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JUMO eTRON M100

Electronic 2-channel microstat

76 × 36 mm format

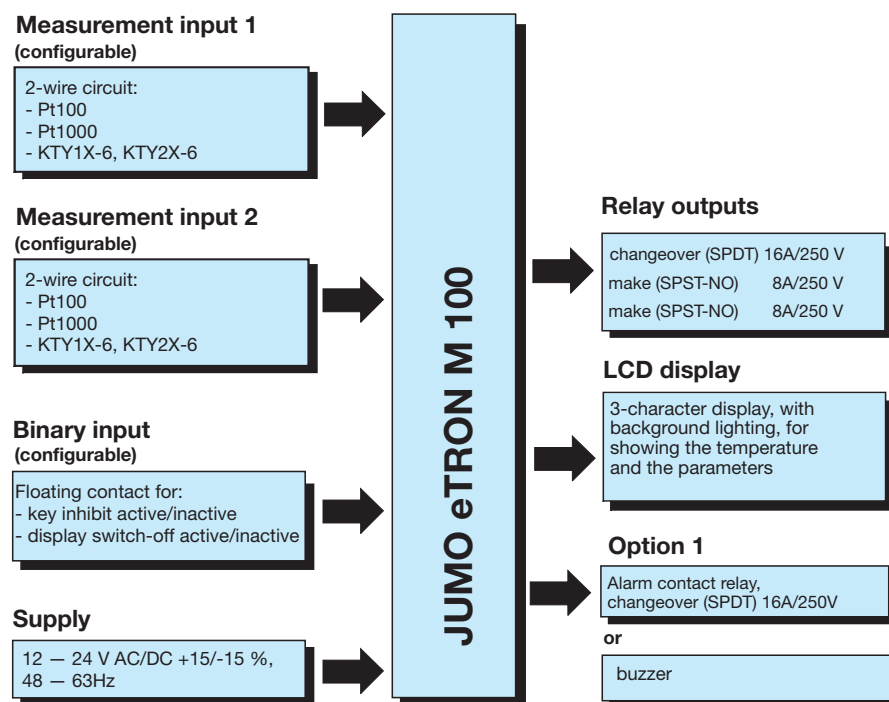
Brief description

The 701066 is an electronic 2-channel microstat for universal use and for connection to RTD temperature probes Pt100, Pt1000, KTY1X-6, or KTY2X-6. The two measuring inputs measure temperatures that are available as the actual value and that can be assigned to the relays as the user sees fit (see "Example for controller functions (relative)" on page 5.). 3 relays (1 changeover contact and 2 N/O contacts) are available. An additional relay (1 changeover contact) or a buzzer is available as an option. The measured values and parameters are displayed on a three-digit display with lit background. The switching statuses of relays K1 to K4 are indicated by yellow LEDs. The electrical connection is made via screw terminals. The device is operated and parameterized via 4 keys.



Type 701066/...

Block diagram








Special features

- 2 analog inputs for RTD temperature probes PT100, Pt1000, KTY1X-6, or KTY2X-6 in 2-wire circuit
- Up to two 16 A-relays and two 8A-relays available
- All relay functions can be assigned to the two analog inputs
- Available with buzzer for acoustic alarm as an option
- Customer-specific linearization programmable via setup program
- Operating hours counter with integrated service counter
- Altering via relays or buzzer
- Available with data logger and RS485 interface
- The data logger records the measuring inputs and the switching statuses of all relays
- Individual release of up to 8 parameters for the operating level
- Parameter level protected by code that prevents unauthorized access to the device data
- Fulfills requirements according to DIN EN 12830 and DIN EN 13485
- Setup program for device configuration and data-logger analysis

Approvals



Display and operating elements

LCD display	13 mm high, 3-digit nine-segment display, and symbols for temperature unit, h, min, and sec with red background lighting	
LED K1 LED K2 LED K3 LED K4	LED lights up when the respective relay is energized LED extinguishes when the respective relay is de-energized	
Keys	  Programming  Increase parameter value  Decrease parameter value	
Setup interface	The device can be connected to a PC with a PC-interface and an adapter (4-pin socket)	



Technical data

Analog inputs

Analog input 1 and 2	Designation	Measuring range	Accuracy in % from the measuring-range, temperature influence	Detection of ...	
				Probe short-circuit	Probe break
RTD temperature probe	Pt100 DIN EN 60751	-200 to +600 °C	0.05 % (±0.4 °C), 100 ppm/K	Yes	Yes
	Pt1000 DIN EN 60751	-200 to +600 °C	0.05 % (±0.4 °C), 100 ppm/K	Yes	Yes
PTC	KTY1X-6	-50 to +100 °C	0.5 % (±0.75 °C), 100 ppm/K	Yes	Yes
	KTY2X-6	-50 to +150 °C	0.5 % (±1 °C), < 100 ppm/K	Yes	Yes
	Resistance 10 to 3500 Ω	Customer table ¹	0.075 % (±2.6 Ω), 100 ppm/K	Yes	Yes

Measuring current with Pt100: 2 mA, with Pt1000, KTY2X-6, KTY1X-6, and resistance: 0.2 mA

The lead compensation can be adjusted via the lead compensation resistance $or.1$ and $or.2$ parameters.

Ensure that the total resistance at the analog input (probe resistance + set value for $or.1$ or $or.2$) for Pt100 does not exceed: 314 Ω, for Pt1000: 3140 Ω, for KTY2x-6: 2235 Ω, and for KTY1x-6: 3400 Ω.

Input resistance	$R_E \geq 100 \text{ k}\Omega$
Sampling rate	250 ms
Input filter	Digital filter, 1st order; filter constant can be set from 0.1 to 99.9 s
Measured current	With Pt100: 0.2 mA; with Pt1000, KTY2X-6, KTY1X-6, and resistance: 0.02 mA
Lead compensation	Can be adjusted via the lead compensation resistance $or.1$ and $or.2$ parameters
Temperature offset	Can be adjusted via the $ot.1$ and $ot.2$ parameters
Special features	Temperature display can also be set to °F (Fahrenheit)

¹ A valid customer table must be entered through the setup program and switched over to tb in the device.

Environmental influences

Ambient temperature range	0 to 55 °C
Storage temperature range	-40 to +70 °C
Resistance to climatic conditions	≤ 85 % rel. humidity without condensation
Shock and vibration	DIN EN 60068-2-6 table C.2, frequency range: 10 to 55 Hz Acceleration: 20 m/s ² (2 g)
Cleaning and care of the front panel	The front panel can be cleaned with commercial detergents and cleaning agents. Do not use solvents such as methylated spirit, cleaning solvent, P1, or xylene!

Output

Cooling relay (changeover contact)	70,000 operations at AC 250 V / 16 A, 50 Hz resistive load
Alarm relay (changeover contact)	60,000 operations at AC 250 V / 16 A, 50 Hz cos phi > 0.6
Defrosting relay (N/O contact)	100,000 operations at AC 250 V / 8 A, 50 Hz resistive load
Ventilator relay (N/O contact)	85,000 operations at AC 250 V / 8 A, 50 Hz cos phi > 0.6

RS485 interface

Max. baud rate	38.4kBaud
Max. length of the transmission path	< 1200m
Max. number of participants	32
Priority	The RS485 must not be used while the setup interface is in use!

Voltage supply

Voltage supply	Only operate AC/DC 12 to 24V +15/-15%, 48 to 63 Hz on SELV circuits! (No galvanic isolation to the analog inputs)
Power consumption	< 3W

Case

Material	Polycarbonate, silver gray RAL 7001
Mounting	Into panel cut-out with front-frame seal
Installation position	Any
Weight	Approx. 160 g
Protection type according to EN 60 529, IEC 529	At the front IP65, at the rear IP20
Flammability class	UL 94 V0

Electrical data

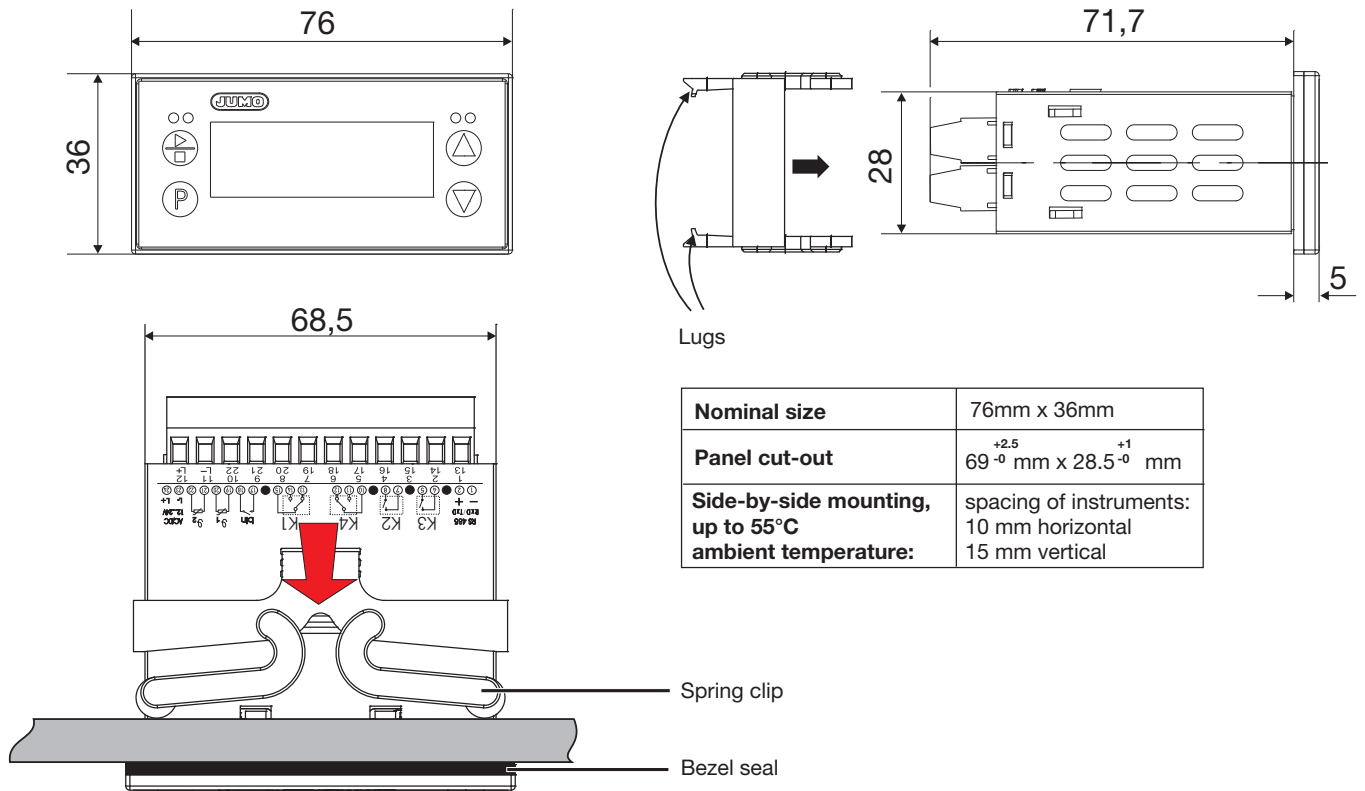
Data backup	The data records of the data logger are saved to flash memory. The adjustable parameters are saved in an EEPROM. Data is retained after a power failure.												
Data logger: Recording interval depends on recording interval (parameter rEC)	<table border="1"> <thead> <tr> <th>rEC</th> <th>Recording duration</th> </tr> </thead> <tbody> <tr> <td>1 min.</td> <td>7 days 19 hours</td> </tr> <tr> <td>5 min.</td> <td>39 days (1 month, 9 days)</td> </tr> <tr> <td>15 min.</td> <td>117 days (4 months)</td> </tr> <tr> <td>60 min.</td> <td>469 days (1 year, 3 months)</td> </tr> <tr> <td>120 min.</td> <td>938 days (2 years, 6 months)</td> </tr> </tbody> </table>	rEC	Recording duration	1 min.	7 days 19 hours	5 min.	39 days (1 month, 9 days)	15 min.	117 days (4 months)	60 min.	469 days (1 year, 3 months)	120 min.	938 days (2 years, 6 months)
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Connection type	Screw terminals for wire cross-sections up to 4 mm ² single-wire and up to 2.5 mm ² fine-wire.												
Electromagnetic compatibility Interference emission Interference immunity	Standard for product families: EN 61326 Class B Industrial requirement												
Operating conditions	The device is designed as a built-in device.												
Electrical safety	DIN EN 60 730, part 1, overvoltage category III, pollution degree 2												
Technical and functional features of temperature recorders and thermometers	According to DIN EN 12830 and DIN EN 13485												

Approvals

Abbreviation	Licensing office	Valid for
UL	Underwriters Laboratories	Series production devices with the JUMO sign

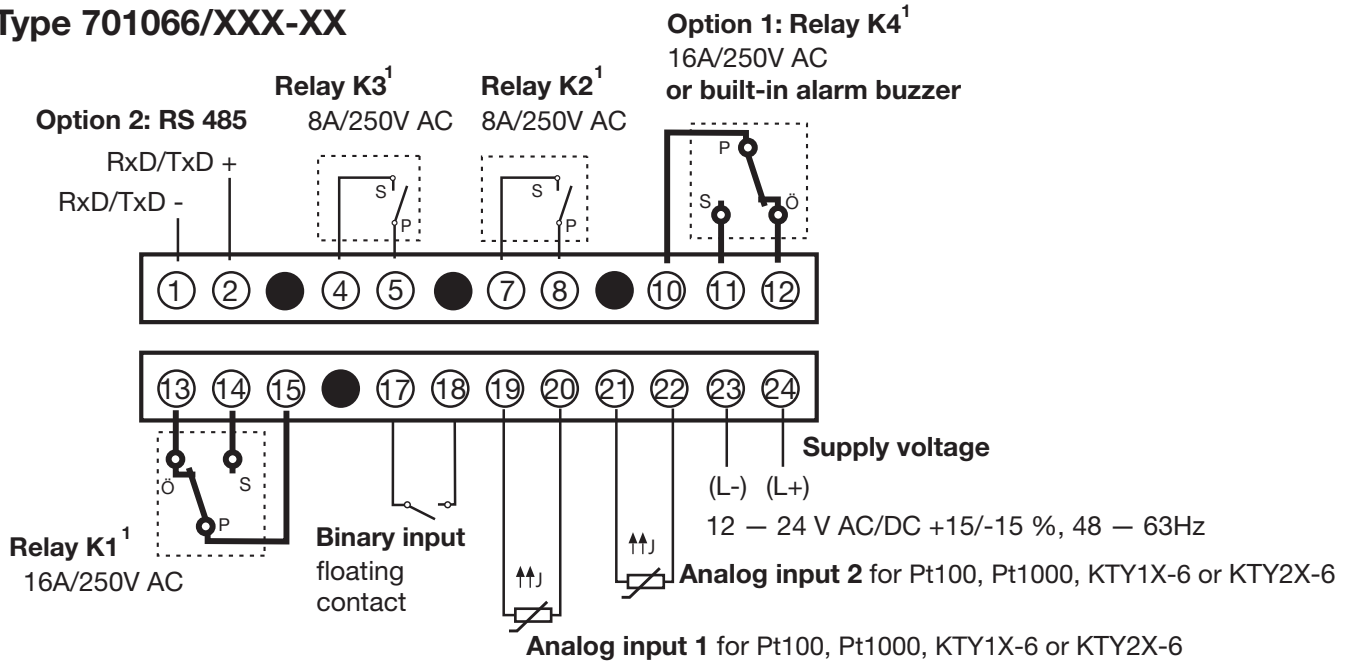
Dimensions

Type 701066/...



Connection diagram 2-channel microstat

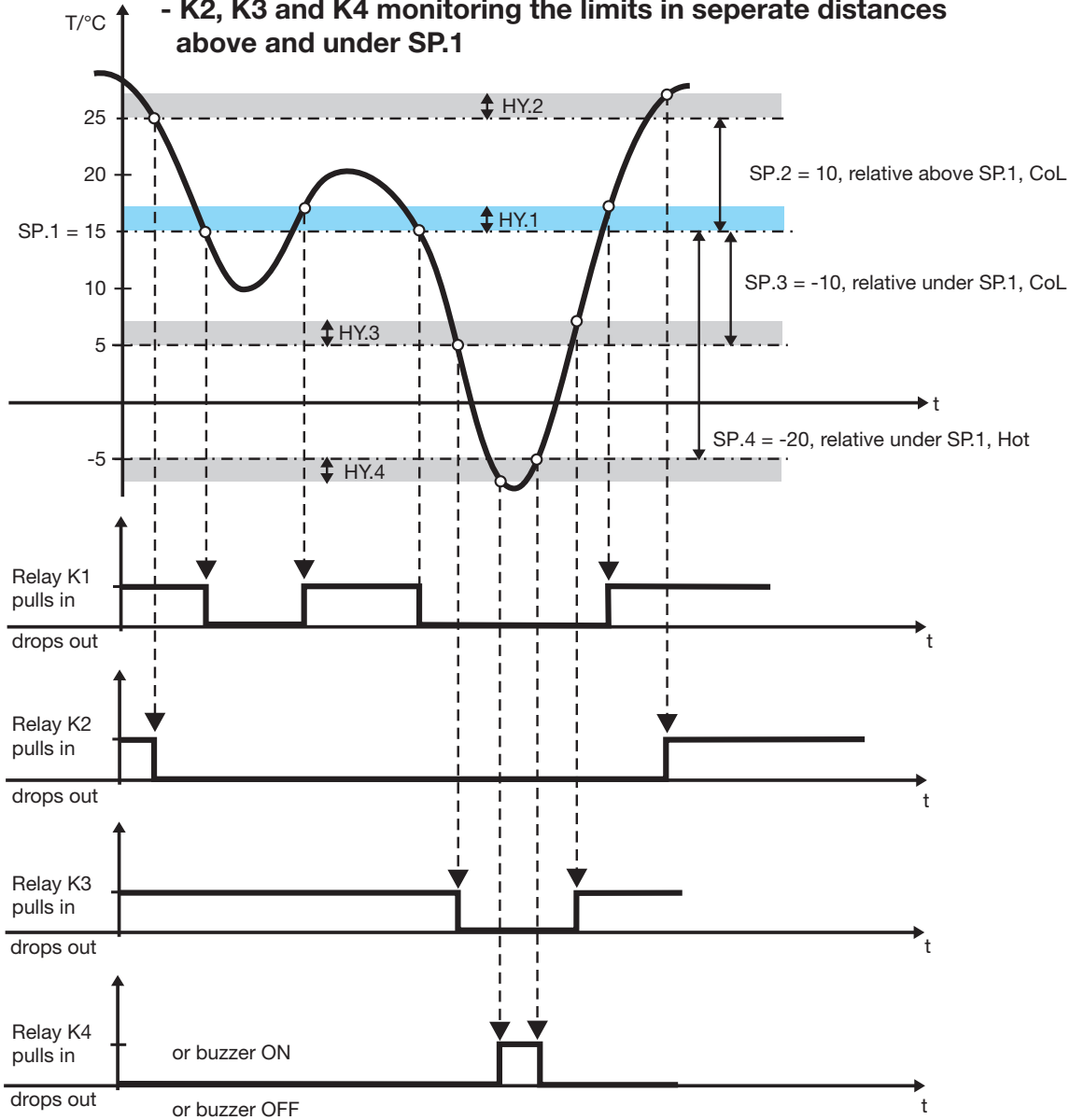
Type 701066/XXX-XX



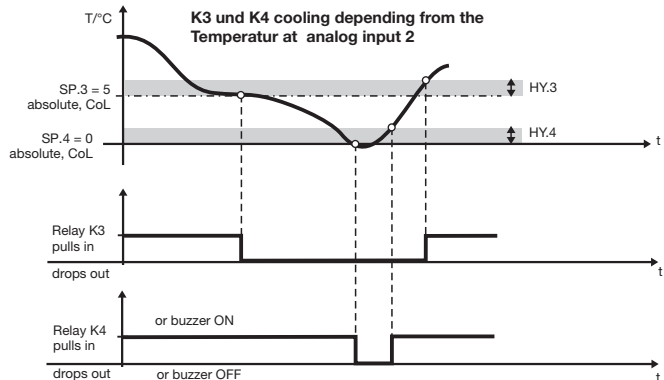
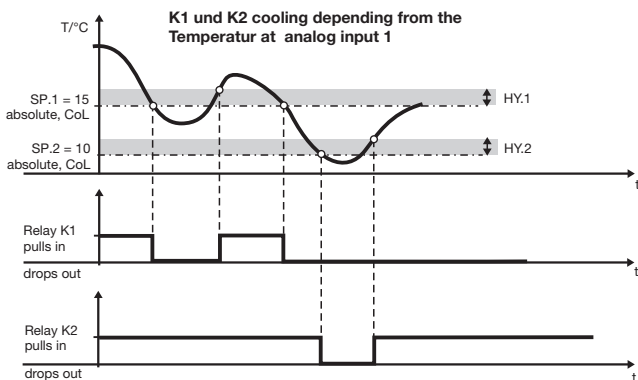
1. The switching positions of the instrument relays shown here (dotted line) represent the "relay de-energized" condition.

Example for controller functions (relative)

- K1 cooling depending from the temperature at analog input 1
- K2, K3 and K4 monitoring the limits in separate distances above and under SP.1



Example for controller functions (absolute)



Order details

- (1) **Basic type**
 JUMO eTRON M100 2-channel microstat
 with 2 measuring inputs and 3 relay outputs
- (2) **Basic type extension**
 8 Factory set, configurable
 9 Configured acc. to customer specifications
- (3) **Option 1**
 0 Not available
 1 Buzzer
 2 Alarm contact (changeover contact 16 A / 250 V)
- (4) **Option 2**
 0 Not available
 1 RS485 interface
 2 Data logger and RS485 interface
- (5) **Voltage supply**
 32 AC/DC 12 to 24 V +15/-15 %, 48 to 63 Hz
- (6) **Extra codes**
 000 Without push-in probe Pt100
 236 2 push-in probe Pt100
 (Ø: 6 mm, insertion length: 50 mm, connecting cable: 1500 mm)

	(1)	(2)	(3)	(4)
Order code	[]	[][]	[]	[]
Order example	701066 /	8 0 0 -	32 /	000

2 push-in probes Pt100 (extra code 236)



Scope of delivery

- 1 operating manual B 701066.0
- 1 spring saddle and front-frame seal

General accessories

- Setup program, multilingual
- PC interface with USB/TTL converter, adapter (socket), and adapter (pins)
- PC interface TTL/RS232 converter and adapter (socket)

Sales no.

- 70/00485306
- 70/00456352
- 70/00350260

Accessories

Adapter frames for mounting on DIN rail

Sales no.

70/00483019

