



**Part no.: 50135703**  
**LCS-1M12P-F04NNC-K020P**  
**Capacitive sensor**



Figure can vary

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## Technical data

<b>Basic data</b>	
Series	LCS-1
Switching distance $S_n$	1 ... 4 mm
Assured switching distance	4 mm
<b>Characteristic parameters</b>	
MTTF	343 years
<b>Electrical data</b>	
Protective circuit	Polarity reversal protection Short circuit protected
<b>Performance data</b>	
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
<b>Outputs</b>	
Number of digital switching outputs	1 Piece(s)
<b>Switching outputs</b>	
Type	Digital switching output
Voltage type	DC
<b>Switching output 1</b>	
Assignment	Connection 1, conductor 2
Switching element	Transistor , NPN
Switching principle	NC (normally closed)
<b>Timing</b>	
Switching frequency	100 Hz
<b>Connection</b>	
Number of connections	1 Piece(s)
<b>Connection 1</b>	
Type of connection	Cable
Function	Signal OUT Voltage supply
Cable length	2,000 mm
Sheathing material	PUR
Number of conductors	3 -wire
Wire cross section	0.14 mm <sup>2</sup>
<b>Mechanical data</b>	
Design	Cylindrical
Thread size	M12 x 1 mm
Dimension ( $\varnothing$ x L)	12 mm x 61 mm
Type of installation	Embedded
Housing material	Plastic , Polybutylene (PBT)

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Sensing face material	Plastic , Polybutylene (PBT)
Cover material	Plastic , Polybutylene (PBT)
Net weight	42 g

**Operation and display**

Type of display	LED
Number of LEDs	2 Piece(s)
Operational controls	Multiturn potentiometer (20 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

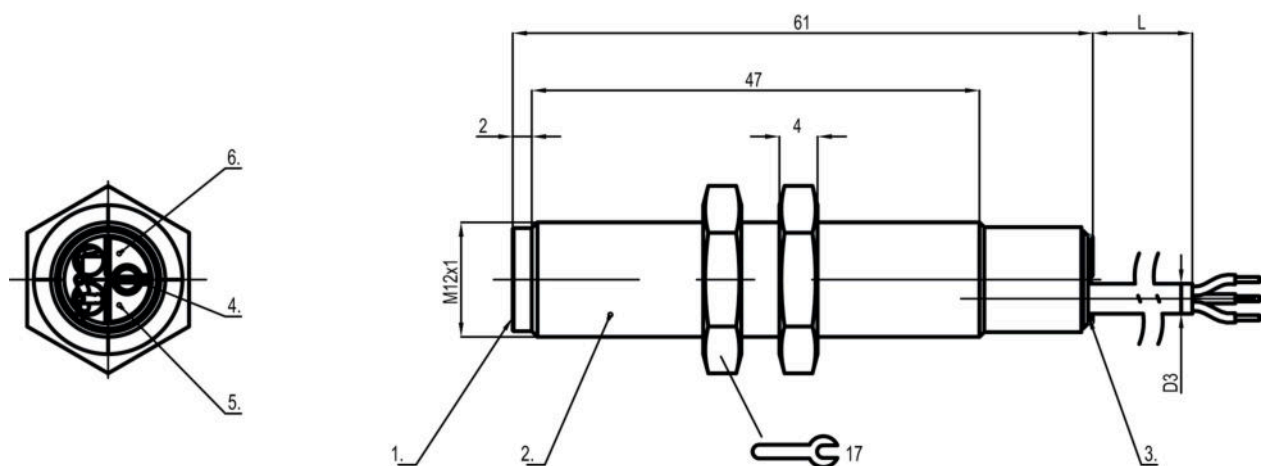
Paper	0.1
Polyamide	0.3
Polyester resin	0.15 ... 0.5
Pressboard	0.1 ... 0.3
PTFE	0.1
Quartz glass	0.2
Salt	0.35
Sand	0.15 ... 0.3
Water	1
Cement dust	0.25
Sugar	0.15

### 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

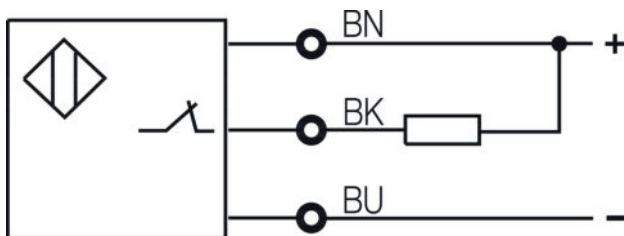
<b>Connection 1</b>	
Type of connection	Cable

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Connection 1	
Function	Signal OUT Voltage supply
Cable length	2,000 mm
Sheathing material	PUR
Cable color	
Number of conductors	3 -wire
Wire cross section	0.14 mm <sup>2</sup>

Conductor color	Conductor assignment
Brown	10 - 30 V DC
Black	OUT
Blue	GND

## 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	<b>Operating principle:</b> LCS: capacitive sensor
A	<b>Series:</b> 1: series 1 "Extended" 2: series 2 "Advanced"
BBB	<b>Design:</b> 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	<b>Housing material:</b> B: brass M: metal P: plastic/PBT T: PTFE
DDD	<b>Measurement range / type of installation:</b> 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	<b>Output function:</b> B: NC and NO contact N: NPN P: PNP
FF	<b>Switching:</b> NC: normally closed contact NO: normally open contact NP: programmable
G	<b>Connection cable:</b> K: cable n/a: no cable
HHH	<b>Cable length:</b> 020: length 2,000 mm 003: length 300 mm n/a: no cable
I	<b>Cable material:</b> P: PUR T: PTFE V: PVC
JJJ	<b>Electrical connection:</b> M08: M8 connector, 3-pin M12: M12 connector, 4-pin (plug)
KK	<b>Special equipment:</b> 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](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.

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## Accessories

### 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

#### Note

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