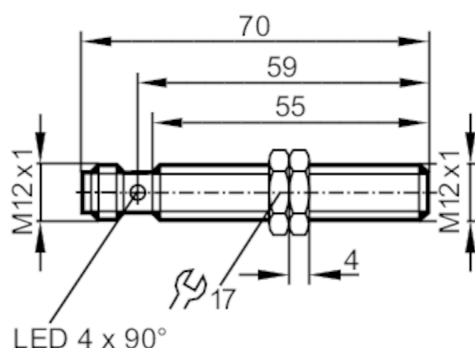


## Inductive analogue sensor with IO-Link

IFK4002A2PKG/IO/US



## Product characteristics

|                         |                                                    |
|-------------------------|----------------------------------------------------|
| Electrical design       | PNP/NPN; (parameterisable)                         |
| Output function         | normally open / normally closed; (parameterisable) |
| Communication interface | IO-Link                                            |
| Housing                 | threaded type                                      |
| Dimensions [mm]         | M12 x 1 / L = 70                                   |

## Electrical data

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

## Outputs

|                                                      |                                                                                                                |
|------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Electrical design                                    | PNP/NPN; (parameterisable)                                                                                     |
| Output function                                      | normally open / normally closed; (parameterisable)                                                             |
| Max. voltage drop switching output DC [V]            | 2.5                                                                                                            |
| Permanent current rating of switching output DC [mA] | 100                                                                                                            |
| Switching frequency DC [Hz]                          | 200                                                                                                            |
| Analogue voltage output [V]                          | 0...10; (linear; gradient: 5,556 V/mm; for frontal approach and for target made of mild steel: 12 x 12 x 1 mm) |
| Min. load resistance [ $\Omega$ ]                    | 2000                                                                                                           |
| Short-circuit protection                             | yes                                                                                                            |
| Overload protection                                  | yes                                                                                                            |

## Detection zone

|                           |             |
|---------------------------|-------------|
| Measuring range [mm]      | 0.2...2     |
| Switch point IO-Link [mm] | 0.38...1.87 |

## Accuracy / deviations

|                                        |                                                                             |
|----------------------------------------|-----------------------------------------------------------------------------|
| Correction factor                      | steel: 1 / stainless steel: 0.7 / brass: 0.4 / aluminium: 0.3 / copper: 0.2 |
| Hysteresis [X01]                       | 3...15                                                                      |
| Note on hysteresis                     | parameterisable                                                             |
| Linearity error of analogue output [%] | $\pm 1$ ; (of the final value of the measuring range)                       |



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|                                       |                                                                                                                                         |                                                                                  |
|---------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|
| Repeatability analogue output [%]     | ± 1; (of the final value of the measuring range)                                                                                        |                                                                                  |
| Temperature coefficient [%/K vom MEW] | ±0,15                                                                                                                                   |                                                                                  |
| Temperature drift                     | ± 5 %; (of the final value of the measuring range)                                                                                      |                                                                                  |
| Response times                        |                                                                                                                                         |                                                                                  |
| Response time [ms]                    | < 10                                                                                                                                    |                                                                                  |
| 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 type             | 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                                                                                                                                 | 1206                                                                             |
| Note                                  | For further information please see the IODD PDF file under "Downloads"                                                                  |                                                                                  |
| Operating conditions                  |                                                                                                                                         |                                                                                  |
| Ambient temperature [°C]              | -25...80                                                                                                                                |                                                                                  |
| 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, 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                                                                                                                           | 40 g 6 ms; 4000 shocks each in every direction of the 3 coordinate axes          |
| Fast temperature change               | EN 60068-2-14 Na                                                                                                                        | TA = -25°C; TB = 80°C; t1 = 30 min; t2 = < 10 s 50 cycles                        |
| MTTF [ANN]                            | 221                                                                                                                                     |                                                                                  |
| Embedded software included            | yes                                                                                                                                     |                                                                                  |

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## Inductive analogue sensor with IO-Link

IFK4002A2PKG/IO/US

|             |                 |                         |
|-------------|-----------------|-------------------------|
| UL approval | Ta              | -25...60 °C             |
|             | Enclosure type  | Type 1                  |
|             | подача напруги  | Limited Voltage/Current |
|             | UL Approval no. | A024                    |
|             | File number UL  | E174191                 |

### Mechanical data

|                    |      |                                                                                                                        |
|--------------------|------|------------------------------------------------------------------------------------------------------------------------|
| Weight             | [g]  | 32.4                                                                                                                   |
| Housing            |      | threaded type                                                                                                          |
| Mounting           |      | flush mountable                                                                                                        |
| Dimensions         | [mm] | M12 x 1 / L = 70                                                                                                       |
| Thread designation |      | M12 x 1                                                                                                                |
| Materials          |      | housing: brass white bronze coated; sensing face: PBT orange;<br>LED window: PEI; lock nuts: brass white bronze coated |
| Tightening torque  | [Nm] | 7                                                                                                                      |

### Displays / operating elements

|         |                                |                          |
|---------|--------------------------------|--------------------------|
| Display | target in measuring range      | 4 x LED, yellow lights   |
|         | target outside measuring range | 4 x LED, yellow flashing |

### Аксессуары

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

### Remarks

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

### Electrical connection - plug

Connector: 1 x M12; coding: A



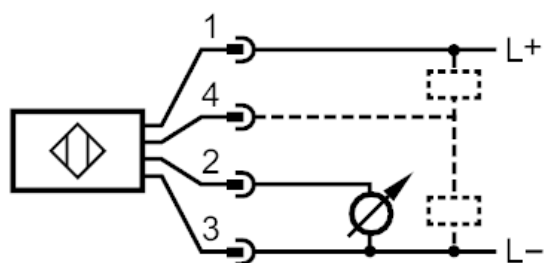
# IF6029



## Inductive analogue sensor with IO-Link

IFK4002A2PKG/IO/US

### Connection



|   |               |
|---|---------------|
| 1 | L +           |
| 2 | OUT           |
| 3 | L -           |
| 4 | OUT / IO-Link |