

Installation, Operating and Maintenance Instructions for

**Jola magnetic switches
IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../..**

⊕ I M2 Ex ia I Mb or

⊕ II 2 G Ex ia IIC T6 Gb

and

Jola level controllers

IRN/NEM/.../Ex-..

⊕ I M2 c $\Delta T=0$ or

⊕ II 1/2 G c IIC $\Delta T=0$ or

⊕ II 2 G c IIC $\Delta T=0$

**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 magnetic switches and/or level controllers

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CE 0080

IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../...

 I M2 Ex ia I Mb or
 II 2 G Ex ia IIC T6 Gb
or
IRN/NEM/.../Ex-..

 I M2 c $\Delta T=0$ or
 II 1/2 G c IIC $\Delta T=0$ or
 II 2 G c IIC $\Delta T=0$

(serial number)
(production year)

Tamb: + 1°C to + 60°C or - 20°C to + 60°C

INERIS 03ATEX0164

Special precondition for safe use of the level controller
IRN/NEM/.../Ex-0G  II 1/2 G c IIC $\Delta T=0$:

The partition wall of the level controller 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 level controller 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 level controller in order to protect the float switch efficiently against all kind of mechanic damages.

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:

♦ IRN/.../.../Ex-M  I M2

under atmospheric pressure (between 0.8 bar and 1.1 bar)

in above-ground areas which could be at risk due to a potentially explosive atmosphere:

- ◆ IRN/HMW/.../Ex-1G  II 2 G : in Zone 1 or 2
- ◆ IRN/RMW/.../Ex-1G/...  II 2 G : in Zone 1 or 2
- ◆ IRN/NEM/.../Ex-0G  II 1/2 G :
the float and the float rod : in Zone 0, 1 or 2,
the outside of the guide-tube: in Zone 1 or 2
- ◆ IRN/NEM/.../Ex-1G  II 2 G : in Zone 1 or 2

The level controller **IRN/NEM/.../Ex-.. with a mounted magnetic switch** is designed to give off an alarm signal when the liquid level reaches a certain point (e.g. high-level alarm or low-level alarm).

The level controller **IRN/NEM/.../Ex-.. with two mounted magnetic switches** serves 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 use of a level controller **IRN/NEM/.../Ex-.. with several mounted magnetic switches** allows you to perform more complex switching tasks (e.g. overflow protection, high-level alarm, pump ON, pump OFF, low-level alarm, run-dry protection etc.).

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If there is a risk of any kind that **adhesive residues or solid particles** might impair the function of the level controllers IRN/NEM/.../Ex-.., then they are not suitable for the application in question.

The units are not suitable for use in turbulent liquids (e.g. in stirrer tanks).
The units are not suitable for use on vibrating machines or in locations where there is a risk of shock impacts or vibrations.

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All the technical parameters of the magnetic switches and the level controllers are listed in this brochure and the accompanying product description. You must **always observe and follow all the instructions relating to these parameters**. The units 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 floating switches may not be installed, connected and started up.

2. Preconditions for safe use

Maximum values for each magnetic switch IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../...

| Unit | Type designation | Li | Ci |
|-----------------|--|----|----|
| Magnetic switch | IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../... | 0 | 0 |

3. Special requirements/conditions for the safe use of the magnetic switches IRN/HMW/.../Ex-..and IRN/RMW/.../Ex-../...

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.

Always observe all the restrictions specified with regard to the voltage source.

The output parameters of the voltage source must be equivalent to or lower than:

U = 42 V ; I = 0.1 A

Special precondition for safe use of the level controller IRN/NEM/.../Ex-0G II 1/2 G c IIC ΔT=0:

The partition wall of the level controller 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 level controller 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 level controller in order to protect the float switch efficiently against all kind of mechanic damages.

4. Additional conditions for safe operation

The temperature application range of the level controller IRN/NEM/.../Ex-.. without magnetic switches is between - 20°C and + 60°C. The operating temperatures must always be within this range.

The temperature application range of the magnetic switch IRN/HMW/.../Ex-.. is between + 1°C and + 60°C. The operating temperatures must always be within this range.

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

Before using the level controller IRN/NEM/.../Ex-.. or the magnetic switch IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../..., you must ensure that the materials used in the screw-in nipple, the float rod and the float etc. and/or the terminal box are sufficiently chemically and mechanically resistant to the liquids to be monitored and all external influences.

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, start-up and maintenance, general regulations

Installation, connection, start-up and maintenance of the units may only be performed by suitably qualified specialist personnel in line with all the information material and documentation supplied with the units 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 level controllers and the magnetic switches 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 of the level controllers IRN/NEM/.../Ex-.. and the magnetic switches IRN/HMW/.../Ex-.. and IRN/RMW/.../Ex-../...

The level controllers IRN/NEM/.../Ex-.. and the magnetic switches IRN/HMW/.../Ex-.. and IRN/RMW/.../Ex-../... must be installed **by qualified specialist personnel** in accordance with the relevant accepted practices.

When adjusting the position of the magnetic switches IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../... on the guide tube of the level controller IRN/NEM/.../Ex-.., the

qualified specialist personnel must follow the instructions contained in the supplied product documentation.

To alter the position of a magnetic switch IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../... on the guide tube of the level controller IRN/NEM/.../Ex-..., slightly loosen the retaining screw of the hose clip, reposition the magnetic switch, then re-tighten the hose clip, but without applying unnecessary force.

7. Connection

The magnetic switches IRN/HMW/.../Ex-.. and IRN/RMW/.../Ex-../... must be connected **by qualified specialist personnel**.

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

Magnetic switches IRN/HMW/.../Ex-.. and IRN/RMW/.../Ex-../... with connection terminals inside the connection box:

It is important to ensure that the **cable suits the gasket insert of the cable entry of the terminal box and permits correct 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.

Magnetic switches IRN/RMW/.../Ex-../... with free connecting cable and resin filling inside de connection box:

In this case the connection box does not need to be opened and the movable part of the cable entry does not need to be fastened. The free connecting cable has to be connected outside the explosion hazardous area.

If the installation personal wants to connect the free connecting cable inside the explosion hazardous area, it has to be connected inside an Ex connection box which is approved for the corresponding hazardous zone, and this under respect of all standards, regulations, local guidelines and special conditions concerning explosion protection.

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Connection to the potential equalization system:

To avoid the danger coming from the static electricity, potential equalisation is necessary with the magnetic switches IRN/HMW/.../Ex-.. and IRN/RMW/.../Ex-../... and the level controllers IRN/NEM/.../Ex-...:

All the appropriately marked external potential equalisation terminals and connection devices of each apparatus have to be connected to the potential equalisation system.

Connection to the potential equalization 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.

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 unit/unit(s) is (are) also connected to the corresponding, admissible intrinsically safe circuit(s).

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 each magnetic switch IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../... and the cover of the Ex connection box for the cable(s) of the IRN/RMW/.../Ex-../... equipped with free connecting cable and tighten the cover screws evenly and firmly but without applying unnecessary force.

Only then may the unit in question be started up electrically.

9. Maintenance

The level controllers IRN/NEM/.../Ex-.. fitted (or not fitted) with magnetic switches IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../... are maintenance-free when used in low-viscosity, non-adhesive liquids that are free of solids and do not attack the component materials.

To rule out any risks, however, the level controllers IRN/NEM/.../Ex-.. and the magnetic switch(es) IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../... 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 level controller IRN/NEM/.../Ex-.. or the magnetic switch IRN/HMW/.../Ex-.. or IRN/RMW/.../Ex-../... 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.