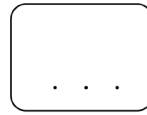## NS1002-E Installation Guide *Rev 1.0*

⚡ CAUTION: High Voltage Wires

WARNING Electricity is dangerous. Before commencing work, ensure that you read and understand these instructions and isolate the relevant circuit. **This product should only be installed by a qualified electrician** and should be installed in accordance to BS 7671 (IEE Wiring Regulations), or to another equivalent standard.
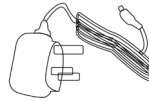
Whats in the box

1 x Assembled Relay Module consisting of
       1 x Control Board
       1 x Wall Mount
       1 X Front Cover
1 x Gateway
1 x Network Cable
1 x Power Supply
1 x Relay Module Screw Pack
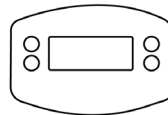
Gateway   Relay Module

Power Supply   Relay Module Screw Pack   Network Cable

Also Included in NS1002-E2
1 x Assembled Room Thermostat consisting of
       1 x Room Thermostat
       1 x Wall Mount
1 x Thermostat screw pack
2 x Batteries

Room Thermostat   Thermostat Screw Pack   Batteries

Introduction

The NS1002-E series is designed to control an Electric Heater with a maximum power output of 2kw. This could be a panel heater, Electric Radiator, Infra Red Heater, Electric Towel Rail, Storage Heater or an Electric Underfloor Heating zone. More heaters / zones can be controlled, simply by adding more NS1002-E units to your system.

The NS1002-E can either control your heater in a timed mode (Relay Module Only) using the heater's own Thermostat to control the room temperature when on. Or by adding our Wireless Thermostat, the Room times and temperatures can be fully profiled, remotely controlled and monitored.

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Specifications

Relay Module

Power Supply:	230V~ 50...60Hz, 2.5W (Max)
Switch Type:	1 x SPST
Switch Rating:	8 Amps (2 KW)
Radio Frequency:	2.4 GHz
Dimensions:	160 x 100 x 18 mm (35mm including recessed wallmount)

Room Thermostat

Thermostat Power Supply:	2x AA batteries
Controllable Temperature Range:	1.5 – 34.5°C
Frost Protection:	Programmable from 0.5 - 30°C
Radio Frequency:	2.4 GHz
Dimensions:	119 x 88 x 22 mm

Gateway

Power input:	5V 1A
Internet Connection:	Wired Ethernet Cable
Radio Frequency:	2.4 GHz
Dimensions:	94 x 79 x 24 mm

Radio Signal

Consideration for location of your new system components and the affects that this may have on the radio signal is extremely important. The signal will travel between units in a straight line and will degrade both with distance and (much more importantly) objects that it has to pass through.

The Relay Module needs to connect to the Wireless Internet Gateway, or another Relay Module that is connected to the Wireless Internet Gateway.

The Thermostat needs to connect to EITHER the Wireless Internet Gateway OR a Relay Module (It will automatically select the best signal path)

Every house is different and this is NOT a gaurantee, but as a guide, the units should be able to communicate with each other through two single skin brick or stud walls.

If the above is not possible, then you may need to consider adding our repeater(s) into the system, or moving one or more of the system components.

Also, the radio can be adversely affected by large metal objects such as an electric heater, radiators and mirrors. For best performance, ensure that your units are placed at least 1 metre away from such objects.
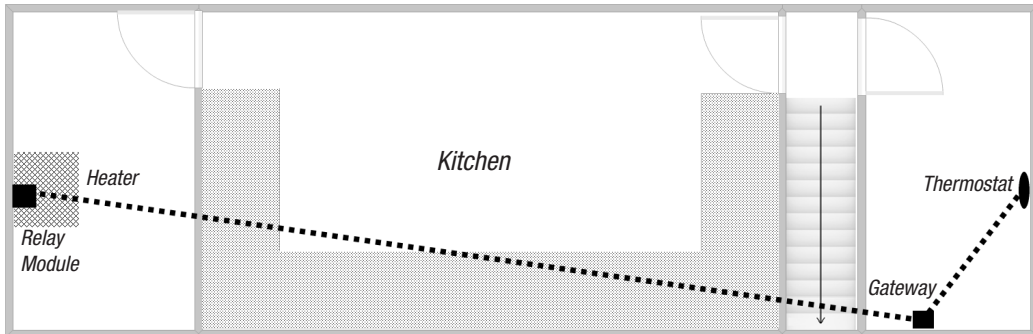
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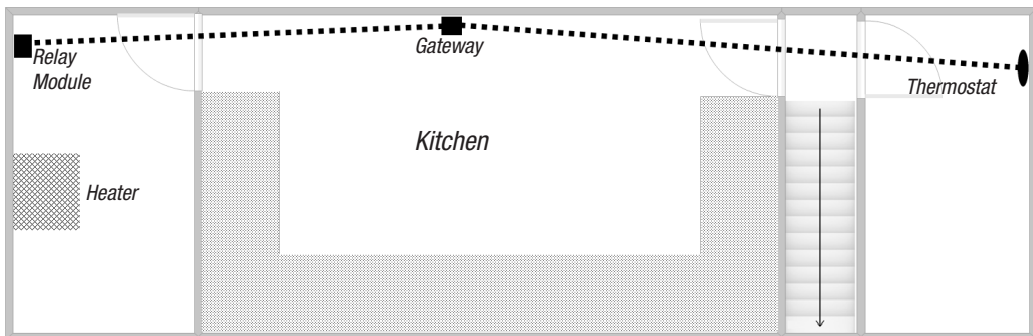contact@inspirehomeautomation.co.uk
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Bad Positioning

The above image shows the path that the signal will travel to communicate between the 3 units.
This is an example of badly positioned items for the following reasons.

- ✗ The Relay Module is position under the Heater
- ✗ The signal between the Relay Module and Gateway needs to travel through three walls, a staircase and various kitchen objects, including Units, Oven and Fridge.
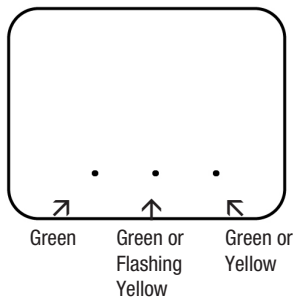
Good Positioning

With a few simple changes we have vastly improved the signal.

- ✓ The Relay Module is positioned away from metal objects.
- ✓ The Gateway is positioned centrally between the Thermostat and Relay Module.
- ✓ The Room Thermostat has been positioned to avoid the staircase.

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Installation - Gateway

Plug the Gateway into a spare ethernet port on the router using the supplied cable, then plug the supplied power adapter into the back of the gateway and plug into a spare power outlet. Allow 30 seconds for the Gateway to power up. You should see a Green Power Light and a Flashing Amber or Green centre light. The Radio light may be Amber or Green, depending on whether other units are switched on.

```
         .    .    .
         ↗    ↑    ↖
      Green  Green or  Green or
             Flashing  Yellow
             Yellow
```

If the Middle light is not on, then the device does not have a valid connection to our Web Servers. Try the following.

• Move our device to a different port. Some routers only have a single 10Mbps port. Try all the ports, especially port 1 and port 4.
• Do you have a valid internet connection? Check by plugging in another device.
• Unplug both the Router and the Gateway. Wait 30 seconds, then plug the router back in. Wait 2 minutes, then plug our Gateway back in.

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Installation - Relay Module

Caution – Fire Risk

This system allows heaters to be switched on/off remotely as well as timed functions. You must ensure that there is no risk of fire present by the potential of heaters being switched on when unattended. To ensure this, heaters should be of the fixed type and installed exactly according to the manufactures instructions. Heaters that can be moved / tipped such as fan heaters or portable convector heaters should not be controlled by this system.

Please note that the NS1002 only provides disconnection on a single pole (Live) and as such, is NOT a substitute for a double pole isolator switch as required by most heater manufacturers. The NS1002 should be wired after the Isolator switch.
The terminal blocks are designed for a maximum cable size of 2.5mm2

Tools Required (Not supplied)
Philips screwdriver
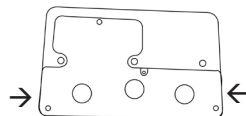Flat blade screwdriver
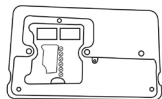Long nosed pliers
BS4662 back box

Isolate the existing supply before proceeding

Remove the front cover from the Relay Module, this should easily lift of the unit. If the unit has been 'clicked' in place, then grip the recessed part of the rear and pull the chrome part of the front cover off.
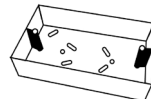
Pull out the control panel from the wall mount by placing two fingers on either side whilst holding the wall mount and pulling apart.

Then secure the wall mount onto the single or double gang back box using the two M3 screws provided. If you are not using an existing back box then you will either need to sink a backbox into the wall, or use an external back box. You can find these in all good hardware stores.
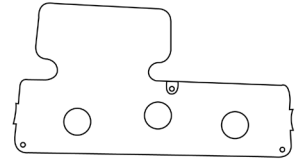
This unit is designed for fixed wiring only. Wire the unit up following the circuit schematic on page 6, ensuring that all wires are securely held and that no bare copper is visible outside the connector block.
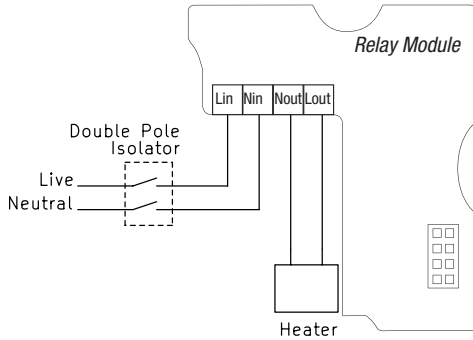
All diagrams are in schematic form and earths have been omitted on the drawings for clarity. The NS1002 is a class 2 device and does not require an earth. **Ensure that you do not break earth continuity to the rest of the circuit.** You may need to join the existing earth leads together using a terminal strip.

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For guidance please refer to the wiring diagram below.

After the wiring has been completed, Push the control board assembly into place and secure using the 4 screws. Before putting on the front cover, we suggest that you test the unit for correct operation.
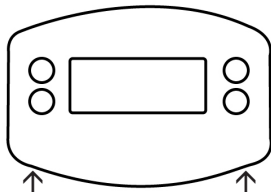
Wiring Diagrams

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Installation - Thermostat (NS1002-E2 Models Only)

Remove the two securing screws on the bottom edge of the thermostat and lift the thermostat off the wall mount.

The wall mount is supplied with fixings suitable for a solid wall. If you are fixing to another type of wall, then different fixings may need to be obtained.

Using the wall mount as a template, mark the location of the two holes on the wall. For reference, the two holes are 75.5 mm apart.
Drill suitable holes (6mm diameter for the wall plugs supplied), insert wall plugs and screw the wall mount to the wall.
WARNING be aware of any buried cables before drilling.
Install two AA Alkaline batteries (Supplied) into the back of the room thermostat, and ensure that the display is illuminated.

It is easiest to start the two securing screws off before placing it on the wall, however do ensure that these screws do not protrude inside the room thermostat.
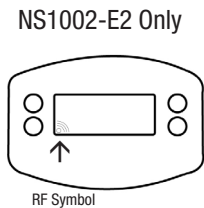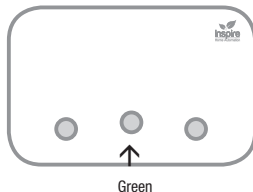Carefully locate the room thermostat over the wall mount. The room thermostat should slide over the wall mount with little effort. If it does not, do not force it, but check the following then try again

- ° Securing screws do not protrude into the thermostat
- ° Wall mount screws are the correct size

Hold the room thermostat in place and lightly tighten the screws underneath to secure the unit – these screws only need the lightest of pressure and must not be over tightened

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Testing the system

You should have the following.

NS1002-E2 Only

Green   Flashing   Green   Green   RF Symbol
         Amber or
         Green

If there is no RF link displayed on the Thermostat, and it was switched on before the Gateway, it may take up to 10 minutes to link up. To avoid waiting, ensure the Gateway is plugged in, then reset the Thermostat by pressing and holding all four buttons for 5 seconds. The unit should reset and connect within 30 seconds.

Without a Thermostat (NS1002-E1)

The Power Button Light should be out. Press the Power Button Light twice to switch it on.
It will light green and the heater should switch on. Check that the heater is producing heat. Press the Power Button Light again to turn the heater off.

With a Thermostat (NS1002-E2)

The Power light should be green. On the Thermostat, repeatedly press the 'S' key to cycle between the modes until 'ON' is displayed. Then press and hold the '+' key to raise the target temperature several degrees above the room temperature. eg 25 degrees. The CH light on the Relay Module should start to flash Green. Check that the heater has fired up. Press the 'S' key again on the Thermostat to switch it off.

Once you have ascertained that the unit is functioning correctly, push the front cover over the Relay Module until it clips into place. Finally remove the protective film from the cover.

Please leave this installation manual with the user.

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Pairing

Your units were all pre paired before they left the factory. If they do not connect up correctly, and you have waited for at least 10 minutes, the most likely reason is radio range, see the section on 'Radio Signal' above.

You may need to pair the units if you have added new units to an existing system, or wish to change which zones are controlled by which Thermostat.

To Pair the Relay Module to the Internet Gateway.
- Press the pairing button on the back of the gateway, (The RF light will flash amber)
- Press the pairing button twice on the Relay Module.

To Pair the Thermostat to the Internet Gateway.
- Press the pairing button on the back of the gateway, (The RF light will flash amber)
- Press and hold the M & S keys on the Thermostat for 5 seconds, the RF symbol, bottom left should start to flash.

To Pair a Thermostat to a Relay Module (Only possible after both Thermostat and Relay Module are connected to the Internet Gateway)
- Press the pairing button on the Relay Module, this will make the Power and Pairing lights flash. Then press the Power button to pair this Relay Module to a Thermostat, this will start the light flashing,
- Press and hold the 'S' and '-' keys on the Room Thermostat until the RF indicator in the lower left hand corner starts to flash.

Note that if the Thermostat displays "FULL" while doing this, it indicates that the Thermostat is currently paired to the maximum amount of Relay Modules. Unpair an existing Relay Module, then try again. `

Repeat the above proceedure for any additional Relay Modules that you want controlled from the same Thermostat. Each Thermostat can control up to 4 Relay Modules.

To remove a Thermostat from a Relay Module
- Press the pairing button on the Relay Module, this will make the Power and Pairing lights flash.
- Press and hold the Power button for 5 seconds. The Power light should go out and the Relay Module will now not be controlled by the Thermostat.

Please note that each Relay Module can only be paired to a single Thermostat. Pairing a 2nd Thermostat to a Relay Module will cause it to unpair from the previous Thermostat.

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