

JUMO diraTRON DR100

Multifunctional controller for DIN-rail mounting

Brief description

The diraTRON DR 100 controller is a universally applicable DIN rail controller for controlling temperature, pressure, and other process variables. A two-state controller, three-state controller, three-state step controller and continuous controller can be implemented.

The measurement input is user configurable and can be used for

- RTD temperature probes,
- thermocouples,
- resistance transmitters,
- resistance potentiometers
- and current or voltage signals.

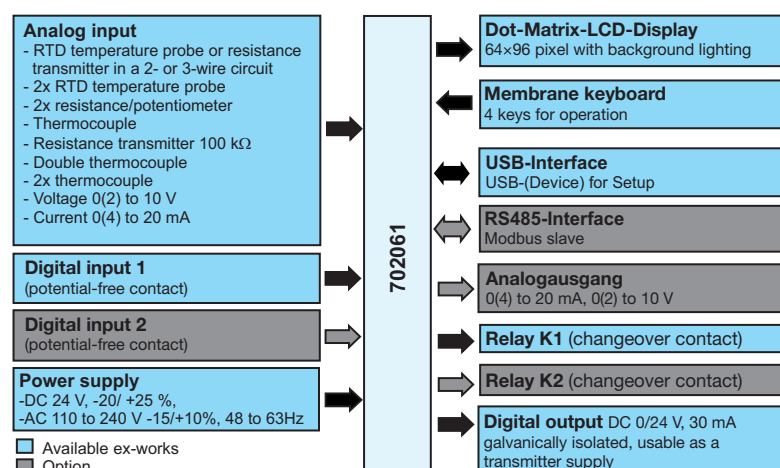
The device is characterized by simple, clearly structured operation that is supported with texts. The device is optionally available with an RS485 interface, an additional digital input, and an analog output. The basic type includes autotuning, a ramp function, manual mode, limit value monitoring function, and digital control signals. Measured values are visualized on a dot-matrix LCD display with white backlight. The operating status is indicated by a two-color LED. In the event of a fault, the LED lights up red and if there is no fault, it lights up green.

The device can be configured via a setup program or via the four keys on the device.



Type 702061

Block diagram



Special features

- Universal analog input
- Temperature difference measurement
- Fast wiring due to spring-cage terminals
- Connection of up to 10 devices next to one another via the rear wall bus
- Digital output can also be used as transmitter supply
- Analog output optionally as actual value, setpoint value, or controller output
- RS485 interface
- Autotuning
- Service and operating hours counter

Approval marks and certificates

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 UK LTD
JUMO House
Temple Bank, Riverway
Harlow, Essex, CM20 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.
6724 Joy 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



Description

Inputs and outputs

The device has a universal analog input (for RTD temperature probe, 2 RTD temperature probes, thermocouple, double thermocouple, 2 thermocouples, current, voltage, resistance/potentiometer, resistance transmitter), a digital input and a digital output. The digital output delivers a logic signal 0/24 V, can serve as voltage supply for transmitters, and is galvanically isolated. A K1 relay (changeover contact) is also available as standard. An additional K2 relay (changeover contact), digital input 2, and an analog output is also optionally available. The digital inputs are provided to connect a potential-free contact.

USB interface

The device is equipped with a USB device interface (Micro-B socket on the front) that is provided for connecting to a PC and is only used for the setup program.

RS485 interface

An RS485 interface is also available as an optional extra, which is provided for communication with a Modbus master. The Modbus RTU protocol is used for communication.

Electrical connection

The electrical connection saves time by using practical spring-cage terminals according to DIN EN 60998-1 (PUSH IN technology).

Rear wall terminals

They can be ordered as accessories. The PUSH IN connection terminal is required for the voltage supply DC 24 V and connection of the RS485 interface (option) via the rear wall terminal. A wireless connection from device to device via the mounting rail rear wall terminal is still possible (see accessories).

Controller

The controller structures (P, I, PD, PI, PID) including autotuning are available. A two-state controller, three-state controller, three-point state controller, and continuous controller can be implemented.

Autotuning

Autotuning (oscillation method and step response) also makes it possible for the controller to be matched to the control process by users who are not control technology experts. The way the control process reacts to changes in the actuating variable is evaluated in the process and suitable controller parameters are calculated.

Service

The switching cycles of the K1 and K2 relays are counted. When the set limit value is reached, a binary signal is activated that needs to be acknowledged.

Setup program

The setup program provides the user with an easy and convenient way to configure the device using a PC. This allows data records to be created, edited, saved, and transferred to the device, as well as extracted from there.

Expertise protection is implemented with password protection (code).

If expertise protection is active, the read configuration is not displayed in the setup. A setup file with active expertise protection cannot be loaded into any devices; the protection has to be canceled beforehand.

Customer-specific linearization

Sensor signals with special characteristic line properties can also be used through customer-specific linearization. Programming is carried out in the setup program on the basis of a value table with up to 40 value pairs or through a formula (4th order polynomial).

JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
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Controller parameters

The following table shows the parameters in a parameter block. Depending on the controller type configured, certain parameters may be omitted or ineffective. The transmission behavior is specified by the selection of the controller structure and determined by the configuration of the parameters for the proportional band (P component), derivative time (D component), and reset time (I component). Parameters that appear in pairs such as Proportional band Xp1 and Xp2 refer to the first and second controller outputs.

The same parameters are also available for the second parameter block.

Parameter	Value range	Factory setting	Unit	Meaning
Controller structure 1	P, I, PD, PI, PID	PID		Transmission behavior of the first controller output
Controller structure 2	P, I, PD, PI, PID	PID		Transmission behavior of the second controller output with a three-state controller
Proportional band Xp1	0 to 9999	0	Physical unit of the controller size	Size of the proportional band The controller structure is not effective with 0 (behavior identical to limit value monitoring)! Xp1/2 > 0 must be for a continuous controller.
Proportional band Xp2	0 to 9999	0	Physical unit of the controller size	
Derivative time Tv1	0 to 9999	80	s	Influences the differential component of the controller output signal.
Derivative time Tv2	0 to 9999	80	s	
Reset time Tn1	0 to 9999	350	s	Influences the integral component of the controller output signal.
Reset time Tn2	0 to 9999	350	s	
Cycle time Cy1	0 to 9999	20	s	When using a switched output, the cycle time should be chosen so that the energy supply to the process is as continuous as possible without overloading the switching elements.
Cycle time Cy2	0 to 9999	20	s	
Contact spacing Xsh	0 to 999	0	Physical unit of the controller size	Spacing between the two control contacts of a three-state controller and three-step controller
Switching differential Xd1	0 to 999	1	Physical unit of the controller size	Hysteresis for a switching controller with proportional band Xp = 0
Switching differential Xd2	0 to 999	1	Physical unit of the controller size	
Actuator time TT	5 to 3000	60	s	Control valve running time range used for a three-step controller
Working point Y0	-100 to +100	0	s	The output level for P and PD controllers (if x = w then y = Y0)
Output value limit Y1	0 to 100	100	%	Maximum output value limit (only effective if Xp > 0)
Output value limit Y2	-100 to +100	-100	%	Minimum output value limit (only effective if Xp > 0)
Minimum relay ON time Tk1	0 to 9999	0	s	Limits the switching frequencies for switched outputs (digital outputs) Recommended setting when using a relay as controller output: ≥ 0.15 s
Minimum relay ON time Tk2	0 to 9999	0	s	

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Technical data

Analog input

RTD temperature probe

Designation	Standard	ITS	Connection type	Measuring range	Accuracy ^a
Pt100 Pt500 Pt1000 $T_c = 3.851 \times 10^{-3} \text{ 1/K}$	DIN EN IEC 60751:2023-06	ITS-90	Two/three-wire	-200 °C to +850 °C	±0.1 %
Pt100 $T_c = 3.917 \times 10^{-3} \text{ 1/K}$	GOST 6651-2009 A.2	ITS-90	Two/three-wire	-200 °C to +850 °C	±0.1 %
Pt50 $T_c = 3.917 \times 10^{-3} \text{ 1/K}$	GOST 6651-2009 A.2	ITS-90	Two/three-wire	-200 °C to +850 °C	±0.1 %
Ni100 Ni500 Ni1000 $T_c = 6.18 \times 10^{-3} \text{ 1/K}$	DIN 43760:1987-09	IPTS-68	Two/three-wire	-60 °C to +250 °C	±0.1 %
Ni100 $T_c = 6.17 \times 10^{-3} \text{ 1/K}$	GOST 6651-2009 A.5	ITS-90	Two/three-wire	-60 °C to +180 °C	±0.1 %
Cu50 $T_c = 4.28 \times 10^{-3} \text{ 1/K}$	GOST 6651-2009 A.3	ITS-90	Two/three-wire	-180 °C to +200 °C	±0.1 %
Cu100 $T_c = 4.28 \times 10^{-3} \text{ 1/K}$	GOST 6651-2009 A.3	ITS-90	Two/three-wire	-180 °C to +200 °C	±0.1 %

^a Accuracy refers to the measuring range.

General specifications	
Connection type	Two-wire circuit Three-wire circuit Two RTD temperature probes in two-wire circuit
Ambient temperature influence	≤ 50 ppm/K referring to 22 °C
Sensor line resistance	Maximum 50 Ω per line, automatic compensation with three-wire circuit
Sensor current	< 1 mA
Input filter	Digital filter, 2nd order; filter constant can be set from 0 s to 100 s
Sampling rate	210 ms

Thermocouples

Designation	Type	Standard	ITS	Measuring range	Accuracy ^a
Fe-CuNi	L	DIN 43710:1985-12	IPTS-68	-200 °C to +900 °C	±0.4 %
Fe-CuNi	J	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-210 °C to +1200 °C	±0.4 % from -100 °C
Cu-CuNi	U	DIN 43710:1985-12	IPTS-68	-200 °C to +600 °C	±0.4 % from -100 °C
Cu-CuNi	T	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-200 °C to +400 °C	±0.4 % from -150 °C
NiCr-Ni	K	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-200 °C to +1300 °C	±0.4 % from -50 °C
NiCr-CuNi	E	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-200 °C to +1000 °C	±0.4 % from -80 °C
NiCrSi-NiSi	N	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-200 °C to +1300 °C	±0.4 % from -80 °C
Pt10Rh-Pt	S	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-50 °C to +1768 °C	±0.4 % from +20 °C

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

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 East Syracuse, NY 13057, USA
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Designation	Type	Standard	ITS	Measuring range	Accuracy ^a
Pt13Rh-Pt	R	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-50 °C to +1768 °C	±0.4 % from +50 °C
Pt30Rh-Pt6Rh	B	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	-50 °C to +1820 °C	±0.4 % from +400 °C
W5Re-W26Re	C	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	0 °C to 2315 °C	±0.4 %
W5Re-W20Re	A	IEC 60584-1:2013 DIN EN 60584-1:2014	ITS-90	0 °C to 2500 °C	±0.4 %
W3Re-W25Re	D	ASTM E1751M-20	ITS-90	0 °C to 2315 °C	±0.4 %
Chromel®-COPEL®	L	GOST R 8.585-2001	ITS-90	-200 °C to +800 °C	±0.4 % from -80 °C
Chromel®-Alumel®	K	GOST R 8.585-2001	ITS-90	-270 °C to +1372 °C	±0.4 % from -80 °C
Platinel II®		ASTM E1751M-20	ITS-90	0 °C to 1395 °C	±0.4 %

^a Accuracy refers to the maximum measuring range.

General specifications	
Connection type	Thermocouple Double thermocouple 2 × thermocouple
Ambient temperature influence	≤ 100 ppm/K referring to 22 °C, plus accuracy of the cold junction
Cold junction	Internal (Pt1000) or external (fixed value)
Cold junction accuracy	±1 K
Cold junction temperature (constant fixed value)	-20 °C to +80 °C (adjustable)
Input filter	Digital filter, 2nd order; filter constant can be set from 0 s to 100 s
Sampling rate	Thermocouple: 210 ms

Voltage, current (standard signals)

Designation	Measuring range	Accuracy ^a	Input resistance
Voltage	0 V to 10 V	±0.1 %	> 500 kΩ
	2 V to 10 V	±0.1 %	> 500 kΩ
	-20 to +90 mV	≤ 0.4 %	> 500 kΩ

^a Accuracy refers to the maximum measuring range.

Designation	Measuring range	Accuracy ^a	Compliance voltage
Current	4 mA to 20 mA	±0.2 %	≤ 3 V
	0 mA to 20 mA	±0.2 %	≤ 3 V

^a Accuracy refers to the maximum measuring range.

General specifications	
Ambient temperature influence	≤ 150 ppm/K referring to 22 °C
Measuring range limits	According to NAMUR Recommendation NE 43
Input filter	Digital filter, 2nd order; filter constant can be set from 0 to 100 s
Sampling rate	210 ms

Resistance transmitter

General specifications		Accuracy ^a
Measuring range	0 Ω to 100000 Ω	0.1 %
Connection type	Resistance transmitter in three-wire connection	
Ambient temperature influence	≤ 50 ppm/K referring to 22 °C	
Input filter	Digital filter, 2nd order; filter constant can be set from 0 s to 100 s	
Sampling rate	210 ms	

^a Accuracy refers to the measuring range.

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 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
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 Phone: +49 661 6003-0
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Resistance potentiometer

Designation	Measuring range	Accuracy ^a
Resistance	0 Ω to 400 Ω	≤ 0.1 %
	0 Ω to 4000 Ω	≤ 0.1 %

^a Accuracy refers to the maximum measuring range.

General specifications	
Connection type	Two-wire connection Three-wire connection Two resistance potentiometers in two-wire connection
Ambient temperature influence	≤ 50 ppm/K referring to 22 °C
Sensor line resistance	Maximum 50 Ω per line
Sensor current	< 1 mA
Input filter	Digital filter, 2nd order; filter constant can be set from 0 s to 100 s
Sampling rate	210 ms

Measuring circuit monitoring

The device behavior in the event of a fault is configurable.

Measuring probe	Measuring range undershoot	Measuring range exceedance	Break of probe or line	short-circuit Probe
RTD temperature probe	Is detected	Is detected	Is detected	Is detected
Thermocouple and 2 × thermocouple	Is detected	Is detected	Is detected	Is not detected
Double thermocouple	Is detected	Is detected	Is detected	Is detected ^a
Resistance transmitter	Is not detected	Is not detected	Is not detected	Is not detected
Resistance potentiometer	Is not detected	Is detected	Is detected	Is not detected
Current 0 mA to 20 mA	Is detected	Is detected	Is not detected	Is not detected
Current 4 mA to 20 mA	Is detected	Is detected	Is detected	Is detected
Voltage 0 V to 10 V	Is detected	Is detected	Is not detected	Is not detected
Voltage 2 V to 10 V	Is detected	Is detected	Is detected	Is detected

^a Probe short circuit can only be detected with a double thermocouple (via double thermocouple fault limit)

Analog output

Voltage	
Output signal	DC 0 V to 10 V or 2 V to 10 V
Load resistance	≥ 500 Ω
Load influence	±15 mV
Current	
Output signal	DC 0 mA to 20 mA or 4 mA to 20 mA
Burden	≤ 500 Ω
Burden influence	±0.05 mA/100 Ω
Accuracy ^a	±0.5 %
Ambient temperature influence	≤ 150 ppm/K
Standard or option	Option 2
Galvanic isolation	No

^a Accuracy refers to the measuring range end value.

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Digital inputs

Digital input 1

Operating mode	Potential-free contact
Switching voltage, current	internal voltage source DC 3.3 V, 1 mA
Function	Contact closed: input is active ($R_{ON} < 1\text{ k}\Omega$)
	Contact open: input is inactive ($R_{OFF} > 100\text{ k}\Omega$)
Galvanic isolation	No
Standard or option	Standard

Digital input 2

Operating mode	Potential-free contact
Switching voltage, current	internal voltage source DC 24 V, 5 mA
Function	Contact closed: input is active ($R_{ON} < 1\text{ k}\Omega$)
	Contact open: input is inactive ($R_{OFF} > 100\text{ k}\Omega$)
Galvanic isolation	Yes
Standard or option	Option 1

Digital outputs

Relay K1 (changeover contact)

Switching capacity	Relay (changeover contact) with contact protection circuit: installed fuse cut-out 3.15 AT in pole arm.
Contact life	100000 switching cycles at AC 250 V, 3 A resistive load 250000 switching cycles at 1 A
Contact capability	AC 230 V or 24 V; 3 A at $\cos \varphi = 1$; (0.5 A at $\cos \varphi \geq 0.6$); 50 Hz DC 24 V; 3 A; (0.5 A at $\tau = 7\text{ ms}$) UL 60730 AC 230 V; 3 A D300; 30 k AC/DC 24 V; 3 A
Minimum current	DC 24 V, 100 mA
Standard or option	Standard

Relay K2 (changeover contact)

Switching capacity	Relay (changeover contact) with contact protection circuit: installed fuse cut-out 3.15 AT in pole arm
Contact life	100000 switching cycles at AC 250 V, 3 A resistive load 250000 switching cycles at 1 A
Contact capability	AC 230 V or 24 V; 3 A at $\cos \varphi = 1$; (0.5 A at $\cos \varphi \geq 0.6$); 50 Hz DC 24 V; 3 A; (0.5 A at $\tau = 7\text{ ms}$) UL 60730 AC 230 V; 3 A D300; 30 k AC/DC 24 V; 3 A
Minimum current	DC 24 V, 100 mA
Standard or option	Option

Digital output

Output signal	DC 0 V or 24 V
Current	Max. 30 mA
Transmitter feed	The digital output can be configured to be permanently switched to DC 24 V and supply the transmitter.
Standard or option	Standard

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Interfaces

USB interface

Connector type	Micro-B (socket)
Standard	Low-Speed, Full-Speed
Max. cable length	5 m
Standard or option	Standard

RS485 interface

Baud rate	9600 baud 19200 baud 38400 baud 57600 baud 115200 baud
Data format (Data bit / parity / stop bit)	8 / no / 1 (8N1) 8 / odd / 1 (8O1) 8 / even / 1 (8E1) 8 / no / 2 (8N2)
Protocol	Modbus RTU, as slave
Standard or option	Option 2 or 3

Display

Type	Dot-matrix LCD
Resolution	64 px × 96 px
Brightness setting	Contrast can be adjusted on device. Backlight can be switched off manually or via timeout.
Decimal places	0, 1, 2 (user configurable)

Electrical data

Voltage supply Galvanically isolated	AC 110 V to 240 V, -15 % / +10 %, 48 Hz to 63 Hz	DC 24 V, -20 % / +25 % The device may only be connected to SELV electrical circuits
Power consumption	3.8 W	3.0 W
Electrical safety	DIN EN 60730-2-9:2021; Overvoltage category III, Rated surge voltage 4000 V Pollution degree 2	
Protection rating	I with internal isolation from SELV	
Electrical connection	Spring-cage terminals (PUSH IN technology) Type of mounting type Y	
Conductor cross section Wire or stranded wire (without ferrule) Stranded wire with ferrule (for flexible line)	Min. 0.2 mm ² , max. 2.5 mm ² , AWG 24 to 14 Without plastic collar: min. 0.25 mm ² , max. 2.5 mm ² With plastic collar: min. 0.25 mm ² , max. 2.5 mm ²	
Stripping length	10 mm	

Test voltage according to EN 60730-1

Input or output to voltage supply.	3.28 kV / 50 Hz
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Air gaps and creepage distances

According to DIN EN IEC 60730-2-9:2021-01, chapter 20	Air gap	Creepage distances
Mains voltage to electronic components and probes	≥ 6 mm	≥ 5 mm
Mains voltage to relays	≥ 6 mm	≥ 5 mm
Relays to relays	≥ 6 mm	≥ 5 mm
Relays to electronic components and probes	≥ 6 mm	≥ 5 mm

Environmental influences

Ambient temperature range	
Storage	-30 °C to +70 °C
Operation	-10 °C to +55 °C
Site altitude	Max. 2000 m above sea level
Climatic environmental influences	According to DIN EN 60721-3 with extended temperature range
Resistance to climatic conditions	≤ 95 % rel. humidity without condensation
Storage	According to class 3K22
Operation	According to class 3K22
Electromagnetic compatibility (EMC)	According to DIN EN IEC 60730-2-9:2021-01
Interference emission	Class B
Interference immunity	Industrial requirement

Case

Case type	Plastic case for panel mounting according to IEC 61554 (indoor use), cobalt blue RAL 5013
Case front	Membrane keyboard, upper slope cobalt blue RAL 5013, lower slope silver grey RAL 7001
Panel thickness	1 to 10 mm
Case mounting	In panel using the supplied mounting frame or both mounting elements
Operating position	Any ^a
Protection type	According to DIN EN 60529, IP65 on the front, IP20 on the back
Weight	
Type 701590	Max. 160 g
Type 701591	Max. 240 g

^a The maximum admissible ambient temperature only applies for the installation with the display in a vertical position.

Approval marks and certificates

Approval mark	Test facility	Certificates/certification numbers	Inspection basis	Valid for
UL Approval requested	Underwriters Laboratories	File Nr.: E325456	UL 60730-2-9 UL/CSA 60730-2-9	for all versions

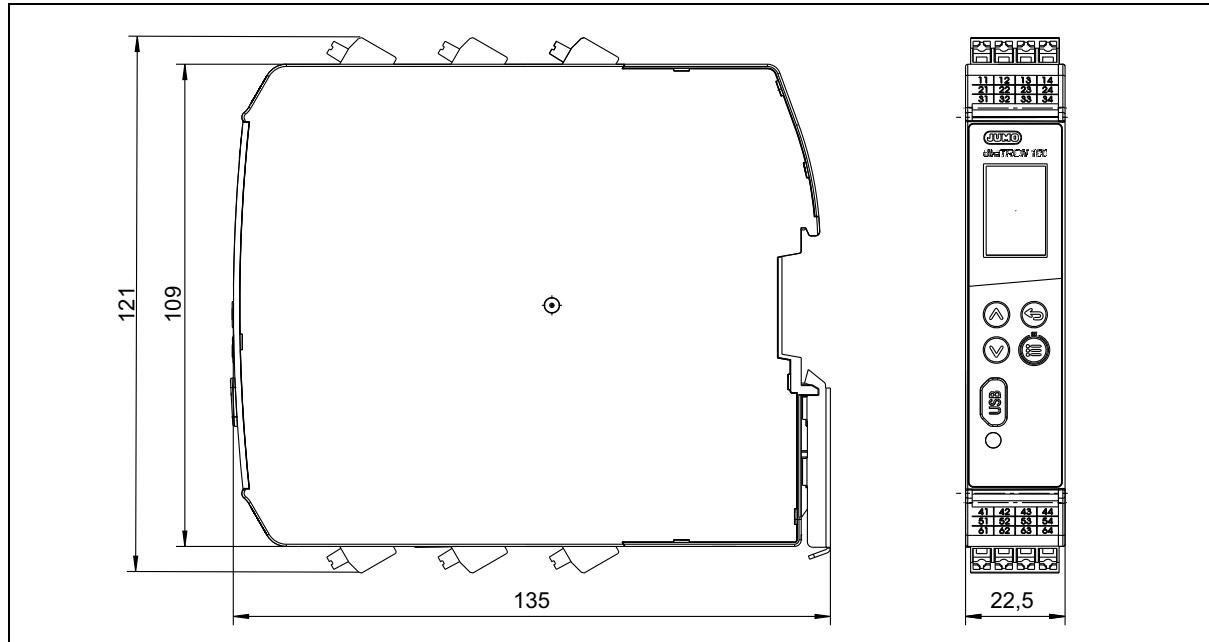
JUMO GmbH & Co. KG
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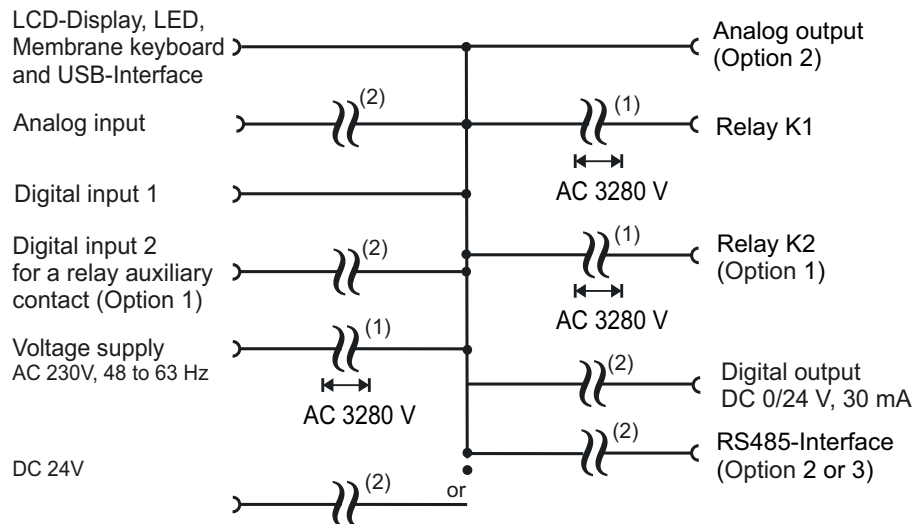
JUMO Process Control, Inc.
 6724 Joy Road
 East Syracuse, NY 13057, USA
 Phone: +1 315 437 5866
 Fax: +1 315 437 5860
 Email: info.us@jumo.net
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Dimensions



Electrical isolation



(1) The voltage specifications correspond to the test voltages (alternating voltage, rms values) according to DIN EN 60730-1 (VDE 0631-1):2021-06 EN 60730-1:2016 + A1:2019 for type testing.

(2) Functional galvanic isolation for connecting SELV or PELV electrical circuits.

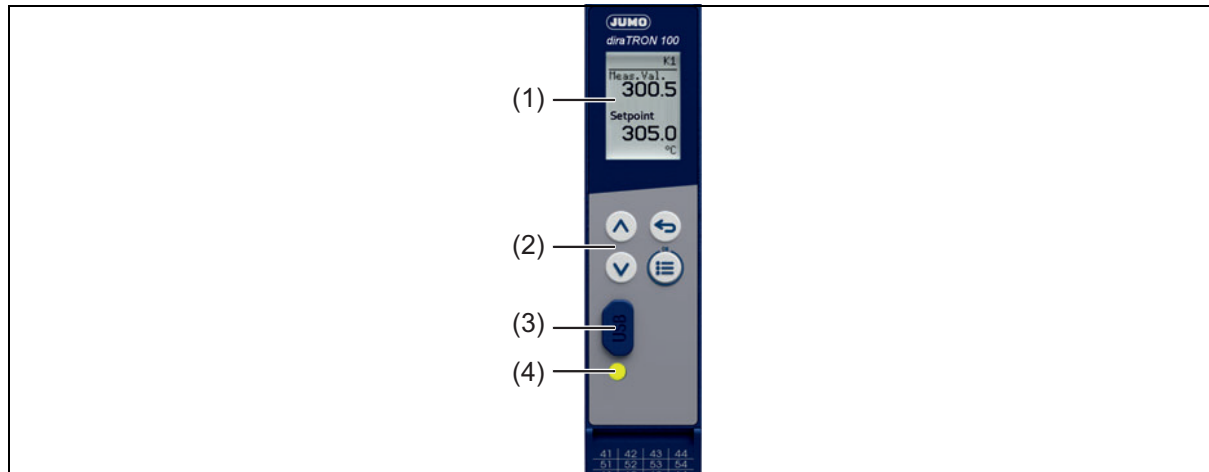
JUMO GmbH & Co. KG
 Delivery address: Mackenrodtstraße 14
 36039 Fulda, Germany
 Postal address: 36035 Fulda, Germany
 Phone: +49 661 6003-0
 Fax: +49 661 6003-607
 Email: mail@jumo.net
 Internet: www.jumo.net

JUMO UK LTD
 JUMO House
 Temple Bank, Riverway
 Harlow, Essex, CM20 2DY, UK
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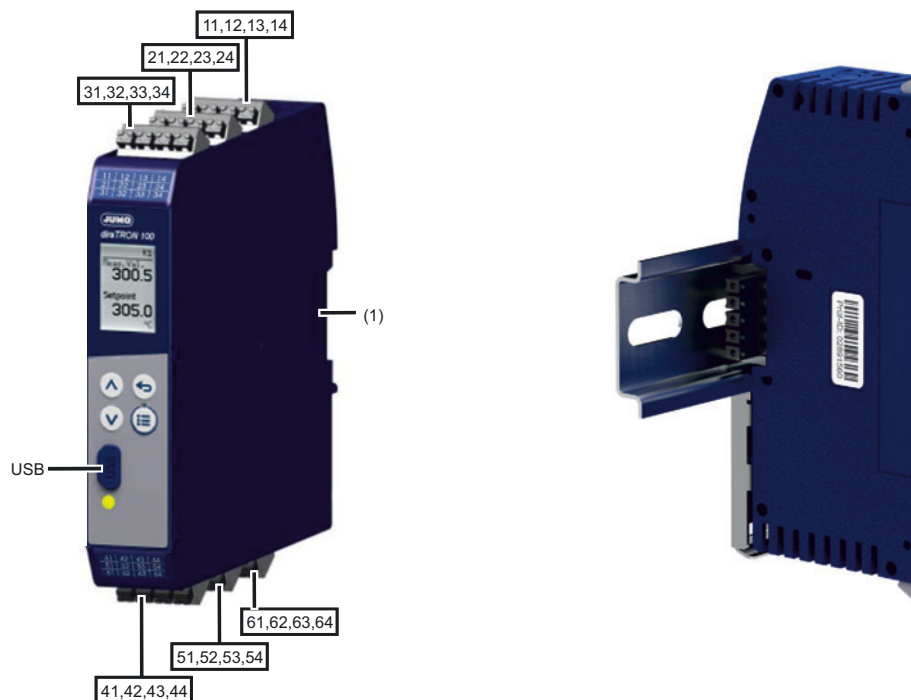


Display and control elements



- 1 Black/white dot-matrix LCD display with backlight
- 2 Keys for operating the device
- 3 Micro USB connection cover
- 4 Two-colored status LED

Connection elements



- | | | | |
|----------------|---|----------------|------------------|
| (1) | Mounting rail rear wall terminal | 33, 34 | Digital input 1 |
| 11, 12 | Option: Analog output or RS485 interface | 41, 42, 43, 44 | K1 relay |
| 13, 14 | Option: Digital input 2 (galvanically isolated) | 51, 52, 53, 54 | Option: K2 relay |
| 21, 22, 23, 24 | Analog input | 61, 62, 63, 64 | Voltage supply |
| 31, 32 | Digital output (galvanically isolated) | USB | USB connection |

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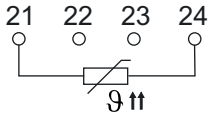
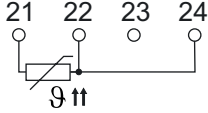
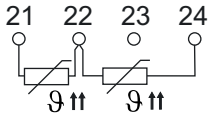
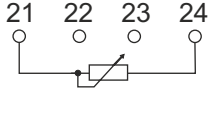
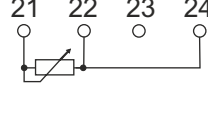
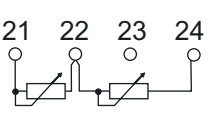
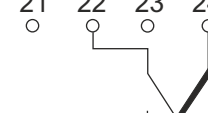
Connection diagram

The connection diagram in the data sheet provides information on product selection.

For the electrical connection, only use the installation instructions or the operating manual.

When connecting the device to an external PELV electrical circuit, the existing internal SELV electrical circuit becomes a PELV electrical circuit. In this case, protection against electric shock is provided via double or reinforced insulation and voltage limitation. A connection to the protective ground is not required.

Analog input

Connection	Terminals	Symbol and terminal designation	
RTD temperature probe in two-wire circuit	(21,24)		
RTD temperature probe in three-wire circuit	(21, 22, 24)		
2 × RTD temperature probe in two-wire circuit	(21, 22, 24) Input 1: 21, 22 Input 2: 22, 24		For example for differential measurement
Resistance potentiometer in two-wire circuit	(21,24)		
Resistance potentiometer in three-wire circuit	(21, 22, 24)		
2 × resistance potentiometer in two-wire circuit	(21, 22, 24) Input 1: 21, 22 Input 2: 22, 24		For example for differential measurement
Thermocouple	(22, 24)		

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Connection	Terminals	Symbol and terminal designation	
2 × Thermocouple	(22, 24) Input 1: 22, 24		For example for differential measurement
	(21, 24) Input 2: 21, 24		
Double thermocouple not galvanically isolated	(22, 24) Input 1: 22, 24 (21, 24) Input 2: 21, 24		
Voltage DC 0 V to 10 V DC 2 V to 10 V	(23, 24)		
Current DC 0 mA to 20 mA DC 4 mA to 20 mA	(22, 24)		
Resistance transmitter E = End S = Sliding contact B = Beginning	(21, 23, 24)		

Analog output (option)

Connection	Terminals	Symbol and terminal designation	
Current DC 0 mA to 20 mA DC 4 mA to 20 mA (user configurable)	(11, 12)		
Spannung DC 0 V bis 10 V DC 2 V bis 10 V (user configurable)	(11, 12)		

Digital input 1

Connection	Terminals	Symbol and terminal designation	
Potential-free contact Switching current 1 mA	(33, 34)		

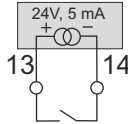
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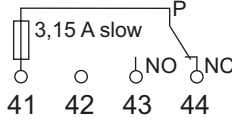
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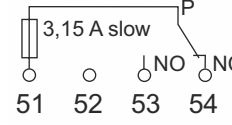
Digital input 2 (option)

Connection	Terminals	Symbol and terminal designation
DC 24 V, 5 mA Galvanically isolated	(13, 14)	

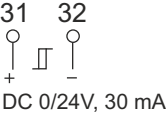
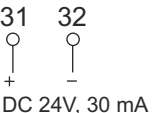
Relay K1

Connection	Terminals	Symbol and terminal designation
(safe operating state according to quiescent current principle)		
Changeover contact with installed 3.15 A slow-blow microfuse in pole arm P: Pole NO: normally open NC: normally closed	(41, 43, 44)	

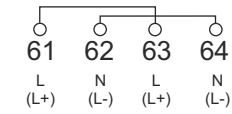
Relay K2 (option)

Connection	Terminals	Symbol and terminal designation
Changeover contact with installed 3.15 A slow-blow microfuse in pole arm P: Pole NO: normally open NC: normally closed	(51, 53, 54)	

Digital output

Connection	Terminals	Symbol and terminal designation
DC 0 V / 24 V, 30 mA Galvanically isolated	(31, 32)	
DC 24 V, 30 mA Transmitter feed; Galvanically isolated	(31, 32)	

Voltage supply

Connection	Terminals	Symbol and terminal designation
AC 110 V bis 240 V, -15 % / +10 %, 48 Hz to 63 Hz (Galvanically isolated)	(61, 62)	
DC 24 V, -20 % / +25 % (Galvanically isolated)		
Terminals 63 and 64 are intended for looping through a maximum of 10 adjacent devices.	(63, 64)	
		The device may only be connected to SELV electrical circuits.

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RS485 interface

Connection	Terminals	Symbol and terminal designation
RS485-interface - as option 2	11 12 or via mounting rail rear wall terminal	TxD+/RxD+ (11) TxD-/RxD- (12) Transmission/received data + Transmission/received data -
RS485-interface - as option 3	via mounting rail rear wall terminal	TxD+/RxD+ TxD-/RxD- Transmission/received data + Transmission/received data -

USB interface

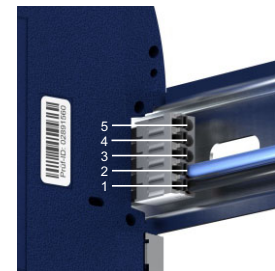
Connection	Terminals	Symbol and terminal designation
USB-interface (Device)	(USB-Socket)	Micro-B-connector, standard (5-pole), front side

Rear wall contacts: PUSH IN connection terminal

It enables the DC 24 V voltage supply and RS485 interface to be connected in conjunction with the mounting rail rear wall terminal.

Note: It is not suitable for connecting AC 230 V.

Connection	Terminals	Symbol and terminal designation
Voltage supply	1 2 3	(L+) (L-) not used
RS485-interface - as option 3	4 5	TxD-/RxD - TxD+/RxD +

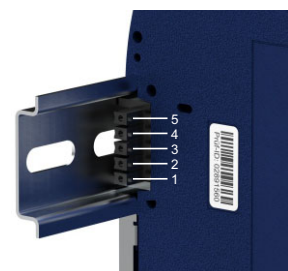


Rear wall contacts: Mounting rail rear wall terminal

Other devices can therefore be connected via the back cover connection.

A maximum of 10 devices can be supplied.

Connection	Terminals	Symbol and terminal designation
Voltage supply	1 2 3	(L+) (L-) not used
RS485-interface - as option 3	4 5	TxD-/RxD - TxD+/RxD +



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Order details

(1)	Basic type
702061	JUMO diraTRON DR100 with 1 analog input, digital input 1, digital output, K1 relay (changeover contact)
(2)	Version
0	Standard with default settings
1	Customer-specifically modified hardware
2	Customer-specifically modified software
3	Customer-specifically modified hardware and software
(3)	Option 1
0	None
1	K2 relay (changeover contact) and digital input 2 (galvanically isolated)
(4)	Option 2
0	None
3	Analog output
4	RS485 interface ^a
(5)	Option 3
0	None
7	RS485 interface ^b
(6)	Voltage supply
23	AC 110 to 240 V, -15/+10 %, 48 to 63 Hz
36	DC 24 V, -20 /+25 %

^a Connection of RS485 via connection terminals 11 and 12 or via rear wall terminals (mounting rail rear wall terminals or PUSH IN connection terminals).

^b If option 2 = 0 or = 3 has been selected, connection of RS485 is only possible via rear wall terminals (mounting rail rear wall terminals or PUSH IN connection terminals).

Explanation on (2) version	
0	Standard with default settings means: everything that can be ordered in the order code shown
1	Customer-specifically modified hardware means: everything that cannot be ordered in the order code shown, e.g. customer-specific front film
2	Customer-specifically modified software means: device differs from the standard JUMO configuration (highlighted bold in the BTA). if the customer wants to have another measurement input configured, for example
3	Combination of 1 and 2

Type designation (1) (2) (3) (4) (5) (6)
 Example 702061 / 0 - 1 - 3 - 7 - 23

Scope of delivery

- 1 device in the ordered version
- 1 quick start guide

Accessories

Designation	Material number
Setup program (JUMO)	30071435
USB cable, A connector on Micro-B connector, 3 m	00616250
Mounting rail rear wall terminal (device)	00763134
PUSH IN connection terminal	00764414

You can find further information on our website: <http://www.jumo.de>