

**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 Email: mail@jumo.net  
 Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**  
 JUMO House  
 Temple Bank, Riverway  
 Harlow, Essex CM 20 2DY, UK  
 Phone: +44 1279 63 55 33  
 Fax: +44 1279 62 50 29  
 Email: sales@jumo.co.uk  
 Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**  
 6733 Myers Road  
 East Syracuse, NY 13057, USA  
 Phone: +1 315 437 5866  
 Fax: +1 315 437 5860  
 Email: info.us@jumo.net  
 Internet: www.jumousa.com



# JUMO exTHERM-DR Two-State Controller with Ex (ia) Input According to ATEX

## Brief description

The JUMO exTHERM-DR is a two-state controller for heating or cooling applications. The intrinsically safe **Ex (ia)** measuring input allows the direct connection of the corresponding type tested probes. Use of a barrier is no longer required.

Other than the relay output "Controller" K1, JUMO exTHERM-DR also has the second relay output K2. It signals when limit values have been exceeded or are not met.

Alternatively, a binary signal of 0/10 V is also available for the controller output or the limit value signaling.

The current measured value or the setpoint value is issued via the standard analog output.

The vibrant display for plain text and with backlight shows information about measured value, setpoint value, limit value, etc. in a clearly arranged manner.

Clear operation enables quick configuration and thereby reduces the startup times.

Alternatively, the configuration and parameterization can also take place via a setup program and the standard USB interface.

The devices are marked as follows:

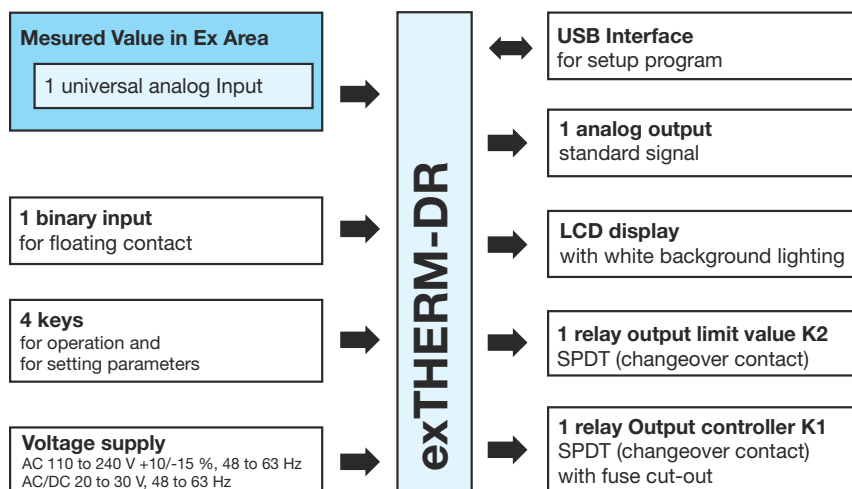


II (1) G [Ex ia Ga] IIC  
 II (1) D [Ex ia Da] IIIC



Type 701055/ ...

## Block diagram



## Special features

- Approval according to Ex II (1) G [Ex ia Ga] IIC, Ex II (1) D [Ex ia Da] IIIC
- Controller output (relay)
- Limit value output (relay) for alarm indication
- Analog output configurable as actual value output, setpoint value output, or logic output 0/10 V for control of solid state relay
- LCD display for process information
- USB interface on front and setup program for simple startup

Approvals / approval marks (see "Technical data")



**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 Email: mail@jumo.net  
 Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**  
 JUMO House  
 Temple Bank, Riverway  
 Harlow, Essex CM 20 2DY, UK  
 Phone: +44 1279 63 55 33  
 Fax: +44 1279 62 50 29  
 Email: sales@jumo.co.uk  
 Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**  
 6733 Myers Road  
 East Syracuse, NY 13057, USA  
 Phone: +1 315 437 5866  
 Fax: +1 315 437 5860  
 Email: info.us@jumo.net  
 Internet: www.jumousa.com



## Technical data

### Analog inputs

#### RTD temperature probes

Description	Measuring range	Accuracy Two/three-wire circuit <sup>1</sup>	Ambient temperature influence
Pt100 DIN IEC 60751:2008	-200 to +850 °C	0.5 %/0.1 %	50 ppm/K
Pt1000 DIN IEC 60751:2008	-200 to +850 °C	0.5 %/0.1 %	50 ppm/K
Connection type	Maximum lead wire resistance in two-wire circuit: 15 Ω; three-wire circuit: 30 Ω		
Sampling rate	210 ms		
Input filter	Digital filter, 2nd order; filter constant can be set from 0 to 100 s		
Special features	Individual probe Pt100 two-wire, display can also be programmed in °F		

#### Thermocouples

Description	Measuring range	Accuracy <sup>1</sup>	Ambient temperature influence
Fe-CuNi "L" DIN 43710:1985-12	-200 to +900 °C	0.4 %	100 ppm/K
Fe-CuNi "J" DIN EN 60584-1:1996-10	-200 to +1200 °C	0.4 %	100 ppm/K
Cu-CuNi "U" DIN 43710:1985-12	-200 to +600 °C	0.4 %	100 ppm/K
Cu-CuNi "T" DIN EN 60584-1:1996-10	-200 to +400 °C	0.4 %	100 ppm/K
NiCr-Ni "K" DIN EN 60584-1:1996-10	-200 to +1372 °C	0.4 %	100 ppm/K
Pt10Rh-Pt "S" DIN EN 60584-1:1996-10	-50 to +1768 °C	0.4 %	100 ppm/K
Pt13Rh-Pt "R" DIN EN 60584-1:1996-10	-50 to +1768 °C	0.4 %	100 ppm/K
Pt30Rh-Pt6Rh "B" DIN EN 60584-1:1996-10	0 to 1820 °C	0.4 % <sup>2</sup>	100 ppm/K
NiCrSi-NiSi "N" DIN EN 60584-1:1996-10	-100 to 1300 °C	0.4 % <sup>2</sup>	100 ppm/K
W3Re-W25Re "D" ASTM E1751M-09 (up to 2315 °C): 2009	0 to 2495 °C	0.4 %	100 ppm/K
W5Re-W26Re "C" ASTM E230M-11: 2011	0 to 2315 °C	0.4 %	100 ppm/K
Cold junction	Pt100 internal		
Cold junction accuracy	±1 K		
Sampling rate	210 ms		
Input filter	Digital filter, 2nd order; filter constant can be set from 0 to 100 s		

1. The accuracy refers to the maximum measuring range.
2. The accuracy values are first guaranteed from 300 °C.

#### Direct current

Measuring range	Accuracy	Ambient temperature influence
4 to 20 mA, voltage drop < 2 V	0.2 %	150 ppm/K
Scaling	Can be freely programmed within the limits	
Sampling rate	210 ms	
Input filter	Digital filter, 2nd order; filter constant can be set from 0 to 100 s	
Special features	Individual probe 4 to 20 mA	

### Analog output

	Signal type	Accuracy	Residual ripple	Load influence	Temperature influence	Load resistance
Current	4 to 20 mA	≤ 0.5 %	±0.5 % at 300 Ω	±0.05 mA/100 Ω	150 ppm/K	≤ 500 Ω
	0 to 20 mA					
Voltage	2 to 10 V	≤ 0.5 %	±0.5 %	±15 mV	150 ppm/K	≥ 500 Ω
	0 to 10 V					
Logic output	Binary signal 0/10 V	≤ 0.5 %	±0.5 %	±15 mV	150 ppm/K	≥ 500 Ω

**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 Email: mail@jumo.net  
 Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**  
 JUMO House  
 Temple Bank, Riverway  
 Harlow, Essex CM 20 2DY, UK  
 Phone: +44 1279 63 55 33  
 Fax: +44 1279 62 50 29  
 Email: sales@jumo.co.uk  
 Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**  
 6733 Myers Road  
 East Syracuse, NY 13057, USA  
 Phone: +1 315 437 5866  
 Fax: +1 315 437 5860  
 Email: info.us@jumo.net  
 Internet: www.jumousa.com



## Digital input

Connection	Function
1 potential-free contact	Keyboard lock, level inhibit configurable

## Relay outputs

Relay output controller K1	Relay (changeover contact) <b>Contact protection circuit:</b> fuse cut-out 3.15 AT, installed in the N/O contact arm 30000 switching operations at a switching capacity of AC 230 V, 3 A, 50 Hz (resistive load) or up to DC 30 V, 3 A. Minimum current: DC 12 V, 100 mA.
Relay output limit value K2	Relay (changeover contact) without contact protection 30000 switching operations at a switching capacity of AC 250 V, 3 A, 50 Hz (resistive load) or up to DC 30 V, 3 A. Minimum current: DC 12 V, 100 mA.

## Measuring circuit monitoring

	RTD temperature probes	Thermocouples	Current 4 to 20 mA
Overrange and underrange	is detected in the display, ">>>>" flashes for overrange and "<<<<" for underrange.		
Probe/cable break	is detected ">>>>" flashes in the display; relay output controller K1 is inactive		">>>>" flashes in the display; relay output controller K1 is inactive
Probe short circuit	is detected "<<<<" flashes in the display; relay output controller K1 is inactive	is not detected	"<<<<" flashes in the display; relay output controller K1 is inactive

## Voltage supply

Voltage supply	AC/DC 20 to 30 V, 48 to 63 Hz, AC 110 to 240 V +10 % / -15 %, 48 to 63 Hz
Power consumption	12 VA
Power loss	< 12 W

## Test voltages according to EN 60730, Part 1

Input and output against voltage supply	
- With a voltage supply of AC 110 to 240 V +10 % / -15 %	3.7 kV/50 Hz
- With a voltage supply of AC/DC 20 to 30 V, 48 to 63 Hz	3.7 kV/50 Hz

## Electrical safety

	Clearances / creepage distances
Mains voltage to electronic components and probes	≥ 6 mm / ≥ 8 mm
Mains voltage to relays	≥ 6 mm / ≥ 8 mm
Relays to electronic components and probes	≥ 6 mm / ≥ 8 mm
Electrical safety	according to DIN EN 60730-1, overvoltage category III, pollution degree 2
Protection rating I	With internal isolation from SELV electrical circuits

## Environmental influences

Ambient temperature range	0 to +55 °C
Storage temperature range	-30 to +70 °C
Temperature influence	≤ ±0.005 %/K dev. from 23 °C <sup>1</sup> for RTD temperature probes ≤ ±0.01 %/K dev. from 23 °C <sup>1</sup> for thermocouple, current
Resistance to climatic conditions	85 % rel. humidity without condensation (3K3 with extended temperature range according to DIN EN 60721-3-3)
EMC	Standards from the standard series DIN EN 61326
Interference emission	Class B

**JUMO GmbH & Co. KG**

Delivery address: Mackenrodtstraße 14  
36039 Fulda, Germany  
Postal address: 36035 Fulda, Germany  
Phone: +49 661 6003-0  
Fax: +49 661 6003-607  
Email: mail@jumo.net  
Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**

JUMO House  
Temple Bank, Riverway  
Harlow, Essex CM 20 2DY, UK  
Phone: +44 1279 63 55 33  
Fax: +44 1279 62 50 29  
Email: sales@jumo.co.uk  
Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**

6733 Myers Road  
East Syracuse, NY 13057, USA  
Phone: +1 315 437 5866  
Fax: +1 315 437 5860  
Email: info.us@jumo.net  
Internet: www.jumousa.com



Interference immunity	according to DIN EN 60730
-----------------------	---------------------------

1. All specifications refer to the measuring range end value

**Housing**

Material	Polycarbonate
Flammability class	UL 94 V0
Electrical connection	On the front via screw terminals up to max. 2.5 mm <sup>2</sup>
Mounting	On 35 mm DIN-rail according to EN 60715
Installation position	Vertical
Weight	Approx. 230 g
Protection type	IP 20 according to DIN EN 60529

**Approvals / approval marks**

Approval mark	Test facility	Certificates / certification numbers	Inspection basis	Valid for
ATEX	TÜV Nord (German Technical Inspection Agency)	TÜV 15 ATEX 163874 X	Directive 94/9/EC	All device versions

**Display and control elements**

Legend	Comment	
3	<b>LCD display</b> Black/white with backlight, 96 x 64 pixels	
6	<b>LED K1 (yellow)</b> Lights up when the relay output controller K1 is active.	
7	<b>LED K2 (yellow)</b> Lights up when the relay output limit value K2 is active.	
8	<b>Keys</b> (can only be operated when the transparent hood is folded upward) <ul style="list-style-type: none"> <li>▲ Increase value, ▼ Decrease value</li> <li>P Programming</li> <li>● EXIT</li> </ul>	
12	Setup interface	



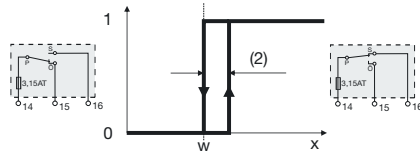
## Galvanic isolation

<p><b>Test voltages:</b></p> <p>(1) Analog input</p> <p>(3) Digital input</p> <p>(5) Setup interface</p> <p>(6) Display</p> <p>(7) Analog output / logic output</p> <p>(8) Voltage supply</p>		<p>(2) Relay output controller K1</p> <p>(4) Relay output limit value K2</p>
---	--	--

## Relay output controller K1

### Direct control direction (cooling function)

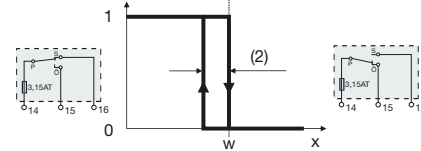
If the measured value exceeds the setpoint value + hysteresis, relay output controller K1 switches on.  
 If the measured value is below the setpoint value, the relay switches off.



(2) Hysteresis    w Setpoint value

### Inverse control direction (heating function)

If the measured value is below the setpoint value + hysteresis, relay output controller K1 switches on.  
 If the measured value exceeds the setpoint value, the relay switches off.

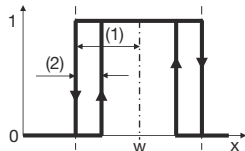


(2) Hysteresis    w Setpoint value

## Alarm functions

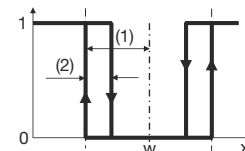
The relay output limit value K2 can be set for monitoring of the following functions.

### AF1: ON circuit in the window around the setpoint value



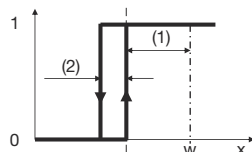
(1) Limit value is gap compared to setpoint value w    (2) Hysteresis

### AF2: OFF circuit in the window inversely around the setpoint value



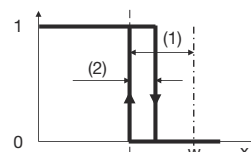
(1) Limit value is gap compared to setpoint value w    (2) Hysteresis

### AF3: ON circuit before reaching the setpoint value



(1) Limit value is gap compared to setpoint value w    (2) Hysteresis

### AF4: OFF circuit before reaching the setpoint value



(1) Limit value is gap compared to setpoint value w    (2) Hysteresis

**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 Email: mail@jumo.net  
 Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**  
 JUMO House  
 Temple Bank, Riverway  
 Harlow, Essex CM 20 2DY, UK  
 Phone: +44 1279 63 55 33  
 Fax: +44 1279 62 50 29  
 Email: sales@jumo.co.uk  
 Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**  
 6733 Myers Road  
 East Syracuse, NY 13057, USA  
 Phone: +1 315 437 5866  
 Fax: +1 315 437 5860  
 Email: info.us@jumo.net  
 Internet: www.jumousa.com



<p><b>AF5: OFF circuit after exceeding the setpoint value</b></p> <p>(1) Limit value is gap compared to setpoint value w (2) Hysteresis</p>	<p><b>AF6: ON circuit after exceeding the setpoint value</b></p> <p>(1) Limit value is gap compared to setpoint value w (2) Hysteresis</p>
<p><b>AF7: ON circuit from a fixed limit value</b></p> <p>(1) Limit value (2) Hysteresis</p>	<p><b>AF8: OFF circuit from a fixed limit value</b></p> <p>(1) Limit value (2) Hysteresis</p>

## Connection diagram

The connection diagram in the data sheet provides preliminary information about the connection options. For the electrical connection only use the installation instructions or the operating manual. The knowledge and the correct technical compliance with the safety information and warnings contained in these documents are mandatory for mounting, electrical connection, and startup as well as for safety during operation.

<p>The connection is made via screw terminals.</p> <div style="border: 1px solid blue; background-color: #007bff; color: white; padding: 5px; margin: 10px 0;"> <p><b>Caution:</b>        The cover cap must be removed prior to wiring and put back on when finished. This is necessary for the proper operation the probes in the Ex-area!</p> </div>	<table border="1"> <thead> <tr> <th>Wire</th> <th>Admissible cross section</th> </tr> </thead> <tbody> <tr> <td>One-wire</td> <td>≤ 2.5 mm<sup>2</sup></td> </tr> <tr> <td>Fine-strand, with ferrule</td> <td>≤ 1.5 mm<sup>2</sup></td> </tr> </tbody> </table> <p>Tightening torque of the screws: max. 0.5 Nm</p>	Wire	Admissible cross section	One-wire	≤ 2.5 mm <sup>2</sup>	Fine-strand, with ferrule	≤ 1.5 mm <sup>2</sup>
Wire	Admissible cross section						
One-wire	≤ 2.5 mm <sup>2</sup>						
Fine-strand, with ferrule	≤ 1.5 mm <sup>2</sup>						

Legend	Comment	Screw terminals	Screw terminals
1, 2	Thermocouple	Analog input 1 	Analog input 2 Terminals 6, 7, and 8 are not used.
	RTD temperature probe in two-wire circuit		Terminals 6, 7, and 8 are not used.

**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 Email: mail@jumo.net  
 Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**  
 JUMO House  
 Temple Bank, Riverway  
 Harlow, Essex CM 20 2DY, UK  
 Phone: +44 1279 63 55 33  
 Fax: +44 1279 62 50 29  
 Email: sales@jumo.co.uk  
 Internet: www.jumo.co.uk

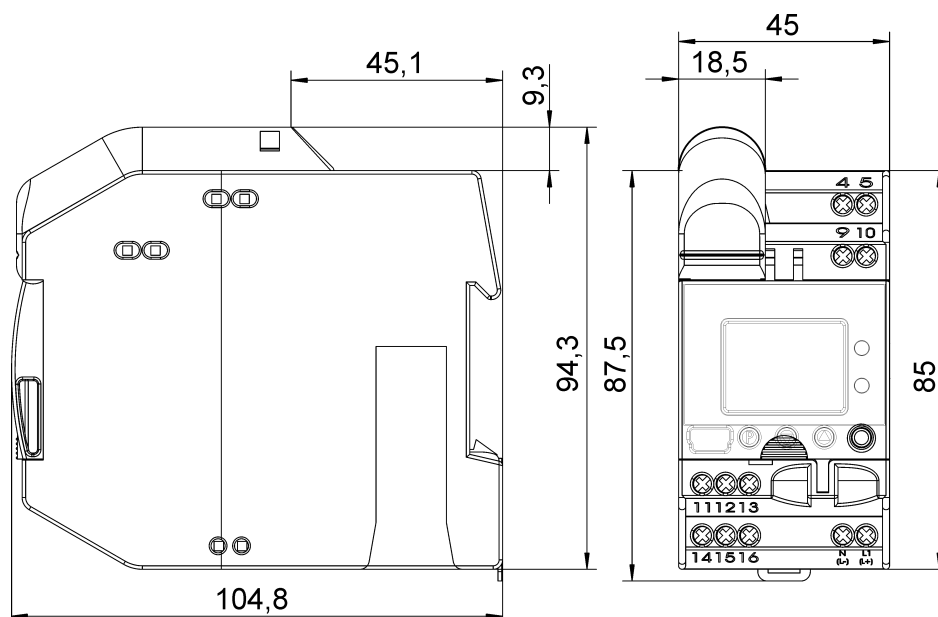
**JUMO Process Control, Inc.**  
 6733 Myers Road  
 East Syracuse, NY 13057, USA  
 Phone: +1 315 437 5866  
 Fax: +1 315 437 5860  
 Email: info.us@jumo.net  
 Internet: www.jumousa.com



Legend	Comment	Screw terminals	Screw terminals
	For RTD temperature probes in two-wire circuits, enter the lead wire resistance when using greater line lengths. Setup program: <i>edit =&gt; analog inputs</i>		
	<b>RTD temperature probe Pt100/Pt1000 in three-wire circuit</b>		Terminals 6, 7, and 8 are not used.
	<b>(4) to 20 mA</b>		Terminals 6, 7, and 8 are not used.
<b>4</b>	<b>Digital input</b> Connection to a potential-free contact	Mass	
<b>5</b>	<b>Analog output / logic output:</b> 0 to 20 mA 4 to 20 mA (default setting) 0(2) to 10 V		
<b>9</b>	<b>Voltage supply</b> Acc. to nameplate	<b>AC:</b> L1 line conductor N neutral conductor 	<b>DC:</b> L- L+ (L+) (L-) L- L+ 
<b>10</b>	<b>Relay output controller K1</b> (zero-current state) Relay (changeover contact) with fuse cut-out		
<b>11</b>	<b>Relay output limit value K2</b> (zero-current state) Relay (changeover contact)		

## Dimensions

Type 701055/...



**JUMO GmbH & Co. KG**

Delivery address: Mackenrodtstraße 14  
36039 Fulda, Germany  
Postal address: 36035 Fulda, Germany  
Phone: +49 661 6003-0  
Fax: +49 661 6003-607  
Email: mail@jumo.net  
Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**

JUMO House  
Temple Bank, Riverway  
Harlow, Essex CM 20 2DY, UK  
Phone: +44 1279 63 55 33  
Fax: +44 1279 62 50 29  
Email: sales@jumo.co.uk  
Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**

6733 Myers Road  
East Syracuse, NY 13057, USA  
Phone: +1 315 437 5866  
Fax: +1 315 437 5860  
Email: info.us@jumo.net  
Internet: www.jumousa.com

**Note about suitable probes**

The probes in data sheet 902820, 902821 with JUMO declaration of manufacturer and other approved probes can be connected.

**Note about probes in the following tables**

The following should be noted:

There is no reliable galvanic isolation between the probe and housing. As a result, the sensor connections are to be considered grounded for the safety evaluation.

Among other things EN 60079-0 requires of the EPL Ga that the mass fraction of aluminum must be less than 10 % for the manufacturing of metallic housings. The terminal head of the probes used by JUMO contains more than 10 % aluminum. The terminal head must therefore be secured by suitable impact protection for the use of EPL Ga (zone 0). The impact protection must securely prevent friction sparks, contact-breaking sparks, and impact sparks. Otherwise there is a risk of ignitable sparks. No other precautions have to be taken when used in EPL Gb (zone 1).

**DIN-approved probes for the operating medium air**

**Note:** because of the high response accuracy, **the use of thermowells** (immersion sleeves) **is not admissible**.

Current type designation	Probe type	Temperature range	Nom. length mm	Process connection
<b>RTD temperature probe data sheet 902006</b>				
902006/65-228-1003-1-15-500-668/922	1 × Pt100	-170 to +700 °C	500	
902006/65-228-1003-1-15-710-668/922			710	
902006/65-228-1003-1-15-1000-668/922			1000	
902006/55-228-1003-1-15-500-254/922	1 × Pt100	-170 to +700 °C	500	
902006/55-228-1003-1-15-710-254/922			710	
902006/55-228-1003-1-15-1000-254/922			1000	
902006/65-228-2003-1-15-500-668/922	2 × Pt100	-170 to +700 °C	500	Stop flange displaceable
902006/65-228-2003-1-15-710-668/922			710	
902006/65-228-2003-1-15-1000-668/922			1000	
902006/55-228-2003-1-15-500-254/922	2 × Pt100	-170 to +700 °C	500	Displaceable screw connection G1/2
902006/55-228-2003-1-15-710-254/922			710	
902006/55-228-2003-1-15-1000-254/922			1000	
<b>Thermocouples data sheet 901006</b>				
901006/65-547-2043-15-500-668/922	2 × NiCr-Ni, type "K"	-35 to +800 °C	500	Stop flange displaceable
901006/65-547-2043-15-710-668/922			710	
901006/65-547-2043-15-1000-668/922			1000	
901006/65-546-2042-15-500-668/922	2 × Fe-CuNi, type "L"	-35 to +700 °C	500	
901006/65-546-2042-15-710-668/922			710	
901006/65-546-2042-15-1000-668/922			1000	
901006/66-550-2043-6-500-668/922	2 × NiCr-Ni, type "K"	-35 to +1000 °C	500	
901006/66-550-2043-6-355-668/922			355	
901006/66-550-2043-6-250-668/922			250	
901006/66-880-1044-6-250-668/922	1 × PT10Rh-PT, type "S"	0 to 1300 °C	250	
901006/66-880-1044-6-355-668/922			355	
901006/66-880-1044-6-500-668/922			500	
901006/66-880-2044-6-250-668/922	2 × PT10Rh-PT, type "S"	0 to 1300 °C	250	Stop flange displaceable
901006/66-880-2044-6-355-668/922			355	
901006/66-880-2044-6-500-668/922			500	

Current type designation	Probe type	Temperature range	Nom. length mm	Process connection
901006/66-953-1046-6-250-668/922	1 × PT30Rh-PT6Rh, type "B"	600 to 1500 °C	250	
901006/66-953-1046-6-355-668/922			355	
901006/66-953-1046-6-500-668/922			500	
901006/66-953-2046-6-250-668/922	2 × PT30Rh-PT6Rh, type "B"	600 to 1500 °C	250	
901006/66-953-2046-6-355-668/922			355	
901006/66-953-2046-6-500-668/922			500	



**JUMO GmbH & Co. KG**

Delivery address: Mackenrodtstraße 14  
36039 Fulda, Germany  
Postal address: 36035 Fulda, Germany  
Phone: +49 661 6003-0  
Fax: +49 661 6003-607  
Email: mail@jumo.net  
Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**

JUMO House  
Temple Bank, Riverway  
Harlow, Essex CM 20 2DY, UK  
Phone: +44 1279 63 55 33  
Fax: +44 1279 62 50 29  
Email: sales@jumo.co.uk  
Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**

6733 Myers Road  
East Syracuse, NY 13057, USA  
Phone: +1 315 437 5866  
Fax: +1 315 437 5860  
Email: info.us@jumo.net  
Internet: www.jumousa.com

**DIN-approved probes for the operating media water and oil**

**Note:** because of the high response accuracy, **the use of thermowells** (immersion sleeves) **is not admissible**.

Current type designation	Probe type	Temperature range	Nom. length mm	Process connection
<b>RTD temperature probe data sheet 902006</b>				
902006/10-226-1003-1-9-250-104/922	1 × Pt100	-40 to +480 °C	250	Screw connection G1/2
902006/10-226-2003-1-9-250-104/922	2 × Pt100		250	
902006/54-227-2003-1-15-710-254/922	2 × Pt100	-170 to 550 °C	65 to 670	Displaceable screw connection G1/2
902006/54-227-1003-1-15-710-254/922	1 × Pt100		65 to 670	
902006/10-402-1003-1-9-100-104/922	1 × Pt100	-170 to 400 °C	100	Screw connection G1/2
902006/10-402-2003-1-9-100-104/922	2 × Pt100		100	
<b>Thermocouples data sheet 901006</b>				
901006/54-544-2043-15-710-254/922	2 × NiCr-Ni, type "K"	-35 to 550 °C	65 to 670	Displaceable screw connection G1/2
901006/54-544-1043-15-710-254/922	1 × NiCr-Ni, type "K"		65 to 670	
901006/54-544-2042-15-710-254/922	2 × FeCuNi, type "L"		65 to 670	
901006/54-544-1042-15-710-254/922	1 × FeCuNi, type "L"		65 to 670	

**Note:** because of the high response accuracy, **only use thermowells** (immersion sleeves) **that are included** in the scope of delivery.

Current type designation	Probe type	Temperature range	Nom. length mm	Process connection
<b>RTD temperature probe data sheet 902006</b>				
902006/53-505-2003-1-12-190-815/922	2 × Pt100	-40 to +400 °C	190	
902006/53-507-2003-1-12-100-815/922	2 × Pt100 (arranged beneath each other in the sheath)		100	
902006/53-507-2003-1-12-160-815/922			160	
902006/53-507-2003-1-12-190-815/922			190	
902006/53-507-2003-1-12-220-815/922			220	
902006/53-507-1003-1-12-100-815/922	1 × Pt100	-40 to +480 °C	100	Weldable sleeve
902006/53-507-1003-1-12-160-815/922			160	
902006/53-507-1003-1-12-220-815/922			220	
902006/53-505-1003-1-12-190-815/922	1 × Pt100	-40 to +400 °C	190	
902006/53-505-3003-1-12-100-815/922	3 × Pt100		100	
902006/53-505-3003-1-12-160-815/922			160	
902006/53-505-3003-1-12-220-815/922		220		
902006/40-226-1003-1-12-220-815/922	1 × Pt100	-170 to +480 °C	220	Weldable sleeve
902006/40-226-1003-1-12-160-815/922			160	
902006/40-226-1003-1-12-100-815/922			100	
<b>Thermocouples data sheet 901006</b>				
901006/53-543-1042-12-220-815/922	1 × Fe-CuNi type "L"	-35 to 480 °C	220	Weldable sleeve
901006/53-543-2042-12-220-815/922	2 × Fe-CuNi type "L"		220	

**DIN-approved probes for the operating media air, water, and oil**

**Note:** because of the high response accuracy, **the use of thermowells** (immersion sleeves) **is not admissible**.

Current type designation	Probe type	Temperature range	Nom. length mm	Process connection
<b>RTD temperature probe data sheet 902006</b>				
902006/10-390-1003-1-8-250-104/22	1 × Pt100	max. 300 °C	250	Screw-in thread G1/2
<b>Thermocouples data sheet 901006</b>				
901006/45-551-2043-2-xxxx-11-xxxx	2 × NiCr-Ni, type "K"	max. 1150 °C	50 to 2000	

**Note:** The probes described in data sheets 901006 and 902006 are also certified for the Pressure Equipment Directive.

**JUMO GmbH & Co. KG**

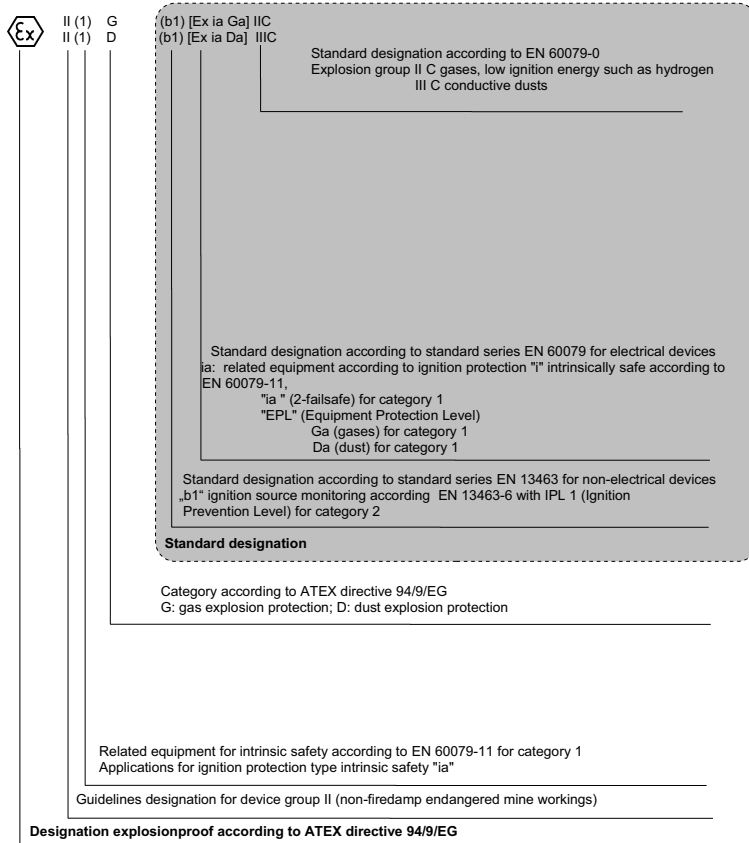
Delivery address: Mackenrodtstraße 14  
36039 Fulda, Germany  
Postal address: 36035 Fulda, Germany  
Phone: +49 661 6003-0  
Fax: +49 661 6003-607  
Email: mail@jumo.net  
Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**

JUMO House  
Temple Bank, Riverway  
Harlow, Essex CM 20 2DY, UK  
Phone: +44 1279 63 55 33  
Fax: +44 1279 62 50 29  
Email: sales@jumo.co.uk  
Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**

6733 Myers Road  
East Syracuse, NY 13057, USA  
Phone: +1 315 437 5866  
Fax: +1 315 437 5860  
Email: info.us@jumo.net  
Internet: www.jumousa.com

**ATEX identification marking****Scope of delivery**

1 JUMO exTHERM-DR in the ordered version
1 operating manual 70105500T90Z000K000
1 ATEX cover cap for analog input

**Order details**

701055	<b>Basic type</b> exTHERM-DR
8 9	<b>Version</b> Default setting Configured acc. to customer specifications
23 25	<b>Voltage supply</b> AC 110 to 240 V +10 % / -15 %, 48 to 63 Hz AC/DC 20 to 30 V, 48 to 63 Hz
701055/ 8- 23	

**JUMO GmbH & Co. KG**  
 Delivery address: Mackenrodtstraße 14  
 36039 Fulda, Germany  
 Postal address: 36035 Fulda, Germany  
 Phone: +49 661 6003-0  
 Fax: +49 661 6003-607  
 Email: mail@jumo.net  
 Internet: www.jumo.net

**JUMO Instrument Co. Ltd.**  
 JUMO House  
 Temple Bank, Riverway  
 Harlow, Essex CM 20 2DY, UK  
 Phone: +44 1279 63 55 33  
 Fax: +44 1279 62 50 29  
 Email: sales@jumo.co.uk  
 Internet: www.jumo.co.uk

**JUMO Process Control, Inc.**  
 6733 Myers Road  
 East Syracuse, NY 13057, USA  
 Phone: +1 315 437 5866  
 Fax: +1 315 437 5860  
 Email: info.us@jumo.net  
 Internet: www.jumousa.com



## Accessories

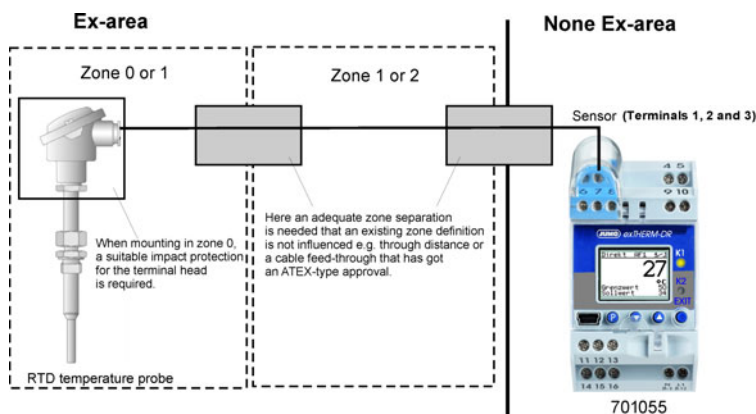
Item	Sales no.
Setup program, multilingual	70/00548742
USB cable	70/00506252

## Probe arrangement in the Ex-area

The JUMO exTHERM-DR has the following maximum output data at the intrinsically safe inputs:				
$U_o = 6.0 \text{ V}$	$I_o = 41.2 \text{ mA}$	$P_o = 61.8 \text{ mW}$	$C_o = 36.3 \text{ }\mu\text{F}$	$L_o = 20 \text{ mH}$

Example: Pt100 with protection tube constant 80 K/W: temperature increase of 80 K/W x 61.8 mW = 4.9 K.

If a separate temperature increase for dust is specified in the technical data sheet from JUMO, this means that the protection fitting is completely covered in dust.



### Note:

The sensor technology specified in Page 8 does not have zone separation.

The type of zone separation as well as the cable selection must be implemented or selected in such a way that the defined zone classifications and their requirements continue to be in place.

Use of a probe with EPL "Gb" with a separation element (DIN EN 60079-26). The figure shows a probe with active zone separation according to DIN EN 60079-26. The terminal head must not be mounted in zone 0!

However, use in zone 0 is permitted below the separation element. The same requirements as in the above figure apply for the zone classification.

