



CAPACITIVE LEVEL SWITCH (CLS)

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Capacitive Level Switch

Measuring Principle

Capacitive level switch use the induction rod to detect the capacitance between the sensing rod and the barrel wall. When the sensing rod is covered by the material, the capacitance gradually increases to reach the matching value of the switch internal line setting. When the line generates high-frequency resonance, the resonance signal is detected and turned into a switching action.

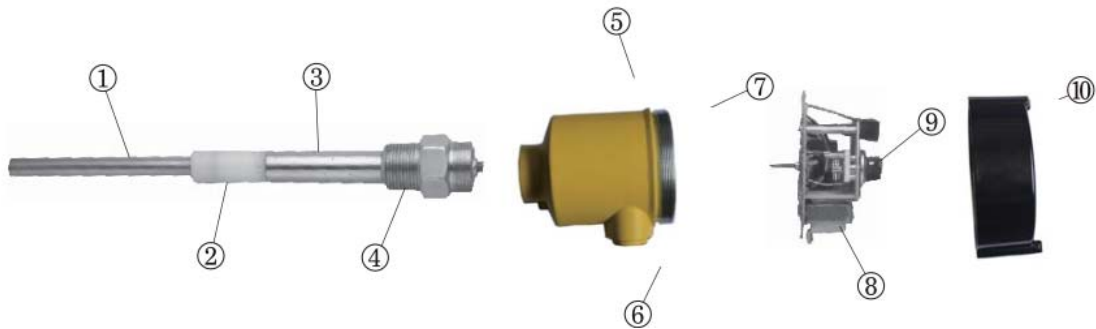
Feature

- No mechanical wear, simple construction.
- No mechanical transmission structure.
- Suitable for medium such as solids, powders and liquids.

Application

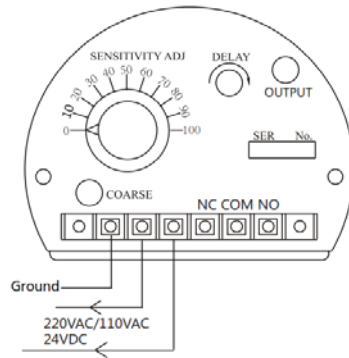
- Food industry
 - Feed
 - Chemical
 - Metallurgy
 - Electrical power
 - High temperature/pressure /strong acid and alkali location
-

Structure Diagram



- | | |
|---|---|
| <ol style="list-style-type: none"> 1. Induction rod material: SS304/SS316 2. Insulator material: UPE or PTFE 3. Non-inductive body material: SS304/SS316 4. Continued mouth Material: SS304/SS316 Spec
1" PT or ¾" PT | <ol style="list-style-type: none"> 5. Junction box : aluminum alloy baking varnish(IP65) 6. Outlet: M20*1.5 7. Waterproof o-ring : NBR nitrile rubber 8. Circuit board: variety of specification for different occasions 9. Sensitivity adjustment: 10PF or 20PF or 30PF 10. Junction box: aluminum alloy paint |
|---|---|

Circuit Panel Diagram



Adjustment method

Coarse adjustment:

Sensitivity adjustment knob (SENS ADJ), aiming at the 0 position, then use a small screwdriver to adjust the coarse rotation until the (OUTPUT) lamp is just lit. Then rotate the sensitivity adjustment knob (clockwise half or clockwise to 10) Check if the (OUTPUT) lamp is just off. If it is just off, the coarse adjustment is completed.

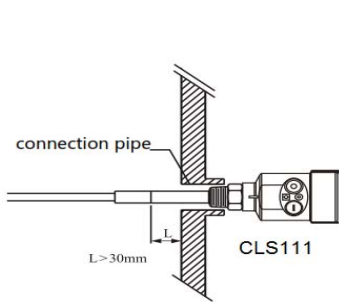
Fine adjustment:

When the material is not in contact with the sensor bar, the (OUTPUT) lamp will not light. When the material completely wraps the sensor bar, the (OUTPUT) lamp will light up. At this time, turn the sensitivity adjustment knob clockwise until the lamp goes out, then turn the sensitivity adjustment button. In the middle of the position where 0 is turned off and the light is turned off, the correct setting of the sensitivity adjustment knob (SES ADJ) is set. According to the past experience, the sensitivity can be set at 60 positions

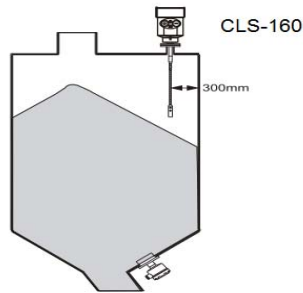
Delay action adjustment:

The DELAY function is set to 0 seconds at the factory, so the sensor bar will light up when it touches the material signal (OUTPUT), and the relay contact will output immediately. When the user needs the delay function, the DELAY knob can be adjusted clockwise. When there is DELAY, the sensor bar has an OUTPUT light but the relay does not output. It must wait until the DELAY setting time is reached before the signal is output. This function is generally used to detect liquid or powder unstable environments, such as liquid mixing drums, powder in the tank with instant impact or instant contact.

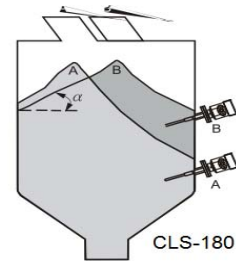
Installation instructions and precautions:



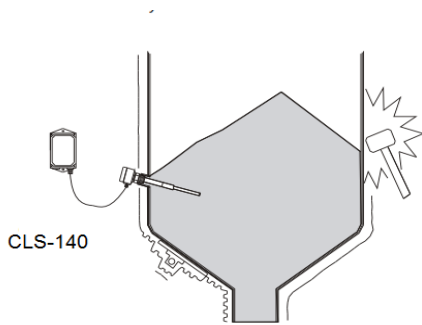
For standard type, the insulation part should be inserted into the barrel more than 30mm, avoiding the accumulation of material in the connection tube and causing the malfunction and the connection tube and the induction rod are too close to adjust the sensitivity.



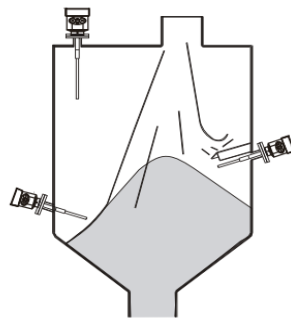
When loading, it is necessary to consider whether the position of the angle of repose can make the sensor rod detect the raw material. When installing the CLS-160 cable type, it should be noted that the distance between the sensor rod and the barrel wall should be more than 300mm. the CLS-180 flat type can be install under the barrel.



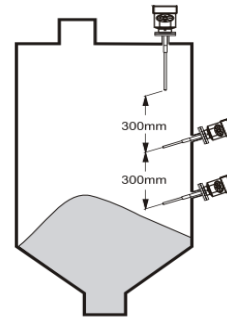
Pay attention to the installation position when installing the side. If the inlet is not fed from the center, you must consider the angle of repose a and the corresponding point of the inlet. Otherwise the liquid level switch will not work.



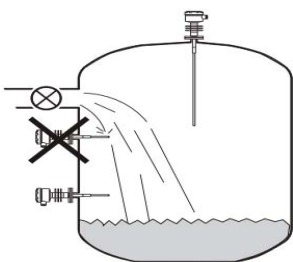
When a vibrator is installed in a tank or transfer line, consider whether it will damage the internal parts of the capacitor switch. If you are recommended to use our CLS-140 separation type.



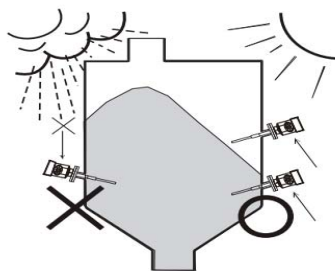
It should be avoided to install near the inlet to reduce the damage of the induction rod when the material is impacted. If the switch must be installed close to the inlet, please install the protection board at 200mm above the switch



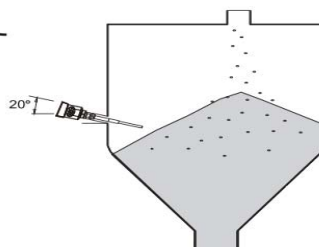
When multiple sensor bars are installed at the same time, the distance between each switch should be more than 300mm



If the switch is used to detect liquid, do not install the switch under the water inlet to avoid the impact of the sensor rod.



The outlet of the junction box must be facing downwards and the cable fixing heat must be locked to prevent rain from seeping into the junction box from the outlet when raining which will damage the internal structure and wiring.

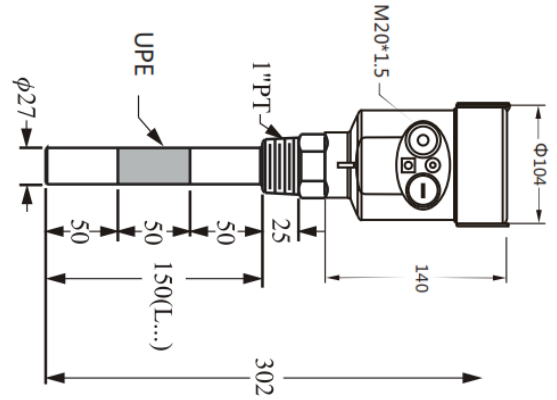


The sensor bar should be tilted down and at an angle of 20° to the horizontal line for optimum sensitivity, which reduce sensitivity and reduce damage to the switch.

Technical Information

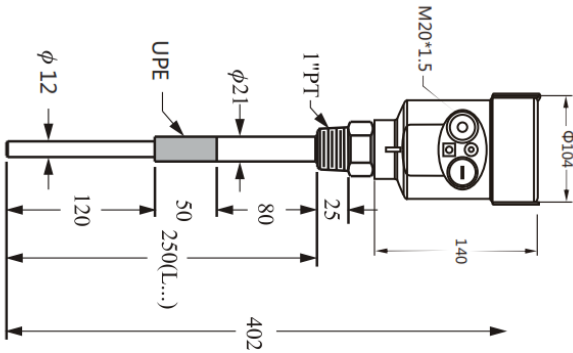
Model: CLS-110 (Standard)

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	G1" thread (customizable)
Induction rod material	SS304/SS316
Insulation material	UPE
Temperature	-20 ~ 80 °C
Operating pressure	10kg/cm2
Insertion length	150mm (customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65



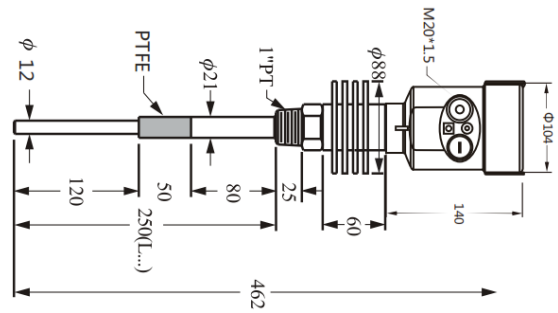
Model: CLS-111 (Standard)

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	G1" thread (customizable)
Induction rod material	SS304/SS316
Insulation material	UPE
Temperature	-20 ~ 80 °C
Operating pressure	10kg/cm2
Insertion length	250mm (customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65



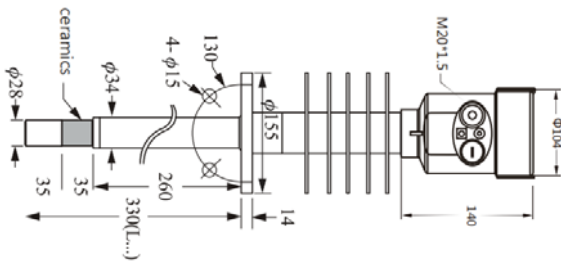
Model: CLS-120 High Temperature

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	G1" thread (customizable)
Induction rod material	SS304/SS316
Insulation material	UPE
Temperature	-20 ~ 200 °C
Operating pressure	10kg/cm2
Insertion length	250mm (customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65



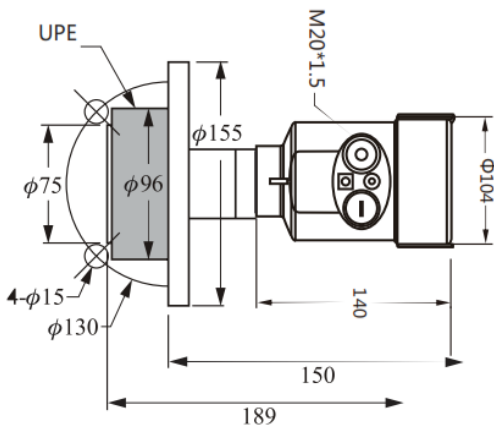
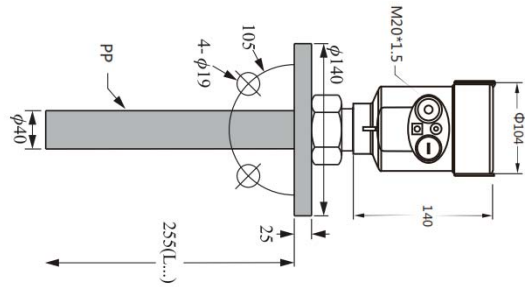
Model: CLS-130 Extra High Temperature

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	1-1/2" x 5k
Induction rod material	SS304/SS316
Insulation material	UPE
Temperature	-20 ~ 900 °C
Operating pressure	10kg/cm2
Insertion length	330mm (customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65



Model: CLS-150 Acid and alkali resistant

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	1-1/2" x 5k
Induction rod material	SS304 coated PP or PTFE
Delay	0-6 seconds
Temperature	-20 ~ 200 °C
Operating pressure	10kg/cm2
Insertion length	255mm (customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65

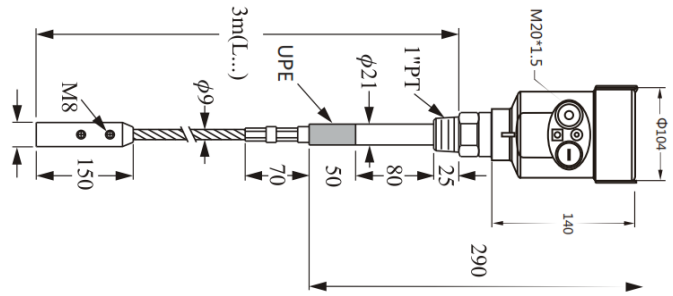


Model: CLS-180 flat type

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	1-1/2" x 5k
Induction rod material	SS304/SS316
Insulation material	UPE
Temperature	-20 ~ 200 °C
Operating pressure	10kg/cm2
Insertion length	40mm (customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65

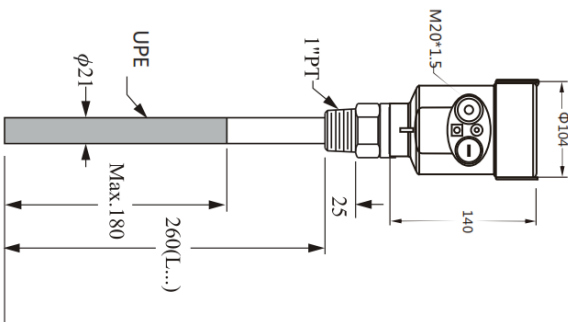
Model: CLS-160 steel cable type

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	G1" thread (customizable)
Induction rod material	SS304/SS316
Insulation material	UPE
Temperature	-20 ~ 80 °C
Operating pressure	10kg/cm2
Insertion length	(customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65



Model: CLS-190 antistatic type

Voltage	24VDC - 220VAC
Power	3W
Contact rating	SPDT 5A/250VAC
Process connection	G1" thread (customizable)
Induction rod material	SS304/SS316
Insulation material	UPE
Temperature	-20 ~ 200 °C
Operating pressure	10kg/cm2
Insertion length	260mm (customizable)
Installation	Vertical or Horizontal
Junction box	Aluminium alloy paint
Protection level	IP65



Ordering Number

Code: CLS -

Type	110 : standard 150mm 111 : standard 250mm 120 : high temperature 130 : extra high temperature 140 : separation type 150 : acid and alkali resistant 160 : steel cable type 190 : antistatic type
Process connection	A : 1" thread B : 2" thread C : Special thread size D : 5kg/cm ² flange E : 10kg/cm ² flange F : Special flange size
Power	A : 220 VAC D : 24 VDC
Induction rod length (mm)	Unit (mm)

* The total length of the product is affected by the function adjustment & tolerance is ± 5 mm

* Product characteristics, specification and dimension can be modified at any time without notice

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