

THERMOSTAT

terneo pro-z

smart control of heating



Before the start of installation and use of the device, please refer to this document. This will help to avoid mistakes and misunderstandings.

Purpose

Terneo **pro-z** thermostat is designed to keep the air temperature on schedule. The temperature is controlled in the place of thermostat installation.

The device has 3 operation modes: manual mode, timer mode and departure mode. The timer mode allows you to set an individual heating schedule and thus to substantially reduce electricity consumption. The thermostat will provide the comfortable temperature only when you really need it (e.g. in the morning and in the evening), the temperature will be maintained at the energy efficient level for the rest of the day.

This model does not require additional installation costs and can be used to control heating systems based on electric convectors, infrared panels and other electric heaters

This temperature regulator is perfectly suitable for temperature regulating in the system warm water floor by means of electro-thermal servo actuator with operating voltage of 230 V. Servo actuator can be both normally closed, and normally open. At the connection of normally open servo actuator to the temperature regulator use in the general settings of the temperature regulator function «NC contact».

Supply package

Thermostat	1 piece
Warranty certificate and card	1 piece
Technical passport, Installation instructions	1 piece
Operating Instructions	1 piece
The packing box	1 piece

Technical data

№ p/p	Parameter	Value
1	Limits of regulation by air	0...30 °C
2	Maximum load current	16 A
3	Maximum load power	3 000 VA
4	Input voltage	230 V ±10 %
5	Current consumption at 230 V: active state at maximum brightness sleep mode (disconnect via button)	no more 5,3 mA no more 2,5 mA
6	Weight in the complete set	0,2 kg ±10 %
7	Temperature sensor	NTC thermo-resistor 10K OM ±5 % at 25 ° C
8	The length of the sensor connected cable	0,1 m
9	Number combinations under heat, no less than	50 000 cycles
10	Number of combinations without heating, no less than	20 000 000 cycles
11	Temperature hysteresis by air	0,5–10 °C
12	Degree of protection GOST14254	IP20

Use of the thermostat is:

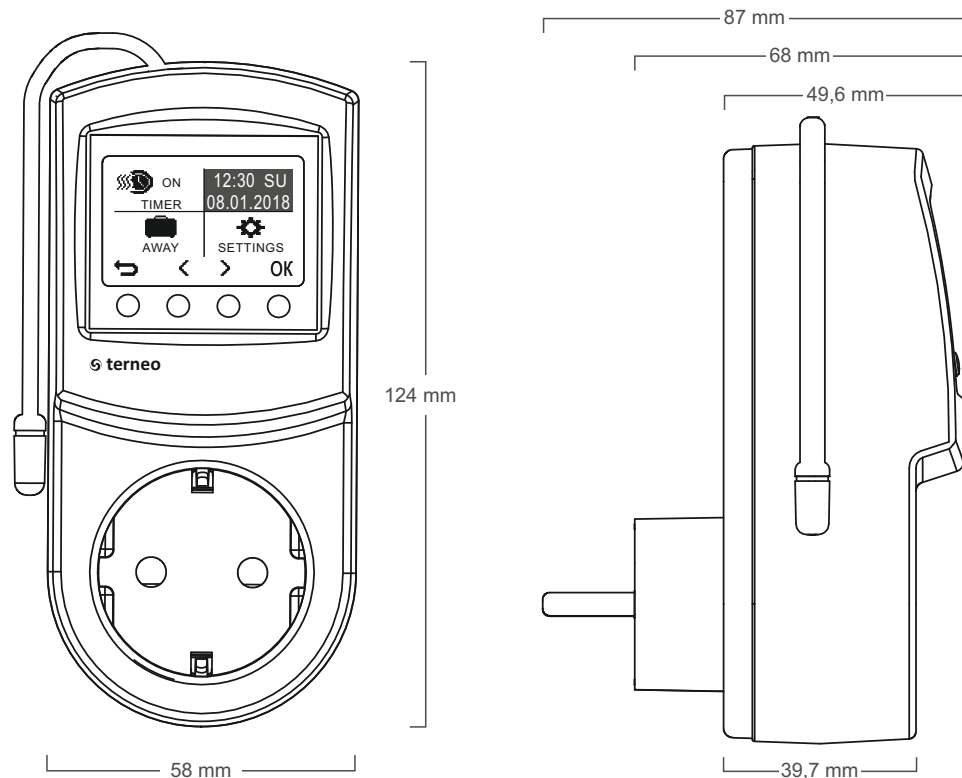
- increase**
of service life of the cable
(to prevent overheating)
- energy savings**
up to 70%
- comfortable**
level of temperature

Technical datasheet

Installation instructions



Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU



Connection

The fork of **terneo pro-z** plugs into a standard wall socket with grounding. The socket must be designed for a current of at least 16 A. The design of the socket should provide a reliable contact.

The load is connected to a wall socket of the **terneo pro-z** thermostat.

Installation

In order to connect the thermostat :

- connect the thermostat in the socket;
- connect the load to the thermostat socket.

The thermostat is designed for indoor installation. The ingress risk of moisture or liquid into the place of installation must be minimized. When installed in a bathroom, toilet, kitchen, swimming pool the thermostat should be installed at the place out of reach of casual spraying.

Placing near to heating/cooling equipment, on the floor, as well as exposing to direct sunlight and drafts are not recommended.

To protect against short-circuit in the load circuit the circuit breaker (CB) has to be installed before installing the thermostat. The circuit breaker is installed in the gap of phase conductor. It should be designed for not more than 16 A.

To protect person from electric shock leak is set SSD (safety shutdown device).

It is necessary that the thermostat commutes the current not more than 2/3 of the maximum power specified in the passport.

The resistance of the sensor at different temperatures

The temperature, (°C)	Resistance of the sensor, (Ω)
5	25339
10	19872
20	12488
30	8059
40	5330

Safety precautions

To avoid injuring or damage of the device, carefully read and understand for yourself these instructions.

Connecting the device must be carried out by a qualified electrician.

Before installation (dismantling) and connection (disconnection) disconnect the power supply, and act in accordance with the «Rules for Electrical Installation».

Do not switch the nonassembled device to the network.

Keep away from humidity.

Do not expose to extreme temperatures (above +45 °C or below -5 °C).

Not clean the device using chemicals such as benzene and solvents.

Do not store or use the device in dusty places.

Do not try to disassemble and repair the device.

Do not exceed the limit values for current and power.

For protection against overvoltage caused by lightning strikes use surge arresters.

Do not immerse the sensor with a connecting wire in the liquid medium.



Do not burn or dispose the device with household waste.

The used device must be disposed in accordance with current law.

The products are transported packed, ensuring the safety of the product.

The device is transported by any type of vehicle (rail road, auto, marine, air transport).

The date of manufacture is indicated on the back side of the device.

If you have any questions or something will not be clear for you, call please the telephone center services listed below.

v31616_190711

Manufacturer and vendor: DS ELECTRONICS, LTD
04136, Ukraine, Kyiv region, Kyiv, 1-3 Pivnichno-Syretska str.
phone: +38 (044) 485-15-01
e-mail: support@terneo.ua www.terneo.ua

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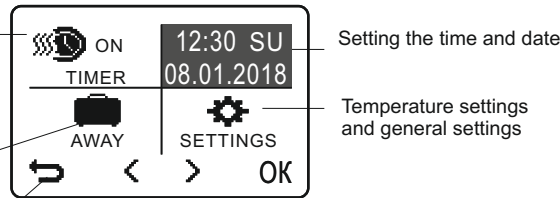
Operating Instructions

is of current interest
for the version of the insertion 3.16.16

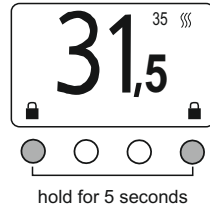
Turning on and setting the Timer mode (heating according to the schedule) / when the Timer is off, the thermostat keeps one set temperature permanently (Manual mode)

Enabling and configuring the Departure function

Press the «←» button to save the settings and exit



Button blocking (child and public protection)

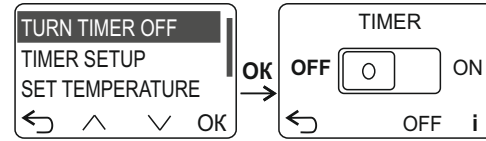


It is used if the thermostat is available to children or it is installed in a public place. You need to press the leftmost and the rightmost buttons simultaneously and hold them for 5 seconds to enable / disable the lock function.

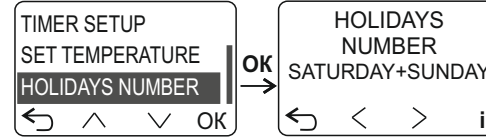
Timer (heating according to the schedule) ✓

In the Timer section, make a weekly schedule for heating the room: set the value and periods of comfort temperature, the rest of the time will be maintained at an economical temperature.

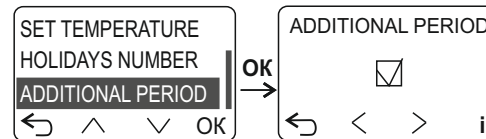
By default, for weekdays, two periods of comfortable temperature are available, and one — for weekends.



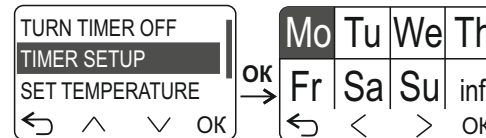
Select «TURN TIMER OFF» if you want to enter the **Manual mode**. The thermostat will maintain one set temperature continuously.



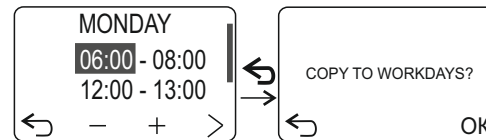
In the item «HOLIDAYS NUMBER», define your weekends (SATURDAY+SUNDAY, NO HOLIDAY, SUNDAY ONLY). To save and return to the menu, press «←».



If you need an additional period in weekdays, select the menu item «ADDITIONAL PERIOD». Use the «>» button to enable the additional period by ticking the box.

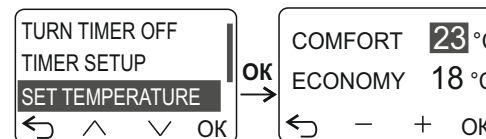


In the item «TIMER SETUP», select Monday, then set the start and end time for comfort temperature periods. Use the «OK» button to confirm and move from one value to another. Press «←» to exit.



The thermostat will prompt you to copy the settings on weekdays. Click «OK» if you want to apply this heating schedule for the rest of the week. For the weekends the settings are the same.

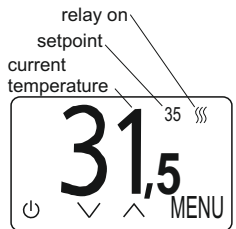
Press «inf.» to view the effect of a comfortable temperature period in the form of a graph for all days of the week.



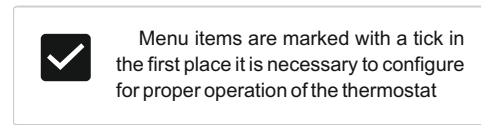
In the paragraph «SET TEMPERATURE» set a comfortable and economical temperature. Button «OK» for making changes and navigating through the menu. Press «←» to exit.

Operation

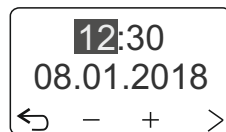
Enabling / disabling



Press and hold the left button for 5 seconds. After switching off the thermostat will go into sleep mode. For complete disconnection, remove the thermostat from the outlet or disconnect the circuit breaker in the shield during a long break in use.



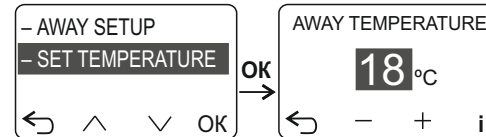
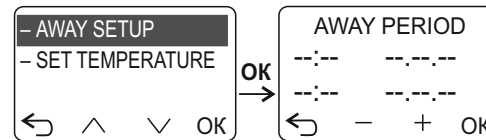
Time and date setup ✓



Select the time and date icon in the main menu, click «OK» to enter. Use the «+» and the «-» buttons to edit the time and the date.

The setup has the following order: hours — minutes — day — month — year. Press the return button «←» to exit.

Away



The factory settings of time periods and temperatures

	comfort	economy
by air	23 °C	18 °C
workdays	06:00 - 08:00 17:00 - 22:00	08:00 - 17:00 22:00 - 06:00
holidays	08:00 - 23:00	23:00 - 08:00

Use the buttons «+» and «-» to set the start time and date, as well as the end of the period of your away, as well as the temperature maintained during this period (away temperature).

Using Qr-code

Some menu options have the «i», icon which displays the link to the text and the Qr-code to the appropriate instructions section on the site.

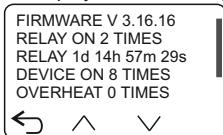
Settings

Statistics

The thermostat calculates approximate consumed electricity load. The entered load capacity and total time of switching on the relay for 24 hours, 7 days, 30 days and since the last reset are used in the statistics.

Information

Displays the faults, displays the firmware version, the total number of the relay starts, the total operating time of the relay and the number of times the thermostat is switched on.



The settings of a temperature and the General settings are described, in detail, hereinafter.

Temperature Settings

MENU – SETTINGS – TEMPERATURE SETUP – ...

1. Air temperature correction

If the temperature at the installation site of the thermostat differs from the average room temperature, we recommend you to correct the temperature reading.

2. Air temperature hysteresis (factory settings 1 °C)

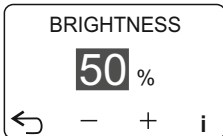
Hysteresis is the difference between setpoint temperature and load activation temperature. A small hysteresis makes it possible to maintain the temperature more accurately, and a large hysteresis makes it possible to reduce the number of on / off relays, thereby increasing its service life.

General settings

MENU – SETTINGS – COMMON SETTINGS – ...

1. Brightness (factory setting 50%)

Allows you to choose a comfortable level of brightness in the active mode or select a night mode for backlighting.



2. Contrast (factory setting 100%)

Adjustment is available in the range 0 ... 100%.

3. Language (factory setting is Russian)

The following languages are available for selection: Russian, English, Ukrainian, German.

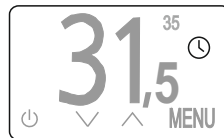
4. Open window function (factory settings — disabled)

The thermostat is able to detect the opened window by a sudden drop of temperature and to turn off the load in 30 minutes, thus providing additional energy saving.



The **OPEN WINDOW** icon indicates the operation of the Open Window function.

5. Preliminary heat / cool (factory settings — enabled)



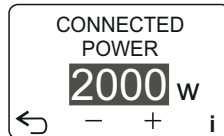
The **CLOCK** icon indicates the operation of the preheating function or the limitation on the on / off frequency of the relay.

The function allows to **warm up or to cool down the room** beforehand to a comfort temperature at the onset of the corresponding period.

During its operation, the thermostat calculates the average warm-up/cooling time from «economy» to «comfort» temperature and adjusts preliminary switch of the load on the value of this time before the comfort period begins.

6. Power

For the correct operation of the statistics and the correct calculation of the consumed electricity, it is necessary to determine the **load power** that the thermostat will control.



7. Heat / cool (factory setting heating)

The thermostat allows you to switch the load control mode to work with a heater or cooler.

8. NC contact (factory setting disabled)

The function allows the thermostat to operate with a load that requires a normally closed contact.

9. Code setup

The item «code setup» allows you to transfer the necessary settings from one thermostat to another. The settings are expressed in the form of a code that can be changed with the «+» or «-», buttons. To save the entered code, press «↶», then «SAVE» button to confirm.

Settings are available for migration:

- timer;
- hysteresis of air temperature;
- preheating functions;
- heating / cooling functions;
- open window functions;
- NC contact functions.

10. Stop watch

We recommend you to stop watch at the end of the heating season to extend the life of the internal battery which provides the energy to the clock in the absence of power supply. The device will turn of the clock module and will enter the sleeping mode.

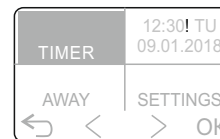
11. Factory default

After the rest you need to re-set the time and date.

POSSIBLE CAUSES OF FAULTS AND WAYS OF THEIR ELIMINATION

The thermostat is equipped with a self-diagnostics system. The thermostat will display any faults in its operation at power on. You can also view the faults in the «information» option of the menu.

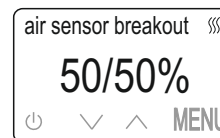
The main menu displays an exclamation mark on the clock icon.



Possible cause: a problem with quartz-crystal resonator or the battery is low.

Required measure: you should contact the Service Center.

The thermostat went into percentage control. The display shows «air sensor breakout or short circuit».



Possible cause: an open or short circuit in the sensor circuit, interference from the power wires.

It is necessary to check: the absence of mechanical

damage along the entire length of the sensor connection wire, the absence of closely passing power wires.

In the mode of percentage control of the load on the thermostat screen will display the sensor fault and the ratio of the load on/off time in the 30-minute cyclic interval. The percentage can be changed with the «^» and «v» buttons in the range 10...90 %.

At the first power-up, this ratio will be 50/50%, while the load in the 30-minute time interval will be turned on

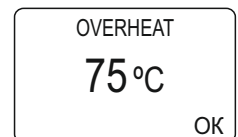
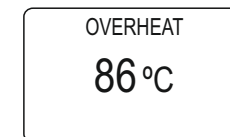
for 15 minutes.

Temperature monitoring of the corresponding sensor in this mode will not be available.

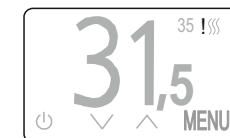
Protection from internal overheating

The thermostat is equipped with the protection from internal overheating. If the temperature inside the case exceeds 85 °C, there will be an emergency power cutoff. The indicator will display the sign «overheat» and will show the flashing overheating sensor temperature. After the temperature inside the case becomes below 75 °C, the thermostat will use the applied force and will continue it's work.

After protection is activated more than 5 times, the thermostat is locked until the temperature inside the housing drops below 75 °C and will not click «OK».



In the case of breakage or short-circuiting of the protection sensor the device will display an exclamation mark «!» before the relay switching button. In this case the internal heating control will not be performed.



Low Voltage Directive 2014/35/EU
EMC Directive 2014/30/EU

v31616_190711

Manufacturer and vendor: DS ELECTRONICS, LTD
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