

## Technical data sheet

### Inductive switch

Part no.: 50154810

IS 212MM/4NO.5F-4E0-S12



For illustration purposes only

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## Technical data

### Basic data

|                                   |              |
|-----------------------------------|--------------|
| Series                            | 212          |
| type. operating range limit $S_n$ | 4 mm         |
| Operating range $S_a$             | 0 ... 3.2 mm |

### Special version

|                 |                                  |
|-----------------|----------------------------------|
| Special version | Washdown at 100°C for 15 minutes |
|-----------------|----------------------------------|

### Characteristic parameters

### Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Inductive protection         |
|                    | 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                     | 0 ... 15 mA                                       |
| Temperature drift, max. (in % of $S_r$ ) | 10 %, Over the entire operating temperature range |
| Repeatability, max. (in % of $S_r$ )     | 5 %, Over the entire operating temperature range  |
| Switching hysteresis                     | 20 %                                              |

### Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 1 Piece(s) |
|-------------------------------------|------------|

### Switching outputs

|                         |        |
|-------------------------|--------|
| Voltage type            | DC     |
| Switching current, max. | 200 mA |
| Residual current, max.  | 0.1 mA |
| Voltage drop            | ≤ 2 V  |

### Switching output 1

|                     |                    |
|---------------------|--------------------|
| Switching element   | Transistor, PNP    |
| Switching principle | NO (normally open) |

### Time behavior

|                     |          |
|---------------------|----------|
| Switching frequency | 2,000 Hz |
| Readiness delay     | 50 ms    |

### Connection

|                                      |                 |
|--------------------------------------|-----------------|
| Number of connections                | 1 Piece(s)      |
| <b>Connection 1</b>                  |                 |
| Function                             | Signal OUT      |
|                                      | Voltage supply  |
| Type of connection                   | Connector       |
| Tightening torque per thread section | 25 Nm           |
| Thread size                          | M12             |
| Type                                 | Male            |
| Material                             | Stainless steel |
| No. of pins                          | 4 -pin          |
| Encoding                             | A-coded         |

### Mechanical data

|                          |                    |
|--------------------------|--------------------|
| Design                   | Cylindrical        |
| Dimension (Ø x L)        | 12 mm x 64.6 mm    |
| Thread size              | M12 x 1 mm         |
| Type of installation     | Embedded/flush     |
| Housing material         | AISI 316L          |
|                          | Stainless steel    |
| Sensing face material    | Plastic, PPS       |
| Net weight               | 30 g               |
| Housing color            | White              |
| Type of fastening        | Mounting thread    |
| Standard measuring plate | 12 x 12 mm², Fe360 |

### Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 1 Piece(s) |

### Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 80 °C |
| Ambient temperature, storage   | -40 ... 80 °C |

### Certifications

|                                                    |               |
|----------------------------------------------------|---------------|
| Degree of protection                               | IP 67         |
|                                                    | IP 68         |
|                                                    | IP 69K        |
| Approvals                                          | c UL US       |
| Test procedure for EMC in accordance with standard | IEC 60947-5-2 |

### Correction factors

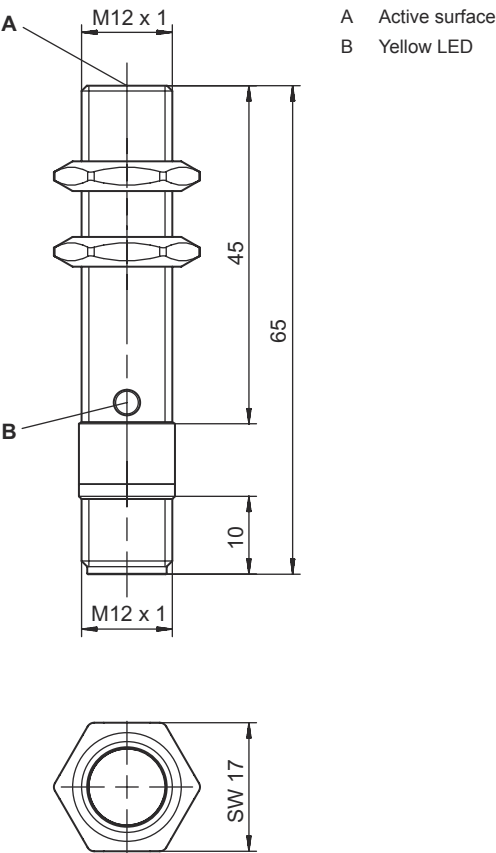
|                 |      |
|-----------------|------|
| Aluminum        | 0.35 |
| Stainless steel | 0.75 |
| Copper          | 0.3  |
| Brass           | 0.4  |
| Fe360 steel     | 1    |

### Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365019 |
| ECLASS 5.1.4          | 27270101 |
| ECLASS 8.0            | 27270101 |
| ECLASS 9.0            | 27270101 |
| ECLASS 10.0           | 27270101 |
| ECLASS 11.0           | 27270101 |
| ECLASS 12.0           | 27274001 |
| ECLASS 13.0           | 27274001 |
| ECLASS 14.0           | 27274001 |
| ECLASS 15.0           | 27274001 |
| ECLASS 16.0           | 27274001 |
| ETIM 5.0              | EC002714 |
| ETIM 6.0              | EC002714 |
| ETIM 7.0              | EC002714 |
| ETIM 8.0              | EC002714 |
| ETIM 9.0              | EC002714 |
| ETIM 10.0             | EC002714 |
| UNSPSC 26.08          | 39122230 |

Dimensioned drawings

All dimensions in millimeters



Electrical connection

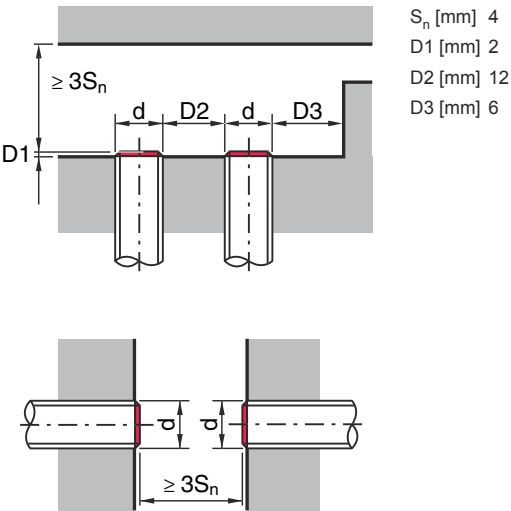
Connection 1

|                    |                 |
|--------------------|-----------------|
| Function           | Signal OUT      |
|                    | Voltage supply  |
| Type of connection | Connector       |
| Thread size        | M12             |
| Type               | Male            |
| Material           | Stainless steel |
| No. of pins        | 4 -pin          |
| Encoding           | A-coded         |

| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | not connected  |
| 3   | GND            |
| 4   | OUT 1          |

Diagrams

Embedded/flush installation



Operation and display

| LED | Display                  | Meaning                          |
|-----|--------------------------|----------------------------------|
| 1   | Yellow, continuous light | Switching output/switching state |

Part number code

Part designation: ISX YYY ZZ/AAA.BB-CCC-DDD-DDD

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ISX | <b>Operating principle / construction</b><br>IS: inductive switch, standard design<br>ISS: inductive switch, short construction                                                                                                                                                                                                                                                                                                                                                      |
| YYY | <b>Series</b><br>203: series with Ø 3 mm<br>204: series with Ø 4 mm<br>205: series with M5 x 0.5 external thread<br>206: series with Ø 6.5 mm<br>208: series with M8 x 1 external thread<br>212: series with M12 x 1 external thread<br>218: series with M18 x 1 external thread<br>230: series with M30 x 1.5 external thread<br>240: series in cubic design<br>244: series in cubic design<br>255: series with 5 x 5 mm² cross section<br>288: series with 8 x 8 mm² cross section |
| ZZ  | <b>Housing / thread</b><br>MM: metal housing (active surface: plastic) / metric thread<br>FM: Full-metal housing (active surface: stainless steel AISI 316L) / metric thread<br>MP: metal housing (active surface: plastic) / smooth (without thread)<br>.2: New version                                                                                                                                                                                                             |
| AAA | <b>Output current / supply</b><br>4NO: PNP transistor, NO contact<br>4NC: PNP transistor, NC contact<br>2NO: NPN transistor, NO contact<br>2NC: NPN transistor, NC contact<br>1NO: relay, NO contact / AC/DC<br>1NC: Relay, NC contact / AC/DC<br>44: 2 PNP transistor switching outputs, antivalent (NO + NC)<br>22: 2 NPN transistor switching outputs, antivalent (NO + NC)<br>L: IO-Link interface<br>X: pin not used                                                            |
| BB  | <b>Special equipment</b><br>n/a: no special equipment<br>5F: Food version<br>5: housing material V2A (1.4305, AISI 303)                                                                                                                                                                                                                                                                                                                                                              |

## Part number code

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-----|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| CCC | <b>Measurement range / type of installation</b><br>1E0: typ. range limit 1.0 mm / embedded/flush installation<br>1E5: typ. range limit 1.5 mm / embedded/flush installation<br>2E0: typ. range limit 2.0 mm / embedded/flush installation<br>3E0: typ. range limit 3.0 mm / embedded/flush installation<br>4E0: typ. range limit 4.0 mm / embedded/flush installation<br>5E0: typ. range limit 5.0 mm / embedded/flush installation<br>6E0: typ. range limit 6.0 mm / embedded/flush installation<br>8E0: typ. range limit 8.0 mm / embedded/flush installation<br>10E: typ. range limit 10.0 mm / embedded/flush installation<br>12E: typ. range limit 12.0 mm / embedded/flush installation<br>15E: typ. range limit 15.0 mm / embedded/flush installation<br>20E: typ. range limit 20.0 mm / embedded/flush installation<br>22E: typ. range limit 22.0 mm / embedded/flush installation<br>2N5: typ. range limit 2.5 mm / non-embedded/non-flush installation<br>4N0: typ. range limit 4.0 mm / non-embedded/non-flush installation<br>8N0: typ. range limit 8.0 mm / non-embedded/non-flush installation<br>10N: typ. range limit 10.0 mm / non-embedded/non-flush installation<br>12N: typ. range limit 12.0 mm / non-embedded/non-flush installation<br>14N: typ. range limit 14.0 mm / non-embedded/non-flush installation<br>15N: typ. range limit 15.0 mm / non-embedded/non-flush installation<br>20N: typ. range limit 20.0 mm / non-embedded/non-flush installation<br>22N: typ. range limit 22.0 mm / non-embedded/non-flush installation<br>25N: typ. range limit 25.0 mm / non-embedded/non-flush installation<br>40N: typ. range limit 40.0 mm / non-embedded/non-flush installation |
| DDD | <b>Electrical connection</b><br>n/a: cable, standard length 2000 mm<br>S12: M12 connector, 4-pin, axial<br>200-S12: cable, length 200 mm with M12 connector, 4-pin, axial<br>200-S8.3: cable, length 200 mm with M8 connector, 3-pin, axial<br>S8.3: M8 connector, 3-pin, axial<br>005-S8.3: cable, length 500 mm with M8 connector, 3-pin, axial<br>050: cable, standard length 5000 mm, 3-wire                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

### Note



↗ A list with all available device types can be found on the Leuze 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.



### For UL applications:



- ↗ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).

## Accessories

### Connection technology - Connection cables

|                                                                                    | Part no. | Designation            | Article          | Description                                                                                                                                                                                                                                  |
|------------------------------------------------------------------------------------|----------|------------------------|------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50130654 | KD U-M12-4A-P1-020     | Connection cable | Application: Oil and lubricant resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<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 | Application: Oil and lubricant resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PUR                |
|                                                                                    | 50148349 | KD U-M12-4A-T0-020 F+B | Connection cable | Application: Hygienic and wet areas, Chemical resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2,000 mm<br>Sheathing material: TPE |
|                                                                                    | 50148350 | KD U-M12-4A-T0-050 F+B | Connection cable | Application: Chemical resistant, Hygienic and wet areas<br>Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: TPE |
|                                                                                    | 50130648 | KD U-M12-4A-V1-020     | Connection cable | Application: Chemical resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 2,000 mm<br>Sheathing material: PVC                         |
|                                                                                    | 50130652 | KD U-M12-4A-V1-050     | Connection cable | Application: Chemical resistant<br>Connection 1: Connector, M12, Axial, Female, A-coded, 4 -pin<br>Connector, LED: No<br>Connection 2: Open end<br>Shielded: No<br>Cable length: 5,000 mm<br>Sheathing material: PVC                         |

### Mounting technology - Other

|                                                                                     | Part no. | Designation | Article | Description                                                                                                                                                                                                         |
|-------------------------------------------------------------------------------------|----------|-------------|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 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 |

Accessories

| Note                                                                             |                                                                                                                                  |
|----------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|
|  | <p>A list with all available accessories can be found on the Leuze website in the Download tab of the article detailed page.</p> |