

SA(SAX1)Capacitance Level Switch Operation Manual

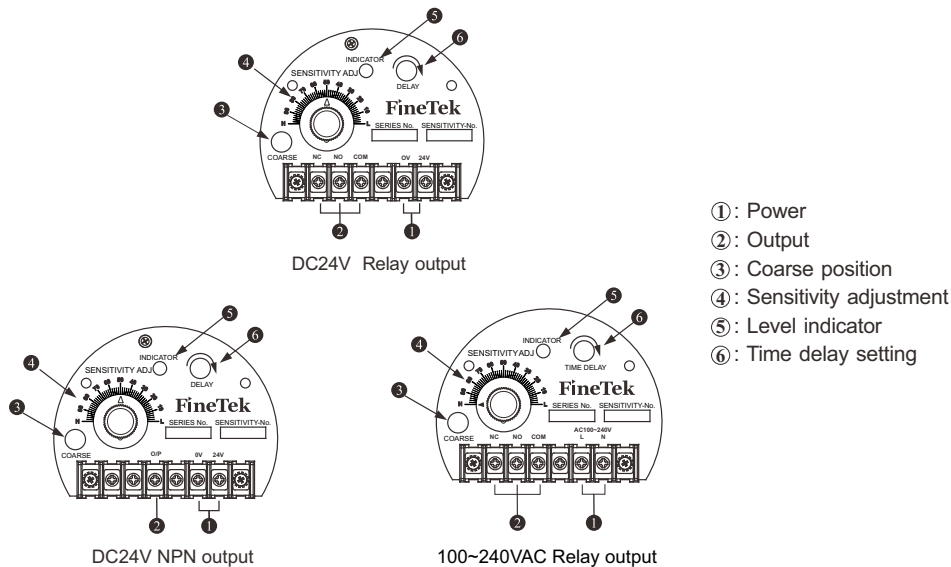
With the exception of model SA150 and extension-probe type switches, adjustment is carried out on all models before shipment and there is thus no need for the customer to perform this task by himself or herself.

※ When there are materials or mixtures with multiple characteristics such as high/low dielectric and conductive characteristics simultaneously (for example; silica sand in the glass industry, etc), it must be tested on the site first, to determine whether the sensor is suitable or not. If there still exists measuring problems, we suggest using our Tuning Fork Level Switch (SC) or Rotary Paddle Level Switch (SE).

SENSITIVITY CALIBRATION

- (1) If the capacity level switch is mounted on the tank, users should ensure that the silo is completely empty before the initial test is carried out.
- (2) Users should ensure that the correct power (100~240Vac or 24Vdc) has been selected before connecting the device.(Fig1)

Rotary Knob Type(Fig 1)



INSTALLATION

- (1) The distance between the two level switches should be at least 300mm and the distance between the side of the silo and top-mounted switch should be at least 300mm.
- (2) The grounding sleeve should protrude more than 30mm from the side of the silo.
- (3) The side-mounted probe should be mounted at angle of 20B.
- (4) Conduit faces downward at installation.
- (5) When used outdoors, the conduit opening should point in a downward direction to prevent rainwater from entering the device.

CALIBRATION (ROTARY KNOB)

INITIAL CALIBRATION

1. After installation with power supply, make sure no material within 300 mm around the probe.
2. Turn the "SENSITIVITY" to the "H" position (Figure 2).
3. Using flat-head screwdriver to turn "Coarse" clockwise for adjustment until LED indicator is on.
4. Turn the knob clockwise from H position to 90% position about 1/2 circle (95% position) until LED indicator shut off (Figure 3). Then, Initial calibration is complete. After that, please continue to next step "SENSITIVITY ADJUSTMENT".

SENSITIVITY ADJUSTMENT

1. Make sure the "Indicator" sign does not light up, when the medium does not contact with the probe, and vice versa when the medium contacts or covers the probe, then the "Indicator" sign lights up.
2. Gradually, adjust the capacitance value (turn the knob clockwise to the "L" direction) until "Indicator" light turns off.
3. Record the turning angle from "Indicator" sign lights up status to turn off status, then reset "SENSITIVITY ADJ" by turning the knob counterclockwise back for half of the recorded turning angle.
4. Based on the previous experience, 70% (Figure 4) adjustment position can be used to most of mediums (Need to do INITIAL CALIBRATION first).

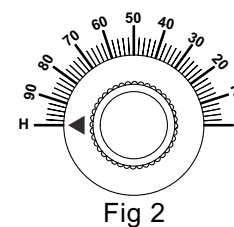


Fig 2

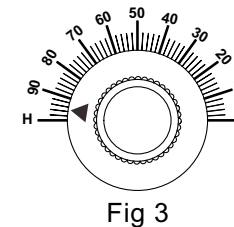


Fig 3

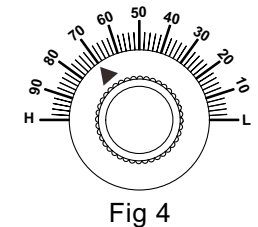


Fig 4

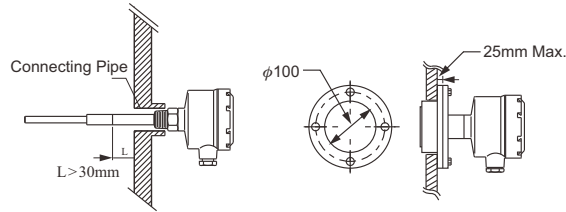
DELAY ADJUSTMENT

- (1) When delay time is "0" second, the LED and the relay signals will be activated simultaneously. The user can set the delay according to his or her requirements.
- (2) After delay set-up, the circuit functions as following: when LED of switch is on after time set-up, relay functions or NPN signal outputs.
- (3) To increase the delay time, use a screwdriver to turn the "delay" trimmer clockwise. To decrease the delay time, turn the "delay" trimmer counterclockwise.

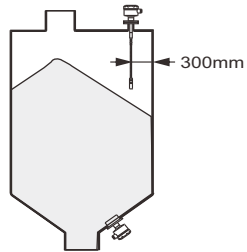
CONTACT OUTPUT

- (1) If the probe is not in contact with the material or the bin is empty, the LED will not switch on. NC and COM contact points will remain connected. (Generally refer as contact B)
- (2) If the probe is in contact with the material, the LED will switch on without delay. NO and COM contact points will come into contact. (Generally refer as contact A)

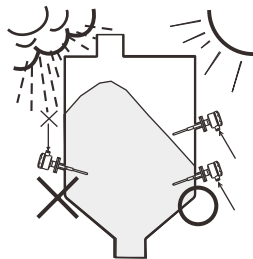
INSTALLATION



The insulation part must be 30cm inside the tank at least to ensure sensitivity is adjustable and to avoid false action when medium build up.

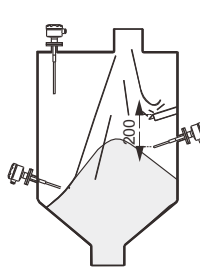


For top mounting, angle of repose must be considered when installation. SA37 Wire Probe Model must be installed min. 300mm from tank wall. Sa37 Plate Model is applicable for bottom mounting.

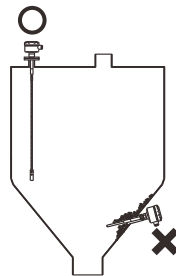


Cable entry must face down firmly locked to avoid rain damage.

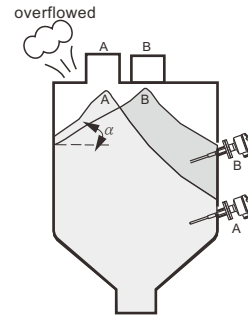
For SA27 Plate Model installation, thickness including tank wall & connection flange must be less than 25mm to avoid false action.



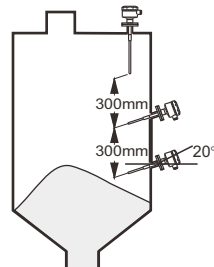
It's recommended to install the switch away from material inlet to avoid damage. If switch must be installed near inlet area, a protective cover must be placed 200mm on top of the switch.



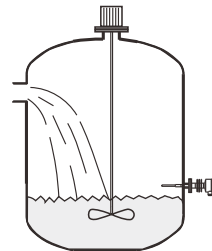
Top mounting is recommended for medium with poor flowability to avoid medium build up.



Be cautious with installation location. Angle of repose must be considered if inlet is not located in center top of the tank.



When multiple switches are installed, keep at least 300mm distance for each switch. Mounting the probe at a 20° incline will optimize the results and increase sensitivity. It also won't be damaged by the inflowing material.



Switches with delay time function is recommended for tank with agitator to avoid false action.

MAINTENANCE & TROUBLE SHOOTING

Circumstance	Possibility Cause	Inspection / Evidence	Trouble Shooting
Water get into housing	Enclosure is not firmly locked	Enclosure is loose	Lock the enclosure firmly
	Seal ring aged & failed	Seal ring aged	Replace seal ring
	Cable entry is not firmly locked	Cable entry is not firmly locked	Lock the cable entry firmly
	Cable entry does not face down	Cable entry faces up	Turn the cable entry & face down
	Cable wire does not connected downward	Cable wire is connected upward	Connect the cable downward
	Diameter of cable wire does not fit	Cable wire is loose	Replace cable with diameter $\phi 8\text{mm} \sim \phi 10\text{mm}$
Level up & down but switch / relay no response	Sensitivity Adjustment knob is activated by mistake	Position of Sensivity Adjustment knob is abnormal	Re-adjust sensivity
	False wiring of power & signal cable	False wiring of power & signal cable	Re-wiring according to wiring guide
	Circuit damaged by EMI	Dry powder or high speed friction	Replace with anti-static model
	Dielectric constant of medium is too small.	Rough and fine adjustment remain non-active	Please contact your distributor or FineTek directly.
Level up & down but switch on /off continuously non-stop or relay can't be reset	Humidity inside tank is over limit	Probe with water or dew	Replace probe with coating
	Probe contacts with tank wall	Probe contacts with tank wall	Re-install and avoid grounding
	Circuit damaged by EMI	Dry powder or high speed friction	Replace with anti-static model
	Dielectric constant is over limit	Rough and fine adjustment remain active	Please contact your distributor or FineTek directly.
Unstable switch signal.	Wiring terminals are loose	Loose screw bolt	Lock screw bolt firmly
	Process connection is not firmly locked	Loose thread	Lock thread or flange firmly
	Short-circuit due to aging	Idle loop, resistance abnormal	Revise external layout
	Abnormal of supply voltage	Supply voltage over limit	Restore power supply
	Loose structure due to vibration	Obvious vibration environment	Replace with remote model



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