



# PRODUCT OVERVIEW

# LEVEL MEASUREMENT

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# Submersible Water Level Sensor L703

## Profile

Designed for adaptability in water and wastewater management, L703 submersible level sensor offers a wide measurement range up to 300 m. Its robust, IP68-rated fully welded structure is specifically engineered to withstand humid, turbulent, and sediment-laden environments.

It adopts a high-reliability silicon piezoresistive sensor, featuring high accuracy with the advanced digital temperature compensation. This technology ensures exceptional thermal stability, with a zero-point drift as low as 0.01% FS/°C, allowing for maintenance-free operation in critical application.

The sensor is built for strong compatibility and seamless system integration, supporting a broad power supply range and versatile communication protocols, including 4-20mA, RS485 (Modbus), I<sup>2</sup>C and HART. These ensure it meets different industrial control system requirements.

Its rapid response time facilitates immediate linkage with control equipment, effectively preventing costly overflows or pump dry-running. Furthermore, the ultra-low power consumption design optimizes it for solar or battery-operated remote IoT terminals. Its anti-clogging filters and flexible installation make it common in various application.



## Characteristics

- ☆ High accuracy ±0.25% F.S , ensuring reliable data for critical water management
- ☆ Measuring range up to 300m, suitable for small and big tanks, deep wells without frequent model replacement
- ☆ Fully welded structure with anti-clog filtering and IP rating
- ☆ Flexible output options easily integrate with existing systems
- ☆ High overload capacity up to 500%F.S, perfect for environments with fluctuating or extreme water levels
- ☆ Excellent resistance against impact, shock and erosion
- ☆ Fast response ≤3ms, quick reaction to level changes

## Applications

- ★ Wastewater Treatment Plants
- ★ Storm water and Flood Monitoring
- ★ Rivers and Lakes
- ★ Environmental Monitoring
- ★ Agriculture Irrigation Systems
- ★ Power Stations
- ★ Marine and Coastal Monitoring
- ★ Hydroelectric Dams
- ★ Industrial Process Tanks
- ★ Mining

## Specifications

| Parameter                         | L703  |  |                  |              |
|-----------------------------------|---|--|------------------|--------------|
| Pressure Type                     | Gauge pressure, absolute pressure                                     |  |                  |              |
| Measuring Range                   | 0 m-0.5 m ... 300 m   |  |                  |              |
| Electrical Wire                   | 2 wires   | 3 wires                                  | 4 wires          |              |
| Output                            | 4-20mA(Hart optional)   | 0-10 V                                   | I <sup>2</sup> C | RS485 Modbus |
| Power Supply                      | 12-30 V DC  | 12-30 V DC                               | 3.3-5 V DC       | 5-30 V DC    |
| Polarity protection               | Yes   |  |                  |              |
| Medium Temp.                      | -30°C to +65°C  |  |                  |              |
| Ambient Temp                      | -40°C to +70°C  |  |                  |              |
| Storage Temp.                     | -40°C to +70°C  |  |                  |              |
| Temp compensation                 | 0°C to +50°C(typical), -10°C to +60°C                                 |  |                  |              |
| Accuracy                          | ±0.1%F.S (by customized)  | ±0.25%F.S                                | ±0.5%F.S         |              |
| Non-linearity (%FS)               | ≤0.1  | ≤0.2                                     | ≤0.4             |              |
| Hysteresis (%FS)                  | ≤0.05   | ≤0.05                                    | ≤0.1             |              |
| Repeatability (%FS)               | ≤0.05   | ≤0.05                                    | ≤0.1             |              |
| Long-term Stability (%FS/year)    | ≤0.1  | ≤0.2                                     | ≤0.5             |              |
| Zero Temperature Drift (%FS/°C)   | ≤0.01   | ≤0.03                                    | ≤0.05            |              |
| Sensitivity Temp. Drift (%FS/°C)  | ≤0.1  | ≤0.03                                    | ≤0.05            |              |
| Overload Capacity                 | ≤ 500%F.S   |  |                  |              |
| Electrical Connection             | Industrial terminal /Cable-out  |  |                  |              |
| Response Time                     | ≤ 3 ms (10%–90%)  |  |                  |              |
| Measuring Medium                  | Fluids compatible with 304, 316L stainless steel or ceramic           |  |                  |              |
| Load Resistance (Current, 2-wire) | $R \leq (U-10) / 0.02 - RD$ (U: supply voltage; RD: cable resistance) |  |                  |              |
| Total Current Consumption         | Current (2-wire)  | Signal current, max approx. 23 mA        |                  |              |
|                                   | Voltage Output (3-wire)   | < 5 mA                                   |                  |              |
|                                   | I <sup>2</sup> C (4-wire)   | < 1.3 mA (customizable low power < 5 μA) |                  |              |
|                                   | RS485 (4-wire)  | < 5 mA (low power < 1.1 mA)              |                  |              |
| Protection Rating                 | IP68  |  |                  |              |
| Atmospheric Pressure              | 86 kPa - 106 kPa  |  |                  |              |
| Vibration                         | 10 g (@10 Hz - 2000 Hz)   |  |                  |              |
| Shock Resistance                  | 100 g / 11 ms   |  |                  |              |
| Service Life                      | > 10 million load cycles (within measuring range)                     |  |                  |              |

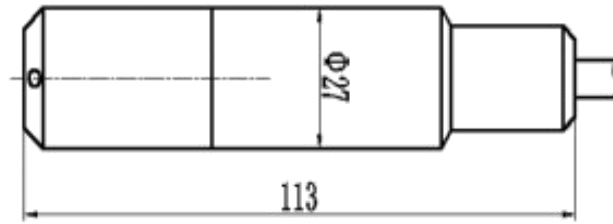
Reference Conditions:

Temperature: 20°C to 25°C

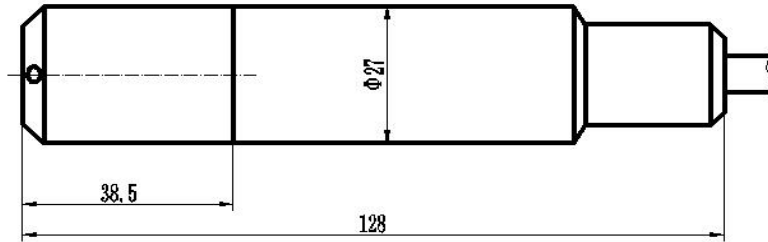
Power Supply Voltage: 24 V ± 0.24 V; 5 V ± 0.05 V

Installation Orientation: Product tested with vertical downward orientation

Dimension and Drawing



Analog signal



RS485 signal

Electrical Connections

Electrical Connections

| Industrial terminal |              |                  |                 |                          |               |
|---------------------|--------------|------------------|-----------------|--------------------------|---------------|
| Diagram             | Terminal No. | Current (2-wire) | Voltage(3-wire) | I <sup>2</sup> C(4-wire) | RS485(4-wire) |
|                     | 1            | PE               | PE              | SDA                      | RS485B        |
|                     | 2            | /                | Vout            | SCL                      | RS485A        |
|                     | 3            | Iout             | GND             | GND                      | GND           |
|                     | 4            | Vcc              | Vcc             | Vcc                      | Vcc           |

| Diagram | Wire color | Current (2-wire) | Dual current (3-wire) | Voltage (3-wire) | Dual voltage (4-wire) | I2C (4-wire) | RS485 (4-wire) |
|---------|------------|------------------|-----------------------|------------------|-----------------------|--------------|----------------|
|         | Red        | Vcc              | Vcc                   | Vcc              | Vcc                   | Vcc          | Vcc            |
|         | Green      | Iout             | PIout                 | GND              | GND                   | GND          | GND            |
|         | Yellow     | /                | TIout                 | Vout             | PVout                 | SCL          | RS485A         |
|         | Blue       | /                | /                     | /                | TVout                 | SDA          | RS485B         |
|         | Black      | PE               | PE                    | PE               | PE                    | PE           | PE             |

## Part Number Code Table For Pressure Range

|     |       |     |       |     |      |     |            |
|-----|-------|-----|-------|-----|------|-----|------------|
| 000 | 0-1.0 | 009 | 0-1.9 | 018 | 0-8  | 027 | 0-50       |
| 001 | 0-1.1 | 010 | 0-2.0 | 019 | 0-10 | 028 | 0-60       |
| 002 | 0-1.2 | 011 | 0-2.1 | 020 | 0-12 | 029 | 0-80       |
| 003 | 0-1.3 | 012 | 0-2.5 | 021 | 0-15 | 030 | 0-100      |
| 004 | 0-1.4 | 013 | 0-3   | 022 | 0-20 | 031 | 0-200      |
| 005 | 0-1.5 | 014 | 0-4   | 023 | 0-25 | 032 | 0-300      |
| 006 | 0-1.6 | 015 | 0-5   | 024 | 0-30 | X   | Customized |
| 007 | 0-1.7 | 016 | 0-6   | 025 | 0-35 |     |            |
| 008 | 0-1.8 | 017 | 0-7   | 026 | 0-40 |     |            |

Order Information

|                  |   |            |           |            |          |          |          |          |           |
|------------------|---|------------|-----------|------------|----------|----------|----------|----------|-----------|
| <b>Selection</b> | <b>L703</b>   | <b>010</b> | <b>E5</b> | <b>S10</b> | <b>H</b> | <b>1</b> | <b>1</b> | <b>G</b> | <b>Mo</b> |
| <b>P/N</b>       | <b>(Model)</b>  |            |           |            |          |          |          |          |           |
| Range            | Refer to <i>PART NUMBER CODE TABLE FOR RESSURE RANGE</i> on previous page and select your requested range code here.  |            |           |            |          |          |          |          |           |
| Output           | E5=4-20 mA      E6=0-5 V      E7=0-10 V<br>E21=0.5-4.5 V non-ratiometric<br>E0=1-5 V      E11=RS485(MODBUS)<br>E61=0-10 mA      E56=0-20 mA<br>E14=4-20 mA+HART<br>E13=I <sup>2</sup> C      X= By Customized |            |           |            |          |          |          |          |           |
| Power Supply     | S3=24 V DC      S5=12V      S6=5 V DC<br>S31=3.3 V DC      S4=3 V DC      S46=3.3-5 V DC<br>S35=5-30V DC      S10=12-30 V DC      X= By Customized  |            |           |            |          |          |          |          |           |
| Level Unit       | B=Bar    P=PSI    H=H <sub>2</sub> O    F=m Fuel  |            |           |            |          |          |          |          |           |
| Accuracy         | 1=0.5%F.S    2=0.25%F.S    3=0.1%F.S (by customized)  |            |           |            |          |          |          |          |           |
| Cable Length     | 1=Cable 1m    2=Cable 2m    3=Cable 3m    X=Cable x m   |            |           |            |          |          |          |          |           |
| Pressure Type    | G=Gauge Pressure      A=Absolute Pressure      S=Sealed Pressure  |            |           |            |          |          |          |          |           |

Others Function (Optional)

Mo = Without junction box      Mi =With junction box, without display  
 Mz = 4-digit LCD display (only for 4–20 mA DC output)  
 Ms = 4-digit LED display (only for 4–20 mA DC output)  
 S=With surge protection      i = Intrinsically safe type      X = By customized

Notes:

- When selecting a model, please ensure the compatibility of the measured medium with the product's contact materials, such as seals and cables. For detailed information regarding media compatibility, please consult our technical team.
- To ensure long-term stability and accuracy, it is recommended to select a level sensor with a range of 120% of the actual measurement height. The maxi pressure must remain within the specified measurement range.
- For reliable outdoor operation, we recommend ordering sensors with integrated lightning protection. Ensuring the product and power supply are reliably grounded during installation will significantly reduce the risk of lightning damage.
- When choosing products with a digital display, the operating ambient temperature range is -30°C to 70°C, and the power supply must be no less than 15VDC.
- For flammable or explosive environments, safety barriers must be installed according to regulations, and cable connections must be reliably sealed. Before powering on, ensure the sensor's internal cavity is isolated from the environment. During cleaning or maintenance, the power must be disconnected before disassembly, and the unit should be moved to a safe environment for processing. On-site live operation is strictly prohibited.