Installation, Operating and Maintenance Instructions for

Jola Leakage Detectors
COW/Ex-0G Ex II 1 G Ex ia IIC T5 Ga and
COW/Ex-0BG Ex II 1 G Ex ia IIB T5 Ga and
COW/Ex-1G Ex II 2 G Ex ia IIC T5 Gb and
COW/Ex-M Ex I M2 Ex ia I Mb and
OWE/Ex-0G Ex II 1 G Ex ia IIC T5 Ga and
OWE/Ex-0BG Ex II 1 G Ex ia IIB T5 Ga and
OWE/Ex-1G Ex II 2 G Ex ia IIC T5 Gb and
OWE/Ex-M Ex I M2 Ex ia I Mb and
OWE 2/C/NL/Ex-1G Ex II 2 G Ex ia IIB T4 Gb and
OWE 2/C/NL/Ex-M Ex I M2 Ex ia I Mb
and the system with
the obligatory connection box
OAK/LMT/2x1MΩ Ex II 2 G Ex ia IIC T6 Gb
Ex I M2 Ex ia I Mb and
the Jola Relay Leckmaster 101/Ex 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 combination of a leakage detector COW/Ex..., OWE/Ex... or OWE 2/C/NL/Ex...,

JOLA
D-67466 Lambrecht

CE 0080

COW/Ex-0G Ex II 1 G Ex ia IIC T5 Ga and
COW/Ex-0BG Ex II 1 G Ex ia IIB T5 Ga and
COW/Ex-1G Ex II 2 G Ex ia IIC T5 Gb and
COW/Ex-M Ex I M2 Ex ia I Mb and

OWE/Ex-0G Ex II 1 G Ex ia IIC T5 Ga and
OWE/Ex-0BG Ex II 1 G Ex ia IIB T5 Ga and
OWE/Ex-1G Ex II 2 G Ex ia IIC T5 Gb and
OWE/Ex-M Ex I M2 Ex ia I Mb and

OWE 2/C/NL/Ex-1G Ex II 2 G Ex ia IIB T4 Gb and
OWE 2/C/NL/Ex-M Ex I M2 Ex ia I Mb

(serial number)
(production year)

Tamb : - 20°C to + 60°C
INERIS 03ATEX0160

an obligatory connection box OAK/LMT/2x1MΩ and a relay Leckmaster 101/Ex is designed to transmit electrical switching signals coming
from a leakage detector installed

in an above-ground area which could be at risk due to a potentially explosive atmosphere

- **COW/Ex-0G, COW/Ex-0BG, OWE/Ex-0G and OWE/Ex-0BG Ex II 1 G : in zone 0, 1, or 2**
- **COW/Ex-1G, OWE/Ex-1G and OWE 2/C/NL/Ex-1G Ex II 2 G : in zone 1 or 2**

in an underground area in mines as well as in an above-ground area of mines which could be at risk due to firedamp and/or flammable dusts

- **COW/Ex-M, OWE/Ex-M and OWE 2/C/NL/Ex-M Ex I M2**

to non-hazardous areas via a **relay Leckmaster 101/Ex**.

The components of the system can/have to be installed:

<table>
<tr><th colspan="2">in above-ground areas which could be at risk due to a potentially explosive atmosphere</th><th rowspan="2">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</th><th rowspan="2">only outside potentially explosive atmospheres</th></tr>
<tr><th>zone 0, 1 or 2</th><th>zone 1 or 2</th></tr>
<tr><td rowspan="2">COW/Ex-0G,
COW/Ex-0BG,
OWE/Ex-0G and
OWE/Ex-0BG
Ex II 1 G</td><td>COW/Ex-1G,
OWE/Ex-1G and
OWE 2/C/NL/Ex-1G
Ex II 2 G</td><td>COW/Ex-M,
OWE/Ex-M and
OWE 2/C/NL/Ex-M
Ex I M2</td><td rowspan="2">Leckmaster 101/Ex
Ex I (M1) /
II (1) GD
[Ex ia Ma] I
[Ex ia Ga] IIC
[Ex ia Da] IIIC</td></tr>
<tr><td>OAK/LMT/2x1MΩ
Ex II 2 G</td><td>OAK/LMT/2x1MΩ
Ex I M2</td></tr>
</table>

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The leakage detectors COW/Ex..., OWE/Ex... and OWE 2/C/NL/Ex... are designed to detect the presence of low-viscosity, electrically conductive and/or electrically non-conductive liquids in normally dry environments - such as the presence of liquid on the floor of a collection tub.
These electrically conductive/electrically non-conductive liquids can be organic or inorganic liquids with a specific dielectric constant between 1.8 and 109.
The response height of the leakage detectors is approx. 12 mm from the lower edge of the sensor.

Each leakage detector COW/Ex..., OWE/Ex... or OWE 2/C/NL/Ex... must be connected via an obligatory connection box OAK/LMT/2x1MΩ to a separate relay Leckmaster 101/Ex.

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All **the technical parameters of the leakage detectors and/or the 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 units 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 leakage detector and/or the relay may not be installed, connected and started up.**

2. Preconditions for safe use

- **Maximum parameters of the leakage detectors COW/Ex..., OWE/Ex... and OWE 2/C/NL/Ex... fitted with a connecting cable**

Electrode type	Type designation	Li	Ci
Leakage detector	COW/Ex...	1.1mH + 1µH per metre connecting cable	220 nF + 200 pF per metre connecting cable
Leakage detector	OWE/Ex...		
Leakage detector	OWE 2/C/NL/Ex...	0 + 1µH per metre connecting cable	80 nF + 200 pF per metre connecting cable

- **Special requirements/conditions for the safe use of the leakage detectors COW/Ex..., OWE/Ex... and OWE 2/C/NL/Ex...**

  Power supply to the leakage detector COW/Ex..., OWE/Ex... or OWE 2/C/NL/Ex... must be via a voltage source which is approved - depending on the application - for use in potentially explosive atmospheres with gas hazards in explosion groups IIC, IIB or IIA, with an output circuit which is approved as intrinsically safe.

  The maximum output parameters of this voltage source must not exceed the following values:
  - COW/Ex... and OWE/Ex... : Ui = 10.5 V ; Ii = 0.08 A and Pi = 0.2 W,
  - OWE 2/C/NL/Ex... : Ui = 10.5 V ; Ii = 0.16 A and Pi = 0.5 W.

- **Maximum parameters of the relay Leckmaster 101/Ex**

  Rated supply voltages (terminals J15, J16):
  U = AC 24 V, AC 110 V, AC 115 V, AC 230 V or AC 240 V

  Maximum electrical parameters of the electrical circuit connected to terminals J9, J10 and J11:
  Umax. = 250 V; Imax. = 4A, **but max. P = 100 VA**

  Maximum electrical parameters at output terminals J6 and J8:
  Uo = 10.5 V; Io = 24 mA, but max. Po = 0.13 W

- **Special requirements/conditions for the safe use of the relay Leckmaster 101/Ex**

  The maximum parameters of the external circuits that may be connected to terminals J6 and J8 are as follows:

For explosion group IIC	For explosion group IIB	For explosion group IIA
Co(L=0) = 2.4 µF Lo(C=0) = 32 mH or Lo/Ro = 74 µH/Ohm	Co(L=0) = 17 µF Lo(C=0) = 207 mH or Lo/Ro = 478 µH/Ohm	Co(L=0) = 77 µF Lo(C=0) = 457 mH or Lo/Ro = 1.06 mH/Ohm

3. Additional conditions for safe operation

The temperature application range of the leakage detectors COW/Ex..., OWE/Ex... and OWE 2/C/NL/Ex...is between -20°C and + 60°C. The operating temperatures must always be within this range.

Before using the leakage detector, you must ensure that the materials used in the respective leakage detector are sufficiently chemically and mechanically resistant to the liquids 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 leakage detectors and the 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 installation 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 leakage detector COW/Ex..., OWE/Ex... or OWE 2/C/NL/Ex... the obligatory connection box OAK/LMT/2x1MΩ and the relay Leckmaster 101/Ex must always comply with the standard EN 60 079-14 resp. the replacing standard.

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 of the leakage detectors COW/Ex..., OWE/Ex... and OWE 2/C/NL/Ex...

Installation location

The leakage detectors COW/Ex..., OWE/Ex... and OWE 2/C/NL/Ex... may only be used in normally dry environments – such as collection rooms or collection tubs.
They should be used at the lowest possible point to ensure rapid leakage alarm.

Installation details

The leakage detectors can be installed using the standard JOLA mounting stands. Where this is not feasible, however, the leakage detector should be suspended just above the floor from above. In both cases, the cable of the leakage detector in question must be routed through an installation tube in such a way that it cannot move. The fastening device must ensure that the sensor cannot be knocked over by external influences. At the same time, the fastening mode must not affect the response sensitivity of the sensor.

If the leakage detector COW/Ex..., OWE/Ex... or OWE 2/C/NL/Ex... is used in extremely confined spaces where none of the mounting modes outlined above are feasible, it can be suspended from its connecting cable. Having been lowered to the lowest point, the connecting cable is then fastened in place using suitable fastening materials at the point from which it is suspended. It can be fastened in place using a stuffing gland, a terminal box with integrated stuffing gland or one or more cable fastening clips.
You should always ensure that the sensor is in the lowest possible position, that it is suspended in a straight line with the cable pointing upwards, and that its position cannot be affected by external influences.

6. Mounting of the relay Leckmaster 101/Ex

See the Installation, Operating and Maintenance Instructions for the Jola relay Leckmaster 101/Ex.

7. Connection in the form of an intrinsically safe system

The intrinsically safe system composed of the
leakage detector COW/Ex... or OWE/Ex... or OWE 2/C/NL/Ex...,
the obligatory connection box OAK/LMT/2x1MΩ and the relay Leckmaster 101/Ex must be installed and connected according to the connection diagrams
58P-7544a dated 24/06/2015,
58P-7548a dated 24/06/2015,
58P-7553a dated 24/06/2015,
58P-7550a dated 24/06/2015,
90P-7585-1 dated 26/07/2013,
58P-7546a dated 24/06/2015,
58P-7555a dated 24/06/2015,
58P-7557a dated 24/06/2015 and
90P-7586-1 dated 26/07/2013 to be found in the annex.

Always observe the following when connecting the unit:

- **Potential equalisation**

  Connection
  of the potential equalisation terminal of the optional mounting stand and
  of the potential equalisation terminal of the obligatory connection box OAK/LMT/2x1MΩ and
  of the potential equalisation terminal of the optional connection box
  to the potential equalisation system is essential for safe operation and must never be neglected.

  You must also always ensure that you are connecting to the potential equalisation system (PA) and not a protection earth (PE).

  In potentially explosive atmospheres with gas hazards, the entire installation set-up of the leakage detector COW/Ex..., OWE/Ex... or OWE 2/C/NL/Ex... the obligatory connection box OAK/LMT/2x1MΩ and the relay Leckmaster 101/Ex must always comply with the standard EN 60 079-14 resp. the replacing standard.

- **Connecting cables**

  Use connecting cables with two conductors to connect the leakage detector COW/Ex... or OWE/Ex... or OWE 2/C/NL/Ex... **via the obligatory connection box OAK/LMT/2x1MΩ** and eventually via a supplementary optional connection box to the relay Leckmaster 101/Ex.

  The connecting cables must possess a dielectric strength of at least AC 500 V test voltage.

  Each conductor must have a cross section greater than or equal to 0.017 mm².

  The maximum admissible total length of all connecting cables taken together is 1000 (one thousand) metres.

  In all cases, the parameters of these cables must be below or equal to the following values:
  C(lin.) = 200 pF/m and L(lin.) = 1µH/m.

- **Obligatory connection box**

  The intrinsically safe system composed of the
  leakage detector COW/Ex... or OWE/Ex... or OWE 2/C/NL/Ex...,
  the obligatory connection box OAK/LMT/2x1MΩ and the relay Leckmaster 101/Ex must be installed and connected according to the connection diagrams
  58P-7544a dated 24/06/2015,
  58P-7548a dated 24/06/2015,
  58P-7553a dated 24/06/2015,
  58P-7550a dated 24/06/2015,
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  58P-7555a dated 24/06/2015,
  58P-7557a dated 24/06/2015 and
  90P-7586-1 dated 26/07/2013 to be found in the annex.

  The installation personnel has to control that the two resistors of 1 MOhm each are present and correctly connected as shown on the above mentioned connection diagrams.

- **Optional terminal box**

  The protection class of each terminal box must be at least IP20.
  The terminal box(es) must be **approved** for use in potentially explosive atmospheres.

  If the **terminal box is made of an electrically conductive material**, the **dielectric strength** between the intrinsically safe circuit and the electrically conductive body of the terminal box must be **greater than or equal to AC 500 V**.

- **Connection terminals**

  Manufacturer: Weidmüller or other manufacturer.
  Type: AKZ4 - PA blue or other connection terminal with equivalent technical data.

- **Dielectric strength between the intrinsically safe circuit and an adjacent non-intrinsically safe circuit**

  The **dielectric strength** between the intrinsically safe circuit and an adjacent non-intrinsically safe circuit **must be greater than or equal to AC 1500 V.**

8. Start-up

Prior to start-up, you must re-check the mounting position, the mechanical fastening and the electrical connection of the units.
In particular, you must check once again that the leakage detector is also connected to the corresponding, admissible intrinsically safe circuit.

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.
You must then perform the first maintenance routine.

9. Response in the event of an alarm

Following every alarm, the leakage detector in question, the connecting cable and the operating area must be cleaned thoroughly.

If the leakage detector or its cable show signs of mechanical or chemical aggression, the leakage detector must be replaced.

10. Maintenance

The leakage detector and the relay must be serviced at regular intervals by **qualified specialist personnel**. The intervals depend on the risk of soiling to the leakage detector and its environment.
The units must, however, be serviced directly after start-up.
To rule out any risks, the leakage detector and the relay must be serviced 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 leakage detector and the 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.

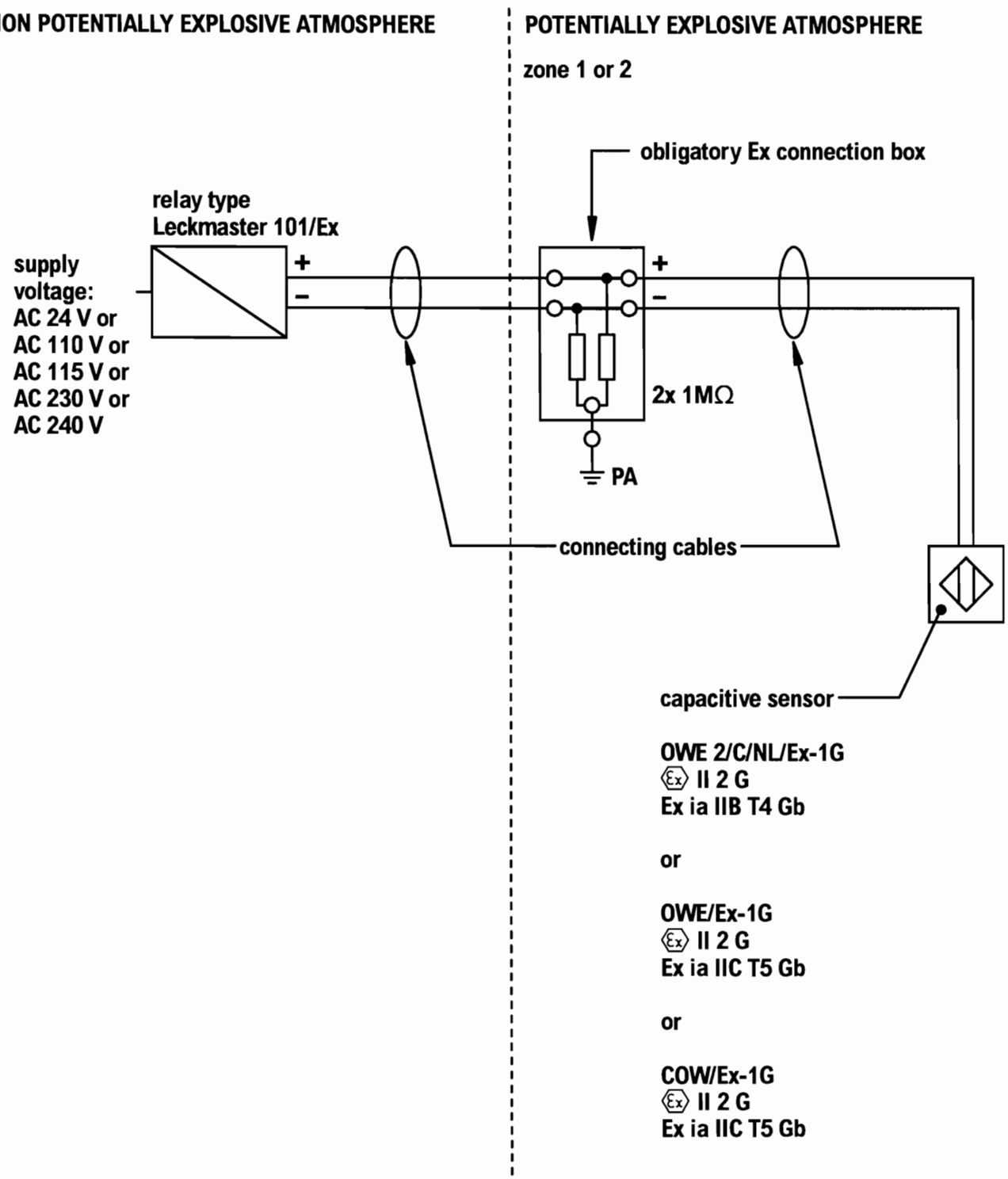
Maintenance work should include the following:

- Cleaning of the leakage detector and the surrounding area.
  Important information for the leakage detector OWE 2/C/NL/Ex-...:
  Caution! Danger of electrostatic charging! Wipe down or clean using a moist cloth only!
- Sight check of the leakage detector to ensure clean, flawless condition,
- Function check of the leakage detector using the liquid to be monitored – or, where this is not possible, using a liquid that is comparable to the liquid to be monitored in terms of dielectric constant, followed by cleaning and drying of the leakage detector,
- Disconnection of a leakage detector connecting cable in the junction box nearest the leakage detector – or, where the cable of the leakage detector is not routed through a junction box, on the relay – in order to check the cable break monitoring feature. Proper functioning of the cable break monitoring feature is signalled by the yellow flashing of the LED of the relay Leckmaster 101/Ex.

11. Repair

All alterations and repairs to the leakage detector COW/Ex..., OWE/Ex... or OWE 2/C/NL/Ex..., the obligatory connection box OAK/LMT/2x1MΩ and the relay Leckmaster 101/Ex must be performed in the manufacturer's facility.
Under no circumstances may other individuals or companies perform unauthorised alterations or repairs.

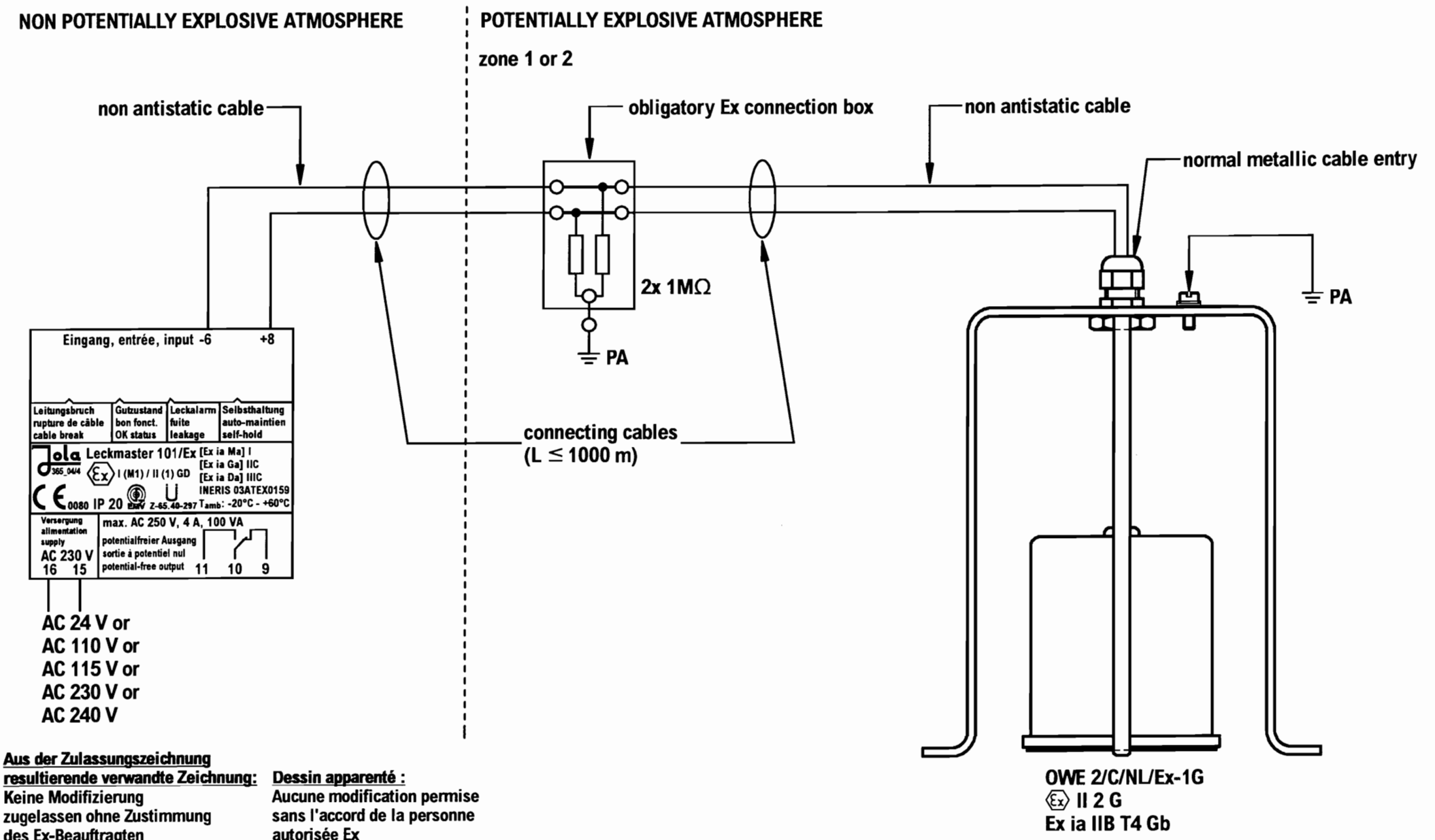
SYNOPTIC OF THE SYSTEM



Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

Dessin apparenté :
Aucune modification permise sans l'accord de la personne autorisée Ex

					Datum	Name	Schematic diagram for connection of COW/Ex-1G or OWE…/Ex-1G + Leckmaster 101/Ex	
				Bearb.	25.03.13	Kissel		
				Gepr.	24.06.15			
					Jola		58P-7544a	Blatt
a	T6 in T5/T4 geändert	22.06.15	Kuhn					von Seiten
Zust.	Änderung	Datum	Name				Ers. für:	Ers. durch:



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Zust.	Änderung	Datum	Name
a	T6 in T4 geändert	22.06.15	Kuhn

Schematic diagram for connection of the liquid leakage detector OWE 2/C/NL/Ex-1G to the Leckmaster 101/Ex relay

	Datum	Name
Bearb.	25.03.13	Kissel
Gepr.	24.06.15	

Zchng. Nr.: 58P-7548a

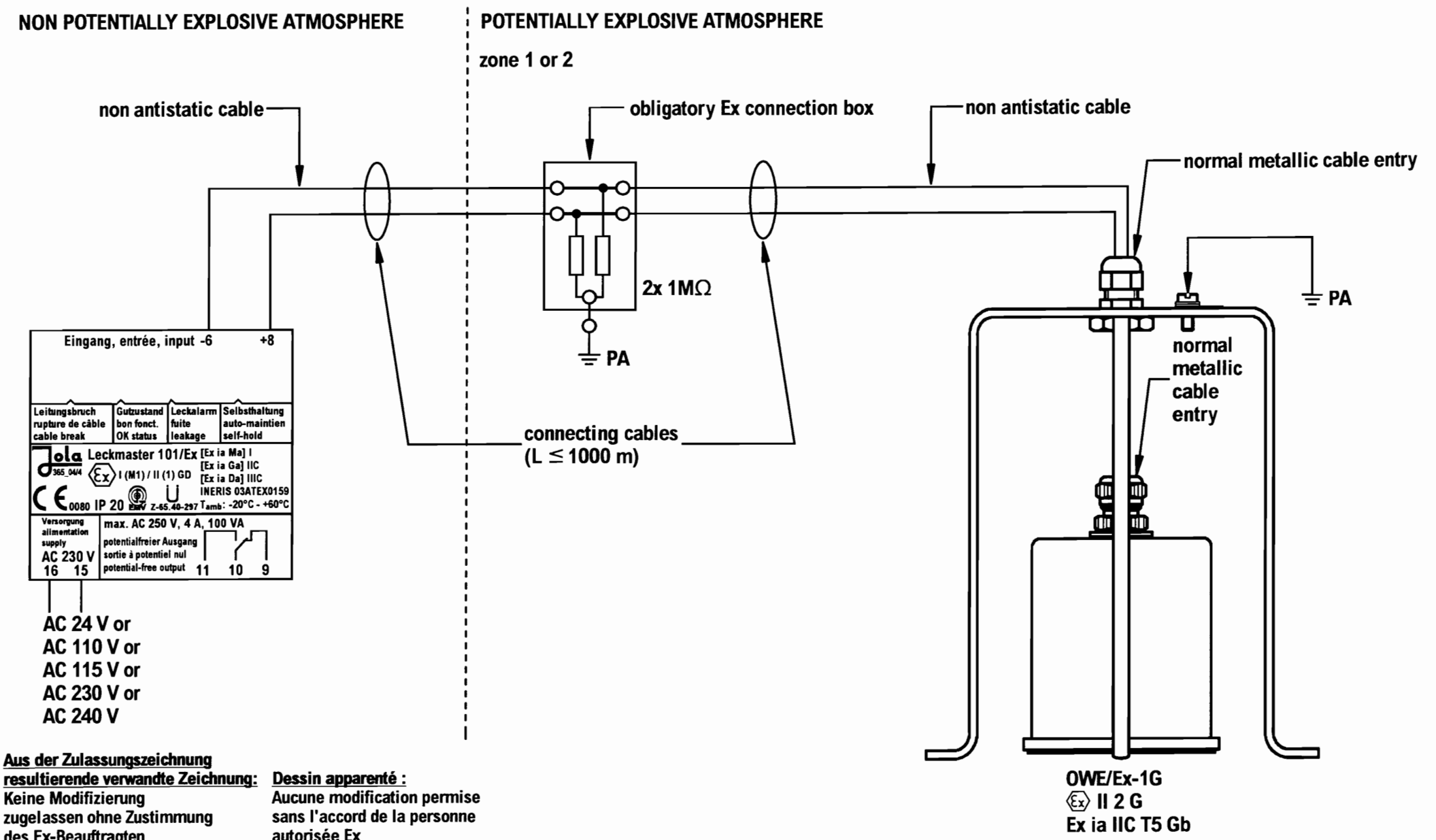
Jola

Ers. für:

Blatt

von Seiten

Ers. durch:



Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

Dessin apparenté :
Aucune modification permise sans l'accord de la personne autorisée Ex

				Schematic diagram for connection of the liquid leakage detector OWE/Ex-1G to the Leckmaster 101/Ex relay		Datum	Name	Zchng. Nr.:	Blatt
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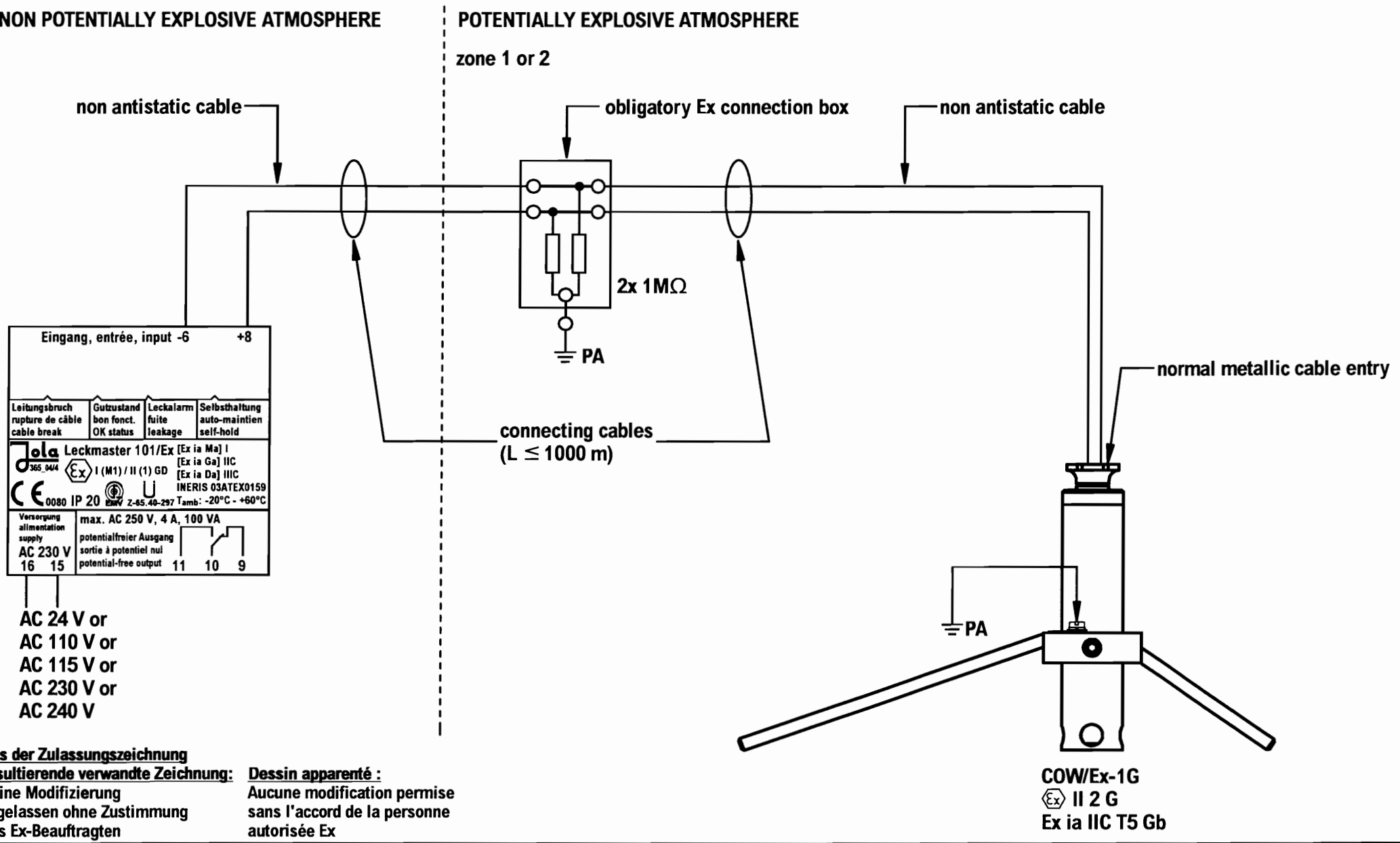


Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

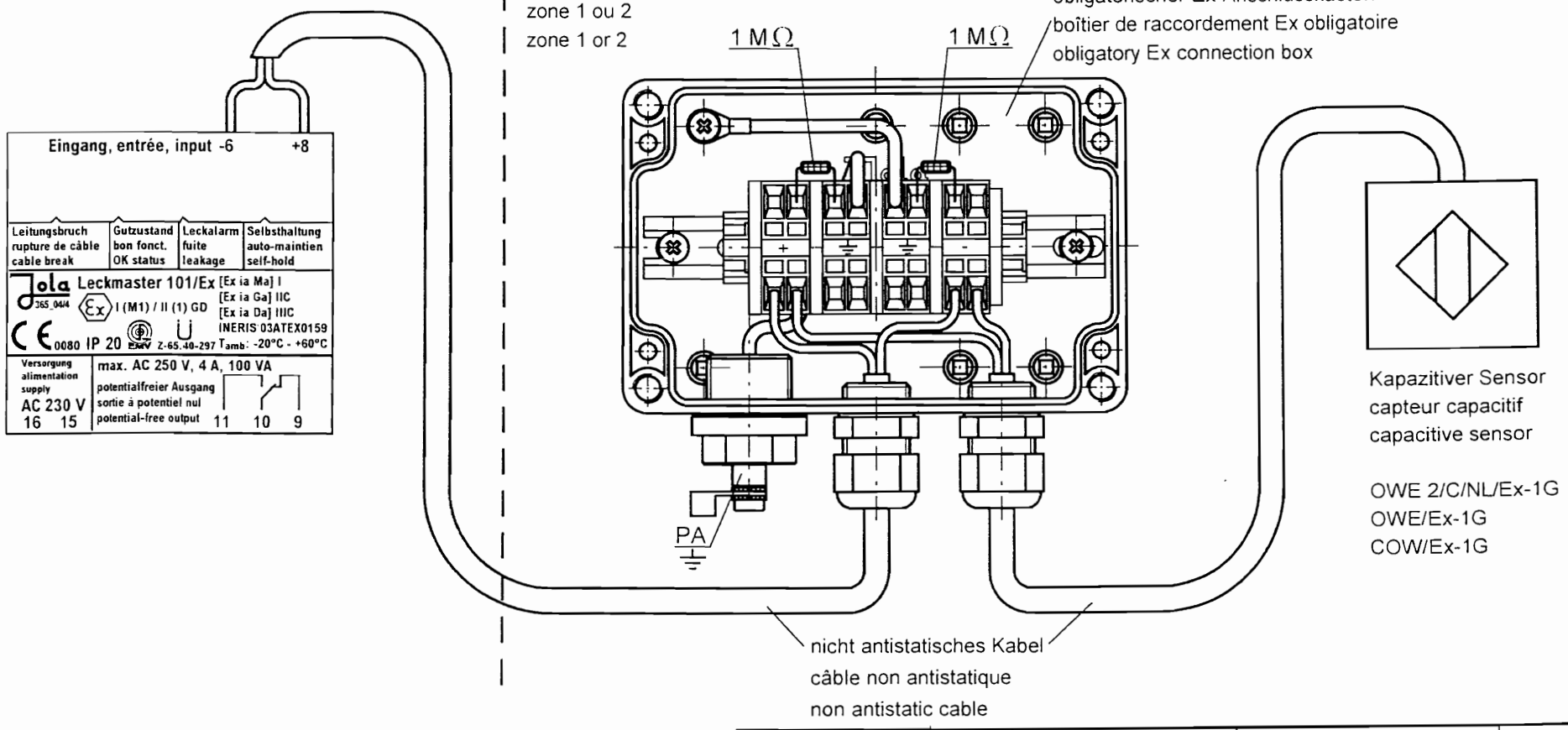
Dessin apparenté :
Aucune modification permise sans l'accord de la personne autorisée Ex

				Schematic diagram for connection of the liquid leakage detector COW/Ex-1G to the Leckmaster 101/Ex relay		Datum	Name	Zchng. Nr.:	Blatt
a	T6 in T5 geändert	22.06.15	Kuhn		Bearb.	25.03.13	Kissel	58P-7550a	von Seiten
Zust.	Änderung	Datum	Name		Gepr.	24.06.15		Ers. für:	Ers. durch:

NICHT EXPLOSIONSGEFÄHRDETER BEREICH
HORS ATMOSPHERE EXPLOSIVE
NON POTENTIALLY EXPLOSIVE ATMOSPHERE

EXPLOSIONSGEFÄHRDETER BEREICH
ATMOSPHERE EXPLOSIVE
POTENTIALLY EXPLOSIVE ATMOSPHERE

Zone 1 oder 2
zone 1 ou 2
zone 1 or 2

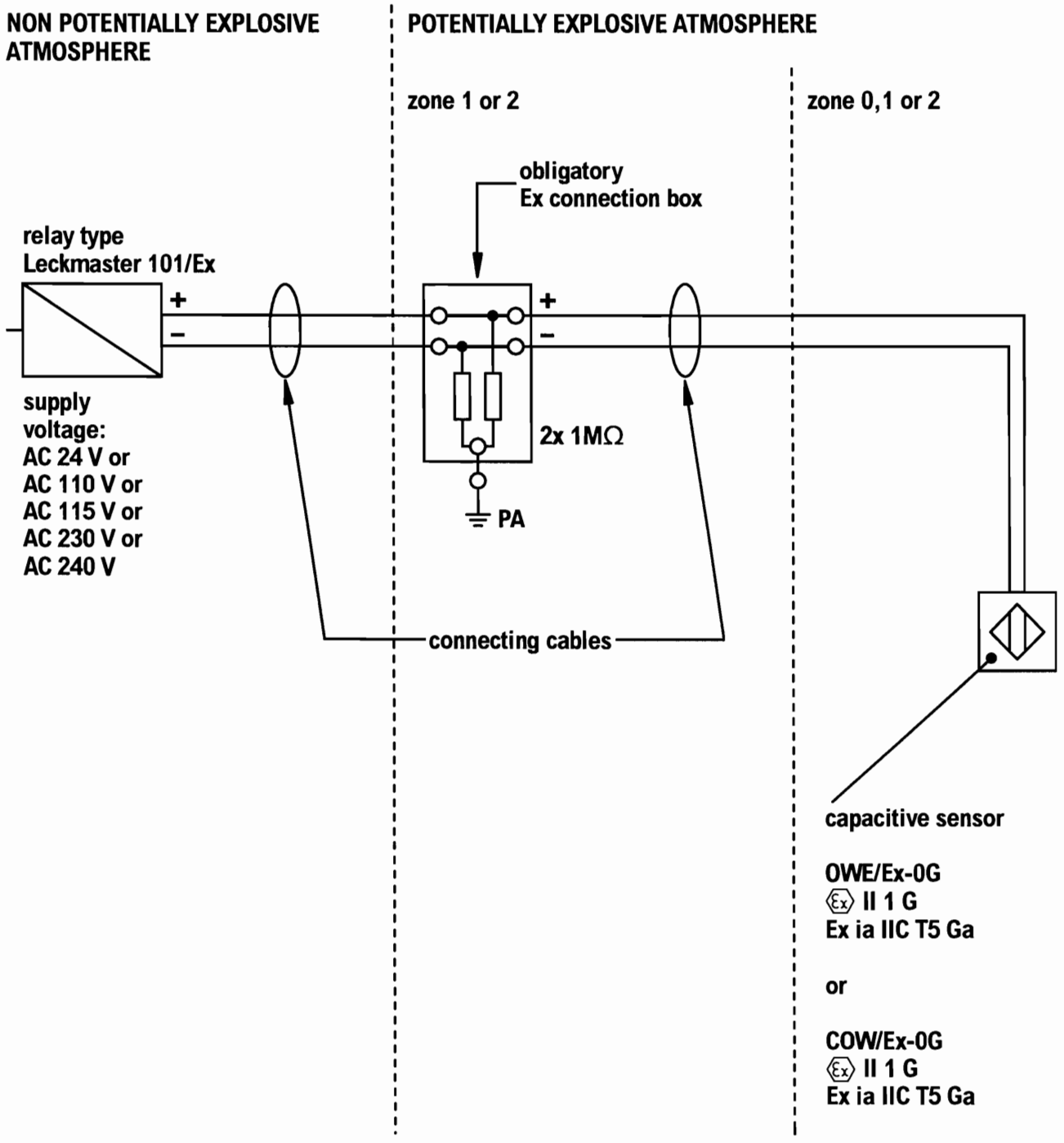


Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

Dessin apparenté :
aucune modification
permise sans l'accord
de la personne autorisée Ex

Ex 26.07.2013 Lager Nr. -				Allgemeintoleranzen DIN ISO 2768-m			Maßstab 1:1.5 Gewicht [kg]:
							Werkstoff: Rohteil:
					Datum	Name	
				Bearb.	05.04.2013	Kissel	Obligatorischer Anschlusskasten
				Gepr.	24.07.13		OAK/LMT/2x1MOhm
				Norm			
				CAD: C:00011070.SZA			
1	OAK+PA-Durchf.	01.07.2013	Kuhn				90P-7585 Index: 1 Blatt von Bl.
Zust.	Änderung	Datum	Name	Urspr.			Ers. f.: Ers. d.:

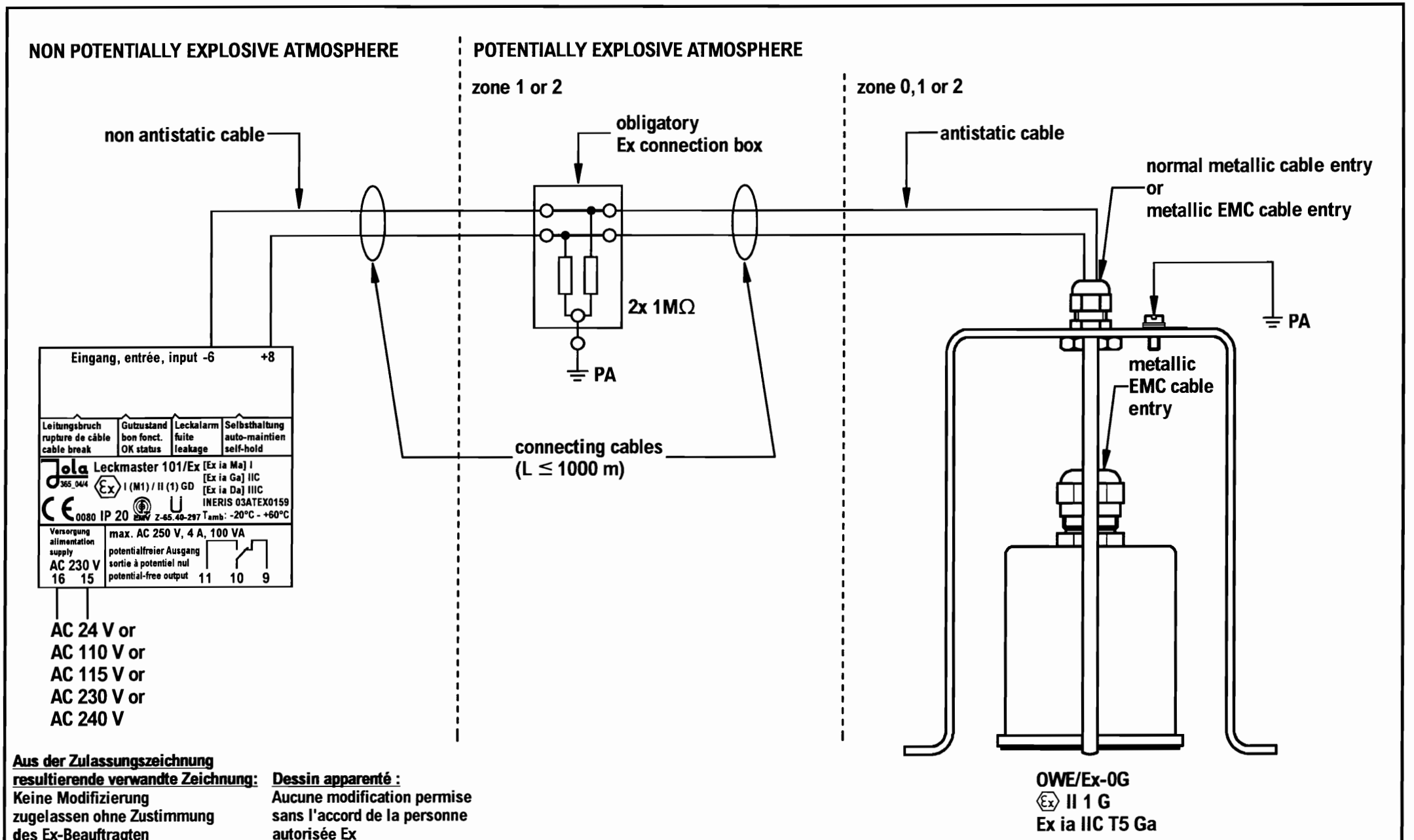
SYNOPTIC OF THE SYSTEM



Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

Dessin apparenté :
Aucune modification permise sans l'accord de la personne autorisée Ex

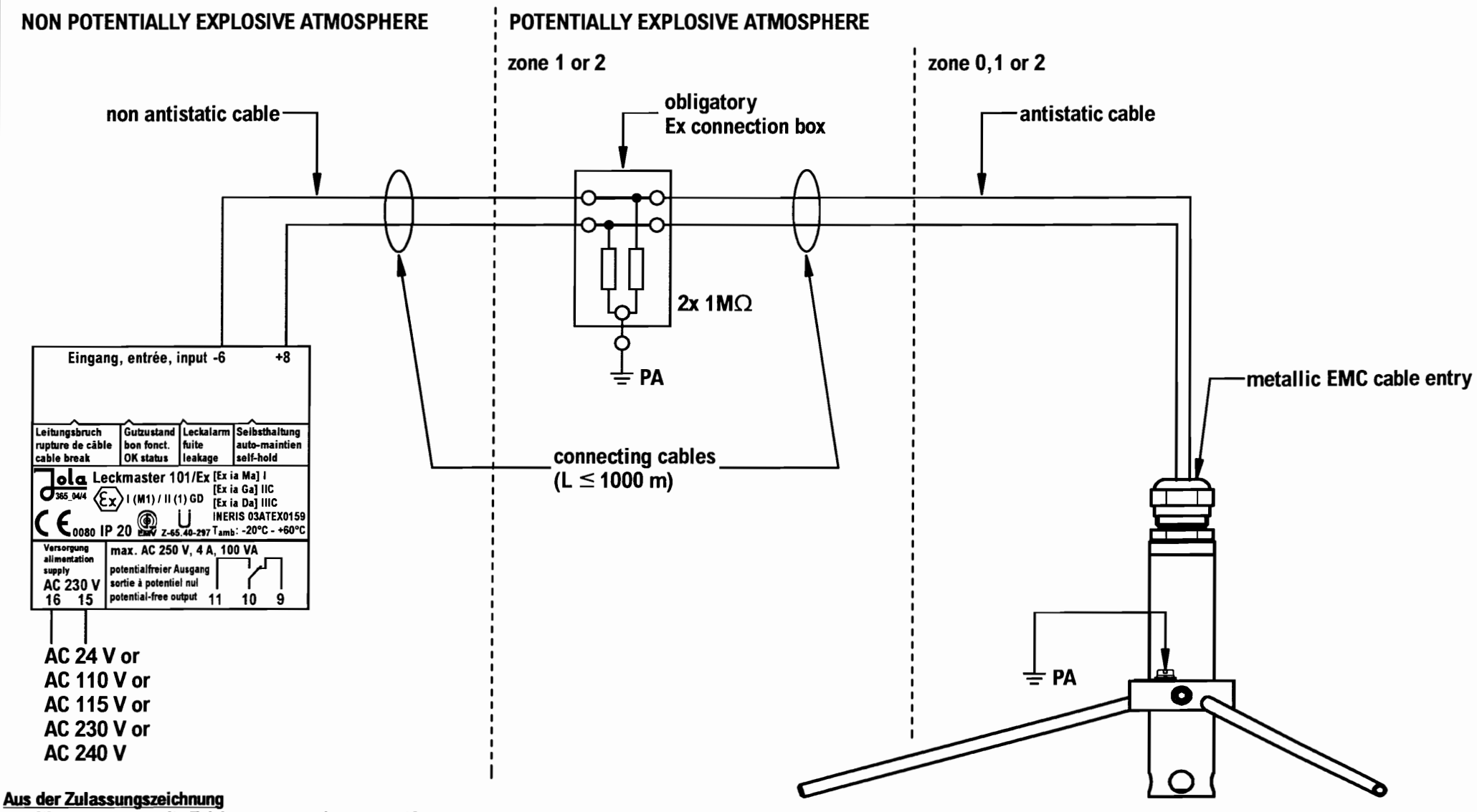
					Datum	Name	Schematic diagram for connection of COW/Ex-0G or OWE/Ex-0G + Leckmaster 101/Ex	
				Bearb.	25.03.13	Kissel		
				Gepr.	24.06.15			
				Jola			58P-7546a	Blatt
a	T6 in T5 geändert	22.06.15	Kuhn					von Seiten
Zust.	Änderung	Datum	Name				Ers. für:	Ers. durch:



Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

Dessin apparenté :
Aucune modification permise sans l'accord de la personne autorisée Ex

				Schematic diagram for connection of the liquid leakage detector OWE/Ex-0G to the Leckmaster 101/Ex relay		Datum	Name	Zchng. Nr.:	Blatt
a	T6 in T5 geändert	22.06.15	Kuhn		Bearb.	26.03.13	Kissel	58P-7555a	von Seiten
Zust.	Änderung	Datum	Name		Gepr.	24.06.15		Ers. für:	Ers. durch:



Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

Dessin apparenté :
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					Datum	Name	Zchng. Nr.:		Blatt
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Zust.	Änderung	Datum	Name	Gepr.	24.06.15			Ers. für:	Ers. durch:

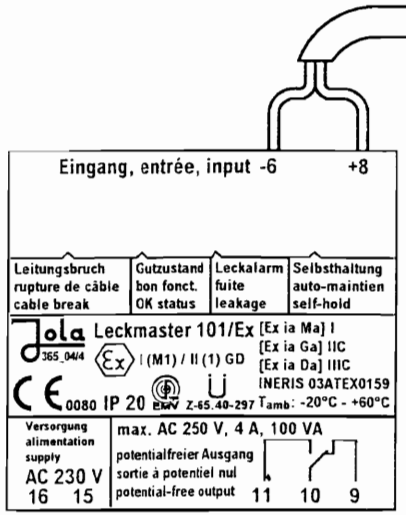
Schematic diagram for connection of the liquid leakage detector COW/Ex-0G to the Leckmaster 101/Ex relay

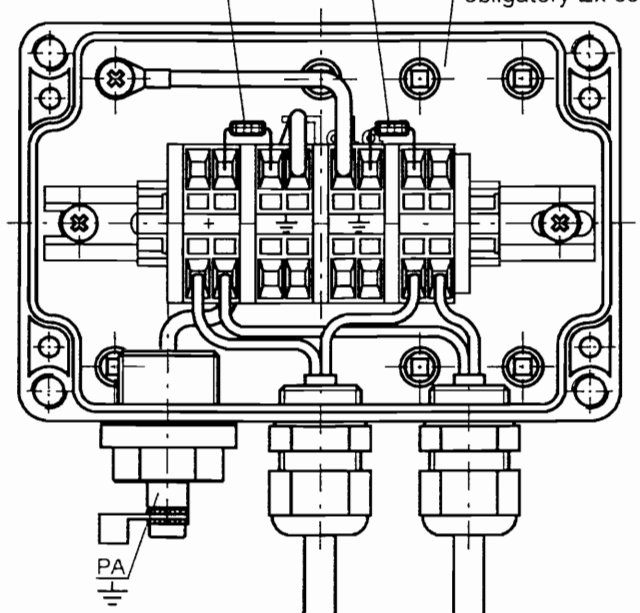
NICHT EXPLOSIONSGEFÄHRDETER BEREICH
HORS ATMOSPHERE EXPLOSIVE
NON POTENTIALLY EXPLOSIVE ATMOSPHERE

EXPLOSIONSGEFÄHRDETER BEREICH
ATMOSPHERE EXPLOSIVE
POTENTIALLY EXPLOSIVE ATMOSPHERE

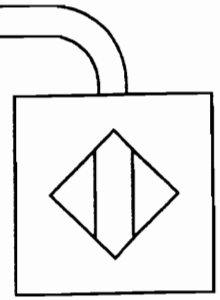
Zone 1 oder 2
zone 1 ou 2
zone 1 or 2

Zone 0,1 oder 2
zone 0,1 ou 2
zone 0,1 or 2





obligatorischer Ex-Anschlusskasten
boîtier de raccordement Ex obligatoire
obligatory Ex connection box



Kapazitiver Sensor
capteur capacitif
capacitive sensor

OWE/Ex-0G
COW/Ex-0G

nicht antistatisches Kabel
câble non antistatique
non antistatic cable

antistatisches (leitfähiges) Kabel
câble antistatique (conducteur)
antistatic (conductive) cable

Aus der Zulassungszeichnung resultierende verwandte Zeichnung:
Keine Modifizierung zugelassen ohne Zustimmung des Ex-Beauftragten

Dessin apparenté :
aucune modification
permise sans l'accord
de la personne autorisée Ex

Ex 26.07.2013 Lager Nr. -		Allgemeintoleranzen DIN ISO 2768-m	Maßstab 1:1.5 / Gewicht [kg]:
			Werkstoff: / Rohteil:
		Bearb. 08.04.2013 Kissel	Obligatorischer Anschlusskasten
		Gepr. 24.07.13	OAK/LMT/2x1MOhm
		Norm	
		CAD: C.00011069.SZA	
1 OAK+PA-Durchf. 01.07.2013 Kuhn		Jola	90P-7586 Index: 1
Zust. Änderung Datum Name		Urspr.	Ers. f.: Ers. d.:

Blatt von Bl.

Installation, Operating and Maintenance Instructions for

Jola Relay
Leckmaster 101/Ex ⟨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 relay Leckmaster 101/Ex

JOLA
D-67466 Lambrecht

CE 0080
Leckmaster 101/Ex Ex I (M1) / II (1) GD

(serial number)
(production year)

[Ex ia Ma] I
[Ex ia Ga] IIC
[Ex ia Da] IIIC

Tamb : - 20°C to + 60°C
INERIS 03ATEX0159

is designed to transmit electrical signals coming **from a sensor installed in a potentially explosive atmosphere** to non-hazardous areas.
The relay Leckmaster 101/Ex must be installed outside potentially explosive atmospheres or be protected by a suitable standardised ignition protection class.

°°°°°°°°°°°°°°°°°°°°

All **the technical parameters of the sensor and/or the 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 units 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 sensor and/or the relay may not be installed, connected and started up.**

2. Preconditions for safe use

- **Maximum parameters of the sensor**

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

- **Special requirements/conditions for the safe use of the sensor**

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

- **Maximum parameters of the relay Leckmaster 101/Ex**

  Rated supply voltages (terminals J15, J16):
  U = AC 24 V, AC 110 V, AC 115 V, AC 230 V or AC 240 V

  Maximum electrical parameters of the electrical circuit connected to terminals J9, J10 and J11:
  Umax. = 250 V; Imax. = 4A, **but max. P = 100 VA**

  Maximum electrical parameters at output terminals J6 and J8:
  Uo = 10.5 V; Io = 24 mA, but max. Po = 0.13 W

- **Special requirements/conditions for the safe use of the relay Leckmaster 101/Ex**

  The relay Leckmaster 101/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 J8
  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 to terminals J6 and J8 are as follows:

For explosion group IIC	For explosion group IIB and for dust	For explosion groups IIA and I
Co(L=0) = 2.4 µF Lo(C=0) = 32 mH or Lo/Ro = 74 µH/Ohm	Co(L=0) = 17 µF Lo(C=0) = 207 mH or Lo/Ro = 478 µH/Ohm	Co(L=0) = 77 µF Lo(C=0) = 457 mH or Lo/Ro = 1.06 mH/Ohm

3. Additional conditions for safe operation

Before using the sensor, you must ensure that the materials used in the respective sensor are sufficiently chemically and mechanically resistant to the liquids 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 sensor and the 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 relay Leckmaster 101/Ex

The relay Leckmaster 101/Ex must be installed outside potentially explosive atmospheres or be protected by a suitable standardised 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 sensor is also connected to the corresponding, admissible intrinsically safe circuit.

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 sensor.
To rule out any risks, however, the sensor and the 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 sensor and 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 sensor and/or the relay Leckmaster 101/Ex must be performed in the manufacturer's facility. Under no circumstances may other individuals or companies perform unauthorised alterations or repairs.