SALUS
CONTROLS PLC

WARRANTY **2** YEARS

RT505TX
Programmable Room Thermostat

RXBC605

RXRT505

RXWBC605

RXVBC605

RXST625

The RT505TX can be used with any of these receivers

C E

868MHz

RT505TX

PRODUCT COMPLIANCE

This product complies with the essential requirements of the following EC Directives:

- Electro-Magnetic Compatibility directive 2004/108/EC
- Low Voltage Directive 2006/95/EEC
- EC Marking directive 93/68/EEC

SAFETY INFORMATION

These instructions are applicable to the Salus Controls model stated on the front cover of this manual only, and must not be used with any other make or model.

These instructions are intended to apply in the United Kingdom only, and should be followed along with any other statutory obligations.

When fitting batteries don't mix old and new batteries together. Do not use rechargable batteries.

Please leave these instructions with the end user where they should be kept in a safe place for future reference.

INTRODUCTION

A programmable thermostat is a transmitter that combines the functions of both a room thermostat and heating controller into a single unit. The programmable thermostat is used to switch the heating system in your home on and off as needed. It works by controlling the temperature according to a series of programmed settings that take effect at different times of the day.

The RT505TX from Salus Controls is a stylish and accurate 5/2 or 7 day programmable electronic thermostat with a large, easy to read Liquid Crystal Display (LCD). This programmable thermostat can replace most common residential thermostats and is designed to be used with electric, gas or oil heating control systems. Unlike ordinary single unit design thermostats, this is a new type of thermostat separating the operational functions into two units.

The Receiver is used for wiring connections and heat on/off control. The thermostat provides the user interface and temperature sensing / control. The two units are linked together by a Radio Frequency (RF) signal.

Features
- 5/2 or 7 day programming flexibility
- Built-in start up programming for quick installation
- Frost protection
- Large, easy to read LCD with blue backlight
- Boiler on symbol
- Easy to use programming
- User friendly

INSTALLATION

Please read the important safety information at the start of this manual before you begin to install the device.

The RT505TX can be used in any convenient location by using the included stand, or can be easily installed in a fixed position using the industry standard back plate supplied with the unit – this is used purely for mounting purposes, as no wiring is needed for the RT505TX. The back plate can be mounted directly to the wall surface.

The ideal position to locate the RT505TX thermostat is about 1.5m above floor level. It should be mounted in a location where the thermostat is accessible, reasonably lit and free from extremes of temperature and draughts. Do not mount the thermostat on an outside wall, above a radiator or in a location where it may be subjected to direct sunlight.

To ensure trouble free operation of the Radio Frequency (RF) signal, always ensure that the programmable thermostat is mounted away from any possible sources of interference (such as radios, TV sets, computers, etc.), and is not mounted on or in close proximity to large metal objects. Installing the RT505TX in enclosed areas such as cellars and basements is not recommended.

AFTER INSTALLATION

The following table shows the settings of the RT505TX programmable thermostat after Power on, or after RESET is pressed:

Function	Status After Reset or Power On
Operation Mode	Normal mode
Room Temperature	22.0 °C, updated within 5 seconds
°C indicator	On
Clock	12:00
AM/PM indicator	AM
Day of Week indicator	M
Program	Default factory setting
Set Point Temperature	Default factory setting
Program Number indicator	1
SET indicator	Off
PROG indicator	Off
Frost Protection indicator	Off
Heat indicator	Off
Low-Battery Warning indicator	Off, updated within 5 seconds
Output Relay	Off

After Power on, the thermostat will operate in **Normal** mode (Normal mode is when the thermostat is displaying the room temperature):

- The set point temperature is reset to the default setting
- The room temperature display is updated within 5 seconds
- The control process starts
- The programme number is updated to indicate the running program

If the Reset Button is pressed, the RT505TX will behave in the same way as described above, except that any previously saved user settings stored in the internal memory will be deleted and overwritten with the default settings, and all programmable thermostat control settings will be returned to default values.

USER INTERFACE AND CONTROLS

The status and operation of the RT505TX is clearly shown on the large backlit Liquid Crystal Display (LCD).

This display allows the user to see at a glance the current status of the heating system, the current time and day of the week, as well as a clear indication of the current room temperature.

There are few user controls for the RT505TX, making the programmable thermostat very easy to operate. These controls are shown below, along with a description of each of their functions.

USER CONTROL
FUNCTION SUMMARY

| Key / Operation	Symbol	Functions
UP key	⌃	Increases the selected setting
DOWN key	⌄	Decreases the selected setting
BACKLIGHT / FROST key	☀/❄	Manually turns on the LCD backlight for 5 seconds, or activates / deactivates Frost Protection
SELECT key	◎	Selects a clock or programme setting
SET key	◎	Sets a clock or programme setting
RESET button	RESET ●	Resets the programmable thermostat to default (original factory) settings

OPERATION

The RT505TX is configured and adjusted by the use of a minimal number of user controls, and an intuitive user interface.

The backlit Liquid Crystal Display (LCD) gives a highly visible, easily readable indication of the programmable thermostat status.

SETTING THE TIME
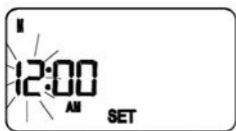
Press and hold SET and SELECT when the RT505TX is in Normal mode for a few seconds to enter the Clock setting mode. Release both keys and the display will look like the image below:

The Time and Day are displayed along with a SET indicator, with all other indicators cleared from the display. The hour part of the time is flashing to indicate that it is the currently selected item and is ready to be adjusted.

- Press the UP or DOWN keys to increase or decrease the 'hour' setting – the selected item will stop flashing while a key is pressed, and will resume flashing when you release the key.
- Press the SELECT key to select the 'minutes' section of the time. Set the minutes in the same way as the hour by using the UP and DOWN keys.
- Press SELECT again to select the Day, and again change the setting with the UP and DOWN keys.
- Press the SET key to confirm the new time and day settings. This will store the changes and return the RT505TX to Normal mode.

The RT505TX thermostat will also return to Normal mode (and save the clock settings) if no keys are pressed for more than 15 seconds.

PROGRAMMING THE RT505TX

The RT505TX offers great versatility with its programming options, allowing the user to programme the unit to operate on a 5/2 or 7 day control cycle. The programmable thermostat has a default set of Programmes that have been designed to meet the needs of most users. If these default programmes are not suitable for your particular situation, reprogramming the RT505TX with your own settings is a very straightforward operation.

Selection of the default programming mode (5/2 or 7 day) is made by changing the jumper setting on the rear of the RT505TX thermostat, as previously described within the Installation section of this manual.

5/2 DAY MODE

5/2 day mode is the default programming mode for the RT505TX. With this mode selected, five different sets of time and set point temperatures can be set for Weekdays or Weekends.

To review or change a programme, press the SET key when the RT505TX is in Normal mode. This will change the unit status to Programme Setting mode.

The LCD display will display programme number 1 and SET PROG, with all other indicators cleared. The weekdays will be flashing to indicate they are the selected item and are ready to be adjusted:

Press the UP or DOWN key to select the programme set for either Weekday or Weekend to be reviewed or adjusted. Pressing the SET key at any time when in programming mode will return the RT505TX into Normal mode.

Press the SELECT key to confirm the Weekday or Weekend selection. Once this is set, the 'Hour' will flash to indicate that it is the selected item and is the next item to be adjusted:

Press the UP or DOWN key to adjust the hour setting to the desired value, and confirm your selection by pressing the SELECT key.

Pressing the SELECT key allows you to step through each of the items to be reviewed or adjusted within the programmes in the following sequence:

Programme	Function Sequence		
1	6am	00	21ºC
2	8am	00	14ºC
3	4pm	00	21ºC
4	6pm	00	21ºC
5	10pm	00	14ºC

...before then allowing you to cycle back to Programme 1. Pressing the SET key at any time will confirm the setting and return to the programme set selection.

7 DAY MODE

The RT505TX also offers a 7 day programming mode, which allows you to programme five different sets of time and set point temperatures for each day of the week to give a total of 35 separate programme settings.

To review or change a programme, press the SET key when the RT505TX is in **Normal** mode. This will change the unit status to Programme Setting mode.

The LCD display will display programme number 1 and SET PROG, with all other indicators cleared. The weekdays will be flashing to indicate they are the selected item and are ready to be adjusted.

Press the UP or DOWN key to change the display to indicate the single day you want to programme:

Pressing the SET key at any time when in programming mode will return the RT505TX into Normal mode. Press the SELECT key to confirm the Day selection. Once this is set, the 'Hour' will flash to indicate that it is the selected item and is the next item to be adjusted:

Press the UP or DOWN key to adjust the hour setting to the desired value, and confirm your selection by pressing the SELECT key.

Pressing the SELECT key allows you to step through each of the items to be reviewed or adjusted within the programmes in the following sequence:

| Programme	Function Sequence		
1	6am	00	21ºC
2	8am	00	14ºC
3	4pm	00	21ºC
4	6pm	00	21ºC
5	10pm	00	14ºC

...before then allowing you to cycle back to Programme 1. Pressing the SET key at any time will confirm the setting and return to the programme set selection. Each programme for all the other days of the week is set in exactly the same way – just repeat the steps shown above, after entering programming mode and selecting the day you want to programme.

Regardless of which programming mode the RT505TX is set for (5/2 or 7 day), not pressing any keys for 15 seconds will automatically save any programming changes and exit to **Normal** mode. You can also review or change programme settings when Frost Protection is enabled.

FROST PROTECTION

To enable the Frost Protection mode, press and hold the BACKLIGHT / FROST button for three seconds with the RT505TX in Normal mode. Once Frost Protection is enabled, the set point temperature is automatically set to 5°C to provide protection from the risk of freezing.

Whenever Frost Protection is activated, the Frost Protection indicator will flash in the sequence shown below:
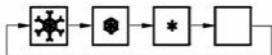
While Frost Protection is activated, it will override any programme settings until the mode is changed. To turn off Frost Protection mode, press and hold the BACKLIGHT / FROST button for three seconds.

REVIEWING SET POINT TEMPERATURE

You can view the set point temperature at any time by pressing either the UP or DOWN key.

When any programme is running, the LCD display will show the programme set point temperature with the SET indicator displayed:

When operating in Frost Protection mode, the LCD display will show a reading of 5 °C and also display the Frost Protection indicator:

When operating in Temporary Override mode, the LCD display will show the temporary set point temperature:

To exit from the set point review, press any key except the UP or DOWN keys, or don't press any keys for approximately four seconds – either of these actions will return the RT505TX to **Normal** mode.

TEMPORARY OVERRIDE

It is possible to temporarily override the current set temperature of the RT505TX. There are two ways to do this:

- While reviewing set point temperature: Pressing the UP or DOWN key while reviewing the set point temperature will increase or decrease the set point temperature in 0.5 °C steps.

- In Normal mode: press and hold either the UP or DOWN key to display the set point temperature. After two seconds, the RT505TX will enter Temporary Override mode and allow increase or decrease of the set point temperature. If the key is released within two seconds then you will only be able to review the set point temperature.

Once in Temporary Override mode, the clock and day are displayed, along with the SET indicator; all other indicators are cleared from the display. The set point temperature will flash to indicate that it can be changed:

Pressing the UP or DOWN key will increase or decrease the set point temperature in 0.5 °C steps - the set point temperature can be adjusted within a set range or 10 °C to 35 °C.

You can press SET at any time to confirm the new Temporary Override setting and return to **Normal** mode, or press no keys at all and wait approximately four seconds.

Temporary Override mode remains active until the clock or programme settings are adjusted, Frost Protection is activated or the next programme time / temperature set point is reached.

SETTING UP RF COMMUNICATION WITH YOUR RECEIVER

RXRT505(ONLY)

Receiver

After you have switched the above receiver on, the thermostat will automatically pair. When the red LED stops flashing, the unit has successfully paired.

If you have difficulty in pairing the thermostat, we recommend changing the address codes in the thermostat and the receiver.

DIP Switches

To adjust the RF address code of the receiver, simply push up one or more of the 5 DIP switch levers on the DIP switch bank located on the back of the receiver (the levers are numbered 1 to 5 from bottom to top, as shown in the picture left), and then make a note of the setting of each switch:

Jumper Caps

To adjust the RF address code of the thermostat, remove one or more of the jumper caps located on the back of the unit (labelled 1,2,3,4 and 5, and shown in the picture left) so that the jumper settings match the settings made on the receiver:

For full instructions on pairing the RXRT505 see page 7 of the receiver manual.

RXVBC605, RXWBC605,RXBC605 & RXST625

To enter pairing mode press and hold SELECT for 3 sec and the thermostat will show 1OSY (see right) once the thermostat is in pairing mode press and hold the sync button on the receiver (see page 14) wait for the red LED on receiver to change state then press any key to cancel and return to the main screen.

LOCATION OF SYNC BUTTONS ON RECEIVERS

RXBC605

Sync Button

For full instructions on pairing the receiver refer to the RXBC605 manual.
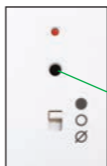
RXST625

Sync Button

Press reset button first

For full instructions on pairing the receiver refer to page 9 of the RXST625 manual.

RXVBC605

Sync Button

For full instructions on pairing the receiver refer to page 16 of the RXVBC605 manual.

RXWBC605

Sync Button

For full instructions on pairing the receiver refer to page 23 of the RXWBC605 manual.

TESTING THE RF TRANSMISSION

1. Press the UP button on the thermostat until the set point temperature is higher than room temperature by a few degrees.

2. Wait for a few seconds. The boiler on (heat call) indicator should appear on the bottom left of the LCD on the thermostat.

3. Check the LED on the receiver unit - it should be illuminated.

4. Press the DOWN button to adjust the set point temperature to be lower than room temperature.

5. Wait for a few seconds, and the boiler on (heat call) indicator should disappear and the LED should go out.

OTHER FUNCTIONS AND CONTROLS

Backlight
The backlight of the RT505TX is switched on automatically whenever any of the keys are pressed. The backlight will remain illuminated for approximately 5 seconds after the last key press, except if you are changing settings within the Clock, Programme or Temporary Override modes – in this case, the backlight will remain illuminated throughout the setting change process. The backlight will not illuminate if the RT505TX battery is low.

Battery Status
The RT505TX checks the battery voltage frequently during normal operation. If the battery voltage is sensed as being low (this is normally when the battery voltage falls to a level of around 2.6V), the low battery indicator will be displayed on the screen.

Although the programmable thermostat will continue to operate normally at this stage, you should replace the batteries as soon as possible to prevent any possible operating problems.

Reset Button
The Reset Button is provided as a way to restore the programmable thermostat to its default factory settings. Pressing this button will delete any previously entered settings.

Sleep Mode

By pressing both the UP and DOWN keys together, the RT505TX will enter SLEEP mode. In this mode, all the RT505TX functions will be paused to save battery power, with the exception of the clock which will continue to run in the background.

While in SLEEP mode:
• The LCD display will be blank.
• All output from the thermostat will be turned off immediately.

Press any key to wake up the RT505TX and cancel SLEEP mode.

ENERGY TIP

One way to set and use your room thermostat is to find the lowest temperature setting that you are comfortable with, and then leave it set at this temperature. You can do this by setting the room thermostat to a low temperature, (for example 17 °C) and then increasing the setting by one degree each day until you are comfortable with the room temperature - you won't have to adjust the thermostat further, as adjustment above this setting will waste energy - a 1 °C increase in temperature is equal to 3% of your heating costs.

MAINTENANCE

The RT505TX programmable 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 should only be carried out by Salus Controls or their appointed agents.

Should the RT505TX programmable thermostat fail to function correctly, check:

• The batteries are the correct type, fitted correctly and are
  not exhausted
  - fit new batteries if in doubt.
• Heating system is switched on.
• The RT505TX receiver is switched on.
• If the RT505TX is still not functioning correctly, press the Reset Button.

WARRANTY

Salus Controls warrants that this product will be free from any defect in materials or workmanship, and shall perform in accordance with its specification, for a period of two years from the date of purchase. Salus Controls sole liability for breach of this warranty will be (at its option) to repair or replace the defective product.

PRODUCT SPECIFICATION

Model:	RT505TX
Type:	Electronic programmable thermostat, designed for RF heating applications.
Frequency	868 MHz

Programming

Programming Modes:	User selectable for 5/2 or 7 day option
Number of Programmes:	Five (5) user programmes plus factory default programme.
Override Facility:	User selectable programme override facility.

Default Programmes

Programme	Output	Weekday	Weekend
1	ON	6:00 AM	6:00 AM
	TEMP	21 ºC	21 ºC
2	ON	8:00 AM	8:00 AM
	TEMP	14 ºC	14 ºC
3	ON	4:00 PM	4:00 PM
	TEMP	21 ºC	21 ºC
4	ON	6:00 PM	6:00 PM
	TEMP	21 ºC	21 ºC
5	ON	10:00 PM	10:00 PM
	TEMP	14 ºC	14 ºC

Temperature

Scale:	Celsius
Range:	5 ºC to 35 ºC
Resolution:	0.5 ºC
Tolerance:	Less than ± 0.5 ºC at 25 ºC
Display Range:	5.0 ºC to 45.0 ºC
Display Resolution:	0.5 ºC

Setpoint Temperature Range: 5 ºC to 35 ºC

Measured Air Temperature Range: 5 ºC to 45 ºC (Displayed on LCD)
If room temp is higher than 45C,will show HI on the LCD, if less than 5C will show LO on the LCD
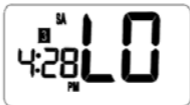
Thermostat

Power Source:	2 x AA alkaline batteries (don't use rechargeable batteries)

Clock

Accuracy: ± 1 minute per month
Display: 12 hour

Frost Protection

Setting: 5 ºC

Environment

Operating Temperature: 0 ºC to + 40 ºC
Storage Temperature: - 20 ºC to + 60 ºC

RT505TX Warranty

Salus Controls warrants that this product will be free from any defect in materials or workmanship, and shall perform in accordance with its specification, for a period of two years from the date of purchase. Salus Controls sole liability for breach of this warranty will be (at its option) to repair or replace the defective product.

Customer Name: ....

Customer Address: ....

....

Post Code: .... Tel No: ....

Email: ....

Engineers Company: ....

Tel No: ....

Email: ....

Intallation Date: ....

Engineers Name: ....

Engineers Signature: ....

SALUS
CONTROLS PLC

www.salus-tech.com

Sales: Email: sales@salus-tech.com Tel: 01226 323961
Technical: Email: tech@salus-tech.com Tel: 01226 323961

Salus Controls plc, Salus House, Dodworth Business Park South,
Whinby Road, Dodworth, Barnsley S75 3SP