

Submersible Level Transmitter with Digital Indicator

DISCRIPTION

Submersible Level Transmitters with digital indicator make use of high-performance silicon piezo-resistive pressure sensor as sensing element. The transmitter measures the vertical depth of a column of liquid and converts this depth into the standard amplified analog signals. Our Submersible Level Transmitters feature a fully-welded structure and are made from 316 stainless steel. The cable used in these transmitters is anti-oil, water-proof and electromagnetic effect shielded PVC cable with vent hose for atmospheric pressure in. The environment protection grade of these transmitters is IP 68.

Submersible Level Transmitters with digital level indicator are of integrated structure with sensing element and signal conditioning circuit located and sealed in the probe housing. In application the transmitter is merged in the measured liquid. No external adjustment or calibration is needed



WORKING PRINCIPLE

Low range pressure transmitters are integrated with a pressure sensor (PS). In application, a to-be-measured working pressure applied to the pressure diaphragm of this PS through a pressure port, causing a mechanical deformation of the diaphragm. This deformation is proportional to the working pressure: the higher the working pressure, the bigger the deformation.

The sensing element of the PS is a silicon sensor. This sensor is encapsulated in an oil-filled stainless steel case sealed with a pressure diaphragm. In application, a working pressure applied to the diaphragm is transferred from the diaphragm to the sensor by the filled oil. This structure provides a stable performance and long-term service life.

The sensor possesses a silicon membrane with four piezo-resistors diffused in the surface of this membrane. These four resistors are connected to form a balanced Wheatstone bridge circuit.

A working pressure is transferred to the silicon membrane, while a reference pressure (atmospheric pressure or/and a sealed pressure for gauge pressure measurement, vacuum for absolute pressure measurement) is applied to the other side of the silicon membrane through another mechanical channel. The pressure difference between the working pressure and reference pressure causes a deformation of the silicon membrane, and this deformation is proportional to the working pressure.

The piezo-resistive effect, the deformation causes resistance changes of the four resistors, resulting in unbalance of the Wheatstone bridge circuit. The unbalance of the Wheatstone bridge circuit leads to an electrical output signal and this electrical output signal is proportional to the working pressure.

FEATURES

Piezo-resistive technology; Measuring ranges: 0.2 to 200 mH₂O

Accuracy 0.25% FS0, 0.5% FS0 (standard)

Output : 4~20 mA

Housing environmental protection : IP 68

DETAILS OF LEVEL INDICATOR :

Display	:	7 segment LED 4 X 1 line (or, LCD)
Mounting	:	Panel mounted
Dimensions	:	96(W) X 96(H) X 100(D) mm or, 96(W) X 48(H) X 110(D) mm
Power Supply	:	230 V AC, 110 V AC or 24 V DC (As per clients requirement)
Input	:	4 to 20 mA from Level Transmitter
Output	:	4 to 20 mA or, Relays (As per clients requirements)

Characteristics	Unit	Description
Pressure Ranges	mH ₂ O	0~0.2, 0~0.4, 0~0.6, 0~1, 0~1.6, 0~2.5, 0~4, 0~6, 0~10, 0~16, 0~25, 0~40, 0~60, 0~100, 0~160, 0~200
Overload pressure	%FS	150
Power Supply	Vdc	12, ..., 36
Output	transmitter, mA (2 wires)	4~20
	transmitter, Vdc (3 wires)	1~5, 0~5
Accuracy	%FSO	0.1, 0.25(standard), 0.5
Long-term stability	%FSO/year	<0.5
Response time	ms	<2
humidity	%RH	0~100
Storage temp. range	°C	-40~+100
Operation temp. range	°C	0~+80
Compensated temp. range	°C	0~+50
TCZ	%FSO/°C	0.03
TCS	%FSO/°C	0.03
Insulation resistance	Mohm	≥500@50Vdc
Load Resistance	Current output, Ohm	250~1150
	voltage output, Ohm	>5000
Process Connection	thread for type I	male: ¼" NPT
	thread for type II	male: ½" NPT
Electrical Connection	connector/cable	4-core, Φ7.6 mm shielded cable with vent hose which is mechanically strong enough for deep submersible liquid level measurements
Environmental Protection	IP rating	IP 68
Material	diaphragm	316L SS
	body	316 SS
	housing for electronics	NA
Weight	g	~200(probe head)+the weight of cable

Continuous efforts for product development may necessitate changes in these details without notice

Authorised Dealer



NK Instruments Pvt. Ltd.

B-501/504, 5th floor, Raunak Arcade, Near THC Hospital, Gokhale Road, Naupada,
Thane(W) 400602. Maharashtra INDIA Telefax Nos.: 91-22-25301330 / 31 / 32
E-Mail: sales@nkinstruments.com Web: http://www.nkinstruments.com
Skype: nitinkelkarskype Gtalk: nkinstruments2006

