



## Safety sensor eloProtect E 153ESK

Safety sensor 153ESK eloProtectE – our smallest. The RFID technology used in the eloProtectE sensors offers the user individual coding options. As a result, the tampering protection can be selected according to the application and increases the safety of the application.

The use of this new technology simplifies the mounting conditions through larger offset values.

The direct monitoring of large contactors via the EDM input is possible thanks to the integrated evaluation electronics and the high switching capacity. This means no additional safety modules are necessary.

### Technical specifications

- Available connection types: cable outlet, M12 pigtail
- contact form: OSSD
- Optional LED display (3-colour)
- Safety outputs: 2
- Diagnostic output: 1
- Safety inputs: 2
- Protection class IP6K9K (ISO 20653)
- Stand-Alone device (EDM input)
- Smallest special design on market
- Series connection with up to 30 sensors
- Fastest response time

## Technical drawing

IMAGE 1/3

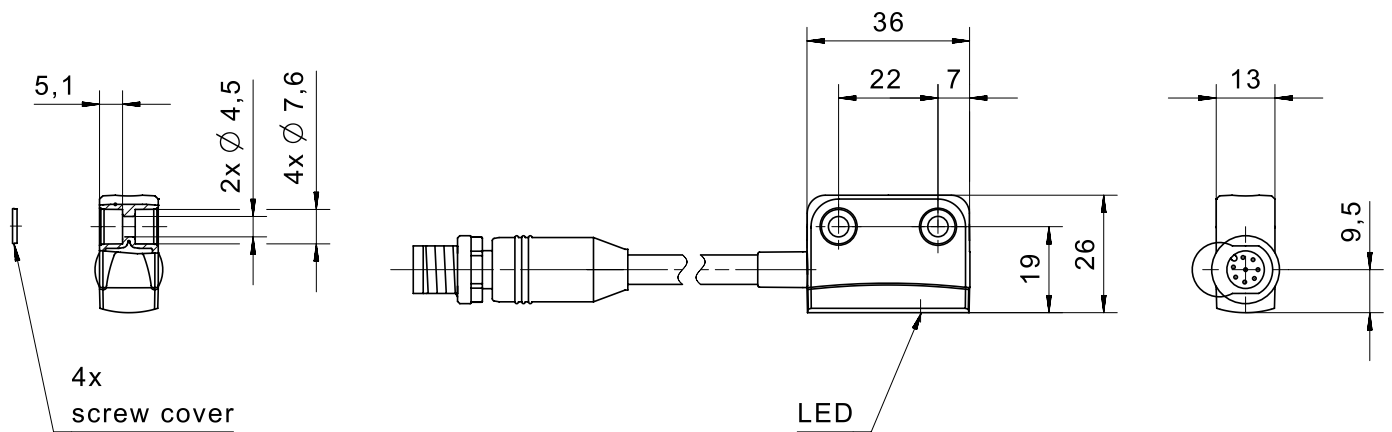


IMAGE 2/3

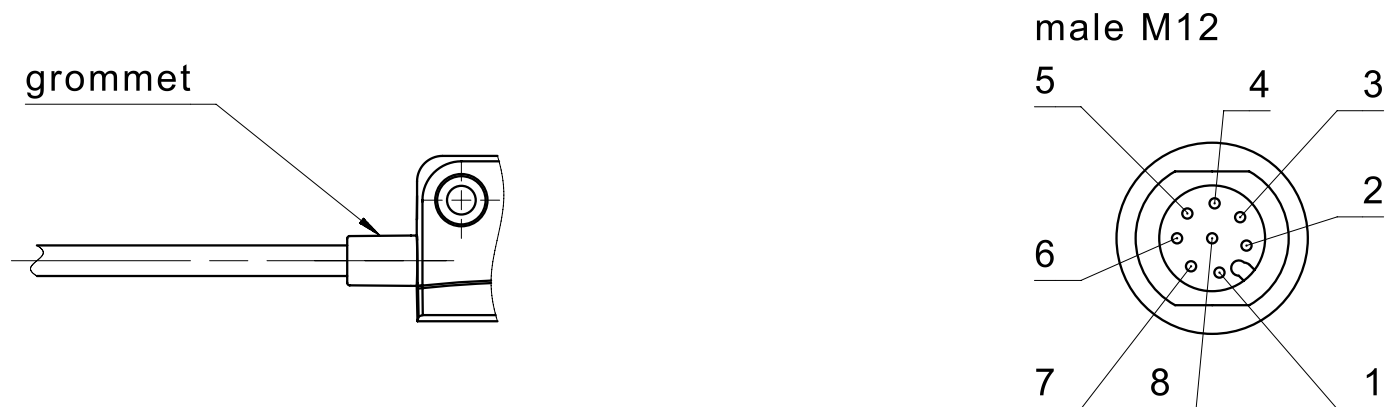
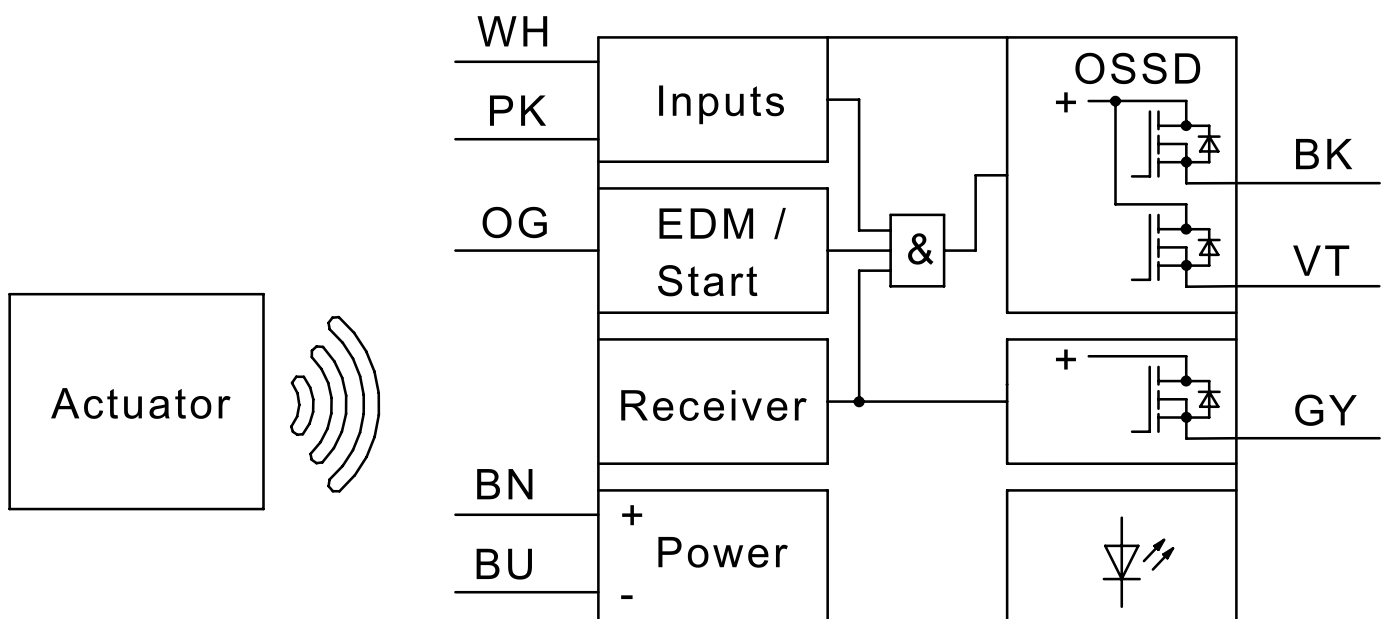
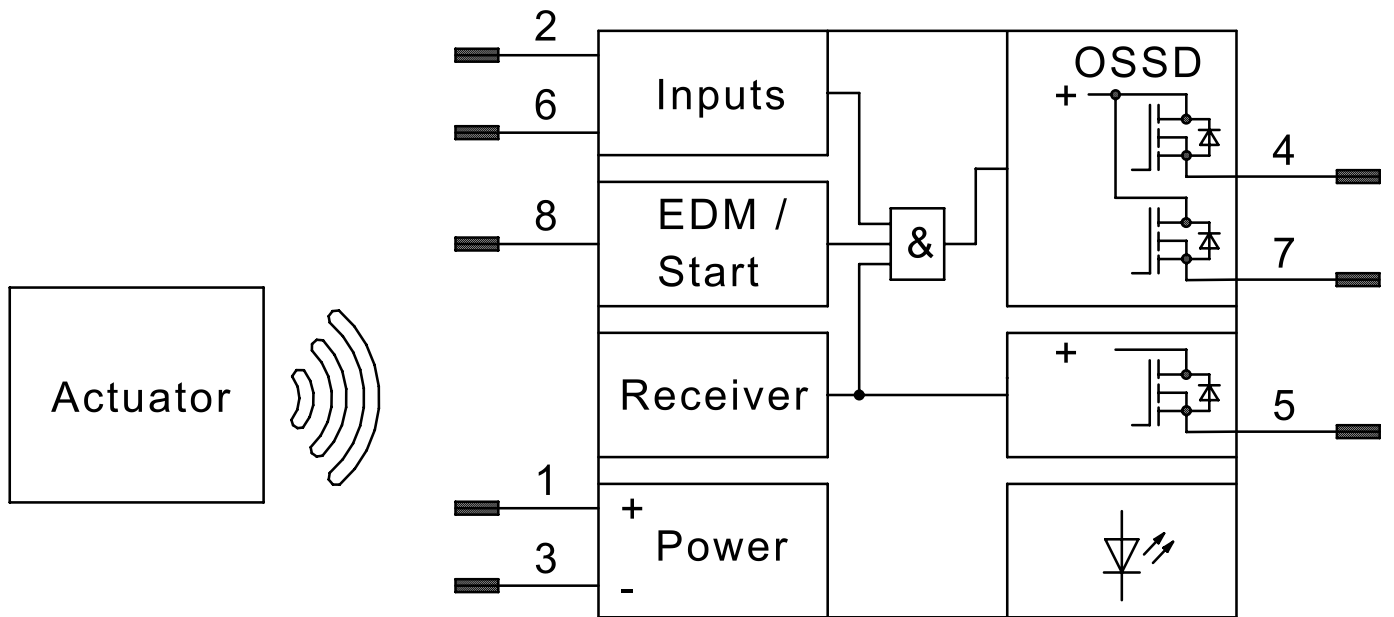
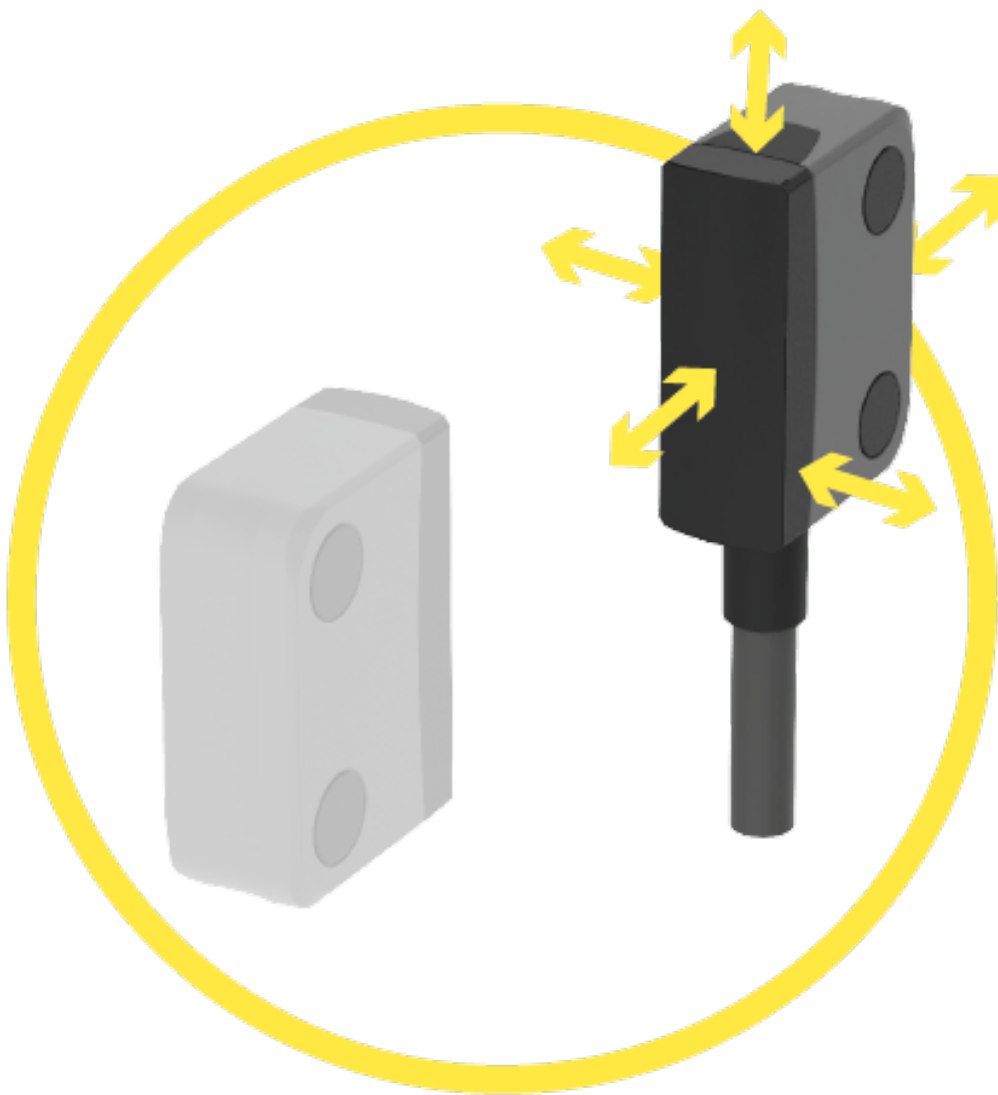


IMAGE 3/3



## Product options

IMAGE 1/2



**Suitable for actuation from any direction. Operating distance (Sao) 8 mm. Assured switch-off distance (Sar) 18 mm.**

IMAGE 2/2

## ORDERING KEY

| 153 ESK | 00 |   |   |   |     | Safety sensor, electronic, RFID                                      |
|---------|----|---|---|---|-----|--|
|         |    | K |   |   |     | Connection cable – PVC - 1m  |
|         |    | J |   |   |     | Connection pigtail – PVC – M12, 8-pin                                |
|         |    |   | 1 |   |     | Standard-coded   |
|         |    |   | 2 |   |     | Unique (actuator included with sensor)                               |
|         |    |   | 3 |   |     | Programmable   |
|         |    |   |   | 1 |     | EDM input automatic  |
|         |    |   |   | 2 |     | EDM input manual (start push button)                                 |
|         |    |   |   |   |     |  |
|         |    |   |   |   |     | <b>Other available cable lengths (only with "K" at 9th position)</b> |
|         |    |   |   |   | -3  | 3 m  |
|         |    |   |   |   | -5  | 5 m  |
|         |    |   |   |   | -10 | 10 m   |
|         |    |   |   |   |     | Other cable materials, cable lengths and connector types on request  |

## Article characteristics

| Attribute                                | 153ESK00J11    | 153ESK00J12 | 153ESK00J21 | 153ESK00J22 | 153ESK00J31        | 153ESK00J32 ▶ |
|--|----------------|-------------|-------------|-------------|--------------------|---------------|
| Max. switching current at safety output  | 0.4 A          |             |             |             |                    |               |
| Max. switching current at control output | 0.05 A         |             |             |             |                    |               |
| Contact form                             | OSSD           |             |             |             |                    |               |
| Switching frequency                      | 3 Hz           |             |             |             |                    |               |
| Assured switching distance (Sao)         | 8 mm           |             |             |             |                    |               |
| Assured switch-off distance (Sar)        | 18 mm          |             |             |             |                    |               |
| Minimum switching distance (S0 min)      | 0.5 mm         |             |             |             |                    |               |
| Polarity reversal protection             | yes            |             |             |             |                    |               |
| Number of electronic safety outputs      | 2              |             |             |             |                    |               |
| Number of electronic control outputs     | 1              |             |             |             |                    |               |
| Number of safety inputs                  | 2              |             |             |             |                    |               |
| EDM/start input                          | yes            |             |             |             |                    |               |
| Start function                           | automatic      | monitored   | automatic   | monitored   | automatic          | monitored     |
| Utilization category                     | AC-12 / DC-13  |             |             |             |                    |               |
| No-load current I0                       | 30 mA          |             |             |             |                    |               |
| Rated operating voltage (Ue)             | 24 V           |             |             |             |                    |               |
| Rated insulation voltage (Ui)            | 50 V           |             |             |             |                    |               |
| Rated impulse withstand voltage (Uimp)   | 1000 V         |             |             |             |                    |               |
| Current consumption per input            | 2.75 mA        |             |             |             |                    |               |
| Power consumption                        | 24 W           |             |             |             |                    |               |
| LED display                              | three-coloured |             |             |             |                    |               |
| Actuation                                | arbitrary      |             |             |             |                    |               |
| Switching principle                      | electronic     |             |             |             |                    |               |
| Hysteresis                               | 2 mm           |             |             |             |                    |               |
| wurde angepasst (Number)                 | 30             |             |             |             |                    |               |
| Technology                               | RFID           |             |             |             |                    |               |
| Coding variant                           | coded          |             | unikat      |             | individually coded |               |

| Attribute   | 153ESK00J11               | 153ESK00J12 | 153ESK00J21 | 153ESK00J22 | 153ESK00J31 | 153ESK00J32 ▶ |
|---|---------------------------|-------------|-------------|-------------|-------------|---------------|
| Repeating accuracy                                    | 0,5 mm                    |             |             |             |             |               |
| Rated switching distance (Sn)                         | 12 mm                     |             |             |             |             |               |
| Pollution degree                                      | 2                         |             |             |             |             |               |
| Overvoltage category                                  | II                        |             |             |             |             |               |
| Active surface (Number)                               | 1                         |             |             |             |             |               |
| Turn-on delay (ton)                                   | 75 ms                     |             |             |             |             |               |
| Readiness delay (tv)                                  | 1000 ms                   |             |             |             |             |               |
| Voltage drop (Ud)                                     | 0.75 V                    |             |             |             |             |               |
| Stabilised PELV/SELV power supply                     | required                  |             |             |             |             |               |
| Fuse operating voltage                                | 1A fast                   |             |             |             |             |               |
| Internal electronic fuse                              | yes                       |             |             |             |             |               |
| Short-circuit detection                               | yes                       |             |             |             |             |               |
| Cross-short detection                                 | yes                       |             |             |             |             |               |
| PL acc. to EN ISO 13849-1                             | e                         |             |             |             |             |               |
| SIL acc. to IEC 61508                                 | 3                         |             |             |             |             |               |
| SIL CL acc. to IEC 62061                              | 3                         |             |             |             |             |               |
| PFHD according to IEC 61508                           | 2,24x10 <sup>-9</sup> 1/h |             |             |             |             |               |
| Category acc. to EN ISO 13849-1                       | 4                         |             |             |             |             |               |
| Coding acc. to EN ISO 14119                           | Low                       |             | High        |             |             |               |
| Type acc. to EN ISO 14119                             | 4                         |             |             |             |             |               |
| Mission time in years                                 | 20 a                      |             |             |             |             |               |
| Structure acc. to EN ISO 13849-1                      | Two-channel               |             |             |             |             |               |
| Hardware fault tolerance (HFT) according to IEC 61508 | 1                         |             |             |             |             |               |
| Housing design  | rectangular               |             |             |             |             |               |
| Dimensions  | 26 x 36 x 13 mm           |             |             |             |             |               |
| Free zone   | 50 mm                     |             |             |             |             |               |
| Actuation frequency                                   | 180 1/h                   |             |             |             |             |               |
| Minimum installation distance (between two sensors)   | 150 mm                    |             |             |             |             |               |
| cannot be mounted flush                               | yes                       |             |             |             |             |               |

| Attribute  | 153ESK00J11                          | 153ESK00J12 | 153ESK00J21 | 153ESK00J22 | 153ESK00J31 | 153ESK00J32 ▶ |
|--|--------------------------------------|-------------|-------------|-------------|-------------|---------------|
| Housing material                                 | PBT, PC                              |             |             |             |             |               |
| Cable material                                   | PVC                                  |             |             |             |             |               |
| Housing colour                                   | grau, schwarz                        |             |             |             |             |               |
| Protection class, connector                      | IP67 DIN EN 60529                    |             |             |             |             |               |
| Operating temperature min.                       | -25 °C                               |             |             |             |             |               |
| Max. operating temperature                       | 70 °C                                |             |             |             |             |               |
| Min. cable temperature range, moving             | -5 °C                                |             |             |             |             |               |
| Max. cable temperature range, moving             | 80 °C                                |             |             |             |             |               |
| Min. cable temperature range, fixed installation | -30 °C                               |             |             |             |             |               |
| Max. cable temperature range, fixed installation | 80 °C                                |             |             |             |             |               |
| Shock resistance (Norm)                          | 30 g / 11 ms                         |             |             |             |             |               |
| Vibration resistance (Norm)                      | 10 ... 55 Hz                         |             |             |             | 10...55 Hz  | 10 ... 55 Hz  |
| Protection class, housing                        | IP67 DIN EN 60529 - IP6K9K ISO 20653 |             |             |             |             |               |
| Min. storage temperature                         | -25 °C                               |             |             |             |             |               |
| Max. storage temperature                         | 70 °C                                |             |             |             |             |               |
| Continuous shock resistance (Norm)               | 10 g / 16 ms                         |             |             |             |             |               |
| Relative humidity                                | 5 - 85 %                             |             |             |             |             |               |
| Air pressure                                     | 860 - 1060 hPa                       |             |             |             |             |               |
| Delta tmax                                       | 0.5 °C/min                           |             |             |             |             |               |
| Mounting type                                    | screwed                              |             |             |             |             |               |
| Weight   | 45 g                                 |             |             |             |             |               |
| Torque for fastening screws                      | 0.7 N m                              |             |             |             |             |               |
| Connector type                                   | M12x1 - 8 polig                      |             |             |             |             |               |
| Cable type                                       | LiYY                                 |             |             |             |             |               |
| Cable length                                     | 0.15 m                               |             |             |             |             |               |
| Number of strands                                | 8                                    |             |             |             |             |               |
| Wire cross section                               | 0.25 mm²                             |             |             |             |             |               |
| Cable colour                                     | grau                                 |             |             |             |             |               |

| Attribute                    | 153ESK00J11  | 153ESK00J12  | 153ESK00J21  | 153ESK00J22   | 153ESK00J31   | 153ESK00J32 ▶   |
|------------------------------|--|--|--|---|---|---|
| Certified in accordance with | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.5 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.7 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.9 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.11 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.13 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.15 |
| CE label                     | yes  |  |  |   |   |   |
| Possible actuators           | 153EBK001  |  |  |   |   |   |

| Attribute                                | 153ESK00K11    | 153ESK00K12 | 153ESK00K21 | 153ESK00K22 | 153ESK00K31        | 153ESK00K32 |
|--|----------------|-------------|-------------|-------------|--------------------|-------------|
| Max. switching current at safety output  | 0.4 A          |             |             |             |                    |             |
| Max. switching current at control output | 0.05 A         |             |             |             |                    |             |
| Contact form                             | OSSD           |             |             |             |                    |             |
| Switching frequency                      | 3 Hz           |             |             |             |                    |             |
| Assured switching distance (Sao)         | 8 mm           |             |             |             |                    |             |
| Assured switch-off distance (Sar)        | 18 mm          |             |             |             |                    |             |
| Minimum switching distance (S0 min)      | 0.5 mm         |             |             |             |                    |             |
| Polarity reversal protection             | yes            |             |             |             |                    |             |
| Number of electronic safety outputs      | 2              |             |             |             |                    |             |
| Number of electronic control outputs     | 1              |             |             |             |                    |             |
| Number of safety inputs                  | 2              |             |             |             |                    |             |
| EDM/start input                          | yes            |             |             |             |                    |             |
| Start function                           | automatic      | monitored   | automatic   | monitored   | automatic          | monitored   |
| Utilization category                     | AC-12 / DC-13  |             |             |             |                    |             |
| No-load current I0                       | 30 mA          |             |             |             |                    |             |
| Rated operating voltage (Ue)             | 24 V           |             |             |             |                    |             |
| Rated insulation voltage (Ui)            | 50 V           |             |             |             |                    |             |
| Rated impulse withstand voltage (Uimp)   | 1000 V         |             |             |             |                    |             |
| Current consumption per input            | 2.75 mA        |             |             |             |                    |             |
| Power consumption                        | 24 W           |             |             |             |                    |             |
| LED display                              | three-coloured |             |             |             |                    |             |
| Actuation                                | arbitrary      |             |             |             |                    |             |
| Switching principle                      | electronic     |             |             |             |                    |             |
| Hysteresis                               | 2 mm           |             |             |             |                    |             |
| wurde angepasst (Number)                 | 30             |             |             |             |                    |             |
| Technology                               | RFID           |             |             |             |                    |             |
| Coding variant                           | coded          |             | unikat      |             | individually coded |             |
| Repeating accuracy                       | 0,5 mm         |             |             |             |                    |             |
| Rated switching distance (Sn)            | 12 mm          |             |             |             |                    |             |

| Attribute   | 153ESK00K11               | 153ESK00K12 | 153ESK00K21 | 153ESK00K22 | 153ESK00K31 | 153ESK00K32 |
|---|---------------------------|-------------|-------------|-------------|-------------|-------------|
| Pollution degree                                      | 2                         |             |             |             |             |             |
| Overvoltage category                                  | II                        |             |             |             |             |             |
| Active surface (Number)                               | 1                         |             |             |             |             |             |
| Turn-on delay (ton)                                   | 75 ms                     |             |             |             |             |             |
| Readiness delay (tv)                                  | 1000 ms                   |             |             |             |             |             |
| Voltage drop (Ud)                                     | 0.75 V                    |             |             |             |             |             |
| Stabilised PELV/SELV power supply                     | required                  |             |             |             |             |             |
| Fuse operating voltage                                | 1A fast                   |             |             |             |             |             |
| Internal electronic fuse                              | yes                       |             |             |             |             |             |
| Short-circuit detection                               | yes                       |             |             |             |             |             |
| Cross-short detection                                 | yes                       |             |             |             |             |             |
| PL acc. to EN ISO 13849-1                             | e                         |             |             |             |             |             |
| SIL acc. to IEC 61508                                 | 3                         |             |             |             |             |             |
| SIL CL acc. to IEC 62061                              | 3                         |             |             |             |             |             |
| PFHD according to IEC 61508                           | 2,24x10 <sup>-9</sup> 1/h |             |             |             |             |             |
| Category acc. to EN ISO 13849-1                       | 4                         |             |             |             |             |             |
| Coding acc. to EN ISO 14119                           | Low                       |             | High        |             |             |             |
| Type acc. to EN ISO 14119                             | 4                         |             |             |             |             |             |
| Mission time in years                                 | 20 a                      |             |             |             |             |             |
| Structure acc. to EN ISO 13849-1                      | Two-channel               |             |             |             |             |             |
| Hardware fault tolerance (HFT) according to IEC 61508 | 1                         |             |             |             |             |             |
| Housing design  | rectangular               |             |             |             |             |             |
| Dimensions  | 26 x 36 x 13 mm           |             |             |             |             |             |
| Free zone   | 50 mm                     |             |             |             |             |             |
| Actuation frequency                                   | 180 1/h                   |             |             |             |             |             |
| Minimum installation distance (between two sensors)   | 150 mm                    |             |             |             |             |             |
| cannot be mounted flush                               | yes                       |             |             |             |             |             |
| Housing material                                      | PBT, PC                   |             |             |             |             |             |
| Cable material  | PVC                       |             |             |             |             |             |
| Housing colour  | grau, schwarz             |             |             |             |             |             |
| Protection class, connector                           | -                         |             |             |             |             |             |

| Attribute  | 153ESK00K11  | 153ESK00K12  | 153ESK00K21  | 153ESK00K22   | 153ESK00K31   | 153ESK00K32   |
|--|--|--|--|---|---|---|
| Operating temperature min.                       | -25 °C   |  |  |   |   |   |
| Max. operating temperature                       | 70 °C  |  |  |   |   |   |
| Min. cable temperature range, moving             | -5 °C  |  |  |   |   |   |
| Max. cable temperature range, moving             | 80 °C  |  |  |   |   |   |
| Min. cable temperature range, fixed installation | -30 °C   |  |  |   |   |   |
| Max. cable temperature range, fixed installation | 80 °C  |  |  |   |   |   |
| Shock resistance (Norm)                          | 30 g / 11 ms   |  |  |   |   |   |
| Vibration resistance (Norm)                      | 10 ... 55 Hz   |  |  |   |   |   |
| Protection class, housing                        | IP67 DIN EN 60529 - IP6K9K ISO 20653   |  |  |   |   |   |
| Min. storage temperature                         | -25 °C   |  |  |   |   |   |
| Max. storage temperature                         | 70 °C  |  |  |   |   |   |
| Continuous shock resistance (Norm)               | 10 g / 16 ms   |  |  |   |   |   |
| Relative humidity                                | 5 - 85 %   |  |  |   |   |   |
| Air pressure                                     | 860 - 1060 hPa   |  |  |   |   |   |
| Delta tmax                                       | 0.5 °C/min   |  |  |   |   |   |
| Mounting type                                    | screwed  |  |  |   |   |   |
| Weight   | 70 g   |  |  |   |   |   |
| Torque for fastening screws                      | 0.7 N m  |  |  |   |   |   |
| Connector type                                   | -  |  |  |   |   |   |
| Cable type                                       | LiYY   |  |  |   |   |   |
| Cable length                                     | 1 m  |  |  |   |   |   |
| Number of strands                                | 8  |  |  |   |   |   |
| Wire cross section                               | 0.25 mm²   |  |  |   |   |   |
| Cable colour                                     | grau   |  |  |   |   |   |
| Certified in accordance with                     | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.4 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.6 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.8 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.10 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.12 | EN ISO 13849-1<br>IEC 61508 IEC<br>62061 EN 60947-<br>5-3 UL 508 / CSA<br>22.14 |
| CE label   | yes  |  |  |   |   |   |
| Possible actuators                               | 153EBK001  |  |  |   |   |   |