

Thank you for purchasing a BN Thermic product. Manufactured to a high standard, this product will, if used according to these instructions and properly maintained, give you years of trouble free performance. Please ensure instructions remain with your customer for their reference.



REGISTER: PLEASE REGISTER THIS PRODUCT ONLINE TO ACTIVATE YOUR GUARANTEE AT www.bnthermic.co.uk



IMPORTANT: PLEASE READ THESE INSTRUCTIONS, NOTE THE SAFE OPERATIONAL REQUIREMENTS, WARNINGS, AND CAUTIONS. USE THIS PRODUCT CORRECTLY, AND WITH CARE FOR THE PURPOSE FOR WHICH IT IS INTENDED. FAILURE TO DO SO MAY CAUSE DAMAGE AND/OR PERSONAL INJURY AND WILL INVALIDATE THE WARRANTY.



SECTION A – USER INSTRUCTIONS.

For installation instructions go to page 4

1. INTRODUCTION & SPECIFICATION.

The RT16 Thermostat is an easy to install and use 7 Day, 6/1 Day or 5/2 Day Programmable Thermostat which offers four time and temperature changes each day. It is designed to provide automatic time and temperature control for heating applications using air temperature or remote-mounted temperature sensor. All settings are stored in the controller with battery back-up.



RT16- Programmable Heater Controller

| | |
|----------------------------|---|
| Programming | 7 Day, 6+1 Day or 5+2 Day (Default 5+2 Day) |
| Power Supply | 230V ac 50 Hz 16A Maximum Load (Battery back-up) |
| Remote Sensor (Optional) | NTC (10KΩ) +/- 0.5°C at 20°C |
| Temperature Range | 1°C to 45°C (Default 5°C to 30°C) |
| Display | LCD + back light that comes on for short period when any button pressed. |
| Number of Programs Per Day | 4 |
| Tamper Resistant | Facility for locking all buttons or just temperature adjustment buttons. |
| Dimensions | 125mm (H) x 125mm (W) x 90mm (D). |
| Electrical Protection | IP20 |
| Complies with: | EN 301489-1, EMC Directive 2014/30/EU, EN60950-1:2006+a11:2009+a1:2010+a12:2011+a2:2013 |

2. OPERATING GUIDE.



To Set Time and Week Day Number

a) Turn thermostat on by pressing button.












b) Press the button and the minutes will start to flash. Adjust the minutes by pressing the or buttons. When correct, press button and the hours will flash. Set these by pressing the or buttons. When correct, press button and the day number will flash. Set this by pressing the or buttons. When correct, press . Note that Monday is 1, Tuesday 2 etc. If you don't press a button for 5 seconds display returns to standard mode and you will need to repeat section b.

Programming - The controller is preset to the following times and temperatures:-















| Day Number | Period | | | | | | | |
|------------|---------|------|---------|------|-----------|------|-------|------|
| | | | | | | | | |
| | Wake up | | Outdoor | | Back home | | Sleep | |
| 1 | 06:00 | 20°C | 08:00 | 15°C | 17:00 | 20°C | 22:00 | 15°C |
| 2 | 06:00 | 20°C | 08:00 | 15°C | 17:00 | 20°C | 22:00 | 15°C |
| 3 | 06:00 | 20°C | 08:00 | 15°C | 17:00 | 20°C | 22:00 | 15°C |
| 4 | 06:00 | 20°C | 08:00 | 15°C | 17:00 | 20°C | 22:00 | 15°C |
| 5 | 06:00 | 20°C | 08:00 | 15°C | 17:00 | 20°C | 22:00 | 15°C |
| 6 | 08:00 | 20°C | 10:00 | 15°C | 16:00 | 20°C | 23:00 | 15°C |
| 7 | 08:00 | 20°C | 10:00 | 15°C | 16:00 | 20°C | 23:00 | 15°C |

By default the controller is set to 5+2 days this means when programming Monday – Friday settings will all be the same and you can then program different settings for Saturday – Sunday. If you require 7 day or 6+1 day settings enter default settings and adjust parameters first (See section 5).





To adjust or program the time & temperature periods

a) Make sure the thermostat is on, or turn on by pressing  button.
b) Press and hold the  button for 3-5 seconds until the time starts to flash, display will also show “1 2 3 4 5” and the first period symbol will show. Adjust the hours by pressing the  or  buttons. When correct, press  button and the minutes will flash. Set these by pressing the  or  buttons. When correct, press  button and the temperature will flash. Set this by pressing the  or  buttons. When correct, press  and the second period symbol will show and the hours will flash. Now repeat the above to set all 4 periods. Once set, the days will change to 6+7 and you repeat the above procedure to program Saturday and Sunday. Note “1 2 3 4 5” on the display while programming means you are setting all 5 Weekdays “6+7” on the display while setting means you are programming Saturday & Sunday. If you don't press a button for approx 5 seconds the controller will automatically store the settings and exit programming mode.








Run Modes

1 – Turn thermostat On or Off by pressing the  button.
2 – When “ON” press  to toggle between Auto mode  and Manual mode .
3 – When in Auto mode  you can override the set temperature by pressing the  or  buttons. This override will last until the next program period and is shown by both the  and  symbols.
4 – When in Manual mode  you can override the set temperature by pressing the  or  buttons. Note:- The thermostat will stay in Manual mode with the same set temperature until you switch it to Auto mode or turn the thermostat off.
At any time you can return to the auto temperature set point by pressing the  button until only the Auto mode  shows.

Locking the controller

The controller has 2 lock settings selected in the default settings (see section 5). Half lock, when set only allows the On/Off  button to be pressed. Full lock disables all buttons except the unlock sequence. Putting the controller in lock mode indicated by a  symbol on the screen is done by pressing and holding the  button until the  symbol appears. Unlocking is the reverse process.

Holiday Mode

Holiday days (count down) and temperature set point can be set so that the heating runs at a lower temperature whilst you are away and reverts back to normal when you return. To access, make sure controller is on and then press  button for 3-5 seconds until the screen displays Off change to On by using the  or  buttons. Then press  button to set the number of days you are away. Then press  button to set the temperature required while you are away. Holiday mode is shown by a  symbol displayed on the screen. Once set, to exit holiday mode early press the  button.

SECTION B – INSTALLATION AND MASTER SETTINGS.

3. INSTALLATION SAFETY INSTRUCTIONS.

3.1 ELECTRICAL SAFETY

WARNING! It is the responsibility of the owner and the installer to read, understand and comply with the following:

You must check all electrical products, before use, to ensure that they are safe. You must inspect power cables, plugs, sockets and any other connectors for wear or damage. You must ensure that the risk of electric shock is minimised by the installation of appropriate safety devices. A Residual Current Circuit Breaker (RCCB) should be incorporated in the main distribution board. If in any doubt consult a qualified electrician.

You must also read and understand the following instructions concerning electrical safety.

- The Health & Safety at Work Act 1974 makes owners of electrical appliances responsible for the safe condition of those appliances and the safety of the appliance operators. If in any doubt about electrical safety, contact a qualified electrician.
- Installation should always be carried out by a qualified electrician or a competent person in accordance with current electrical regulation.
- Ensure that the cables are always protected against short circuit and overload.
- The unit should be protected by a suitably rated isolator and fuse or MCB.
- The aluminium case must be suitably earthed.
- This controller is IP20 rated and is suitable for indoor or under cover use only.

3.2 GENERAL SAFETY INSTRUCTIONS

- ✓ Remove all packaging and store it away from children, check the package and controller for visible damage or tampering.
- ✓ Familiarise yourself with the applications and limitations of the controller.
- ✓ Only use recommended attachments and parts. To use unauthorised parts may be dangerous and will invalidate your warranty.
- X **DO NOT** use in areas where hazardous gasses or dusts may be present.
- X **DO NOT** disassemble the controller for any reason. There are no user serviceable parts inside.
- X **DO NOT** use this controller to perform a task for which it has not been designed.

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

4. INSTALLATION.

The RT16 thermostat can be used with its internal air sensor or if required with an optional remote air sensor or optional remote black bulb sensor.



Optional Air Sensor
Part No. CXS



Optional Black Bulb Sensor
Part No. BBS

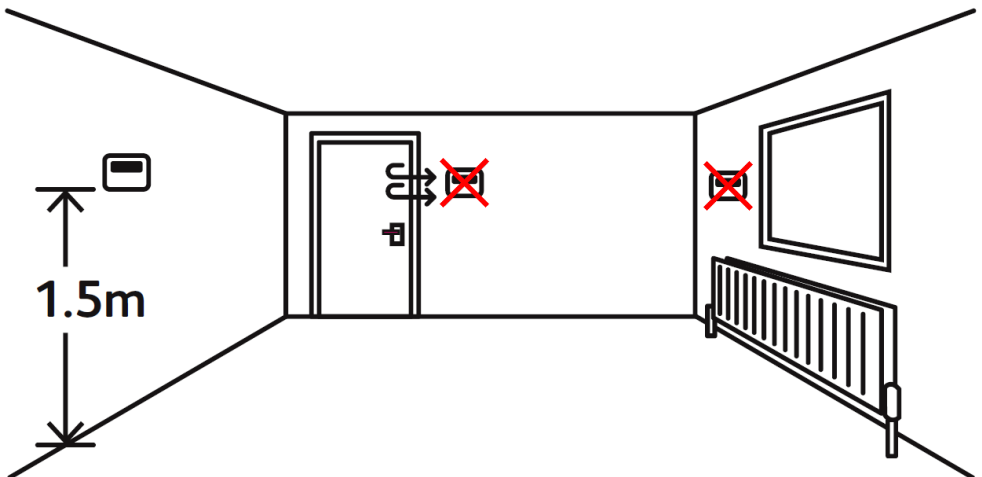


Optional IP Rated Black Bulb Sensor
Part No. BBSIP

4.1 CHOOSING A LOCATION FOR YOUR RT16 OR REMOTE SENSORS

The RT16 controller or sensors should be mounted on an internal wall approximately 1.5 meters from floor level and should be in a position away from draughts, direct heat and sunlight.

If you decide to use remote sensors you will need to change "A4" to "N2" on the master / default settings. See page 7 for more information.



4.2 INSTALLING THE RT16

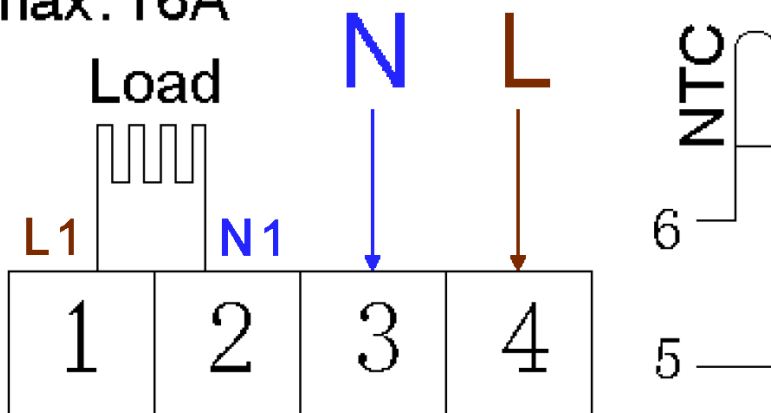
Screw the RT16 in position using suitable fixtures and fittings.

There are 4 holes in the corners of the case or you can drill additional holes in the back.







- 1) Wire the thermostat as per picture to the right and below making sure all the terminals are done up tightly.
- 2) If you are using a remote sensor connect to terminals 5 and 6 (marked NTC) of the thermostat using any insulated copper wire. Polarity of the sensor does not matter. (you will also need to change the default settings to activate the remote sensor see page 7)
- 3) Do NOT exceed total load of 16A. For loads greater than this, use a contactor with the thermostat controlling the coil of the contactor.




230V ac 50/60Hz
I_{max}: 16A



5. CHANGING THE MASTER / DEFAULT SETTINGS.

There are various master / default settings that can be changed by entering the default settings. To enter these settings, turn off the thermostat by pressing the  button. Then press and hold the  button for 3-5 seconds until the A1 appears on the screen. You are now in settings mode and if you don't press any button for 5 seconds the display reverts back to off mode. Press  button to switch to next option and press  or  buttons to adjust the data. If you wish to exit the settings without waiting 5 seconds press the  button.

| No. | Setting Options | Data Setting Function | Default |
|-----|---|--|------------------------|
| A1 | Temperature calibration | -9°C to +9°C in 0.5°C steps. (Can be used to tune temperature reading so it matches another thermostat) | 0°C |
| A2 | Differential between set point and On and Off | 0.5°C - 2.5°C in 0.5°C steps. | 0.5°C |
| A3 | Remote sensor differential | 1°C - 9°C in 1°C steps. | 2°C |
| A4 | Temperature sensor used | N1= Built in temperature sensor. N2= Remote temperature sensor. N3= Do NOT use. Select either N1 or N2. | N3 See Note A below |
| A5 | lock settings | 0 = half lock 1 = full lock | 0 |
| A6 | Maximum set point of remote sensor. | 5°C - 45°C | 27°C |
| A7 | Minimum set point of remote sensor. | 1°C - 10°C or -- (-- = Not active) | 5°C |
| A8 | Minimum set point of internal sensor. | 1°C - 10°C | 5°C |
| A9 | Maximum set point of internal sensor. | 20°C - 45°C | 30°C |
| AA | Power Cut function. | 0 = Power heating as per controller memory. 1 = Shut down controller after power cut. 2 = Shutdown heating but turn controller on after power cut. | 0 |
| AB | Programming selection | 0 = 5 + 2 (same settings Mon-Fri + Sat-Sun) 1 = 6 + 1 (same settings Mon-Sat + Sun) 2 = 7 (different settings each day Mon-Sun) | 0 |
| AC | Window Opening detection | -- = Not active 10 - 20°C = Sudden drop set point at which heating turns off. | -- |
| AD | Window Opening OFF period | 5 - 40 minutes (only if AC above is set to a temperature and not --). | 10 |
| AE | Factory Reset | Press & hold  key until whole screen shows. If you Factory Reset please ensure you set A4 above correctly otherwise the thermostat will give you an error message. | |

NOTE A – Unit supplied with sensor set to N1 (internal sensor) BUT if you perform a “Factory reset” this will need to be reset from N3 back to N1 or N2.

6. SENSOR FAULT CODES.

E1 or E2 fault codes are displayed if the temperature sensors are faulty or are not connected. The thermostat will stop heating until the fault is corrected.



E1= Internal sensor faulty.

E2 = External sensor faulty or missing / not present.

If in the master settings shown overleaf, you have selected N3 for option A4 (Sensors used) you will get a fault code and the thermostat will not work, please select either N1 if you are using the internal sensor or N2 if you are using an external mounted sensor.

NOTE: It is our policy to continually improve products and as such we reserve the right to alter data, specifications and component parts without prior notice.



This product conforms to EU Directive 2002/96/EC.

This appliance bears the symbol of the crossed waste bin. This indicates that, at the end of its useful life, it must not be disposed of as domestic waste, but must be taken to a collection centre for waste electrical and electronic equipment. It is the user's responsibility to dispose of this appliance through the appropriate channels. Failure to do so may incur penalties established by laws governing waste disposal.

REGISTER: Activate your warranty by registering online at www.bnthermic.co.uk and retain this installation data for future reference.

IMPORTANT: No liability is accepted for incorrect use of this product.

WARRANTY: Your BN Themic product is guaranteed for one year from date of purchase. We will repair or replace at our discretion any part found to be defective. We cannot assume any consequential liability. This guarantee in no way prejudices your rights under common law and is offered as an addition to consumer liability rights.

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