



RT520 THERMOSTAT - FULL USER MANUAL

SALUS
CONTROLS

TABLE OF CONTENTS

1. Introduction	4
1.1 Product Compliance	4
1.2 Safety Informations.....	4
2. Product Overview	5
2.1 Example of boilers compatible with the OpenTherm OT+ 4.0 protocol.....	6
2.2 Montage.....	7
2.3 Package content	7
2.4 Proper thermostat location	7
2.5 Connection description.....	8
I A - Boiler connection	8
I B - Pump / Valve connection	8
I C - KL08NSB underfloor heating wiring center connection	8
3. Before you start (first power up)	9
3.1 LCD icon description	9
3.2 Button description.....	9
3.3 First power up sequence and configuration	10
3.4 OpenTherm - Hot Water configuration.....	14
4. User settings	15
4.1 Manual mode	15
4.2 Schedule mode - programming schedule.....	16
4.3 Switching between manual and schedule mode	17
4.4 BOOST mode - hourly temperature override (+Hr)	18
4.5 Control and Heat/Cool settings	19
4.6 Landlord settings	20
4.7 Time/Date	22
4.8 Holiday mode	23
4.9 Language	24
5. Factory Reset	25
6. Error codes	25
7. Battery change	25
8. Cleaning and Maintenance	26
9. Technical Informations	26
10. Warranty	27

1. Introduction

1.1 Product Compliance

This product complies with the essential requirements and other relevant provisions of Directives 2014/53/EU and 2011/65/EU. The full text of the EU Declaration of Conformity is available at the following internet address: www.saluslegal.com.

1.2 Safety Informations

- Before starting installation work and before using the product, read the entire manual.
- The information contained in the instructions is essential for proper functioning.
- To avoid accidents resulting in personal injury and material damage, please follow all safety precautions, specified in this manual.
- The device should not be used by people with limited mental, sensory or mental abilities, without experience, of insufficient knowledge as well as children.
- Do not use an unassembled device (eg without a cover).
- The device may only be opened by a qualified person.
- Keep electrical devices out of the reach of children and ensure that they do not play with it. Children should not be left unattended. If necessary, disconnect the control system for the entire room.
- Do not leave the packaging, cabinet, or any loose parts of the device unattended, as they pose a risk to children.

WARNING!

- Installation must be carried out by a qualified person with appropriate electrical qualifications in accordance with standards and regulations in force in the given country and in the EU.
- Never try to connect the device other than as described in the manual.
- Before assembly, repair or maintenance as well as during any connection works it is absolutely necessary disconnect the mains supply and make sure that the terminals and electric wires are not live.
- The device may not be exposed to extreme temperatures, strong vibrations or subjected to mechanical shock.
- The device should not be used in unfavorable environmental conditions or in rooms where there is a concentration of flammable gases, fumes or dust.

WARNING!

- There may be additional protection requirements for the entire installation that the installer is responsible for maintaining.



Care for the natural environment is of paramount importance to us. The awareness that we manufacture electronic devices obliges us to dispose of used electronic components and devices safely. Therefore the company has received a registration number issued by the Chief Inspector for Environmental Protection. The crossed out symbol the trash can on the product means that the product must not be disposed of with ordinary waste containers. Sorting waste for recycling helps to protect the environment. It is the user's responsibility to surrender used equipment to a designated collection point for recycling waste from electrical and electronic equipment.

2. Product Overview

The RT520 room thermostat simply switches the heating system on and off as necessary. It works by sensing the air temperature, switching on the heating when the air temperature falls below the thermostat setting, and switching it off once this set temperature has been reached.

Turning a room thermostat to a higher setting will not make the room heat up any faster. How quickly the room heats up depends on the design of the heating system, for example, the size of boiler and radiators. Neither does the setting affect how quickly the room cools down. Turning a room thermostat to a lower setting will result in the room being controlled at a lower temperature, and saves energy.

The heating system will not work if a time switch or programmer has switched it off.

The way to set and use your room thermostat is to find the lowest temperature setting that you are comfortable with, and then leave it alone to do its job. The best way to do this is to set the room thermostat to a low temperature – say 18°C – and then turn it up by one degree each day until you are comfortable with the temperature.

You won't have to adjust the thermostat further. Any adjustment above this setting will waste energy and cost you more money.

If your heating system is a boiler with radiators, there will usually be only one room thermostat to control the whole house. But you can have different temperatures in individual rooms by installing thermostatic radiator valves (TRVs) on individual radiators. If you don't have TRVs, you should choose a temperature that is reasonable for the whole house. If you do have TRVs, you can choose a slightly higher setting to make sure that even the coldest room is comfortable, then prevent any overheating in other rooms by adjusting the TRVs.

Room thermostats need a free flow of air to sense the temperature, so they must not be covered by curtains or blocked by furniture. Nearby electric fires, televisions, wall or table lamps may prevent the thermostat from working properly.

Thermostat is compatible with OpenTherm OT+ 4.0 version.

The OpenTherm protocol is an open standard communication protocol used in central heating systems for two-way communication between a central heating boiler and a room thermostat. Thanks to the communication protocol, the boiler power is modulated, which can significantly increase the energy efficiency of the heating system while maintaining the set temperature in the room. OpenTherm modulation, compared to standard communication (ON / OFF), occurs by setting the desired temperature of water from the boiler (boiler power), and not by its cyclical switching on and off.



PLEASE NOTE!

Make sure your gas combi boiler is compatible with OT + 4.0 communication protocol.
The list of compatible boilers is on the next page.

Product advantages:

- automatically detects OT + 4.0 protocol and regulates hot water temperature
- possibility to choose Hysteresis or built-in TPI algorithm for all types of heating
- works with time schedules
- service mode protected by a PIN code
- maximum / minimum temperature limitation
- can temporarily change the temperature (overwriting until the next program change)

2.1 Example of boilers compatible with the OpenTherm OT+ 4.0 protocol

COMPANY	MODEL	COMPANY	MODEL
Alpha Heating	E-Tec S E-tec Plus E-tec Evoke Intec GS	Vokera	Linea HE Mynute A Mynute HE Unica HE
Atag	iC iC Economiser iS	Viessmann	Vitodens 100W Typ WB1A (Connection: X3.3 and X3.4) Vitodens 100W Typ WB1B (Connection: X21.1 and X21.2) Vitodens 100W Typ WB1C (Connection: X21.1 and X21.2) Vitodens 200-W WB2B 26+ 35 kW (via Expansion Module OT and OT-A8 + _Terminal -10 and +10 are on the extension of the A8 boiler) Vitodens 200-W WB2C, B2HA,B2JA, B2LA (via icm Expander OpenTherm)
Baxi	100 Combi 200 Combi 400 Combi 600 Combi	Vaillant (via Vaillant VR33 module)	Ecotec Pro Ecotec Plus Ecotec Exclusive Ecofit Pure
Daikin	D2CND 24Kw D2CND 28kw D2CND 35kw	Worcester Bosch (via Nefit EMS-OT OpenTherm converter)	EMS capable boilers Greenstar i Greenstar i Junior (Made in July 2013) Greenstar Si Compact Greenstar CDi Compact Greenstar CDi Classic (Made after 16.01.2007 with CF12.10 software version and newer) Greenstar Highflow CDi Greenstar 12i System – 24i System (On condition that an optional integrated diverter valve manufactured after February 2011 is installed) Greenstar 27i System – 30i System (Provided the optional Integrated Changeover Valve is installed Greenstar CDi Classic System (provided the optional Integrated Changeover Valve manufactured after 02/16/2007 with software version CF12.10 and above is installed))
Ferrol	i25 Condensing Combination Boiler i29 Condensing Combination Boiler		
Ideal	Independent + Combi Independent Combi Independent System Logic Combi+ Combi C Logic Combi C24, C30, C35 (via a separate bundle set) Logic Code Combi (via a separate bundle set) I-mini C24, c30 (via a separate bundle set) Vogue Combi C26,C32, C40 Logic + System Logic + Heat		
Intergas	Intergas Rapid Intergas Rapid Plus Combi Compact, Compact Range ECO RF Xtreme Xclusive		
Main	Eco Compact Combi 25-30		
Navien	Navien NCB		
Ravenheat	Avanta, Quinta Ace Quinta Pro Gas 110 Eco		
Vokera	Evolve C Evolve S Linea One (przez OpenTherm Kit Part_1221179) Vision Combi (requires a control interface 294501430) Compact A (requires a control interface 29450143) Verve (only heating mode) Mynute I (only heating mode) Vision System (only heating mode) Unica I Vibe Vision C		

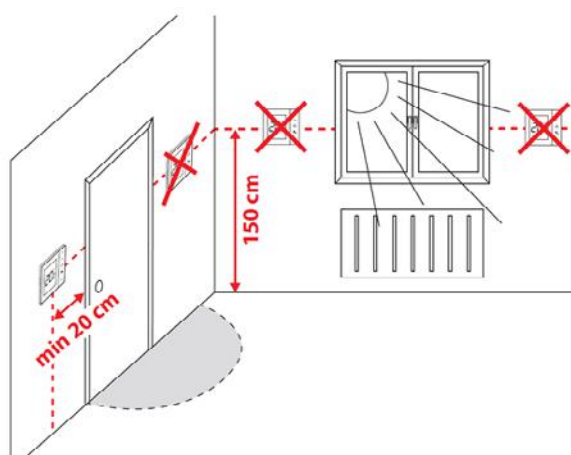
2.2 Montage

2.3 Package content

- 1) RT520 thermostat
- 2) Back housing
- 3) 2x AA batteries
- 4) Short instruction
- 5) Mounting screws



2.4 Proper thermostat location



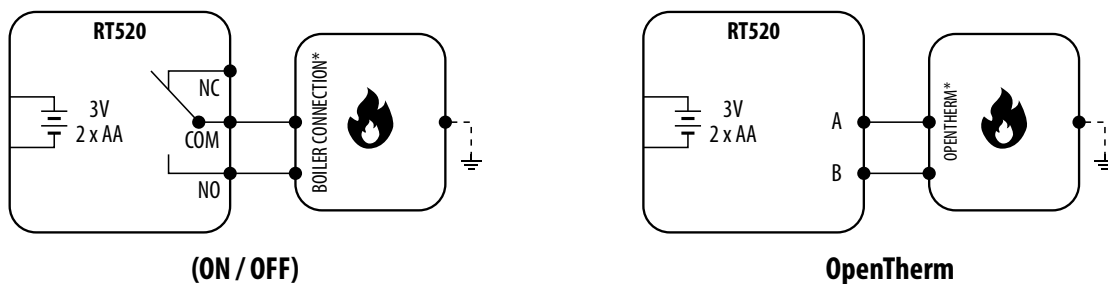
Please note:

The ideal position to thermostat mounting is about 1,5m under floor level far from heating or cooling sources. Thermostat can't be exposed to sunlight or any extreme conditions like for example draft.

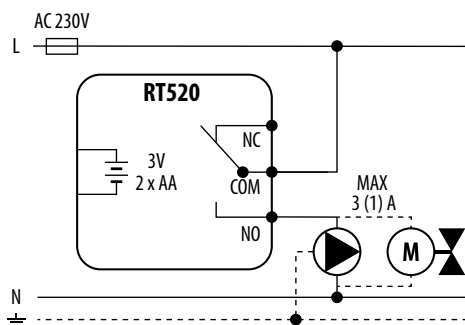
Because of fire and explosion risk there is not allowed to use thermostat in atmosphere of explosive gases and flammable liquids (eg coal dust). In case if any of listed dangers occur you have to use additional protection measures – anti-dust and explosive gases (tight cover) or prevent their formation. Furthermore, thermostat can't be used in condensation of water vapor conditions and be exposed to water action.

2.5 Connection description

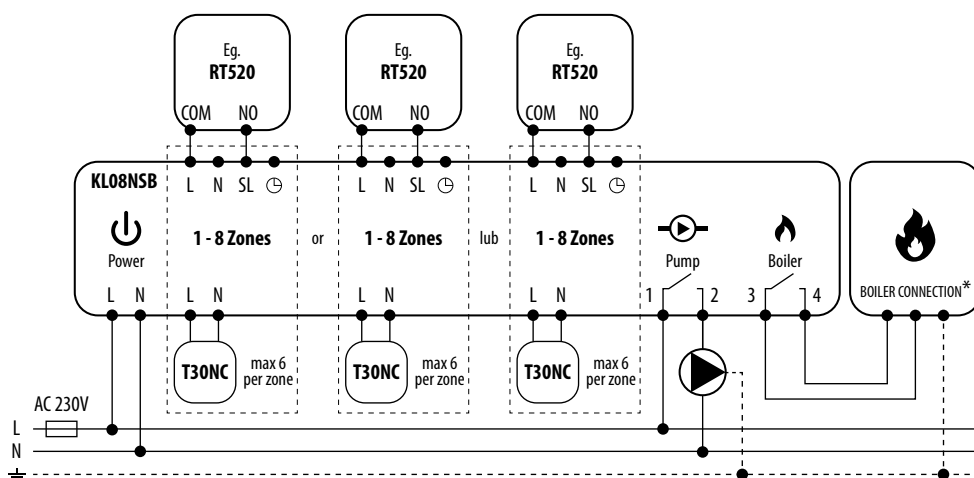
I A - Boiler connection



I B - Pump / Valve connection



I C - KL08NSB underfloor heating wiring center connection



Legend:



Boiler - Boiler connection*
- Boiler's contacts for ON/OFF thermostat (according to the boiler's instructions)



Pump



Valve

Symbols explanation:

L, N - power supply 230V

NO, COM, NC - voltage-free output

A, B - OpenTherm Communication Wire

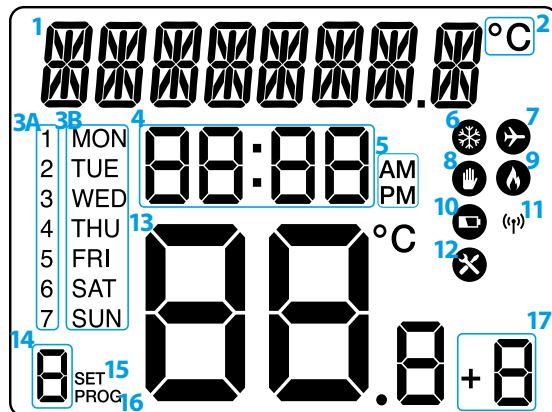
SL - 230V AC voltage output

- NSB function

- fuse

3. Before you start (first power up)

3.1 LCD icon description




- | | |
|----------------------------------|---|
| 1. Text Bar | 9. Heating Mode On |
| 2. Temperature Unit | 10. Low battery status |
| 3A. Day of the week (numeric) | 11. Wireless connection with the receiver |
| 3B. Day of the week (alphabetic) | 12. Service Mode On |
| 4. Clock | 13. Temperature measured / set |
| 5. AM / PM | 14. Program number |
| 6. Cooling Mode On | 15. Settings |
| 7. Holiday Mode On | 16. Program indicator |
| 8. Manual Mode On | 17. Boost function |

3.2 Button description



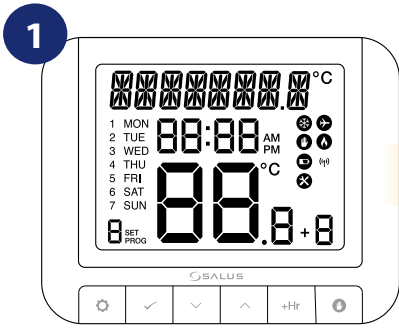
- | | |
|--|--|
| 1. MENU / RETURN - enter the menu options, press and hold for 3 sec to return to main screen or to deactivate Boost or Manual modes. | 4. UP - increase the temperature and move through menus. |
| 2. SELECT - confirm changes and enter menus. | 5. BOOST - activate Boost Mode. |
| 3. DOWN - decrease the temperature and move through the menus. | 6. MANUAL - press once to activate / press and hold for 3 sec to deactivate Manual Mode. |

 **PLEASE NOTE!** The LCD screen can be activated by using any button.

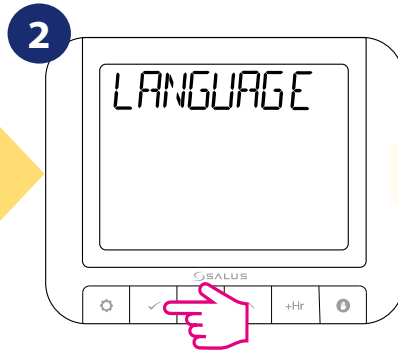
3.3 First power up sequence and configuration



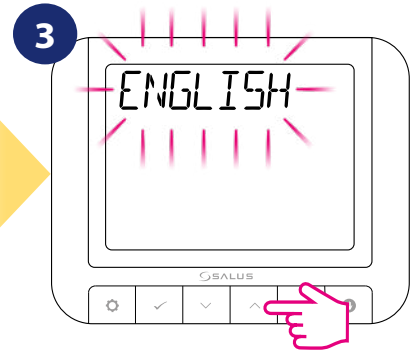
Please make the receiver connections and power the receiver before inserting the batteries into the thermostat.



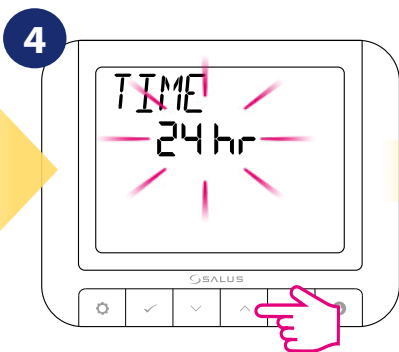
After inserting the batteries, the thermostat will power up.



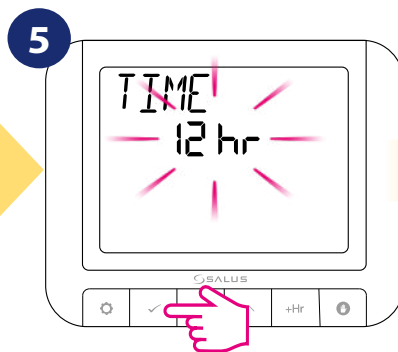
Press



Using or , choose your language and then press .



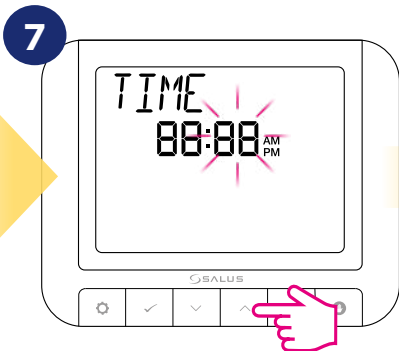
Using or , choose the time format.



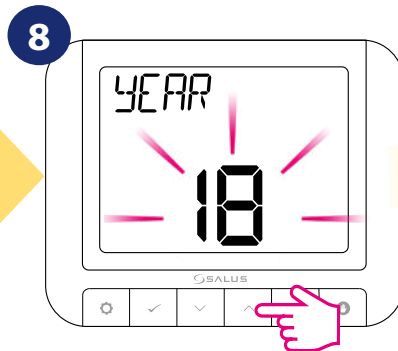
Press to confirm.



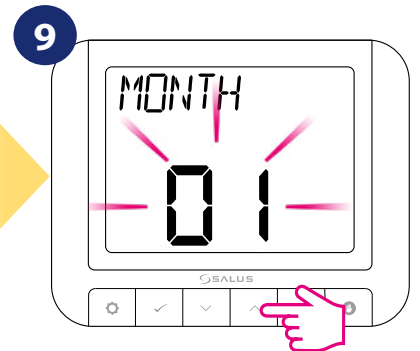
Using or , set the hour and then press .



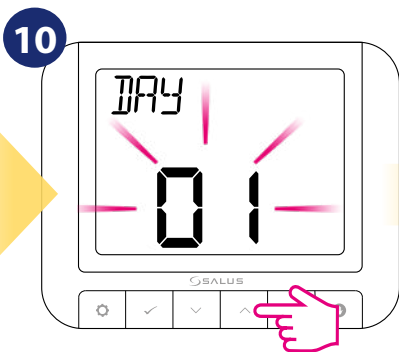
Using or , set the minutes and then press .



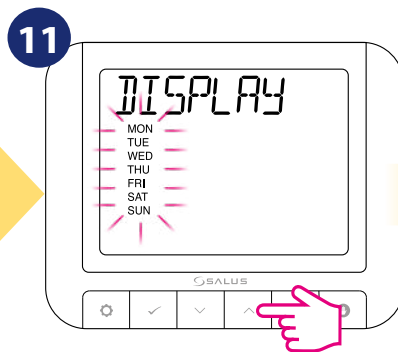
Using or , set the year and then press .



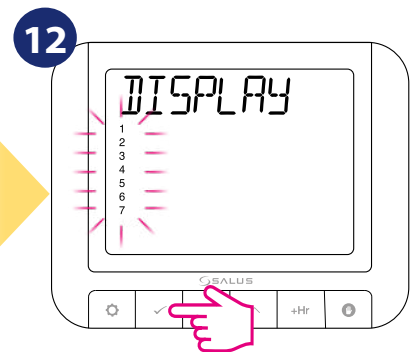
Using or , set the month and then press .



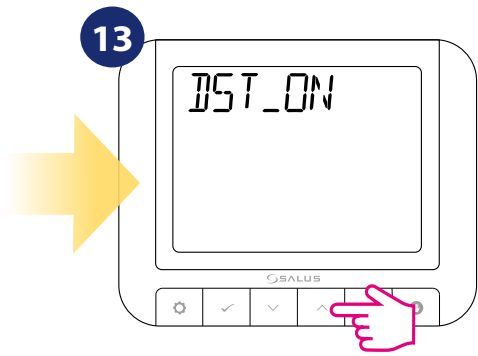
Using or , set the day and then press .



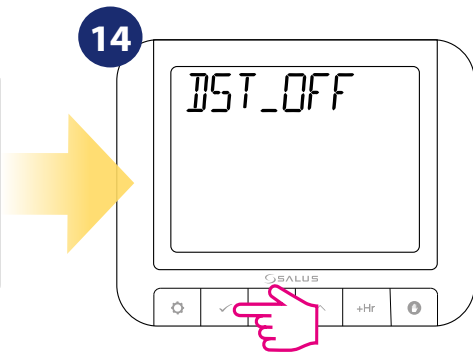
Using or , select the week format.



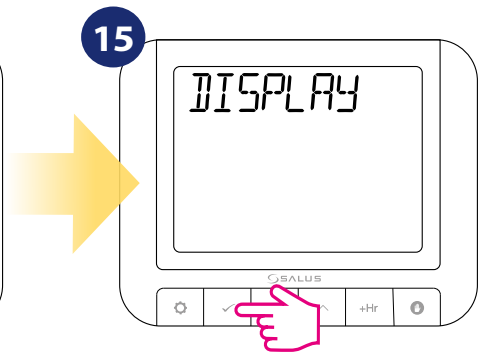
Press to confirm.



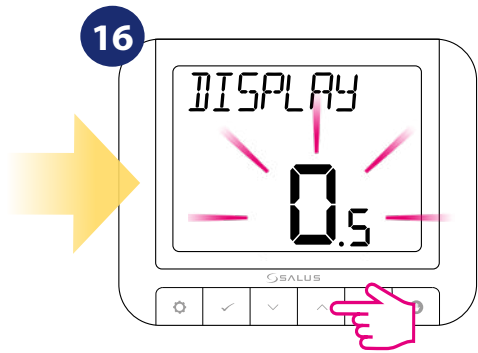
Using  or , enable or disable DST (Daylight Saving Time).





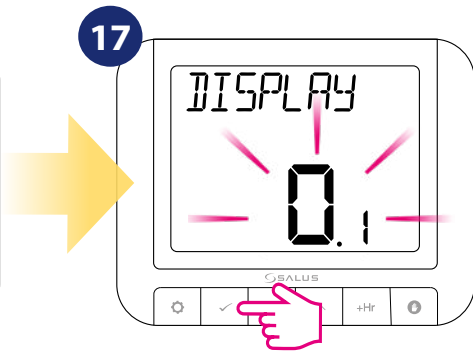
Press  to confirm.



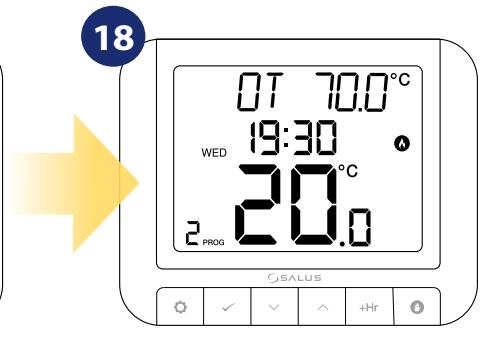
Press .



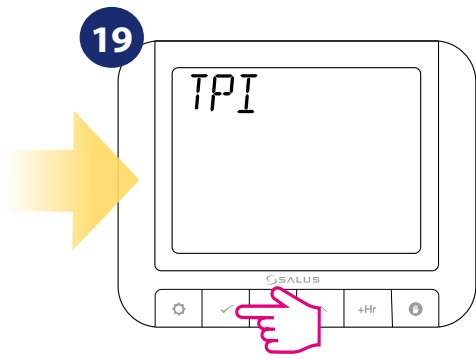
Using  or , select your temperature accuracy.



Press  to confirm.

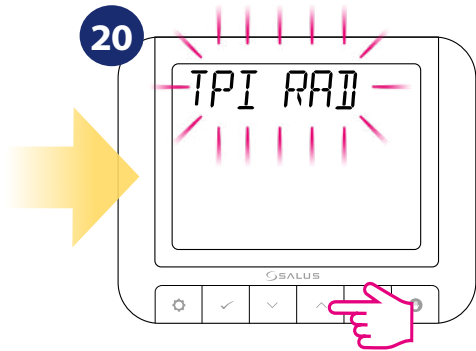


When OpenTherm is connected, the device software will automatically adjust to the OpenTherm settings.

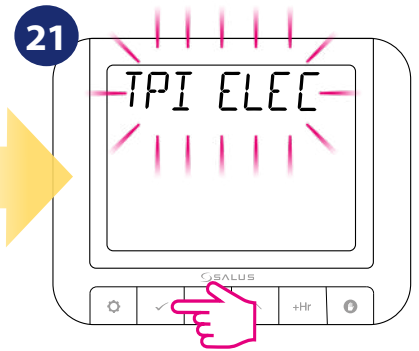
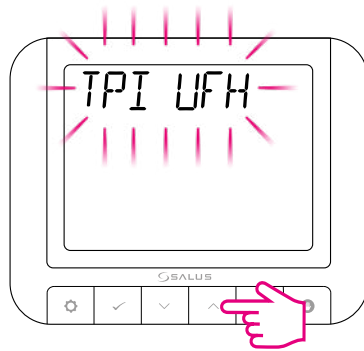


Press .

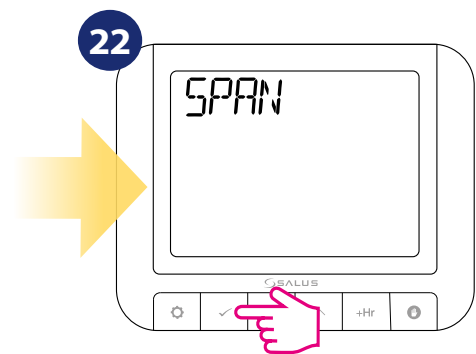
TPI (Time Proportional & Integral) is a self-learning, time-proportional algorithm. TPI type of regulation ensures economical system operation through more accurate temperature maintenance during controlling process and limits overload conditions. In addition to the exact and stable room temperature, the advantage of this system is the minimization of energy consumption and significant savings. RT520 offers 3 types of TPI control: 1. for radiator (6CPH); 2. for underfloor heating (3CPH); 3. for electric heating (9CPH).



Using or , select the TPI type you want to use.

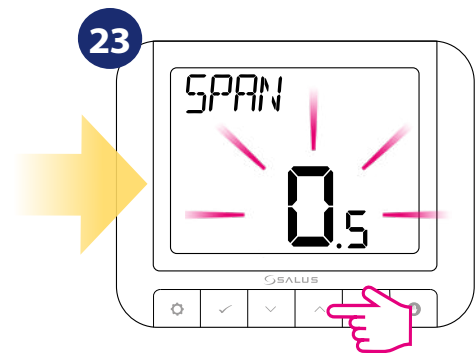


Press to confirm.

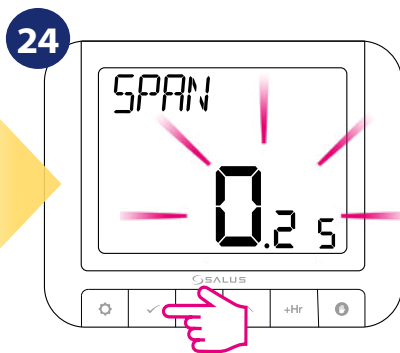


Press .

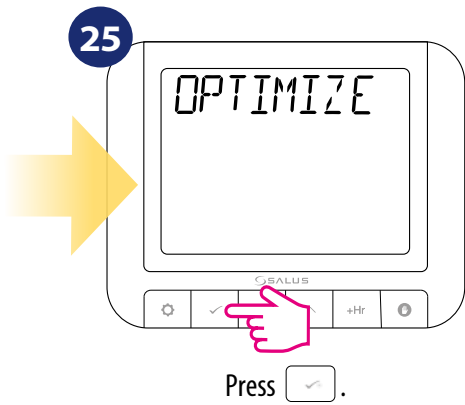
Span is the difference between the measured temperature and the set temperature.



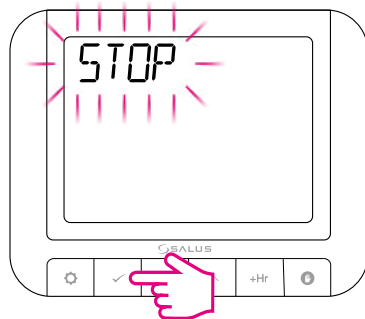
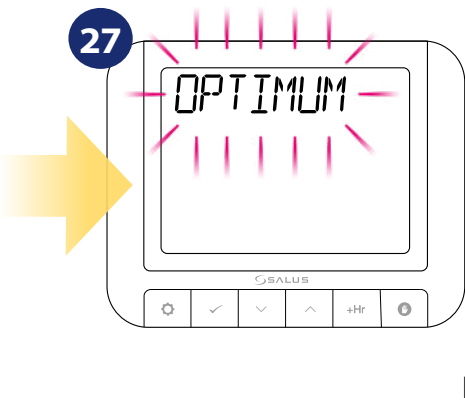
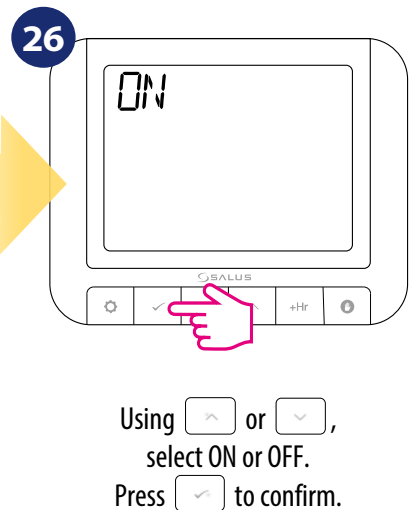
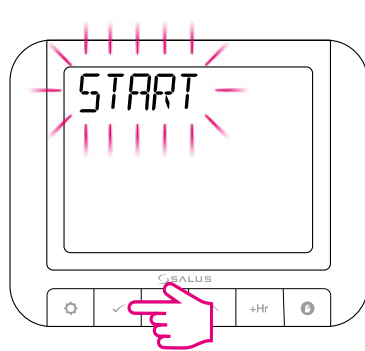
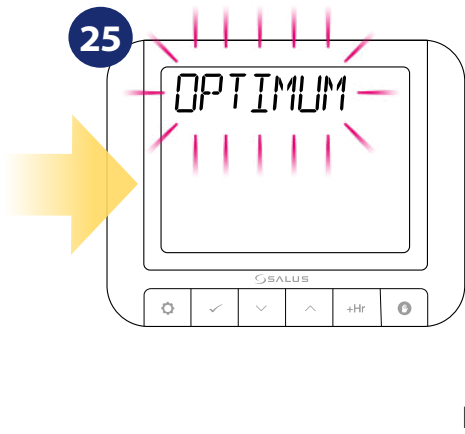
Using or , select the Span value.



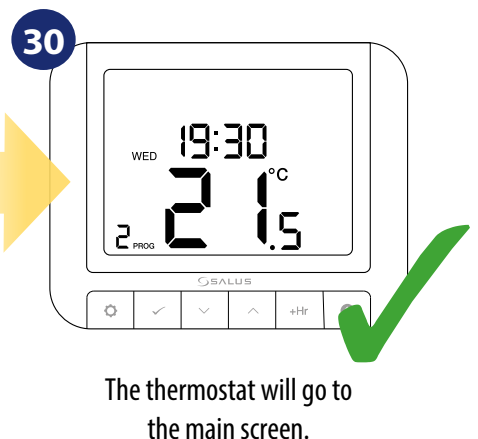
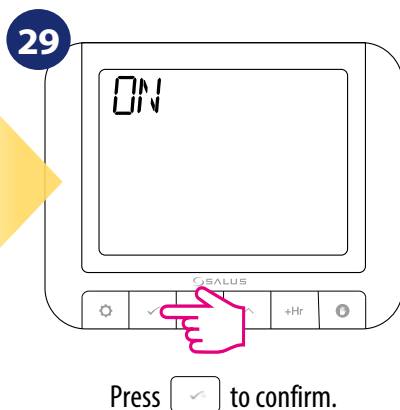
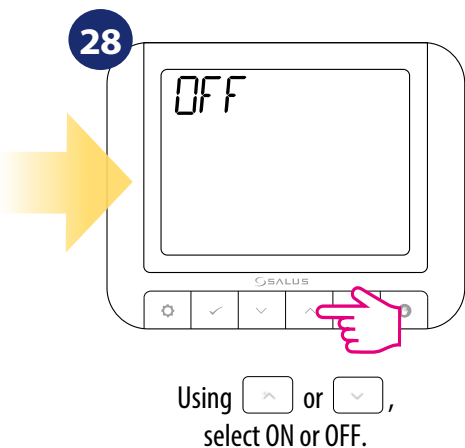
Press to confirm.



The optimization function is an energy-saving algorithm used for efficient control of the heating device, ensuring better thermal comfort at certain times of the day. When the OPTIMUM START function is active, the thermostat sends a heating signal to the heat source beforehand so that the preset temperature in the room is reached at the time specified in the schedule.

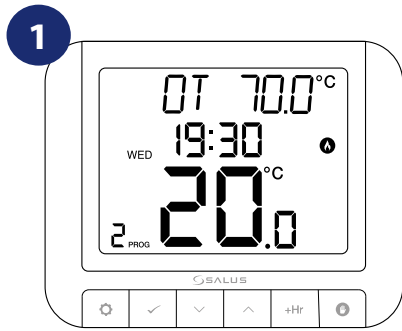


When the OPTIMUM STOP function is active, the thermostat, taking into account the inertia of the system, switches off the heat source earlier, keeping the temperature set in the schedule.

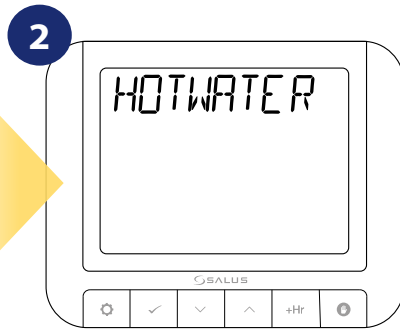





3.4 OpenTherm - Hot Water configuration

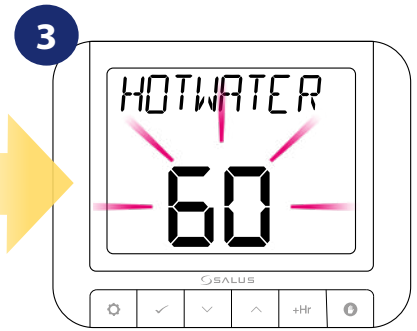
RT520 can be configured in Hot Water OPENTHERM system. To configure it follow steps below:






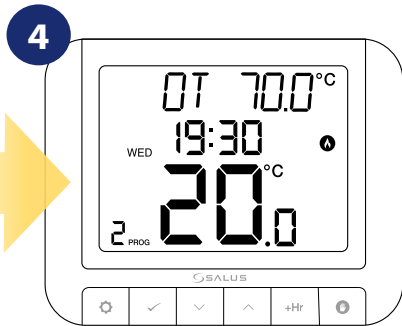
Press .



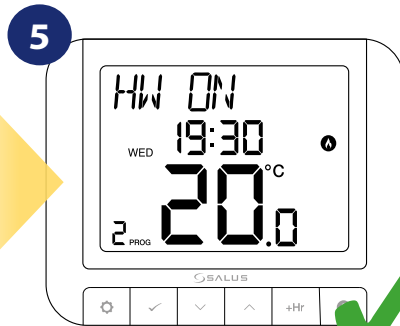
Using  or , navigate to Hot Water submenu and press .



Using  or , adjust the temperature and then press .




The thermostat will return to the main screen. Press any button.

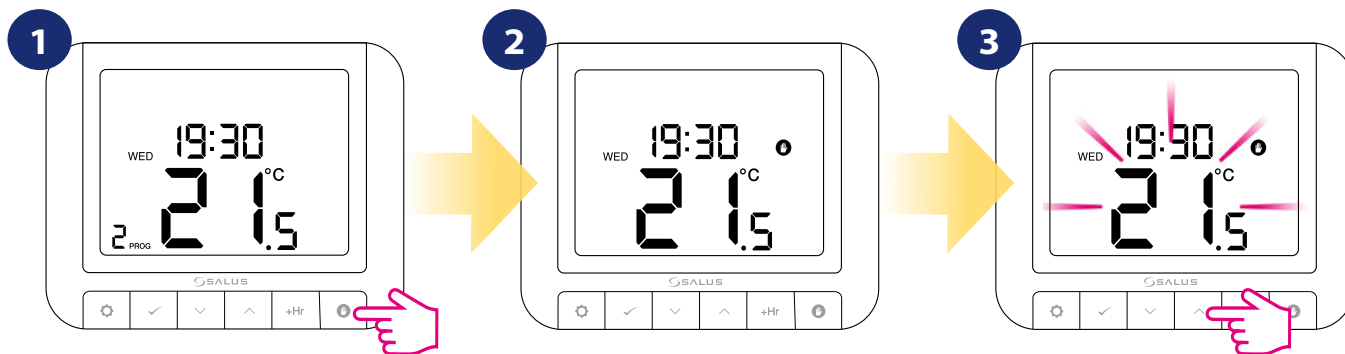


The text bar indicates that hot water is in operation.

4. User settings

4.1 Manual mode

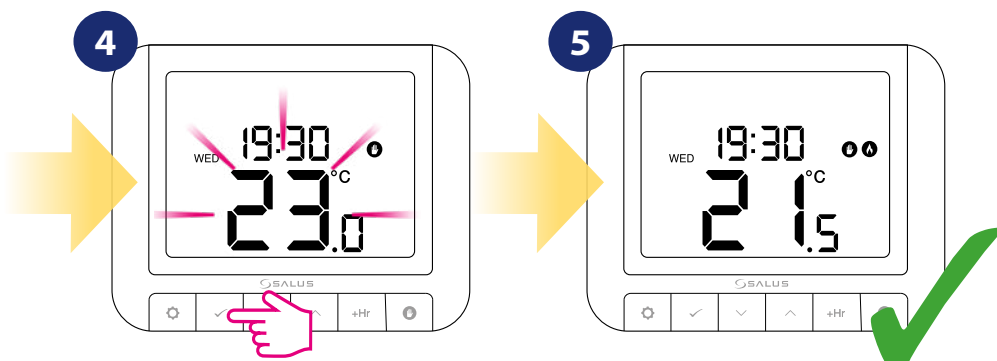
In manual mode, the thermostat maintains a constant temperature set by the user. To exit mode, press and hold  button for 3 seconds. A hand icon is displayed when manual mode is active.





Press  button.

A hand icon will appear, which means that thermostat is in manual mode.

To set temperature use  or  button.

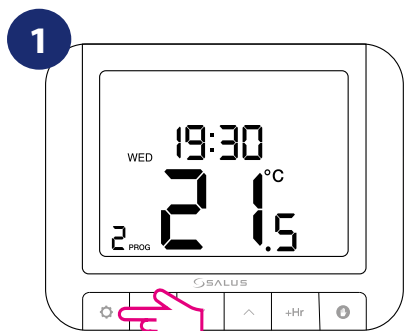


Confirm your choice using  button.

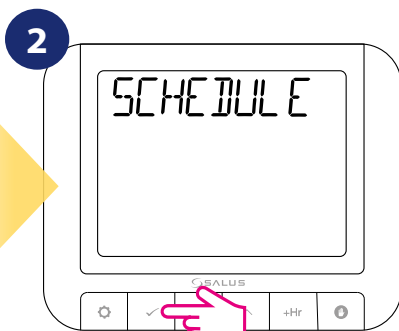
Thermostat will maintain the temperature until manual change or manual mode exit (press and hold  button for 3 seconds).

4.2 Schedule mode - programming schedule

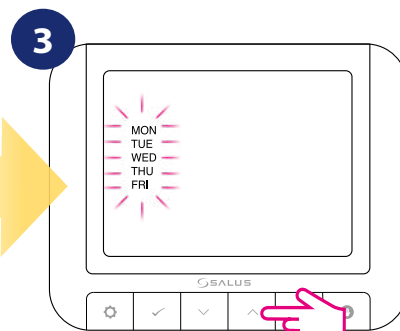
In this mode, user can set the schedules for thermostat (temperature setpoints for specific periods of time). Programmed schedules should use all time periods.



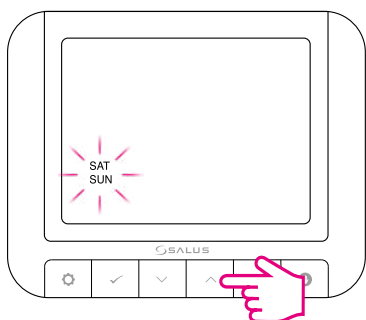
Press .



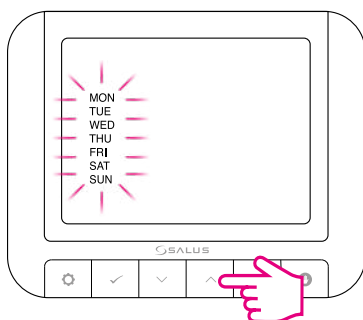
Press .



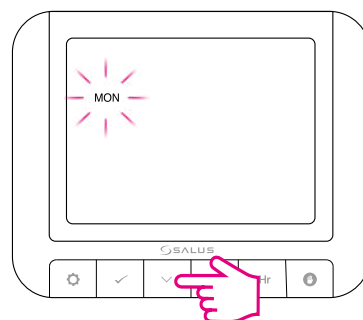
Using or , select the program type between: **5**



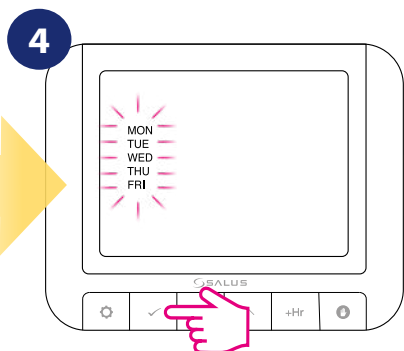
+2 (schedule for the working days and for the weekend)



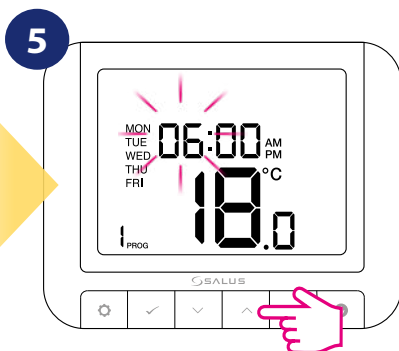
All (set one schedule for the entire week)



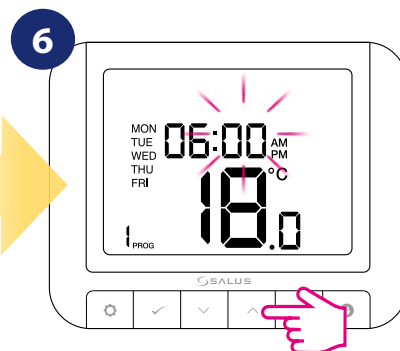
Individual (set a daily schedule).



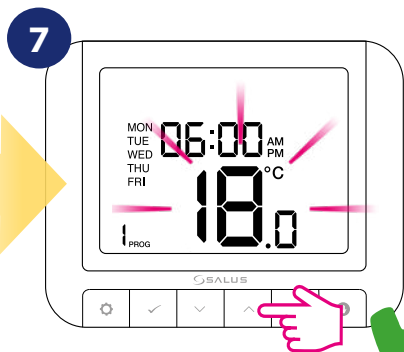
Press to confirm.



Using or , set the hour and then press .



Using or , set the minutes and then press .




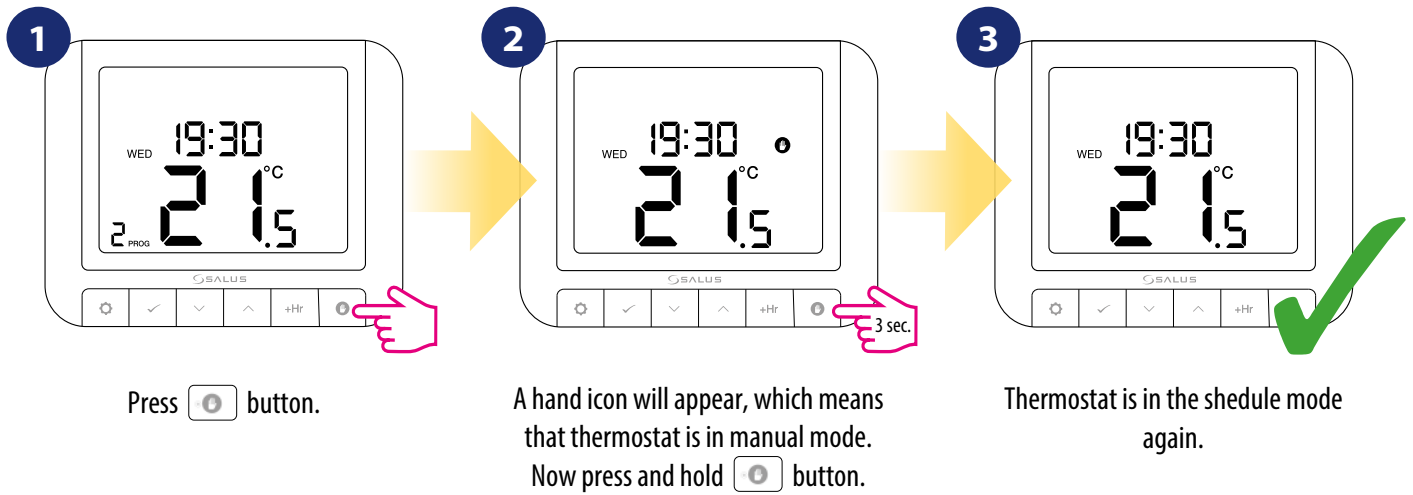
Using or , set the temperature and then press .



Repeat the process for all time periods.

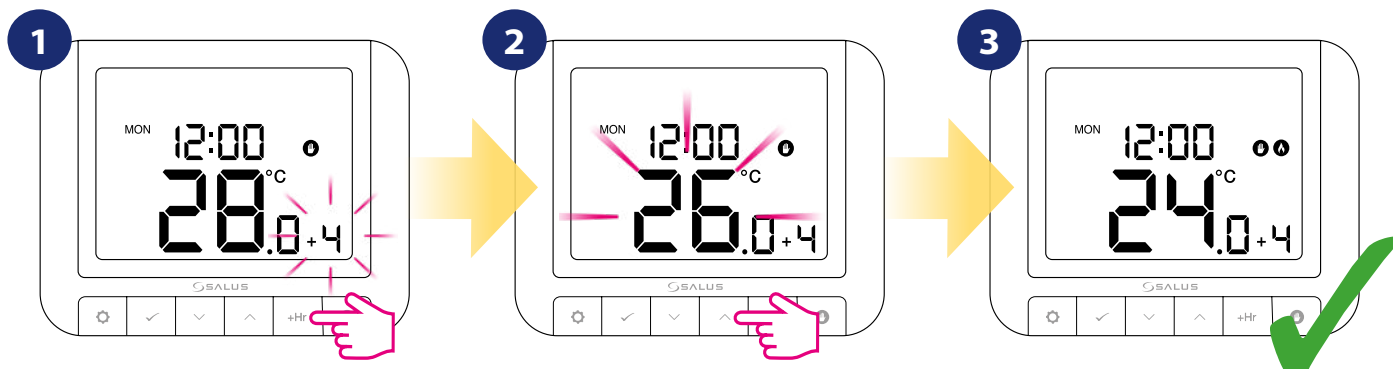
4.3 Switching between manual and schedule mode

In this option, user can switch between manual and schedule mode by using  button. To do that please follow steps below:



4.4 BOOST mode - hourly temperature override (+Hr)

The function is available in automatic and manual mode. Used to change the temperature to the desired value for a specified number of hours (up to 9 hours). After the elapsed time, the thermostat returns to the previous operating mode.

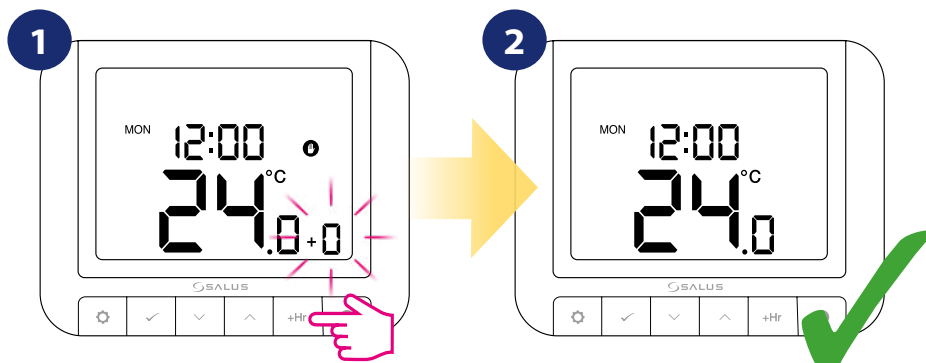


Press +Hr button to set hour for temporary override (eg. 4 hours = 4 times button pressing). Confirm by button.

Using or buttons set the temperature for BOOST mode. Confirm by button.

Thermostat is working in BOOST mode for 4 hours and it will maintain temperature setpoint for 4 hours.

How to stop BOOST mode:

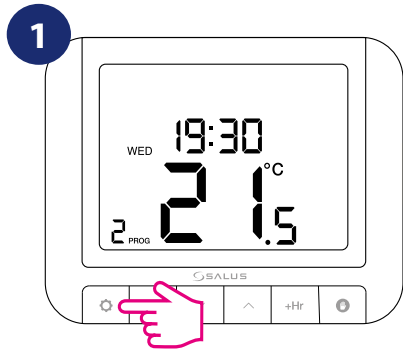


Hold button for 3 seconds or press +Hr button several times until "+0" will appear and confirm by button.

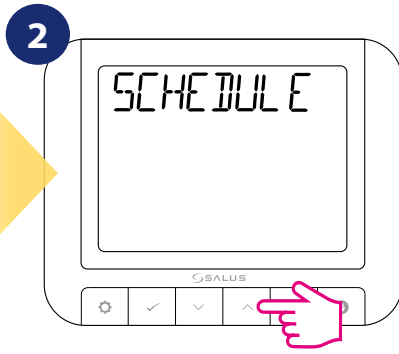
Thermostat will go back to main screen and previous work mode.

4.5 Control and Heat/Cool settings

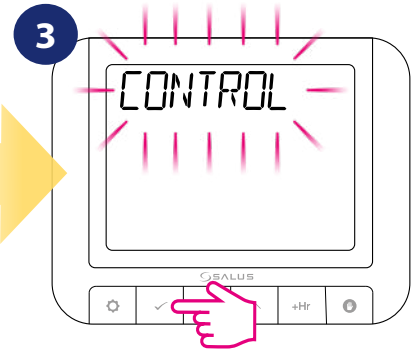
In this option user can set control algorithm (TPI, SPAN or Optimize) and set Heat / Cool mode. Please follow the steps below:



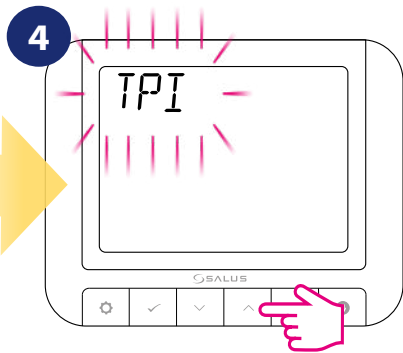
Press .



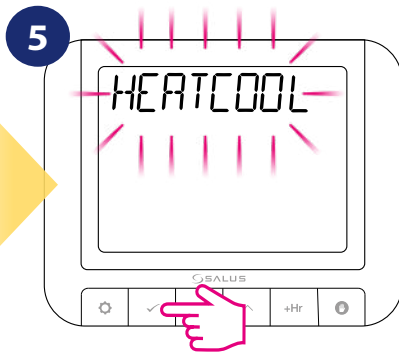
Using  or  move between parameters.



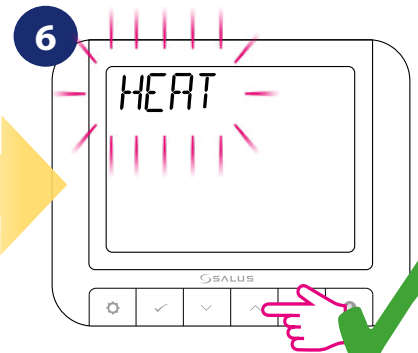
Enter using  button.






Using  or  move between parameters.



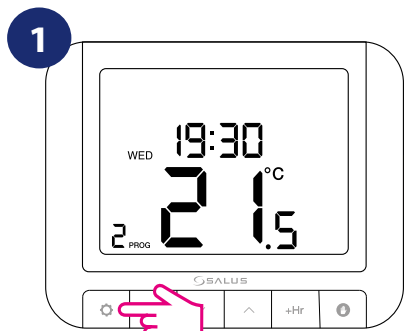
Confirm HEAT / COOL option using  button.



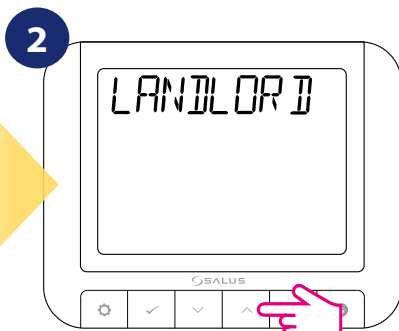
Using  or  move between parameters. Confirm your choice by  button.

4.6 Landlord settings

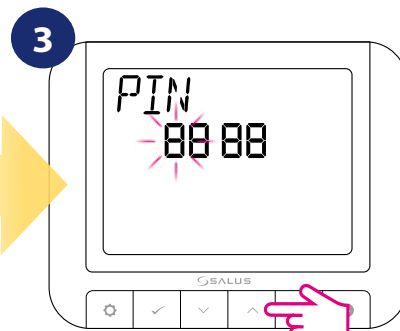
Landlord settings is a pin code protected feature that allows the landlord to set a service reminder on the thermostat that will warn the tenant when the boiler is due its annual service.



Press .



Using or , navigate to Landlord submenu and press .

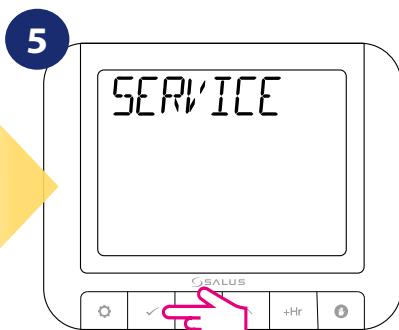


Using or , enter the PIN code number. Press to confirm every digit. **Note:** The first PIN code entry is also the setting of a NEW PIN CODE which must be entered each time to enter the LANDLORD (Admin) menu.

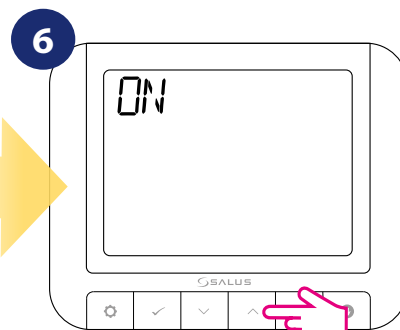
4



Please remember to write down your pin code so that you can use the Landlord menu later without any hassle from losing it.

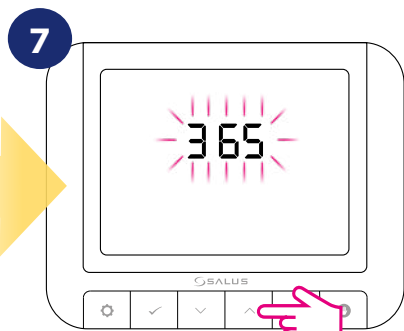


Press .

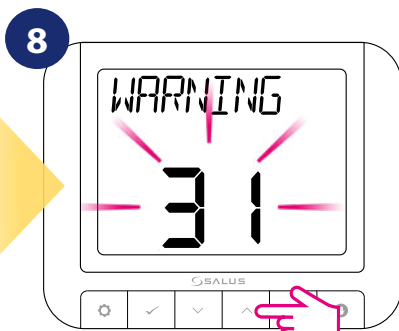


Using or , select ON and press .

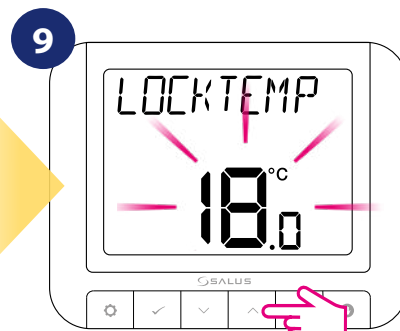
7



Using or , select the due date and then press .

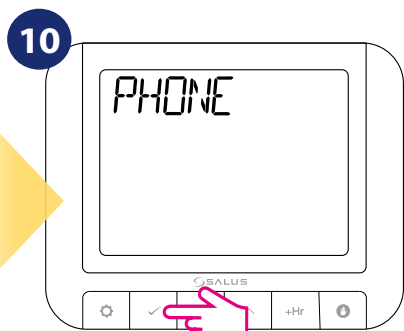


Using or , select the warning period and then press .

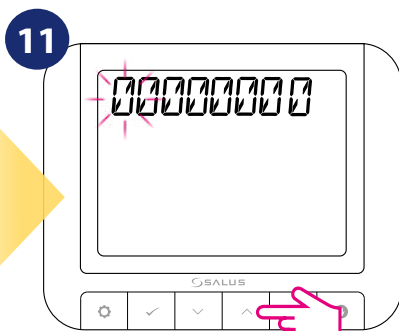


Using or , select the lock temperature and then press .

10



Press .

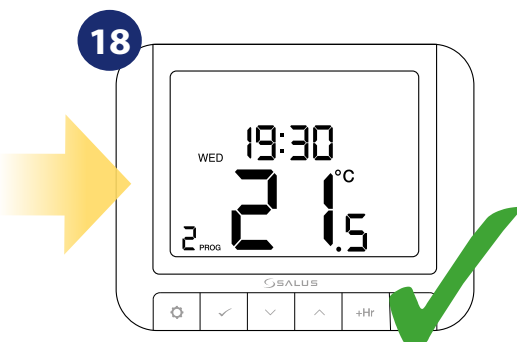
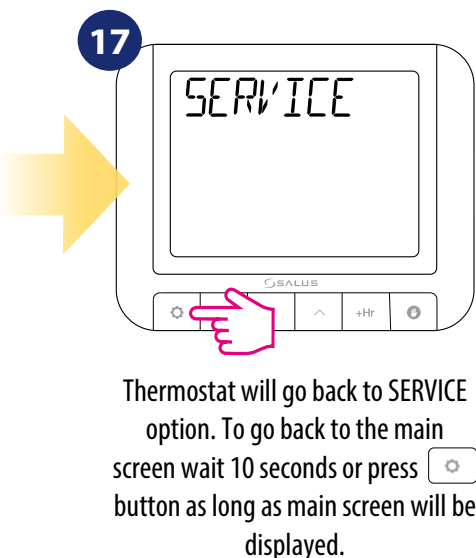
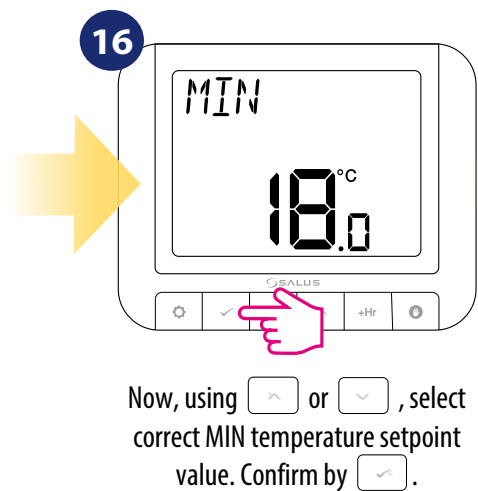
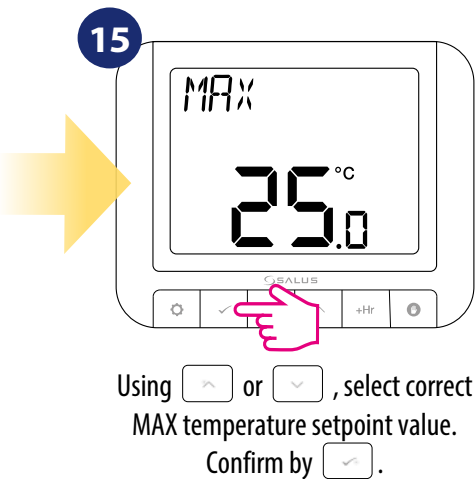
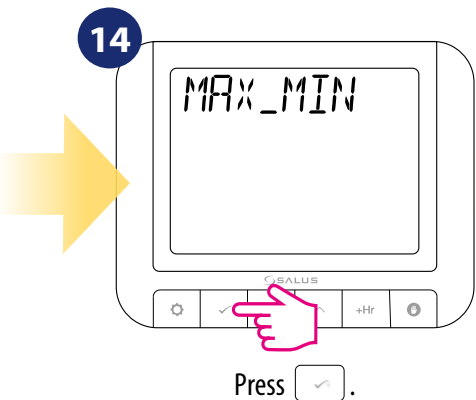
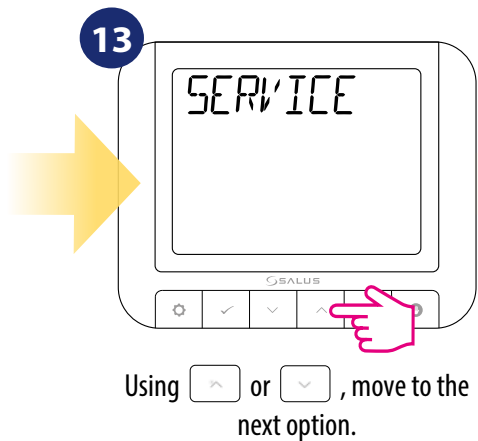


Using or , enter the phone number. Press to confirm every digit.

12

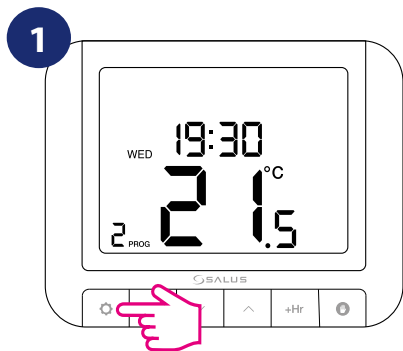


To confirm and exit this option use button. Then use or buttons again to move to the next LANDLORD options (look at the next steps).

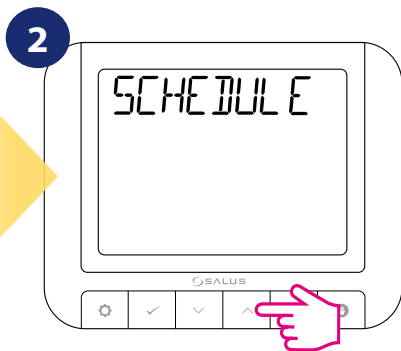


4.7 Time/Date

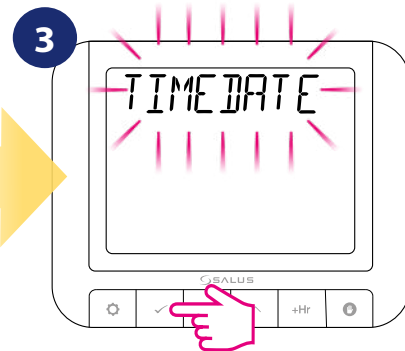
To set time/date follow steps below:



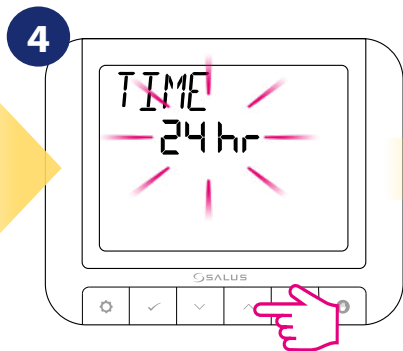
Press .



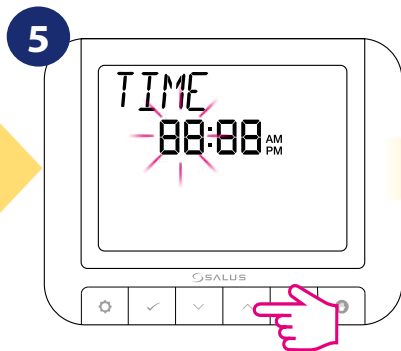
Using or move between parameters.



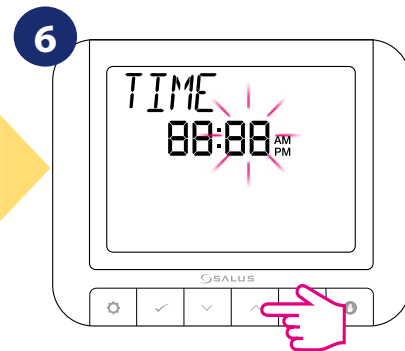
Press to enter Time/Date settings.



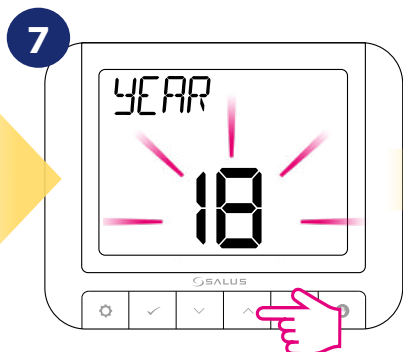
Using or , choose the time format. Press to confirm.



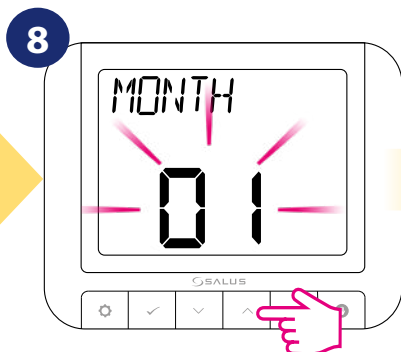
Using or , set the hour and then press .



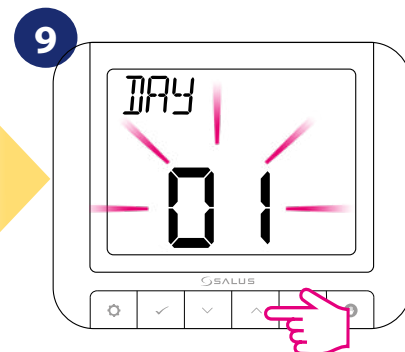
Using or , set the minutes and then press .



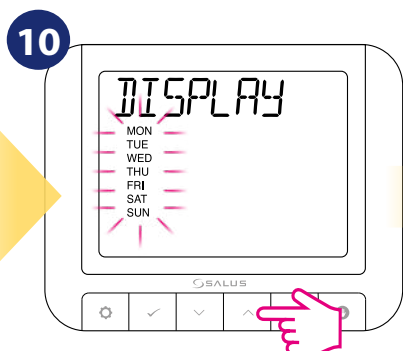
Using or , set the year and then press .



Using or , set the month and then press .



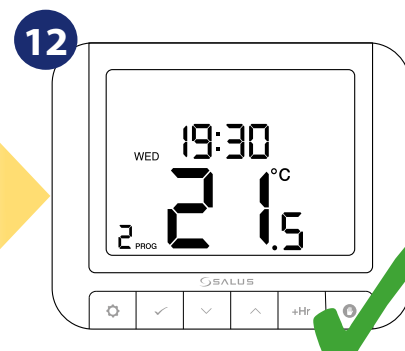
Using or , set the day and then press .



Using or , select the week format. Press to confirm.



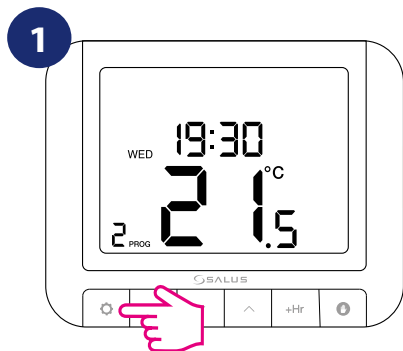
Using or , enable or disable DST (Daylight Saving Time). Press to confirm.



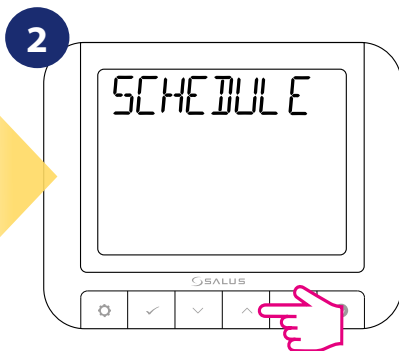
Thermostat will go to the main screen with saving all the settings.

4.8 Holiday mode

Holiday mode is a special program temperature setpoint which thermostat will maintain for specified days. How to set **HOLIDAY MODE**:



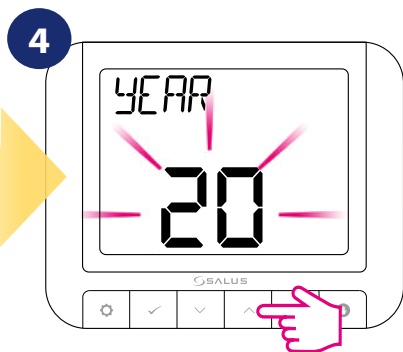
Press .



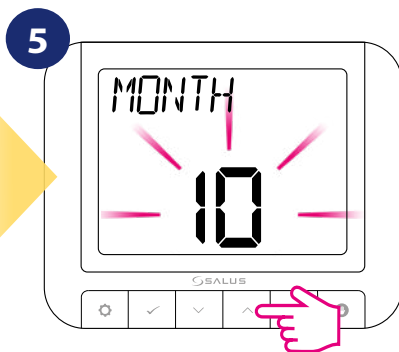
Using or move between parameters.



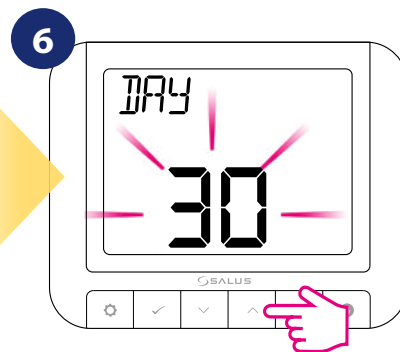
Press to enter holiday mode settings.



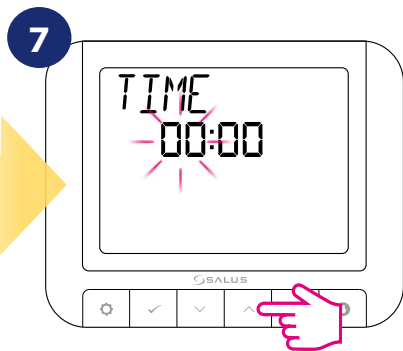
Using or , set the year and then press .



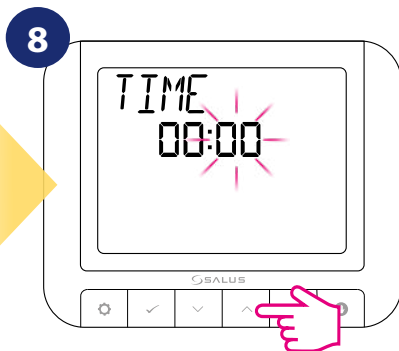
Using or , set the month and then press .



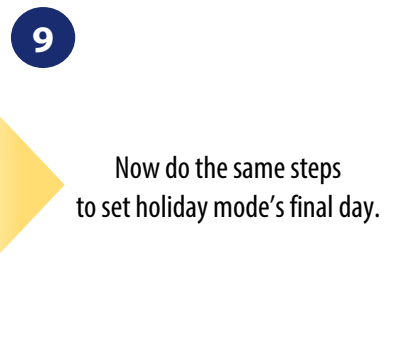
Using or , set the day and then press .



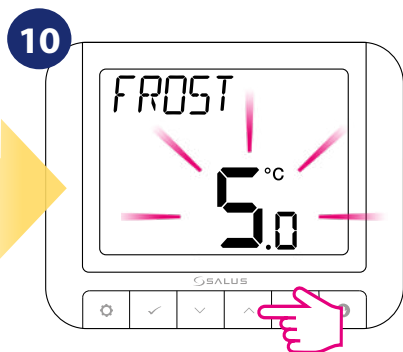
Using or , set the hour and then press .



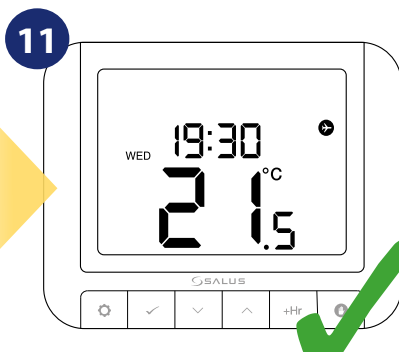
Using or , set the minutes and then press .



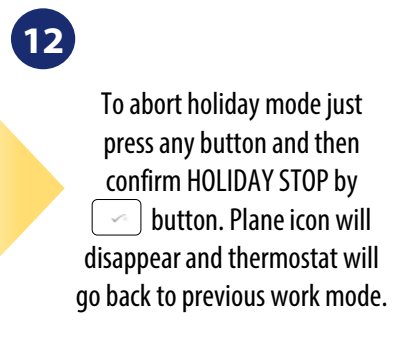
Now do the same steps to set holiday mode's final day.



Using or , set the temperature which should be maintained during holiday mode and then press .



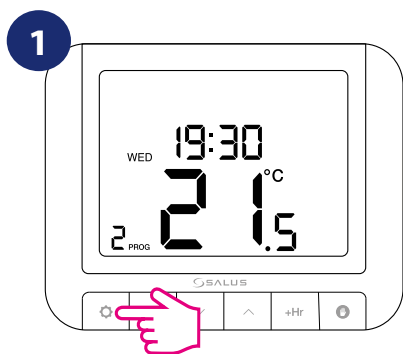
According to set period of time the plane icon will appear on the main screen and thermostat is working in holiday mode.



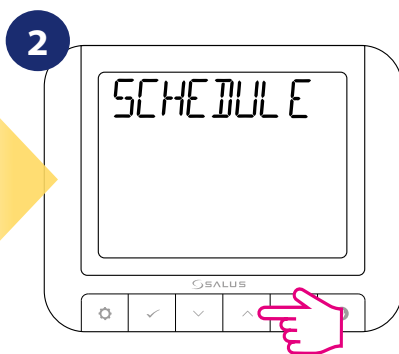
To abort holiday mode just press any button and then confirm HOLIDAY STOP by button. Plane icon will disappear and thermostat will go back to previous work mode.


4.9 Language

To choose language follow steps below:




Press .





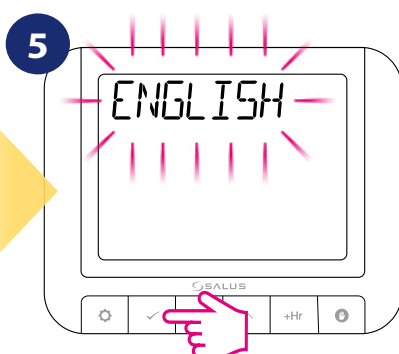
Using  or  move between parameters.



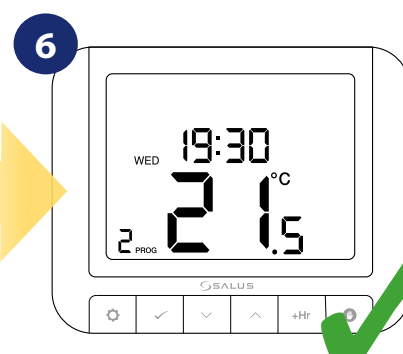
Press  to enter language settings.



Using  or  choose your language.



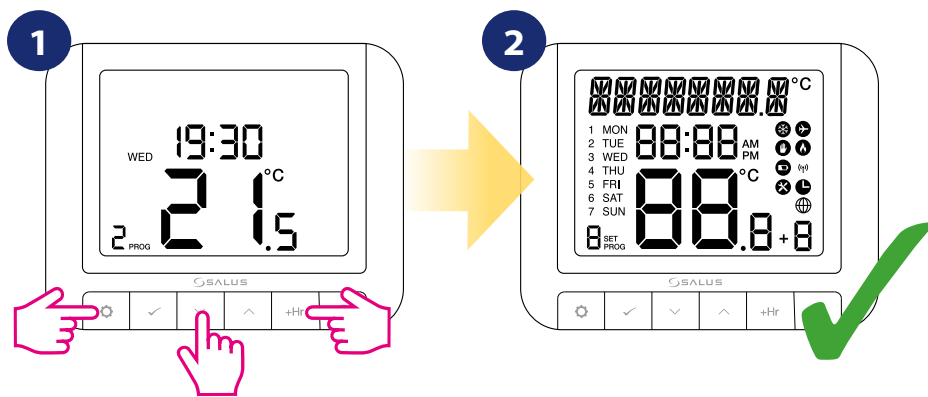
Press  to confirm.



Thermostat will go to the main screen with saving the changes.

5. Factory Reset

To RESET RT520 thermostat to it's factory default settings please follow steps below:



To reset the thermostat press and hold together + + buttons for 5 seconds.

Thermostat has been reseted.
PLEASE NOTE: User settings will not be deleted.

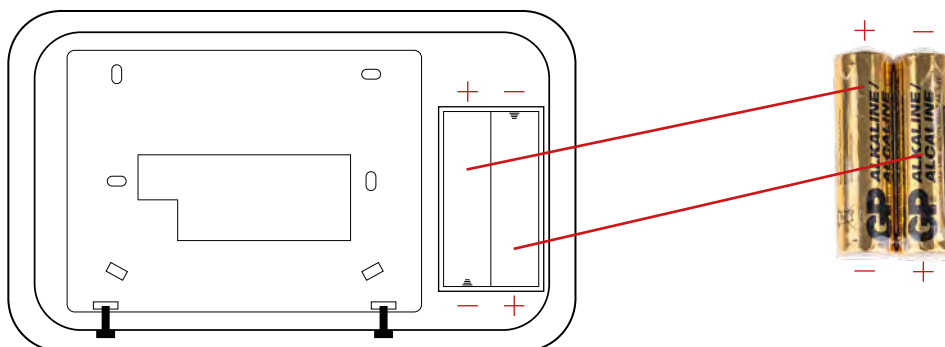
6. Error codes



Thermostat will display errors only when it's connected to the boiler by OPENTHERM terminals (A / B). Please refer then to boiler manual. Each boiler can have different error codes.

7. Battery change

Turn the thermostat over so that the back is in front of you. Now look at the picture below:



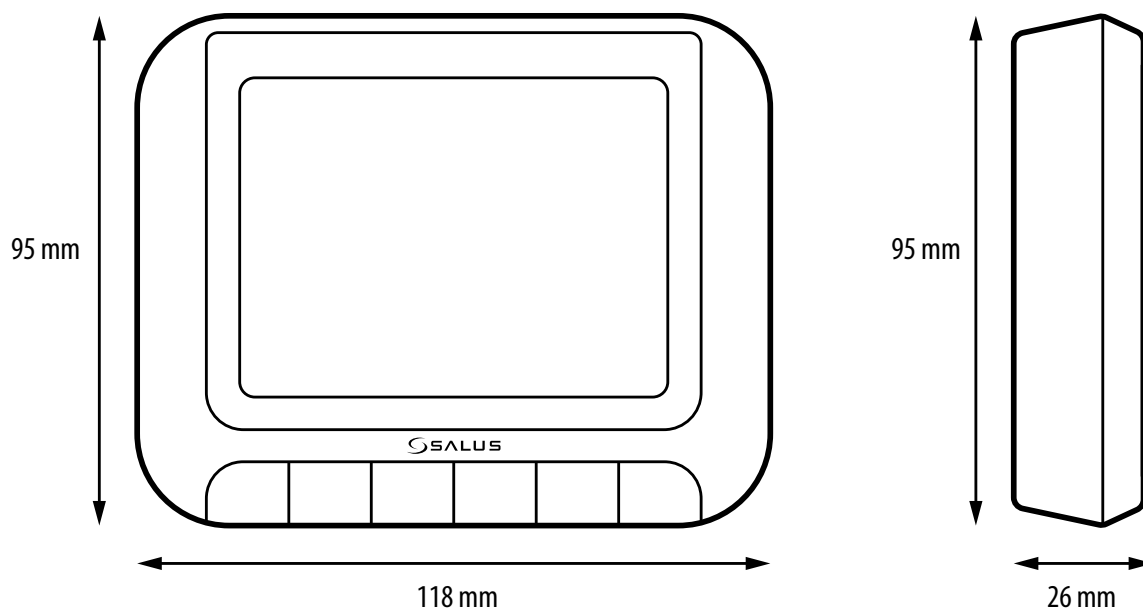
INSERT THE BATTERIES, PAYING ATTENTION TO THEIR POLARITY!

8. Cleaning and Maintenance

The **RT520 thermostat** requires no special maintenance. Periodically, the outer casing can be wiped clean using a dry cloth (please **DO NOT** use solvents, polishes, detergents or abrasive cleaners, as these can damage the thermostat). There are no user serviceable parts within the unit; any servicing or repairs could only be carried out by **Salus Controls** or their appointed agents.

9. Technical Informations

Power supply	2 x AA batteries
Rating max	3 (1) A
Output signal	OpenTherm (A / B) or voltage free relay (NC / COM / NO)
Temperature range	5 - 33.5°C
Display temperature accuracy	0.1°C or 0.5°C
Control algorithm	TPI or Hysteresis: $\pm 0.25^\circ\text{C}$ or $\pm 0.5^\circ\text{C}$
Communication	Wired
Dimension [mm]	95 x 118 x 26



10. Warranty

SALUS CONTROLS warrants this product to be free from any defects in material or workmanship and to perform as specified for a period of five years from the date of installation. SALUS CONTROLS reserves the sole responsibility for breach of this warranty by repairing or replacing the defective product. This product includes software that matches the distributor's identification at the time of sale. The manufacturer / distributor provides a guarantee covering all functions and specifics of the product in accordance with this marking. The distributor's warranty does not cover the correct operation of the functions and features available as a result of a product software update.

The full warranty conditions are available at www.salus-controls.eu

Customer Name:

Customer Address:

..... Post Code:

Tel No: Email:

Company Name:

Tel No: Email:

Installation Date:

Installer Name:

Installer Signature:

IMPORTER:

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ul. Rolna 4, 43-262 Kobielice

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Park, 20 Science Park East Avenue, Shatin,
New Territories, Hong Kong



www.salus-controls.eu

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