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INSTRUCTION MANUAL
VIBRATION TYPE LEVEL SWITCHES
HTM-930 Series



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1. Features

- Can detect level of various solids and powders
- Can be fully operated for powders of low and high densities.
- Can detect the interface of sediments in the liquid.
- Has a longer lifetime since it has no mechanical movements.
- Does not need adjustments after installation.

2. Specifications

Body	Steel (SS41)
Protection	IP65
Range of Environment Temp.	-20°C ~ + 60°C
Mounting Material	Stainless Steel (SUS 304)
Mounting Specification	3/4" PT (KSB0222)
Operating Temp.(Inside Vessel)	-20°C ~ + 250°C
Max. Pressure	10 kgf/cm ²
Combination Unit	HLC-901
Power Supply	AC 110 V / 220 V 60 Hz± 10%
Power Consumption	Approx. 5 VA
Sensitivity	Over 0.2(Specific Gravity)
Relay Output	Max. AC 250 V, 5 A
	Max. DC 28 V, 5 A
	(Relay 1 SPDT)
Indication of Switch	When relay is on.
	When detection LED is off.
	When detection LED becomes RED.
Painting	Metallic silver
Distance Between Sensor and unit	Max. 300 m
Cable	twisted paired cable

3. Operating Principle

HITROL's HTM is an innovative, multipurpose switch and has the simplest structure.

HTM sensor head is composed of one module which has an oscillating coil generating frequency and a sensing coil detecting oscillation.

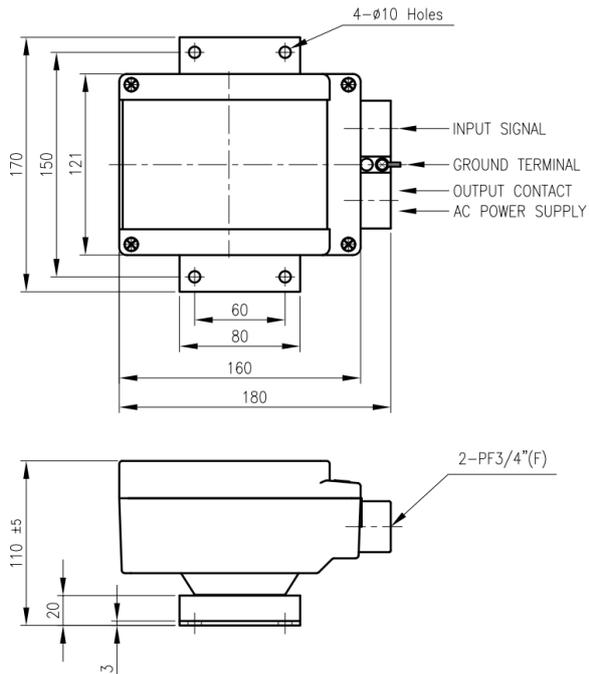
When the material inside the vessel does not exist around the sensing rod, the sensing rod continuously vibrates due to the oscillating coil.

When the material inside the vessel exists around the sensing rod, the vibration frequency is significantly reduced, and the output from the sensing coil is decreased to a very low value.

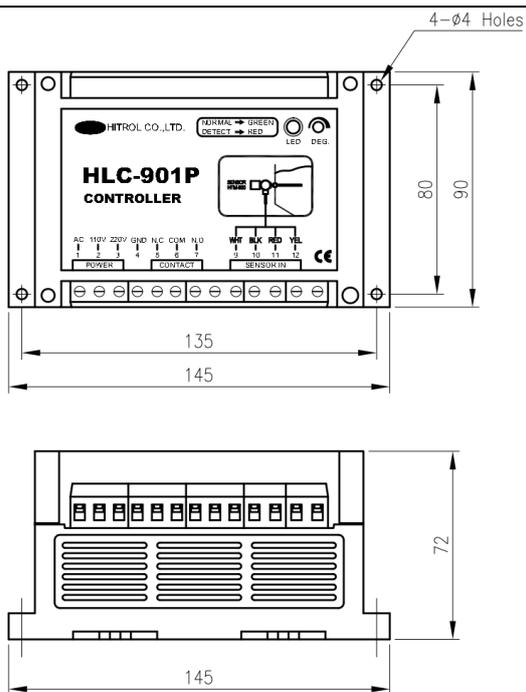
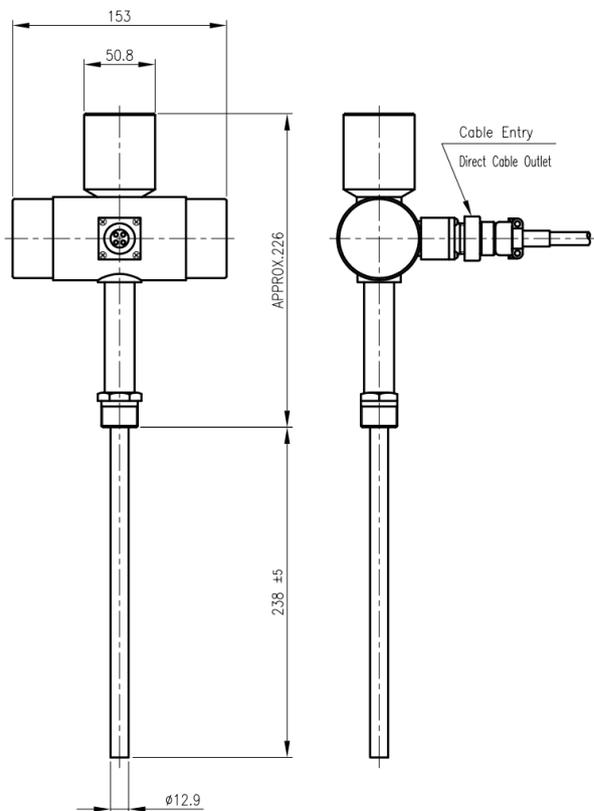
It is operated using the above mentioned operation principle, and when a signal is supplied to alarm and/or process control.

4. Dimensions

Controller



Sensor



5. Installation Method

1. Sensor should be installed using a 3/4" PT coupling or a designated flange.

2. Sensor should not be installed at the inlet of material to be measured.

(However, when sensor is installed at the inlet of material to be measured, the protection plate for the sensing rod should be installed to endure the force due to falling of material to be measured. Refer Fig. 1.)

3. The direction of cable gland should be forwarded to the ground.

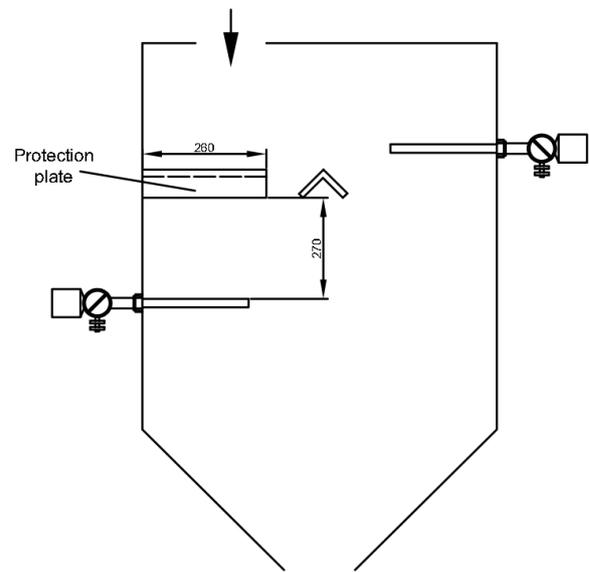


Fig. 1 Schematic diagram for wiring

6. Wiring Method

6.1 HLC – 901L

1) Refer Fig. 2.

2) Two-wire twisted shield cable should be used when wiring sensor and the unit. (HITROL's standard length is 6 m. However, when the distance between the sensor and the unit is over 6 m, it is required to consult cable specification to HITROL.)

3) When wiring between the sensor and the unit, the separate cable conduits should be used for power and sensor signal.

4) It should be grounded for either the sensor or the units.

5) The sensitivity can be adjusted using Dial. If it is dialed counterclockwise, the vibration becomes weak and the sensitivity becomes high. But, if clockwise, the vibration becomes strong and the sensitivity becomes low.

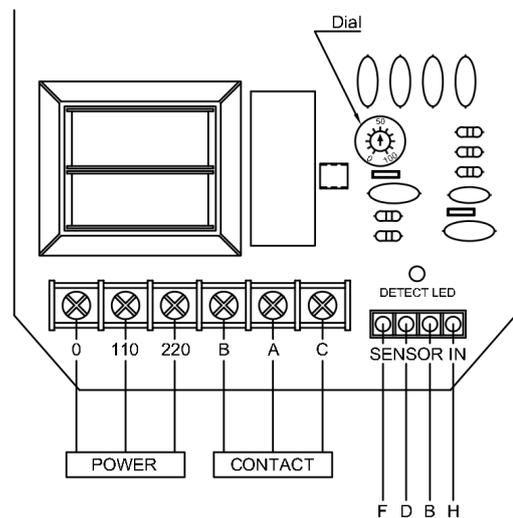


Fig. 2.1 Schematic diagram for wiring

6.2 HLC – 901P

- 1) Refer Fig. 2.1
- 2) Two-wire twisted shield cable should be used when wiring sensor and the unit. (HITROL's standard length is 6 m. However, when the distance between the sensor and the unit is over 6 m, it is required to consult cable specification to HITROL.)
- 3) When wiring between the sensor and the unit, the separate cable conduits should be used for power and sensor signal.
- 4) It should be grounded for either the sensor or the units.
- 5) The sensitivity can be adjusted using DEG. If it is dialed counterclockwise, the vibration becomes weak and the sensitivity becomes high. But, if clockwise, the vibration becomes strong and the sensitivity becomes low.

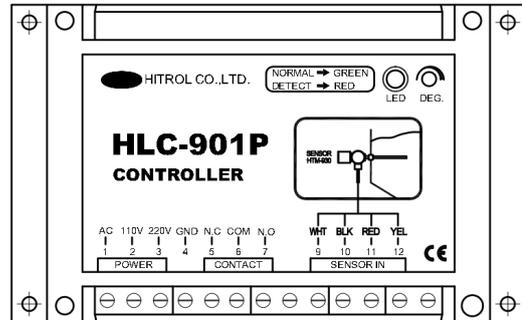


Fig. 2.2 Schematic diagram for wiring

7. Maintenance

- It is recommended to clean and check the sensing rod frequently by removing the sensing rod from the vessel when the material is hard or viscous.

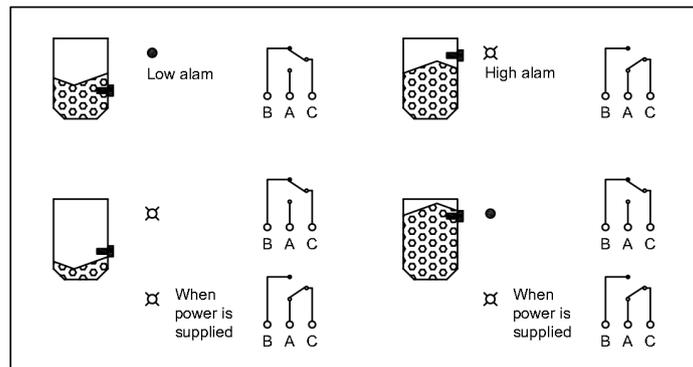


Fig. 3 Schematic diagram for wiring



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