

Smart thermostat terneo sx is designed to control underfloor heating systems based on heating cables, films, or water pipes via the mobile application terneo or an account on my.terneo.ua

Scan to download the app



Underfloor water heating is controlled 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 additional settings of «cloud» function Normally closed contact.

Heating based on infrared panels, electrical convectors and other electrical heaters is controlled by placing a temperature sensor in the air.

IN THE BOX

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



Scan to see all the benefits of the terneo Smart thermostat on the website and download the terneo mobile app brochure.

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

In case of power failure, all thermostat settings and heating schedules are stored in the thermostat's non-volatile memory, and the clock operation will continue from the internal power source for up to three days.

TECHNICAL DATA

Adjustment range	5...45 °C
Maximum load current (for category AC-1)	16 A
Maximum power load (for AS-1 category)	3 000 VA
Input voltage	230 V ±10 %
Weight in the complete set	0,18 kg ±10 %
Temperature sensor (in set)	NTC thermo-resistor 10 kOhm at 25 °C (R10)
Length of the sensor connected cable	3 m
Types of the supported sensors:	NTC 4.7, 6.8, 10, 12, 15, 33, 47 kOhm at 25 °C D18
Number combinations under heat, at least	50 000 cycles
Number of combinations without heating, no less than	20 000 000 cycles
Temperature hysteresis by floor	0,5...10 °C, step 0,1 °C
Inner overall dimensions of decorative frame:	45 x 45 mm
Overall dimensions (w x h x d)	75 x 75 x 38 mm
Wireless Networking Standard	802.11 b/g/n
Wi-Fi power output	+20 dBm
Minimum recommended speed of Internet connection	128 kb/s
Operating frequency range	2400-2483,5 MHz
Minimal Internet traffic	20-30 MB/ms
Measured temperature range	-28...+75 °C
Cross section of connection wires	not more than 2,5 mm²
Maximum extension length of the temperature sensor	20 m
Compatibility with frames from other manufacturers	Schneider Electric Unica and Unica New
Available languages on the app	ua, en, rom, cs, pl, de, ru

WIRING

Analog sensor (R10) is connected to terminals 1 and 2. Wire colors are not significant during connection.

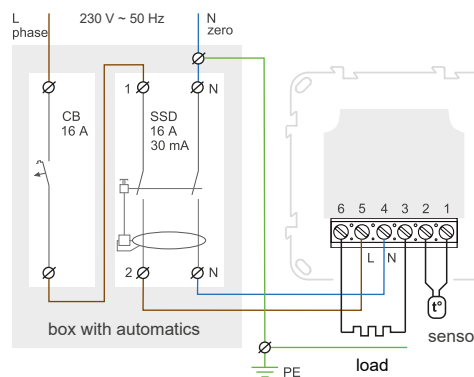
Digital sensor (D18) is connected using a blue wire to terminal 2, and a white wire to terminal 1. If the thermostat switches to Emergency Timer Mode (page 12), try connecting the blue wire to terminal 1 and the white wire to terminal 2. If the thermostat still does not detect the sensor after both attempts, please contact the service center.

Power voltage (230 V ±10%, 50 Hz) is supplied to terminals 4 and 5, where the phase (L) is determined by the indicator and connected to terminal 5, while the neutral (N) is connected to terminal 4.

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

Install and check the load before installing and connecting the thermostat.

If the external sensor and mains voltage are not connected correctly, the thermostat may malfunction.



Wiring 1. Connection of the circuit breaker and SSD

INSTALLATION

The thermostat is designed for indoor installation. Minimize the risk of moisture and liquids entering the installation area. When installing in a bathroom, toilet, kitchen, or pool, place the thermostat in a location not exposed to accidental splashes. The ambient temperature during installation should be within -5...+45 °C. The thermostat is to be installed at a height ranging from 0,4...1,7 meters 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 a people against electric shock leakage is installed the SSD (safety shutdown device). This event is obligatory when installing floor heating in wet areas.

For installation you need:

- 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.

A screwdriver with a blade width greater than 3 mm may cause mechanical damage to the terminals, which can result in the loss of warranty service rights.

From the mounting box with thermostat the mounting tube (metal tube Ø 16 mm) is put into a zone heated by about 0,5 m. The curves and the length of the tube should ensure smooth movement of the sensor. The end of the pipe introduced into the zone, which is heated, must be carefully sealed to avoid ingress of the solution, for example, with a tape. The sensor is introduced into the pipe after solidifying of screed.

If necessary is acceptable reduction and increasing (up to 20 m) of sensor connecting wires. Near the sensor connecting wires should not be the power cables, they may be interfere.

It is necessary that the thermostat commutes the current not more than 2/3 of the maximum power specified in the passport. If the exceeds 2/3 of the maximum current specified in the data sheet, the heating cable must be connected with a contactor (magnetic starter, power relay), which is designed for this current (wiring 2).

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 send it to a Service Center or to 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>. If you have a warranty case, please, contact the General distributor in your area.



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

WARRANTY CARD

serial №:	date of sale:
a seller:	place of a seal
a seal:	
an owner contact for a service center:	

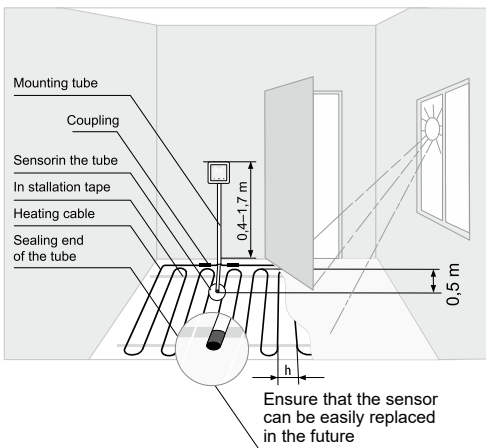
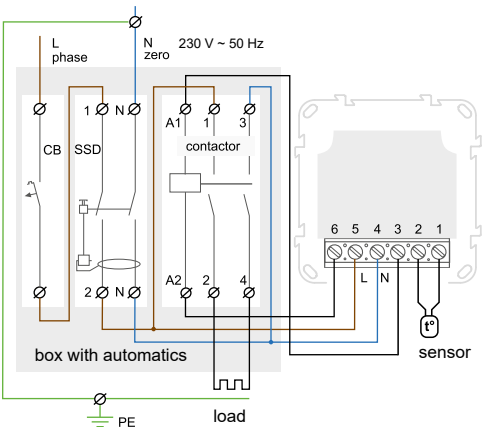


Figure 1. Mounting the thermostat and «warm floor» system



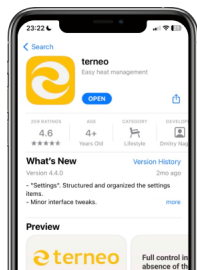
Wiring 2. Wiring and simplified internal circuit.

Status of the indicator on the thermostat

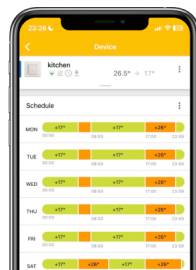
● lights	connection to the «cloud» is available
○ does not light	no Wi-Fi connection or it is turned off
(●●) flashing 2 times / second	mode Access Point (AP)
(●●) flashing 1 time / 3 seconds	Client mode «CLi» Wi-Fi is available, but there is no connection to the cloud

SMART FUNCTIONS

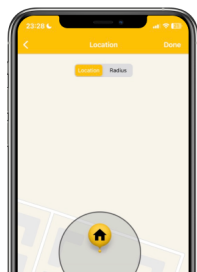
Smart functions allow you to save up to 50% by maintaining a comfortable floor temperature only when needed.



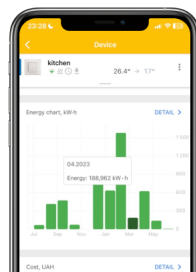
Download the top-rated terneo mobile app on PlayMarket and AppStore



Set up the heating schedule for savings, for example, during your absence and at night



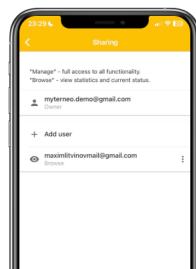
Turn on Geofencing, and heating will automatically turn off when there's no one at home



Fill in your tariff and load to calculate electricity consumption costs



Enable Preheating, and terneo will automatically calculate the time to start heating in advance



Grant access to other family members and, if you have multiple thermostats, group them together

CONNECTION TO THE «CLOUD»

The «Cloud» is designed for remote connection, control, and storing statistics on the Internet.

Please note!

- The thermostat does not work with 5G Wi-Fi networks
- It is not recommended to connect the thermostat to a Wi-Fi network that uses Multi WAN technology.

How the «cloud» works in the presence of the Internet

The thermostat is constantly synchronized with the cloud, executing its commands, receiving the latest settings, and sending telemetry about its status. If you disable remote control of the thermostat, the «cloud» can only be used to accumulate statistics (details in Table 1). For proper operation of statistics and heating schedule, after connecting to the cloud, please specify your time zone. Afterwards, the thermostat will automatically update the date and time via the Internet.

How the «cloud» works in the absence of the Internet

The thermostat continues to operate according to the set settings. During this time, you can control the thermostat using the thermostat's buttons or the offline mode in the terneo app. Please note that instead of a fixed internet connection, you can use mobile internet. For this, you will need a separate device (for example, a smartphone) that will act as a Wi-Fi hotspot. After restoring the Internet connection, all settings will be synchronized.

Connection via mobile application

1. Download the terneo app from Google Play for Android or from the App Store for iOS.
2. Register or log in using your Telegram, Apple ID, or Google account.
3. Upon the first power-up, the thermostat will enter the «AP» mode for the first 10 minutes. After that, set the «AP» independently:



click «≡» until «APC» is displayed



by means of «+» and «-» to select «AP»

4. Go to the app and press «+» → «Device» or «≡» → «Add» → «Device».

Complete the setup for Android

5. Select the Wi-Fi network created by the thermostat, for example, terneo sx_A68FDB.
6. Then follow the prompts in the app. If there is an internet connection, the thermostat will be added to the main screen of the app and registered in the «cloud».

Complete the setup for iOS

5. Enter the name and password of your Wi-Fi network, then press «Next».

6. Go to Wi-Fi Settings on your iPhone. Connect to the Wi-Fi network created by the thermostat; its name will be in the format — terneo sx_A68FDB. Enter the password DSEXXXXX, where XXXXXX represents the last six characters of the network name (for example: DSEA68FDB).

Next, return to the application and follow the prompts. If you have an internet connection, the thermostat will be added to the main screen of the application and registered in the «cloud».

Connection through the desktop application www.my.terneo.ua

1. Look at the thermostat screen and make sure it is in «AP» Access Point mode. If the screen shows «CLi» follow the instructions from Step 3 in the section Connection through the mobile app.
2. On your computer, go to Wi-Fi settings and connect to the Wi-Fi network created by the thermostat. Its name will be in the format terneo sx_A68FDB. If a password is required for the connection, enter DSEXXXXX, where XXXXXX represents the last six characters in the network name (for example: DSEA68FDB).

The Android operating system may prompt you to confirm the connection to a Wi-Fi network that has no internet access. To proceed with the connection, press «Do not disconnect».

3. Open the browser and enter 192.168.0.1 in the address bar.
4. On the browser page, select your Wi-Fi network and enter its password. Press «Connect».
5. Please wait for a minute until the thermostat connects to your Wi-Fi network, and the indicator on the thermostat will light up blue.
6. Go to the Wi-Fi settings on your phone or computer and make sure you are already connected to your home Wi-Fi network.
7. Go to my.terneo.ua and register using your Telegram, Apple ID, or Google account.

8. To add a thermostat, press «+ Add» → «Device» → set a name, for example, «Bedroom» → enter the PIN-code from the thermostat screen → press «Next» to add the device.



If you don't see the PIN-code on the thermostat screen, press the «≡» button 3 times until «Pin» appears on the screen. Then, press «+» or «-» to request the PIN-code.

Possible malfunctions:

- If instead of the PIN-code, the thermostat displays «iP», it indicates a lack of connection to the cloud. Check the internet connection on the router to which the thermostat is connected.
- If you cannot find the «Pin» and «iP» in the menu, it means there is no Wi-Fi connection. Repeat the connection process through the desktop application starting from step 1.


CONTROL FROM THE BUTTONS

When connected and during operation, the thermostat displays the current temperature from the remote sensor. If it is lower than the set temperature, the power is supplied to the load, and the indicator starts to glow red.


To change the heating temperature, use the «+» or «-» buttons. The screen will first display the operating mode, and then the set temperature for that mode.

To navigate through the menu, use the «≡» button. To select and modify a menu item, use the «+» and «-» buttons. After 5 seconds of inactivity, the display will return to showing the temperature.


Locking the buttons


 The thermostat buttons will automatically lock after twenty seconds of inactivity.

To unlock, swipe left to right across the buttons «-» «≡» «+». The display will show three lines when unlocked.


 If you want to securely protect the settings from children or unauthorized access, press and hold the «+» and «-» buttons simultaneously for six seconds until «**Loc**» appears on the screen, or in case of unlocking, «**unLoc**» will appear.

Sleep mode


 Hold the middle button for 4 seconds until «**oFF**» appears on the screen. For a complete shutdown, you need to turn off the automatic switch.




















 To exit the sleep mode, also press and hold the middle button for 4 seconds until «**on**» appears on the screen.

Firmware version

 Hold the «-» button for 12 seconds — this is for the **F2.5** version of your thermostat. After releasing the button, the thermostat will return to its normal mode.

Reset to factory settings

 Hold the «-» button for 30 seconds until «**dEF**» appears on the screen. After releasing the button, the thermostat will restart. Please note that after this reset, the Wi-Fi settings will be retained.

Menu	Press button «≡»	Screen	Notes
Operating mode (from the factory «hnd») Away mode is tuned only by means of the app	1 time	    	Hand mode allows maintaining a constant set temperature all the time. Schedule mode allows setting different temperatures for each day of the week and throughout the day to save energy when you are away. If the Preheat function is enabled in the app, the screen will display «Prh» during its operation. If you change the temperature during the Schedule mode, the screen will display «tPr». This means that the new temperature will be maintained only until the end of the current schedule period, and after its completion, terneo will return to the standard schedule. Away mode. For the cancellation withhold middle button during 4 sec to the apparition of «oFF» in the indicator. After release of the button the thermostat will return in the acting mode before beginning of the period of the Away.
Brightness in standby mode (factory default 6, adjustable range 0...9)	2 times		To reduce the accent on the thermostat in the room, use brightness level 0. In this mode, the digits on the screen will be hidden: <ul style="list-style-type: none">• left dot indicates the presence of power supply,• middle dot indicates the load status,• right dot indicates the Wi-Fi network status.
PIN-code or local IP (section is available when connected thermostat to a Wi-Fi network)	3 times	 	When connected to the «cloud», you may need a three-digit PIN code, or in case of no cloud connection — an IP address. This option is displayed only when Wi-Fi is turned on.
Operating mode Wi-Fi (factory setting «Cli» — Client mode)	4 times without Wi-Fi connection, 3 times	   	Choose the desired Wi-Fi operating mode: <ul style="list-style-type: none">• Access Point to connect to the cloud• Client for using previous settings• oFF to turn off Wi-Fi
Correction of floor temperature (factory default is 0, range of change ±9.9 °C, step 0.1 °C)	5 times without Wi-Fi connection, 4 times		If necessary, you can make adjustments to the temperature on the thermostat screen.
Power of the connected load (factory default: 2.0, adjustable range: 0.01...25.0 kW, step length depends on the power)	6 times without Wi-Fi connection, 5 times		To ensure accurate energy consumption statistics, enter the power of your connected load through the app or using the thermostat buttons.
Blocking remote control of the thermostat (from the factory blocking changes via the local network «LAN»)	7 times without Wi-Fi connection, 6 times	    	« oFF » mode has no restrictions for remote control. « cLd » turn on if you plan to control the thermostat through the Smart Home system. The operation status and all statistics can be viewed in the terneo app. All changes through the app will be locked, control from the buttons will remain available. « LAN » is set by default. Leave it if you plan to control the warm floor through the terneo app. « on » enable it if you want to keep control only with the thermostat buttons.

POSSIBLE PROBLEMS, CAUSES AND WAYS TO OVERCOME THEM



In the app, the current temperature is not visible, or instead of the wi-fi signal level, there is an icon with a crossed-out cloud, and the thermostat status in the app shows — offline.

Possible cause: replacing the router or changing the password of your Wi-Fi network.

It is necessary to: please ensure the presence of a Wi-Fi network and access to the Internet.

In case of changes to the router settings, you can reconnect the thermostat using the terneo application.

The load is not working according to the settings, and every 5 seconds, the screen displays «OC» or «SC»



open circuit — sensor circuit break



short circuit — sensor circuit short-circuit

The thermostat has switched to Timer Emergency Mode. This mode will maintain the operation of the underfloor heating in case of sensor malfunctions: in a 30 minute cyclic interval, the load will be turned on for the time set by you, and the rest of the time, the load will be turned off. The load operation time can be set within the range of 1...29 minutes. To keep the load constantly on, select «**on**»; to turn it off, select «**oFF**».

Possible cause: incorrect connection, sensor circuit damage, or temperature exceeding the measurement limits (see Technical Specifications).

It is necessary to: check the connection point of the temperature sensor with the thermostat and its circuit, ensure there are no mechanical damages along the entire length of the connecting wire, and make sure there are no power cables passing nearby.

The load is off, the screen and indicator are not lit.

Possible cause: there is no power supply voltage.

It is necessary to: please check the power supply voltage to ensure its presence. If there is voltage, please contact the service center.

The thermostat does not respond to changes made in the app.

Cause: remote control is locked in the thermostat settings.

It is necessary to: go to the thermostat menu section «blc» and change its status to «oFF» (see Table 1 in the «Remote Control Lock» section).

The load is turned off, and the screen is flashing «oht»



The internal overheating protection has been activated because the temperature inside the casing exceeded 90 °C.

The display on the thermostat is flashing «oht». To check the current temperature of the thermal protection sensor, press any button. The thermostat will resume operation when the temperature inside the casing drops below 71 °C.

Possible cause:

- poor contact in the thermostat terminals.
- high ambient temperature.
- exceeding the power capacity of the connected load.
- incorrectly selected wire gauge for the connection.

It is necessary to check:

- over-tightened power wires in the thermostat terminals.
- power capacity of the connected load should not exceed the allowable limit.
- the correct wire gauge should be selected for the connection.

If the protection is activated 5 times within 24 hours, the thermostat will disconnect the load and lock itself to draw attention to the hazardous situation. Once the temperature inside the housing drops below 63 °C, the thermostat will wait for 30 minutes and then resume operation. To unlock it earlier, press any button.

The screen displays «Ert» every 5 seconds



Possible cause: open or short circuit of the internal overheating sensor. The internal overheating is not monitored.

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

When pressing the buttons on the screen, «Lbt» is displayed



Cause: discharge or damage to the internal power source.

It is necessary to: wait for approximately 1-2 hours for the power source to charge or contact the service center. Otherwise, the clock will not be maintained in the absence of power in the network.

The connected regulator's LED has stopped glowing blue, and the regulator's status in the app shows — offline

Cause:

- absence of Internet or issues on the provider's side;
- router change, its settings, or damage;

It is necessary to:

- please make sure you have a Wi-Fi network available and access to the Internet.

- if there are changes to the router settings, the thermostat will automatically reconnect using the terneo desktop application;
- until the issue is resolved, you can change the temperature using the thermostat's buttons or utilize the offline mode in the Android app.

Incorrect password when connecting to the Wi-Fi network created by the thermostat

It is necessary to: enter the password considering the case, language, and the number of characters. The password to input will be DSEXXXXXX, where XXXXXX — represents the last six characters of the Wi-Fi network name created by the thermostat and to which you are connecting (for example: DSEA68FDB).

Preheating does not work or works incorrectly

Cause:

- pre-heating function is disabled in the app;
- there are frequent sharp temperature or power changes in the room, or the heating power is insufficient to reach the set temperature in less than 3 hours;
- a switch between heating/cooling modes was made, but there was not enough time for self-learning;
- floor temperature correction was changed, but there was not enough time for self-learning.

It is necessary to: ensure that there are no frequent sharp temperature or power changes in the room and that the heating power is sufficient to reach the set temperature in less than 3 hours. Make sure that the Pre-heating function is enabled in the app, the thermostat is in Schedule mode, and enough time has passed for its self-learning process.

The heating does not turn off, and the set heating temperature remains unachieved

Possible cause:

- insufficient heating cable power;
- absence or inadequate thermal insulation;
- incorrect installation of the heating cable or temperature sensor;
- inadequate power supply for the operation of the heated floor in the specified mode.

It is necessary to: please ensure that the heated floor is installed correctly (the cable's cross-section is chosen correctly, the level of thermal insulation in the room is sufficient, and the installation of the heating cable and temperature sensor complies with the requirements). Also, verify that the power capacity of your power supply is sufficient for the operation of the heated floor. Otherwise, please contact the Service Center.

When pressing the button on the thermostat, the screen displays a flashing dash

Possible cause: automatic button lock.

It is necessary to: press the 3 buttons of the regulator from left to right in sequence. The screen will display 3 dashes.

Connection error through Android or iOS apps, and the indicator is glowing blue

The thermostat has connected to the «cloud» but has not joined the account.

It is necessary to: follow steps 8-10 to connect via the my.terneo.ua desktop application

Technical Support Chat

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

@dselectronics_bot



ADDITIONAL INFORMATION

Please do not burn or dispose of 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 at 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.

Your personal data is safe

We take user confidentiality seriously and strive to be open and honest in the use of data. We keep your personal data secure and never share information that can identify you without your permission.

More about our Privacy Policy at the link: <https://my.terneo.ua/confidential/en>

SAFETY INSTRUCTIONS

To avoid injury and damage to the thermostat, carefully read and understand these instructions for yourself.

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 liquid media.

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 environments.

Do not attempt to disassemble or repair the thermostat 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.

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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.com.ua