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JUMO eTRON T
Digital Thermostat

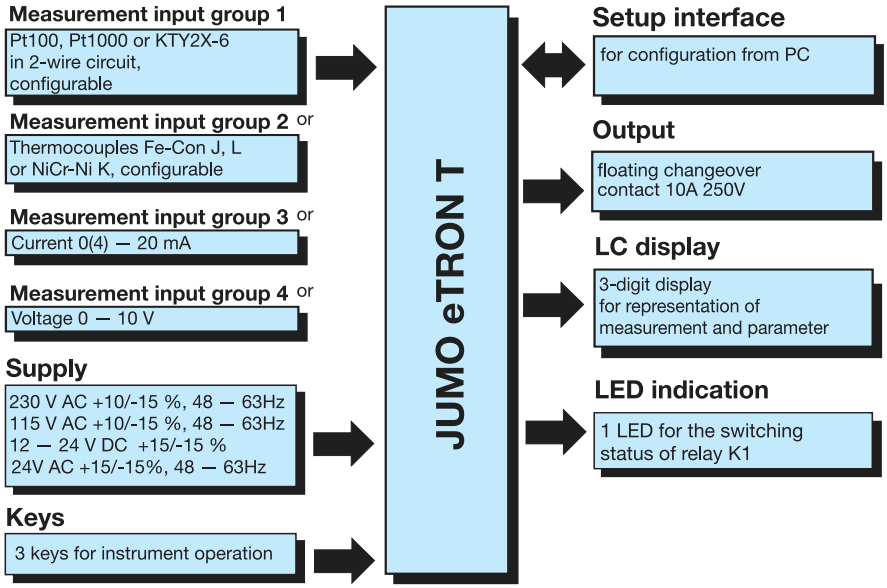
with LC display for mounting on a 35 mm DIN rail

Type 701050/ ...

Brief description

The JUMO eTRON T is a compact digital thermostat in 90 mm x 22.5 mm format for simple temperature control (heating or cooling). The measurement input permits the connection of resistance thermometers or thermocouples, or standard current or voltage signals. The measured value is shown on a 3-digit LC display.
The switching status of the relay K1 is indicated by an LED.
The instrument is operated from 3 keys on the front panel. The electrical connection is made via screw terminals.
A setup program and a PC interface are available as accessories, for easy configuration and parameterization from a PC.

Block structure

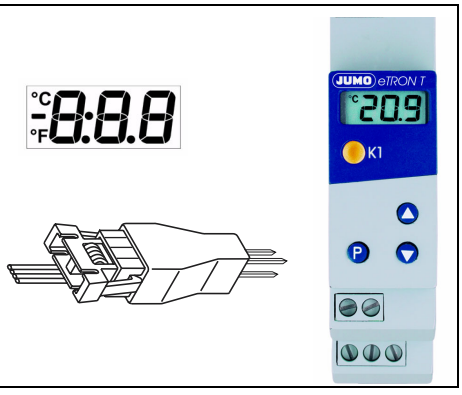


Key features

- Heating or cooling is configurable
- Limit monitoring
- Available for resistance thermometer, thermocouple, standard current or voltage signals, according to choice
- 10 A relay (changeover contact)
- Adjustable switching hysteresis
- Simple, space-saving installation
- Time-delayed switch-on after power-on is selectable, e.g. for staggered starting of several equipment units
- 3-digit LC display with special characters for °C and °F
- Parameter level protected by code
- Setup program for configuration and archiving via PC
- Customized linearization via tabular function in the setup program
- UL approval

Displays and controls

LC display	3-digit segment display with symbols for the temperature unit, 6 mm high
Status indication	LED K1 lights up when the output relay is energized.
Keys	(P) programming (▲) increase setpoint or parameter value (dynamically) (▼) decrease setpoint or parameter value (dynamically)
Setup interface	The instrument is linked to a PC via a PC interface with TTL/RS232 converter and adapter (3-pin).



Technical data

Measurement input	Designation	Measuring range	Meas. accuracy[1]/ ambient temperature error	Recognition of ...	
				Probe short-circuit	Probe break
Resistance thermometer	Pt100 EN 60 751	-200 to +600 °C	0.1 %/ ≤100 ppm/°C	is recognized	is recognized
	Pt1000 EN 60 751	-200 to +600 °C	0.1 %/ ≤100 ppm/°C	is recognized	is recognized
	KTY2X-6 (PTC)	-50 to +150 °C	1 %/ ≤100 ppm/°C	is recognized	is recognized
	Resistance 0 — 3000 Ω	customer table [3]	0.1 %/ ≤100 ppm/°C [3]	= 0Ω	is recognized
Measuring current for Pt100: 0.2 mA, for Pt1000, KTY2X-6 or resistance: 0.02 mA					
Lead compensation is adjustable via the parameter Lead compensation resistance OF.r The total resistance (sensor+lead) must not exceed 320Ω for Pt100 and 3200Ω for Pt1000, KTY2X-6 or resistance.					
Thermocouple	Fe-Con J EN 60 584	-200 to +999 °C	0.4 %/ ≤100 ppm/°C [2]	-	is recognized
	Fe-Con L DIN 43 710	-200 to +900 °C	0.4 %/ ≤100 ppm/°C [2]	-	is recognized
	NiCr-Ni K EN 60 584	-200 to +999 °C	0.4 %/ ≤100 ppm/°C [2]	-	is recognized
	-10 to 60 mV	customer table [3]	0.1 %/ ≤100 ppm/°C [3]	-	is recognized
For the voltage input (-10 to 60 mV), terminal temperature compensation can be used for thermocouples. Internal terminal temperature compensation can be switched off via the setup program (0°C).					
Current	0 — 20 mA	-2 to 22 mA scalable with SCL and SCH or customer table	0.1 %/ ≤100 ppm/°C [3]	-	-
	4 — 20 mA	2.4 to 21.6 mA scalable with SCL and SCH	0.1 %/ ≤100 ppm/°C [3]	is recognized	is recognized
Input resistance R_{IN} ≤ 3Ω					
Voltage	0 — 10 V	-1 to 11 V scalable with SCL and SCH or customer table	0.1 %/ ≤100 ppm/°C	-	-
Input resistance R_{IN} ≥ 100kΩ					

1.) The accuracies refer to the measuring range span.
2.) valid from -50°C
3.) A valid customer table must be entered via the setup program and switched over to tAb in the instrument.
This may reduce the measuring accuracy.

Additional data

Sampling time	250 msec
Input filter	1st order digital filter; filter constant dF adjustable from 0.1 — 99.9 sec
Measurement offset	adjustable from -99.9 to +99.9 via the parameter OF.t
Special features	display of temperature unit: °C, °F (Fahrenheit) or switched-off
Customer table	The setup program acquires a maximum of 20 value pairs and uses them for the linear interpolation of 20 new calibration points.

Ambient conditions

Ambient temperature range	0 to +55 °C, with side-by-side mounting 0 to +40 °C
Storage temperature range	-40 to +70 °C
Climatic conditions	≤75 % rel. humidity annual mean, no condensation
Cleaning and care of front panel	The front panel can be cleaned with all the usual cleaning and rinsing agents. Do not use solvents such as methylated spirit, white spirit, P1 or xylene!

Relay output

Relay (changeover contact)	150,000 operations at 10 A 250 V AC resistive load

Supply

Supply voltage	230 V AC +10/-15 %, 48 — 63 Hz or 115 V AC +10/-15 %, 48 — 63 Hz (isolated from measurement input)
	12 — 24 V DC +15/-15 %, 24 V AC +15/-15 %, 48 — 63 Hz (not isolated from measurement input)
Power consumption	< 2 VA

Housing

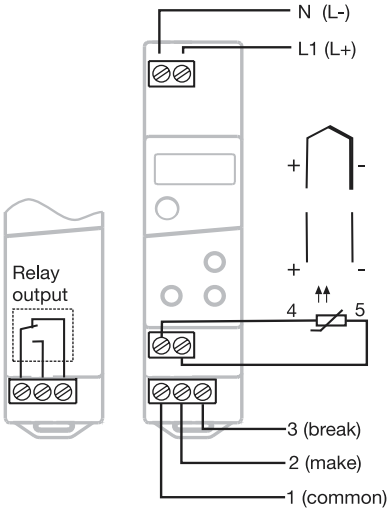
Material	polycarbonate
Mounting	35 mm x 7.5 mm DIN rail to EN 50 022
Operating position	unrestricted
Weight	approx. 110 g
Protection	IP20
Flammability class	UL 94 V0

Electrical data

Data backup	EEPROM
Connection	via screw terminals for wire cross-sections up to 2.5 mm^2
Electromagnetic compatibility interference emission immunity to interference	EN 61 326 Class B to industrial requirements
Electrical safety	to EN 61 010, Part 1, overvoltage category III, pollution degree 2

Connection diagram

Type 701050/XX1-31: Measurement input and supply voltage are not isolated from each other!



Supply
230V AC +10/-15%
115V AC +10/-15%
12 — 24V DC +15/-15% /
24V AC +15/-15%, 48 — 63Hz

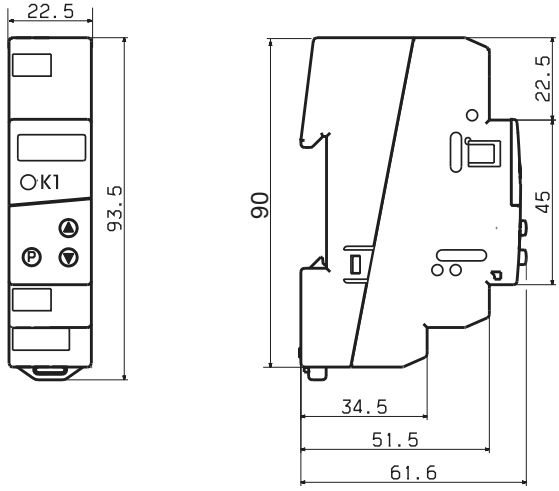
Measurement input
Thermocouples:
Fe-Con J, L and NiCr-Ni K

Standard signals:
current 0(4) — 20 mA
voltage 0 — 10 V

Resistance thermometers:
Pt100/ Pt1000/ KTY2X-6

Relay output
changeover contact (floating)
10A/250V AC

Dimensions



Order details

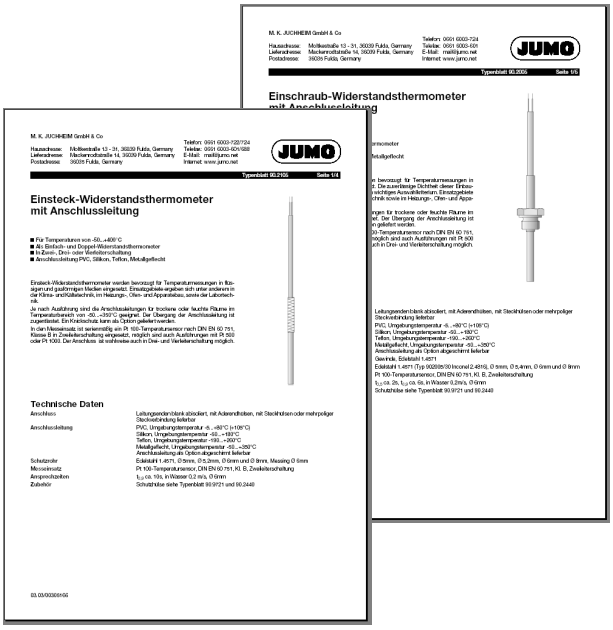
			(1) Basic version
701050/			JUMO eTRON T
			(2) Basic type extension
			Version
	8		factory-set, configurable within the measurement input group
	9		configured to customer specifications
			Measurement input group[1]
		1	Pt100 in 2-wire circuit Pt1000 in 2-wire circuit KTY2X-6
		2	Fe-Con J Fe-Con L NiCr-Ni K
		3	0 — 20 mA 4 — 20 mA
		4	0 — 10 V
			Number of relays
		1	1 changeover contact 10A 250V
			(3) Supply
		02	230V AC +10/-15% 48 — 63Hz
		05	115V AC +10/-15% 48 — 63Hz
		31	12 — 24V DC +15/-15% / 24V AC +15/-15%, 48 — 63Hz
			(4) Approvals
		000	none
		061	Underwriters Laboratories Inc. (UL)

	(1)		(2)		(3)		(4)
Order code		/		-		-	
Order example	701050	/	811	-	02	-	000

☐ factory-set

1.) It is not possible to switch from one meas. input group to another.

Suitable transducers can be found in these data sheets:
- 90.2005 Push-in resistance thermometers
- 90.2105 Screw-in resistance thermometers
- 90.1002 and subsequent ones for screw-in thermocouples
- 90.1101 and subsequent ones for push-in thermocouples
- 90.1221 Mineral-insulated thermocouples



Accessories

Setup program, multilingual
PC interface with TTL / RS232C converter and adapter (pins)