

## Technical data sheet

### Inductive switch

Part no.: 50130004

ISS 144 PP/2NO-20E-M12

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For illustration purposes only



## Technical data

### Basic data

|                                   |             |
|-----------------------------------|-------------|
| Series                            | 144         |
| type. operating range limit $S_n$ | 20 mm       |
| Operating range $S_a$             | 0 ... 16 mm |

### Electrical data

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

### Performance data

|  |                  |
|--|------------------|
| Supply voltage $U_B$                     | 10 ... 30 V, DC  |
| Residual ripple                          | 10 %, From $U_B$ |
| Open-circuit current                     | 0 ... 10 mA      |
| Temperature drift, max. (in % of $S_r$ ) | 10 %             |
| Repeatability, max. (in % of $S_r$ )     | 1 %              |
| Switching hysteresis                     | 15 %             |

### Outputs

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

### Switching outputs

|                         |         |
|-------------------------|---------|
| Voltage type            | DC      |
| Switching current, max. | 200 mA  |
| Residual current, max.  | 0.01 mA |
| Voltage drop            | ≤ 2 V   |

### Switching output 1

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

### Time behavior

|                     |        |
|---------------------|--------|
| Switching frequency | 300 Hz |
|---------------------|--------|

### 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                   | Cubic                           |
| Dimension (W x H x L)    | 54 mm x 40 mm x 65 mm           |
| Type of installation     | Embedded/flush                  |
| Housing material         | Plastic                         |
| Plastic housing          | Polybutylene (PBT)              |
| Sensing face material    | Plastic, Polybutylene (PBT)     |
| Net weight               | 145 g                           |
| Housing color            | Black                           |
|                          | Red, RAL 3000                   |
| Type of fastening        | Through-hole mounting           |
| Standard measuring plate | 60 x 60 mm <sup>2</sup> , Fe360 |

### Operation and display

|                 |            |
|-----------------|------------|
| Type of display | LED        |
| Number of LEDs  | 2 Piece(s) |

### Environmental data

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

### Certifications

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

### Correction factors

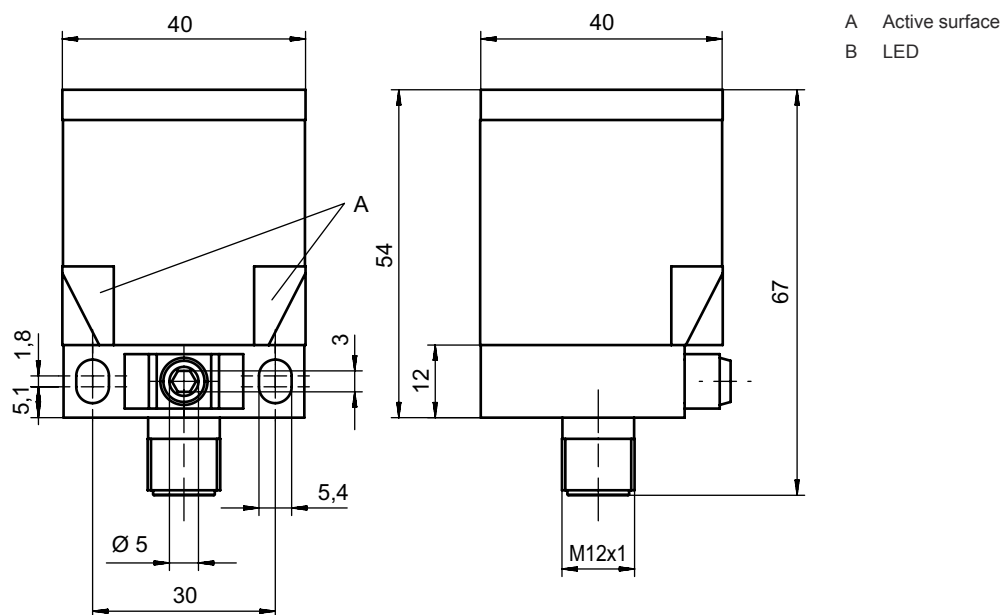
|             |   |
|-------------|---|
| Fe360 steel | 1 |
|-------------|---|

### 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 |

# Dimensioned drawings

All dimensions in millimeters



## Electrical connection

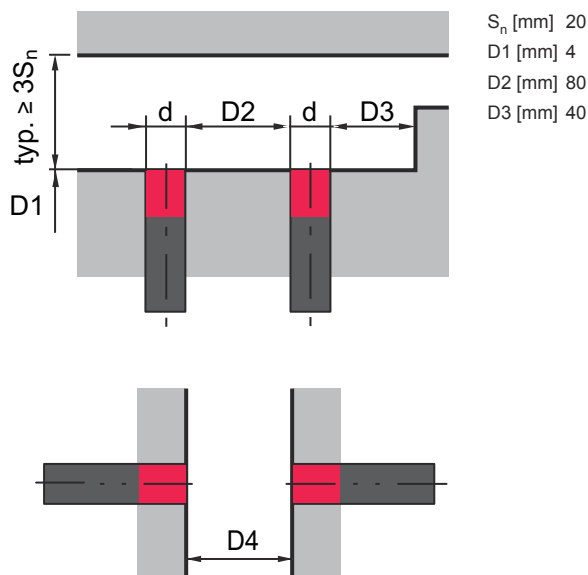
### Connection 1

|                    |                |
|--------------------|----------------|
| 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   | n.c.           |
| 3   | GND            |
| 4   | OUT 1          |

## Diagrams

### Embedded/flush installation



## Operation and display

| LED | Display                  | Meaning                          |
|-----|--------------------------|----------------------------------|
| 1   | Yellow, continuous light | Switching output/switching state |
| 2   | Green, continuous light  | Operational readiness            |

## Part number code

Part designation: **ISX** YYY **XX**/**ZZZ**-AAA-BBBB

|            |  |
|------------|--|
| <b>ISX</b> | <b>Operating principle / construction</b><br>IS: inductive switch, standard design<br>ISS: inductive switch, short construction  |
| <b>YYY</b> | <b>Series</b><br>104: series with $\varnothing$ 4.0 mm<br>108: series with M8 x 1 external thread<br>112: series with M12 x 1 external thread<br>118: series with M18 x 1 external thread<br>122: series in cubic design with 18 x 18 mm<br>130: series with M30 x 1.5 external thread<br>144: series in cubic design with 40 x 40 mm<br>180: series in cubic design with 80 x 80 mm |
| <b>XX</b>  | <b>Housing</b><br>MM: metal housing (active surface: plastic) / metric thread<br>PP: Plastic housing<br>MP: metal housing (active surface: plastic) / smooth (without thread)  |
| <b>ZZZ</b> | <b>Switching output</b><br>4NO: PNP transistor, NO contact<br>4NC: PNP transistor, NC contact<br>44: PNP transistor, NO contact / NC contact<br>2NO: NPN transistor, NO contact<br>2NC: NPN transistor, NC contact<br>22: NPN transistor, NO contact / NC contact<br>1NO: relay, NO contact / AC/DC<br>1NC: Relay, NC contact / AC/DC  |

## Part number code

|            |   |
|------------|---|
| <b>AAA</b> | <p><b>Measurement range / type of installation</b></p> <p>1E2: typ. range limit 1.2 mm / embedded/flush installation<br/>                 2E0: typ. range limit 2.0 mm / embedded/flush installation<br/>                 4E0: typ. range limit 4.0 mm / embedded/flush installation<br/>                 4N0: typ. range limit 4.0 mm / non-embedded/non-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/>                 8N0: typ. range limit 8.0 mm / non-embedded/non-flush installation<br/>                 10E: typ. range limit 10.0 mm / embedded/flush installation<br/>                 15N: typ. range limit 15.0 mm / non-embedded/non-flush installation<br/>                 16E: typ. range limit 16.0 mm / embedded/flush installation<br/>                 16N: typ. range limit 16.0 mm / non-embedded/non-flush installation<br/>                 20E: typ. range limit 20.0 mm / embedded/flush installation<br/>                 25N: typ. range limit 25.0 mm / non-embedded/non-flush installation<br/>                 30N: typ. range limit 30.0 mm / non-embedded/non-flush installation<br/>                 40N: typ. range limit 40.0 mm / non-embedded/non-flush installation<br/>                 50N: typ. range limit 50.0 mm / non-embedded/non-flush installation<br/>                 2E5: Typ. range limit 2.5 mm / embedded/flush installation</p> |
|------------|---|

|            |   |
|------------|---|
| <b>DDD</b> | <p><b>Electrical connection</b></p> <p>n/a: cable, standard length 2000 mm, 3-wire<br/>                 M8.3: M8 connector, 3-pin (plug)<br/>                 M12: M12 connector, 4-pin (plug)<br/>                 TB.4: terminals, 4-pin<br/>                 050: cable, standard length 5000 mm, 3-wire</p> |
|------------|---|

### Note

|  |  |
|--|--|
|  | <p>A list with all available device types can be found on the Leuze website at <a href="http://www.leuze.com">www.leuze.com</a>.</p> |
|--|--|

## Notes

### Observe intended use!

|  |   |
|--|---|
|  | <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> |
|--|---|