

User Manual

BT8006S

Piezoresistive Osmometer



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I. Introduction

This product is a submersible hydrostatic level (water level) measurement instrument. It is a liquid level measurement product realized through continuous accumulation of production process technology, utilizing advanced hybrid signal processing techniques and special compensation methods. It can achieve full-scale digital linear correction and full-temperature range digital temperature error compensation. Compensation parameters are stored in non-volatile memory, and multiple safety protection mechanisms prevent the product from becoming unusable due to loss of calibration parameters.

The circuit section is equipped with power supply monitoring and watchdog supervision functions, while the mechanical section features a stainless steel fully sealed structure, significantly enhancing the overall reliability of the instrument. Since the circuit entirely employs low-power devices, the overall power consumption is very low, approximately 4mA during full-speed operation. This characteristic is particularly useful in scenarios requiring battery power.

It is widely used in freshwater and drinking water treatment, wastewater and sewage treatment, seawater measurement, and surface water or groundwater monitoring in the hydrology and water conservancy industries.

II. Advantages

High-stability liquid level measurement sensing element with excellent long-term stability.

Accuracy up to 0.05% F.S (linearity, repeatability, hysteresis).

Strong overload capability, with an overload capacity of 3 to 5 times full scale.

Employs a hybrid signal microprocessor and high-order fitting algorithms to achieve accuracy compensation.

RS485 standard MODBUS-RTU protocol, compatible with DCS or PLC systems.

Low power consumption, consuming approximately 4mA during full-speed operation, making it advantageous when powered by an external battery.

III. Technical Specifications



Main Performance Indicators	
Range	0~10、20、50、100mH ₂ O
	User-specified range, factory calibrated.
Measurement Accuracy	0.2% F·S
Resolution	0.005%F.S
Long-term Stability	0.1%F.S/year
Overload Capacity	5X F.S
Temperature Characteristics	
Zero Temperature Coefficient	0.005% F·S/°C
Full-scale Temperature Coefficient	0.005% F·S/°C
Compensation Temperature	0~50°C.....
Operating Temperature	-20~85°C
Storage Temperature	-40~125°C
Electrical Characteristics	
Supply Voltage	12VDC (9~30V)
Communication Interface Protection	(2KV) surge voltage
Load Capacity	128 transducer nodes
Output Mode	RS485 interface, MODBUS-RTU protocol
Insulation	100MΩ @50V
Mechanical Characteristics	
Sensor Lifespan	10 ⁷ full-scale pressure cycles
Wetted Material	Gold-plated alumina ceramic
Seal Material	Fluororubber
Housing Material	316L stainless steel (titanium alloy optional)
Cable Material	Polyurethane
Weight	Approximately 300 grams
Environmental Characteristics	
Vibration	20g 20 ~ 5000Hz
Shock	20g 11ms
Protection Rating	IP68
Explosion-proof Rating	ExiaIIC T6
Air Filter Protection Rating	IP67

IV. Related Parameters

