Series F63
Liquid Level Float Switches for Open or Closed Tanks

Introduction

The F63 is a liquid level float switch for use in open or closed tanks where a desired liquid level has to be maintained. They can be used in open or closed tanks and installations handling water, swimming pool water, sea water, brine, ethylene glycol or other liquids not harmful to the specified materials. The switches have SPDT contacts and can be wired to close one circuit and open a second circuit when the liquid level rises above or falls below the required level. The switch maintains the liquid level within (approx.) 13 mm.

There are three different types available. The phosphor bronze bellows version for use in applications where the liquid is not corrosive to phosphor bronze. The stainless steel bellows version for use in environments like cooling towers (water with high calcium content) and a complete stainless steel AISI 316L version. All materials in contact with the liquid are specified in the part "specifications". At doubt about the liquid used with regards to these materials it is advised to contact the liquid supplier. These float switches should not be used for liquids lighter than water (density less than 0.95 kg/dm^3).

F63 Float Switch

Feature and Benefits	
❑ **Solid polycarbonate float**	Will not accumulate liquid and provides dependable level detection.
❑ **Vapour tight IP 67 enclosure**	Allows for use in indoor and outdoor as well as low temperature applications
❑ **Convenient wiring terminals**	Makes wiring convenient and easily accessible.
❑ **Three models**	For many different types of liquids

Order No. PD-F63-E

Note

These controls are designed for use only as operating controls. Where an operating control failure would result in personal injury or loss of property, it is the responsibility of the installer to add devices or systems that protect against, or warn of, control failure.

Caution

Do not use with hazardous fluids or in hazardous atmosphere.

Installation

To allow the switch to respond to changes in the liquid levels, the float must not touch the side of the tank or any other obstructions. Install the F63 in a 1" threaded horizontal tank opening (see " specifications") at the height where the liquid level is to be maintained. Position the switch with the arrow on the enclosure pointing "up" for proper operation. A special vapour proof PG-16 nipple for cable inlet is delivered with the control. This nipple has to be used to keep the control vapour tight.

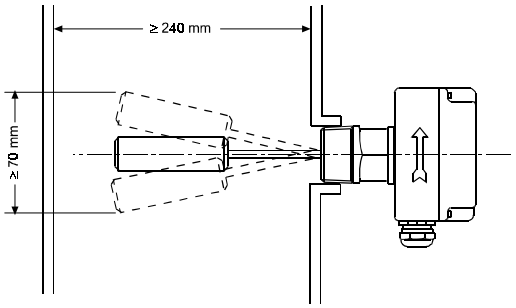

Fig. 1

Wiring

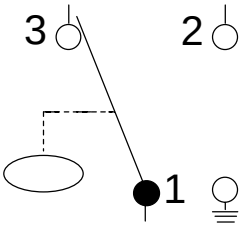

Fig. 2
Contact function
1 to 2 closes on liquid level rise.

Suggested circuits for controlling "Fill" and "Dump" levels with larger differences between minimum and maximum levels.

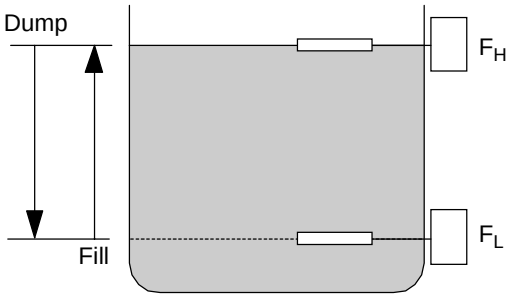

Fig. 3

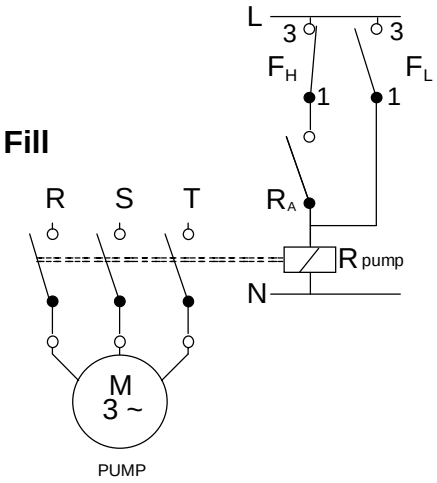

Fig. 4

R_A = Aux. contact pump relay

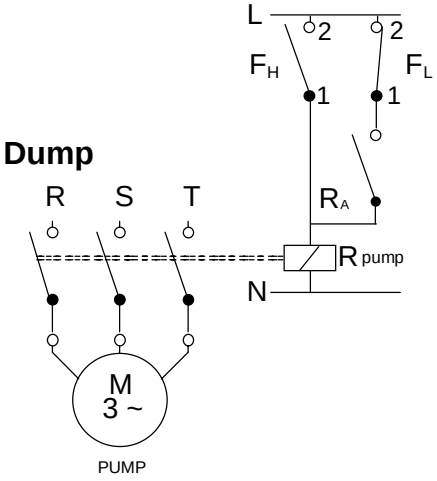

Fig. 5

Adjustment

All F63 versions are factory set and sealed. No field adjustments are required.

Repair and replacement

Repair is not possible. In case of an improperly functioning control, please check with your nearest supplier. When contacting the supplier for a replacement you should state the type/model number of the control. This number can be found on the data plate or cover label.

Type number selection table

Order number	Type	Used for
F63BT-9101	Brass body Phosphor bronze bellows	water, sea water, ethylene glycol, brine
F63BT-9102	Brass body Stainless steel bellows	cooling tower applications
F63BT-9200	Stainless steel body Stainless steel bellows	swimming pools

Dimensions

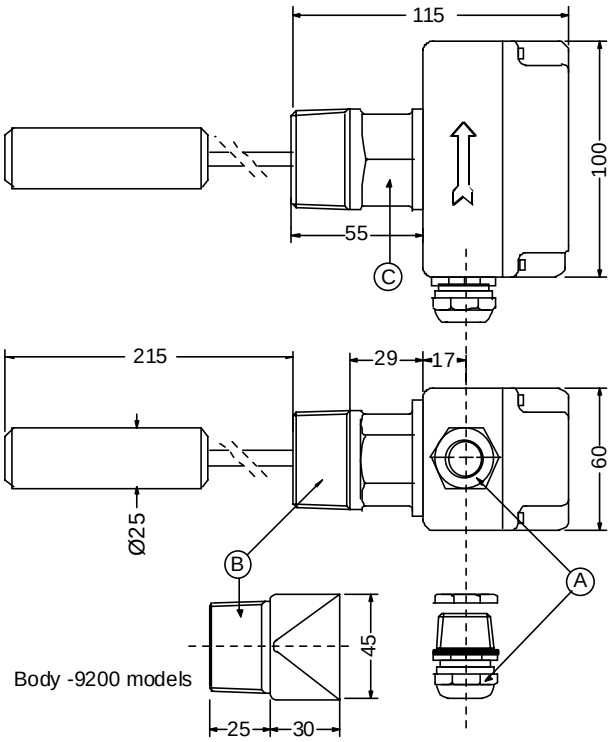

Fig. 6
A . Cable inlet hole ø 22.3 mm Vapour proof PG-16 nipple

	B	C (HEX)
F63BT-9101	1-11½ NPT	34 mm
F63BT-9102	1-11½ NPT	34 mm
F63BT-9200	R1" DIN 2999 (ISO R7)	45 mm

Specifications

Type number	F63BT-9101	F63BT-9102	F63BT-9200
Pipe connection	1-11½ NPT	1-11½ NPT	R1" DIN 2999(ISO R7)
Max liquid pressure	10 bar	10 bar	10 bar
Max. liquid temperature*	100°C	100°C	100°C
Min. liquid temperature**	-30°C	-30°C	-30°C
Max. ambient temp.*	+55°C	+55°C	+55°C
Min. ambient temp.**	-40°C	-40°C	-40°C
Ambient humidity	Vapour proof	Vapour proof	Vapour proof
Contact type	SPDT snap-acting switch	SPDT snap-acting switch	SPDT snap-acting switch
Electrical rating	15(8) A 230Vac	15(8) A 230Vac	15(8) A 230Vac
Wiring connections	screw terminals 1 up to 2.5mm^2	screw terminals 1 up to 2.5mm^2	screw terminals 1 up to 2.5mm^2
Maintains liquid level within(approx)	13 mm	13 mm	13 mm
Enclosure	IP67	IP67	IP67
Materials cover / case	Polycarbonate	Polycarbonate	Polycarbonate
Materials in contact with liquid			
float	Polycarbonate	Polycarbonate	Polycarbonate
bellows	phosphor bronze CuSn 6	stainless steel AISI 316L DIN1.4404	stainless steel AISI 316L DIN1.4404
rod	bronze ASTM B140-alloy 316	bronze ASTM B140-alloy 316	stainless steel AISI 316 DIN1.4401
body	brass ASTM B584 alloy C84400	brass ASTM B584 alloy C84400	stainless steel AISI 316 DIN1.4401
washer	brass ASTM B36 alloy C23000	brass ASTM B36 alloy C23000	stainless steel AISI 316 DIN1.4401
silver solder	L-Ag45	L-Ag45	none
softsolder	L-SnAg5	L-SnAg5	none
Shipping weight individual pack	0.85 kg	0.85 kg	1.0 kg
overbox (7 pcs)	7 kg	7 kg	-
Vibration	acc.to DIN 89011 Kennlinie I		

** The max. liquid temperature of 100°C is at 20°C ambient. At higher ambient temperatures the max. allowed liquid temp. becomes lower. The temperature of the electrical switch inside should not exceed 70°C.*
*** The low liquid temperature combined with a low ambient temp.should not lead to freezing of the liquid inside the body / bellows. Please observe the liquid freezing point.*

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office or representative. Johnson Controls shall not be liable for damages resulting from misapplication or misuse of its products.

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