



Tuning Fork Level Switch

PRODUCT INTRODUCTION

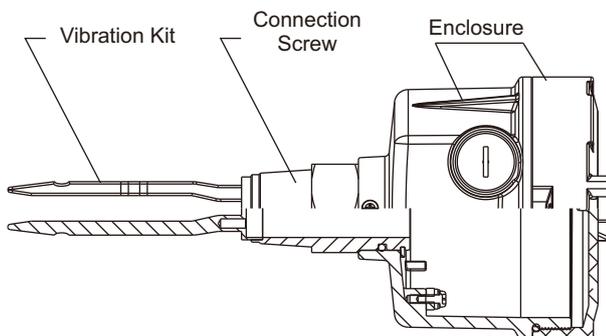
WORKING PRINCIPLE

The tuning fork 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, it will cause the frequency change of output signal and the vibration will hold and send out the relay on at the same time. Tuning fork 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

- Glass window, to review power supply and output directly without having to take off enclosure cover (SC 3 series).
- Dual insulation can reduce damage on PCB board caused by temperature, humidity, and condensation effects.
- Wide voltage supply range 20~250, 50~60Hz Vac/ Vdc.
- SPDT Relay output, SSR MOSFET output.
- No calibration required, easy use, sturdy and durable design.
- High / Low failure safe modes.
- Sensitivity adjustment is available for different density of media. Fine power can be detected.
- Suitable for liquid, power, solid applications.

CONSTRUCTURE



APPLICATION

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

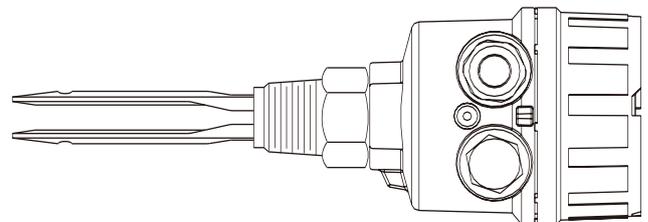
The SC series detects the min. and max of level in bins, silos and hoppers, filled with powdered materials. The following list shows its applications.

Solid Level Detection

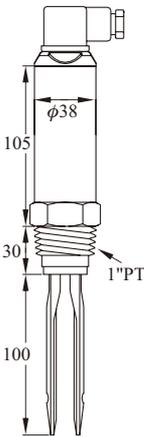
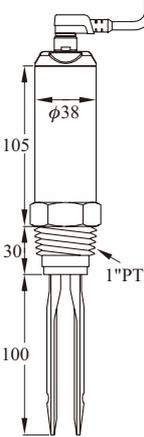
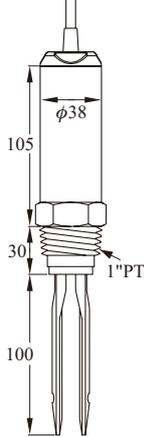
- * Powdered milk
- * Frozen potato chips
- * Beans
- * Sugar
- * Sweets
- * Coffee beans
- * Coffee Powder
- * Tea
- * Salt
- * Flour (in a flour mill)
- * Foundry sand
- * Spices
- * Animal food
- * Pellets
- * Peanuts
- * Tobacco
- * Wood shavings
- * Chalk
- * Stearin chips
- * Powdered cellulose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

For Liquid:

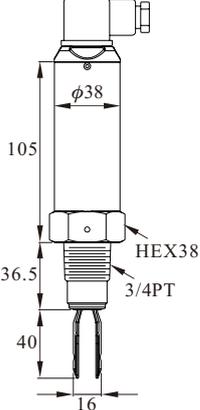
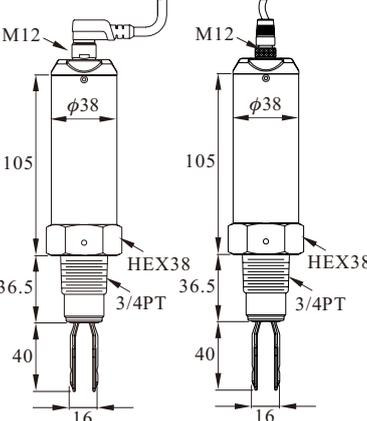
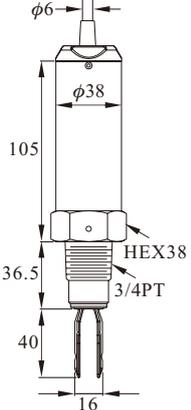
- * Water & Solutions
- * General Purpose Solvent
- * Petroleum
- * Oil
- * Heavy oil
- * Ink
- * Corrosive liquid
- * Cream
- * Drink & Beverage



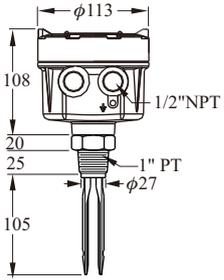
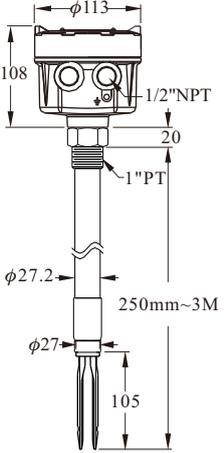
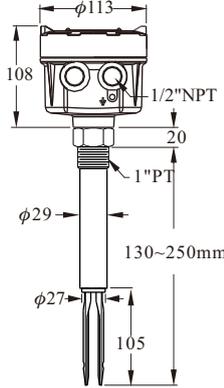
SPECIFICATION

| | | | |
|---------------------------------------|---|---|---|
| <p>Dimensions (Unit:mm)</p> |  |  |  |
| <p>Model No.</p> | <p>SC2400/10 【DIN Connector】</p> | <p>SC2400/10 【ASI Connector】</p> | <p>SC2400/10 【Cable Wire Type】</p> |
| <p>Supply Voltage & Output</p> | <p>SC240□:20~250Vac / Vdc 2 wire Contactless electronic switch. SC241□:12~55 Vdc 3 wire PNP/ NPN Output.</p> | | |
| <p>Fork Length</p> | <p>100mm</p> | | |
| <p>Operating Temp. In Ambient Air</p> | <p>-40~60°C</p> | | |
| <p>Storage Temp.</p> | <p>-40~70°C</p> | | |
| <p>Operating Temp. In Bin</p> | <p>SC24□□: -40~+100°C SC24□□T: -40~+150°C</p> | | |
| <p>Operation Humidity</p> | <p>80% RH non-condensed</p> | | |
| <p>Operation Pressure</p> | <p>Maximum 40 Bar</p> | | |
| <p>Min. material density sensed</p> | <p>Solid:density: $\geq 0.07\text{g/cm}^3$ Liquid:density: $\geq 0.7\text{g/cm}^3$ Viscosity: 1~10000 cSt</p> | | |
| <p>Magnetic testing</p> | <p>Output function test performed by putting magnets near the indicated spot</p> | | |
| <p>Status indication</p> | <p>Green light: indicate power supply Red light: indicate operating mode</p> | | |
| <p>Housing material</p> | <p>SUS 304</p> | | |
| <p>Fork Material</p> | <p>316L</p> | | |
| <p>IP Protection</p> | <p>IP65</p> | <p>IP67</p> | <p>IP67</p> |
| <p>Mounting</p> | <p>1" PT</p> | | |
| <p>Conduit</p> | <p>Valve plug DIN 43650</p> | <p>ASI</p> | <p>Cable connector</p> |

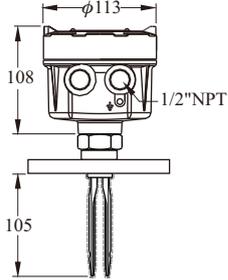
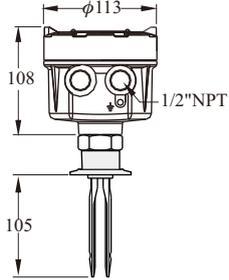
MINI TUNING FORK LEVEL SWITCH

| | | | |
|---------------------------------------|---|--|---|
| <p>Dimensions (Unit:mm)</p> |  |  |  |
| <p>Model No.</p> | <p>SC2800/2810 【DIN Connector】</p> | <p>SC2800/2810 【ASI Connector】</p> | <p>SC2800/2810 【Cable Wire Type】</p> |
| <p>Supply Voltage & Output</p> | <p>SC280□:20~250,50/60Hz Vac/Vdc 2 wire Contactless electronic switch. SC281□:12~48 Vdc 3 wire PNP/ NPN Output</p> | | |
| <p>Fork Length</p> | <p>40mm</p> | | |
| <p>Operating Temp. In Ambient Air</p> | <p>-40°C~60°C</p> | | |
| <p>Storage Temp.</p> | <p>-40°C~70°C</p> | | |
| <p>Operating Temp. In Bin</p> | <p>-40°C~150°C</p> | | |
| <p>Operation Humidity</p> | <p>80% RH non-condensed</p> | | |
| <p>Operation Pressure</p> | <p>-1~600PSI (40BAR)</p> | | |
| <p>Min. material density sensed</p> | <p>Solid:density: $\geq 0.07\text{g/cm}^3$ Liquid:density: $\geq 0.7\text{g/cm}^3$ Viscosity: 1~10000 cSt</p> | | |
| <p>Magnetic testing</p> | <p>Output function test performed by putting magnets near the indicated spot</p> | | |
| <p>Status indication</p> | <p>Green light: indicate power supply Red light: indicate operating mode</p> | | |
| <p>Housing material</p> | <p>SUS 304</p> | | |
| <p>Fork Material</p> | <p>316L</p> | | |
| <p>IP Protection</p> | <p>IP65</p> | <p>IP67</p> | <p>IP67</p> |
| <p>Mounting</p> | <p>3/4"PT</p> | | |
| <p>Conduit</p> | <p>Valve plug DIN 43650</p> | <p>ASI</p> | <p>Cable connector</p> |

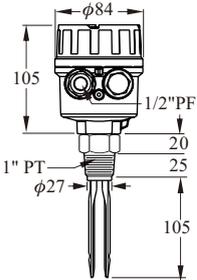
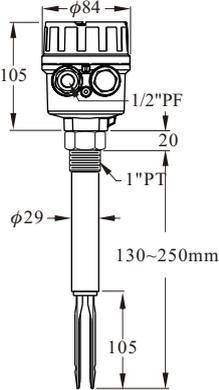
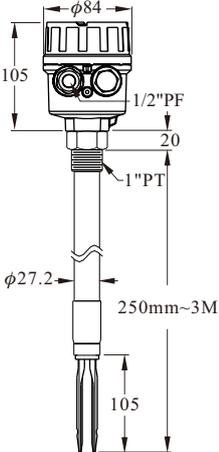
SPECIFICATION

| | | | |
|---|--|--|---|
| <p>Dimensions (Unit:mm)</p> |  |  |  |
| <p>Model No.</p> | <p>SC1400 【Standard Type】</p> | <p>SC1410 【Tuning Fork Ultra Extension Type】</p> | <p>SC1420 【Tuning Fork Extension Type】</p> |
| <p>Level Sensor Housing</p> | <p>Aluminum / IP65</p> | | |
| <p>Probe Construction</p> | <p>316L</p> | | |
| <p>Mounting</p> | <p>1"PT</p> | | |
| <p>Conduit</p> | <p>1/2"NPT×2</p> | | |
| <p>Max. Vertical load on rod.</p> | <p>177in.Lbs(20Nm)</p> | | |
| <p>Operating Pressure.</p> | <p>-1~600PSI (40BAR)</p> | | |
| <p>Power Supply</p> | <p>20~250,50/60Hz Vac/Vdc</p> | | |
| <p>Power Consumption</p> | <p>10VA</p> | | |
| <p>Operating Temp. In Ambient Air</p> | <p>-40°C~60°C</p> | | |
| <p>Operating Temp. In Bin</p> | <p>-40°C~130°C</p> | | |
| <p>Signal Output</p> | <p>Relay, SPDT, 5A/250Vac/ 28Vdc, 1 set or 2 set SSR(MOSFET) 400mA/60 Vac/ Vdc, 1 set or 2 set</p> | | |
| <p>Min. material density sensed</p> | <p>Solid: ≥0.07g/cm³, Liquid: ≥0.7g/cm³</p> | | |
| <p>Time Delay</p> | <p>0.6 Second / Operate; 1~3 Seconds / Reset</p> | | |
| <p>Vibrating Frequency.</p> | <p>350~370Hz</p> | | |
| <p>Selectable Fail-safe</p> | <p>Hi./ Lo.</p> | | |
| <p>Selectable Sensitivity</p> | <p>Hi./ Lo.</p> | | |

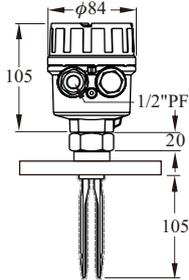
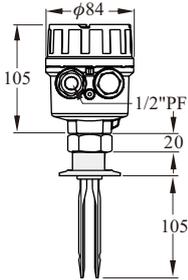
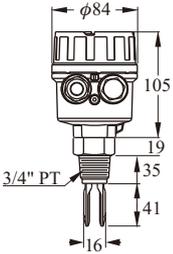
SPECIFICATION

| | | |
|---------------------------------------|--|--|
| <p>Dimensions (Unit:mm)</p> |  |  |
| <p>Model No.</p> | <p>SC1540 【Corrosion Proof Type】</p> | <p>SC1600 【Sanitary Type】</p> |
| <p>Level Sensor Housing</p> | <p>Aluminum / IP65</p> | |
| <p>Probe Construction</p> | <p>316L Coating TEFLON</p> | <p>316L</p> |
| <p>Mounting</p> | <p>Flange 1"(min.)</p> | <p>2" Sanitary</p> |
| <p>Conduit</p> | <p>1/2"NPT × 2</p> | |
| <p>Max. Vertical load on rod.</p> | <p>177in.Lbs(20Nm)</p> | |
| <p>Operating Pressure.</p> | <p>-1~600PSI (40BAR)</p> | |
| <p>Power Supply</p> | <p>20~250Vac/dc</p> | |
| <p>Power Consumption</p> | <p>10VA</p> | |
| <p>Operating Temp. In Ambient Air</p> | <p>-40°C~60°C</p> | |
| <p>Operating Temp. In Bin</p> | <p>-40°C~130°C</p> | |
| <p>Signal Output</p> | <p>Relay, SPDT, 5A/250Vac/ 28Vdc, 1 set or 2 set SSR(MOSFET) 400mA/60 Vac/ Vdc, 1 set or 2 set</p> | |
| <p>Min. material density sensed</p> | <p>Solid: ≥0.07g/cm³, Liquid: ≥0.7g/cm³</p> | |
| <p>Time Delay</p> | <p>0.6 Second / Operate; 1~3 Seconds / Reset</p> | |
| <p>Vibrating Frequency.</p> | <p>350~370Hz</p> | |
| <p>Selectable Fail-safe</p> | <p>Hi./ Lo.</p> | |
| <p>Selectable Sensitivity</p> | <p>Hi./ Lo.</p> | |

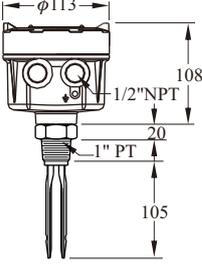
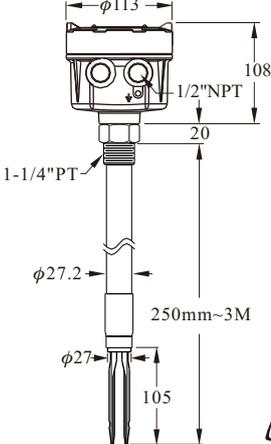
SPECIFICATION (Multi-Function Tuning Fork Level Switch)

| | | | |
|-----------------------------------|---|--|---|
| Dimensions (Unit:mm) |  |  |  |
| Model No. | SC3400 【Standard Type】 | SC3410 【Tuning Fork Extension Type】 | SC3420 【Tuning Fork Ultra Extension Type】 |
| Level Sensor Housing | Aluminum / IP65 | | |
| Probe Construction | 316L | | |
| Mounting | 1"PT | | |
| Conduit | 1/2"PF × 2 | | |
| Max. Vertical load on rod. | 177in.Lbs(20Nm) | | |
| Operating Pressure. | -1~600PSI (40BAR) | | |
| Power Supply | 20~250,50/60Hz Vac/Vdc | | |
| Power Consumption | 10VA | | |
| Operating Temp. In Ambient Air | -40°C~60°C | | |
| Operating Temp. In Bin | -40°C~130°C | | |
| Signal Output | Relay, SPDT, 5A/250Vac/ 28Vdc , 1set SSR(MOSFET) 400mA/60 Vac/ Vdc, 1set | | |
| Min. material density sensed | Solid:density: ≥0.07g/cm ³ Liquid:density: ≥0.7g/cm ³ Viscosity: 1~10000 cSt | | |
| Time Delay | 0.6 Second / Operate; 1~3 Seconds / Reset | | |
| Vibrating Frequency. | 350~370Hz | | |
| Selectable Fail-safe | Hi./ Lo. | | |
| Selectable Sensitivity | Hi./ Lo. | | |

SPECIFICATION (Mult-Function Tuning Fork Level Switch)

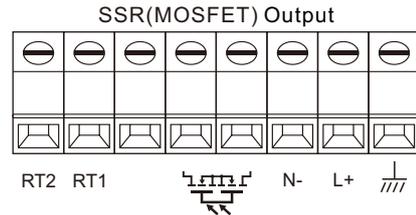
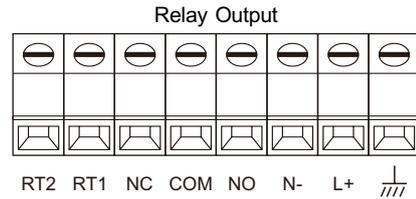
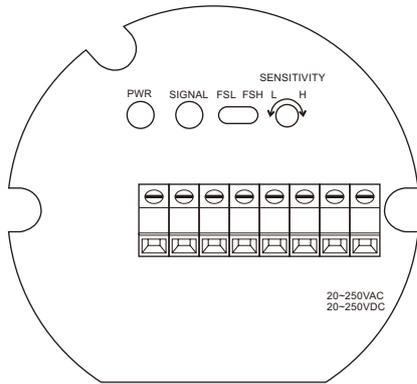
| | | | |
|-------------------------------------|---|---|---|
| <p>Dimensions (Unit:mm)</p> |  |  |  |
| <p>Model No.</p> | <p>SC3440 【 Corrosion Proof Type 】</p> | <p>SC3450 【 Sanitary Type 】</p> | <p>SC3800 【 Multi-Function Mini Type 】</p> |
| <p>Level Sensor Housing</p> | <p>Aluminum / IP65</p> | | |
| <p>Probe Construction</p> | <p>316L Coating TEFLON</p> | <p>316L</p> | <p>316L</p> |
| <p>Mounting</p> | <p>Flange 1"(min.)</p> | <p>2" Sanitary</p> | <p>3/4" PT(Default)</p> |
| <p>Conduit</p> | <p>1/2"PF X 2</p> | | |
| <p>Max. Vertical load on rod.</p> | <p>177in.Lbs(20Nm)</p> | | |
| <p>Operating Pressure.</p> | <p>-1~600PSI (40BAR)</p> | | |
| <p>Power Supply</p> | <p>20~250,50/60Hz Vac/Vdc</p> | | |
| <p>Power Consumption</p> | <p>10VA</p> | | |
| <p></p> | <p>-40°C~60°C</p> | | |
| <p></p> | <p>-40°C~130°C</p> | <p>-40°C~150°C</p> | |
| <p>Signal Output</p> | <p>Relay, SPDT, 5A/250Vac/ 28Vdc, 1set SSR(MOSFET) 400mA/60 Vac/ Vdc, 1set</p> | | <p>Relay, SPDT, 5A/250Vac NPN/PNP(MosFET):400m/60Vac/Vdc</p> |
| <p>Min. material density sensed</p> | <p>Relay, SPDT, 5A/250Vac/ 28Vdc, 1set SSR(MOSFET) 400mA/60 Vac/ Vdc, 1set</p> | | |
| <p>Time Delay</p> | <p>Solid: density: $\geq 0.07\text{g/cm}^3$ Liquid: density: $\geq 0.7\text{g/cm}^3$ Viscosity: 1~10000 cSt</p> | | |
| <p>Vibrating Frequency.</p> | <p>350~370Hz</p> | | |
| <p>Selectable Fail-safe</p> | <p>Hi./ Lo.</p> | | |
| <p>Selectable Sensitivity</p> | <p>Hi./ Lo.</p> | | |

SPECIFICATION

| | | |
|--------------------------------|---|--|
| Dimensions (Unit:mm) |    |    |
| Model No. | SC1740 【 Standard Type 】 | SC1741 【 Tuning Fork Ultra Extension Type 】 |
| Level Sensor Housing | Aluminum / NEPSI Ex d IIC T3~T6 /  II 2G Ex d IIB T4 | |
| Probe Construction | 316L | |
| Mounting | 1"PT | 1-1/4"PT |
| Conduit | 1/2"NPT × 2 | |
| Max. Vertical load on rod. | 177in.Lbs(20Nm) | |
| Operating Pressure. | -1~600PSI (40BAR) | |
| Power Supply | 20~250,50/60Hz Vac/Vdc | |
| Power Consumption | 10VA | |
| Operating Temp. In Ambient Air | -40°C~60°C | |
| Operating Temp. In Bin | -40°C~130°C | |
| Signal Output | Relay, SPDT, 3A/250Vac/ 28Vdc, 1 set or 2 set SSR(MOSFET) 400mA/60 Vac/ Vdc, 1 set or 2 set | |
| Min. material density sensed | Solid: ≥0.07g/cm ³ , Liquid: ≥0.7g/cm ³ | |
| Time Delay | 0.6 Second / Operate; 1~3 Seconds / Reset | |
| Vibrating Frequency. | 350~370Hz | |
| Selectable Fail-safe | Hi./ Lo. | |
| Selectable Sensitivity | Hi./ Lo. | |

TERMINAL / SENSITIVITY ADJUSTMENT (SPDT TYPE)

SC1400X, SC1410X, SC1420X, SC1540X, SC1600X, SC1740X, SC1741X



Terminal Function

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

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 tuning fork switch 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 tuning fork switch 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 tuning fork switch senses the material and the relay is conductive.

Failure: When the power shuts down, the signal lamp is off. The tuning fork switch is voided and the relay is not conductive.

| Level | FSL | | FSH | |
|--------------|------|--------|--------|------|
| | | | | |
| Contact Form | | | | |
| Indication | | | | |
| Status | Fail | Normal | Normal | Fail |

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 tuning fork switch 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 tuning fork switch senses the material, the signal lamp is on and relay is conductive.
- SENSITIVITY L: Low Sensitivity
- SENSITIVITY H: High Sensitivity

Sensitivity Adjustment

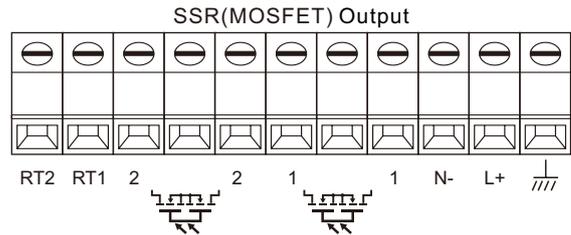
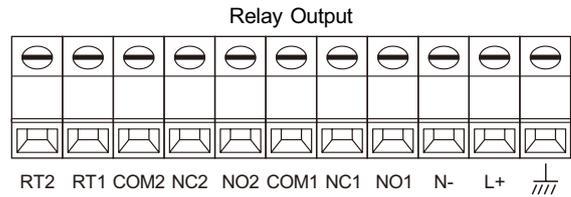
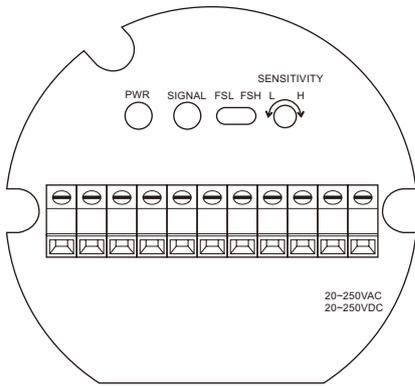
The SENSITIVITY is located on the right side of the panel. The user is able to do the minor adjustment by the screw driver. If it turns to H position clockwise, the sensitivity increases; if it turns to L position anti-clockwise, the sensitivity decreases. The sensitivity is originally set at max. value. The switching point is at 15mm from tip of tuning fork switch.

The switching point position will be changed by the sensitivity value. If the sensitivity adjusts to lower value, the switching point position is moving backward; if the sensitivity adjusts to high value, the switching point position is moving forward. The changing range of switching point is about 60mm.

For example, if the switching point needs to be moved backward by 30mm, the user needs to adjust SENSITIVITY anti-clockwise by 10 turns. In general case, it is no need for sensitivity adjustment.

TERMINAL / SENSITIVITY ADJUSTMENT (DPDT TYPE)

SC1400X, SC1410X, SC1420X, SC1540X, SC1600X, SC1740X, SC1741X



Terminal Function

- L+, N-: Power Supply
- NC1, COM1, NO1: Relay Output
- NC2, COM2, NO2: Relay Output
- RT1, RT2: Remote-Test
- : Ground Connection
- : 1st SSR(MOSFET) Output
- : 2nd SSR(MOSFET) Output

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 tuning fork switch 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 tuning fork switch 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 tuning fork switch senses the material and the relay is conductive.

Failure: When the power shuts down, the signal lamp is off. The tuning fork switch is voided and the relay is not conductive.

| | FSL | | FSH | |
|--------------|------|--------|--------|------|
| Level | | | | |
| Contact Form | | | | |
| Indication | | | | |
| Status | Fail | Normal | Normal | Fail |

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 tuning fork switch 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 tuning fork switch senses the material, the signal lamp is on and relay is conductive.
- SENSITIVITY L: Low Sensitivity
- SENSITIVITY H: High Sensitivity

Sensitivity Adjustment

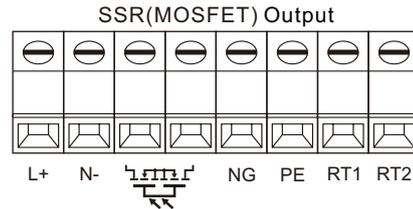
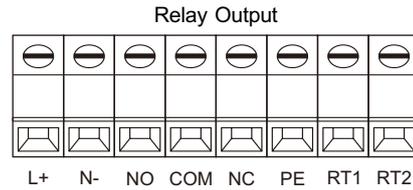
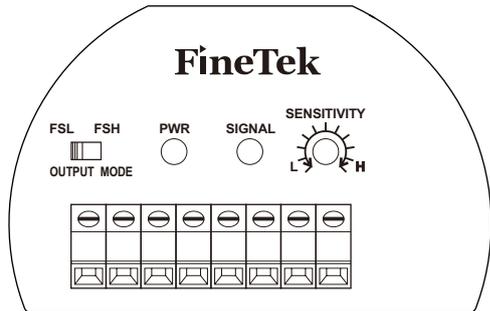
The SENSITIVITY is located on the right side of the panel. The user is able to do the minor adjustment by the screw driver. If it turns to H position clockwise, the sensitivity increases; if it turns to L position anti-clockwise, the sensitivity decreases. The sensitivity is originally set at max. value. The switching point is at 15mm from tip of tuning fork switch.

The switching point position will be changed by the sensitivity value. If the sensitivity adjusts to lower value, the switching point position is moving backward; if the sensitivity adjusts to high value, the switching point position is moving forward. The changing range of switching point is about 60mm.

For example, if the switching point needs to be moved backward by 30mm, the user needs to adjust SENSITIVITY anti-clockwise by 10 turns. In general case, it is no need for sensitivity adjustment.

TERMINAL / SENSITIVITY ADJUSTMENT (MULTI-FUNCTION TYPE)

SC3400X, SC3410X, SC3420X, SC3450X



Terminal Function

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

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 tuning fork switch does not sense the material and the relay is conductive.

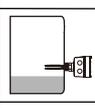
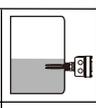
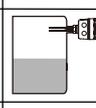
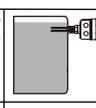
Failure: When the power shuts down, the signal lamp is off. It means that the tuning fork switch is voided and the relay is not conductive.

FSL (Fail-Safe Low) Protection:

Switch to FSL mode.

Normal Status: The signal lamp is on. The tuning fork switch senses the material and the relay is conductive.

Failure: When the power shuts down, the signal lamp is off. The tuning fork switch is voided and the relay is not conductive.

| Level | FSL | | FSH | |
|--------------|---|---|---|---|
| |  |  |  |  |
| Contact Form |  |  |  |  |
| Indication | ○ | ☀ | ☀ | ○ |
| Status | Fail | Normal | Normal | Fail |

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 tuning fork switch 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 tuning fork switch senses the material, the signal lamp is on and relay is conductive.
- SENSITIVITY L: Low Sensitivity
- SENSITIVITY H: High Sensitivity

Sensitivity Adjustment

The SENSITIVITY is located on the right side of the panel. The user is able to do the minor adjustment by the screw driver. If it turns to H position clockwise, the sensitivity increases; if it turns to L position anti-clockwise, the sensitivity decreases. The sensitivity is originally set at max. value. The switching point is at 15mm from tip of tuning fork switch.

The switching point position will be changed by the sensitivity value. If the sensitivity adjusts to lower value, the switching point position is moving backward; if the sensitivity adjusts to high value, the switching point position is moving forward. The changing range of switching point is about 60mm.

For example, if the switching point needs to be moved backward by 30mm, the user needs to adjust SENSITIVITY anti-clockwise by 10 turns. In general case, it is no need for sensitivity adjustment.

WIRING DIAGRAM DETAILS

SC240X (Two wires) wiring

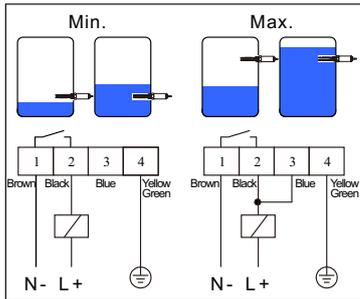
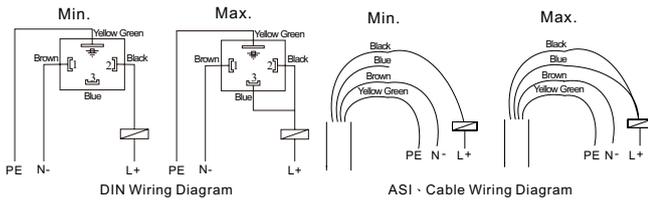


Figure 1 Two wires wiring



Wiring

Power can be AC/DC switching. Two wires are connected with terminals (L+/N-) as in Figure 1.

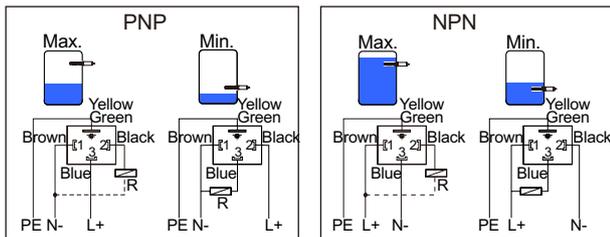
Low (Min.) Mode:

Pin 1 (Brown) is connected to N-. Pin 2 (Black) is connected to L+ with relay. Pin 4 (Yellow Green) connects to tank ground.

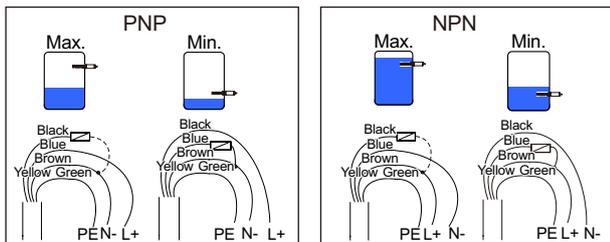
High (Max.) mode:

Pin 1 (Brown) is connected to N-. Pin 3 is connected to pin 2 (Black) to L+ with Relay . Pin 4 (Yellow Green) connects to tank ground.

SC240X (Two wires) wiring



DIN Wiring Diagram



ASI Cable Wiring Diagram

Figure 2 PNP / NPN Output Wiring Diagram

Wiring

Power supply is for DC only. Output is PNP / NPN. Please see Figure 2.

PNP wiring :

High(Max.) Mode:

Pin 1(Brown) connects to N-. Pin 3 (Blue) connects to L+. To output, it is pin 2. (Black) connects to N- with relay. Pin 4 (Yellow Green) connects to tank ground.

Low(Min.)Mode:

Pin 1 (Brown) connects to N-. Pin 2 (Black) connects to L+. To output, Pin 3 (Blue) connects to N- with relay. Pin 4 (Yellow Green) should contact to tank ground.

NPN wiring :

High(Max.) Mode:

Pin 1 (Brown) connects to L+. Pin 3 (Blue) connects to N-. To output, Pin 2 (Black) connects to L+ with relay. Pin 4 (Yellow Green) should contact to tank ground.

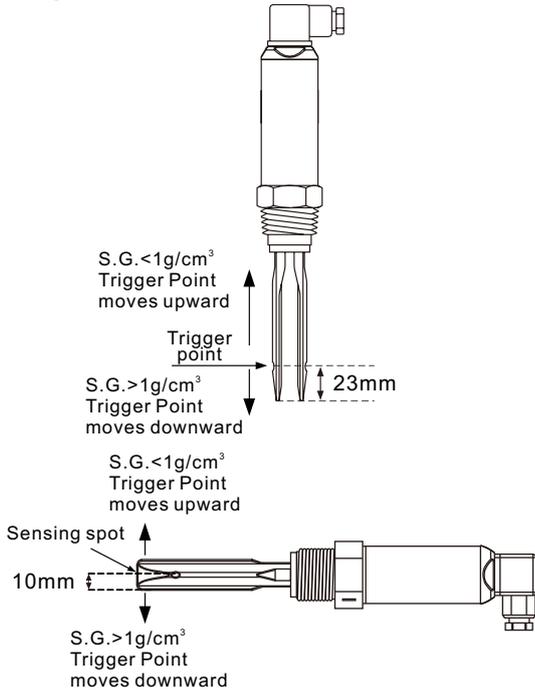
Low(Min.)Mode:

Pin1 (Brown) connects to L+. Pin 2 (Black) connects to N-. To output Pin 3 (Blue) connects to L+ with relay. Pin 4 (Yellow Green) should contact to tank ground.

TUNING AND INDICATION DETAILS

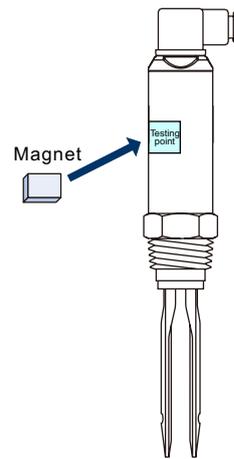
Fork Trigger Point

SC2409 fork trigger point is shown as Figure 3 below. The testing medium is water(S.G.=1 g/cm³), and its trigger point is about 23mm from the fork tip. If testing medium with S.G (specific gravity) lower than 1g/cm³ (water), the trigger point would increase. Similarly, the trigger point will downward while the S.G is large than water.



Magnetic Test

After the switch has installed and power tested, magnetic switch can be performed accordingly. Output status will switch from status of NO. to NC. or NC to NO. and red LED would indicate the vibration status by on / off. When magnet is pulled away from the housing, red LED would return as default while fork continues to vibrate. By this verification, user can confirm the wiring and function are correct or not.



Output Status for Relay

Low (Min.) Mode: Tuning fork switch will be active after 3 seconds while power on. Relay is on NO status and red LED indication is off. When tuning fork is covered by testing medium, the vibration will stop and relay becomes NC status. Red LED indication then is on.

High(Max.) Mode: Tuning fork switch will be active after 3 seconds while the power on. Relay is on NC status and red LED indication is on. When tuning fork covered by testing medium, the vibration stops and relay becomes NO status. Red LED indication is on.

| | Min. Mode | | Max. Mode | |
|-------------------------------|-----------|--|-----------|--|
| Level | | | | |
| Contactless electronic switch | | | | |
| Red LED | | | | |

Output Status for PNP / NPN Transistor

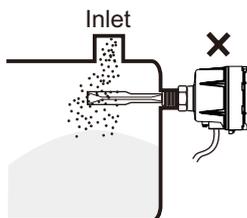
Low(Min.) Mode : Tuning fork switch will be active after 3 seconds while power on. Output transistor is on NO status and red LED indication is off. When tuning fork covered by testing medium, vibration will stop and output transistor becomes NC status. Red LED indication is on.

High(Max.) Mode: Tuning fork switch will be active after 3 seconds while power on. Output transistor is on NC status and red LED indication is on. When tuning fork covered by testing medium, vibration will stop and output transistor becomes NO status. Red LED indication is off.

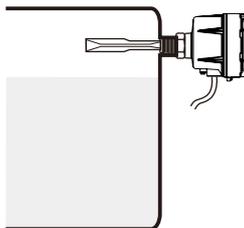
| | Min. Mode | | Max. Mode | |
|-----------------|-----------|--|-----------|--|
| Level | | | | |
| PNP/ NPN Output | | | | |
| Red LED | | | | |

INSTALLATION FOR TUNING FORK

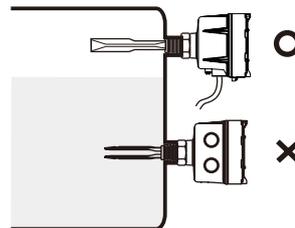
1. Can be applied for high viscosity fluid and power
Do not install near around material inlet.



2. Wiring port faces downward recommended.

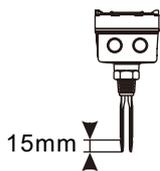


3. Consistence of the wiring port direction and always in downward direction for multi-tuning fork

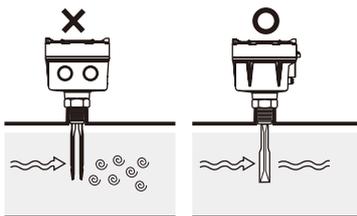


Vertical Installation:

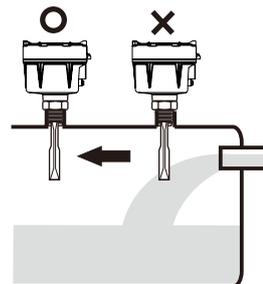
1. Depends on the sensitivity tuning, user should note the switching point is triggered around 15mm from the tip of fork.



3. Consistence of the wiring port direction for multi-tuning fork installation



3. Do not install near material inlet.



ORDER INFORMATION

SC () ()

ORDER NO.

- 1400: Tuning Fork Standard Type
- 1410: Tuning Fork Extension Type
- 1420: Tuning Fork Ultra Extension Type
- 1540: Tuning Fork Corrosion Proof Type
- 1600: Tuning Fork Sanitary Type
- 1740: Explosion Proof Tuning Fork Standard Type
- 1741: Explosion Proof Tuning Fork Ultra Extension Type
- 3400: Multi-Function Tuning Fork Standard Type
- 3410: Multi-Function Tuning Fork Extension Type
- 3420: Multi-Function Tuning Fork Ultra Extension Type
- 3440: Multi-Function Tuning Fork Corrosion Proof Type
- 3450: Multi-Function Tuning Fork Sanitary Type
- 3800: Multi-Function Mini Type

POWER & OUTPUT MODULE

- 20~250Vac/ Vdc, 50/60Hz R: Relay O/P-EuroType
 N: SSR(MOSFET) EuroType
 Q: Relay O/P x 2 -EuroType
 M: SSR(MOSFET) x 2 -EuroType

※ Multion Funtion version can choose R 、 N only

MATERIAL (Wetted Part)

- 0: SUS304 6: SUS316 L: SUS316L

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: mm)

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.

※ The Probe Length of SC3800 is Fixed.

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.

ORDER INFORMATION

SC (T) - ()

ORDER NO. _____

24: 100mm 28: 40mm

POWER & OUTPUT MODULE

0: 20~250Vac / Vdc 2 wire Contactless electronic switch.
 1: 12~48 Vdc 3 wire PNP/ NPN Output.

MATERIAL (Wetted Part)

0: SUS304 6: SUS316 L: SUS316L

MODEL

0: Standard 1: Extended ※ SC28 Without Extended.

(High temp. 150°C)

ELECTRICAL CONNECTION

A: ASI(180°) B: CABLE(90°)
 C: CABLE D: Valve plug DIN43650

(ASI Bus & CABLE Wire length are 2M,PVC 24AWG)

CONNECTION

| Dimension | Specification |
|------------------------|-----------------------------------|
| C---3/4"(25A)SC28 only | M---5kg/cm ² X---PN16 |
| D---1"(25A) | N---10kg/cm ² Y---PN25 |
| E---1-1/2"(40A) | O---150 Lbs Z---PN40 |
| F---2"(50A) | P---300 Lbs S---Special |
| 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---PN10 |
| S---Special | |

PROBE LENGTH (UNIT: mm)

Max Length:250m
 EX 0205 :250m

※ The Probe Length of SC2800 is Fixed.

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.

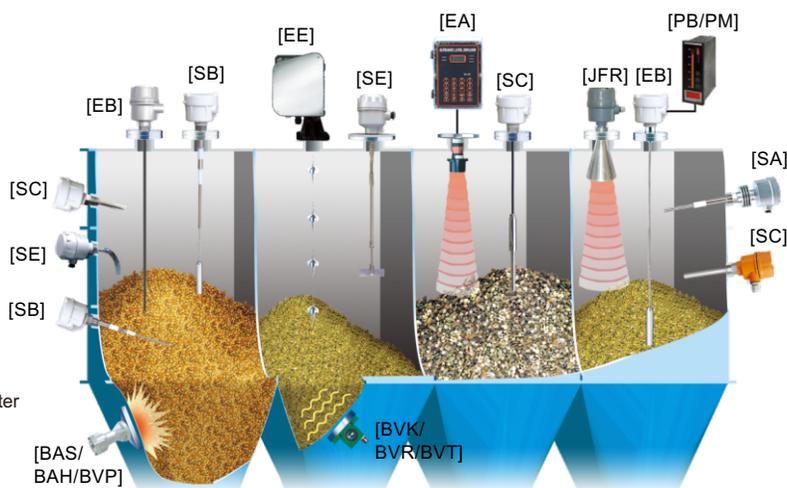
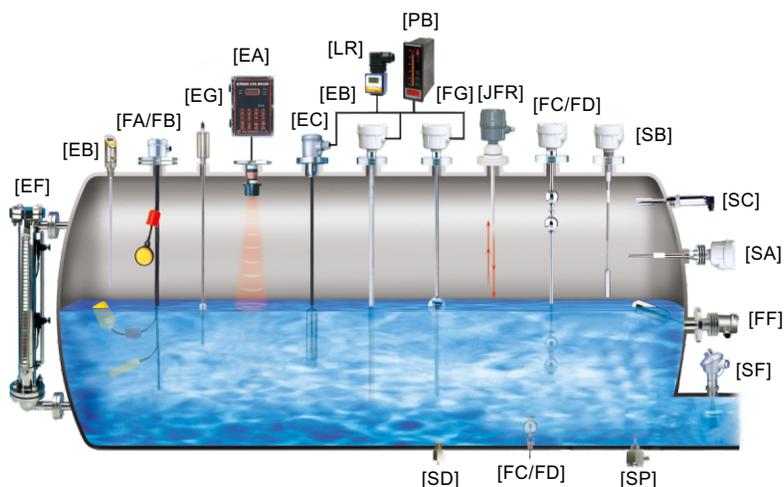
Tolerance of the total product length is±5mm

Characteristics, specifications and dimensions are subject to change without notice.

Please contact your nearest distributing office for further information.

EXAMPLES-OF-TANK-MOUNTING

- [FC/FD] Mini Float/Magnetic Float Level Switch
- [FG] Magnetic Float Level Transmitter
- [FF] Side Mounting Float Switch
- [FA/FB] Cable Float Level Switch
- [SP] Thermal Dispersion Flow Switch
- [SF] Paddle Flow Switch
- [SD] Optical Level Switch
- [SE] Rotary Paddle Level Switch
- [SA] Capacitance Level Switch
- [EC] Pressure Level Transmitter
- [LR] Loop Power Indicator
- [SC] Vibrating Probe Level Switch
- [SC] Tuning Fork Level Switch
- [EB] RF-Capacitance Level Transmitter
- [SB] RF-Capacitance / Admittance Level Switch
- [EG] Magnetostrictive Level Transmitter
- [EF] By-Pass Level Transmitter
- [MEF] Mini By-Pass Level Transmitter
- [EA] Ultrasonic Level Transmitter
- [JFR] FMCW Radar Level Transmitter
- [EE] Electromechanical Level Measuring System
- [ED] Speed Monitor
- [SRT/SRS] Conveyer Belt Misalignment Switch & Safety Cable Pull Switch
- [PB/PM] Microprocessor Based Bargraphic Display Scaling Meter
- [BRD/AE] Valve and Controller for Dust Collector System
- [BAS/BAH/BVP] Air Hammer
- [BVK/BVR/BVT] Pneumatic Vibrator



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