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JUMO eTRON T Digital Thermostat

with LC display for mounting on a 35mm DIN rail

Brief description

The JUMO eTRON T is a compact digital thermostat in 90mm x 22.5mm 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.



Type 701050/ ...

Block structure

Measurement input group 1

Pt100, Pt1000 or KTY2X-6
in 2-wire circuit,
configurable

Measurement input group 2 or

Thermocouples Fe-Con J, L
or NiCr-Ni K, configurable

Measurement input group 3 or

Current 0(4) — 20 mA

Measurement input group 4 or

Voltage 0 — 10 V

Supply

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

Keys

3 keys for instrument operation

JUMO eTRON T

Setup interface

for configuration from PC

Output

floating changeover
contact 10A 250V

LC display

3-digit display
for representation of
measurement and parameter

LED indication

1 LED for the switching
status of relay K1

Key features

- Heating or cooling is configurable
- Limit monitoring
- Available for resistance thermometer, thermocouple, standard current or voltage signals, according to choice
- 10A 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, 6mm high	
Status indication	LED K1 lights up when the output relay is energized.	
Keys	Ⓟ 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%/ ≤100ppm/°C	is recognized	is recognized
	Pt1000 EN 60 751	-200 to +600 °C	0.1%/ ≤100ppm/°C	is recognized	is recognized
	KTY2X-6 (PTC)	-50 to +150 °C	1%/ ≤100ppm/°C	is recognized	is recognized
	Resistance 0 — 3000 Ω	customer table ³	0.1%/ ≤100ppm/°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 ΔF_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%/ ≤100ppm/°C ²	-	is recognized
	Fe-Con L DIN 43 710	-200 to +900 °C	0.4%/ ≤100ppm/°C ²	-	is recognized
	NiCr-Ni K EN 60 584	-200 to +999 °C	0.4%/ ≤100ppm/°C ²	-	is recognized
	-10 to 60 mV	customer table ³	0.1%/ ≤100ppm/°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 Δ_{CL} and Δ_{CH} or customer table	0.1%/ ≤100ppm/°C ³	-	-
	4 — 20 mA	2.4 to 21.6 mA scalable with Δ_{CL} and Δ_{CH}	0.1%/ ≤100ppm/°C ³	is recognized	is recognized
Input resistance $R_{IN} \leq 3\Omega$					
Voltage	0 — 10 V	-1 to 11 V scalable with Δ_{CL} and Δ_{CH} or customer table	0.1%/ ≤100ppm/°C	-	-
Input resistance $R_{IN} \geq 100k\Omega$					
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 Δ_{Ab} in the instrument.					
This may reduce the measuring accuracy.					

Additional data

Sampling time	250 msec
Input filter	1st order digital filter; filter constant ΔF adjustable from 0.1 — 99.9sec
Measurement offset	adjustable from -99.9 to +99.9 via the parameter ΔF_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 10A 250V AC resistive load
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Supply

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

Housing

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

