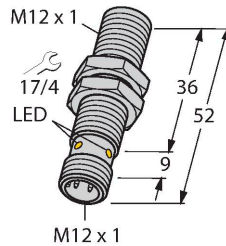


# BI4U-EM12WD-VP6X-H1141/3GD

## Inductive Sensor – For the Food Industry



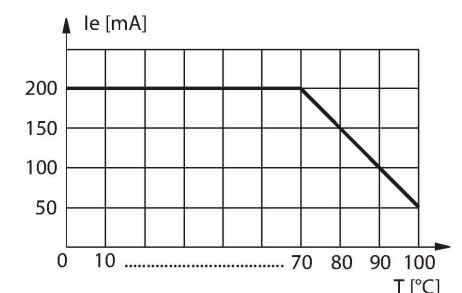
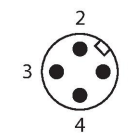
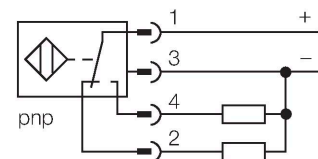
### Features

- Threaded barrel, M12 x 1
- Stainless steel, 1.4404
- Front cap made of liquid crystal polymer
- Factor 1 for all metals
- Resistant to magnetic fields
- For temperatures of -40 °C...+100 °C
- High protection class IP69K for harsh environments
- Special double-lip seal
- Protection against all common acidic and alkaline cleaning agents
- Laser engraved label, permanently legible
- DC 4-wire, 10...30 VDC
- Changeover contact, PNP output
- M12 x 1 male connector
- ATEX category II 3 G, Ex zone 2
- ATEX category II 3 D, Ex zone 22

### Technical data

|                                           |                                                                                |
|-------------------------------------------|--------------------------------------------------------------------------------|
| Type                                      | BI4U-EM12WD-VP6X-H1141/3GD                                                     |
| ID                                        | 1635003                                                                        |
| <b>General data</b>                       |                                                                                |
| Rated switching distance                  | 4 mm                                                                           |
| Mounting conditions                       | Flush                                                                          |
| Secured operating distance                | $\leq (0.81 \times S_n)$ mm                                                    |
| Repeat accuracy                           | $\leq 2 \%$ of full scale                                                      |
| Temperature drift                         | $\leq \pm 10 \%$<br>$\leq \pm 20 \%, \leq -25 \text{ °C}, \geq +70 \text{ °C}$ |
| Hysteresis                                | 3...15 %                                                                       |
| <b>Electrical data</b>                    |                                                                                |
| Operating voltage                         | 10...30 VDC                                                                    |
| Residual ripple                           | $\leq 10 \%$ $U_{ss}$                                                          |
| DC rated operational current              | $\leq 200$ mA                                                                  |
| No-load current                           | 25 mA                                                                          |
| Residual current                          | $\leq 0.1$ mA                                                                  |
| Isolation test voltage                    | $\leq 0.5$ kV                                                                  |
| Short-circuit protection                  | yes / Cyclic                                                                   |
| Voltage drop at $I_o$                     | $\leq 1.8$ V                                                                   |
| Wire breakage/Reverse polarity protection | yes / Complete                                                                 |
| Output function                           | 4-wire, Complementary contact, PNP                                             |
| DC field stability                        | 300 mT                                                                         |
| AC field stability                        | 300 mT <sub>ss</sub>                                                           |
| Insulation class                          | □                                                                              |
| Switching frequency                       | 3 kHz                                                                          |
| Approval acc. to                          | ATEX test certificate TURCK Ex-10002M X                                        |

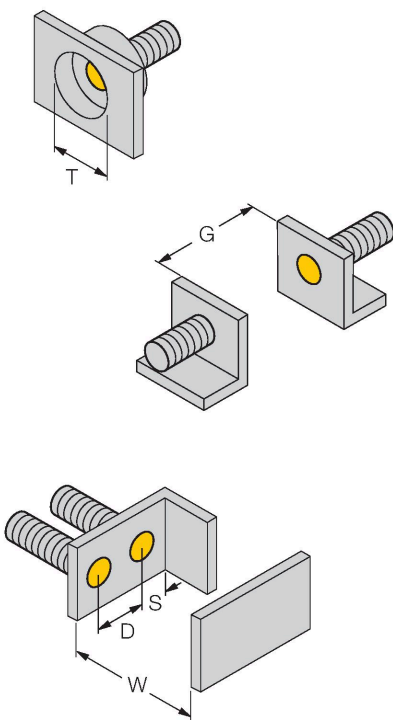
### Wiring diagram



## Technical data

|                                       |                                                            |
|---------------------------------------|------------------------------------------------------------|
| Device marking                        | Ex II 3 G Ex ec IIC T4 Gc/II 3 D Ex tc IIIC<br>T110 °C Dc  |
| Warning                               | Do not unplug connector under voltage                      |
| <b>Mechanical data</b>                |                                                            |
| Design                                | Threaded barrel, M12 x 1                                   |
| Dimensions                            | 52 mm                                                      |
| Housing material                      | Stainless steel, 1.4404 (AISI 316L)                        |
| Active area material                  | Plastic, LCP                                               |
| Connector housing                     | plastic, PP                                                |
| Admissible pressure on front cap      | ≤ 20 bar                                                   |
| Max. tightening torque of housing nut | 10 Nm                                                      |
| Electrical connection                 | Connector, M12 × 1                                         |
| <b>Environmental conditions</b>       |                                                            |
| Ambient temperature                   | -40...+100 °C                                              |
|                                       | For explosion hazardous areas see in-<br>struction leaflet |
| Vibration resistance                  | 55 Hz (1 mm)                                               |
| Shock resistance                      | 30 g (11 ms)                                               |
| Protection class                      | IP68<br>IP69K                                              |
| MTTF                                  | 874 years acc. to SN 29500 (Ed. 99) 40<br>°C               |
| Switching state                       | LED, Yellow                                                |
| Included in delivery                  | SC-M12/3GD                                                 |

Mounting instructions

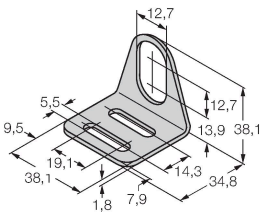
| Mounting instructions/Description                                                  |                        |
|------------------------------------------------------------------------------------|------------------------|
|  | Distance D             |
|                                                                                    | 24 mm                  |
|                                                                                    | Distance W             |
|                                                                                    | 3 x Sn                 |
|                                                                                    | Distance T             |
|                                                                                    | 3 x B                  |
|                                                                                    | Distance S             |
|                                                                                    | 1.5 x B                |
|                                                                                    | Distance G             |
|                                                                                    | 6 x Sn                 |
|                                                                                    | Diameter active area B |
|                                                                                    | Ø 12 mm                |

All flush mountable uprox+ threaded barrel types are also recessed mountable. Safe operation is ensured if the sensor is screwed in by half a turn.

Accessories

MW-12

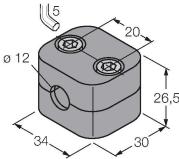
6945003



Mounting bracket for threaded barrel sensors; material: Stainless steel A2 1.4301 (AISI 304)

BSS-12

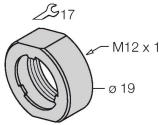
6901321



Mounting clamp for smooth and threaded barrel sensors; material: Polypropylene

PN-M12

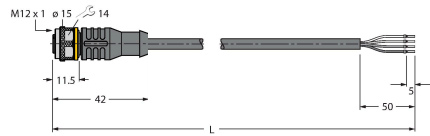
6905309



Impact protection nut for M12x1 threaded barrel devices; material: Stainless steel A2 1.4305 (AISI 303)

Accessories

| Dimension drawing | Type          | ID      |                                                                                                                         |
|-------------------|---------------|---------|-------------------------------------------------------------------------------------------------------------------------|
|                   | RKC4.4T-2/TEL | 6625013 | Connection cable, M12 female connector, straight, 4-pin, cable length: 2 m, jacket material: PVC, black; cULus approval |



## Instructions for use

|                                                                |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Intended use                                                   | This device fulfills the directive 2014/34/EU and is suited for use in explosion-hazardous areas acc. to EN60079-0:2018, EN60079-7:2015/A1:2018, EN60079-31:2014. In order to ensure correct operation to the intended purpose it is required to observe the national regulations and directives.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| For use in explosion hazardous areas conform to classification | II 3 G and II 3 D (Group II, Category 3 G, electrical equipment for gaseous atmospheres and category 3 D, electrical equipment for dust atmospheres).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Marking (see device or technical data sheet)                   | Ex II 3 G Ex ec IIC T4 Gc acc. to EN 60079-0:2018 and EN 60079-7:2015/A1:2018 and Ex II 3 D Ex tc IIC T110 °C Dc acc. to EN 60079-0:2018 and EN 60079-31:2014                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Local admissible ambient temperature                           | -25...+70 °C                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Installation/Commissioning                                     | These devices may only be installed, connected and operated by trained and qualified staff. Qualified staff must have knowledge of protection classes, directives and regulations concerning electrical equipment designed for use in explosion hazardous areas. Please verify that the classification and the marking on the device comply with the actual application conditions.                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Installation and mounting instructions                         | Avoid static charging of cables and plastic devices. Please only clean the device with a damp cloth. Do not install the device in a dust flow and avoid build-up of dust deposits on the device. The devices must be protected against strong magnetic fields. The pin configuration and the electrical specifications can be taken from the device marking or the technical data sheet. In order to avoid contamination of the device, please remove possible blanking plugs of the cable glands or connectors only shortly before inserting the cable or opening the cable socket.                                                                                                                                                                                                                            |
| Special conditions for safe operation                          | For devices with M12 connectors please use the supplied safety clip SC-M12/3GD. Do not disconnect the plug-in connection or cable under voltage. Please attach a warning label permanently in an appropriate fashion in close proximity to the plug-in connection with the following inscription: Nicht unter Spannung trennen / Do not separate when energized. The device must be protected against any kind of mechanical damage and degrading UV-radiation. The IP protection rating of the connectors is given only in combination with a suitable O-ring. Load voltage and operating voltage of this equipment must be supplied from power supplies with safe isolation (IEC 30364/UL508), to ensure that the rated voltage of the equipment (24 VDC +20% = 28.8 VDC) is never exceeded by more than 40%. |
| Service/Maintenance                                            | Repairs are not possible. The approval expires if the device is repaired or modified by a person other than the manufacturer. The most important data from the approval are listed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |