E.L.B. Füllstandsgeräte Bundschuh GmbH & Co. KG - An der Hartbrücke 6 - D-64625 Bensheim - Phone:+49.6251 84620 Fax:+49.6251-846272
Web: www.elb-bensheim.de eMail: info@elb-bensheim.de

Float Switch S-x, QFS-x, SK-x, QFSK-x
Mounting and Startup Instructions

Important safety instructions please read and note

A precondition for perfect, safe operation of the electrode relay modules is proper transport, storage, mounting, correct installation and commissioning. Only persons with the necessary technical knowledge and qualification may carry out this work. The pertinent safety regulations for the installation and operation of electrical devices must be observed.

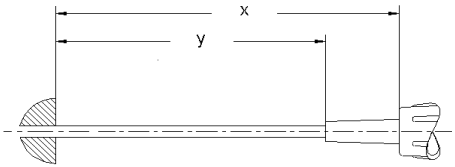
When installing or if maintenance work be carried out disconnect the device before beginning. Operate the device only under the conditions which are defined in the technical data. If the information in these instructions should prove insufficient, the manufacturer should be contacted.

Application

The float switches are suitable for the control of filling levels. Used as MIN./MAX, filling contact sensor, emptying contact sensor, overfill protection, and dry running protection.

Mounting

The devices can be mounted on the container or respectively screwed on it (compression gland) or introduced from above in case of open container. The switching point may be determined as needed with a loading-weight (G-902).

Cable minimum length to the fixpoint	Cable type	X or Y
	FEP (~∅ 4.0)	Y = 100 mm
	TPK (~∅ 5.9)	X = 70 mm
	TPKV (~∅ 7.3)	X = 90 mm
	PUR (~∅ 5.4)	X = 100 mm
	SIL (~∅ 6.4)	X = 80 mm
	SIL with AEM	X = 80 mm

Technical data

See datasheet of the desired device 05-00-01 bis 05-04-01

Electrical connection

If voltage >50 V, the container or/and the medium must be grounded or the float switch is to operate with low protective voltage. All electrical connections must be made without power.

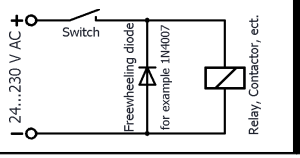
Float Switch withe cable connection		
All electrical connections must be made without power !!!	BLACK / BROWN	NORMALLY CLOSED ON ASCENDING
	BLACK / BLUE (GREY)	NORMALLY OPEN ON ASCENDING

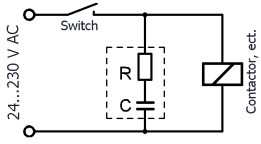
Float switch combinations with clamps						
Terminal 1-2	Terminal 5-6	Terminal 9-10	Terminal 13-14	Terminal 17-18	etc.	NORMALLY OPEN ON ASCENDING
Terminal 3-4	Terminal 7-8	Terminal 11-12	Terminal 15-16	Terminal 19-20	etc.	NORMALLY CLOSED ON ASCENDING

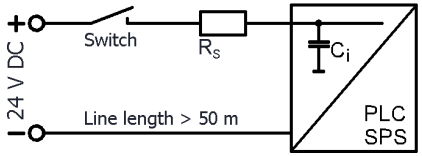
Contact protection

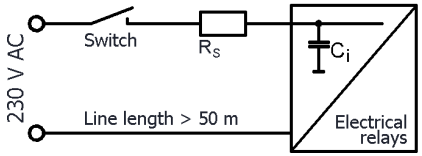
To ensure secure operation of float switches with contacts and to achieve a long life, one of the following protective circuit examples should be applied:

Protection circuit		Values AC			
For inductive load on DC	For inductive load on AC	Permissible values for RC elements			
		Voltage	Capacity	Resistor	Art..No.:
		24 VAC	0,1 µF	100 Ohm	ebe00450
		48 VAC	0,1 µF	220 Ohm	ebe00451
		115 VAC	0,1 µF	330 Ohm	ebe00452
		230 VAC	0,1 µF	470 Ohm	ebe00453





For capacitive load on DC (PLC Input)	Declaration
	C_i = internal capacitance of a PLC, ect. R_s = protective resistor = 47 Ohm

For capacitive load on AC (for electronic relays)	Declaration
	C_i = internal capacitance of an electronic relay, ect. R_s = protective resistor: 220 Ohm for 230 V AC Relais

Handling / Maintenance

The filling level sensors are measuring instruments and accordingly handled with care! Before using the float switch it must be ensured that the materials of the float switch remain sufficiently resistant against the liquids to be monitored and all external influences, both chemically and mechanically. To avoid compromising functions, the environment of the float switch action range must be free from interferences (e.g. magnetic field, mechanical obstacles, ...). Generally, major forces such as impacts, knocks, bending or similar should be avoided. The connecting cable must not be damaged since the IP protection class is otherwise not maintained. Appropriate maintenance / cleaning intervals must be provided.

Mounting Loading-weight G-902