



## Introduction

The RT520 and RT520RF are the latest additions to SALUS' tried and tested RT range of thermostat heating controls. With a new on-board load compensation feature, they offer the most cost effective fully compliant Boiler Plus solution on the market providing the homeowner with optimum efficiency and maximum heating control comfort. Available in both wired and wireless RF versions, the new RT520 series include all the features of the previous RT series with a larger more intuitive LCD display and a handy new suite of additional operational and efficiency functions.

Before use please read this manual carefully.

## Product Compliance

This product complies with the essential requirements and other relevant provisions of the following EU Directives: EMC 2014/30/EU, LVD 2014/35/EU, RED 2014/53/EU and RoHS 2011/65/EU. Full text of the EU Declaration of Conformity is available on [www.saluslegal.com](http://www.saluslegal.com)

868.0-868.6MHz; <13dBm

## Safety Information

Use in accordance to national and EU regulations. Use the device as intended, keeping it in dry condition. Product for indoor use only. Installation must be carried out by a qualified person in accordance to national and EU regulations.

Always ensure the AC mains power is switched off before installing or working on any components (this includes replacing the batteries). Use only AA 1.5 V alkaline batteries in the thermostat. Place the batteries into the battery slot located in the back of the thermostat. Do not use rechargeable batteries.

## Technical Specification

	RT520 Thermostat	RT520TX Thermostat (transmitter)
Thermostat supply	2xAA alkaline batteries	2xAA alkaline batteries
Thermostat rating max	3 (1) A	-
OpenTherm terminals	A / B	-
Outputs	Voltage free NC / NO / COM terminals	-
Temperature range	5°C – 33.5°C	5°C – 33.5°C
Temperature accuracy	0.1°C OR 0.5°C	0.1°C OR 0.5°C
ErP control class	V	V
Radio frequency	-	868 MHz
Dimension [mm]	118 x 95 x 26 [mm]	118 x 95 x 26 [mm]

RXRT520 Receiver	
Receiver supply	230 V AC
Receiver rating max	16 (5) A
OpenTherm terminals	A / B
Outputs	Voltage free NO / COM terminals
Radio frequency	868 MHz
Dimension [mm]	96 x 96 x 26 [mm]

## Button Functions

RT520 / RT520RF Thermostat



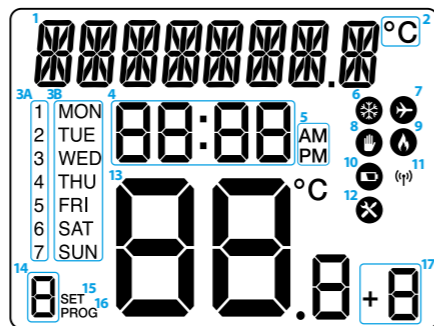
- MENU - enter the menu options, press and hold for 3 sec to return to main screen or to deactivate Boost Mode.
- SELECT - confirm changes and enter menus.
- DOWN - decrease the temperature and move through the menus.
- UP - increase the temperature and move through menus.
- BOOST - activate Boost Mode.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

RXRT520 Receiver



- ON - When in Manual Mode, ON will turn the boiler on.
- OFF - When in Manual Mode, OFF will turn the boiler off.
- AUTO - Receiver operates in automatic mode according to the thermostat.
- MANUAL - Receiver output is controlled by the On/Off slide switch.

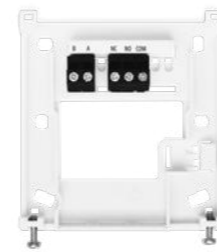
## LCD Icon Description



- Text Bar
- Temperature Unit
- 3A Day of the week (numeric)
- 3B Day of the week (alphabetic)
- Clock
- AM / PM
- Cooling Mode On
- Holiday Mode On
- Manual Mode On
- Heating Mode On
- Low battery status
- Wireless connection with the receiver
- Service Mode On
- Temperature measured / set
- Program number
- Settings
- Program indicator
- Boost function

## RT520 Thermostat Terminals Description

Terminal	Description
B / A	OpenTherm Communication Wire
NC	Switched Live OFF
NO	Switched Live ON
COM	Common Terminal



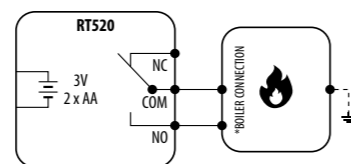
## RXRT520 Receiver Terminals Description

Terminal	Description
B / A	OpenTherm Communication Wire
NO	Switch Terminal
COM	Common Switch Terminal
L; N	Supply (230 V AC)

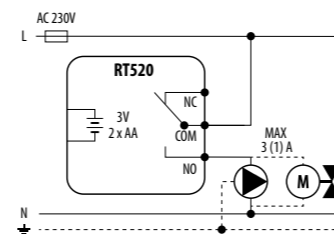


## RT520 Wiring Diagram

### BOILER

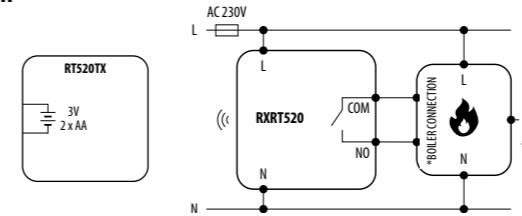


### PUMP

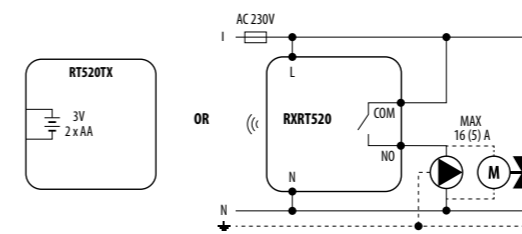


## RT520TX Wiring Diagram

### BOILER



### PUMP



## OpenTherm Power Up 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 OK.
- Using UP or DOWN, choose your language and then press OK.
- Using UP or DOWN, choose the time format.
- Using UP or DOWN, set the hour and then press OK.
- Using UP or DOWN, set the minutes and then press OK.
- Using UP or DOWN, set the year and then press OK.
- Using UP or DOWN, set the month and then press OK.
- Using UP or DOWN, set the day and then press OK.
- Using UP or DOWN, select the week format.
- Using UP or DOWN, enable or disable DST (Daylight Saving Time) and then press OK.
- To select the accuracy of the displayed temperature press OK to confirm.

- Using UP or DOWN, select your temperature accuracy.
- PLEASE NOTE: Using the UP or DOWN keys, you can select the TPI or Hysteresis heating control algorithm. Choosing one option excludes the other.
- TPI (Time Proportional & Integral) is a self-learning, time proportional control algorithm. TPI type control ensures economical operation of the system thanks to more precise temperature maintenance during the control process. In addition to an accurate and stable room temperature, the advantage of this system is the minimization of energy consumption and significant savings. RT520 offers 3 types of TPI controls:
  - for radiators (6CPH);
  - for underfloor heating (3CPH);
  - for electric heating (9CPH).
- Press OK button.
- Using UP or DOWN, select the TPI algorithm you want to use for heating control. Press OK to confirm.
- Hysteresis is the temperature difference between which the thermostat works, keeping the set temperature. For example, if you set the temperature to 20°C and if the hysteresis is ± 0.5°C, the heating will be turned on when the room temperature drops to 19.5°C and turned off when the temperature reaches 20.5°C.
- Press OK button.
- Using UP or DOWN select the hysteresis value.
- Press OK to confirm.

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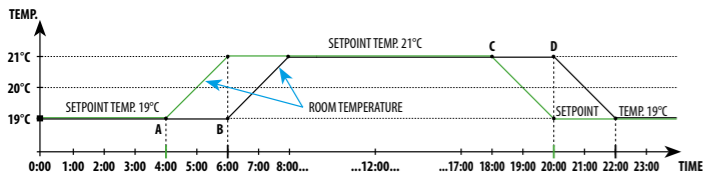
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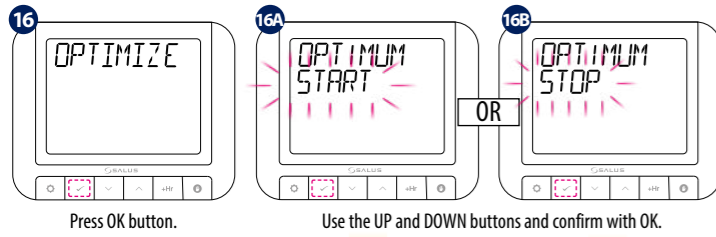
When the OPTIMUM START function is active, the thermostat sends a heating signal to the heat source beforehand so that the preset temperature in the room is reached at the set time in the schedule.

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.

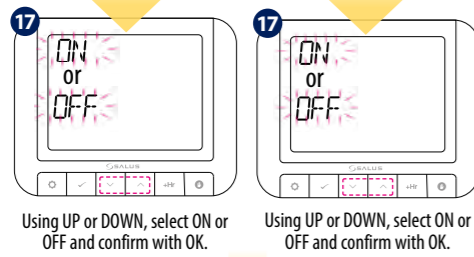
**Exemplary operation of the thermostat according to the schedule 6:00 - 23:00 → 21°C & 23:00 - 6:00 → 19°C:**



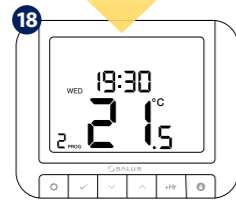
- A - OPTIMUM START ON** (earlier it turns on the heating - it goes towards the set 21°C)
- B - OPTIMUM START OFF** (turns on heating according to a schedule)
- C - OPTIMUM STOP ON** (earlier it turns off the heating - it goes to the set 19°C)
- D - OPTIMUM STOP OFF** (turns off heating according to a schedule)



Press OK button. Use the UP and DOWN buttons and confirm with OK.



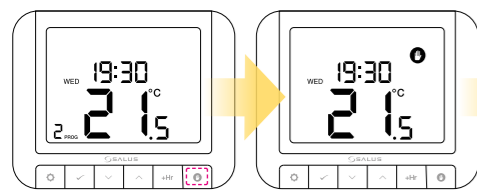
Using UP or DOWN, select ON or OFF and confirm with OK.



The thermostat will go to main screen.

### Switching between manual mode and automatic mode

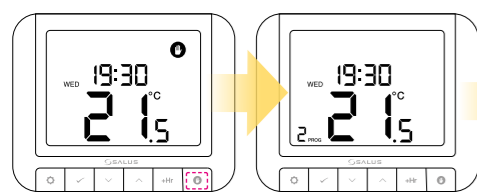
TO SWITCH FROM AUTOMATIC TO MANUAL MODE:



Press button. The icon will appear on the display hand, which means the thermostat is in manual mode.

In the manual mode, the user can set the desired temperature that the thermostat will maintain.

TO SWITCH FROM MANUAL TO AUTOMATIC MODE:

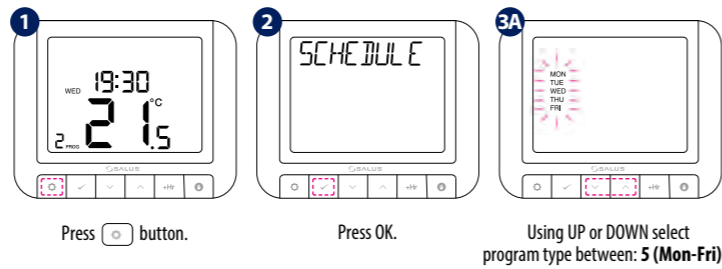


Press and hold button for 3 seconds. The hand icon will disappear from the display which means the thermostat will return to automatic mode.

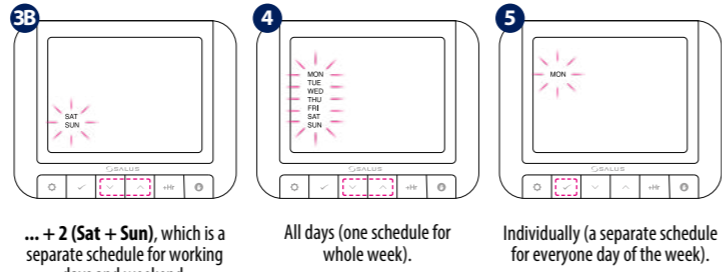
In automatic mode, the thermostat works according to a programmed schedule.

### Programming - Automatic Mode

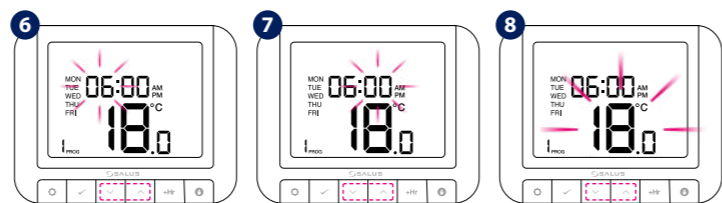
The schedule has 6 time intervals for which different temperatures can be adjusted. You can set 2, 3 or up to 6 temperatures per day. You must define all time periods. Here is an example of setting a certain time with a certain temperature.



Press button. Press OK. Using UP or DOWN select program type between: 5 (Mon-Fri)...



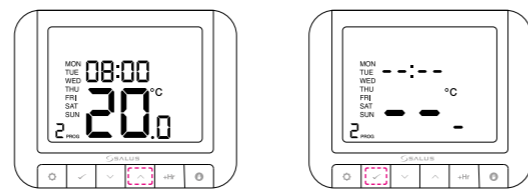
... + 2 (Sat + Sun), which is a separate schedule for working days and weekend. All days (one schedule for whole week). Individually (a separate schedule for everyone day of the week).



Using UP or DOWN, set the hour and then press OK. Using UP or DOWN, set the minutes and then press OK. Use the UP or DOWN button to set the temperature and then press OK.

Repeat the process for all time periods.

If you only need to change the set temperature twice a day, below is how to cancel one or more intervals.



Press the UP button several times on the selected interval that you want to delete (until the line appears on the screen). When the lines are displayed, press OK to confirm deletion of the selected interval.

TIME:	6 TEMP/DAY	2 TEMP/DAY
06.00	21 °C	21 °C
10.00	14 °C	-
12.00	21 °C	-
14.00	14 °C	-
18.00	21 °C	-
21.00	14 °C	14 °C

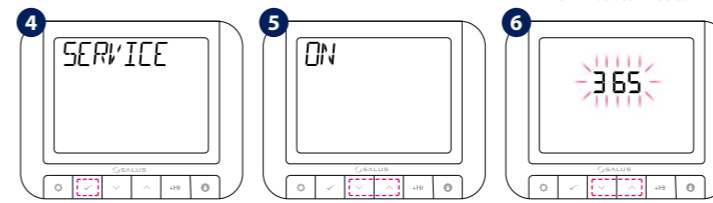
Here are some examples of weekly schedules (for 6 and 2 temperature changes during the day).

### Landlord Settings

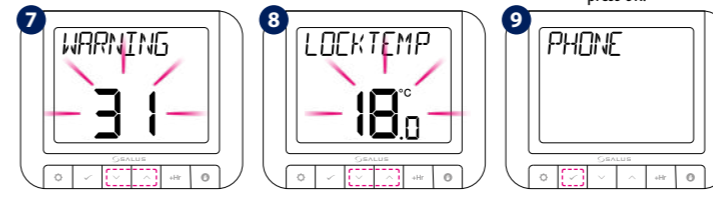
Administrator settings is a function protected by a PIN code that allows the administrator to set a service reminder on the regulator that will warn the tenant about the upcoming boiler inspection.



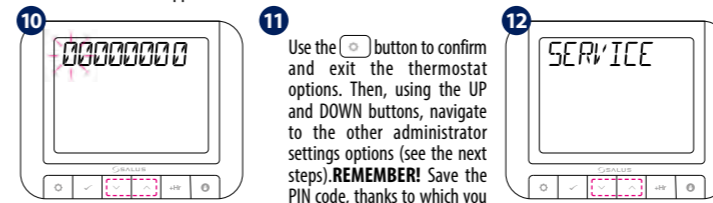
Press button. Using UP or DOWN, navigate to Landlord submenu and press SELECT. Using UP or DOWN, enter the PIN code. Press OK to confirm each numeral. **PLEASE NOTE:** The first code entry is also the setting of a new PIN code which will be necessary to enter the Administrator mode.



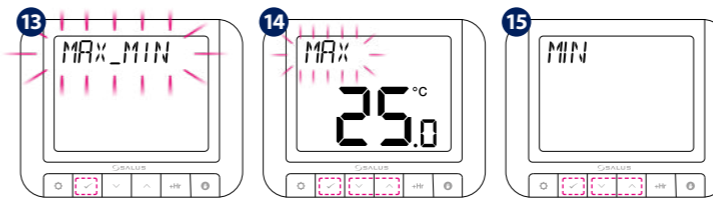
Press OK button. Using UP or DOWN, select ON and press OK. Using UP or DOWN, select the number of days after which the boiler will be inspected and then press OK.



Using the UP and DOWN buttons, select the day on which a reminder about the upcoming boiler maintenance will appear. Using UP or DOWN select the set temperature of the blocked thermostat and then press OK. Press OK button.



Using UP or DOWN enter the phone number. Press OK to confirm each numeral. Use the button to confirm and exit the thermostat options. Then, using the UP and DOWN buttons, navigate to the other administrator settings options (see the next steps). **REMEMBER!** Save the PIN code, thanks to which you can enter Administrator mode without troubles.



Using the UP and DOWN buttons, select the next setting option. Press OK button. Using the UP and DOWN buttons, select the maximum value of the set temperature. Confirm with the OK button. Using the UP and DOWN buttons, select the minimum value of the set temperature. Confirm with the OK button.



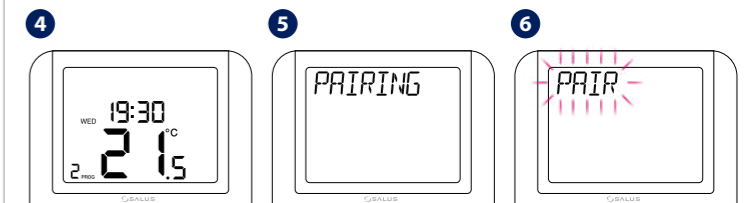
Press OK to configure the receiver (RECEIVE). When the parameter is set to "MANUAL ON", the receiver's "AUTO-MANUAL" switch is active (not locked). By setting the switch in the receiver to the "AUTO" position, the receiver responds to the regulator's signals. Setting "MANUAL" causes that the operation of the receiver depends only on the position of the upper switch on the receiver (ON-OFF). When the thermostat parameter is set to "OFF MANUAL", the switch on the receiver "AUTO-MANUAL" is disabled (disabled). The user cannot enable manual mode on the receiver. The receiver will always react to signals sent by the thermostat.

Thermostat will return to SERVICE. To return to the main screen, wait 10 seconds or hold the button .

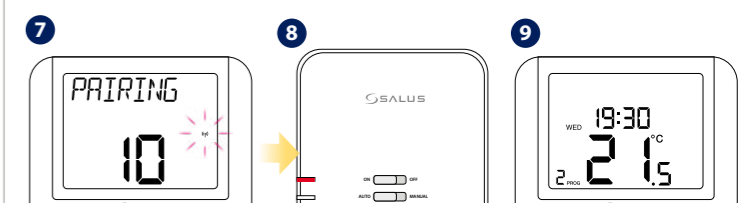
### RT520TX Thermostat Pairing with the Receiver

If you are using the RT520RF pack, the pairing between the thermostat and the receiver is already done. During the pairing process, please make sure the thermostat and the receiver are at least 1 meter from each other.

If you bought the RT520TX and RXRT520 separately or if you want to re-pair thermostat with the receiver, make sure that the device is disconnected from the power supply and the switches on the receiver have been set to AUTO and ON. Then connect the receiver to the power supply and wait for the red LED to light steadily. Then switch to the OFF position and again to ON position quickly. The red flashing LED will confirm entering the pairing mode.

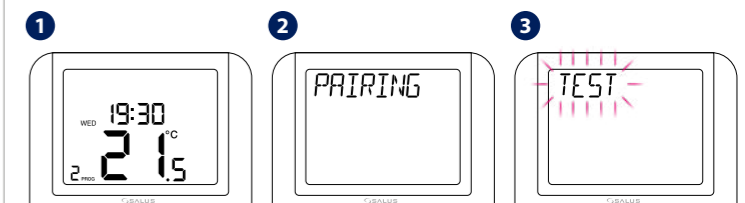


Press MENU. Using UP or DOWN, navigate to Pairing submenu and press SELECT. Using UP or DOWN, select PAIR and press SELECT.

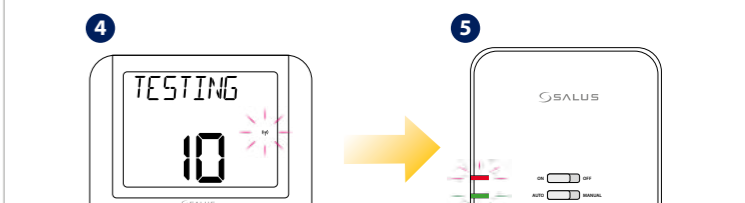


The pairing process takes up to 10 minutes. Once devices are successfully paired, LED on the receiver will go solid red. After all, thermostat will go back to the main screen.

### Test the Pairing Process

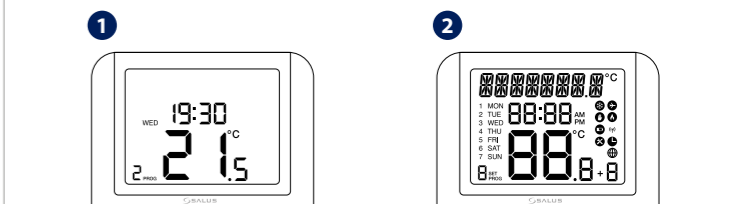


Press MENU. Using UP or DOWN, navigate to Pairing submenu and press SELECT. Using UP or DOWN, select TEST and press SELECT.



The testing process takes up to 10 minutes. The red LED and the green LED on the receiver will begin to flash.

### Factory Reset



To reset the thermostat, press MENU, DOWN and BOOST simultaneously for 5 seconds. The device will be reset and will start up automatically.

Landlord settings will not be reset. Devices are still paired together.