D 36 mm
G 30 mm
S 27 mm
W 15 mm

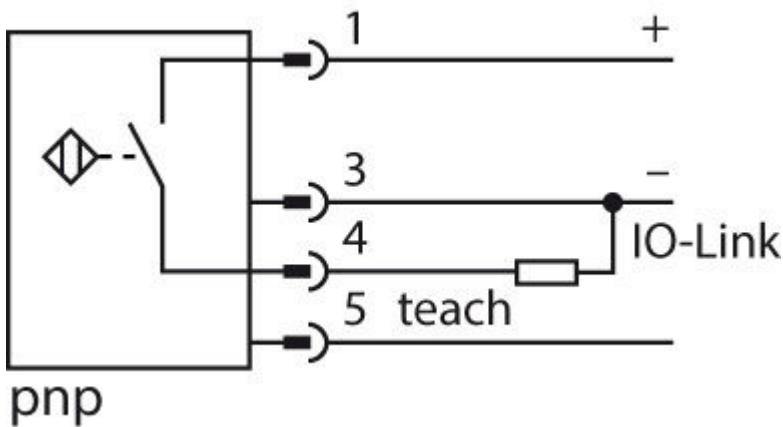
Electrical connection

Connection 1	
Type of connection	Connector
Function	Signal OUT Voltage supply
Thread size	M12
Type	Male
Material	Plastic
No. of pins	5 -pin
Encoding	A-coded

Pin	Pin assignment	Conductor color
1	+10...30 V DC	Brown
2	n.c.	White
3	GND	Blue
4	IO-Link	Black
5	Teach-in	Gray



Circuit diagrams



Operation and display

LEDs

LED	Display	Meaning
1	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

Part no.: 50135720 – LCS-1M18P-F05PNP-M12-LT – Capacitive sensor

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.

Teach via IO-Link

- All operating modes are teachable via FDT/IODD

Teach via teach buttons

- Switching point medium present¹: Press button 1 for 2 to 9 s
- Switching point medium not present¹: Press button 2 for 2 to 9 s
- Change NC contact/NO contact: Press button 1 for more than 10 s
- Reset: Press button 2 for more than 10 s

Teach via manual bridging

- Switching point medium present¹: Apply U_B for 2 to 9 s
- Switching point medium not present¹: Apply GND for 2 to 9 s
- Change NC contact/NO contact: Apply U_B for more than 10 s
- Reset: Apply GND for more than 10 s



NOTE

- The specified minimum distances have been checked with a standard switching distance. If the sensitivity of the sensor is changed using a potentiometer, this data sheet information is no longer valid.


- Manual teach function: Manual bridging possible via pin 5. To do this, U_B or GND must be applied via a 5-wire cable.
- ¹ If the switching point is to be set centrally between "Medium present" and "Medium not present", both media statuses must be taught in consecutively.

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