

# SALUS

## Digital Room Thermostat



Instruction Manual  
Model No RT300



## 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.

This accessory must be fitted by a Competent person, and installation must comply with the guidance provided in the current editions of BS7671 (IEE Wiring Regulations) and Part 'P' of the Building Regulations. Failure to comply with the requirements of these publications could lead to prosecution.

**Always isolate the AC Mains supply before opening or removing the unit from the wall or wall box.**

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

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

## **What is a room thermostat?**

### **... an explanation for householders**

A 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.

## INTRODUCTION

A thermostat is a device that is used to switch the heating system in your home on and off as needed. It works by sensing the air temperature and switching on the heating when the air temperature falls below the thermostat setting, and switching it off once the set temperature has been reached.

The RT300 from SALUS Controls is a stylish and accurate digital thermostat with a large, easy to read Liquid Crystal Display (LCD). This thermostat has been specifically designed to be used Volt Free.

### Features

- Volt free contacts
- Frost protection
- Large, easy to read LCD with blue backlight
- Burner on symbol
- User friendly
- Stylish casing



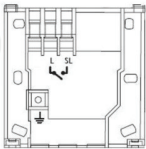

## INSTALLATION

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

The ideal position to locate the RT300 thermostat is about 1.5m above floor level, 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.

The electrical connections to the RT300 are made to the supplied industry standard backplate. This simplifies installation, as no connections are made to the controller itself. Connection details are shown below - no Earth connection is required for the correct and safe operation of the RT300, but a parking terminal is provided to connect an Earth wire if one is present.

## Backplate Connections

Terminal	Description	Backplate
L	Mains Live	
SL	Switched Live (Normally Open Contact)	
	Earth Parking (no electrical connection)	

After installing the backplate in a suitable location, wiring connections can be made as shown above. The following criteria apply to the installation:

- The incoming AC mains supply should be 230V AC and fused at 5 amps.
- Optimum cable size for installation is 1.5 mm<sup>2</sup>; wiring colours should be in accordance with the current requirements of the IEE Wiring Regulations.
- Cable entry should be from the rear of the backplate.
- All wiring connections should be securely made, and be firmly gripped beneath the square brass washer on each terminal.

The RT300 requires two 'AA' alkaline batteries to function correctly. Ensure that the batteries are inserted correctly, paying careful attention to the polarity markings on the battery and next to the battery holders.

Do not restore the mains supply to the system until all associated items are fully installed.

**NOTE:** All electrical installation work should be carried out by a suitably qualified Electrician or other competent person. If you are not sure how to install this thermostat consult either with a qualified electrician, heating engineer or your boiler / heating system supplier for advice on how to continue.

**Do not remove or refit the RT300 onto the backplate without the mains supply to the system being isolated.**

## JUMPER SETTINGS

Changes to the jumper settings should only be made by the Engineer carrying out the installation or other qualified person.

The installer should select the jumper positions required if changes need to be made to the factory default settings. These jumpers are found on the rear of the Control Centre.

Jumper	Function	Default
Temperature Span	Movable jumper for $\pm 0.5$ °C or $\pm 1.0$ °C span.	$\pm 0.5$ °C span

## AFTER INSTALLATION

After completing installation and powering up the RT300 for the first time the thermostat will behave in the following way:

All the indicators on the display and the backlight will be turned on for two seconds. After two seconds, the RT300 will then operate in **Normal** mode (Normal mode is when the thermostat is displaying the room temperature).



The following table shows the settings of the RT300 digital thermostat after Power on:

Function	Status After Reset or Power On
Operation Mode	Normal mode
Room Temperature	22.0 °C, updated within 5 seconds
Set Point Temperature	20.0 °C
°C indicator	On
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




## OPERATION

The status and operation of the RT300 is clearly shown on the large backlit Liquid Crystal Display (LCD). This display allows the user a clear indication of the current room temperature, and the status of the heating system.

There are few user controls for the RT300, making this 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



## REVIEWING SET POINT TEMPERATURE



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

To exit from the set point review, press the BACKLIGHT / FROST key, or don't press any keys for approximately four seconds – either of these actions will return the RT300 to displaying current room temperature.

## SETTING SET POINT TEMPERATURE



You can change the set point temperature very easily while you are reviewing the set point temperature. Press the UP or DOWN keys repeatedly to change the temperature setting. The set point temperature will flash to indicate that it can be changed:

The temperature will be changed in 0.5°C steps per key press. The RT300 will return to Normal mode if no keys are pressed for more than four seconds.

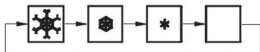
Set point temperature cannot be changed if Frost Protection mode is enabled.

## FROST PROTECTION

To enable the Frost Protection mode, press and hold the BACKLIGHT / FROST button for three seconds. 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:



To turn off Frost Protection mode, press and hold the BACKLIGHT / FROST button for three seconds.

Please be aware that the Frost Protection mode operates as an additional protection feature but should not be used in place of a correctly installed frost thermostat, which is required to override all other controls in the system.

The backlight will remain illuminated for approximately 5 seconds.


## OTHER FUNCTIONS AND CONTROLS

### Backlight

The backlight of the RT300 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 the set point temperature – in this case, the backlight will remain illuminated throughout the setting change process.

The backlight will not illuminate if the RT300 battery is low.

### Battery Status

The RT300 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 digital thermostat will continue to operate normally at this stage, you should replace the batteries as soon as possible to prevent any possible operating problems.

### Sleep Mode

By pressing both the UP and DOWN keys together, the RT300 will enter SLEEP mode. In this mode, all the RT300 functions will be paused to save battery power.

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 RT300 and cancel SLEEP mode.

## TEMPERATURES OUTSIDE THE OPERATING RANGE

Temperatures below 10 °C are displayed without the leading '0'. Temperatures exceeding the measurable range will be indicated by 'HI' for temperatures above the upper limit, and 'LO' for temperatures below the lower limit, as shown in the images below:



## 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 RT300 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 RT300 thermostat fail to function correctly, check:

- The batteries are the correct type, fitted correctly and are not exhausted - fit new batteries if in doubt.
- The RT300 temperature has been set correctly.
- Heating system time switch or programmer is switched on.

## **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:	RT300
Type:	Surface mounted digital room thermostat designed for volt free heating applications.

### Switching

Switching Voltage:	0 - 230V AC / 50Hz
Switching Current:	3A resistive, 1A inductive
Contact Type:	Single Pole Single Throw (SPST)

### Power Source

Power Source:	2 x AA alkaline batteries (Don't use rechargeable batteries)
Battery Life:	Approximately 1 year

### Temperature

Range:	5 °C to 35 °C
Accuracy:	± 0.5 °C at 25 °C

### Environment

Operating Temperature:	0 °C to + 50 °C
Storage Temperature:	- 20 °C to + 55 °C

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Customer Name: .....

Customer Address: .....

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

Email: .....

Engineers Company: .....

Tel No: .....

Email: .....

Intallation Date: .....

Engineers Name: .....

Engineers Signature: .....



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