Installation, Operating and Maintenance Instructions for

Jola Float Switches
SMR/../...././Ex-..
⟨Ex⟩ I M2 Ex ia I Mb or
⟨Ex⟩ II 2/1 G Ex ia IIC T6 Ga/Gb or
⟨Ex⟩ II 2 G Ex ia IIC T6 Gb

These Installation, Operating and Maintenance Instructions must always be handed over to the fitter/operator/service personnel of our products together with all other user documentation and information!
They should be stored in a safe place together with all other user documentation and information so they can be consulted again when necessary at any time!

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1. Area of application

The float switches

JOLA
D-67466 Lambrecht

CE 0080

SMR/../...././Ex-..
(serial number)
(production year)

Ex I M2 Ex ia I Mb or
Ex II 2/1 G Ex ia IIC T6 Ga/Gb or
Ex II 2 G Ex ia IIC T6 Gb

Tamb : - 20°C to + 60°C
INERIS 03ATEX0223

Special precondition for safe use of the float switch:

**The partition wall of the float switch for the separation of the zones is made of stainless steel 316 Ti (1.4571).
The thickness of this partition wall is only 1.5 mm. The float switch has therefore only to be installed in a non-corrosive environment in order to grant the separation of the zones. Precautions have to be taken for the same reason before or during the installation of the float switch in order to protect the float switch efficiently against mechanic damages which may for example be caused by turbulences or heavy wave movements of the liquid to be monitored.**

are binary contact devices for use

- **in underground areas in mines as well as in above-ground areas of mines which could be at risk due to firedamp and/or flammable dusts:**
  SMR/../...././Ex-M Ex I M2

- **in above-ground areas which could be at risk due to a potentially explosive atmosphere:**
  SMR/../...././Ex-0G Ex II 2/1 G :
  float side placed in zone 0, 1 or 2,
  terminal box placed in zone 1 or 2

  SMR/../...././Ex-1G Ex II 2 G :
  in zone 1 or 2

The float switch SMR/../...././Ex-.. serves as an individual switch that gives off an alarm signal when the liquid level reaches a certain point (e.g. high-level alarm or low-level alarm). The combination of 2 switches is used to control a pump, for example (ON-OFF via a suitable downstream external pump controller) or a solenoid valve (OPEN-CLOSE via a suitable downstream external solenoid valve controller).

The float switch is designed solely for mounting from the side and operation in horizontal orientation.

It may only be used to control low-viscosity, non-adhesive liquids that are free of solids.

If there is a risk of any kind that **adhesive residues, solid particles or iron particles attracted by the built-in permanent magnet in the float switch** might impair the function of the float switch, then the switch is not suitable for the application in question.

All **the technical parameters of the float switch** are listed in this brochure and the accompanying product description. **You must always observe and follow all the instructions relating to these parameters. The switch may not be used for applications outside the specified parameter range.**

If the product description is not supplied with the product or is lost, **you must always request a copy of the description prior to installation, connection or start-up and ensure that it is read and observed by the suitably qualified specialist personnel. Otherwise the float switch(es) may not be installed, connected and started up.**

2. Preconditions for safe use of the float switch

To ensure safe operation, power supply to the float switch must be via a voltage source with output circuits which are approved as intrinsically safe for use in the potentially explosive atmosphere which corresponds to the gas explosion group in which the device is installed: IIC, IIB, IIA or I.

The output parameters of the voltage source must be compatible to the input parameters as defined below:

Maximum input parameters for the SMR/../...././Ex-.. float switch
which has to be used under atmospheric pressure (between 0.8 bar and 1.1 bar):

Terminal designations	Ui (V)	Ii (A)	Ci	Li
1, 2, 3	42 V	0.1 A	0	0

Maximum input parameters for the SMR/../...././Ex-.. float switch
which can be used under a pressure of max. 10 bar:

Terminal designations	Ui (V)	Ii (A)	Ci	Li
1, 2, 3	12 V	0.033 A	0	0

3. Special precondition for safe use of the float switch:

The partition wall of the float switch for the separation of the zones is made of stainless steel 316 Ti (1.4571).
The thickness of this partition wall is only 1.5 mm. The float switch has therefore only to be installed in a non-corrosive environment in order to grant the separation of the zones. Precautions have to be taken for the same reason before or during the installation of the float switch in order to protect the float switch efficiently against mechanic damages which may for example be caused by turbulences or heavy wave movements of the liquid to be monitored.

4. Additional conditions for safe operation of the float switch

The temperature application range of the float switch is between - 20°C and + 60°C. The operating temperatures must always be within this range.

The ambient temperature at the terminal box of the float switch must always be between - 20°C and + 60°C.

Before using the float switch, you must ensure that the materials used in the float switch are sufficiently chemically and mechanically resistant to the liquid to be monitored (parts coming into contact with the liquid) and external influences (all other parts).
In case of doubt, consult a suitably trained expert prior to use. Do not use the product before these questions have been fully clarified.

5. Installation, connection and start-up, general regulations

Installation, connection and start-up of the float switch may only be performed by suitably qualified specialist personnel in line with all the information material and documentation supplied with the switch and following all instructions contained therein.

The qualified specialist personnel must ensure that they are familiar with all valid standards, regulations, local requirements and specific conditions, in particular the standards, regulations, local requirements and specific conditions relating to explosion protection – and must proceed accordingly.

In potentially explosive atmospheres with gas hazards, the entire installation set-up of the float switch(es) SMR/../...././Ex-.. must always comply with the standard EN 60 079-14 resp. the replacing standard.

Installation is not allowed if an explosive atmosphere is present.
The absence of explosive atmosphere has to be verified by qualified and competent personnel.

You must always read – and adhere to the instructions outlined in - the yellow DIN A 5 leaflet "User information/Instructions for use with mounting, operating and maintenance instructions for the product...". If the leaflet is not supplied with the product or is lost, you must always request a replacement leaflet from Jola.

6. Installation

Fasten the float switch to a suitable counterflange using its connection flange (see product description for dimensions). It can be fastened using the stud bolts in the counterflange and suitable nuts or using suitable bolts and nuts. Secure the nuts using suitable measures that are appropriate for the application in question.
Tighten the nuts evenly and firmly.

When choosing the gasket, make sure that it suits the dimensions of the flange and that it is sufficiently resistant to the liquids to the monitored.
The gasket supplied by Jola is a standard gasket which may not be suitable for all liquids.

Install and fasten the float switch in such a way that, when the switch is in a horizontal position, the float points downwards and the stopper device of the float points upwards.

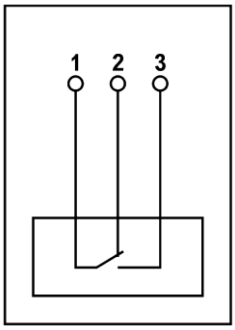
It may be necessary to unscrew the cover of the terminal box in order to fasten the bolts or nuts. In this event, take care to ensure that no moisture or dirt is allowed to get inside the terminal box.

7. Connection

The float switches must be connected **by qualified specialist personnel**.

If intrinsically safe contact protection relays are used, connect the float switches in line with the instructions contained in the corresponding production description for the contact protection relay

Connect the changeover contact of the float switch as shown in the circuit diagram below:



To avoid the danger comming from the static electricity, potential equalisation is necessary with the float switches SMR/../...././Ex-..:

Connect the external earth connection terminal on the flange of the unit to the potential equalisation system.

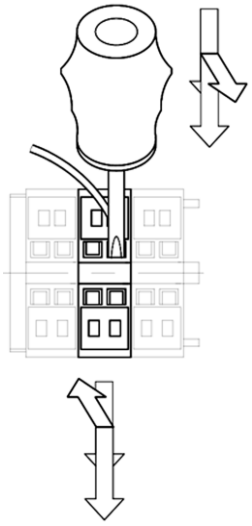
Connection to the potential equalisation system is essential for safe operation and must never be neglected.

In potentially explosive atmospheres with gas hazards, the entire installation set-up must always comply with the standard EN 60 079-14 resp. the replacing standard.

It is important to ensure that the cable used suits the gasket insert of the cable entry and permits optimum sealing, as a non-matching cable will negatively affect the IP protection.

After inserting the cable, fasten the movable part of the cable entry (but do not use unnecessary force) in order to achieve the required IP protection level.

Connect the cable itself as shown below:



Push a screwdriver into the opening as shown in the drawing. Open the relevant terminal by pushing the screwdriver down towards the centre of the terminal block using a lever action.

8. Start-up

Prior to start-up, you must re-check the mounting position, the mechanical fastening and the electrical connection.

In particular, you must check once again that the corresponding, admissible intrinsically safe circuit is connected to the connection terminals of the changeover contact of the float switch, as defined in no. 2.

In addition, you must also check and verify that there is no possibility whatsoever of hazardous conditions occurring due to non-adherence to any of the relevant instructions, standards or official regulations.

After performing the corresponding checks, close the cover of the terminal box of the float switch and tighten the 4 cover screws evenly and firmly but without applying unnecessary force.

Only then may the float switch be started up electrically.

9. Maintenance

The float switch is maintenance-free when used in low-viscosity, non-adhesive liquids that are free of solids and magnetisable particles.
To rule out any risks, however, the float switch must be sight-checked and function-tested by qualified specialist personnel at least once a year.
Where risks cannot be ruled out, you should adhere to an inspection frequency suited to the application in question and laid down in consultation with the relevant supervisory authorities.

If the float switch is installed as a safety element within a system, it must always be inspected and checked at intervals to be agreed with the local supervisory authorities.

Prior to all maintenance work, the qualified specialist personnel must inform themselves of all valid standards, regulations, local guidelines and special conditions, in particular standards, regulations, local guidelines and special conditions concerning explosion protection and proceed accordingly.

10. Repair

All alterations and repairs to the float switch must be performed by the manufacturer's suitably qualified specialist personnel. Under no circumstances may other individuals or companies perform unauthorised alterations or repairs.

11. Disposal

The units must be disposed of by depositing them in conformity with the law at an appropriate collection point for electrical and electronic devices.