

Ultrasonic sensor

UC1000-18GS-2EP-IO-V15



- IO-Link Interface for process data, parameterization and diagnosis
- Programmable via DTM with PACTWARE
- Programmable via IrDA (infrared interface)
- Selectable sound lobe width
- Synchronization options
- Enhanced temperature compensation adjustable, stable measuring values already 2 min after switching on
- 2 Push-pull outputs

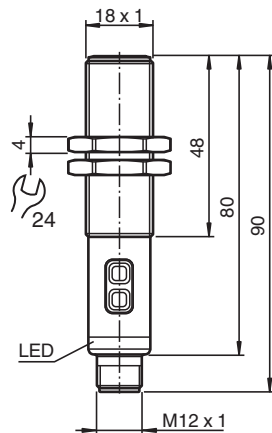
Single head system



The UC*-18GS*IO* series ultrasonic sensor combines versatility with a compact housing. All functions can be conveniently parameterized via IO-Link or IrDa interface.

A precise interference suppression and the adjustable sound beam width allow an optimal adaptation to your application. The output configuration as well as the sound beam width can also be set directly on the sensor via programming buttons. Process and service data can be transmitted via IO-Link, allowing easy integration into Industry 4.0 applications.

Dimensions



Technical Data

General specifications

| | |
|-----------------------|---|
| Sensing range | 70 ... 1000 mm |
| Adjustment range | 90 ... 1000 mm |
| Dead band | 0 ... 70 mm |
| Standard target plate | 100 mm x 100 mm |
| Transducer frequency | approx. 255 kHz |
| Response delay | minimum : 28 ms factory setting: 56 ms |
| Sensor cycle time | ≥ 14 ms (factory setting) ; programmable to 60 s |

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Refer to "General Notes Relating to Pepperl+Fuchs Product Information".

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Technical Data

| | | |
|---|-------|--|
| Temperature influence | | with temperature compensation: $\leq \pm 0.75\%$ of the end value 10 min after switching on the sensor (factory setting) with enhanced temperature compensation: $\leq \pm 0.75\%$ of the end value 2 min after switching on the sensor without temperature compensation: 0.17 %/K |
| Memory | | |
| Non-volatile memory | | EEPROM |
| Write cycles | | 300000 |
| Indicators/operating means | | |
| LED green | | solid: power on flashing: standby mode or IO-Link communication |
| LED yellow | | solid: object in evaluation range flashing: switch point programming, object detected |
| LED red | | solid: error flashing: switch point programming, object not detected |
| Electrical specifications | | |
| Operating voltage | U_B | 10 ... 30 V DC , ripple 10 % _{SS} |
| No-load supply current | I_0 | ≤ 50 mA |
| Power consumption | P_0 | ≤ 700 mW |
| Time delay before availability | t_v | ≤ 300 ms |
| Interface 1 | | |
| Interface type | | IO-Link (via C/Q = Pin 4) |
| IO-Link Revision | | 1.1 |
| Device profile | | Smart Sensor Profile 2 |
| Process data width | | 32 bit |
| Device ID | | 0x300603 (3147267) |
| Transfer rate | | COM 2 (38.4 kBaud) |
| Min. cycle time | | 3 ms |
| SIO mode support | | yes |
| Compatible master port type | | Class A Class B (use 3-pole adapter or 3-wire cable) |
| Interface 2 | | |
| Interface type | | IrDA (Infrared-Interface) |
| Mode | | point-to-point connection |
| Transfer rate | | 115.2 kBit/s |
| Maximum communication distance | | 5 cm |
| Input/Output | | |
| Input/output type | | 1 synchronization connection, bidirectional |
| 0 Level | | 0 ... 1 V |
| 1 Level | | 2.5 V ... U_B |
| Input impedance | | > 22 k Ω |
| Output rated operating current | | current source < 2.5 mA |
| Pulse length | | ≥ 1 ms with external control, low active |
| Synchronization frequency | | |
| Common mode operation | | ≤ 71 Hz |
| Multiplex operation | | ≤ 71 Hz / n , n = number of sensors , n ≤ 10 |
| Switching output | | |
| Output type | | 2 push-pull (4 in 1) outputs, short-circuit protected, reverse polarity protected |
| Rated operating current | I_e | 100 mA , short-circuit/overload protected |
| Switching frequency | | factory setting: 10 Hz programmable to 23 Hz |
| Voltage drop | | ≤ 2.5 V |
| Repeat accuracy | | $\leq \pm 0.1$ % of full-scale value |
| Range hysteresis | | 1 % of the adjusted operating range (default settings), programmable , min. 1 mm |
| Off-state current | | ≤ 100 μ A |
| Compliance with standards and directives | | |

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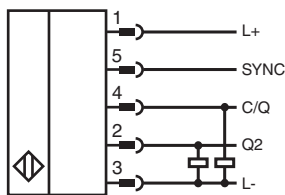
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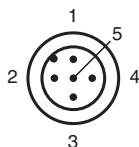
Technical Data

| | |
|-------------------------------------|--|
| Standard conformity | |
| Standards | EN 60947-5-2:2007+A1:2012 IEC 60947-5-2:2007 + A1:2012 IEC 61131-9:2013 |
| Approvals and certificates | |
| EAC conformity | TR CU 020/2011 TR CU 037/2016 |
| UL approval | cULus Listed, Class 2 Power Source |
| CCC approval | CCC approval / marking not required for products rated ≤36 V |
| Ambient conditions | |
| Ambient temperature | -25 ... 70 °C (-13 ... 158 °F) |
| Storage temperature | -40 ... 85 °C (-40 ... 185 °F) |
| Mechanical specifications | |
| Connection type | Connector plug M12 x 1 , 5-pin |
| Degree of protection | IP67 |
| Material | |
| Housing | stainless steel (1.4305 / AISI 303)>BR>PA, PC, POM and PBT plastic parts |
| Transducer | epoxy resin/hollow glass sphere mixture; polyurethane foam |
| Installation position | any position |
| Mass | 45 g |
| Tightening torque, fastening screws | max. 30 Nm |
| Factory settings | |
| Output 1 | near switch point: 90 mm far switch point: 1000 mm output function: Window mode output behavior: NO contact |
| Output 2 | near switch point: 90 mm far switch point: 500 mm output function: Window mode output behavior: NO contact |
| Beam width | wide |

Connection



Connection Assignment



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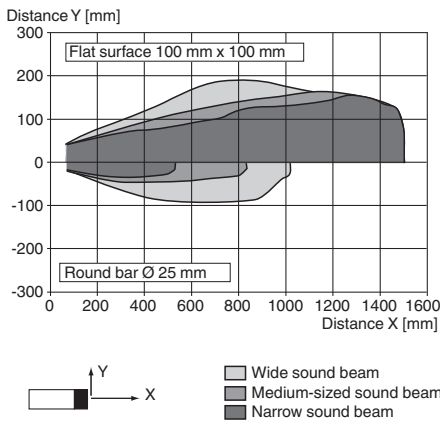
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Wire colors in accordance with EN 60947-5-2

| | | |
|---|----|---------|
| 1 | BN | (brown) |
| 2 | WH | (white) |
| 3 | BU | (blue) |
| 4 | BK | (black) |
| 5 | GY | (gray) |

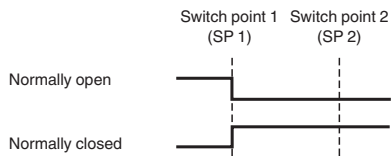
Characteristic Curve

Characteristic response curve

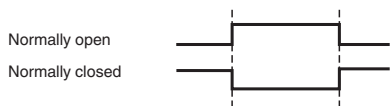


Switching output modes

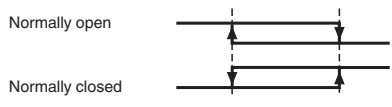
1. Switch point mode



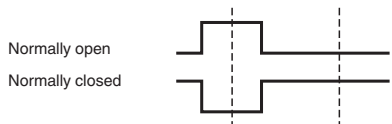
2. Window mode



3. Hysteresis mode





4. Retroreflective mode










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Accessories

| | | |
|---|-----------------------------|--|
|  | UC-PROG-IR-USB | Interface cable for parameterization of sensors with IrDA interface |
|  | IO-Link-Master02-USB | IO-Link master, supply via USB port or separate power supply, LED indicators, M12 plug for sensor connection |

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Accessories

| | | |
|---|-------------------------|---|
|  | V1-G-2M-PVC-V1-G | Connecting cable, M12 to M12, PVC cable 4-pin |
|  | BF 18 | Mounting flange, 18 mm |
|  | BF 18-F | Plastic mounting adapter, 18 mm |
|  | AB-18 | Mounting aid |
|  | OMH-04 | Mounting aid for round steel ø 12 mm or sheet 1.5 mm ... 3 mm |
|  | BF 5-30 | Universal mounting bracket for cylindrical sensors with a diameter of 5 ... 30 mm |
|  | UVW90-K18 | Ultrasonic -deflector |

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Function

Adjustment possibilities

The sensor features 2 switching outputs with each 2 programmable switch points. Programming the switch points, the output mode, the output logic and the beam width can be done in two different ways:

- Using the sensor's programming buttons
- Using the IO-link interface of the sensor. This method requires an IO-link master (e.g. IO-link-Master02-USB) and the associated software. The download link is available on the product page for the sensor at www.pepperl-fuchs.com.

Synchronization

The sensor features a synchronization input for suppressing ultrasonic mutual interference („cross talk“).

The following synchronization modes are available:

1. Automatic multiplex mode.
2. Automatic common mode
3. Externally controlled synchronization

Further Documentation

- For information on programming via programming buttons and synchronisation you may refer to the commissioning instruction.
- For detailed information on application and programming via IO-Link we provide a manual.