

Installation, Operating and Maintenance Instructions for

**Jola Electrode Relay
NR 5/Ex  I (M1) / II (1) GD
[Ex ia Ma] I
[Ex ia Ga] IIC
[Ex ia Da] IIIC**

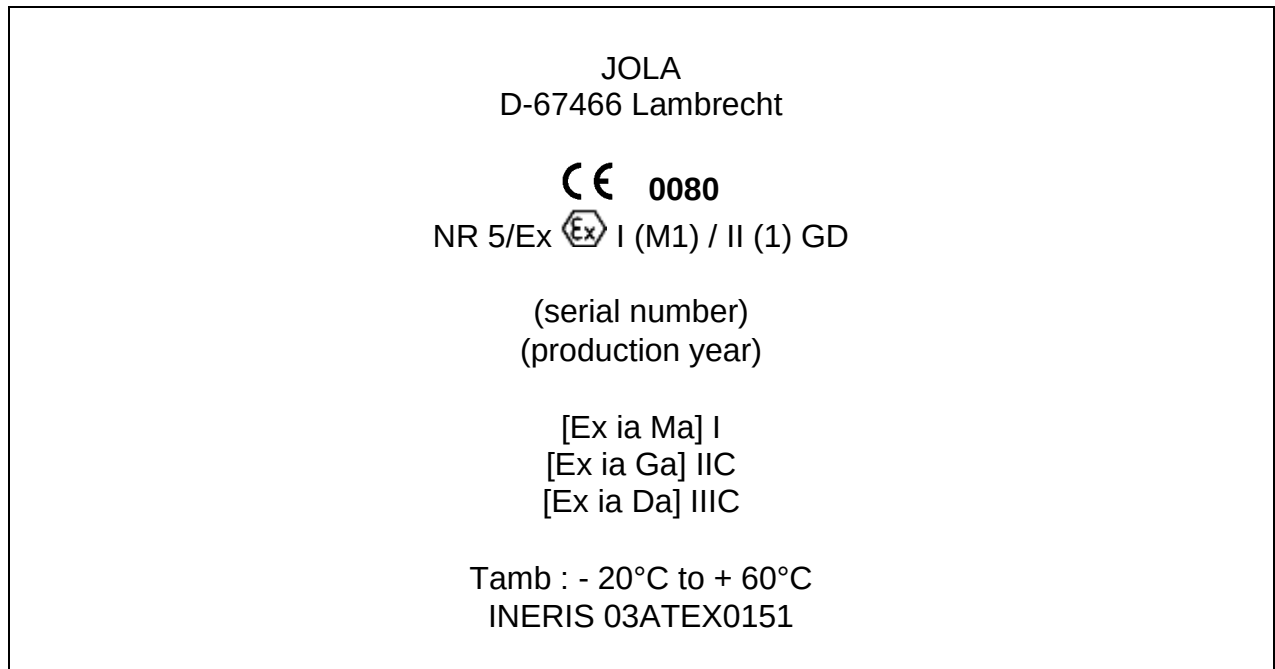
**These Installation, Operating and Maintenance
Instructions must always be handed over to the
fitter/operator/service personnel
of our products together with all other user
documentation and information!**

**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 electrode relay NR 5/Ex



is designed to transmit electrical signals coming **from one or more conductive electrodes installed in a potentially explosive atmosphere** to non-hazardous areas. **The electrode relay NR 5/Ex must be installed outside potentially explosive atmospheres or be protected by a suitable standardised ignition protection class.**

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The conductive electrodes are, **for example, used for leakage detection or for the automatic control of pumps or solenoid valves or for the purpose of overflow or run-dry protection in tanks.**

All the **technical parameters of the conductive electrodes and/or the electrode relay** are listed in this brochure and/or the accompanying product descriptions. These documents also contain the corresponding **installation recommendations**. **You must always observe and follow all the instructions relating to these parameters and installation recommendations. The relay may not be used for applications outside the specified parameter range.**

If the product descriptions are not supplied with the products or are lost, **you must always request a copy of the descriptions prior to installation, connection or start-up and ensure that they are read and observed by the suitably qualified specialist personnel. Otherwise the conductive electrodes and/or the electrode relay may not be installed, connected and started up.**

2. Preconditions for safe use

◆ Maximum parameters of the conductive electrodes

The maximum parameters of the conductive electrodes are listed in the corresponding product documentation.

◆ Special requirements/conditions for the safe use of the conductive electrodes

The special requirements/conditions for the safe use of the conductive electrodes are listed in the corresponding product documentation.

◆ Maximum parameters of the electrode relay NR 5/Ex

Rated supply voltages (terminals J15, J16):

$U = \text{AC } 24 \text{ V, AC } 110 \text{ V, AC } 115 \text{ V, AC } 230 \text{ V or AC } 240 \text{ V}$

Maximum electrical parameters of the electrical circuit connected to terminals J9, J10 and J11:

$U_{\text{max.}} = 250 \text{ V; } I_{\text{max.}} = 4 \text{ A, but max. } P = 100 \text{ VA}$

Maximum electrical parameters at output terminals J6 and J7:

$U_0 = 22 \text{ V; } I_0 = 6 \text{ mA, but max. } P_0 = 31.8 \text{ mW}$

Maximum electrical parameters at output terminals (J1, J6) or (J1, J7):

$U_0 = 11.5 \text{ V; } I_0 = 11.6 \text{ mA, but max. } P_0 = 64 \text{ mW}$

◆ Special requirements/conditions for the safe use of the electrode relay NR 5/Ex

The electrode relay NR 5/Ex must be **installed outside potentially explosive atmospheres** or be protected by a suitable standardised ignition protection class.

The electrical circuits connected to terminals J6 and J7
must be approved for use

- in above-ground areas which could be at risk due to a potentially explosive atmosphere caused by gases (groups IIC, IIB or IIA) or
 - 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 (group I) or
 - in above-ground areas which could be at risk due to a potentially explosive atmosphere caused by dusts
- and their suitability in terms of intrinsic safety must be ensured.

The maximum parameters of the external circuits that may be connected are as follows:

For explosion group IIC	For explosion group IIB and for dust	For explosion groups IIA and I
$C_0(L=0) = 165 \text{ nF}$ $L_0(C=0) = 672 \text{ mH}$ or $L_0/R_0 = 350 \text{ } \mu\text{H/}\Omega$	$C_0(L=0) = 1.14 \text{ } \mu\text{F}$ $L_0(C=0) = 972 \text{ mH}$ or $L_0/R_0 = 510 \text{ } \mu\text{H/}\Omega$	$C_0(L=0) = 4.2 \text{ } \mu\text{F}$ $L_0(C=0) = 972 \text{ mH}$ or $L_0/R_0 = 510 \text{ } \mu\text{H/}\Omega$

The electrical circuits connected to terminals J6, J1 or J7, J1 must be approved for use

- in above-ground areas which could be at risk due to a potentially explosive atmosphere caused by gases (groups IIC, IIB or IIA) or
 - 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 (group I) or
 - in above-ground areas which could be at risk due to a potentially explosive atmosphere caused by dusts
- and their suitability in terms of intrinsic safety must be ensured.

The maximum parameters of the external circuits that may be connected are as follows:

For explosion group IIC	For explosion group IIB and for dust	For explosion groups IIA and I
Co(L=0) = 1.62 μ F Lo(C=0) = 172 mH or Lo/Ro = 156 μ H/Ohm	Co(L=0) = 11.1 μ F Lo(C=0) = 672 mH or Lo/Ro = 707 μ H/Ohm	Co(L=0) = 45 μ F Lo(C=0) = 972 mH or Lo/Ro = 1.05 mH/Ohm

3. Additional conditions for safe operation

Before using the conductive electrodes, you must ensure that the materials used in the respective conductive electrode are sufficiently chemically and mechanically resistant to the liquid to be monitored and all other 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.

4. Installation, connection, start-up and maintenance, general regulations

Installation, connection, start-up and maintenance of the conductive electrodes and the electrode relay 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.

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.

5. Installation and connection of the electrode relay NR 5/Ex

The electrode relay NR 5/Ex must be installed outside potentially explosive atmospheres or be protected by a suitable standardized ignition protection class.

The entire installation set-up must always comply with the standard EN 60 079-14 resp. the replacing standard.

The unit is designed exclusively for installation in a switch cabinet or in a suitable protective housing and may therefore only be installed in these locations. It is only suitable for use in clean environments.

6. Start-up

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

In particular, you must check once again that the electrodes are 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.

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

7. Maintenance

The maintenance intervals are listed in the product documentation for the conductive electrodes.

To rule out any risks, however, the conductive electrodes and electrode relay 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 conductive electrode(s) and electrode relay are installed as safety elements within a system, they 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.



8. Repair

All alterations and repairs to the conductive electrode(s) and/or the electrode relay NR 5/Ex must be performed in the manufacturer's facility. Under no circumstances may other individuals or companies perform unauthorised alterations or repairs.

9. 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.



EU Declaration of Conformity

Jola Spezialschalter GmbH & Co. KG
Klostergartenstr. 11
67466 Lambrecht (Germany)

declares as manufacturer under its sole responsibility that the following product, which is new and designed for use in potentially explosive atmospheres:

Electrode Relay
NR 5/Ex  I (M1) / II (1) GD
[Ex ia Ma] I
[Ex ia Ga] IIC
[Ex ia Da] IIIC

complies with:

the directive 2014/34/EU (ATEX directive),
the directive 2014/30/EU (EMC directive) and
the directive 2011/65/EU (RoHS directive)

and the standards:

EN 60079-0:2012,

EN 60079-11:2012

and DIN EN 61326-1 (VDE 0843-20-1):2013-07, EN 61326-1:2013

Emission: Limits for Class B equipment according to EN 55011;

Immunity: Immunity test requirements for equipment in industrial areas

and the design types (according to annex III of directive 94/9/EC or 2014/34/EU) of EC type examination certificate no 03ATEX0151 and its addendums 1, 2, 3 and 4, issued by INERIS, rue J. Taffanel, 60550 Verneuil-en-Halatte (France), notified body, with the number 0080.

The standard EN 60079-0:2012 is not harmonised any more. Neither the changes of the type classified as “extension” nor the changes of the type classified as “major technical changes” of the standard EN 60079-0:2012+A11:2013 and the new harmonized standard EN IEC 60079-0:2018 have, however, an impact on the conformity of the equipment.

The production facility in Lambrecht has got the quality assurance notification n° 03ATEXQ405 for the production according to annex IV and VII of directive 94/9/EC or 2014/43/EU. The approval was issued by INERIS, rue J. Taffanel, 60550 Verneuil-en-Halatte (France), notified body with the number 0080.

Lambrecht, 10 August 2022



Volker Mattil, Product manager