



Rotating paddle level switches:

- Unique grease seal design can avoid dust infiltrate along
- Stable and relible torque, and the torque can be adjusted
- Double bearing design, high loading strength
- Stainless steel housing and metal reduction gear components to easure the strength and life of genertor
- Easy to check and maintain interanl components without dismantling from tank
- Able to detect small specific gravity material

Product Features

The paddle of rotating paddle level switch is connected with cluth through shaft, the motor will keep working when the paddle do not contact with material, and the motor will stop working when the paddle contact the material, at the same time, the electric instrument will send out a signal to measure the level of material, an indicator can also be installed to show the status of level switch.

Product Features

Rotating paddle level switch is suitable for environmental protection, water treatment, electricity, Chemical plastic, pharmacy, fodder, cement, chemical fertilizer, food industrial, etc.





Rotating Paddle Level Switch

Linking your system



The paddle of rotating paddle level switch is connected with cluth through shaft, the motor keep working when the paddle do not contact with material, and the motor will stop working when the paddle contact the material, at the same time, the electric instrument will send out a signal to measure the level of material, an indicator can also be installed to show the status of level switch.



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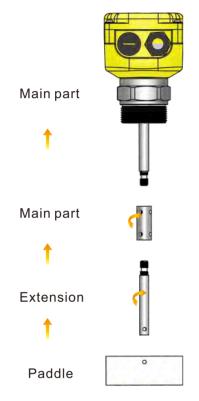
Trend of modularize rotating paddle level switch

- 1. Modularize users can assemble them due to different length and demands
- 2. Modularization will reduce the package and freight cost
- 3. Modularization will cut inventory
- 4. Modularization will shorten the delivery time, creat more business opportunities
- 5. Modularization will reduce the maintenance cost, and change any parts of the instruments at will

Drawing Of Modular Type

How to order modular type?

Α	Main part
+	
В	Coupling
+	
С	Extension
+	
D	Process Connection (optional)
+	
Ε	Paddle



Modular type extension shaft length specification

(Unit:mm)

Main Part shaft length	Extension shaft length	Total length
50	150	200
	350	400
	550	600
	750	800
	950	1000
	1150	1200

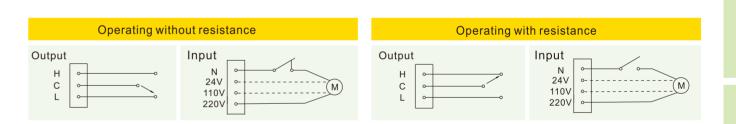
Housing material

Metal house is sturdy and durable ,high temperture type please select metal house.



Circuit Principle

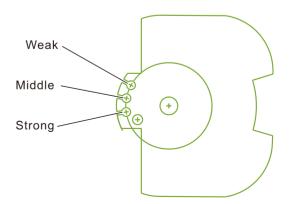
- 1. When the motor is on, C.L circuit closed means no resistance on paddle. When the motor is off, C.L circuit will be opened, meanwhile, C.H circuit closed means being resistance on paddle.
- 2. When operating without resistance, C.L circuit is closed and the motor start to work again.



Torque adjustment

Torsional spring is used to adjust the torque of rotating axis. The torsional spring can be set at strong position on measuring heavy solid, while the paddle is poor sensitive. Reversly it can be set at weak position on measuring light bulk solid, while the paddle is sensitivity. To shaft gear, open the bottom and then clip the torsional spring by a nose plier. Finally, move the torsional spring to the position matching the torque desired.

Notice:Please don't set the torque of torsional spring randomly to avoid the false operation.





Dimensions (mm)	83 104 83 61 61 72 910 910	83 104 05 104 70 104 70 104 70 105 105 105 105 105 105 105 10	83 049.50 100 100 100 100 100 100 100				
Module	SRP10/SRT10 SRP20/SRT20 SRT30						
Туре	Standard Type High Temperature Type Ultra-temperature Type						
Cable entrance	M20xP1.5						
Detecting medium	Powder/Solid						
Application	24.110-120.220-240VAC/50-60Hz						
Power supply	Chemical plastic, pharmacy, fodder, cement, chemical fertilizer, food industrial, etc.						
Power consumption	3W						
Torque measurement		0.51.0Kgf.cm					
Appropriate specific gravity (g/cm³)		0.5					
Contacting rating		SPDT 5A/250VAC					
Blade rotational speed		≤2 (RPM)					
Medium density		≥0. 5g/cm³					
Sensitivity	The motor is adjustable three block						
	Switching Signal						
Output	No failure time is not less than 15,000 hours of continuous operation, >10000 times of continuous operations						
Reliability	Safe drop height ≤ 1.2m.						
Drop Length of axis		50					
spečification(mm)		-20~80℃					
Storage temperature	-20~80℃		MA V450%				
Operating temperature		MAX200℃	MAX450℃				
	ABS/Aluminium	PA66/Alloy	Alloy				

Dimensions (mm)	83 104 83 104 83 104 83 104 104 104 105 106 106 107 107 108 108 109 109 109 109 109 109 109 109					
Module	SRP11/SRT11	SRP21/SRT21	SRT31	sors		
Туре	Standard Extention Type	High Temperature Extention Type	Ultra-temperature ExtentionType	Ultrasonic Level Sensors		
Cable entrance		M20xP1.5		Ultra		
Detecting medium	Powder/Solid					
Application	24.110-120.220-240VAC/50-60Hz					
Power supply	Chemical plastic, pharmacy, fodder, cement, chemical fertilizer, food industrial, etc.					
Power consumption	3W					
Torque measurement		0.51.0Kgf.cm		ork hes		
Appropriate specific gravity (g/cm³)		0.5		Vibrating Fork Level Switches		
Contacting rating		SPDT 5A/250VAC		/ibrat .evel		
Blade rotational speed		≤2 (RPM)				
Medium density		≥0. 5g/cm³		Float Level Switches		
Sensitivity	The motor is adjustable three block					
Output	Switching Signal					
Reliability	No failure time is not less than 15,000 hours of continuous operation, >10000 times of continuous operations					
Drop	Safe drop height ≤ 1.2m.					
Storage temperature	-20~80℃					
Operating temperature	-20~80℃ MAX200℃ MAX450℃					
House material	ABS/Aluminium	PA66/Alloy	Alloy			

Notice: Extension shalt and steel cable can be selected as estension type connection part, please refer to P46.

Float Level \$

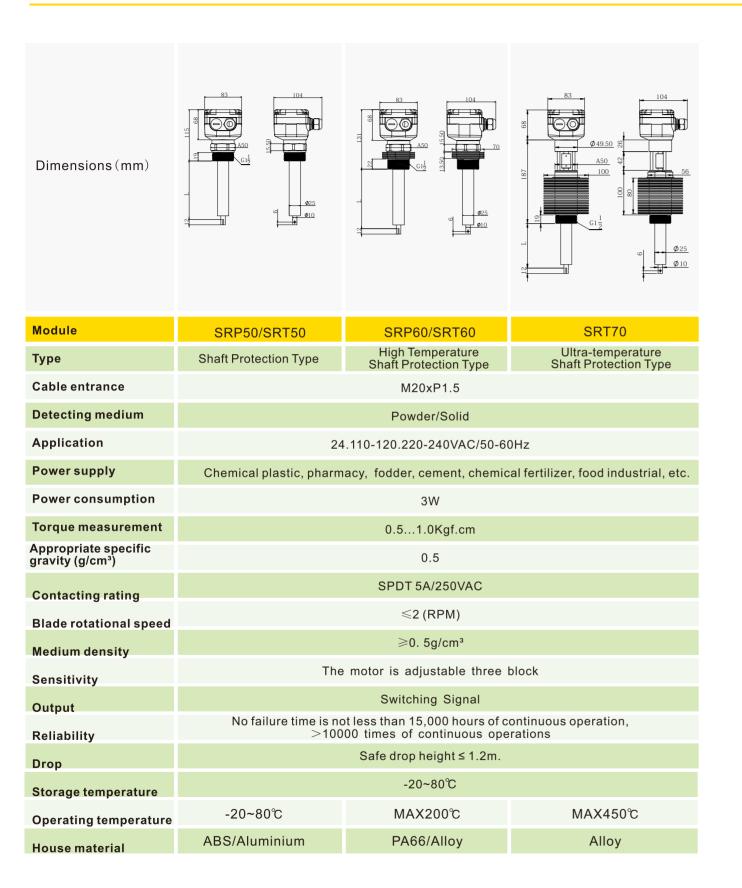
Order Info for rotating paddle level switch	

SR	Р	10	С	В		0050	4			
Series	Housing material	type	connection	power su	pply	main shaf	t length	shaft mat	erial	
SR	Standard rotating paddle level switch					aft-proted	ction rot	ating pad	dle level sv	vitch
Р	Housing material: P: plastic housing (abs) T: metal housing (aluminium alloy)				P:	using mate plastic hou metal hous	sing (al	bs) ninium allo	y)	
10	Type: 10: 80℃ standar 20: 200℃ high te 30: 450℃ extrem 11: 80℃ modula 21: 200℃ high te 31: 450℃ high te	emperat ely high r emperat	temperature ure modular		50: 60:	200°C higl	h temper remely h	tion standa ature shaft igh temper	-protection	
С	Connection: A:3/4"pf B:g1" C:g1 1/2" "					nnection : g1 1/2"				
В	Power supply : A: 24vac B: 110-120vac C: 220-240vac				A: : B:	wer supply 24vac 110–120va 220–240va	ac			
0050	Main shaft lengtl 0050: l=50mm	h(mm)			020 040 060	in shaft ler 00: I=200m 00: I=400m 00: I=600m 00: I=800m	im im im)		
4	Shaft material: 4: stainless 304 6: stainless 316				4: 9	aft materia stainless 3 stainless 3	04			

Notice:

- 1. If the shaft length of extension type more than 1200mm, please select steel cable, suit able for vertical installation.
- 2. Steel cable type is suit able for standard extension type, high temperature extension type, ultra-temperature extension type.
- Ultra-temoerature type only suitable for metal house.
 Check the coupling/extension shaft/paddle material is the same.
 Confirm voltage, 24VAC, 110-120VAC or 220VAC.
 Check specific gravity of detected medium.

- 7. Check the paddle size whether to meet the flange ot the hole of tank wall
- 8. The shaft length tolerance is within ± 5 mm.
- 9. Extension type order information include main part and coupling, please selective purchase the paddle, extension shaft and other accessories.



Order NO	stainless 304	stainless 316	drawing
(;e e	S4S0	S6S0	A 35 16 6 16 16 16 A M8*PL25

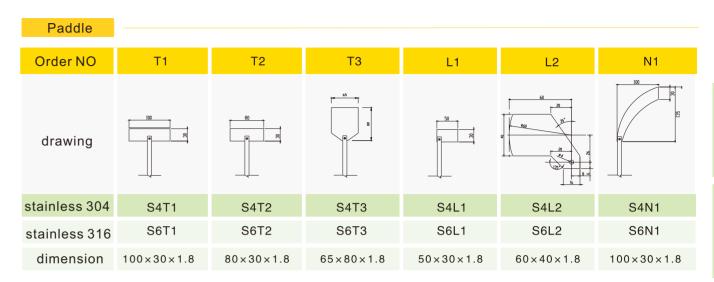
extension shaft

Order NO	stainless 304	stainless 316	drawing
	L40150: L=150mm L40350: L=350mm L40550: L=550mm L40750: L=750mm L40950: L=950mm L41150: L=1150mm	L60150: L=150mm L60350: L=350mm L60550: L=550mm L60750: L=750mm L60950: L=950mm L61150: L=1150mm	Ø3.80 12

cable dimension

Order NO	stainless 304	drawing
<u>~</u>	W41500: L=1500mm W42000: L=2000mm W42500: L=2500mm W43000: L=3000mm	12 L 15 M8 P1 25

- Modular extension type need to be used with coupling, extension shaft and paddle, plese confirm the material of them is the same.
 Steel cable type need to be used with steel cable and paddle.



Connection accessories

Flange	#45steel	S304	drawing
	S0F0	S4F0	G1 2 nll 4-\phi_{15,00} \phi_{130,00} \phi_{130,00} \phi_{155,00} \pmod \pmod \phi_{155,00} \pmod \pmod \phi_{155,00} \pmod \pmod \phi_{155,00} \pmod \pmo
Fixture	#45steel		drawing
	S0C0		Ф58.00±0.05 19.00_0.08 2-C0.5 19.00_0.08 1 1 nll

Radar Wave Level Sensors

Guided Radar (TDR)

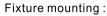
Vibrating Fork Level Switches

Rotating Paddle Level Switches

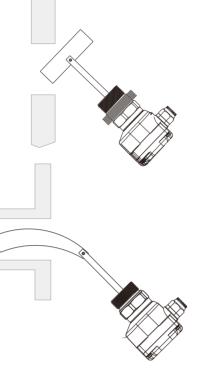
Tank Installation Example

Standard mounting:

Insert one side of the paddle to the hole of container by 35°, and turn it to right position slowly after the other side of the paddle passed through half of the wall-thickness

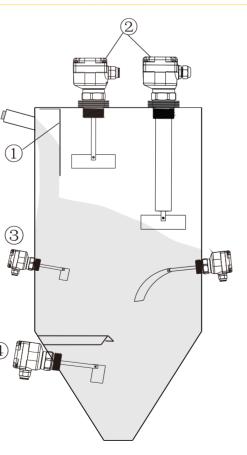


It is recommended to select sickle shape paddle to mount the switch with fixture. Please solder the fixture on the wall of the container and then insert the paddle to the G1-1/2"-n11 threads. Finally, screw it tightly.



Check The Followings While Mounting

- 1. To reduce the shock of bulk solid, the switch can be mounted at 15°-20° against the horizontal position when mounting it vertically in the sides of the targeted object;
- 2. Please select High temperature type, when the temperature of targeted object is over 80°C.
- 3. The switch can be mounted directly without dismantling the paddles when select G1 1/2 fixture to mount it with a sickle shape paddle;
- 4. Make the connecting hole to cable headed below the instrumentation when mounting the switch vertically in the sides of the targeted object. The nut which is used to fix the cable should be locked tightly in avoid of lacking. (As the figure above);
- 5. This product is prohibited from mounting at the entrance of the tank; however, please add an extra protection shield on this product to avoid the shock. The falling materials might affect the operation of this product if it is required to do so.
- 6. Please add a protection cover for the probe when detecting the cakes with the diameter over 15mm or when installing this product under the entrance of the
- 7. Mount the switch vertically in the surface or the sides of the targeted object. when detect sticky powder.
- Correct installation (as the right)
- ① Protection plate for feedstock
- 2 Enough room for installation and debugging
- 3 The angle of horizontal installation
- Protection plate for low material entrance

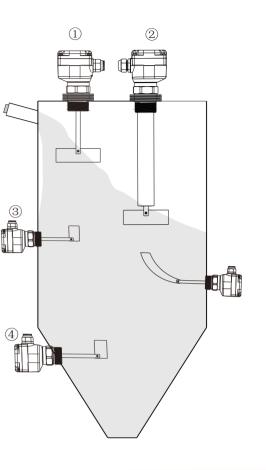


Wrong installation (as the right)

- 1 Too close to the wall of the tank and material, there do not have a protection plate at the entrance of material
- ② The distance between 2 and 3 is too close, will effect the installation and debugging
- (3) Please notice the angle of horizontal installation, and the connecting hole to cable should head below
- (4) There should add a protection plate for probe when detecting the cakes with the diameter over 15mm to avoid the destruction to switchess close tightly to the wall of the container or of the pipe.

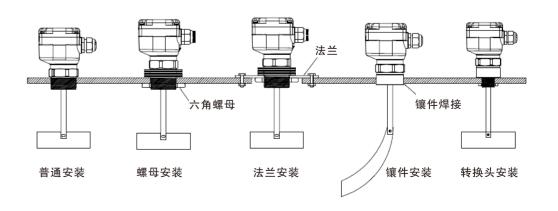
Notice

- 1. Make sure the mounting is under the environment conform to the restricted temperature, pressure, and other technical requirements.
- 2. Make sure the probe and the cable far away from the high voltage and such wires at least by 1 meter.
- 3. Make sure the airtightness of the module by adopting the circle cable which diameter is 6-7mm.
- 4. Make sure the wiring is correct and is close tightly to the wall of the container or of the pipe.



Mounting type

- There are 5 mounting types available as following:
- 1. Standard mounting: Mount the switch directly by screwing tightly in the wall of the container which is applied to G1-1/2"-n11 threads.
- 2. Nut mounting: Vent the wall of the container (50mm < N < 78mm, N is the diameter of the vent), and then screwing it tightly with hexagon nut in the inner wall.
- 3. Flange mounting: Vent the wall of the container (78mm < N < 115mm, N is the diameter of the vent), and then fixed the flange on the wall of container with nuts.
- 4. Fixture mounting: Vent the wall of the container (N = 58mm, N is the diameter of the vent), and then fix it to the fixture. Finally, solder the fixture to the vent.
- 5. Adapter mounting: Link it to the adapter with G1-1/2"-n11 threads, and then link the adapter to the wall of the container. (The dimension of the thread for the adapter can be customized.)







Vibrating Fork Level Switches



The vibrating fork level switch is designed using the principle of damping effect and piezo-electric effect of vibrating fork. The sensing part of detection is composed of vibrating fork, a piezo-electric crystal oscillates the forks at their nature frequency, when the fork is effected by damping effect from medium, they will stop virbrating and the drive control circuit will send out signal.



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Product Feature



Vibrating fork level switch

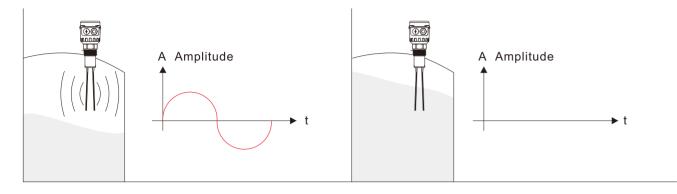
- With Automatic learning function, can learn different medium density by button without any adjustment
- Metalic structure, sturdy and durable
- The amplitude is large to reach more than 10mm, able to shake off hang-ups and avoid fault
- Ultra bright red LED will provide timely warning for field staff
- High range of DC and AC input will not only reduce inventory effectively, but also be widely available
- Suitable for detect the level of liquid, solid, sticky liquid, etc.

Application Instance

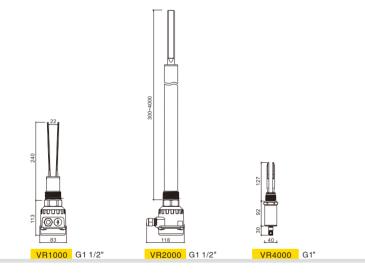
Vibrating fork level switch is suitable for environmental protection, water treatment, electricity, Chemical plastic, pharmacy, fodder, cement, chemical fertilizer, food industrial, etc.



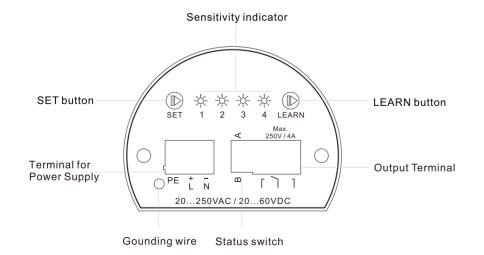
Vibrating fork level switch is suitable for environmental protection, water treatment, electricity, Chemical plastic, pharmacy, fodder, cement, chemical fertilizer, food industrial, etc.



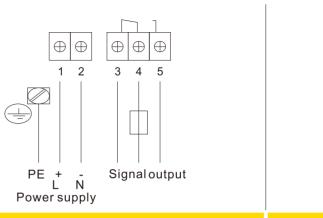
Dimension

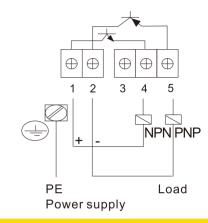


VR1000-VR2000 Hookup



VR1000~VR2000 Connection





Relay output:			NPN/PNP output:
Power input	20~250VAC 50~60Hz 20~60VDC	Power input	20~60VDC
Signal output	4A/250VAC Max. 4A/60VDC Max.	Signal output	400mA Max.

Manual of VR1000~VR2000

Unlock:	Hold "SET" button, for 10 sec., until the four LED flash to status of unlock. After unlock, it is back to normal operating mode.			
Lock	It is automatically locked if there is no button pressed in 60 sec.			
NO/NC Setting	Press DIP switch to set NO or NC.			
Learn Mode	Put fork part into the detected medium for 5 sec. and then operate "Unlock". After unlock, hold "LEARN" button for 5 sec., the LED1 ~ LED4 will flash orderly with frequency which is 1 time per sec. to start learning. If the four LEDs are all flash together, this learning is successful; if only the central two LEDs shine, this learning is failed and it is required to learn again.			
Sensitivity Setting	Under status of unlock, press "SET" button to set sensitivity with checking the flash of LED1 to LED4. Sensitivity is from high to low by LED1 to LED4.			

Notice:

- The learning function of this type is not only to overcome the condition of the vibration absorption after the installation on the wall of tank but also to avoid of false operation caused by noise interference.
 factory setting is based on the density of water (1g/cm3). When the density of detected object is higher than
- factory setting is based on the density of water (1g/cm3). When the density of detected object is higher than
 or equal to 1g/cm3, it can be used normally without setting learning function. Otherwise it needs to reset
 learning function when the density of detected object is lower than 1g/cm3.
- 3. Sensitivity is set as the highest value in the factory and suitable to be used under the stable wave of medium. If the wave of medium fluctuates bigger, it is required to lower the sensitivity to avoid any error in warning.

Radar Wave Level Sensors

Guided Radar (TDR)

> Ultrasonic Level Sensors

Rotating Paddle Level Sensors

Vibrating For Level Switcher

Float

Capacitive

Radar Wave Level Sensors

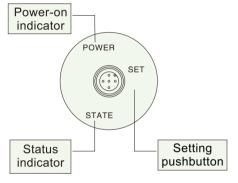
Ultrasonic Level Sensors

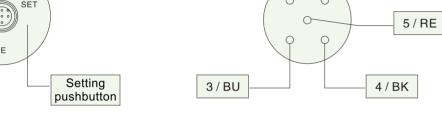
Float

Output of VR1000~VR2000 Switch2

Switch2	А	В
Relay OUT	345	345
NPN OUT	14	114
PNP OUT	25	23
Indicator	*	\otimes

VR4000 Hookup





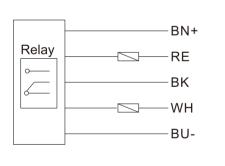
2 / WH

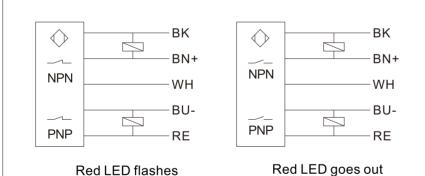
Figure. A

Figure. B

1 / BN

Mode of VR4000 Connection





Relay output:		NPN/PNP output:		
Power input	19~250VAC 19~60VDC	Power input	19~60VDC	
Signal output	4A/250VAC Max. 4A/60VDC Max.	Signal output	400mA Max.	

Manual of VR4000

Officer	returns to the operation mode. The red and green light stop
Lock	It is automatically locked when there is no operation within 60 secs.
NO / NC setting	Under the unlock condition, hold "SET" button for 3 secs and then the alternate red and green lights flash. When the green LED flashes, release the button to enter NO / NC setting mode and then press "SET" button once to adjust the required status.
	Put the fork part into the detected medium with stability for 5 secs. Under the unlock condition, hold "SET" button for 3 secs and then the alternate red and green lights flash. When the red LED flashes, release the button. The red LED flashes once in a second

Learning mode

orderly to express the status of waiting for learning. The red LED flashes and goes out twice to express the status of learning. The learning setting is successfully finished when the alternate red and green lights flash quickly. Otherwise, the red and green light flashes together and the user has to set the learning function again. To reset the learning, just press "SET" button again to enter second learning mode.

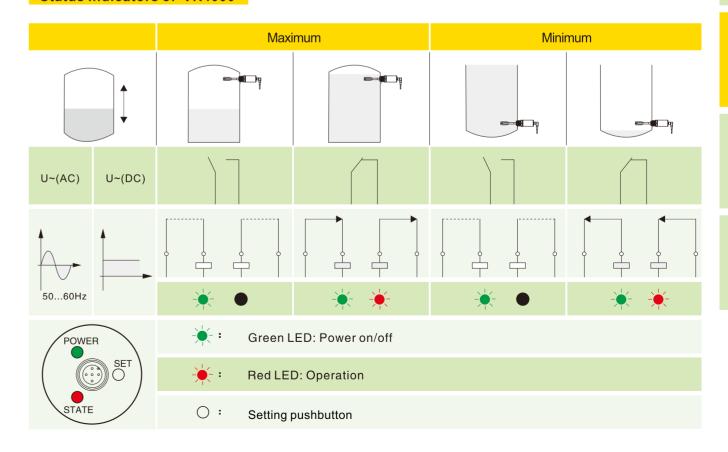
"SET" button for 10 secs until alternate red and green lights flash. The unit unlocks and

Notice: To enter the second learning mode, please press "SET" button in 3 sec. after first learning finished. Otherwise the user shall be required to process the whole learning mode again to reset the setting. This function is to avoid of the false operation.

Notice:

- 1. The learning function of this type is not only to overcome the condition of the vibration absorption after the installation on the wall of tank but also to avoid of false operation caused by noise interference.
- 2. factory setting is based on the density of water (1g/cm3). When the density of detected object is higher than or equal to 1g/cm3, it can be used normally without setting learning function. Otherwise it needs to reset learning function when the density of detected object is lower than 1g/cm3.

Status Indicators of VR4000



Dimensions(mm)	83 G1-1/2***********************************	#42.00 ###################################	92 92 126.5				
Module	VR1000	VR2000	VR4000				
Туре	Standard	Extrnsion	Mini				
Connection	G11/2"	G1 1/2 "	G1"				
Cable entrance(mm)	M20×P1.5						
Detecting medium	Liquid/Powder/Solid						
Application	Suitable for all po	owder, solid and liquid through	learning function				
Voltage	20~	60VDC 20~250VAC 50/6	60Hz				
Response Time(s)	3						
Ambient temperature(℃)		− 40 ~ + 70					
Storage temperature(℃)	−40 ~ +85						
Medium temperature(℃)	-40 ~ +150						
Opeating pressure(bar)	−1 ~ +4 0						
House material	Aluminium alloy						
Fork material	Stainless steel 304/Stainless steel 316						
Output	NPN, load 400mA/PNP load 400mA						
Consumption	DC 3W Max AC 15W Max						
Standard Length(mm)	240 1000 MAX 126.5						
Protection classification	IP67						

Orde	r Infomation						
VR	1000	11	1	S	4		
Series	Fork type/Length	Power Supply	Connection	Protection	Fork Material		
VR	Smart Vibrat	ing Fork Leve	Switches So	eries			
1000	Fork type/ Length 1: Standard type VR1000 L=240mm 2: Extension type VR2400 L=400mm						
11	Power supply & output: 11: 20~60VDC & 20~250VAC 50~60Hz (relay output SPDT 4A/250VAC or 4A/60VDC) 33: 20~60VDC(NPN&PNP output)						
1	Connection 1:G1½" thread connection (suitable for VR1000~VR2000) 4:G1" thread connection(suitable for VR4000) 6:1"PT connection(suitable for VR4000)						
S	Protection S:Standard type IP67						
4		al eak acid and a od hyiene cor		n			

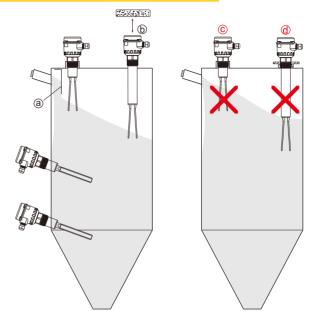
Notice: The total length tolerance is within $\pm 5 \text{mm}$

Accesories

Cable		Drawing No.					
	С	02	L	5	С	12	25.4
L型	C: Cable	Length 02: 2M 05: 5M 10: 10M	Connector L: Angled	Pole 4:4 5:5	Material R:PUR C:PVC F:FEP	Size 12:M12	AS 27.2 45.2 45.2 45.2 45.2 45.2 45.2 45.2 45

Туре	Flange	Order No.	Drawing No. Fixture		Order No.	Drawing No.
VR1000 VR2000		0607F	G1 2-nll 4-015,00 0130.00 0155,00 0155		0607X	058.00±0.05 2-C0.5 19.00_0.08 G1 2-nil
VR4000		0608F	92 92 92 92 92 93		0608X	045.00±0.02 C1 16.00 ±0.05 C1 16.00 ±0.05 G1-nii

Installation Of VR1000/VR2000

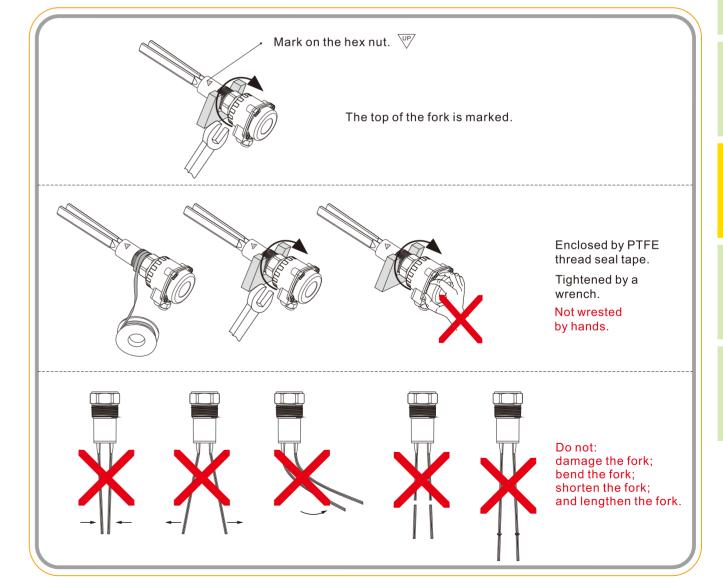


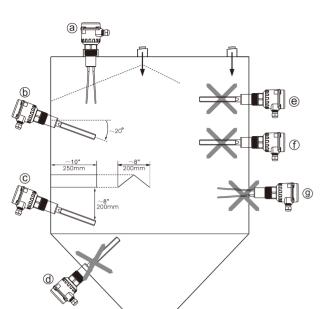
- Correct mounting:

 ® Next to the silo wall, but withen-ough distance from it and from ma-terial build-ups, or Shield to protect against flowing material.

 B Sufficient space for mounting and for adjusting. Avoid of the false warming from material flow. Protective hood against condensation in the housing.

Incorrect mounting:
© Too close to the wall and mate-rial build-up.
© In filling curtain.





- 1.The ideal installation for reducing the shock to materials and the hanging of materials is to make the switch horizontal at an angle of 15-20.
- 2.Keep the switches away from the feed opening of the barrel to reduce the shock to materials, if unavoidable, a protection plate is necessary.
- 3.The inlet of the connection box should be downward and the fixing nuts of power line must be tightened.
- 4. The operators cannot use vibration rod to climb or hook any object when working within the barrel.

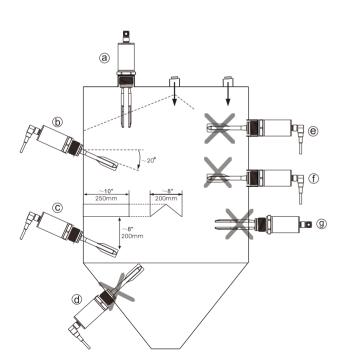
Correct mounting:

- (a) Top-mounted, Fork is vertical towards bottom and mounted in any position far away from the feed opening of top side.
- b Laterally mounted, Fork angled slightly downwards by 15~20 degree so as to reduce the shock and the hanging of the flowing materials.
- © Laterally mounted with shield, With a shield, length approx.10 in(250mm), width approx.8 in(200m), folk angled slightly downwards by 15~20 degree so as to reduce the shock of the flowing materials and prevent the improper stock from itself.

- Incorrect mounting:
 ③ In discharge hopper,Max. nozzle length 2.4 in (60mm),so that no build-up occurs which prevents the fork from oscillating.

 Laterally mounted in filling curtain or under the feed opening. Incorrect fork orientation
- (e) The surface of fork is subjected to high load caused by discharging material;
- f) It may cause false function due to residual material.
- The switch will not work normally when the distance of mounting nozzle and barrel is over 2.4"(60mm).

Installation Of VR4000



- The ideal installation for reducing the shock to materials and the hanging of materials is to make the switch horizontal at
- Neep the switches away from the feed opening of the barrel to reduce the shock to materials, if unavoidable, a protection
- plate is necessary.

 3. The inlet of the connection box should be downward and the fixing nuts of power line must be tightened.

 4. The operators can not use vibration rod to climb or hook any object when working within the barrel.

Correct mounting:

- (a) Top-mounted, Fork is vertical towards bottom and mounted in any position far away from the feed opening of top side.
 (b) Laterally mounted, Fork angled slightly downwards by 15~20
- degree so as to reduce the shock and the hanging of the flowing materials.
- © Laterally mounted with shield, With a shield, length approx.10 in(250mm), width approx.8 in(200m), folk angled slightly downwards by 15~20 degree so as to reduce the shock of the flowing materials and prevent the improper stock from itself.

■ Incorrect mounting:

- @ In discharge hopper, Max. nozzle length 2.4 in (60mm), so that no build-up occurs which prevents the fork from oscillating.
- Laterally mounted in filling curtain or under the feed opening.
- (f) Incorrect fork orientation, The surface of fork is subjected to high load caused by discharging material, It may cause false function due to residual material.
- (9) The switch will not work normally when the distance of mounting nozzle and barrel is over 2.4"(60mm).

