



# JUMO eTRON Series

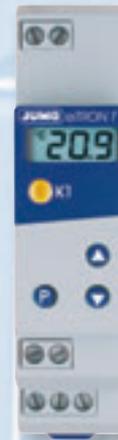
## Digital Thermostats and Electronic Microstats



# JUMO eTRON M



# JUMO eTRON T



## Compact electronic microstat for heating and cooling

- integrated defrosting function
- operating hours counter
- Symbols for operating modes, °C, °F, hours, minutes and seconds in display
- easy operation using four keys
- bezel 76 mm x 36 mm, depth behind panel 56 mm
- enclosure protection: front IP 65, rear IP 20

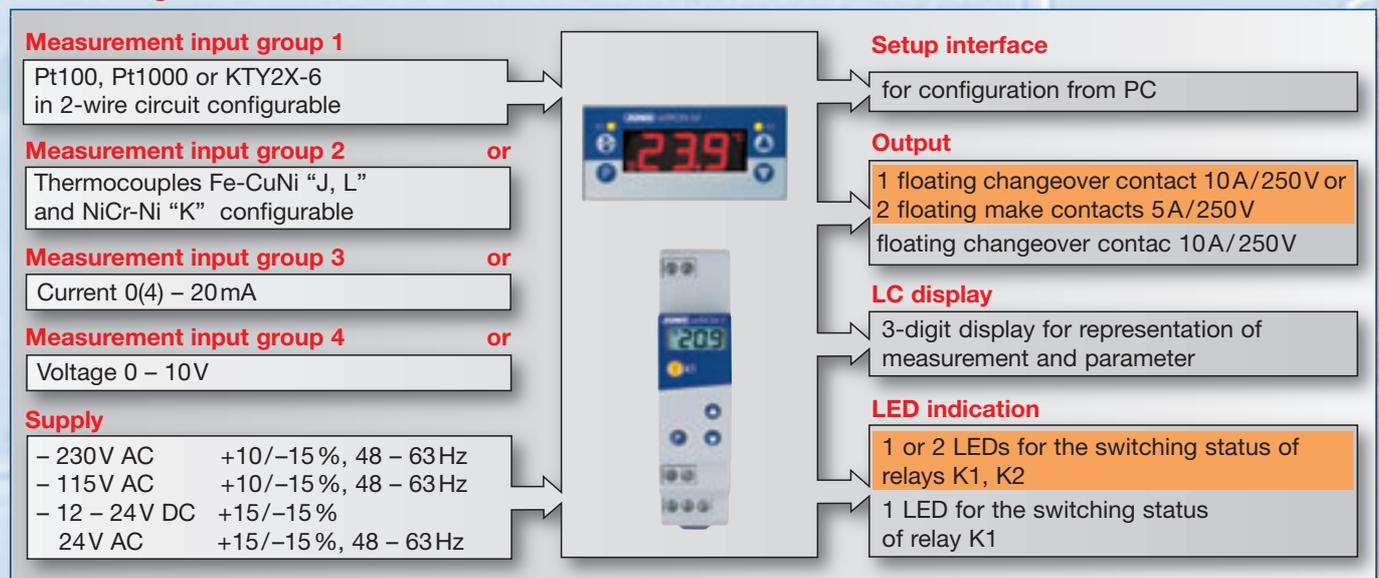
## Compact digital thermostat for heating or cooling

- 10 A relay (changeover contact)
- 3-digit LC display with special characters for °C and °F
- easy operation using three keys
- dimensions 90 mm x 22,5 mm x 60 mm
- enclosure protection: front IP 65, rear IP 20

## Common features

- heating or cooling is configurable
- Limit monitoring
- available for resistance thermometer, thermocouple, standard current or voltage signals, according to choice
- choice of a 10 A relay or two 5 A relays
- time-delayed switch-on after power-on is selectable, e. g. for staggered starting of several equipment units
- Parameter level protected by code
- Setup program for configuration and archiving via PC
- customized linearization via tabular function in the setup program
- UL approval applied for

## Block diagram



■ applies only to JUMO eTRON M

# JUMO eTRON M100



Data logging as per HACCP\*

## Electronic refrigeration controller with real-time clock and data logger

The JUMO eTRON M100 is an electronic refrigeration controller for application in cold stores, freezer cabinets and cold displays, for connection to RTDs: Pt100, Pt1000, K<sub>r</sub>Y1X-6 or KTY2X-6. The first measurement input is used to acquire the temperature of the cold store. The second measurement input acquires the evaporator temperature, and ends the defrosting process as soon as the defrosting limit has been reached.

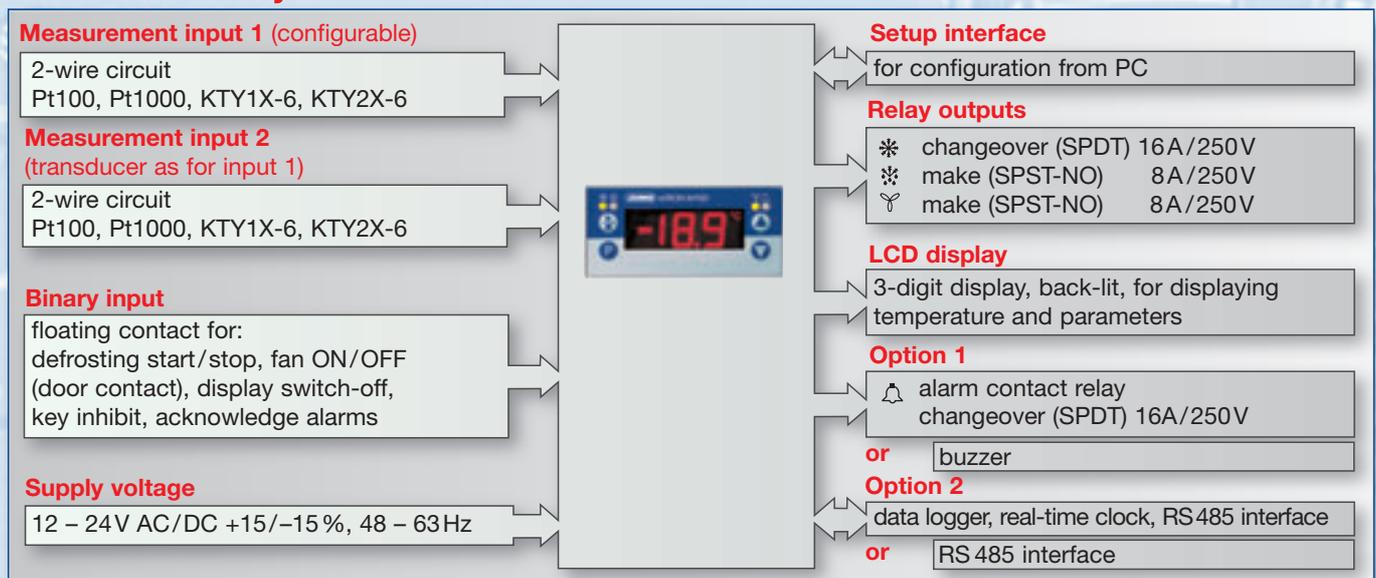
### Defrosting processes

- electrical/circulating air
- hot gas

### Start of defrostin

- cyclic
- in real time
- as per unit runtime

## Function summary



- 16A relay for the cooling unit and 8A relay for defrosting and fan functions
- two analog inputs for RTDs KTY1X-6 or KTY2X-6, in two-wire circuit
- customized linearization, programmable through the setup program
- operating hours counter with integrated service counter
- alarm generation via relay or buzzer
- available with real-time clock, data logger and RS485 interface
- the data logger records the measurement inputs and switching states of all relays, making HACCP monitoring of the cooling system possible
- a maximum of eight parameters can be individually enabled for the operator level
- the parameter levels are code-protected, which prevents unauthorized access to the instrument data
- meets the requirements of EN 12 830 and EN 13485
- enclosure protection: front IP65/rear IP20
- setup program for configuring the instrument and evaluating the data logger

\* Hazard Analysis Critical Control Point

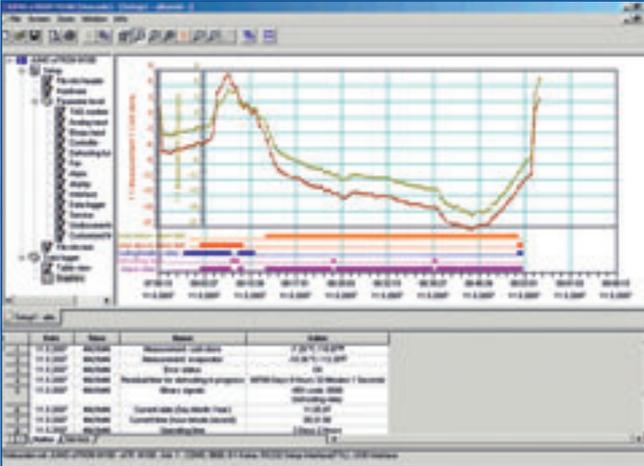
## Main areas of application

- Cold displays
- Cold stores
- Refrigeration plant

# JUMO eTRON M100

## Data logger

- the data logger saves the measurement inputs and binary signals
- logging takes place at variably selectable intervals
- the appropriate software is available in the setup program for evaluating the data logger
- presentation as graphics or as a table

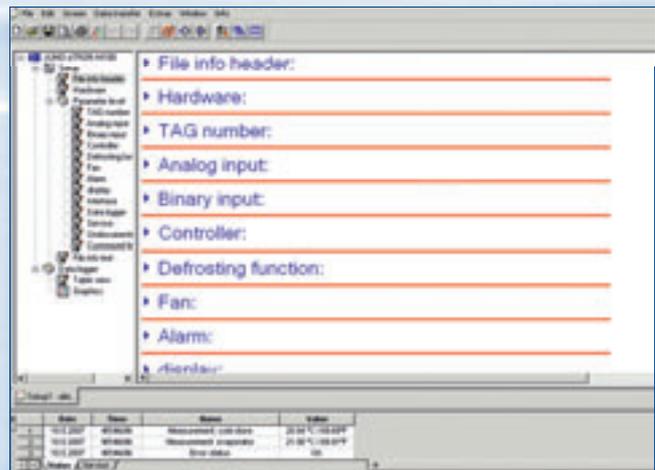


Channel	Characteristics	Value	Unit
1	Measurement 1 Cold store	-25	°C
2	Measurement 2 Evaporator	-25	°C
3	Done below alarm limit	0	1
4	Done above alarm limit	0	1
5	Cooling/heating relay	0	1
6	Defrosting relay	0	1
7	Fan relay	0	1
8	Alarm relay	0	1
9	Heating for heating/cooling	0	1
10	Binary input	0	1
11	Relay inhibit	0	1
12	Door contact	0	1
13	LCD display OFF	0	1
14	Service interval elapsed	0	1
15	Error has occurred	0	1

## Setup program

This program and the interface with adapter can be supplied as accessories. They offer the user the following advantages:

- easy and convenient parameterization and archiving from a PC
- simple duplication of parameters for instruments of the same type
- entry of a linearization table
- reading out data sets from the data logger
- saving data together with the setup file

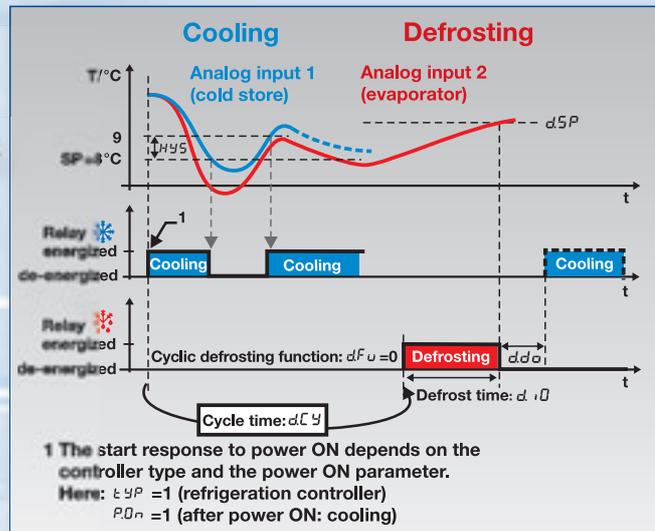


## Available as accessories

- 2 Pt100 push-in probes
- Diameter: 6 mm
- Fitting length: 50mm
- Connecting cable: 1500mm

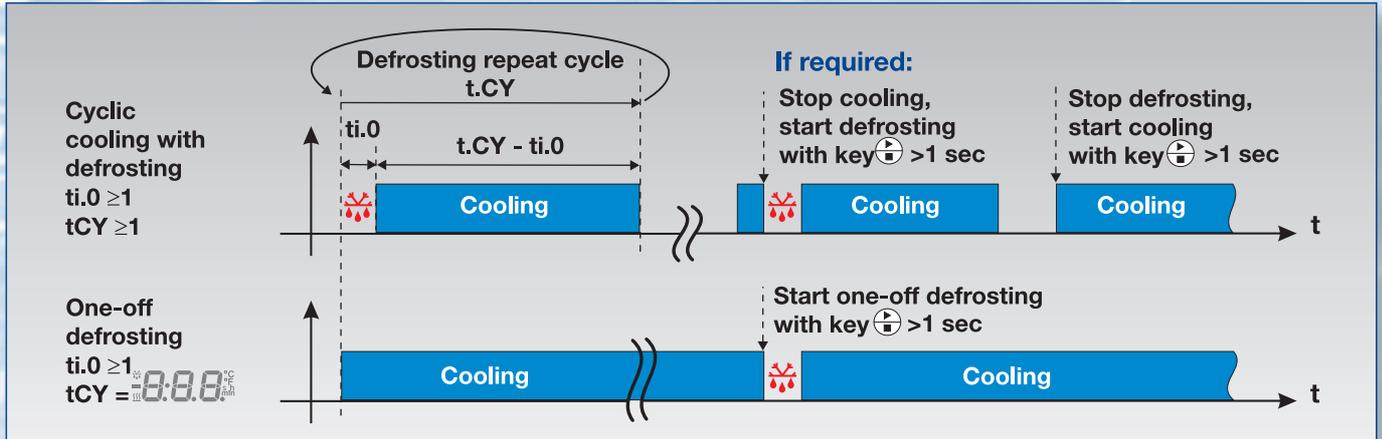


## Example of the cyclic defrosting function



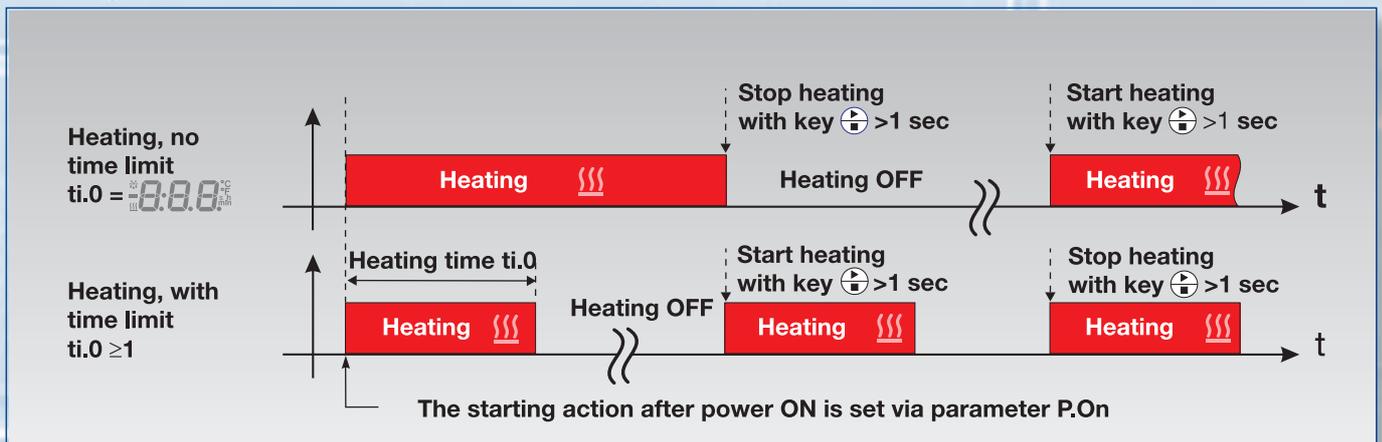
# Timing functions for the JUMO eTRON M

## Cooling controller



The cooling controller makes a distinction between the functions “Cyclic cooling with defrosting” and “One-off defrosting”. The example “Cyclic cooling with defrosting” shows the controller starting with a defrosting phase after power ON. Cooling is initiated after the end of the defrosting phase. The example “One-off defrosting” illustrates that defrosting can only be initiated manually by pressing the start/stop key.

## Heating controller



The heating controller distinguishes between “Heating, no time limit” and “Heating, with time limit”. The example “Heating, no time limit” illustrates that the control action can be manually canceled or restarted by using the start/stop key. The example “Heating, with time limit” shows the controller remaining inactive after the end of the heating period until it is manually started from the start/stop key. The heating process can be canceled at any time using the start / stop key.

## Operating time counter

The operating time counter is used for plant maintenance or for registering operating times (active relay time). The operating time counter features three parameters:

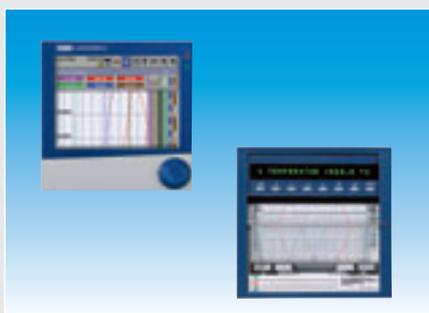
- “t. Si” service interval
- “t. S” current service counter
- “t. h” operating time counter (totalizer)

When the selected service interval is reached, this is shown in the display. A maximum of 9900 operating hours can be counted.

## Main areas of application

- Refrigeration
- Air conditioning
- Heating and ventilation
- Baking ovens and fryers
- Solar and heat pumps
- Incubators and warming ovens
- Transformer and storage temperature monitoring

# Controllers, Power units, System/Recording technology



- Process controls and programmers
- Automation software
- Electronic thermostats/microstats
- Safety temperature monitor / limiter
- Digital indicators

- Process controller
- Recording instruments
- Temperature transmitters
- Thyristor power switches / power units
- Software and accessories

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