TER-13 | Digital thermostat with time switches + Wi-Fi connection

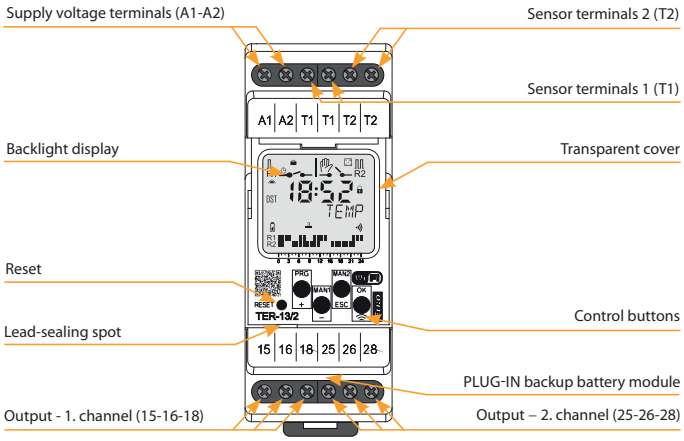
EAN code
TER-13/2: 8595188192255

Technical parameters	TER-13/2
Supply terminals:	A1-A2
Supply voltage:	AC 100 – 240 V (50-60 Hz), DC 145 – 335 V
Consumption (max.):	Wi-Fi "OFF" 1.2 W/2 VA | "ZAP" 1.7 W/3.1 VA
Supply voltage tolerance:	–15 %; +10 %
Measuring circuit	
Measuring terminals:	T1-T1, T2-T2
Temperature range:	–40 .. +110 °C (–40 .. +230 °F)
Hysteresis (sensitivity):	adjustable, 0.5 .. 100 °C (33 .. 212 °F)
Diference (for differential thermostat):	adjustable, 1 .. 50 °C (34 .. 122 °F)
Sensor failure indication:	displayed on LCD*
Output	
Contact type:	2× changeover ($AgSnO_2$)
Current rating:	AC 10 A/DC 5 A; PD. B300
Breaking capacity:	2500 VA/AC1, 150 W/DC1
Switching voltage:	AC 250 V/DC 30 V
Power dissipation (max.):	1.2 W
Mechanical life:	10.000.000 ops.
Electrical life (AC1):	100.000 ops.
Time circuit	
Accuracy:	max. ±0.5 s day (23 °C/73.4 °F)
Min. switching interval:	1 s
Program data storage period:	min. 10 year
Set time backup:	up to half a year with 60 outages (CR 2032 - 3V)
Program circuit	
Number of memory locations:	200 - time programs, 30 - holidays
Program type:	daily, weekly, yearly + temperature
Displayed data:	LCD display with white backlight
Settings via website:	by Wi-Fi (2.4 GHz)
Other information	
Operating temperature:	–20 .. +55 °C (–4 .. 131 °F)
Storage temperature:	–30 .. +70 °C (–22 .. 158 °F)
Dielectric strength:	
supply – output	AC 4 kV
output 1 – output 2	AC 4 kV
Operating position:	any
Mounting:	DIN rail EN 60715
Protection degree:	IP40 front panel/IP20 terminals
Overvoltage category:	III.
Pollution degree:	2
Cross-wire section; solid/ stranded with ferrule (max.):	1× 2.5 mm² (14 AWG), 2× 1.5 mm² (16 AWG)/ 1× 2.5 mm² (14 AWG), 2× 1.0 mm² (17 AWG)
Dimensions:	90 × 35 × 64 mm (3.5"× 1.4"× 2.5")
Weight:	126 g (4.4 oz)
Standards:	EN 61812-1, EN 18031-1

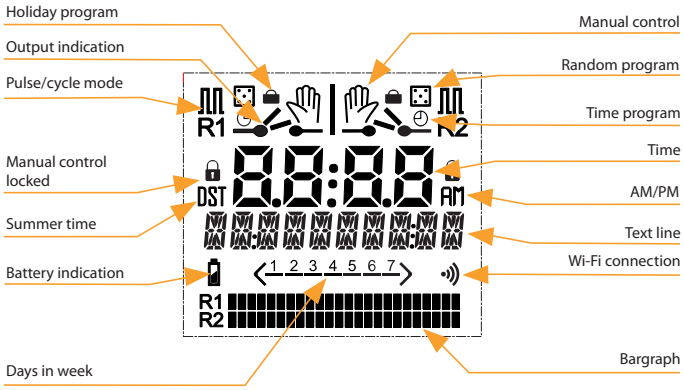
* *ERROR - short circuit, sensor interruption*

- Switching control based on measured temperature with built-in time switch allowing daily, weekly, and yearly program. This way, the thermostat function can be limited in real-time as needed.
- The thermostat is subordinate to the time switch programs.
- Simple setting after the first start-up.
- Complex control of home and water heating, incl. solar heating.
- Two thermostats in one, two temperature inputs, 2-channel design (each with an operating hours counter).
- Functions: 2 independent single-stage thermostats, depending functions of 2 thermostats, differential thermostat, 2-stage thermostat, thermostat with "WINDOW", thermostat with dead zone.
- Wide operating temperature settings, option unit selection (°C and °F).
- User replaceable battery to back up the set time during power outages.
- Built-in web server for setup and control via Wi-Fi connection.
- Time synchronization through NTP server (require internet connection of thermostat).
- Possibility of permanent connection to the local network.
- WRC: web remote control and setup from anywhere (require internet connection of thermostat).
- New well-arranged display with white backlight.
- Pulse/cycle output mode.
- Transition of summer/winter time – AUTO or OFF.
- PIN code protection against unauthorized changes.
- Wireless firmware update.

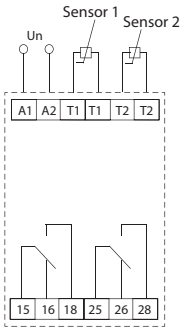
Description



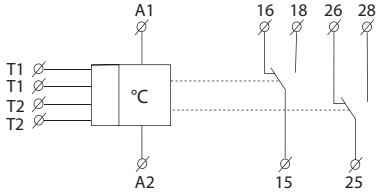
Description of displayed elements



Connection



Symbol



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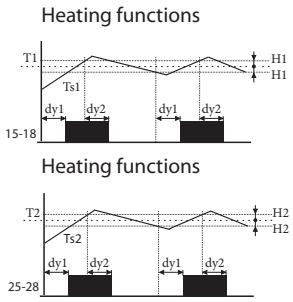
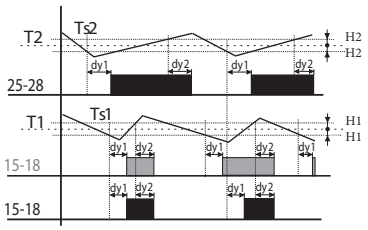
1. 2 independent single-stage thermostats



Legend:
Ts1 - real (measured) temperature 1
Ts2 - real (measured) temperature 2
T1 - adjusted temperature T1
T2 - adjusted temperature T2
H1 - adjusted hysteresis for T1
H2 - adjusted hysteresis for T2
dy1 - set switching delay of the output
dy2 - set delay on output breaking
15-18 output contact (for T1)
25-28 output contact (for T2)

Classic function of thermostat, output contact switched until adjusted temperature is reached. Hysteresis eliminates frequent switching - output oscillation.

2. Depending functions of 2 thermostats

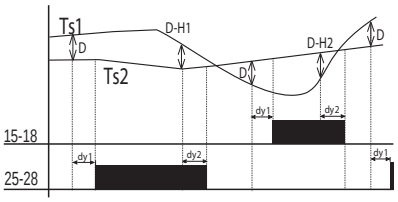


Legend:
Ts1 - real (measured) temperature 1
Ts2 - real (measured) temperature 2
T1 - adjusted temperature T1
T2 - adjusted temperature T2
H1 - adjusted hysteresis for T1
H2 - adjusted hysteresis for T2
dy1- set switching delay of the output
dy2 - set delay on output breaking
25-28 output contact (for T2)
15-18 output contact (intersection T1 and T2)

Output 15 - 18 is closed, if temperature of both thermostats is bellow an adjusted level. When any thermostat reaches adjusted level, the contact 15 - 18 opens.

Serial inner connection of thermostats (logic function AND).

3. Differential thermostat

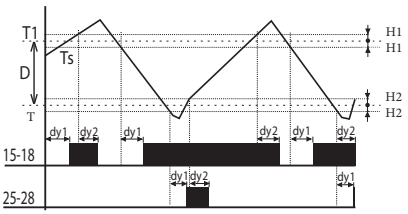


Legend:
Ts1 - real (measured) temperature T1
Ts2 - real (measured) temperature T2
D - adjusted difference
H1 - adjusted hysteresis for T1
H2 - adjusted hysteresis for T2
dy1- set switching delay of the output
dy2 - set delay on output breaking
15-18 output contact (for T1)
25-28 output contact (for T2)

Switching of output corresponds with input, which has lower temperatures when diffference is exceeded.

Differencial thermostat is used for keeping two identical temperature e.g. in heating systems (boiler and reservoir), solar systems (collector - reservoir, exchanger), water heating (water heater, water distribution)etc.

4. 2-stage thermostat

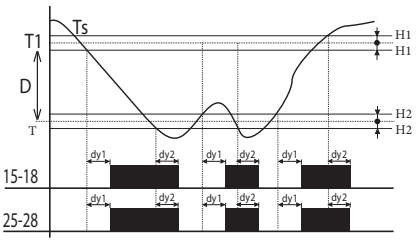


Legend:
Ts - real (measured) temperature
T1 - adjusted temperature
T=T1-D
D - adjusted difference
H1 - adjusted hysteresis for T1
H2 - adjusted hysteresis for T
dy1- set switching delay of the output
dy2 - set delay on output breaking
15-18 output contact
25-28 output contact

Typical example of use for two-stage thermostat is e.g in boiler-room, where there are two biolers from which one is main and the other one is auxiliary. The main boiler is managed according to set temperature and auxiliary boiler is switched in case, temperature falls under set difference. Thus it helps to the main boiler in case, outside temperature dramatically falls.

In the range of set difference (D) output 15-18 functions as normal thermostat to input 1 (type 1). In case temperature falls under set difference, second output switches too.

5. Thermostat with "WINDOW"

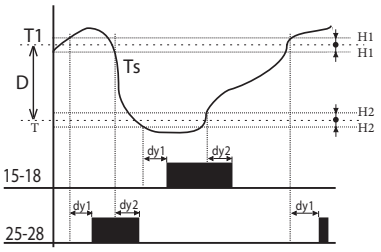


Legend:
Ts - real (measured) temperature
T1 - adjusted temperature
T=T1-D
H1 - adjusted hysteresis for T1
H2 - adjusted hysteresis for T
dy1- set switching delay of the output
dy2 - set delay on output breaking
15-18 output contact
25-28 output contact

Output is closed (heating) only if temperature is within adjusted range. If temperature is out of range, the contact opens. T is set as T1-D.

The function is used for protection of gutters against freezing.

6. Thermostat with dead zone



Legend:
Ts - real (measured) temperature
T1 - adjusted temperature
T=T1-D
H1 - adjusted hysteresis for T1
H2 - adjusted hysteresis for T
dy1- set switching delay of the output
dy2 - set delay on output breaking
15-18 output contact (heating)
25-28 output contact (cooling)

In case of thermostat with a „dead zone", it is possible to set temperature T1 and a difference (respectively a width of dead zone D). If temperature is higher than T1, output contact of cooling switches ON; if the temperature gets bellow T1, the contact switches OFF.

If the temperature gets bellow temperature T, the contact of heating switches ON and it switches OFF when temperature T is exceeded. This function can be used for example for automatic air warming and cooling in ventilation so the sit is always within the range T1 and T.