Temperature sensor E-23T EnOcean

The E-23T indoor device is equipped with a wireless temperature sensor communicating according to the EnOcean radio standard. The sensor contains an integrated solar cell optimized to generate the required energy based on available ambient lighting. The dedicated backup battery can be fitted for use cases with insufficient available light.
The EnOcean-GWY-MOD gateway can be used to convert EnOcean signals to ModBus RTU, and the EO-MOD-IP gateway can be used to convert them to ModBus TCP/IP. The sensor can also be used, for example, in KNX, BACnet, KAN, KANopen, PROFIBUS, PROFINET, Loxone, Raspbery Pi, etc. systems.

- Wireless room sensor
- EnOcean communication
- Powered by a solar panel
- Backup battery type CR1225

Technical parameters

Transmission Frequency / Data Rate	868,300 MHz / 125 kbps
Transmission Range (for guidance only)	200 m (free field) / 30 m (indoor environment)
Measurement Range	0 ÷ 40 °C
Accuracy (17 ÷ 27 °C)	± 0,5 °C
Accuracy (0 ÷ 40 °C)	± 1,0 °C
Resolution	0,16 K
Operating Time In Darkness (at 25°C)	cca 4 days (after full charge)
Transmission interval - temperature	period cca 1000 s (at change > 0,8K cca 100 s)
Power Supply	integrated solar cell
Backup Battery	CR1225
Ambient temperature	-20 ÷ 60 °C, without condensation
Dimension	80 x 80 x 21 mm (ABB Tango)
Supported EEP	A5-02-05
Shilding	IP40 (EN 60529)

The controller is supplied in the designs below and is designed to be placed on the wall or on the KU68 installation box. The following principles must be observed when placing:
- Avoid placing near heat sources
- Choose a bright spot on the inner wall of the room
- Avoid drafts and do not install the device near doors and windows
The minimum illumination of 150lx should be guaranteed at the mounting place for at least 3 to 4 hours everyday regardless whether there is artificial light or daylight.
The temperature sensor in the controller measures the current room temperature, and the position of the rotary knob determines the desired temperature.If necessary, the solar-powered energy storage must be recharged after a longer storage of the radio sensors in darkness, e.g. during installation. In principle, however, this is made automatically during the first operatinghours in daylight. If the initial charging should not be sufficient in the first operating hours, the sensor is reaching its full operating state after 3 to 4 days at the latest. The sensor is sending properly in darkness (in the night) after this period of time at the very latest.

The materials used in buildings have a major influence on the amount of transmitted data. The following data can be used as a guide.
Visual contacts: Typ. 30m range in passages, corridors, up to 100m in halls
Rigypsum walls/wood: Typ. 30m range through max. 5 walls
Reinforced concrete/-ceilings: Typ. 10m range through max. 1 ceiling
Fire walls, elevator shafts, stairways, and supply areas should be considered shielding.

Default configuration:
E-23T .....Temperature 0-40 °C (EEP A5-02-05)

The device can be supplied in various design versions of electrical installation technology manufacturers. The type of design is entered, e.g. Legrand Valena Life, Jung LS990, ABB Tango, etc.
The list of possible designs is part of a separate file.

The broadcast can be controlled:
a) by events (pressing the LRN button).
The microprocessor is woken up, the status of the individual variables is detected and a telegram to the receiver is generated.

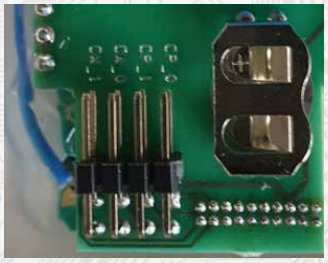
b) by time
The internal microprocessor is woken up within a time interval of 100s (T_wake up) and the measuring value for temperature is detected. If the status of an input has changed since the last inquiry (temperaturechange > 2% (>0,8°C), a telegram is produced immediately. If the input value temperature remain unchanged compared with the previous telegrams, a telegram is automatically produced at the latest after expiration of the fixed sending time of approx. 16 minutes (T_send).

Manufacturer's Adjustment:

T_wake up: 100, T_interval: 10
T_send = 100sec. wake up x 10 interval = 1000sec. = approx. 16 Min.

The same principle applies to the angular change of the set point adjustment.

Configuration via pins



CW_1 CW_0 CP_1 CP_0

CW_0	CW_1	Wake-up cycle time
NC	GND	1 s ±20%
GND	NC	10 s ±20%
NC	NC	100 s ±20%
GND	GND	No cyclic wake-up

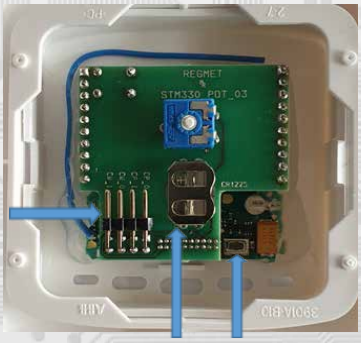
CP_0	CP_1	Number of wake-ups that trigger a redundant retransmission
GND	NC	Every timer wake-up signal
NC	NC	Every 7th - 14th timer wake-up signal, affected at random
NC	GND	Every 70th - 140th timer wake-up signal, affected at random
GND	GND	No redundant retransmission

Front view to E-23T, ABB Tango (Fig. 1)

Solar cell ***Ventilation slot***

Botton view to E-23T, ABB Tango (Fig. 2)

Configuration pins



Backup battery slot ***LRN button***

The power consumption of the controller depends on the settings of its parameters. The following table can be used as a guideline.

Wake up T_wake	Transmission interval T_send	Operating Time In Darkness (h) after full charge	Illumination level for continuously operation (lux)
1	1	0,5	5220
1	100	2,1	1250
10	10	16	175
100	1	43	65
100	10	98	30
100	100	112	25