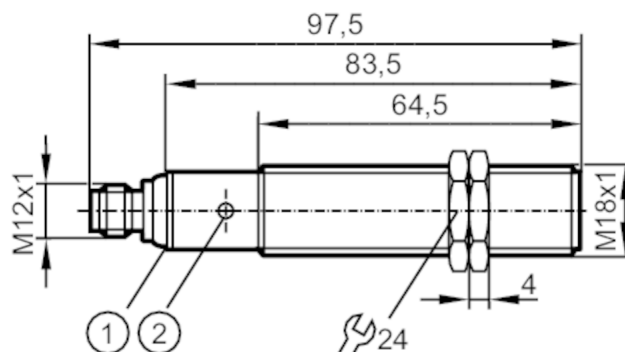




## Ultrasonic sensor

UG-01600GOKG/IO-LINK/US



- 1 LEDs
- 2 teach button



### Product characteristics

|                         |                                                    |
|-------------------------|----------------------------------------------------|
| Electrical design       | PNP                                                |
| Output function         | normally open / normally closed; (parameterisable) |
| Sensing range [mm]      | 150...1600; (Target: 200 x 200 mm)                 |
| Communication interface | IO-Link                                            |
| Housing                 | threaded type                                      |
| Dimensions [mm]         | M18 x 1 / L = 97.5                                 |

### Electrical data

|                             |                                         |
|-----------------------------|-----------------------------------------|
| Operating voltage [V]       | 10...30 DC; ("supply class 2" to cULus) |
| Current consumption [mA]    | 55                                      |
| Protection class            | III                                     |
| Reverse polarity protection | yes                                     |
| Power-on delay time [s]     | < 0.3                                   |
| Converter frequency [kHz]   | 230                                     |

### Inputs / outputs

|                              |                              |
|------------------------------|------------------------------|
| Number of inputs and outputs | Number of digital outputs: 2 |
|------------------------------|------------------------------|

### Outputs

|                                                      |                                                    |
|------------------------------------------------------|----------------------------------------------------|
| Total number of outputs                              | 2                                                  |
| Electrical design                                    | PNP                                                |
| Number of digital outputs                            | 2                                                  |
| Output function                                      | normally open / normally closed; (parameterisable) |
| Max. voltage drop switching output DC [V]            | 2.2                                                |
| Permanent current rating of switching output DC [mA] | 100                                                |
| Switching frequency DC [Hz]                          | 3                                                  |
| Short-circuit protection                             | yes                                                |
| Overload protection                                  | yes                                                |

### Detection zone

|                    |                                    |
|--------------------|------------------------------------|
| Sensing range [mm] | 150...1600; (Target: 200 x 200 mm) |
| Blind zone [mm]    | 150                                |



## Ultrasonic sensor

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|                                                 |     |          |
|-------------------------------------------------|-----|----------|
| Angle of aperture cylindrical                   | [°] | 15; (±2) |
| Max. deviation from the 90° angle sensor/object | [°] | ± 4      |

### Accuracy / deviations

|                                   |      |                                                                          |
|-----------------------------------|------|--------------------------------------------------------------------------|
| Temperature compensation          |      | yes                                                                      |
| Hysteresis                        | [%]  | < 2                                                                      |
| Switch point drift                | [%]  | -2...2                                                                   |
| Repeatability                     |      | 1 %                                                                      |
| Resolution                        | [mm] | 1                                                                        |
| Notes on the accuracy / deviation |      | The indicated values are reached after a warm-up time of min. 20 minutes |

### Software / programming

|                           |  |                                                                                                                                       |
|---------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------|
| Parameter setting options |  | hysteresis / window; second switch point; Switch-on and switch-off delay; switch-on operations; Teach function; light-on/dark-on mode |
|---------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------|

### Interfaces

|                                 |                              |                                                                                                                                                                           |
|---------------------------------|------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Communication interface         |                              | IO-Link                                                                                                                                                                   |
| Transmission type               |                              | COM2 (38,4 kBaud)                                                                                                                                                         |
| IO-Link revision                |                              | 1.1                                                                                                                                                                       |
| SDCI standard                   |                              | IEC 61131-9                                                                                                                                                               |
| Profiles                        |                              | Smart Sensor: Device Identification; Multi-channel, two setpoint switching sensor, type 0 Generic Profiled Sensor; Process Data Variable; Device Diagnosis; Teach Channel |
| SIO mode                        |                              | yes                                                                                                                                                                       |
| Required master port type       |                              | A                                                                                                                                                                         |
| Min. process cycle time         | [ms]                         | 3.2                                                                                                                                                                       |
| IO-Link process data (cyclical) | <b>function</b>              | <b>bit length</b>                                                                                                                                                         |
|                                 | process value                | 16                                                                                                                                                                        |
|                                 | device status                | 4                                                                                                                                                                         |
|                                 | binary switching information | 2                                                                                                                                                                         |
| IO-Link functions (acyclical)   |                              | application specific tag; operating hours counter                                                                                                                         |
| Supported DeviceIDs             | <b>Type of operation</b>     | <b>DeviceID</b>                                                                                                                                                           |
|                                 | default                      | 700                                                                                                                                                                       |
| Note                            |                              | For further information please see the IODD PDF file under "Downloads"                                                                                                    |

### Operating conditions

|                     |      |          |
|---------------------|------|----------|
| Ambient temperature | [°C] | -20...70 |
| Storage temperature | [°C] | -30...80 |
| Protection          |      | IP 67    |

### Tests / approvals

|                      |                           |                                                                                              |
|----------------------|---------------------------|----------------------------------------------------------------------------------------------|
| EMC                  | EN 61000-4-2 ESD          | 4 kV CD / 8 kV AD                                                                            |
|                      | EN 61000-4-3 HF radiated  | 3 V/m                                                                                        |
|                      | EN 61000-4-4 Burst        | 2 kV                                                                                         |
|                      | EN 61000-4-6 HF conducted | 3 V                                                                                          |
|                      | EN 55011                  | Class A                                                                                      |
| Vibration resistance | EN 60068-2-6 Fc           | (10-55) Hz 1 mm amplitude, oscillation period 5 min., 30 min. per axis at resonance or 55 Hz |
| Shock resistance     | EN 60068-2-27 Ea          | 30 g 11 ms half-sine; 3 shocks each in every direction of the 3 coordinate axes              |



Ultrasonic sensor

UG-01600GOKG/IO-LINK/US

|             |                |             |
|-------------|----------------|-------------|
| MTTF        | [years]        | 132         |
| UL approval | Ta             | -20...70 °C |
|             | power supply   | Class 2     |
|             | File number UL | E174191     |

| Mechanical data    |      |                               |
|--------------------|------|-------------------------------|
| Weight             | [g]  | 66.5                          |
| Housing            |      | threaded type                 |
| Dimensions         | [mm] | M18 x 1 / L = 97.5            |
| Thread designation |      | M18 x 1                       |
| Materials          |      | PBT; PA; epoxy glass ceramics |
| Tightening torque  | [Nm] | 1                             |

| Displays / operating elements |                  |                 |
|-------------------------------|------------------|-----------------|
| Display                       | switching status | 2 x LED, yellow |
|                               | echo             | 1 x LED, green  |
| Teach function                |                  | yes             |

| Accessories    |  |                        |
|----------------|--|------------------------|
| Items supplied |  | lock nuts: 2, plastics |
|                |  | rubber washers: 2      |

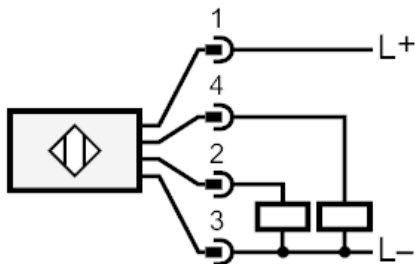
| Remarks       |  |                                                       |
|---------------|--|-------------------------------------------------------|
| Remarks       |  | operating voltage "supply class 2" according to cULus |
| Pack quantity |  | 1 pcs.                                                |

Electrical connection

Connector: 1 x M12; coding: A



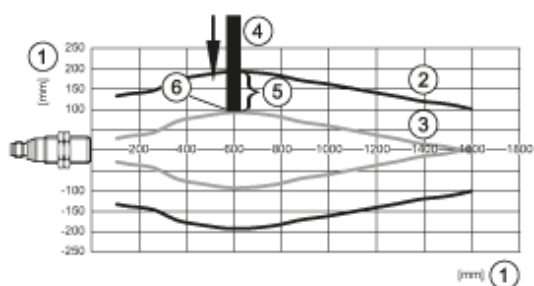
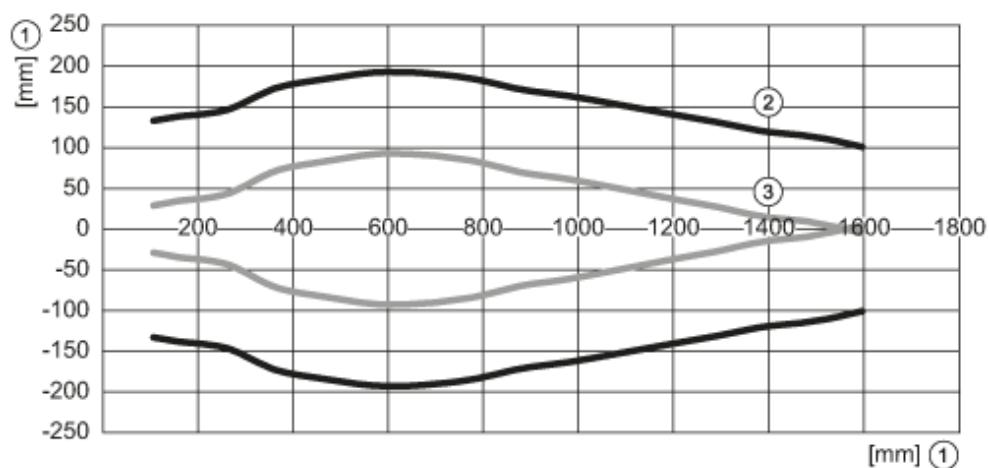
Connection



Pin 4 = IO-Link



### Diagrams and graphs



- 1: distance
- 2: Detection zone
- 3: switch-on/switch-off graph
- 4: Target 200 x 200 mm
- 5: 50% of the target in the detection zone
- 6: switch point