



**Part no.: 50135737**  
**LCS-1M30P-F15NNC-K020P**  
**Capacitive sensor**



Figure can vary

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## Technical data

| <b>Basic data</b>                        |   |
|--|---|
| Series                                   | LCS-1   |
| Switching distance $S_n$                 | 2 ... 15 mm   |
| Assured switching distance               | 15 mm   |
| <b>Characteristic parameters</b>         |   |
| MTTF                                     | 343 years   |
| <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 % , 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<br>Voltage supply                            |
| Cable length                             | 2,000 mm  |
| Sheathing material                       | PUR   |
| Number of conductors                     | 3 -wire   |
| Wire cross section                       | 0.34 mm <sup>2</sup>                                    |
| <b>Mechanical data</b>                   |   |
| Design                                   | Cylindrical   |
| Thread size                              | M30 x 1.5 mm  |
| Dimension ( $\varnothing$ x L)           | 30 mm x 66.5 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            | 100 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 |
|--------------------------------|---------------|

**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          |

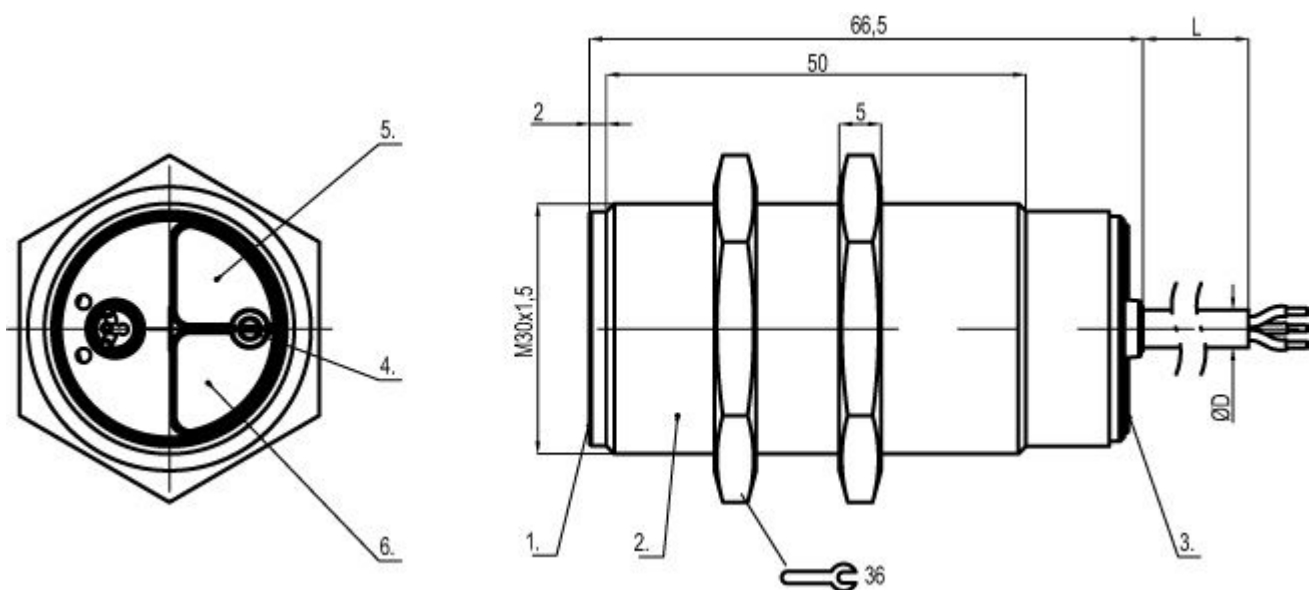
|                 |              |
|-----------------|--------------|
| Paper           | 0.1          |
| Polyamide       | 0.3          |
| Polyester resin | 0.15 ... 0.5 |
| Pressboard      | 0.1 ... 0.3  |
| PTFE            | 0.1          |
| Quartz glass    | 0.2          |
| Salt            | 0.35         |
| 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



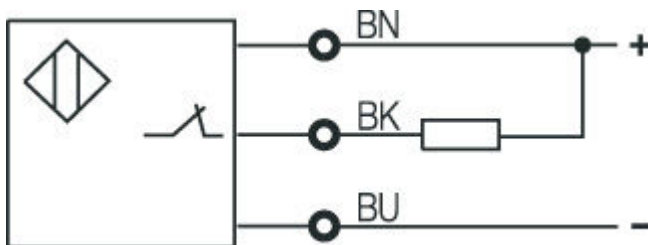
- 1 Active surface
- 2 Housing
- 3 Cover
- 4 Potentiometer
- 5 Green LED, operating voltage display
- 6 Yellow LED, function indicator

## Electrical connection

| Connection 1         |                              |
|----------------------|------------------------------|
| Type of connection   | Cable                        |
| Function             | Signal OUT<br>Voltage supply |
| Cable length         | 2,000 mm                     |
| Sheathing material   | PUR                          |
| Cable color          |                              |
| Number of conductors | 3 -wire                      |
| Wire cross section   | 0.34 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><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.