

SB series level switches are applicable to liquid and solid medium. It offers a DPDT contacting rating and will not affect by medium with high viscosity. SB series offer various specifications like selective "FSH" and "FSL" for possible case like power failure causing instruments to be un-operational, adjustable time delay, easily adjustable action points. Last but not least, there are various models to suit different environment like Hi-Temperature, vibrating environment, presence of actuator and the lack of space at installation point.

PRINCIPLE

In order to eliminate false alarm given due to medium with high viscosity sticking onto the probe, a special material acting as an insulation electrode have been added in between the active section and the grounding section.

As shown in the diagram, sensing probe always experience medium clogging on it and thereby produces a capacitance and resistance between the 3 parts. Since the electric field between the active section and the guard section is round shaped, there will be no current passing through the medium between the electrodes.

The Admittance level switch uses this principle, to add a guard section between the active section and the grounding section to block the admittance

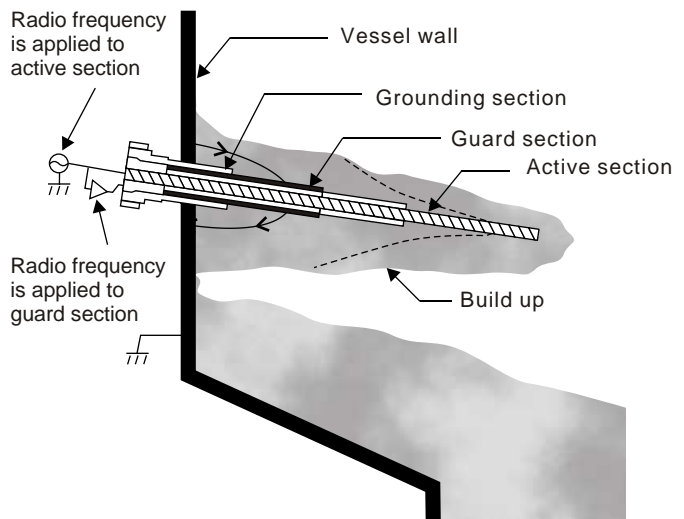
current to reach the vessel wall from the medium between the active section and grounded electrode. Although there would be a small amount

of admittance current between the guard section and the active section, the circuit would not take this current value into account. Due to the guard section, only the admittance current change between the active section and the tank wall will be detected by the circuit, thus only when the sensing probe is in contact with the medium will there be a precise signal.

The precision of the signal is proportional to the di-electric constant of the medium and is reverse proportionate to the resistance value. This signal is easily picked up by the circuit and there will be an output control signal. Thus, this type of special electrode construction enables medium detection of different composition and is not affected by the coating effect of viscous mediums.

FEATURES

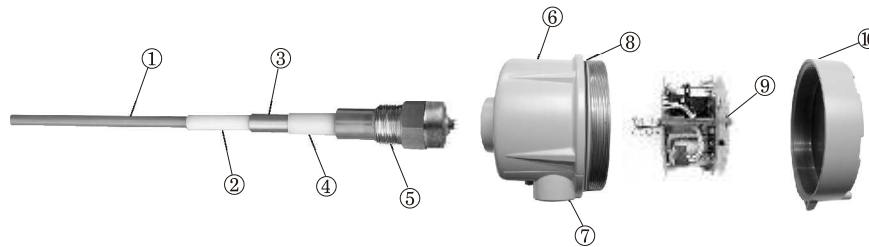
- Not affected by material coating on the sensing probe.
- Easy installation
- Stable operation, not affected by temperature
- Time delay function of 0~90secs
- Housing protection: IP65
- DPDT /5A output
- Maximum temperature: 550°C
- High /Low fail safe selectable features
- Applicable in liquid, syrup, solid, grain and interface detection



CONSTRUCTION & APPLICATION

CONSTRUCTION

1. Active Section: Made of SUS304 or SUS316
2. Upper Insulation: Insulation of Active Section and Guard Section, having very low die-electric constant and is made of PTFE.
3. Guard Section: Conductive metal probe to dissipate any possible presence of false signal.
4. Lower Insulation: Active Section probe having very low die-electric constant and is made of PTFE.
5. Connection: 3/4"PT (Standard model)
6. Housing: Aluminum Alloy Spray Paint
7. Wiring Point: 1/2" NPT
8. Waterproof O-Ring: Rubber
9. Circuitry: FSH and FSL, Time Delay Adjustable Function
10. Housing Cover: Aluminum Alloy Spray Paint

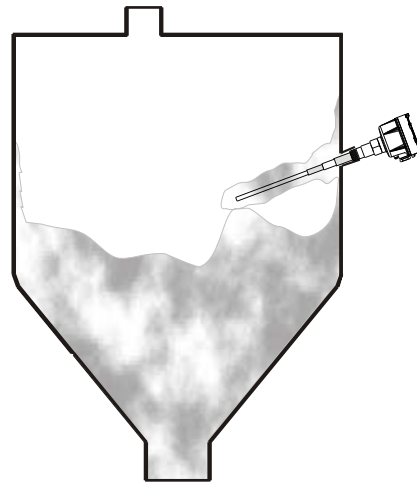


APPLICATION

Settlement Tank, Well, Reservoir, Medical Tank, Acidic Tank and various liquid, powder, pellet for precise level detection and control.

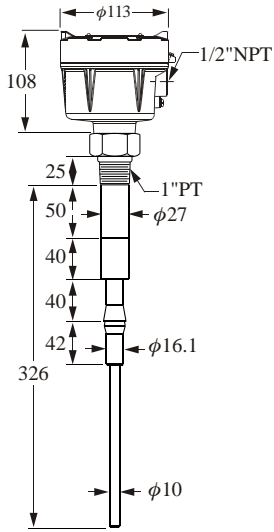
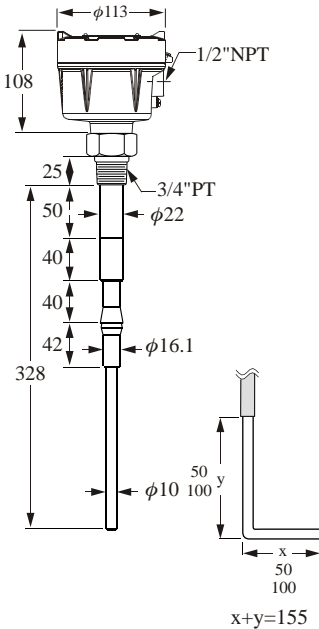
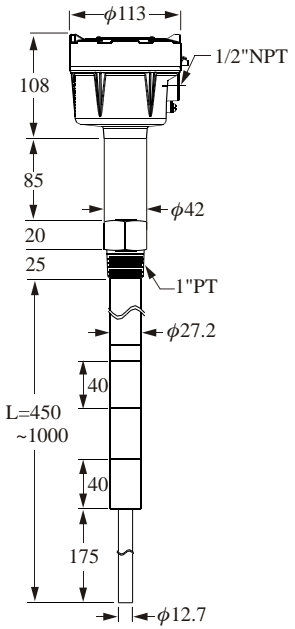
- | | |
|-----------------------------|---|
| ■ Brewery Plant | ■ Mining Plant |
| ■ Paint Manufacturing Plant | ■ Paper Manufacturing Plant |
| ■ Cement Plant | ■ Medical Plant |
| ■ Coal Plant | ■ Power Plant |
| ■ Food Processing Plant | ■ Water and Waste Water Treatment Plant |
| ■ Flour Mill | ■ Tar Factory |
| ■ Glass Industry | ■ Beverage Plant |
| ■ Plastic Plant | |

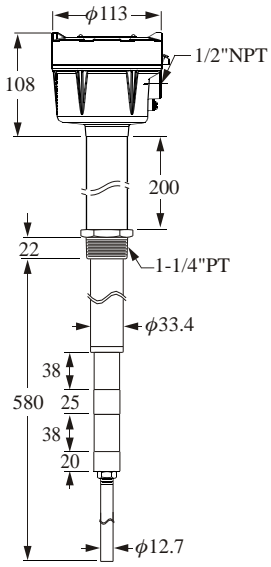
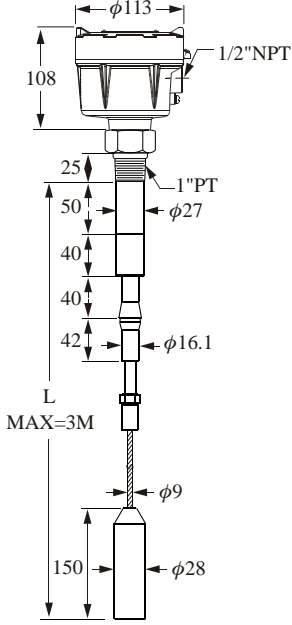
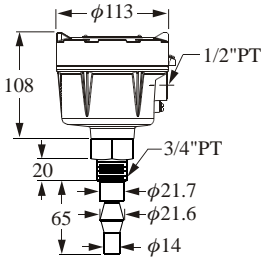
EXAMPLE



- 1100/1110: Standard Model ----- Applicable to normal environment.
1200: Hi-Temp Model ----- Applicable to high temperature environment.
1280: Super Hi-Temp Model ----- Applicable to super high temperature environment.
1500: Cable Model ----- Applicable to big tank and top installation environment.
1600: Mini Model ----- Applicable to space constraint and small tank.

SPECIFICATION

Dimension (Unit:mm)			
Order No.	SB1100 [Standard Model]	SB1110 [Standard Model] SB1120 [Standard L Type]	SB1200 [Hi-Temp Model]
Operating Temp.	-40°C~150°C	-40°C~150°C	-40°C~232°C
Ambient Temp.	-40°C~63°C	-40°C~63°C	-40°C~63°C
Housing	Aluminum (IP65)	Aluminum (IP65)	Aluminum (IP65)
Probe Material	SUS304 or 316	SUS304 or 316	SUS304 or 316
Insulated Material	PTFE	PTFE	PTFE
Connection	1" PT	3/4" PT	1" PT
Sensitivity	0.3PF	0.3PF	0.3PF
Supply Voltage	110/220Vac ± 10% 50/60HZ	110/220Vac ± 10% 50/60HZ	110/220Vac ± 10% 50/60HZ
Power Consumption	Max.2.7W	Max.2.7W	Max.2.7W
Contact Rating	5A/250Vac, DPDT	5A/250Vac, DPDT	5A/250Vac, DPDT
Delay Time	0~90 secretary	0~90 secretary	0~90 secretary
Fail safe mode	High / low Fail safe mode	High / low Fail safe mode	High / low Fail safe mode
Conduit	1/2" NPT x2 hole	1/2" NPT x2 hole	1/2" NPT x2 hole
Operation Pressure	20kg/cm ²	20kg/cm ²	20kg/cm ²

Dimension (Unit:mm)			
Order No.	SB1280 [Super Hi-Temp Model]	SB1500 [Cable Model]	SB1600 [Mini Model]
Operating Temp.	-40°C~550°C	-40°C~150°C	-40°C~150°C
Ambient Temp.	-40°C~63°C	-40°C~63°C	-40°C~63°C
Housing	Aluminum (IP65)	Aluminum (IP65)	Aluminum (IP65)
Probe Material	SUS304 or 316	SUS304 or 316	SUS304 or 316
Insulated Material	Ceramic	PTFE	PTFE
Connection	1-1/4" PT	1" PT	3/4" PT
Sensitivity	0.3PF	0.3PF	0.3PF
Supply Voltage	110/220Vac ± 10% 50/60HZ	110/220Vac ± 10% 50/60HZ	110/220Vac ± 10% 50/60HZ
Power Consumption	Max.2.7W	Max.2.7W	Max.2.7W
Contact Rating	5A/250Vac, DPDT	5A/250Vac, DPDT	5A/250Vac, DPDT
Delay Time	0~90 secretary	0~90 secretary	0~90 secretary
Fail safe mode	High / low Fail safe mode	High / low Fail safe mode	High / low Fail safe mode
Conduit	1/2" NPT x2 hole	1/2" NPT x2 hole	1/2" NPT x2 hole
Operation Pressure	ATM	20kg/cm ²	20kg/cm ²

WIRING DIAGRAM

- Ensure the power supply is shut off
- Pull the power lines through the cable inlet into the housing
- Power supply voltage could be selected at 110V or 220V, but the live wire must be connected to their respective terminals, 110V live wire to 110V terminal, 220V live wire to 220V terminal. The neutral line can be connected to 0V terminal and the ground line is to be connected to the GND terminal
- Relay output connection:
Relay outputs are set at SPDT or DPDT, maximum switching current and voltage is 5A/250VAC, able to drive small loads such as: solenoid valves, alarm sirens, etc. Bigger loads requires larger relay to drive it. The diagrams below and on the right are common examples of wiring methods.
- Ground Level Test Function:
Please see (fig.1) , connect an additional pair of wire onto our " Test" terminal position at ground level local to the silo fill point.
After pushing this test button the circuit is loaded , if any product substances have touched the active parts of the probe ,then the electronics will detect this change in capacitance, and activate the relay to change its state. Any audio alarm wire to this relay will be activated until the ground level test is released. If the test device performance is successful then the operator can process to fill the silo, confident that the high level alarm will operate to do so, too.

FAIL SAFE MODE

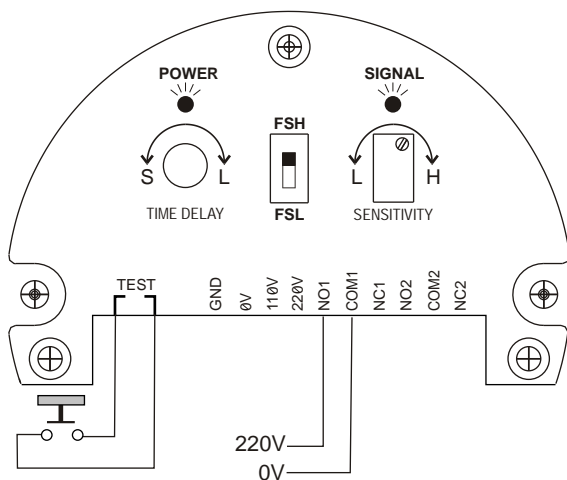
Fail safe mode is used primarily to detect malfunction situations. Example: Power supply disruptions, causing the relay to lose it's driving voltage, this type of situation is called fail safe, meaning that in cases of blackout, there will be an alarm signal. The fail safe mode "FSH" and "FSL" selection is dependent on the installation position of the probe, the table below shows the fail safe conditions of each mode:

HIGH FAIL SAFE MODE

Condition	Probe in contact with medium	Probe not in contact with medium
Signal light Indicator	ON	OFF
Relay	Not Energized	Energized
N.C. Contact	Closed	Open
N.O. Contact	Open	Closed

LOW FAIL SAFE MODE

Condition	Probe in contact with medium	Probe not in contact with medium
Signal light Indicator	ON	OFF
Relay	Energized	Not Energized
N.C. Contact	Open	Closed
N.O. Contact	Closed	Open



(fig.1)

ORDER INFORMATION



SB

Order No./ Model _____

- SB1100:** MD1100 Standard Model
- SB1110/1120:** MD111/112 Standard Model
- SB1200:** MD120 Hi-Temp Model
- SB1280:** MD128 Super Hi-Temp Model
- Sb1500:** MD150 Cable Model
- SB1600:** MD160 Mini Model

Connection _____

- | | | |
|-----------------|--------------------------|------------|
| D---1"(25A) | M---5kg/cm ² | Q---PT |
| E---1-1/2"(40A) | N---10kg/cm ² | R---PF |
| F---2"(50A) | O---150 Lbs | T---BSP |
| G---2-1/2"(65A) | P---300 Lbs | U---NPT |
| H---3"(80A) | W---PN 10 | V---GAS |
| I ---4"(100A) | X---PN 16 | S---Others |
| J ---5"(125A) | Y---PN 25 | |
| K---6"(150A) | Z---PN 40 | |
| S---Others | | |

Probe Length (unit: mm) _____

- ★ Customized specifications are acceptable
- ★ Explosion proof rating is in process of approval

- * Tolerance of the total product length is ± 5 mm
- * Characteristics, specifications and dimensions are subject to change without notice.
- * Please contact your nearest distributing office for further informations.