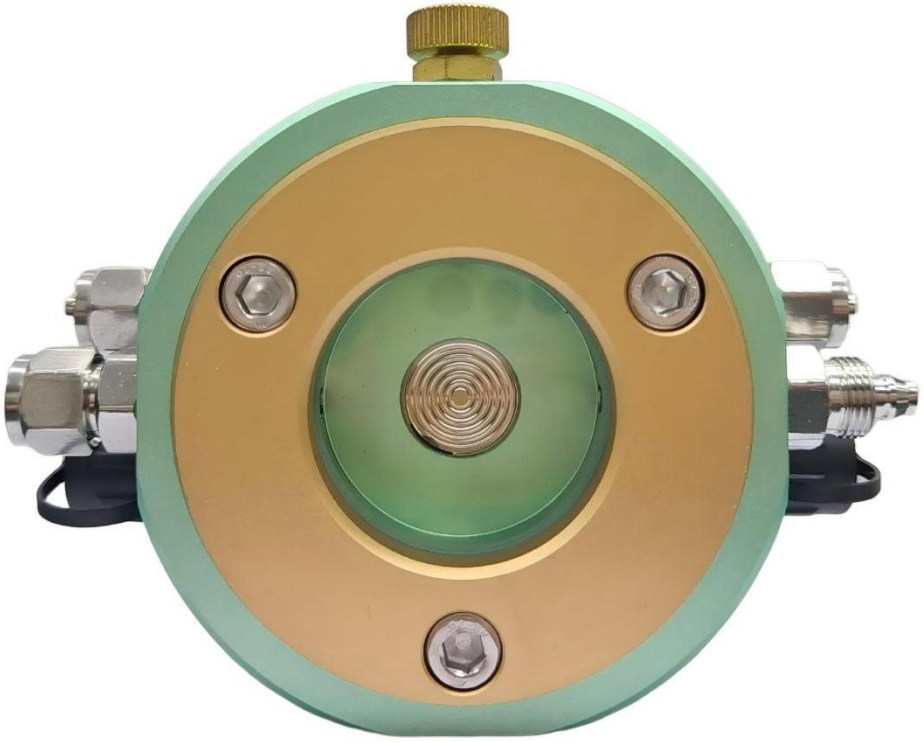
BT8066

High-Precision Static Level Gauge



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I. Overview

The BT8066 high-precision Static level gauge is suitable for vertical displacement or settlement monitoring with high requirements, capable of accurately measuring liquid level changes of 0.01mm. The instrument consists of a series of containers equipped with liquid level sensors, which are interconnected by a liquid-filled communicating tube.

Working Principle:

The reference container is located on a stable reference point, and any elevation change between any container and the reference container will cause a corresponding liquid level change in the container. By measuring the liquid level change, the elevation change at the measuring point can be obtained.

The instrument features an RS485 digital signal for convenient data acquisition. It boasts high measurement accuracy, no drift, strong reliability, and easy installation. The sealed casing provides excellent moisture resistance, allowing for long-term continuous operation in an environment with 100% relative humidity.

II. Technical Specifications

Standard Range: 1000mm

Accuracy: ＜±0.5mm

Resolution: 0.01mm

Annual Stability: ＜±0.5mm

Output Signal: RS485

Operating Temperature Range: -20~85°C

Temperature Compensation Range: -20~60°C

Overload Capacity: 200% F•S

Case Material: Aluminum Alloy

Electrical Connection: Waterproof Four-Pin Connector

Protection Grade: IP67

Installation Method: Fix vertically with the exhaust valve upwards

Wiring Method for Output Signal (RS485):

Red - Power + Yellow - Power -

Blue - RS485-A Green - RS485-B

III. Communication Interface

The instrument adopts an industrial-grade RS485 communication interface, operating in a half-duplex master-slave mode with a transmission distance up to **1200 meters.**

Serial Port Number: The serial port number for the communication serial port, default to COM1. It should be set according to the actual serial port number connected on the computer during use.

Baud Rate: 9600bps;

Parity: None.

Stop Bits: 1 bit.

Data Bits: Fixed at 8 bits.

The supported communication protocol is MODBUS-RTU. After connecting the external power supply, the instrument can be operated through computer software or an MODBUS master (such as an RTU device) by sending commands, such as collecting pressure and temperature values.

IV. Communication Protocol

Function Code: 0x04 for reading registers.

Starting Address for Input Registers: 0x0000;

To read:

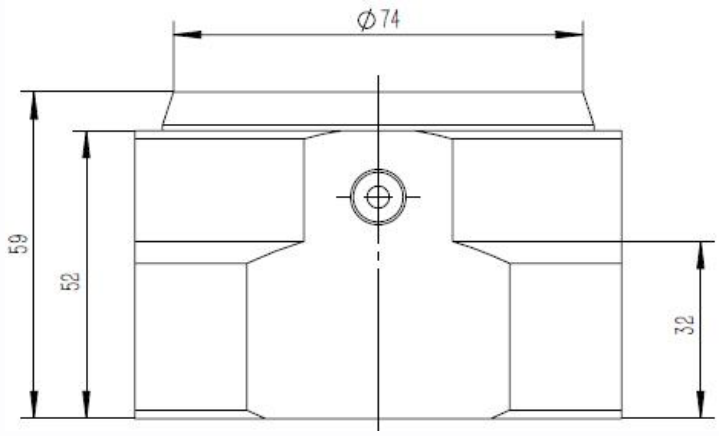
Liquid Level Value: 01 04 00 00 00 02 71 CB

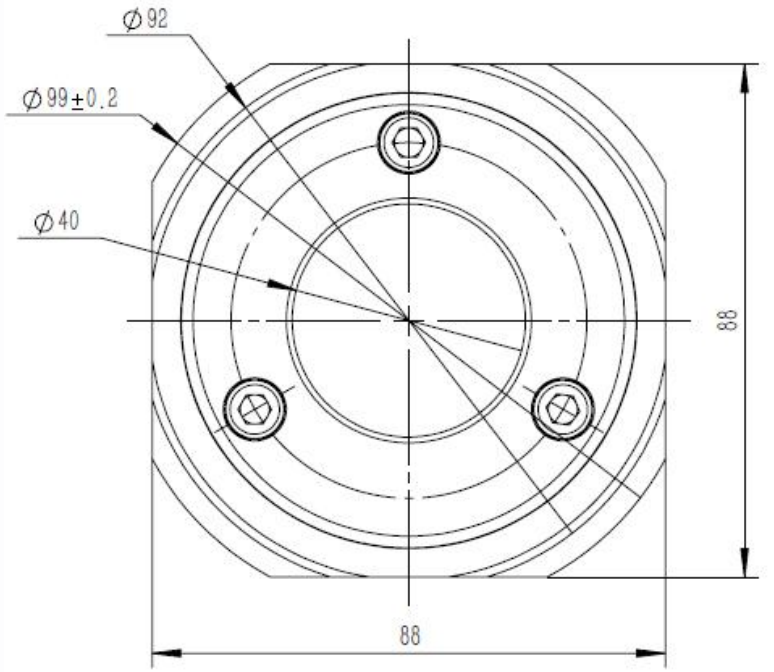
Temperature Value: 01 04 00 02 00 02 D0 0B

Liquid Level + Temperature Value: 01 04 00 00 00 04 F1 C9

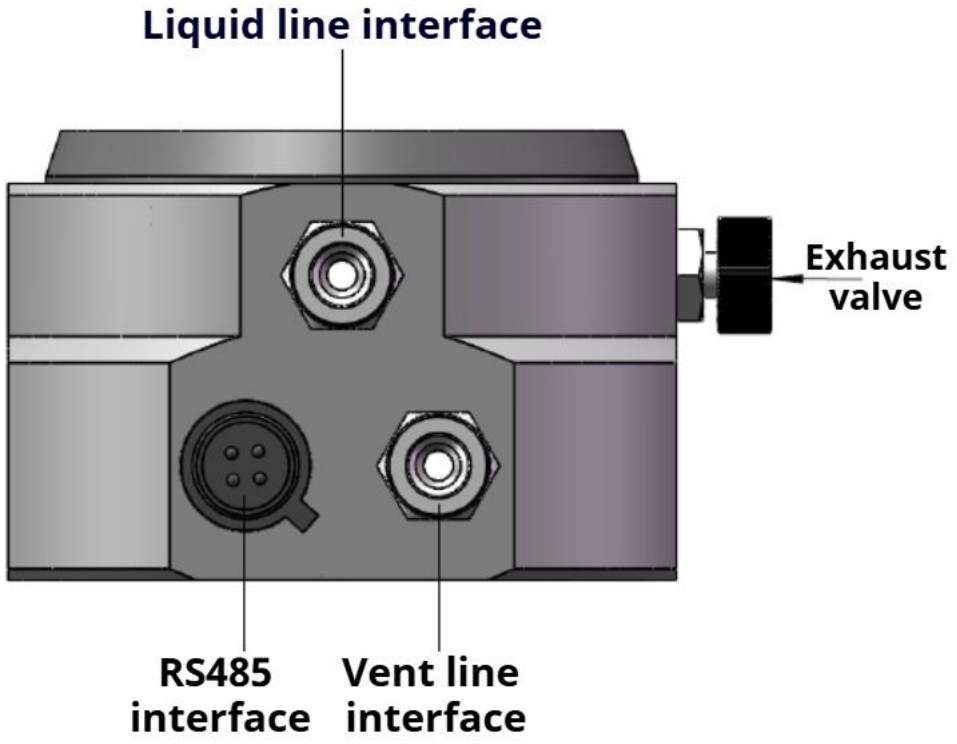
Both pressure and temperature values are represented using IEEE754 standard four-byte single-precision floating-point numbers.

V. Dimensions





VI. Cable and Piping Connection Locations



V. Industry Applications & Use Cases

1. Bridges & Highway Infrastructure

Applications: Bridge pier deflection, abutment settlement, and long-span bridge girder deformation monitoring.

Value: Continuous 24/7 tracking of structural degradation caused by heavy traffic loading or foundation settling.

2. Tunnels & Urban Subways

Applications: Metro tunnel vault settlement, shield tunneling disturbance monitoring, and adjacent excavation impact assessment.

Value: IP67 moisture-proof design withstands the 100% relative humidity conditions typical of underground rail systems.

3. Dams, Reservoirs & Hydrological Facilities

Applications: Dam crest deformation, spillway foundation differential settlement, and embankment stability tracking.

Value: Zero-drift long-term stability ensures trustworthy early-warning data for critical water conservancy assets.

4. Commercial Buildings & Heritage Structures

Applications: Deep foundation pit excavation monitoring, high-rise building differential settlement, and historic masonry structure displacement tracking.

Value: Ultra-fine 0.01mm resolution detects structural shifts long before visible cracking or safety hazards occur.







