

## Technical data sheet

### Inductive switch

Part no.: 50141491

ISS 230MM/44-15E-S12



For illustration purposes only

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Technical data

Basic data

|                                           |                |
|-------------------------------------------|----------------|
| Series                                    | 230            |
| Typ. operating range limit S <sub>n</sub> | 15 mm          |
| Operating range S <sub>a</sub>            | 0 ... 12.15 mm |

Special version

|                 |            |
|-----------------|------------|
| Special version | Antivalent |
|-----------------|------------|

Characteristic parameters

|      |           |
|------|-----------|
| MTTF | 850 years |
|------|-----------|

Electrical data

|                    |                              |
|--------------------|------------------------------|
| Protective circuit | Polarity reversal protection |
|                    | Short circuit protected      |
|                    | Transient protection         |

Performance data

|                                                   |                                 |
|---------------------------------------------------|---------------------------------|
| Supply voltage U <sub>B</sub>                     | 10 ... 36 V, DC                 |
| Residual ripple                                   | 0 ... 10 %, From U <sub>B</sub> |
| Open-circuit current                              | 0 ... 16 mA                     |
| Temperature drift, max. (in % of S <sub>r</sub> ) | 19 %                            |
| Repeatability, max. (in % of S <sub>r</sub> )     | 10 %                            |
| Switching hysteresis                              | 20 %                            |

Outputs

|                                     |            |
|-------------------------------------|------------|
| Number of digital switching outputs | 2 Piece(s) |
|-------------------------------------|------------|

Switching outputs

|                         |         |
|-------------------------|---------|
| Voltage type            | DC      |
| Switching current, max. | 200 mA  |
| Residual current, max.  | 0.05 mA |
| Voltage drop            | ≤ 2 V   |

Switching output 1

|                     |                         |
|---------------------|-------------------------|
| Switching element   | Transistor, PNP         |
| Switching principle | NO contact – Antivalent |

Switching output 2

|                     |                         |
|---------------------|-------------------------|
| Switching element   | Transistor, PNP         |
| Switching principle | NC contact – Antivalent |

Time behavior

|                     |          |
|---------------------|----------|
| Switching frequency | 1,000 Hz |
| Readiness delay     | 50 ms    |

Connection

|                       |            |
|-----------------------|------------|
| Number of connections | 1 Piece(s) |
|-----------------------|------------|

Connection 1

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

Mechanical data

|                          |                             |
|--------------------------|-----------------------------|
| Design                   | Cylindrical                 |
| Thread size              | M30 x 1.5 mm                |
| Dimension (Ø x L)        | 30 mm x 55 mm               |
| Type of installation     | Embedded                    |
| Housing material         | Metal                       |
| Metal housing            | Nickel-plated brass         |
| Sensing face material    | Plastic, Polybutylene (PBT) |
| Net weight               | 68 g                        |
| Housing color            | Gray                        |
|                          | Silver                      |
| Type of fastening        | Mounting thread             |
| Standard measuring plate | 45 x 45 mm², Fe360          |

Operation and display

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

Environmental data

|                                |               |
|--------------------------------|---------------|
| Ambient temperature, operation | -40 ... 70 °C |
| Ambient temperature, storage   | -40 ... 80 °C |

Certifications

|                                                    |                          |
|----------------------------------------------------|--------------------------|
| Degree of protection                               | IP 67                    |
| Protection class                                   | II                       |
| Certifications                                     | c UL US                  |
| Test procedure for EMC in accordance with standard | EN 61000-4-2, -3, -4, -8 |

Correction factors

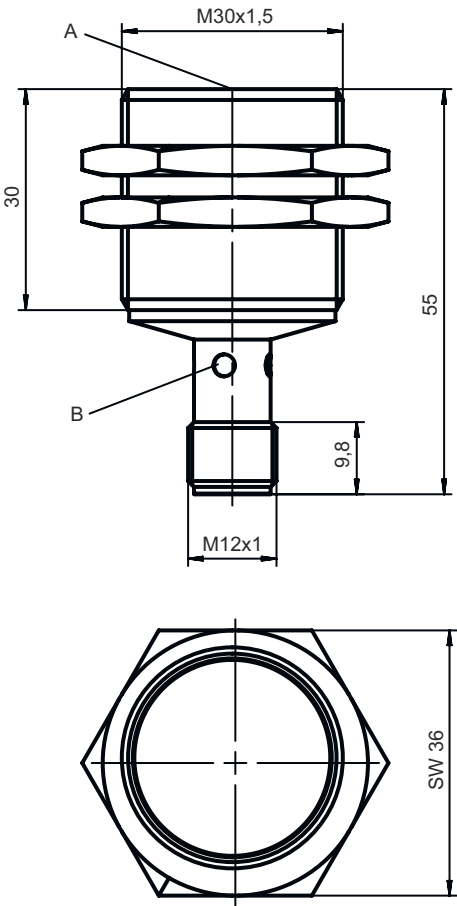
|                 |     |
|-----------------|-----|
| Aluminum        | 0.5 |
| Stainless steel | 0.7 |
| Copper          | 0.3 |
| Brass           | 0.5 |
| Fe360 steel     | 1   |

Classification

|                       |          |
|-----------------------|----------|
| Customs tariff number | 85365080 |
| 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 |
| ETIM 5.0              | EC002714 |
| ETIM 6.0              | EC002714 |
| ETIM 7.0              | EC002714 |
| ETIM 8.0              | EC002714 |
| ETIM 9.0              | EC002714 |

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           | Metal          |
| No. of pins        | 4 -pin         |
| Encoding           | A-coded        |

| Pin | Pin assignment |
|-----|----------------|
| 1   | V+             |
| 2   | OUT 2          |
| 3   | GND            |
| 4   | OUT 1          |



Diagrams

Embedded installation



Operation and display

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

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 $\varnothing$ 3 mm<br>204: series with $\varnothing$ 4 mm<br>205: series with M5 x 0.5 external thread<br>206: series with $\varnothing$ 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 mm <sup>2</sup> cross section<br>288: series with 8 x 8 mm <sup>2</sup> 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)                                                                                                                                                                                                                                                                                            |

Part number code

|     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 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)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| BB  | <b>Special equipment</b><br>n/a: no special equipment<br>5F: Food version<br>5: housing material V2A (1.4305, AISI 303)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| CCC | <b>Measurement range / type of installation</b><br>1E0: typ. range limit 1.0 mm / embedded installation<br>1E5: typ. range limit 1.5 mm / embedded installation<br>2E0: typ. range limit 2.0 mm / embedded installation<br>3E0: typ. range limit 3.0 mm / embedded installation<br>4E0: typ. range limit 4.0 mm / embedded installation<br>5E0: typ. range limit 5.0 mm / embedded installation<br>6E0: typ. range limit 6.0 mm / embedded installation<br>8E0: typ. range limit 8.0 mm / embedded installation<br>10E: typ. range limit 10.0 mm / embedded installation<br>12E: typ. range limit 12.0 mm / embedded installation<br>15E: typ. range limit 15.0 mm / embedded installation<br>20E: typ. range limit 20.0 mm / embedded installation<br>22E: typ. range limit 22.0 mm / embedded installation<br>2N5: typ. range limit 2.5 mm / non-embedded installation<br>4N0: typ. range limit 4.0 mm / non-embedded installation<br>8N0: typ. range limit 8.0 mm / non-embedded installation<br>10N: typ. range limit 10.0 mm / non-embedded installation<br>12N: typ. range limit 12.0 mm / non-embedded installation<br>14N: typ. range limit 14.0 mm / non-embedded installation<br>15N: typ. range limit 15.0 mm / non-embedded installation<br>20N: typ. range limit 20.0 mm / non-embedded installation<br>22N: typ. range limit 22.0 mm / non-embedded installation<br>25N: typ. range limit 25.0 mm / non-embedded installation<br>40N: typ. range limit 40.0 mm / non-embedded 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                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

Notes

|                                                                                                                  |                                                                                                                                                                                                                                                                                   |
|------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  <b>Observe intended use!</b> |                                                                                                                                                                                                                                                                                   |
|                                | <ul style="list-style-type: none"><li>⚡ This product is not a safety sensor and is not intended as personnel protection.</li><li>⚡ The product may only be put into operation by competent persons.</li><li>⚡ Only use the product in accordance with its intended use.</li></ul> |
|  <b>For UL applications:</b>  |                                                                                                                                                                                                                                                                                   |
|                                | <ul style="list-style-type: none"><li>⚡ For UL applications, use is only permitted in Class 2 circuits in accordance with the NEC (National Electric Code).</li></ul>                                                                                                             |

## 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>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 | 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 |
|                                                                                    | 50130648 | KD U-M12-4A-V1-020 | Connection cable | 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 | 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 - Mounting brackets

|                                                                                     | Part no. | Designation | Article          | Description                                                                                                                                                                                                                    |
|-------------------------------------------------------------------------------------|----------|-------------|------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50113510 | BT D30M.5   | Mounting bracket | Diameter, inner: 30.2 mm<br>Design of mounting device: Angle, L-shape<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Screw type<br>Type of mounting device: Rigid<br>Material: Stainless steel |

### Mounting technology - Other

|                                                                                    | Part no. | Designation | Article | Description                                                                                                                                                                                                                         |
|------------------------------------------------------------------------------------|----------|-------------|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | 50111503 | MC 030K     | Clamp   | Diameter, inner: 30 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                 |
|  | 50111504 | MC 030K-LS  | Clamp   | Diameter, inner: 30 mm<br>Design of mounting device: Mounting clamp<br>Fastening, at system: Through-hole mounting<br>Mounting bracket, at device: Clampable with limit stop<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> |