



## Inductive sensor with IO-Link

IFK4004BFRKG/IO/US-104



## Product characteristics

|                         |                                        |
|-------------------------|----------------------------------------|
| Electrical design       | PNP/NPN; (configurable)                |
| Output function         | normally open / closed; (configurable) |
| Communication interface | IO-Link                                |
| Housing                 | Threaded type                          |
| Dimensions [mm]         | M12 x 1 / L = 60                       |

## Electrical data

|                             |            |
|-----------------------------|------------|
| Operating voltage [V]       | 10...30 DC |
| Current consumption [mA]    | < 15       |
| Protection class            | III        |
| Reverse polarity protection | yes        |

## Outputs

|                                                      |                                        |
|------------------------------------------------------|----------------------------------------|
| Electrical design                                    | PNP/NPN; (configurable)                |
| Output function                                      | normally open / closed; (configurable) |
| Max. voltage drop switching output DC [V]            | 2.5                                    |
| Permanent current rating of switching output DC [mA] | 100                                    |
| Switching frequency DC [Hz]                          | 600                                    |
| Notes on switching frequency [Hz]                    | IO-Link mode: 100                      |
| Short-circuit protection                             | yes                                    |
| Overload protection                                  | yes                                    |

## Monitoring range

|                              |                            |
|------------------------------|----------------------------|
| Switch point IO-Link [mm]    | 0.7...3.51; (configurable) |
| Measuring range IO-Link [mm] | 0.375...3.75               |

## Accuracy / deviations

|                                 |                                                                            |
|---------------------------------|----------------------------------------------------------------------------|
| Correction factor               | steel: 1 / stainless steel: 0.7 / brass: 0.5 / aluminum: 0.5 / copper: 0.4 |
| Hysteresis [% of Sr]            | 3...15                                                                     |
| Note on hysteresis              | configurable                                                               |
| Linearity error IO-Link [%]     | ± 2; (of the final value of the measuring range)                           |
| Repeatability analog output [%] | ± 1; (of the final value of the measuring range)                           |
| Temperature coefficient         | ± 0,3                                                                      |

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|                                 |                                                                                                                                         |                                                                                    |
|---------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|                                 | [%/K vom MEW]                                                                                                                           |                                                                                    |
| Temperature drift               | ± 10 %; (of the final value of the measuring range)                                                                                     |                                                                                    |
| Interfaces                      |                                                                                                                                         |                                                                                    |
| Communication interface         | IO-Link                                                                                                                                 |                                                                                    |
| Transmission type               | COM2 (38,4 kBaud)                                                                                                                       |                                                                                    |
| IO-Link revision                | 1.1                                                                                                                                     |                                                                                    |
| SDCI standard                   | IEC 61131-9                                                                                                                             |                                                                                    |
| Profiles                        | Smart Sensor: Identification and diagnosis; Multi-channel, two setpoint switching sensor, type 0 Generic Profiled Sensor; Teach Channel |                                                                                    |
| SIO mode                        | yes                                                                                                                                     |                                                                                    |
| Required master port class      | A                                                                                                                                       |                                                                                    |
| Min. process cycle time [ms]    | 3.2                                                                                                                                     |                                                                                    |
| IO-Link process data (cyclical) | Function                                                                                                                                | bit length                                                                         |
|                                 | process value                                                                                                                           | 16                                                                                 |
|                                 | device status                                                                                                                           | 4                                                                                  |
|                                 | binary switching information                                                                                                            | 2                                                                                  |
| IO-Link functions (acyclical)   | switching cycles counter; switch-on cycle counter; operating hours counter; internal temperature; application specific tag              |                                                                                    |
| Supported DeviceIDs             | Type of operation                                                                                                                       | DeviceID                                                                           |
|                                 | default                                                                                                                                 | 1344                                                                               |
| Note                            | For further information please see the IODD PDF file at "Downloads"                                                                     |                                                                                    |
| Operating conditions            |                                                                                                                                         |                                                                                    |
| Ambient temperature [°C]        | -40...85                                                                                                                                |                                                                                    |
| Protection                      | IP 65; IP 66; IP 67; IP 68; IP 69K                                                                                                      |                                                                                    |
| 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                                                                                                                                | class B                                                                            |
| Vibration resistance            | EN 60068-2-6 Fc                                                                                                                         | 20 g (10...3000 Hz) / 50 sweep cycles per frequency; 1 octave per minute in 3 axes |
| Shock resistance                | EN 60068-2-27 Ea                                                                                                                        | 100 g 11 ms half-sine; 3 shocks each in every direction of the 3 coordinate axes   |
| Continuous shock resistance     | EN 60068-2-27 Ea                                                                                                                        | 40 g 6 ms; 4000 shocks each in every direction of the 3 coordinate axes            |
| Fast temperature changes        | EN 60068-2-14 Na                                                                                                                        | TA = -40 °C; TB = 85 °C; t1 = 30 min; t2 = < 10 s; 50 cycles                       |
| MTTF [years]                    | 602                                                                                                                                     |                                                                                    |
| Embedded software included      | yes                                                                                                                                     |                                                                                    |
| UL approval                     | Ta                                                                                                                                      | -25...70 °C                                                                        |
|                                 | Enclosure type                                                                                                                          | Type 1                                                                             |
|                                 | voltage supply                                                                                                                          | Limited Voltage/Current                                                            |
|                                 | UL approval number                                                                                                                      | A034                                                                               |
|                                 | File number UL                                                                                                                          | E174191                                                                            |
| Mechanical data                 |                                                                                                                                         |                                                                                    |
| Weight [g]                      | 28.3                                                                                                                                    |                                                                                    |
| Housing                         | Threaded type                                                                                                                           |                                                                                    |

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|                    |                                                                                                               |
|--------------------|---------------------------------------------------------------------------------------------------------------|
| Mounting           | flush mountable                                                                                               |
| Dimensions [mm]    | M12 x 1 / L = 60                                                                                              |
| Thread designation | M12 x 1                                                                                                       |
| Material           | brass white bronze coated; sensing face: PBT orange;<br>LED window: PEI; lock nuts: brass white bronze coated |

### Displays / operating elements

|         |                  |                        |
|---------|------------------|------------------------|
| Display | Switching status | 4 x LED, yellow lights |
|---------|------------------|------------------------|

### Accessories

|                |              |
|----------------|--------------|
| Items supplied | lock nuts: 2 |
|----------------|--------------|

### Remarks

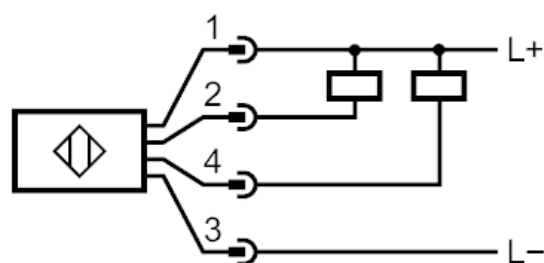
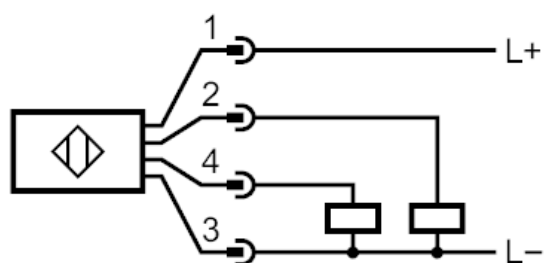
|               |        |
|---------------|--------|
| Pack quantity | 1 pcs. |
|---------------|--------|

### Electrical connection - plug

Connector: 1 x M12; coding: A



### Connection



2: OUT 2  
4: OUT / IO-Link 1