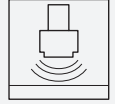




Level Radar

LCR10



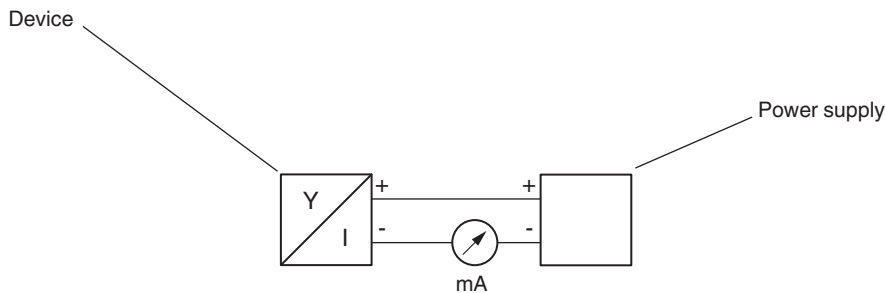
- Device for level measurement in liquids
- Radar measuring device with Bluetooth® wireless technology
- Measuring range up to 12 m in fluids
- Process temperature up to 60 °C (140 °F)
- Process pressure up to 3 bar (43 psi)
- Accuracy up to ± 5 mm
- Commissioning, operation and maintenance via P+F Level app



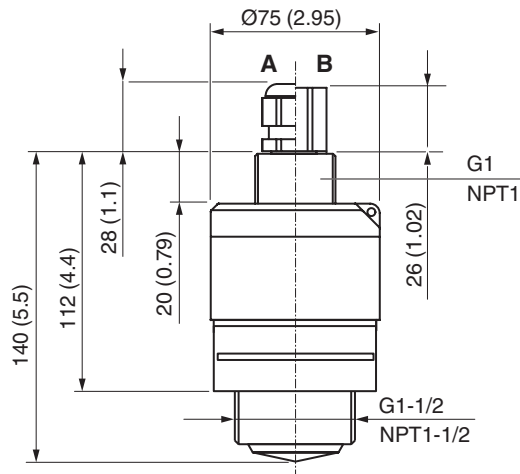
Function

The device is suitable level measurement for liquids in storage tanks, open basins, pump shafts and canal systems. The device is a radar measuring device with Bluetooth® wireless technology. Due to the wireless remote access, the device can be used in places difficult to reach and in hazardous areas. The device can be configured and operated via the free iOS/Android app P+F Level. The device has a PVDF housing, which guarantees a long lifetime. The hermetically sealed wiring and fully potted electronics prevent water ingress and allow use under harsh ambient conditions.

Connection



Dimensions



Release date: 2023-09-11 Date of issue: 2023-09-11 Filename: 70114395_eng.pdf

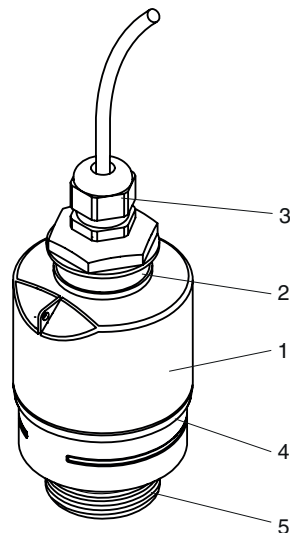
Technical Data

| General specifications | | |
|-------------------------------|-------|--|
| Measuring method | | The device is a measuring system that functions according to the time-of-flight method. The distance from the reference point (process connection of the measuring device) to the product surface is measured. |
| Construction type | | compact device |
| Series | | LCR |
| Supply | | |
| Rated voltage | U_r | 10.5 ... 30 V DC |
| Current consumption | | input current : max. 25 mA start-up current : max. 3.6 mA |
| Power consumption | | input power : max. 675 mW |
| Electrical specifications | | |
| Surge protection | | integrated |
| Start-up time | | first stable measured value after 20 s at 24 V DC |
| Interface | | |
| Interface type | | Bluetooth |
| Detection range | | max. 25 m |
| Configuration | | commissioning, operation and maintenance via P+F Level app - can be activated/deactivated - password encryption |
| Communication | | encrypted |
| Input | | |
| Measured variable | | distance between reference point and product surface |
| Measurement range | | - device with 40 mm (1.5 inch) antenna: max. 8 m (26 foot) - device with 40 mm (1.5 inch) antenna and flooding protection tube (accessory): max. 12 m (39 foot) |
| Operating frequency | | approx. 26 GHz , K-Band |
| Transmitter radiated power | | mean power density in the direction of the beam - at a distance of 1 m (3.3 foot): < 12 nW/cm ² - at a distance of 5 m (16 foot): < 0.4 nW/cm ² |
| Output | | |
| Output signal | | 4 ... 20 mA , measured value output and power supply |
| Signal on alarm | | current output: 22.5 mA (in accordance with NAMUR recommendation NE 43) P+F Level (app) - status signal (as per NAMUR Recommendation NE 107) - plain text display with remedial action |
| Directive conformity | | |
| Electromagnetic compatibility | | |
| Directive 2014/30/EU | | EN 61326-1:2013 (industrial locations) |
| Low voltage | | |
| Directive 2014/35/EU | | EN 61010-1:2010 |
| Conformity | | |
| Electromagnetic compatibility | | NE 21 |
| Degree of protection | | IEC 60529:2001 |
| Vibration resistance | | DIN EN 60068-2-64 / IEC 60068-2-64 |
| Climate class | | DIN EN 60068-2-38/IEC 68-2-38 |
| Bluetooth | | IEEE 802.15.1 |
| Measurement accuracy | | |
| Accuracy | | up to ± 5 mm |
| Operating conditions | | |
| Process conditions | | |
| Process temperature | | -40 ... 60 °C (-40 ... 140 °F) |
| Process pressure | | relative pressure : -1 ... 3 bar (-14.5 ... 43.5 psi) absolute pressure : < 4 bar (58 psi) |
| State of aggregation | | liquid |
| Dielectric constant | | 4 ... 10 , e. g. concentrated acid, organic solvents, ester, aniline, alcohol, acetone, ... > 10 , e.g. conductive liquids, aqueous solutions, diluted acids and bases |
| Ambient conditions | | |

Technical Data

| | | |
|-----------------------------------|---|--|
| Ambient temperature | | -40 ... 60 °C (-40 ... 140 °F) |
| Storage temperature | | -40 ... 80 °C (-40 ... 176 °F) |
| Vibration resistance | | 20 ... 2000 Hz, 1 (m/s ²)/Hz |
| Mechanical specifications | | |
| Degree of protection | | IP68, NEMA 6P (24 hours in water 1.83 m (6 ft) deep) IP66, NEMA 4X |
| Connection | | cable 2 x 0,75 mm ² |
| Material | | sensor housing: PVDF seal: EPDM back side process connection: PVDF cable gland: PA conduit adapter: CuZn nickel-plated O-ring: EPDM counter nut: PA6.6 design ring: PBT-PC front side process connection: PVDF cable: PVC |
| Cable | | |
| Length | L | 10 m |
| Mass | | approx. 3 kg |
| Dimensions | | Ø75 x 140 mm |
| Process connection | | Back side: thread ISO228 G1, ASME MNPT1 Front side: thread ISO228 G1-1/2, ASME MNPT1-1/2 |
| Certificates and approvals | | |
| Telecommunications | | radio license FCC |
| General information | | |
| Supplementary documentation | | technical information (TI) manuals, brief instructions (BA, KA) |
| Accessories | | |
| Designation | | see technical information (TI) |

Assembly



Device with 40 mm antenna

- 1 Sensor housing
- 2 Process connection rear side
- 3 Cable gland
- 4 Design ring
- 5 Process connection front side

Type Code

This overview does not mark options which are mutually exclusive.

| | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|-----|---|-----|-----|-----|---|-----|---|-----|-----|
| L | C | R | 1 | 0 | - | (1) | - | (2) | (3) | (4) | - | (5) | - | (6) | (7) |
|---|---|---|---|---|---|-----|---|-----|-----|-----|---|-----|---|-----|-----|

| LCR10 | Device |
|-------|-------------|
| LCR10 | Level radar |

| (1) | Antenna, maximum measuring range |
|-----|--|
| 1 | 40 mm/1-1/2 inch, -40 to 60 °C (-40 to 140 °F), measuring range up to 8 m in liquids |
| X | Special version |

| (2) | Process connection rear side, material |
|-----|--|
| G31 | Thread ISO228 G1, PVDF |
| N31 | Thread ASME MNPT1, PVDF, FNPT1/2 conduit |
| XXX | Special version |

| (3) | Process connection front side, material |
|-----|---|
| D | Thread ASME MNPT1-1/2, PVDF |
| 5 | Thread ISO228 G1-1/2, PVDF |
| X | Special version |

| (4) | Cable length |
|-----|-----------------|
| 2 | 10 m/32 foot |
| 9 | Special version |

| (5) | Power supply, output, operation |
|-----|---|
| IQ | 2-wire, 4 to 20 mA HART, HART/Bluetooth (App) configuration |
| XX | Special version |

| (6) | Approval |
|-----|--|
| NA | Version for non-explosion-hazardous area |
| CG | CSA C/US General Purpose |
| XX | Special version |

Additional Options

| (7) | Accessory enclosed |
|-----|---|
| R7 | Flooding protection tube, PBT-PC metallized, suitable for 40 mm/1-1/2 inch antenna with process connection front side G1-1/2, measuring range up to 12 m in liquids |

| (7) | Marking |
|-----|---|
| Z1 | Tagging (TAG), see additional specification |