



# IECEX Certificate of Conformity

## INTERNATIONAL ELECTROTECHNICAL COMMISSION IEC Certification System for Explosive Atmospheres

for rules and details of the IECEx Scheme visit [www.iecex.com](http://www.iecex.com)

Certificate No.:	<b>IECEX TUN 16.0022X</b>	Page 1 of 4	<u>Certificate history:</u>
Status:	<b>Current</b>	Issue No: 2	<a href="#">Issue 1 (2020-07-01)</a> <a href="#">Issue 0 (2017-07-05)</a>
Date of Issue:	2023-06-07		
Applicant:	<b>JUMO GmbH &amp; Co. KG</b> Moritz-Juchheim-Straße 1 36039 Fulda Germany		
Equipment:	<b>JUMO exTHERM-DR</b>		
Optional accessory:	701055 / * - *		
Type of Protection:	<b>Intrinsic safety</b>		
Marking:	[Ex ia Ga] IIC or [Ex ia Da] IIIC		

Approved for issue on behalf of the IECEx  
Certification Body:

**Thomas Heinen**

Position:

**Deputy Head of IECEx Certification Body**

Signature:  
(for printed version)

Date:  
(for printed version)

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**TÜV NORD CERT GmbH**  
Hanover Office  
Am TÜV 1, 30519 Hannover  
Germany





# IECEX Certificate of Conformity

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Date of issue: 2023-06-07

Issue No: 2

Manufacturer: **JUMO GmbH & Co. KG**  
Moritz-Juchheim-Straße 1  
36039 Fulda  
**Germany**

Manufacturing  
locations:

This certificate is issued as verification that a sample(s), representative of production, was assessed and tested and found to comply with the IEC Standard list below and that the manufacturer's quality system, relating to the Ex products covered by this certificate, was assessed and found to comply with the IECEX Quality system requirements. This certificate is granted subject to the conditions as set out in IECEX Scheme Rules, IECEX 02 and Operational Documents as amended

## STANDARDS :

The equipment and any acceptable variations to it specified in the schedule of this certificate and the identified documents, was found to comply with the following standards

[IEC 60079-0:2017](#) Explosive atmospheres - Part 0: Equipment - General requirements  
Edition:7.0

[IEC 60079-11:2011](#) Explosive atmospheres - Part 11: Equipment protection by intrinsic safety "i"  
Edition:6.0

This Certificate **does not** indicate compliance with safety and performance requirements other than those expressly included in the Standards listed above.

## TEST & ASSESSMENT REPORTS:

A sample(s) of the equipment listed has successfully met the examination and test requirements as recorded in:

Test Reports:

[DE/TUN/ExTR15.0047/01](#)

[DE/TUN/ExTR15.0047/02](#)

Quality Assessment Report:

[DE/EPs/QAR23.0003/00](#)



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## EQUIPMENT:

Equipment and systems covered by this Certificate are as follows:

### Description

The JUMO exTHERM-DR type 701055 / \* - \* is a microprocessor-based designed as a two point controller, in the following called controller. The controller has the task to regulate a channel.

The device has to be mounted on a mounting rail outside the hazardous area. It has a universal input.

The inputs can measure the resistance thermometer PT100/PT1000, temperature element and a 4...20 mA standard signal.

The device has two relay outputs, one binary input and one analog output with (0) 4...20mA or (0) 2...10 V. The used universal input will be read out by the diagnostic-/display unit.

For the visualization of the measured values, for configuration and for display of error reports a graphic display and LED are available. The device can be configured with a PC- program about a USB interface.

The connection of the sensors, of the relays, of the binary inputs, of the analog output and of the power supply is via printed circuit terminal for a cross section up to 2.5 mm<sup>2</sup>.

### Type code and Electrical data:

See the attachment to IECEX TUN 16.0022X issue No.2

### Thermal data:

Permissible ambient temperature range during operation: 0 °C ≤ Ta ≤ +55 °C

### SPECIFIC CONDITIONS OF USE: YES as shown below:

1. The switching on the intrinsically safe circuits may be performed only if the JUMO exTHERM-DR type 701055 / \* - \*including all supply lines is de-energized.
2. To energize the JUMO exTHERM-DR type 701055 / \* - \*including all supply lines, the protective cap of the intrinsically safe circuits shall be correctly mounted.
3. The sensors listed under the specifications of JUMO GmbH & Co KG based on the JUMO-datasheet 901006 and 902006 have no safe isolation to the armature. The sensor connections are therefore to be considered as grounded for the safety assessment. This means that the user must ensure in case of connection of the intrinsically safe circuit to the local potential (eg PA resp. FB) that the intrinsic safety of the JUMO exTHERM-DR type 701055 / \* - \*is not repealed.
4. The sensor connection heads do not meet the requirements of the material composition of IEC 60079-0:2017 for applications that require devices of category 1. The device has to be installed in such a way that any ignition hazards caused by impact or friction can be excluded".



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**DETAILS OF CERTIFICATE CHANGES (for issues 1 and above)**

The QAR No. DE/TUN/QAR13.0005 has been replaced by DE/EPS/QAR 23.0003

**Annex:**

[Attachment to IECEx TUN 16.0022X issue No.2.pdf](#)

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**Attachment to IECEx TUN 16.0022X issue No.: 2**

**Description:**

The JUMO exTHERM-DR type 701055 / \* - \* is a microprocessor-based designed as a two point controller, in the following called controller. The controller has the task to regulate a channel.

The device has to be mounted on a mounting rail outside the hazardous area. It has a universal input. The inputs can measure the resistance thermometer PT100/PT1000, temperature element and a 4...20 mA standard signal.

The device has two relay outputs, one binary input and one analog output with (0) 4...20mA or (0) 2...10 V. The used universal input will be read out by the diagnostic-/display unit. For the visualization of the measured values, for configuration and for display of error reports a graphic display and LED are available. The device can be configured with a PC- program about a USB interface.

The connection of the sensors, of the relays, of the binary inputs, of the analog output and of the power supply is via printed circuit terminal for a cross section up to 2.5 mm<sup>2</sup>.

**Type code:**

701055	<b>Basic type</b>	ExTHERM-DR
	<b>Version</b>	
8		Factory settings
9		According to customer specifications
	<b>Power supply</b>	
23		AC 110...240 V + 10 % / -15 %; 48...63 Hz
25		AC /DC 20...30 V 48...63 Hz
<b>701055 / *-</b>		*

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**Electrical data:**

**For type 701055 / 8 – 23:**

Supply circuit  
(Terminals N and L1)

only for the connection to a non-intrinsically safe circuit with a safety-related maximum voltage of:

$U_N = 110$  up to  $240$  V a.c.  $+10\%$  /  $-15\%$ ,  $48$  up to  $63$  Hz  
 $U_m = 264$  V

**For type 701055 / 8 – 25:**

Supply circuit  
(Terminals L- and L+)

only for the connection to a non-intrinsically safe circuit with a safety-related maximum voltage of:

$U_N = 20$  up to  $30$  V d.c. or a.c.,  $48$  up to  $63$  Hz  
 $U_m = 250$  V

**For all types:**

Binary connection  
(Terminals 4 and 5)

only for the connection to a non-intrinsically safe circuit with a safety-related maximum voltage of:

$U_m = 250$  V

Analogue connection  
(Terminals 9 and 10)

only for the connection to a non-intrinsically safe circuit with a safety-related maximum voltage of:

$U_m = 250$  V

Relay connection  
(Terminals 11, 12, 13)

only for the connection to a non-intrinsically safe circuit with a safety-related maximum voltage and current of:

$U_m = 250$  V  
 $I_{max} = 3$  A

Relay connection  
(Terminals 14, 15, 16)

only for the connection to a non-intrinsically safe circuit with a safety-related maximum voltage and current of:

$U_m = 250$  V  
 $I_{max} = 3$  A

USB connection  
(USB-socket)

only for the connection to a non-intrinsically safe circuit with a safety-related maximum voltage and current of:

$U_m = 250$  V

Universal input  
(Terminals 1, 2, 3 and 5, 6, 7)

in type of protection intrinsic safety Ex ia IIC resp. Ex ia IIIC with the following maximum values per circuit:

$U_o = 6$  V  
 $I_o = 41.2$  mA  
 $P_o = 61.8$  mW  
Characteristic line: linear  
The effective internal capacitance  $C_i$  is  $3.7$   $\mu$ F.  
The effective internal inductance  $L_i$  is negligibly small.

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The maximum permissible values for the external inductance  $L_o$  and the external capacitance  $C_o$  have to be taken from the following table:

Ex ia IIC	$L_o$ [mH]	0.2	0.1	0.05	0.02	0.01	0.001
	$C_o$ [ $\mu$ F]	0.2	1	2.1	4.3	7.3	36.3
Ex ia IIIC	$L_o$ [mH]	100	50	20	10	0.2	0.001
	$C_o$ [ $\mu$ F]	3.6	5.4	7.3	8.3	27.3	996.3

The values of the table below are only applicable, if the internal inductance  $L_i$  (without the cable) or the internal capacitance  $C_i$  (without the cable) of the connected equipment is  $\leq 1\%$  of the below specified values.

If  $L_i$  (without the cable) and  $C_i$  (without the cable) of the connected equipment are  $> 1\%$  of the specified values, the specified values of  $L_o$  shall be reduced to 50 %.

The reduced capacitance of the external circuit (including cable) shall not exceed 1  $\mu$ F for group IIIC and 600 nF for group IIC.

Ex ia	IIC	IIIC
Maximum permissible external inductance	20 mH	83 mH
Maximum permissible external capacitance	36.3 $\mu$ F	996.3 $\mu$ F

For the temperature probes listed below, which have to be considered as simple apparatus and which to be operated with the device, the limit value for the maximum permissible upper limit of the ambient temperature according to the temperature class resp. the maximum surface temperature has to be taken from the following table:

Temperature class resp. maximum surface temperature	Upper limit of the medium and ambient temperature for applications requiring devices of equipment protection level Gb resp. Db		Upper limit of the medium and ambient temperature for applications requiring devices of equipment protection level Ga resp. Da	
	Temperature probes with PT100	Temperature probes with thermocouple	Temperature probes with PT100	Temperature probes with thermocouple
T1 / 445 °C	432.5 °C	439.1 °C	342.5 °C	349.1 °C
T2 / 295 °C	282.5 °C	289.1 °C	222.5 °C	229.1 °C
T3 / 195 °C	187.5 °C	194.1 °C	147.5 °C	154.1 °C
T4 / 130 °C	122.5 °C	129.1 °C	95.5 °C	102.1 °C
T5 / 95 °C	87.5 °C	94.1 °C	67.5 °C	74.1 °C
T6 / 80 °C	72.5 °C	79.1 °C	55.5 °C	62.1 °C

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The following temperature probes of the manufacturer with PT100 resistor-type thermometer are intended to be operated with the device:

Type designation of the manufacturer	Replacement character xxx
902006/65-228-1003-1-15-xxx-668/922 902006/55-228-1003-1-15-xxx-254/922 902006/65-228-2003-1-15-xxx-668/922 902006/55-228-2003-1-15-xxx-254/922	500, 710 and 1000
902006/10-402-1003-1-9-xxx-104/922 902006/10-402-2003-1-9-xxx-104/922	100, 150 and 200
902006/10-226-1003-1-9-xxx-104/922 902006/10-226-2003-1-9-xxx-104/922	250
902006/54-227-1003-1-15-xxx-254/922 902006/54-227-2003-1-15-xxx-254/922	710
902006/53-505-2003-1-12-xxx-815/922 902006/53-505-1003-1-12-xxx-815/922	190
902006/53-507-2003-1-12-xxx-815/922	100, 160, 190 and 220
902006/53-507-1003-1-12-xxx-815/922 902006/53-505-3003-1-12-xxx-815/922 902006/40-226-1003-1-12-xxx-815/922	100, 160 and 220
902006/10-390-1003-1-8-xxx-104/922	250

The following temperature probes of the manufacturer with thermocouple are intended to be operated with the device:

Type designation of the manufacturer	Replacement character xxx
901006/65-547-2043-15-xxx-668/922 901006/65-546-2042-15-xxx-668/922	500, 710 and 1000
90.1006/66-550-2043-6-xxx-668/922 90.1006/66-880-1044-6-xxx-668/922 90.1006/66-880-2044-6-xxx-668/922 90.1006/66-953-1046-6-xxx-668/922 90.1006/66-953-2046-6-xxx-668/922	250, 355 and 500
901006/54-544-2043-15-xxx-254/922 901006/54-544-1043-15-xxx-254/922 901006/54-544-2042-15-xxx-254/922 901006/54-544-1042-15-xxx-254/922	710
901006/53-543-1042-12-xxx-815/922 901006/53-543-2042-12-xxx-815/922	220
901006/45-551-2043-2-EL-11-AL/922	50<EL<2000; 1000<AL<20000

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**Thermal data:**

Permissible ambient temperature range during operation:  $0\text{ °C} \leq T_a \leq +55\text{ °C}$

**Specific Conditions of Use**

1. The switching on the intrinsically safe circuits may be performed only if the JUMO exTHERM-DR type 701055 / \* - \* including all supply lines is de-energized.
2. To energize the JUMO exTHERM-DR type 701055 / \* - \* including all supply lines, the protective cap of the intrinsically safe circuits shall be correctly mounted.
3. The sensors listed under the specifications of JUMO GmbH & Co KG based on the JUMO-datasheet 901006 and 902006 have no safe isolation to the armature. The sensor connections are therefore to be considered as grounded for the safety assessment. This means that the user must ensure in case of connection of the intrinsically safe circuit to the local potential (eg PA resp. FB) that the intrinsic safety of the JUMO exTHERM-DR type 701055 / \* - \* is not repealed.
4. The sensor connection heads do not meet the requirements of the material composition of IEC 60079-0:2017 for applications that require devices of category 1. The device has to be installed in such a way that any ignition hazards caused by impact or friction can be excluded“.