

ZS40

Water Level Sensor

Overview

This is a water level sensor that has a built-in semiconductor pressure sensor, which outputs 4 to 20mA with dedicated amplifier.

This allows user to perform the stable measurement and monitor the conditions of groundwater precisely.

Features

- This is a semiconductor pressure sensor that has the stainless steel diaphragm requiring no filling liquid for pressure sensing. Durability and stability are excellent.
- The diameter of the sensor is 19mm, and the sensor has a simple robust structure with no moving parts.
- Surge protected product that has strong resistance to electrical noise from the outside and induced lightning.
- Available for economical price.



Specifications

Media:

Fluid compatible with wetted parts

Installation environment:

Install in location where no gases or liquids may exist that have the potential to become flammable or ignitable under normal operating condition

Cable type:

φ8.3 Hollow cable

Wetted parts:

Case	SUS316
Pressure receiving diaphragm	SUS630 (17-4PH)
Packing	Fluorine rubber
Cable sheath	Chloroprene rubber

Water level range:

0 to 10→0 to 30m, 0 to 50→0 to 150m

Water level range, Accuracy:

Water level range	Accuracy
0 to 10m	±0.2m (±2.0%F.S.)
0 to 20m	±0.4m (±2.0%F.S.)
0 to 30m	±0.6m (±2.0%F.S.)
0 to 50m	±0.25m (±0.5%F.S.)
0 to 100m	±0.50m (±0.5%F.S.)
0 to 150m	±0.75m (±0.5%F.S.)

※ When specific gravity correction is required, please contact us.

Allowable over load:

200% of water level range

Operating temperature range:

-5 to 50°C (Non-freezing or condensing)

Power source:

24V DC±10%

Output:

4 to 20mA DC (2 wire system)

Load resistance:

500Ω or lower

Transmission system:

2 wire system

Accuracy:

±2.0%F.S. (Water level range: 0 to 10→0 to 30m)

±0.5%F.S. (Water level range: 0 to 50→0 to 150m)

Temperature coefficient (Zero, Span):

±0.2%F.S./°C (Water level range: 0 to 10→0 to 30m)

±0.05%F.S./°C (Water level range: 0 to 50→0 to 150m)

Weight:

Body Approx. 200g (Cable Approx. 80g/m)

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Measurement principle and construction

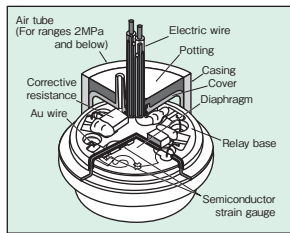
Circuit protection safeguard

Varistor is built in to protect a circuit from electricity noise of exterior or induction thunder.

Pressure sensing part

Built-in semiconductor strain gauge pressure sensor with stainless steel diaphragm can directly measure water pressure.

Semiconductor strain gauge pressure sensor

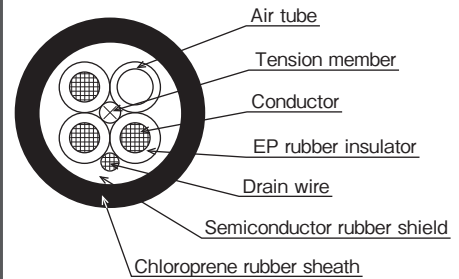


Design that that semiconductor strain gauge, distortion generating element and pressure connection are all integrated without utilizing glue or corrosive material can contribute for excellent durability and stability.

Hollow cable

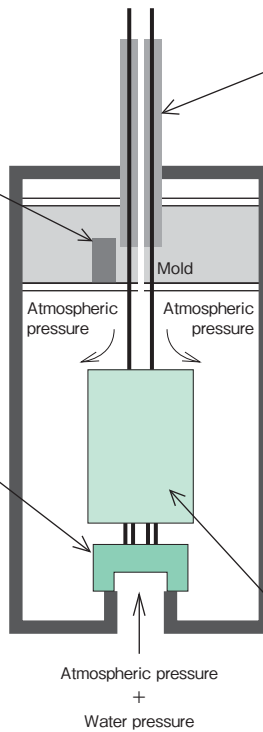
Converted current signal is transmitted through hollow cable. Hollow cable is designed with air vent tube not for being affected by the change in atmospheric pressure.

Section



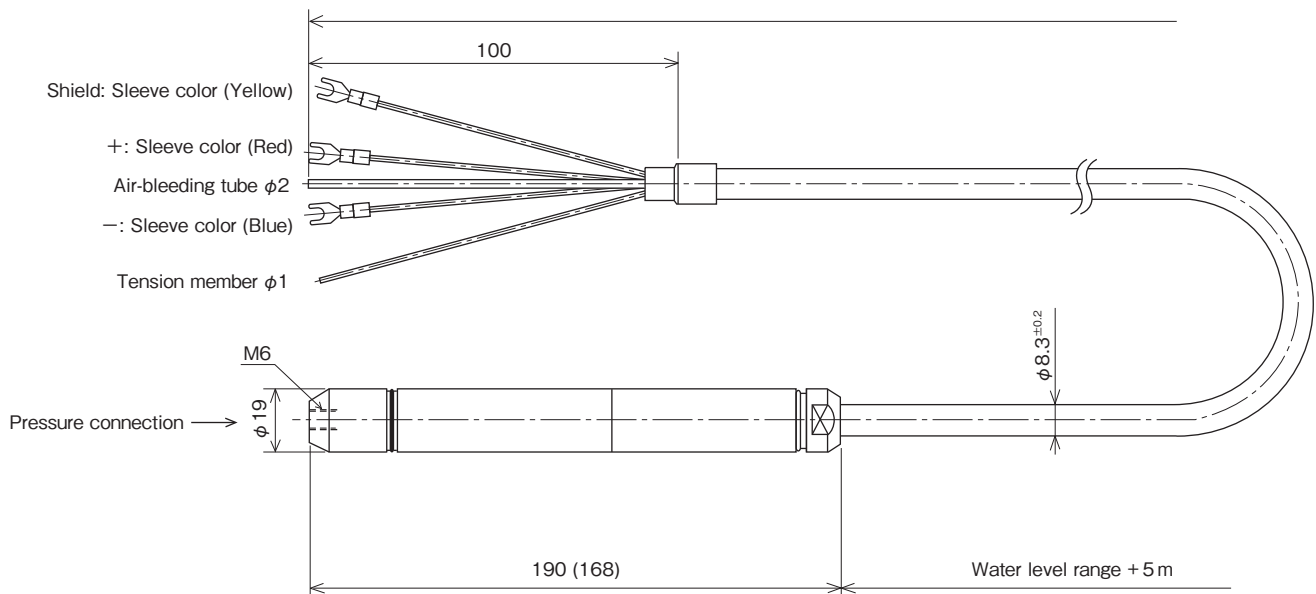
Electronic circuit

It converts detecting signal of pressure sensor into current signal of 4 to 20 mA DC by built-in amplifier.



Dimensions

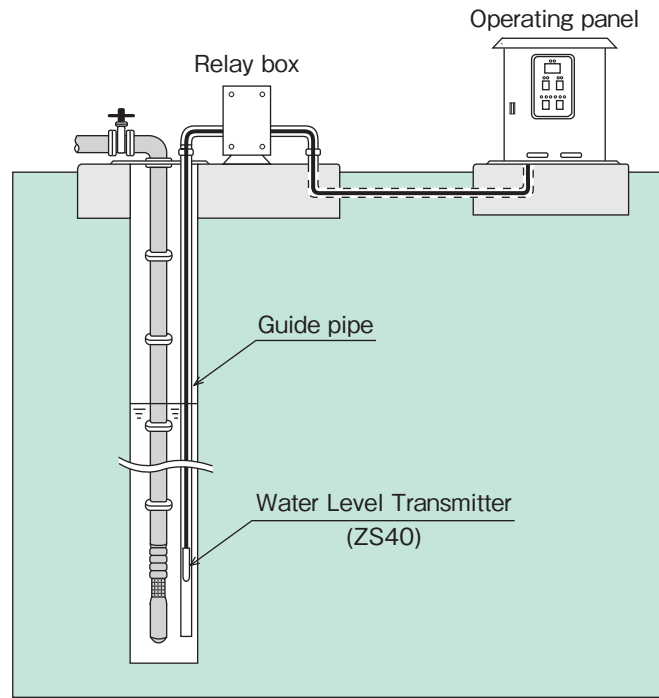
Unit: mm



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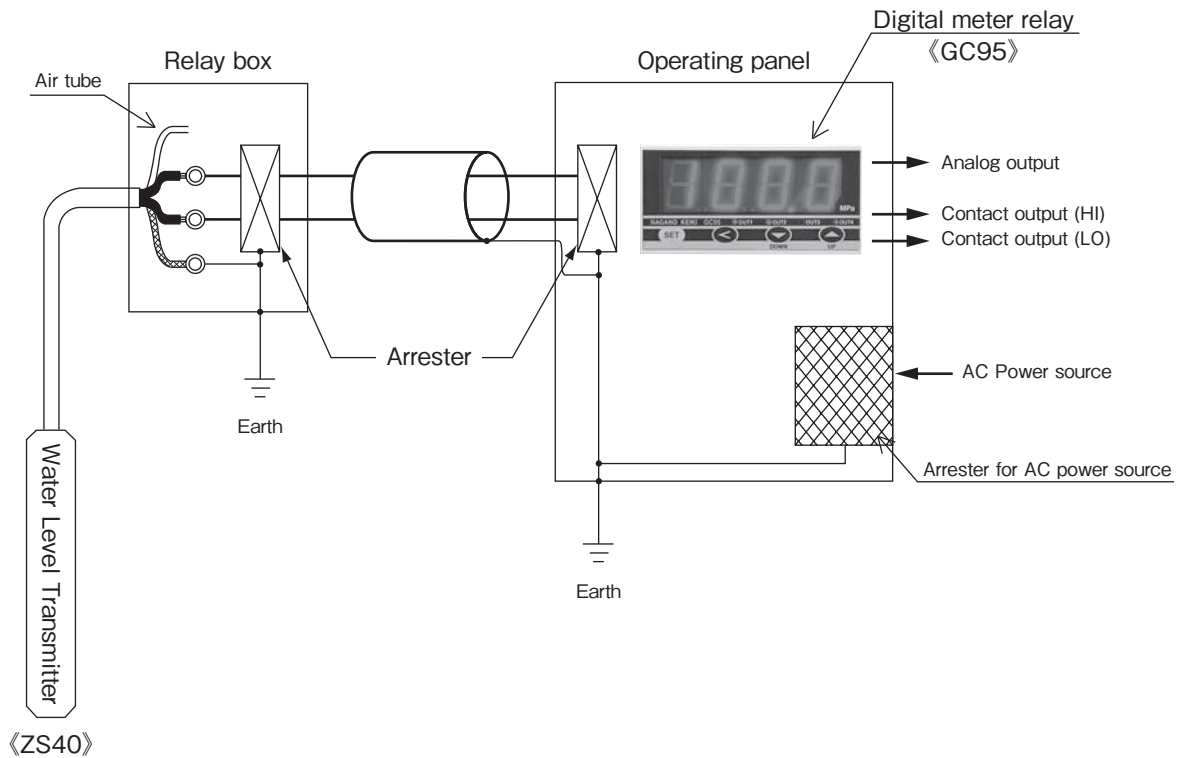
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Example for deep well application



For lightning surge

Although this water level sensor is designed for strong surge protection enough for not being affected by electrical noise or induced lightning, use relay box or arrester where lightning surge is considerable.



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Water Level Sensor

Model number configuration

Please specify the model number, each specs and water level range for ordering.

Model

Z S 4 0 — 1 1 3 — 1 1 × × × × × × × ×

Level transmitter for deep well ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮

Model number		Product specifications	Additional specifications (Optional)
① Type	1	Submersible type φ19	
② Cable type	1	φ8.3 Hollow cable	
③ Wetted parts	3	Case: SUS316 Pressure sensing diaphragm: SUS630 (17-4PH) Gasket: Fluorine rubber Cable sheath: Chloroprene rubber	
④ Water level range	1	0 to 50m	Standard wire length: 55m (For deep well)
	2	0 to 100m	Standard wire length: 105m (For deep well)
	3	0 to 150m	Standard wire length: 155m (For deep well)
	4	0 to 10m	Standard wire length: 15m (For extremely fine)
	5	0 to 20m	Standard wire length: 25m (For extremely fine)
	6	0 to 30m	Standard wire length: 35m (For extremely fine)
⑤ Indication accuracy	9	±2.0%F.S. (Water level range: 0 to 10→0 to 30m)	
	5	±0.5%F.S. (Water level range: 0 to 50→0 to 150m)	
⑥ Power source	1	24V DC±10%	
⑦ Output	1	4 to 20mA DC	
⑧ Other additional spec.	0	Not required	
	1	Specify wire length (Longer than standard /m)	
⑮ Documents	0	Not required	
	1	Required (Documents available upon request) Datasheet (Drawing / Specifications) Instruction manual Inspection procedure Mill test report Calibration test report (One-part one sheet) Inspection / Traceability certificate Calibration test report for pressure standard Strength calculation sheet Attending inspection	

Please specify applicable range code as well as water level range along with engineering unit.

*Specify code "X" to refer N/A

GC95 Digital meter relay 《Water level sensor with internal supply》

Option



Specification

Display:
4 digit Red LED indicator

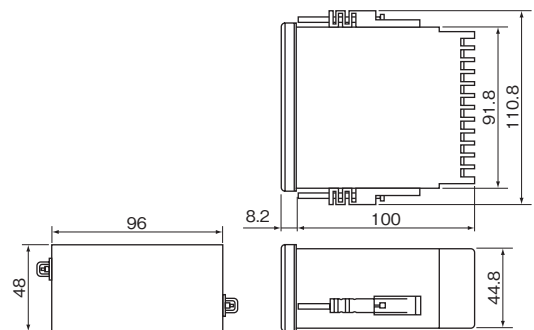
Power source:
24V DC±10%
85 to 264V AC (50/60Hz)

Sensor power source:
5V DC±10% (5mA max.)
24V DC±10% (25mA max.)

Sensor input signal:
1 to 5V DC
0 to 5, 0.5 to 4.5V DC
4 to 20mA DC

Output:
Relay contact Independent
4 outputs
(Rating: 240V DC 1 to 2A)

Dimensions



Unit: mm

●For GC95, please refer to detailed catalogue number B10-01.