SCS164X Series Food Grade IP69K Mini Tuning Fork Liquid Level Switch Operation Manual

Introduction：

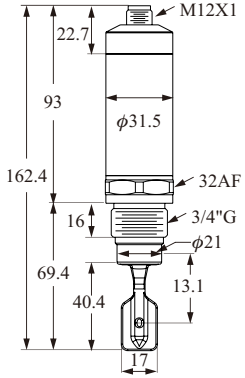
These switches could meet high hygienic standards of food & beverage industries when applying for the concerned liquid tanks, mixers, pipes and etc.
Power supply range is 10~35VDC. Product is suitable for the liquid with density more than 0.7gm/cm3 and viscosity between 1~10000CST.
SCS164 series of tuning fork switches also offer magnetic test features, which enable users to immediately check product's normal functioning or wiring error. In addition, this mini fork tuning fork has a special overload current protection function. In case of current overload, the instrument will be immediately switched off and send a signal to LED light alarm to prevent from any damage to the switch.
This instrument might be failure : in the event of very viscous fluid,build-up, Surface wave bubbles, or rash temperature change in cleaning.
Food Grade IP69K Mini tuning Fork Liquid Level Switch's operating temperature can reach 150 °C。

Special Features：

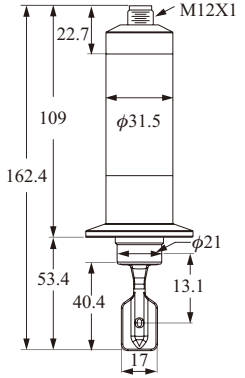
◎ Level Switch has M12 SUS connection with IP69K protection which is suitable for airtight application.
◎ Product is tested for 1 hour of intensive water immersion and for clean tight space application.
◎ Compact design for tight space application.
◎ Polishing of the probe (Roughness Average) can be customized based on customer requirement. So, this instrument is suitable for chemical, pharmaceuticals and food processing industries.
Magnetic test features enable to check whether the switch is normal functioning and correct wired.
◎ Current overload protection to prevent damage of the switch.
◎ Self-monitoring function can detect abnormal circuit function or tune fork corrosion and will automatically turn off its output for safety concerns.
◎ Rugged Stainless Steel Housing（SUS316）
◎ CIP and SIP cleanliness certificate (pending)
◎ EHEDG certification (pending)

External Dimensions:

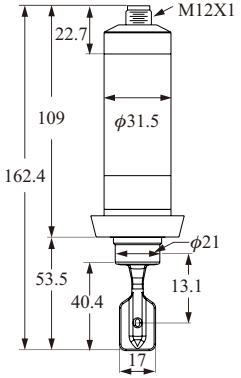
SCS164 series dimensions and wiring type are shown in following:



<Fig 1> Screw type



<Fig 2> 3A Clamp type



<Fig 3> DIN union type

Specification:

Structure	Wetted material	SUS316 /SUS316L
	Body material	SUS316
	Protection	IP69K
	Conduit	M12x1
	Connection	3/4”G,1"Clamp(3A),other
	Probe length	40mm±2mm
Electronics	Power supply	10~35Vdc
	Power consumption	<825mW
	Current consumption	<15mA
	Current load	350mA
	Probe vibration frequency	Approx.1KHz ± 10%
	Switching Point	Vertical Mounting<top>: 13mm ± 1mm from the top of tuning fork. Horizontal mounting: 4mm ± 1mm from the groove of tuning fork.
	Repetition	±0.5mm
	Hysteresis point	3±0.5mm
	Failure Protection	Max. / Min.
	Switching time	0.5s when covering 1.0s when becoming free
	Setting Time	<2 s
	Magnetic Test	Place the magnet near the mark to function test
Operation Condition	Ambient Temp.	-40°C~70°C
	Storage Temp.	-40°C~85°C
	Operating Temp.	-40°C~150°C
	Operating Humidity	20%～80% RH non-condensed
	Operating Pressure	Maximum 40 Bar
Material	Viscosity	1~10000 cst
	Density	Solids content ø: <5mm Liquid:0.7g/cm^3

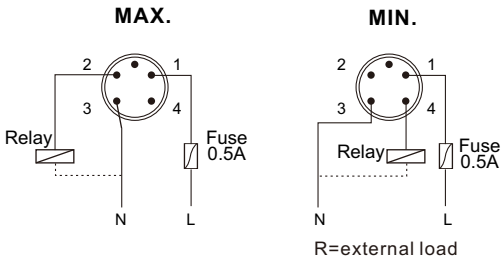
Wiring Diagram:

Power supply range is 10~35VDC. Wiring can be with two conditions for either "MAX" or "MIN". Mode details are shown in <Figure 2>

MAX:
No.1 pin is connected to L With 0.5A Fuse.
No.3 pin is connected to N. Output Relay is connected to No.2 pin, then connected to N.

MIN:
No.1 pin is connected to L With 0.5A Fuse,
No.3 pin is connected to N. Output Relay is connected to NO.4 pin, then connected to N.

NO.	1	2	3	4
Color	brown	white	blue	black



<Figur 2> Connenction DC-PNP Plug M12x1 Wiring diagram

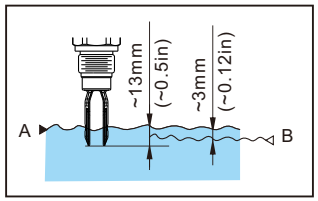
Output Status :

	Max.Mode		Min. Mode		Error Status	
Level					Overload in the load or Internal sensor error	No Power
	1 2 Switch closed	1 2 Switch open	1 4 Switch closed	1 4 Switch open	1 2 / 1 4	1 2 / 1 4
ye1 ye2 gn						

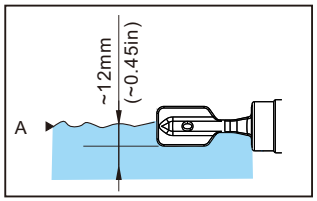
: LED ON : LED OFF

※ gn:Green LED ye1 , ye2:Yellow LED ※ Option for the cable.（Max.5M）

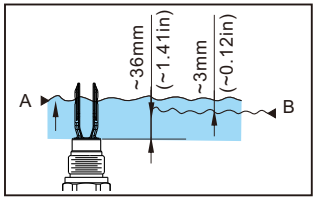
Fork Sensing Spot :



Top Mounting



Side Mounting



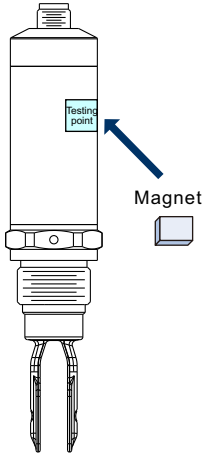
Bottom Mounting

Magnetic Test

After the switch has been installed and power-tested, magnetic switch can perform accordingly. Output status will switch from status of NO. to NC. or NC to NO. and yellow LED would indicate the vibration status by on / off. When magnet is pulled away from the housing, yellow LED would return as default while fork continues vibrating. By this verification, the user can make sure if the wiring and function are correct.

		Cable include LED indicator	
		Far	Nenr
ye1 ye2 gn	MAX		
	MIN		

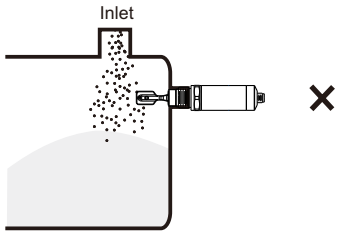
※ gn:Green LED
ye1 , ye2:Yellow LED



Installation for Tuning Fork:

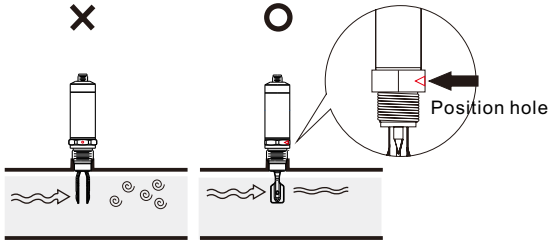
Horizontal Installation:

1. Can be applied in viscous fluid, powder, and liquid. Do not install near substance inlet.

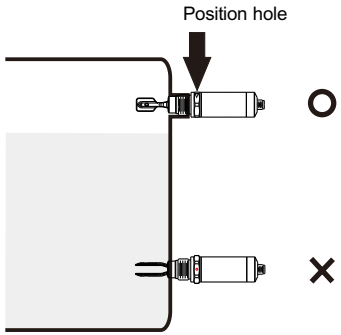


Vertical Installation:

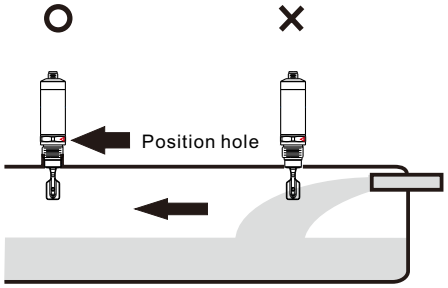
2. Opening of the two fork blades should face the flow direction.



2. When installing the product, The position hole must be upward direction. If not, could be damage the product.



3. Do not install near substance inlet.



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