

# IFR202



## Inductive full-metal sensor

IFK3004BANKG/AM/SC/V4A/US-104



### Product characteristics

|                    |                  |
|--------------------|------------------|
| Electrical design  | NPN              |
| Output function    | normally open    |
| Sensing range [mm] | 4                |
| Housing            | Threaded type    |
| Dimensions [mm]    | M12 x 1 / L = 60 |

### Application

|                         |                                                                                          |
|-------------------------|------------------------------------------------------------------------------------------|
| System                  | gold-plated contacts; Increased sensing range; Full-metal housing; Magnetic-field immune |
| Application             | Inductive sensors for welding applications                                               |
| Pressure rating         | 100 bar 10 MPa                                                                           |
| Note on pressure rating | sensing face                                                                             |
| Magnetic-field immune   | yes; (pulse duration of the welding current: < 200 ms)                                   |

### Electrical data

|                             |            |
|-----------------------------|------------|
| Operating voltage [V]       | 10...30 DC |
| Current consumption [mA]    | < 20       |
| Protection class            | III        |
| Reverse polarity protection | yes        |

### Outputs

|                                                      |                    |
|------------------------------------------------------|--------------------|
| Electrical design                                    | NPN                |
| Output function                                      | normally open      |
| Max. voltage drop switching output DC [V]            | 2.5                |
| Permanent current rating of switching output DC [mA] | 100                |
| Switching frequency DC [Hz]                          | 2                  |
| Short-circuit protection                             | yes                |
| Type of short-circuit protection                     | yes (non-latching) |
| Overload protection                                  | yes                |

### Monitoring range

|                         |          |
|-------------------------|----------|
| Sensing range [mm]      | 4        |
| Operating distance [mm] | 0...3.25 |
| Increased sensing range | yes      |

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| Accuracy / deviations                                                                          |                                                                            |                                                                                                                                                                                          |
|------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Correction factor                                                                              | steel: 1 / stainless steel: 0.6 / brass: 0.7 / aluminum: 0.6 / copper: 0.3 |                                                                                                                                                                                          |
| Hysteresis                                                                                     | [% of Sr]                                                                  | 1...20                                                                                                                                                                                   |
| Operating conditions                                                                           |                                                                            |                                                                                                                                                                                          |
| Ambient temperature                                                                            | [°C]                                                                       | 0...85                                                                                                                                                                                   |
| Protection                                                                                     |                                                                            | IP 67                                                                                                                                                                                    |
| Tests / approvals                                                                              |                                                                            |                                                                                                                                                                                          |
| EMC                                                                                            | EN 61000-4-2 ESD                                                           | 4 kV CD / 8 kV AD                                                                                                                                                                        |
|                                                                                                | EN 61000-4-3 HF radiated                                                   | 10 V/m                                                                                                                                                                                   |
|                                                                                                | EN 61000-4-4 Burst                                                         | 2 kV                                                                                                                                                                                     |
|                                                                                                | EN 61000-4-6 HF conducted                                                  | 10 V                                                                                                                                                                                     |
|                                                                                                | EN 55011 emission                                                          | class B                                                                                                                                                                                  |
| Impact resistance                                                                              |                                                                            | 1 J                                                                                                                                                                                      |
| MTTF                                                                                           | [years]                                                                    | 1116                                                                                                                                                                                     |
| Embedded software included                                                                     |                                                                            | yes                                                                                                                                                                                      |
| UL approval                                                                                    | Ta                                                                         | -25...70 °C                                                                                                                                                                              |
|                                                                                                | Enclosure type                                                             | Type 1                                                                                                                                                                                   |
|                                                                                                | voltage supply                                                             | Limited Voltage/Current                                                                                                                                                                  |
|                                                                                                | UL approval number                                                         | A012                                                                                                                                                                                     |
|                                                                                                | File number UL                                                             | E174191                                                                                                                                                                                  |
| Mechanical data                                                                                |                                                                            |                                                                                                                                                                                          |
| Weight                                                                                         | [g]                                                                        | 27.6                                                                                                                                                                                     |
| Housing                                                                                        |                                                                            | Threaded type                                                                                                                                                                            |
| Mounting                                                                                       |                                                                            | flush mountable                                                                                                                                                                          |
| Dimensions                                                                                     | [mm]                                                                       | M12 x 1 / L = 60                                                                                                                                                                         |
| Thread designation                                                                             |                                                                            | M12 x 1                                                                                                                                                                                  |
| Material                                                                                       |                                                                            | housing: stainless steel (1.4404 / 316L) weld coated; sensing face: stainless steel (1.4404 / 316L) weld coated; LED window: PEI; lock nuts: stainless steel (1.4404 / 316L) weld coated |
| Tightening torque                                                                              | [Nm]                                                                       | 15                                                                                                                                                                                       |
| Full-metal housing                                                                             |                                                                            | yes                                                                                                                                                                                      |
| Displays / operating elements                                                                  |                                                                            |                                                                                                                                                                                          |
| Display                                                                                        | Switching status                                                           | 4 x 90° LED, yellow                                                                                                                                                                      |
|                                                                                                | Power                                                                      | 1 x LED, green                                                                                                                                                                           |
| Accessories                                                                                    |                                                                            |                                                                                                                                                                                          |
| Items supplied                                                                                 |                                                                            | lock nuts: 2                                                                                                                                                                             |
| Remarks                                                                                        |                                                                            |                                                                                                                                                                                          |
| Pack quantity                                                                                  |                                                                            | 1 pcs.                                                                                                                                                                                   |
| Electrical connection                                                                          |                                                                            |                                                                                                                                                                                          |
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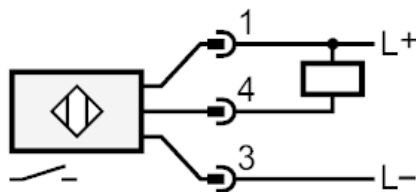
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### Connection



### Electrical connection - plug

Connector: 1 x M12; Contacts: gold-plated

### Diagrams and graphs

#### Installation

