terneo

Technical data sheet, installation and operation manual

PRO

smart heating control

The terneo pro thermostat is designed to maintain a comfortable room temperature according to the weekly schedule. Savings of up to 50% are ensured due to the fact that underfloor is heated only when it is needed. The thermostat's non-volatile memory saves all settings and heating schedules in case of a power outage.

Heating are controlled using data from air and floor temperature sensors. The thermostat provides 3 modes of maintaining a comfortable temperature: air with floor restriction, floor and air.

- The basis of the electric underfloor heating can be a heating cable or film.
- Water underfloor heating should be controlled by a normally closed or normally open electrothermal actuator with an operating voltage of 230 V.
- Control of electric convectors, infrared panels, other electric heaters or coolers is carried out by using the built-in air sensor.

The power relay is provided for long-lasting operation and reliability of its contacts: protection against frequent switching of the thermostat relay and switching on the load as close as possible to the moment when the voltage sine wave passes through zero. Slight deviations from zero crossing are possible due to different tripping times of different power relay models.

Please read this document in its entirety before installing and using the thermostat. This will help you to avoid possible hazards, errors, and misunderstandings.

IN THE BOX

Thermostat, frame	1 piece
Temperature sensor with connecting wire	1 piece
Technical data sheet and installation and operation manual and warranty card	1 piece
The packing box	1 piece

TECHNICAL DATA

Adjustment range	air 5...35 °C floor 5...60 °C
Maximum load current (for AC-1 category)	16 A
Maximum load power (for AC-1 category)	3 000 VA
Input voltage	230 V ±10 %
The number of switches under the load, at least	50 000 cycles
The number of switches without the load, no less than	20 000 000 cycles
Temperature hysteresis	air 0,5 °C floor 0,1...10 °C
Cross section of connection wires	not more than 2,5 mm²
Temperature sensor in box	NTC thermo-resistor 10 kOhm at 25 ° C (R10)
Supported sensors types analog	NTC 4.7, 6.8, 10, 12, 15, 33, 47 kOhm at 25 °C
digital	d18
Length of the sensor connected cable	3 m
Maximum extension length of the temperature sensor	20 m
Overall dimensions (w x h x d)	85 x 80 x 38 mm
Inner overall dimensions of decorative frame:	45 x 45 mm
Weight in the complete set	0,18 kg ±10 %
Compatibility with frames from other manufacturers	Schneider Electric Unica and Unica New
Available interface languages	ua, cs, en, ru, de

INSTALLATION

The thermostat is designed for indoor installation. Minimize the risk of moisture and liquids in the installation area. When installing in a bathroom, toilet, kitchen, or swimming pool, place the thermostat in a place that is not exposed to accidental splashes. The ambient temperature during installation and operation should not exceed –5...+45 °C. Install the thermostat at a height of 0.4...1.7 m from the floor level.

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, as shown in the Wiring 1. It should be designed for not more than 16 A.

To protect people against electric shock leakage, the SSD (safety shutdown device) is installed. This event is obligatory when installing underfloor heating in wet areas.

For installation you need to:

- make a hole in the wall with a diameter of 60 mm for the mounting box and channels for power supply and sensor wires;
- bring the heating system power and sensor wires to the mounting box;
- make connections according to this manual;
- secure the thermostat in the mounting box.

The terminals of the thermostat are designed for wires with a cross-section of no more than 2.5 mm². It is recommended to use soft copper wire, which can be tightened in the terminals using a screwdriver with a blade width not exceeding 3 mm and a torque of 0.5 N·m. The use of aluminum is not desirable.

The use of aluminum is not recommended. A screwdriver with a tip width of more than 3 mm may cause a mechanical damage to the terminals. This may cause a loss of warranty coverage.

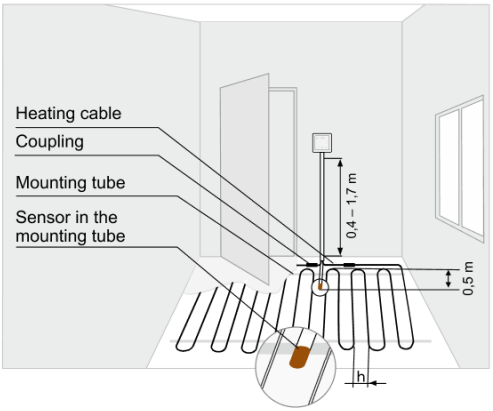
In the floor screed, place the sensor in a mounting tube (metal tube Ø 16 mm) that is bent once with a radius of at least 5 cm and inserted into the heating zone by 50 cm. This allows a future replacement of the sensor.

Seal the end of the tube (e.g. with electrical tape) to prevent the ingress of mortar. Insert the sensor into the tube after the concrete screed has hardened. Strip the wire ends and crimp them with insulated lugs.

If necessary, shorten/extend the detector with a cable with a cross-section of 0.5...0.75 mm², removing it from the power wires, which can interfere with the signal.

It is advisable to place the thermostat on the interior wall of the room, without exposing it to direct sunlight and drafts (Fig. 1).

The current switched by the thermostat should not exceed 2/3 of the maximum current specified in the passport.



Ensure that the sensor can be easily replaced in the future by sealing the end of the tube (we recommend using a copper plug).

Figure 1. Mounting the thermostat and underfloor heating

WARRANTY TERMS

The warranty for devices is valid for 36 months from the date of sale, provided that the instructions are followed. The warranty period for products without a warranty certificate is counted from the date of production.

If your device is not working properly, we recommend that you first read the section «Possible problems». If you cannot find an answer, contact Service Center, in most cases, these actions resolve all issues.

If you continue to have issues with the device, please, contact the General distributor in your area or the store where you purchased the device. If your device is defective due to our fault, we will repair or replace it under warranty within 14 business days.

Please see the full text of the warranty and the data you need to send to your Service Center on the website https://www.ds-electronics.company

terneo

SERVICE CENTER CONTACT
+38 (091) 481-91-81
Viber Whats App Telegram
support@dse.com.ua

WARRANTY CARD

serial №:

date of sale:

a seller,
a seal:

place of a seal

an owner contact for a service center:

WIRING

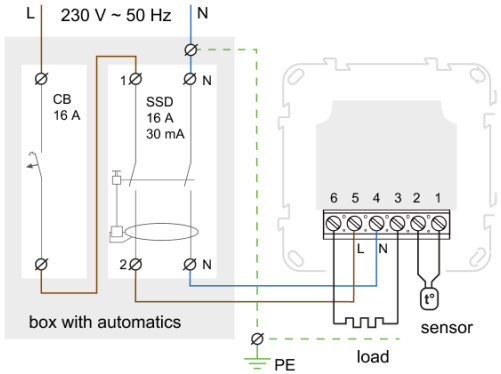
IMPORTANT! Perform the installation and load test before connecting to the thermostat. Connect the floor temperature sensor and the mains voltage correctly. Otherwise, the thermostat may malfunction.

The thermostat supports operation with analog (default R10) and digital (D18) sensors.The analog sensor is connected to terminals 1 and 2.

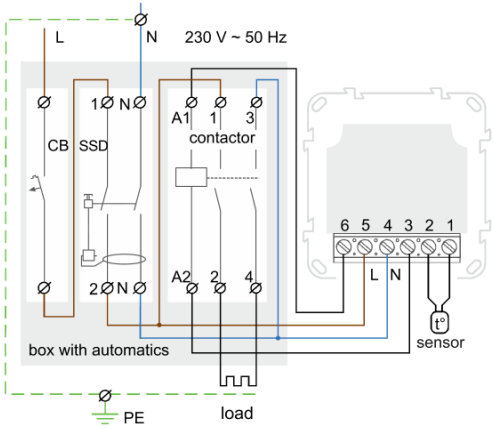
The digital sensor is connected to terminal 1 with a white wire and to terminal 2 with a blue wire. Select the sensor type in the thermostat menu: d18 (see page 11, menu item «Sensor type»).

The supply voltage (230 V ±10%, 50 Hz) is supplied to terminals 4 (zero, N) and 5 (phase, L).

The load (connecting wires from the heating element) is connected to terminals 3 and 6.



Wiring 1. Connection of the circuit breaker and SSD



Wiring 2. Wiring and simplified internal circuit

When connecting via a contactor, go to the «Settings → General settings menu and enable the Contactor function».

SETUP WIZARD

We recommend that you do the first setting of the thermostat through the «Setup Wizard», which sets the basic parameters of the device. It starts automatically when you turn it on for the first time or after resetting the device to factory settings. You can enter the «Setup Wizard» in the following way:

Menu → Settings → Setup Wizard

Save the settings and go to the next item with the «OK» button.

1. Choose language (factory setting — Ukrainian)

Available for selection:

- Ukrainian
- Czech
- English
- Russian
- German

2. Set date / time

3. Daylight saving time / winter time function

(factory setting — disabled)

If enabled, the time will automatically move forward one hour at 3:00 am on the last Sunday in March and 1 hour back at 4:00 am on the last Sunday in October.

4. Temperature maintenance mode

- By floor
- By air
- By air with floor restriction. The thermostat will maintain the temperature of the air, while not allowing the floor to overheat or cool down excessively. For this mode, enter the minimum and maximum floor temperatures.

The main screen in Air with floor restriction mode will display the FLOOR icon and the floor temperature when floor restriction is triggered:

5. Heating and cooling mode

(factory setting — heating)

If you are using terneo pro to control cooling equipment, change the mode to Cooling.

The Cooling mode is available when the temperature is maintained by floor or air (see point 4).

6. Battery Saving function

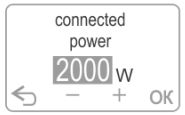
(factory setting — disabled)

The function allows you to extend the service life of the thermostat by saving the internal battery. To activate, enter the start and end date of the heating season, and on the last day of the season the device will automatically disconnect the battery and turn off itself.

7. Set the power of the connected load

BE SURE TO SET THE POWER

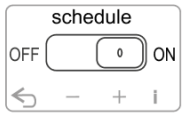
(factory setting 2000 W, range 100–3000 W)



To calculate statistics and correctly measure the air temperature, set the power of the connected load in the settings.

If the load is switched by a contactor, enable the Contactor function in the General settings and enter the power that will be passed through the contactor (see page 12).

8. Enable / disable the Schedule mode

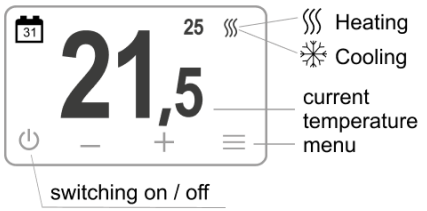


(factory setting — enabled)

If you want to maintain one set temperature, turn off the Schedule mode.

EXPLOITATION

Main screen:



31 Schedule mode is enabled

Temporary mode is automatically activated when the current temperature in Schedule mode changes

The Manual mode is automatically activated when the Schedule mode is deactivated. During the Manual mode, the thermostat maintains one set temperature.

Locking the buttons

To lock / unlock, hold down the left and right buttons for 5 seconds. We recommend using it in public places and as a childproofing device.

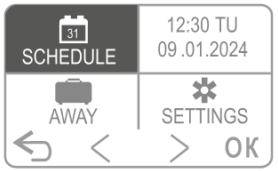
Enabling / disabling

To turn off the thermostat for a short period of time, press the «⏻» button for 5 seconds.

If the device is not used for a long period of time, for example, at the end of the heating season, we recommend that you stop the clock and turn off the automatic washout.

Menu screen:

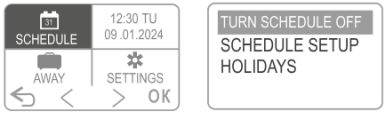
4 menu sections: Schedule, Data and time, Away and Settings are described on the following sheet



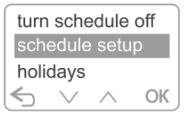
Schedule

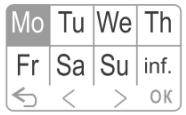
(factory setting — enabled)

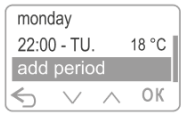
If you turned off the Schedule during the first setup through the Setup Wizard, you can turn it on by clicking Enable Schedule. Then go to Schedule settings.



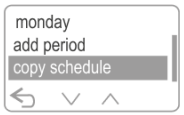
First, set up a schedule, for example, for Sunday. Select the temperature that the thermostat should maintain in the morning, afternoon, evening, and night. You can increase the number of temperature periods to 16.







For other weekdays, create an individual schedule, or if there is a single schedule for all weekdays, click «Copy schedule».

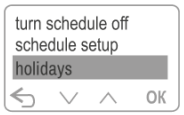


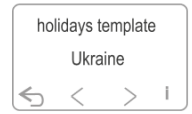
Separate schedule for public holidays

(factory setting — included / Ukraine)

Use this feature if you spend the holidays at home. We added this feature because holidays often fall on weekdays, but require a comfortable temperature during the day because everyone is at home and not at work.

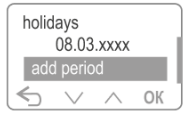
For your convenience, we have prepared templates of public holidays for Ukraine, Moldova, Romania, Poland, Germany, and the Czech Republic. You can create your own template: select a country and then make adjustments. You can add up to 16 holidays.

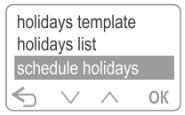


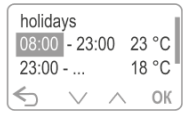


Holidays are set in a format:

dd.mm.xxxx	a date that is repeated annually
dd.xx.yyyy	date repeated every month of certain year. For example, 01.xx.2022 — every first day of 2022
dd.xx.xxxx	each specified number. For example, 01.xx.xxxx — every first number
xx.mm.yyyy	the whole month of the specified year
xx.mm.xxxx	the whole month of each year
	whole year



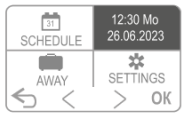




Date and time

These settings are described in detail in «Main settings» on page. 6, points 2, 3, 6.

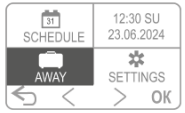
The Stop Clock function allows you to force the battery to turn off, for example, at the end of the heating season. This will turn off the thermostat completely and save battery power.

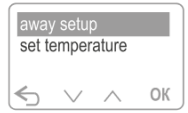


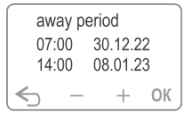
Away

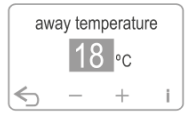
Adjust the temperature and the Away period so that comfort is restored by the time you return.

To deactivate the mode, select «Away reset».

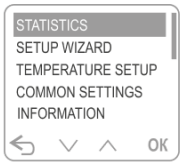








Settings



1. Statistics

Reset the statistics before the start of the heating season to find out the estimated load energy consumption in kW*h for the selected period. For statistics, you need to set the load power.

2. Setup Wizard

Use it when turning on the device again or if you are not sure that you have set all the basic parameters for the operation of the thermostat.

3. Temperature setup

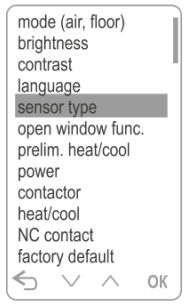
3.1 Here, you can change the minimum/maximum floor temperature (for the «Air with floor limitation» temperature control mode) entered in the «Setup wizard».

3.2 Frost-free function (factory setting — on) The heating will turn on automatically if the room temperature drops below 5 °C.

3.3 Floor temperature correction / air temperature correction (factory setting 0 °C, range –10...+10 °C). You can use the correction if the temperature readings on the screen and your reference device are not the same.

3.4 Floor hysteresis (factory setting 1 °C, range 0,1–10 °C, step 0,1 °C). A smaller hysteresis value allows more accurate maintenance of temperature, a larger one saves on energy consumption and increases the life of the relay by reducing the number of loads switching.

4. Common settings



Sensor type
(factory setting — 10 kOhm). The thermostat is compatible with floor sensors from most manufacturers, which allows you to replace another thermostat with terneo pro.

4.1 Open Window function
(factory settings — disabled)

When turned on, it will provide additional energy savings by turning off the load for 30 minutes in the event of a sharp drop in room temperature.

The window icon means that the Open Window function has been activated

4.2 Preliminary heating / cooling
(factory settings — disabled)

Use it to ensure that the desired temperature is already reached at the beginning of each period. After enabling the function, the thermostat will go through a self-learning process and calculate the time for which the heating should be turned on in advance.

The on-screen clock icon indicates the pre-heating / pre-cooling function

4.3 Function Contactor
(factory setting — disabled)

Activate it if you use it during connection. If you are using a contactor, be sure to go to the Load Power menu and enter the power that will be passed through the contactor. The power can be set up to 500 kW.

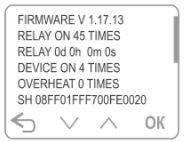
4.4 Function «nc» contact
(factory setting — disabled)

Activate it, for example, when connecting a normally open servo drive.

4.5 Reset to factory settings.
After resetting the Main Settings, go through the «Setup Wizard» from the beginning.

5. Information

Displays the thermostat malfunctions, if any, and also displays the firmware version, the total number of relay activations, the total relay operating time, and the number of thermostat activations.



POSSIBLE PROBLEMS, CAUSES AND WAYS TO OVERCOME THEM

The thermostat has a self-diagnostic system and displays the detected errors when the power is turned on and displays them in the «Information» menu section.

Load is off, screen is off

Possible cause: no power supply.

It is necessary to: make sure that the voltage supply is available. If power supply is available, contact the Service Center.

The main menu displays an exclamation mark on the clock icon «!»

Possible cause: failure of internal battery or clock.

It is necessary to: contact the Service Center since clock may not work correctly.

The load operates according to air sensor, the floor control is not carried out. The sign «open floor sensor» or «s.c. floor sensor» is displayed

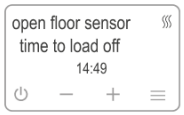
Possible cause: incorrect connection, damage of the sensor and its circuit, incorrectly selected sensor type in the thermostat settings, the temperature measured by the analogue sensor exceeds range of –30...75 °C.

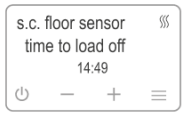
It is necessary to: check the place of connection of the temperature sensor to thermostat and its circuit, the absence of mechanical damage along the entire length of the connecting wire, as well as the absence of power wires that are laid close.

Load does not operate according to the settings, the sign «open air sensor» or «s.c. air sensor» is displayed

It is necessary to: you should contact the Service Center.

Load does not operate according to the settings, the sign «open floor sensor» or «s.c. floor sensor» is displayed





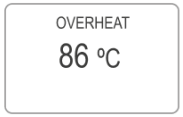
Possible causes: incorrect connection, damage of the detector circuit, or temperature outside the measured range (−30...75 °C).

It is necessary to: check the external sensor circuit, the absence of mechanical damage along the entire length of the connecting wire, and the absence of power wires passing close by.

The thermostat has switched to the Timer Emergency Mode: this mode will ensure the operation of the underfloor heating in case of sensor damage: in a 30-minute cycle interval, the thermostat turns on the load for the time you set, and the load will be turned off the rest of the time. You can set the load operation time in the range of 1...29 minutes. If you want the load to run continuously, set time longer than 29 minutes, and time of less than 1 minute to be switched off.

In this case, the temperature is not monitored by the respective sensor.

Load doesn't operate, the temperature readings flash on the screen and «overheat» is displayed



The temperature inside the housing exceeded 85 °C and triggered protection against internal overheating.

Possible cause: inner overheating of the device which can be caused by: bad contact in the terminals of the device, high ambient temperature, overwhelming power output or incorrectly selected cross-section of wires for connecting.

It is necessary to: check the tension of power wires in the device terminals, make sure that the switching load does not exceed the permissible and that the cross section of the wires is selected correctly.

Features of the protection against internal overheating: when the temperature inside the housing drops below 75 °C, the thermostat will resume operation. When the protection is triggered more than 5 times in a row, the thermostat will be blocked until the temperature inside the housing drops below 80 °C and the «OK» button is pressed.

Load operates, «!» symbol is displayed on the screen

Possible cause: a break or short circuit of the internal overheating sensor. Internal overheating is not monitored.

It is necessary to: send the thermostat to the service center. Otherwise, overheating control will not be carried out.

Table 1. Resistance of external temperature sensor at different ambient temperatures

5 °C	25339 Ω
10 °C	19872 Ω
20 °C	12488 Ω
30 °C	8059 Ω
40 °C	5330 Ω

Technical Support Chat

If you haven't found the answer, please contact our technical support engineer
dselectronics_bot
terneo_official

ADDITIONAL INFORMATION

Please do not burn or dispose the thermostat with household waste.

After the end of its service life, the product should be disposed of in accordance with applicable law.

The product is transported in packaging that ensures its preservation.

The thermostat can be transported by any kind of transportation (such as by car, plane, train or ship).

The manufacturing date is indicated on the back of the device, and there is no expiration date.

If you have any questions regarding this device, please contact the Service Center using the phone number provided in the Warranty Terms section.

The manufacturer reserves the right to make changes to the firmware, cloud interface, mobile applications, and desktop application my.terneo.ua to improve the energy efficiency of the thermostat and optimize its operation.

SAFETY INSTRUCTIONS

To avoid injury and damage of the thermostat, carefully read and understand these instructions.

The installation of the thermostat should be carried out by a qualified electrician.

Do not connect 230 V mains voltage instead of the sensor (this will damage the thermostat).

Before starting the installation (disassembly) and connection (disconnection) of the thermostat, disconnect the power supply and follow the «Rules of an arrangement of Electric Installations».

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

Do not connect the thermostat to the power supply in a disassembled state.

Prevent liquid or moisture from coming into contact with the thermostat.

Do not expose the device to extreme temperatures (above 40 °C or below −5 °C) and high humidity.

Do not clean the thermostat using chemicals such as benzene and solvents.

Do not store or use the thermostat in dusty environment.

Do not attempt to disassemble or repair the thermostat by yourself.

Do not exceed the maximum current and power limits.

Use surge protectors to protect against overvoltage caused by lightning discharges.

Keep children away from playing with a functioning device as it is dangerous.

terneo pro v11713_2406

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

04136, Ukraine, Kyiv region, Kyiv, 1–3 Pivnichno-Syretska str.
Sales Department: +38 (091) 481-91-81, support@dse.com.ua
www.ds-electronics.company