VIBRATING PROBE LEVEL SWITCH

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WORKING PRINCIPLE

The vibrating probe of level switch operated by using two piezoelectric elements built-in on vibration tube. The first piezoelectric element triggered by pulse signal that created from circuit to transport vibration energy out, and the other piezoelectric element receives the vibration and transmits it to output electric signal. While the probe contacts material, the detection signal will be decayed and the vibration will hold and send out the relay on. Vibrating probe of level switch provides reliable & maintenance-free for bulk solids. Just a simple mounting and calibration procedure that keep your facility in save and monitoring. This device can withstand fiercely lateral loads and static electricity. For friendly use, Fail-safe is equipped as standard to prevent malfunction caused by power shortage.

FEATURE

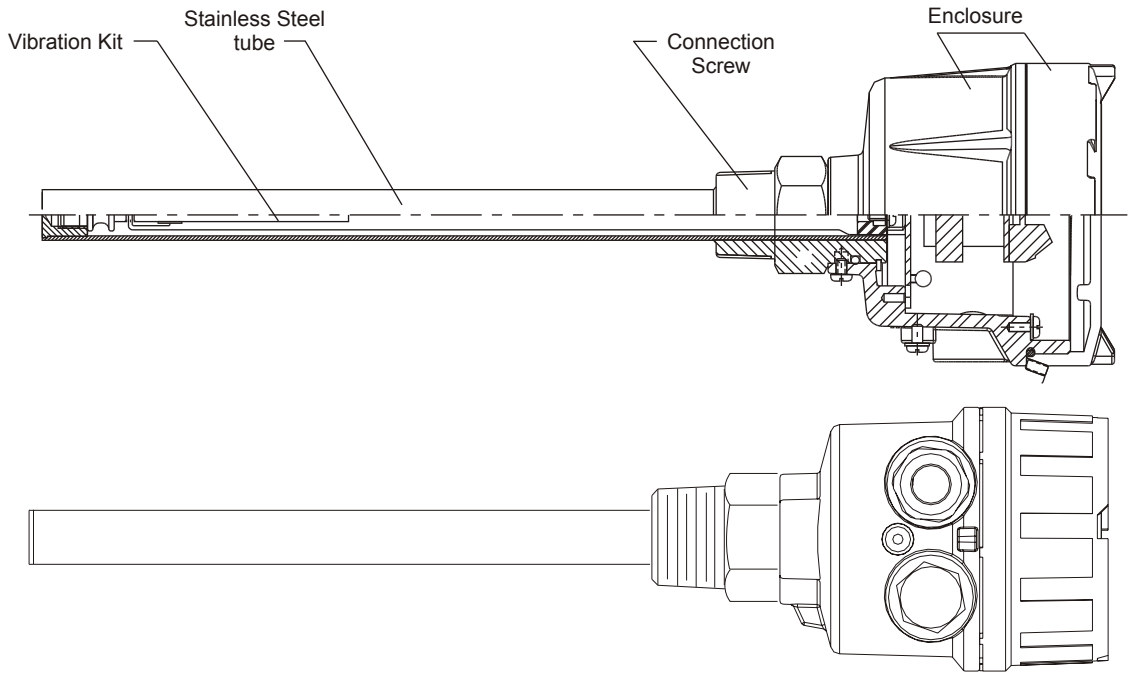
- Sturdy and durable design. No calibration needed.
- Special design to avoid the accumulation of material on probe.
- High / Low fail safe modes
- Field-operatable in sensitivity adjustment to fit versatile density of material.

APPLICATION

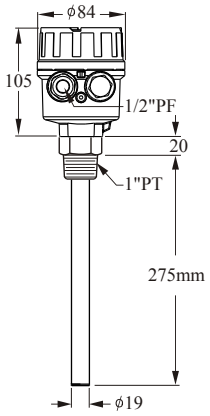
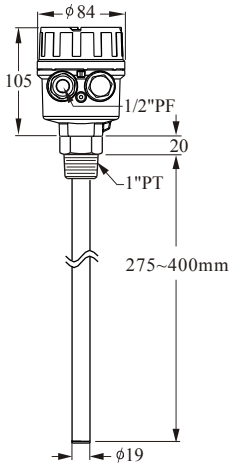
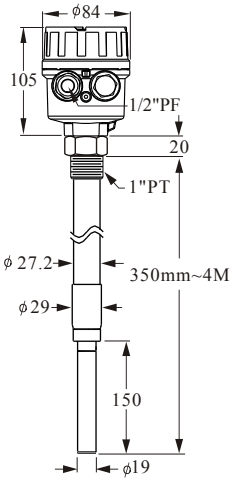
- Most materials in powder can be measurable, includes thegrounded coffee, milk power, chocolate, coal ash, bulk, sugar, salt, wheat, grains, glass debris, plastic pellet, cement
- Sludge level detection in waste water

- Powdered milk
- Frozen potato chips
- Beans
- Sugar
- Sweets
- Coffee beans
- Coffee ground
- Coffee Powder
- Tea (leaf)
- Salt
- Flour (in a flour mill)
- Foundry sand
- Spices
- Animal food
- Pellets
- Peanuts
- Tobacco
- Wood shavings
- Chalk
- Stearin chips
- Powdered cellulose
- Glass finely ground
- Granular plastics
- Gravel
- Powdered clay
- Polystyrene powder
- Styrofoam
- Soda
- Soot dry

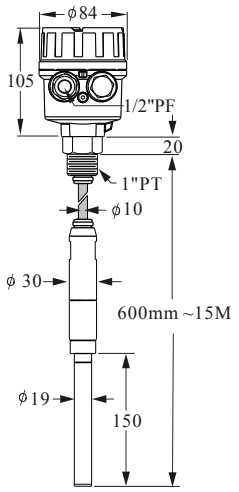
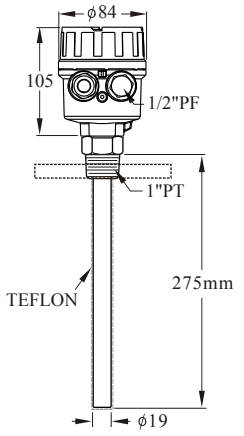
Structure & Dimension



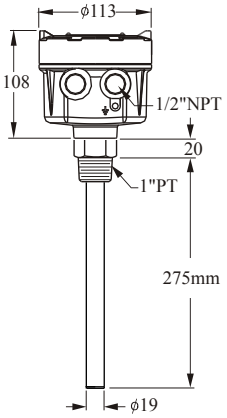
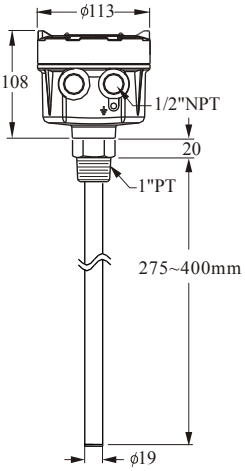
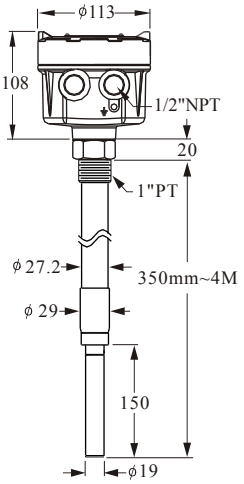
SPECIFICATION (Multi-Function Vibrating Probe Level Switch)

Dimensions (Unit:mm)			
Order No.	**YSC3100 【Standard Type】**	**YSC3110 【Probe Extension Type】**	**YSC3120 【Ultra Extension Type】**
Level Sensor Housing	Aluminum / IP65		
Probe Construction	SUS 304 / 316		
Mounting	1"PT		
Conduit	1/2"NPT x 2		
Max. Vertical load on rod.	177in.Lbs(20Nm)		
Operating Pressure.	-1~150PSI (10BAR)		
Power Supply	20~250, 50/60Hz Vac/ Vdc		
Power Consumption	15VA (Max.)		
Operating Temp. In Ambient Air	-40℃~60℃		
Operating Temp. In Bin	-40℃~80℃		
Signal Output	Relay, SPDT, 5A/250Vac, PNP/NPN(MOSFET) 400mA/60 Vac/ Vdc		
Min. material density sensed	Solid: ≥0.32g/cm^3		
Time Delay	0.6~1 Second / Operate; 2~5 Seconds / Reset		
Vibrating Frequency.	395~405HZ		
Selectable Fail-safe	Hi./ Lo.		
Selectable Sensitivity	Hi./ Mid. / Lo.		

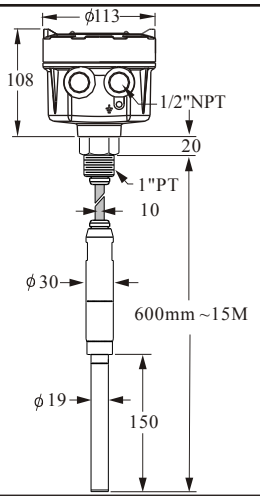
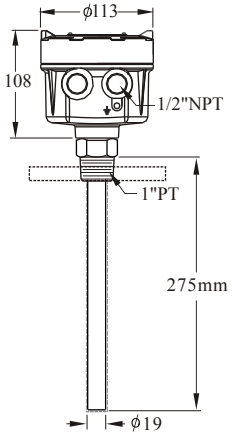
SPECIFICATION (Multi-Function Vibrating Probe Level Switch)

Dimensions (Unit:mm)		
Order No.	**YSC3300 【Cable Extension Type】**	**YSC3500 【Corrosion Proof Type】**
Level Sensor Housing	Aluminum / IP65	
Probe Construction	SUS 304 / 316	SUS 304/316 Coating TEFLON
Mounting	1"PT	Flange 1"(min.)
Conduit	1/2"NPT x 2	
Max. Vertical load on rod.	177in.Lbs(20Nm)	
Operating Pressure.	-1~150PSI (10BAR)	-1~150PSI (40BAR)
Power Supply	20~250, 50/60Hz Vac/ Vdc	
Power Consumption	15VA (Max.)	
Operating Temp. In Ambient Air	-40℃~60℃	
Operating Temp. In Bin	-40℃~80℃	
Signal Output	Relay, SPDT, 5A/250Vac, PNP/NPN(MOSFET) 400mA/60 Vac/ Vdc	
Min. material density sensed	Solid:≧0.32g/cm^3	
Time Delay	0.6~1 Second / Operate; 2~5 Seconds / Reset	
Vibrating Frequency.	395~405HZ	
Selectable Fail-safe	Hi./ Lo.	
Selectable Sensitivity	Hi./ Mid. / Lo.	

SPECIFICATION

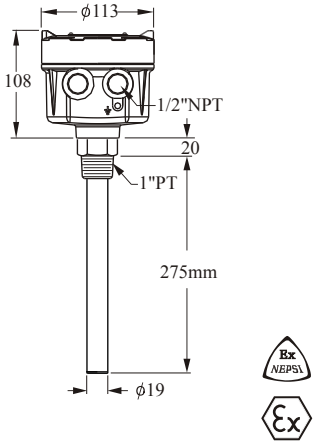
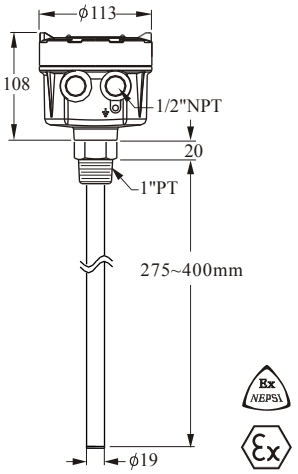
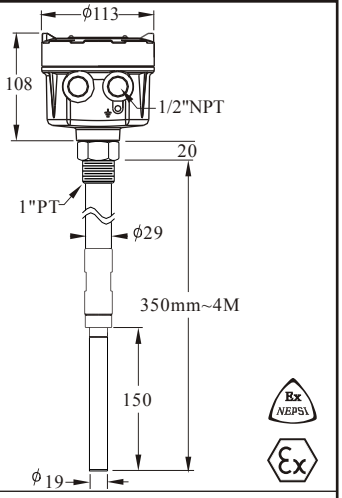
Dimensions (Unit:mm)			
Order No.	**YSC2100**	**YSC2110**	**YSC2120**
Model No.	**MV10/11 【Standard Type】**	**MV20 【Solid Extension Type】**	**MV21 【Solid Extension Type】**
Level Sensor Housing	Aluminum / IP65		
Probe Construction	SUS 304 / 316		
Mounting	1"PT		
Conduit	1/2"NPT x 2		
Max. Vertical load on rod.	177in.Lbs(20Nm)		
Operating Pressure.	-1~150PSI (10BAR)		
Power Supply	20~250, 50/60Hz Vac/ Vdc		
Power Consumption	15VA (Max.)		
Operating Temp. In Ambient Air	-40℃~60℃		
Operating Temp. In Bin	-40℃~80℃		
Signal Output	Relay, SPDT, 5A/250Vac, PNP/NPN(MOSFET)400mA/60 Vac/ Vdc		
Min. material density sensed	Solid: ≥0.32g/cm^3		
Time Delay	0.6~1 Second / Operate; 2~5 Seconds / Reset		
Remote-test	Yes		
Vibrating Frequency.	395~405HZ		
Selectable Fail-safe	Hi./ Lo.		
Selectable Sensitivity	Hi./ Mid. / Lo.		

SPECIFICATION

Dimensions (Unit:mm)		
Order No.	**YSC2300**	**YSC2500**
Model No.	**MV30 【Cable Extension Type】**	**MV50 【Corrosion-Proof】**
Level Sensor Housing	Aluminum / IP65	
Probe Construction	SUS 304 / 316	SUS 304/316 Coating TEFLON
Mounting	1"PT	Flange 1"(min.)
Conduit	1/2"NPT x 2	
Max. Vertical load on rod.	177in.Lbs(20Nm)	
Operating Pressure.	-1~150PSI (10BAR)	-1~150PSI (10BAR)
Power Supply	20~250, 50/60Hz Vac/ Vdc	
Power Consumption	15VA (Max.)	
Operating Temp. In Ambient Air	-40℃~60℃	
Operating Temp. In Bin	-40℃ ~80℃	
Signal Output	Relay, SPDT, 5A/250Vac, PNP/NPN(MOSFET)400mA/60 Vac/ Vdc	
Min. material density sensed	Solid: ≥0.32g/cm^3	
Time Delay	0.6~1 Second / Operate; 2~5 Seconds / Reset	
Remote-test	Yes	
Vibrating Frequency.	395~405HZ	
Selectable Fail-safe	Hi./ Lo.	
Selectable Sensitivity	Hi./ Mid. / Lo.	

SPECIFICATION

NEPSI PROOF NO. GYJ06233 Ex d IIC T3~T6
PTB PROOF NO. 05 ATEX 1026 Ⓔx II 2G EEx d IIB T6
Ⓔx II 2D IP65 T6

Dimensions (Unit:mm)			
Order No.	**YSC1700**	**YSC1701**	**YSC1710**
Model No.	**MV70 【Standard Type】**	**MV70 【Probe Extension Type】**	**MV71 【Ultra Extension Type】**
Level Sensor Housing	Aluminum / Ex d IIC T3~T6		
Probe Construction	SUS 304 / 316		
Mounting	Screw: 1"PT or PF, Flange: 1"~6"JIS / DIN / ANSI		
Conduit	1/2"NPT x 2		
Max. Vertical load on rod.	177in.Lbs(20Nm)		
Operating Pressure.	-1~150PSI (10BAR)		
Power Supply	20~250Vac/dc		
Power Consumption	15W		
Operating Temp. In Ambient Air	-40℃~60℃		
Operating Temp. In Bin	-40℃~80℃		
Signal Output	Relay, SPDT , 3A/250Vac Max.		
Min. material density sensed	Solid: $\geq$0.32g/cm^3		
Time Delay	0.6 Second / Operate; 2~5 Seconds / Reset		
Vibrating Frequency.	395~405HZ		
Selectable Fail-safe	Hi./ Lo.		
Selectable Sensitivity	Hi./ Mid. / Lo.		

INSTALLATION

Vertical Installation (Figure 1):

1. It is suggested to install the vibrating probe away from the inlet to avoid of material impact or false readings.
2. Users have to be aware of the material flow pattern and placeing the vibrating probe in the appropriate position to avoid of false readings.

Horizontal Installation (Figure 2)

1. It is suggested to install the vibrating probe away from the inlet to avoid of material impact. If it has no choice but to install the vibrating probe near an inlet, it is recommended to add a shield for the protection.
2. Installing the vibrating probe at 20 degree inclined will optimize the result and increase the sensitivity.
3. Keep the conduit downward to avoid of moisture getting inside the housing.

Notice:

1. Please DO NOT climb on the vibrating probe while installation.
2. Users are advised to tighten the connection by using the spanner.
3. Please DO NOT bend the vibrating probe or modify the probe length.
4. The max. vertical pressure of the vibrating probe is 177in.Lbs (20Nm)

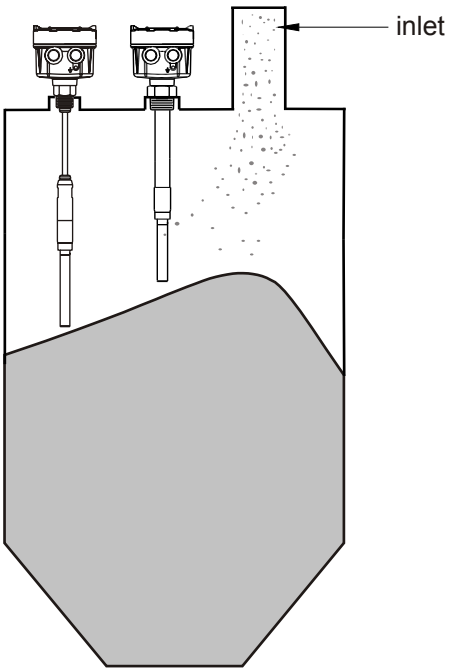


Figure 1

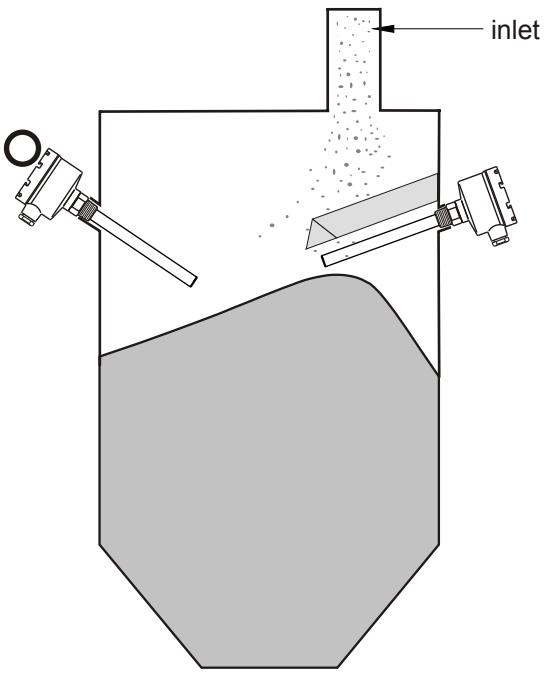
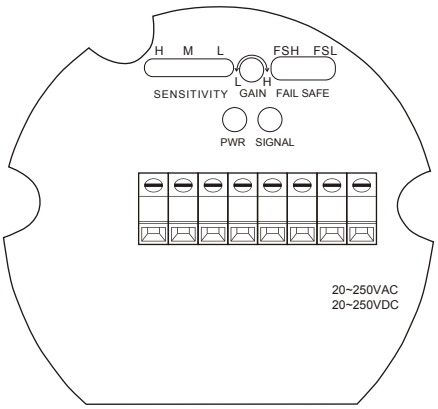


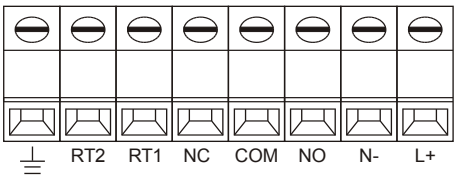
Figure 2

TERMINAL / SENSITIVITY ADJUSTMENT (EURO TYPE)

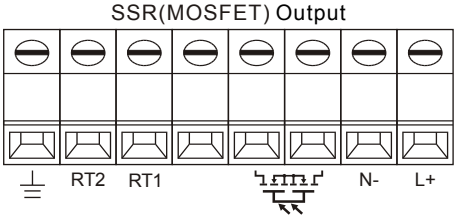
YSC2100X, YSC2110X, YSC2200X, YSC2210X, YSC2300X, YSC2500X, YSC1700X, YSC1701X, YSC1710X



Relay Output



SSR(MOSFET) Output



Terminal Function

- L+, N-: Power Supply
- NC, COM, No: Relay Output
- RT1, RT2: Remote-Test
- ⏚ : Ground Connection
- : SSR(MOSFET) Output

Panel Function

- PWR: Power Supply (Green Light)
- SIGNAL: Output Indication (Red Light)
- FSH: Power On. The signal lamp is on and the relay is conductive. While the vibrating probe senses the material, the signal lamp is off and relay is not conductive.
- FSL: Power On. The signal lamp is off and the relay is not conductive. While the probe senses the material, the signal lamp is on and relay is conductive.
- SENSITIVITY L: Low Sensitivity
- SENSITIVITY H: High Sensitivity

Sensitivity Adjustment

1. GAIN: Located upside of PCB and not allow users to do the adjustment.
2. SENSITIVITY: Located above PCB. Three options (L.M.H) are offered for the adjustment. When switching to H position, it has the highest sensitivity. When switching to L position, it has the lowest sensitivity. The original setting is at L position and users are able to adjust the sensitivity depends on the specific gravity of material.

Fail-Safe High / Low Protection

FSH (Fail-Safe High) Protection:
Switch to FSH mode.
Normal Status: The signal lamp is on. It means that the vibrating probe does not sense the material and the relay is conductive.
Failure: When the power shuts down, the signal lamp is off. It means that the vibrating probe is voided and the relay is not conductive.

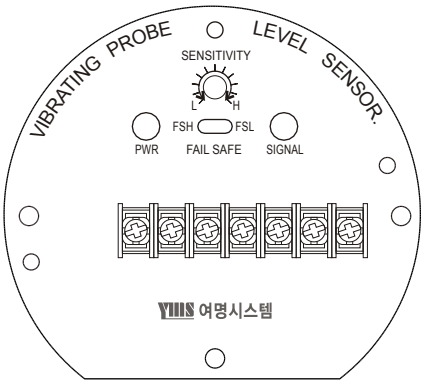
FSL (Fail-Safe Low) Protection:
Switch to FSL mode.
Normal Status: The signal lamp is on. The vibrating probe senses the material and the relay is conductive.
Failure: When the power shuts down, the signal lamp is off. The vibrating probe is voided and the relay is not conductive.

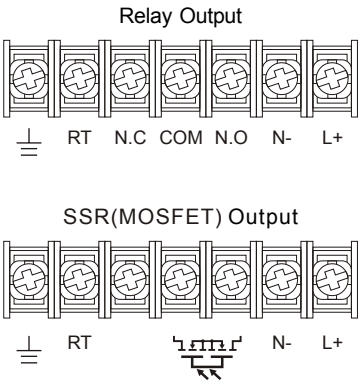
	FSL		FSH	
Level				
Contact Form	NO COM NC	NO COM NC	NO COM NC	NO COM NC
Indication	○	☼	☼	○
Status	Fail	Normal	Normal	Fail

☐H: High Sensitivity (Suitable for detecting low specific gravity material)
☐M: Medium Sensitivity (Suitable for detecting medium specific gravity material)
☐L : Low Sensitivity (Suitable for detecting low specific gravity material)

TERMINAL / SENSITIVITY ADJUSTMENT (UL TYPE)

YSC2100X, YSC2110X, YSC2200X, YSC2210X, YSC2300X, YSC2500X, YSC1700X, YSC1701X, YSC1710X





Terminal Function

- L+, N-: Power Supply
- NC, COM, No: Relay Output
- RT: Remote-Test
- ⏚ : Ground Connection
- ⏚ : SSR(MOSFET) Output

Panel Function

- PWR: Power Supply (Green Light)
- SIGNAL: Output Indication (Red Light)
- FSH: Power On. The signal lamp is on and the relay is conductive. While the vibrating probe senses the material, the signal lamp is off and relay is not conductive.
- FSL: Power On. The signal lamp is off and the relay is not conductive. While the probe senses the material, the signal lamp is on and relay is conductive.
- SENSITIVITY L: Low Sensitivity
- SENSITIVITY H: High Sensitivity

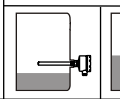
Sensitivity Adjustment

1. SENSITIVITY: Located upside of PCB. When switching to H position, it has the highest sensitivity. When switching to L position, it has the lowest sensitivity. The original setting is at L position and users are able to adjust the sensitivity depends on the specific gravity of material.

Fail-Safe High / Low Protection

FSH (Fail-Safe High) Protection:
Switch to FSH mode.
Normal Status: The signal lamp is on. It means that the vibrating probe does not sense the material and the relay is conductive.
Failure: When the power shuts down, the signal lamp is off. It means that the vibrating probe is voided and the relay is not conductive.

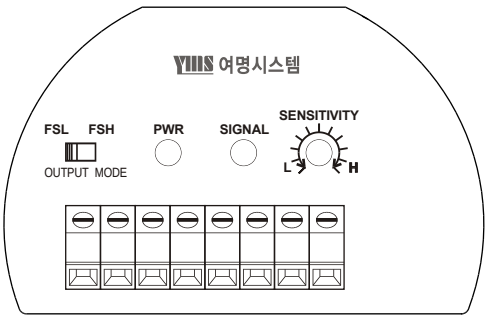
FSL (Fail-Safe Low) Protection:
Switch to FSL mode.
Normal Status: The signal lamp is on. The vibrating probe senses the material and the relay is conductive.
Failure: When the power shuts down, the signal lamp is off. The vibrating probe is voided and the relay is not conductive.

	FSL		FSH	
Level				
Contact Form				
Indication	○	☼	☼	○
Status	Fail	Normal	Normal	Fail

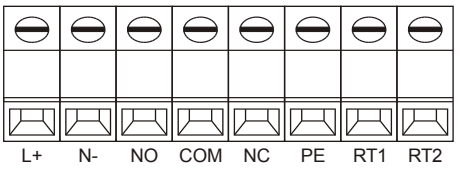
☐H: High Sensitivity (Suitable for detecting low specific gravity material)
☐L : Low Sensitivity (Suitable for detecting low specific gravity material)

TERMINAL / SENSITIVITY ADJUSTMENT (MULTI-FUNCTION TYPE)

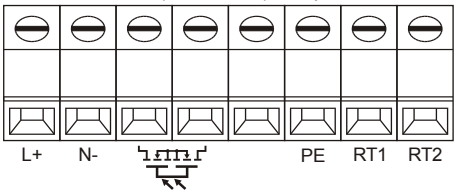
YSC3100X, YSC3110X, YSC3120X, YSC3300X, YSC3500X



Relay Output



SSR(MOSFET) Output



Terminal Function

- L+, N-: Power Supply
- NC, COM, No: Relay Output
- RT1, RT2: Remote-Test
- ⏚ : Ground Connection
- : SSR(MOSFET) Output

Panel Function

- PWR: Power Supply (Green Light)
- SIGNAL: Output Indication (Red Light)
- FSH: Power On. The signal lamp is on and the relay is conductive. While the vibrating probe senses the material, the signal lamp is off and relay is not conductive.
- FSL: Power On. The signal lamp is off and the relay is not conductive. While the probe senses the material, the signal lamp is on and relay is conductive.
- SENSITIVITY L: Low Sensitivity
- SENSITIVITY H: High Sensitivity

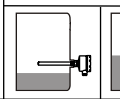
Sensitivity Adjustment

1. SENSITIVITY: Located upside of PCB. When switching to H position, it has the highest sensitivity. When switching to L position, it has the lowest sensitivity. The original setting is at L position and users are able to adjust the sensitivity depends on the specific gravity of material.

Fail-Safe High / Low Protection

FSH (Fail-Safe High) Protection:
Switch to FSH mode.
Normal Status: The signal lamp is on. It means that the vibrating probe does not sense the material and the relay is conductive.
Failure: When the power shuts down, the signal lamp is off. It means that the vibrating probe is voided and the relay is not conductive.

FSL (Fail-Safe Low) Protection:
Switch to FSL mode.
Normal Status: The signal lamp is on. The vibrating probe senses the material and the relay is conductive.
Failure: When the power shuts down, the signal lamp is off. The vibrating probe is voided and the relay is not conductive.

	FSL		FSH	
Level				
Contact Form				
Indication	○	☼	☼	○
Status	Fail	Normal	Normal	Fail

□ H: High Sensitivity (Suitable for detecting low specific gravity material)
□ L : Low Sensitivity (Suitable for detecting low specific gravity material)

ORDER INFORMATION

YSC□□□□ □ (□ □□) (□□□□)

ORDER NO.

3100:	Multi-Function Vibrating Probe Standard Type
3110:	Multi-Function Vibrating Probe Extension Type
3120:	Multi-Function Vibrating Probe Ultra Extension Type
3300:	Multi-Function Vibrating Probe Cable Extension Type
3500:	Multi-Function Vibrating Probe Corrosion Proof Type
2100:MV10/11	Vibrating Probe Standard Type
2110:MV20	Vibrating Probe Extension Type
2120:MV21	Vibrating Probe Ultra Extension Type
2300:MV30	Vibrating Probe Cable Extension Type
2500:MV50	Vibrating Probe Corrosion Proof Type
1700:MV70	Explosion Proof Vibrating Probe Standard Type
1701:MV70	Explosion Proof Vibrating Probe Extension Type
1710:MV71	Explosion Proof Vibrating Probe Ultra Extension Type

POWER & OUTPUT MODULE

20~250Vac/ Vdc, 50/60Hz
A: Relay O/P (Barrier terminal Block)(limited series of 17 and 21 series)
B: Transistor PNP/NPN (Barrier terminal Block)(limited series of 17 and 21 series)
R: Relay O/P (Green terminal)-EuroType
N: Transistor PNP/NPN-EuroType

MATERIAL

0: SUS304 6: SUS316 P: PTFE

CONNECTION

Dimension	Specification	
D---1"(25A)	M---5kg/cm^2	Y---PN 25
3---1-1/4"(32A)	N---10kg/cm^2	Z---PN 40
E---1-1/2"(40A)	O---150 Lbs	S---others
F---2"(50A)	P---300 Lbs	9---Sanitary
G---2-1/2"(65A)	Q---PT	
H---3"(80A)	R---PF(G)	
I---4"(100A)	T---BSP	
J---5"(125A)	U---NPT	
K---6"(150A)	W---PN 10	
S---others	X---PN 16	

LENGTH (L) (UNIT: cm)

0500: below 500mm
1000: 501~1000mm
1500: 1001~1500mm
⋮

※ 500mm per Unit
※ Use English letter as first code for probe length over 10m.
A150 represents 15m, A200 represents 20m

BEFORE YOU ORDER

1. Please affirm the voltage.
2. Please affirm the mounting positions.
3. Please affirm the material specific gravity (S.G.) value.
4. Please affirm whether any bridge block or vibrating motor are attached onto the silo wall.

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