SALUS Model No: ERT30RT

ERT30RT Noiseless Digital Room Thermostat for Underfloor Heating with Remote/Floor Input

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.

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

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 ERT30RT from Salus Controls is a stylish and accurate digital room thermostat that is fitted with a large easy to read Liquid Crystal Display (LCD). The ERT30RT has been specifically designed to be used with under floor heating systems.

A back light and frost function add to the features of the ERT30RT.

FEATURES

- Remote/Floor temperature input
- Valve Protection
- Large, easy to read LCD with orange Backlight
- Stylish casing
- User friendly
- Frost protection
- Reset button
- Will operate up to 5 thermal actuators
- Selectable Set Back 2°C / 4°C

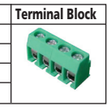
Installation

Please read the important safety information at the start of this manual before you begin to install the device. The ideal position to locate the ERT30RT digital room thermostat is about 1.5m above floor level. It should be mounted in a location where the thermostat is easily accessible, reasonably lit and free from extremes of temperature. Loosen screw which is located on the bottom of the housing. Open the housing by pulling the bottom of the cover then lift off. Now mount the base plate with the supplied screws firmly to the wall or onto the flush-mounted wall box.

ERT30RT not only works by itself, i.e. dip switch setting, but also can be controlled by two control methods, i.e. Night Setback by clock, and Communciation Signal from ERT52 via communication terminal.

The electrical connections to the ERT30RT are made to the internal terminal strips. Connection details are shown below - no Earth connection is required for the correct and safe operation of the thermostat as the device is double insulated.

Terminal Connections

Terminal	Description	Terminal Block
←	Switched Output	
L	Mains Live	
N	Mains Neutral	
◷	Temperature setback (110V AC input)	

Terminal	Description	Terminal Block
S1	Remote/Floor temperature sensor terminal 1	
S2	Remote/Floor temperature sensor terminal 2	
Remote/Floor Sensor	10K NTC Type	

After installing the ERT30RT 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 110V AC and fused at 6 Amps.
- Optimum cable size for installation is 1.5 square mm; wiring colours should be in accordance with the current requirements of the IEE Wiring Regulations.
- All wiring connections should be securely made, and be firmly terminated within each of the terminal screw clamps.

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 programmable 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 ERT30RT wiring without the mains supply to the system being isolated.

DIP Switch Settings

Changes to the DIP Switch settings should only be made by the Engineer carrying out the installation or Another qualified person. These DIP switches are located inside the unit. Follow steps in the installation section on how to open the unit.

The installer should select the switch positions required if changes need to be made to the factory default settings.

Switch	Position	Function
Sensor Mode Selection	Int R/F Int+F	Int: Internal Air Sensor only (default) R/F: Floor or Remote Sensor only Int+F: Internal Air and Floor Sensor mode.

Switch	Position	Function
System	Cool Heat	Heat – Heating Mode (default) Cool – Will set system to cooling mode
Set Back	2°C 4°C	Temperature °C reduction in heat mode Temperature °C rise in cool mode
Output Control Type	On/Off PWM	PWM – PWM output (default) On/Off-Switch to on/off mode
Valve Protection (VP)	Disable VP	VP - Enable (default) Disable- Disables VP

N.B: If the System DIP switch is set to 'Cool', PWM mode is automatically disabled. In this case the ERT30RT will only operate in On-Off mode, even if the Output Control DIP switch is set for PWM mode.

After Installation

After completing installation and powering up the ERT30RT 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 a few seconds. After a few seconds, the ERT30RT will then operate in Normal mode (controller output OFF), and display the current room temperature.

All the controller settings will be returned to the values stored in EEPROM. If the Reset Button is pressed, the ERT30RT will behave in the same way as described above, except that any previously saved user settings will be deleted and overwritten with the default settings.

Function	Default Value	EEPROM Backup
Operation Mode	Normal	Normal
Room Temperature	22°C, updated within a few seconds	22°C, updated within a few seconds
All Set Point Temperatures	10°C - 35°C	Depends on setting stored in EEPROM
Floor Limit Temperature	Internal Air Sensor + Floor Sensor mode: 30°C (heating mode) 15°C (cooling mode)	Depends on setting stored in EEPROM
°C Indicator	On	Depends on setting stored in EEPROM
Frost Setting	Off	Depends on setting stored in EEPROM
Heat Indicator	Heat	Depends on setting stored in EEPROM
Output	Off	Off

N.B: Please be aware that after a Reset, the ERT30RT output may turn ON if the room temperature is lower than the Set Point temperature in heating mode.

USER INTERFACE AND CONTROLS

The status and operation of the ERT30RT can be clearly seen on the large orange backlit Liquid Crystal Display (LCD) - this display allows the user to see at a glance the current status of the heating system.

There are few user controls for the ERT30RT, making the controller very easy to operate. These controls are shown below, along with a description of each of their functions.

User Control Function Summary

Key / Operation	Functions
MINUS (-) key	Decreases the selected setting
PLUS (+) key	Increases the selected setting
RESET button	Restarts the ERT30 RT

Operation

As previously described, the ERT30RT is configured and adjusted by the use of an intuitive user interface with a minimal number of user controls, and the backlit LCD gives a highly visible, easily readable indication of the thermostat status.

LCD Indicator Function Summary

Indicator	Symbol	Function
HEAT	HEAT	Indicates heating mode is active
COOL	COOL	Indicates cooling mode is active
CRESCENT	☾	Indicates setback temperature mode is active
TEMPERATURE	88.8 °C	Indicates either current room temperature or set point temperature
FROST	*	Indicates frost protection mode is active
HEATING		Indicates heat control mode is active

Checking the Set Temperature

Pressing either the PLUS or MINUS key twice will display the current Set Point temperature:

After a few seconds without a key press, the ERT30RT will return to NORMAL mode and will display the current room temperature.

Adjusting the Set Point Temperature

Adjusting the Set Point temperature is done with the ERT30RT in NORMAL mode. Press either the PLUS or MINUS key twice to enter setting mode. After doing this, the displayed Set Point temperature will flash:

Press the PLUS or MINUS key to increase or decrease the Set Point temperature within the range of 10°C to 35°C, in 0.5°C steps. The Set Point temperature will stop flashing while being adjusted, but will flash again once the key is released. Pressing and holding the PLUS or MINUS key for two seconds will increase or decrease the setting quickly.
The thermostat will return to NORMAL mode after a few seconds if no key is pressed.

Frost Protection Mode

The ERT30RT has a Frost Protection mode, but this is only active when the thermostat is operating in Heat mode. The Frost Protection mode temperature is preset at 5°C; this temperature is factory set and cannot be adjusted.

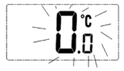
To enable Frost Protection press the PLUS and MINUS keys together for a few seconds, then release them. The display will then display the Frost Protection Set Point and Frost icon:
To disable Frost Protection and return the thermostat to NORMAL mode, press the PLUS and MINUS keys together for a few seconds.

Adjusting the Offset Temperature Setting

The Offset temperature setting can be reviewed or adjusted by entering the Offset Temperature Setting mode. This is done by pressing the PLUS and MINUS keys together for a few seconds. The display will change and display 'Set', as shown here:

To release the keys review the Offset temperature, press either the PLUS or MINUS key; the display will change to show the current Offset temperature:

The thermostat will return to NORMAL mode after a few seconds if no key is pressed. To change the Offset temperature, press either the PLUS or MINUS key to enter the Offset temperature setting mode: the displayed temperature setting will then flash to show that it can be changed:



Press the PLUS or MINUS key to increase or decrease the Offset temperature within the range of – 3.5°C to + 3.5°C, in 0.5°C steps. The Offset temperature will stop flashing while being adjusted, but will flash again once the key is released. Pressing and holding the PLUS or MINUS key for a few seconds will increase or decrease the setting quickly.
The thermostat will return to NORMAL mode after a few seconds if no key is pressed.

Setting the Floor Limit Temperature

The Floor Limit temperature is active when the ERT30RT is set for Internal Air Sensor + Floor Sensor operation, and can be set in two modes: heating or cooling.

Heating:

Changes to the settings are made by pressing the PLUS and MINUS keys together for 7 seconds. The display will change and display 'HL' and a static Heating icon, as shown here:

Releasing the PLUS and MINUS keys will then allow the ERT30RT to change to a flashing display showing the last or default High Limit temperature setting:

Press the PLUS or MINUS key to increase or decrease the High Limit temperature in 0.5°C steps. The High Limit temperature will stop flashing while being adjusted, but will flash again once the key is released. Pressing and holding the PLUS or MINUS key for two seconds will increase or decrease the setting quickly.
The thermostat will change to the Low Limit setting after a few seconds of no key presses, as shown here:

The display will show the last or default Low Limit temperature setting. This can be changed in exactly the same way as the High Limit setting.

The thermostat will return to NORMAL mode after a few seconds if no key is pressed.

Cooling:

If the ERT30RT is set for cooling mode, there is no High Limit setting to adjust. Changes to the settings are made by pressing the PLUS and MINUS keys together for 7 seconds. The display will change and display 'LL' and a static Frost icon, as shown here:

The Low Limit setting for Cooling can be changed in exactly the same way as previously described for Heating.

Floor Sensor Error Mode

The ERT30RT has an inbuilt sensor error mode. If the thermostat detects a fault with the floor sensor an error code will be shown on the display. The display will alternate between the error code and the current room temperature.

Display	Description
22.0	Normal operation – room temperature displayed, backlight off
E1	Error E1 – over floor temperature limit, backlight off
E2	Error E2 – floor sensor open circuit, backlight flashes
E3	Error E3 – floor sensor short circuit, backlight flashes

When the sensor fault is repaired, the thermostat will return to NORMAL mode and display the current room temperature.

OTHER FUNCTIONS AND CONTROLS

Backlight

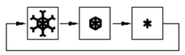
The backlight of the ERT30RT is switched on automatically whenever any of the keys are pressed. The backlight will remain illuminated for a few seconds after the last key press. If the room temperature is higher than 35°C, the backlight will blink on and off; this blinking effect also happens if the thermostat senses that the floor sensor is disconnected or faulty.
The backlight will not illuminate if there is no mains supply to the controller.

Control Status

The ERT30RT indicates on the LCD the control status by using a selection of display icons.

Heat Control: The **HEAT** icon is displayed whenever heat control is activated, along with an animated flame icon.

Cool Control: The **COOL** icon is displayed whenever cool control is activated, along with an animated frost icon.



Reset Button

Resets the Thermostat to restore the settingsfrom internal memory.

Setback Temperature

The ERT30RT has a provision to set a setback temperature; Temperature is reduced by selectable 2°C / 4°C in heating mode; or increased by selectable 2°C / 4°C in cooling mode.

The Setback feature will only operate if a connection is made to the Setback terminal . If the terminal state is HIGH (above 175V AC), the Crescent indicator will be shown on the display, and the Setback temperature will be applied.

Software Protection

The ERT30RT has several protection features built in to the software. These features are:

- The heat control will be automatically turned off if the room temperature is higher than 35°C, or if the floor sensor is faulty.
- In cool mode, inbuilt short cycle protection prevents against rapid switching of the output relay: the minimum delay between the relay being on and off is 3 minutes.
- When operating in Internal Air Sensor + Floor Sensor mode, the ERT30RT will turn off the heat if the floor temperature is greater than the High Limit setting (to prevent any damage to the floor surface). If the floor temperature is below the Low Limit setting, then the heat will be turned on (to help dry the floor, in for example a bathroom). If the ERT30RT is operating in cool mode, then the cooling will be turned off if the floor temperature drops below the Low Limit.

Temperatures outside the Operating Range

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:

Valve Protection Function

The Valve Protection (VP) function is provided as a way to avoid the control valve from sticking or seizing when not being used for long periods (e.g. during the summer).
This function is enabled by setting the Valve Protection DIP switch to the enable position. When enabled, the VP function will turn on the thermostat output to operate the control valve for a period of 5 minutes every week: the VP function will still operate even if the room temperature is higher than 35°C, or if the sensors are faulty or outside of the high or low limits.

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 ERT30RT digital room 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 ERT30RT room thermostat fail to function correctly, check:

- Mains supply to the ERT30RT is switched on.
- Heating and Cooling system is switched on.
- If the ERT30RT 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.

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Product Specification

Model: ERT30RT NOISELESS
Type: Non-programmable Triac version digital room thermostat
designed for underfloor heating applications.
Switch upto 5 thermal actuators.

Operation
Control Method:
1. PWM control (default)
2. On – Off control

Temperature Measurement

	Internal Air Sensor or Internal Air Sensor + Floor Sensor Mode	Remote/Floor Sensor Only Mode
Temperature measurement range	5.0°C – 45.0°C (internal air sensor) 5.0°C – 65.0°C (floor sensor)	5.0°C – 65.0°C
Temperature display range	5.0°C – 45.0°C (internal air sensor) 5.0°C – 45.0°C (floor sensor)	5.0°C – 45.0°C
Temperature display resolution	0.5°C	0.5°C
Set point temperature range	10.0°C – 35.0°C (internal air sensor) (Frost mode 5.0°C)	5.0°C – 45.0°C (Frost mode 5.0°C)
Floor Limit temperature range	Heat mode: 5.0°C – 45.0°C (default 30.0°C) Cool mode: 5.0°C – 45.0°C (default 15.0°C)	No limit setting in this mode
Temperature setting resolution	0.5°C	0.5°C
Temperature offset	- 3.5°C to + 3.5°C in 0.5°C steps (default 0°C)	- 3.5°C to + 3.5°C in 0.5°C steps (default 0°C)

Memory Backup

Type: Internal memory (EEPROM)

Switching

Switching Voltage: 110V AC / 50Hz- 60Hz
Switching Current: Switching current 0.2A resistive
IP30 Class 2

Environment

Operating Temperature: 0°C to + 40°C
Storage Temperature: - 20°C to + 60°C

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