



**Part no.: 50136527**  
**LCS-2M12P-F03NNO-M12**  
**Capacitive sensor**



Figure can vary

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## Technical data

| <b>Basic data</b>                   |   |
|-------------------------------------|---|
| Series                              | LCS-2   |
| Switching distance $S_n$            | 1 ... 3 mm  |
| Assured switching distance          | 2.4 mm  |
| <b>Electrical data</b>              |   |
| Protective circuit                  | Polarity reversal protection<br>Short circuit protected |
| <b>Performance data</b>             |   |
| Supply voltage $U_B$                | 10 ... 30 V , DC  |
| Residual ripple                     | 0 ... 10 %  |
| Open-circuit current                | 10 mA   |
| Rated operating current             | 200 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, pin 2                                     |
| Switching element                   | Transistor , NPN  |
| Switching principle                 | NO (normally open)                                      |
| <b>Timing</b>                       |   |
| Switching frequency                 | 100 Hz  |
| <b>Connection</b>                   |   |
| Number of connections               | 1 Piece(s)  |
| <b>Connection 1</b>                 |   |
| Type of connection                  | Connector   |
| Thread size                         | M12   |
| Type                                | Male  |
| Material                            | Metal   |
| No. of pins                         | 4 -pin  |
| Encoding                            | A-coded   |
| <b>Mechanical data</b>              |   |
| Design                              | Cylindrical   |
| Thread size                         | M12 x 1 mm  |
| Dimension ( $\varnothing$ x L)      | 12 mm x 68 mm   |
| Type of installation                | Embedded  |
| Housing material                    | Plastic , Polybutylene (PBT)                            |
| Sensing face material               | Plastic , Polybutylene (PBT)                            |
| Cover material                      | Plastic , Polybutylene (PBT)                            |
| <b>Operation and display</b>        |   |
| Type of display                     | LED   |
| Number of LEDs                      | 1 Piece(s)  |

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|                                |     |
|--------------------------------|-----|
| Switching distance, adjustable | Yes |
|--------------------------------|-----|

**Environmental data**

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -25 ... 70 °C |
|--------------------------------|---------------|

**Certifications**

|                      |               |
|----------------------|---------------|
| Degree of protection | IP 67         |
| Protection class     | III           |
| Standards applied    | IEC 60947-5-2 |

**Correction factors**

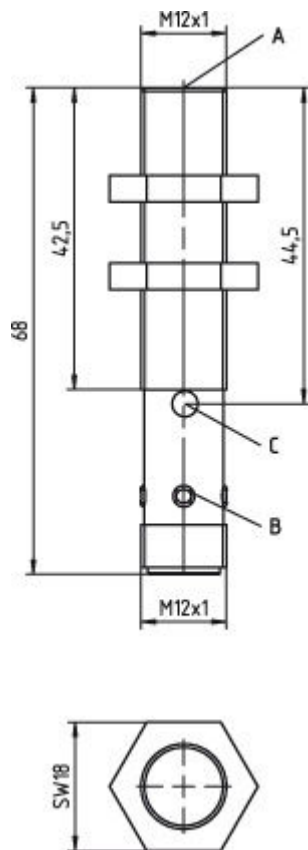
|                            |               |
|----------------------------|---------------|
| Acetone                    | 0.75          |
| Acrylic resin              | 0.1 ... 0.25  |
| Alcohol                    | 0.85          |
| Ammonia                    | 0.7 ... 0.85  |
| Aniline                    | 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 Yellow LED
- C Potentiometer

**Electrical connection**

| Connection 1       |           |
|--------------------|-----------|
| Type of connection | Connector |
| Function           |           |
| Thread size        | M12       |
| Type               | Male      |
| Material           | Metal     |
| No. of pins        | 4 -pin    |

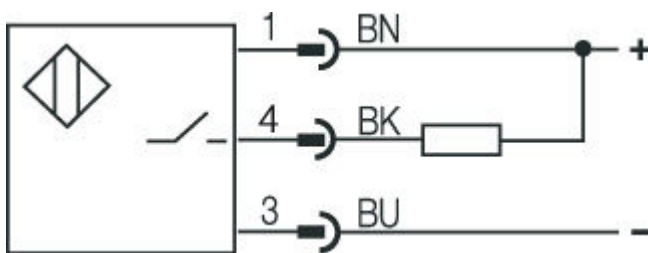
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| Connection 1 |         |
|--------------|---------|
| Encoding     | A-coded |

| 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   | Yellow, continuous light | Switching output/switching state |

## Part number code

Part designation: LCS-ABBBC-DDDEFF-GHHHIJJJ KK

|     |  |
|-----|--|
| LCS | <b>Operating principle:</b><br>LCS: capacitive sensor  |
| A   | <b>Series:</b><br>1: series 1 "Extended"<br>2: series 2 "Advanced"   |
| BBB | <b>Design:</b><br>M12: series with M12 x 1 external thread<br>M18: series with M18 x 1 external thread<br>M30: series with M30 x 1.5 external thread<br>Q40: series in cubic design, length 40 mm<br>Q54: series in cubic design, length 54 mm |
| C   | <b>Housing material:</b><br>B: brass<br>M: metal<br>P: plastic/PBT<br>T: PTFE  |

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

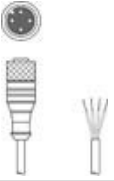

**Notes**
**Observe intended use!**

- 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

### 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<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2,000 mm<br>Sheathing material: PUR |
|  | 50130657 | KD U-M12-4A-P1-050 | Connection cable | Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PUR |

### Mounting technology - Other

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