# ResiAIR Installation Guide V1.2

## Introduction

The ResiAIR device is a smart multi sensor array and acts a central hub for other devices within a system. It has wired connections for power (5v) and MODBUS which is how it communicates with its heating controller and energy meter if required. The device communicates with the Rescentral servers via a Wi-Fi connection and must be paired by the install engineer. resiNODE devices are installed inside the light switches or inside the light to be controlled, location of the resiNODE is dependent on the building wiring and does require a permanent Live and Neutral to operate. The heating control element is dependent on what has been installed or has been specified to be installed, there are various configurations available which are described in the guide. The energy meter also has various configuration options available which are described in this guide.

A fundamental requirement for the devices is WIFI and the SSID and password for each dwelling needs to be available for setup and must be recorded as part of the building install pack.

Basic system layout
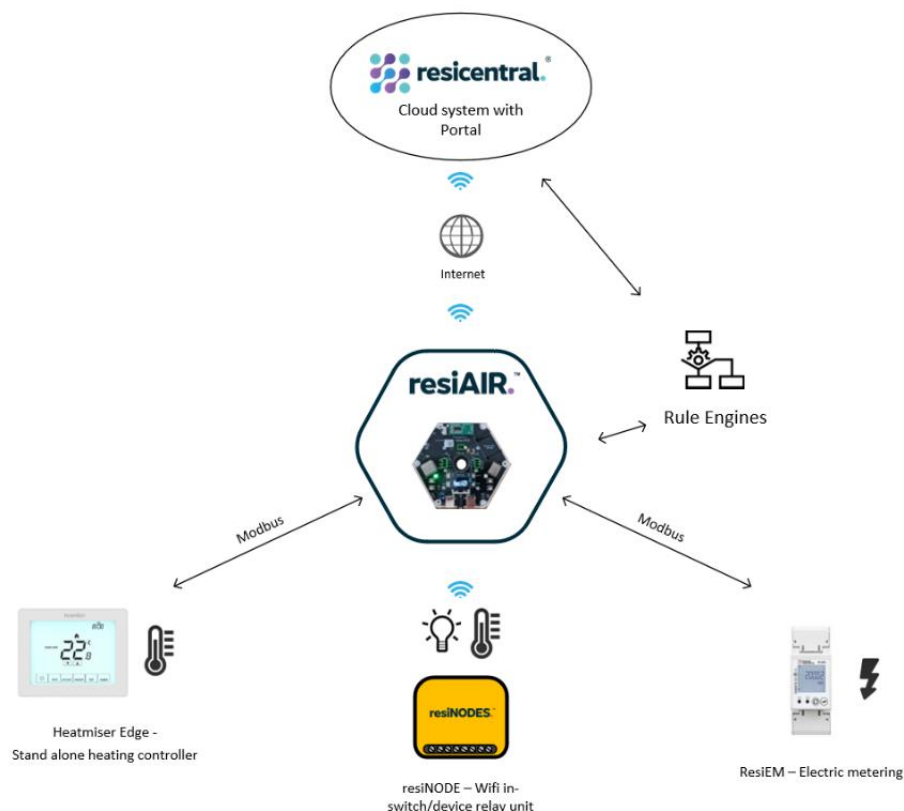
# ResiAIR

The ResiAIR device is to be installed in a central location in the dwelling so it can have a general overview of the covered area, one of the most critical sensors is the onboard microwave detector which is the primary device used for occupancy detection, the ideal location is on a wall or ceiling central to the living space. The device does need 5v power to operate and can come from various places within a system. An example of an ideal powering option is if the system is due to have a cabled energy meter installed, this will be located near the consumer unit where either a DIN mount or wall mount PSU can be installed and 2 of the 4 cores used for the MODBUS connection and 2 used for the 5v power. Other 5v DC options are available.

**Powering and setup**

The device first needs to be setup before final installation.

1. Install power supply.
2. Connect required connections (5v & MODBUS).
3. Power on, wait 20 seconds for boot process.
4. Hold "Enter" for 5 seconds.
5. Then press reboot.
6. Connect to SSID transmitted from device.
7. Goto 192.168.4.1
8. Set Wi-Fi credentials.
9. Press "save" (password should change to ***)
10. Press Reboot
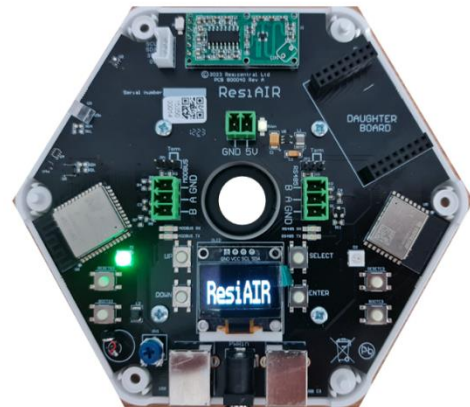
When rebooted, the LED indicator should show green showing it has a server connection. The up and down buttons will allow you to scroll through the sensor reading and display info such as IP and MAC addresses.

The MAC address must be recorded on the install Schedule.

**Enclosure and mounting**

1. When device is successfully connected to the WIFI network the device can be mounted into its final position.
2. Instal the circular mount onto the mounting surface and feed cables through the central hole
3. Install the bracket onto the back of the ResiAIR device.
4. Reconnect cables within the unit.
5. Ensure all segments are clipped in place included the vented piece which is located on the top left of the above image.
6. Press the lid into place and install the 3 screws in the rear.
7. Mount the ResiAIR device onto it wall/ceiling mount.

## ResiNODE

ResiNODES are small smart Wi-Fi based relay units, these can be used to control lighting by being installed inside a light switch or as part of a heating system by being installed in a spur for and electric heater or as part of a boiler as a "call" device. In most cases a link is required between L and O as the relay is a dry contact.

When a ResiNODE is powered, it will create a WIFI hotspot to connect a device to such as a phone/tablet/laptop. The WIFI name (SSID) will be recognisable as "ShellyPlus1 -AABBCC123456" and won't require a password to connect. When connected open a web browser and go to the address provided below.

1. Install as per wiring diagram.
2. Power on 240v
3. Check for operation, be default the switch should operate exactly as it did prior to installation of the resiNODE.
4. Connect to SSID transmitted from device.
5. Go 192.168.33.1
6. Go to - Settings – WI-FI
7. Set Wi-Fi credentials for property - Save.
8. Go to - Settings – MQTT
   a. Tick "enable MQTT network".
   b. Set Server address*
   c. Set connection type to "TLS no validation".
   d. Set MQTT prefix as "site/location/device" (description below)
   e. Tick "Enable MQTT control"
   f. Tick "Generic status updates over MQTT"
   g. Set MQTT user credentials (username & password) * - Save.
9. Set Switch Type**
10. Go to Settings – Authentication, set lock password* - Save.
11. Go to Settings – Cloud, untick, "enable cloud" - Save.
12. Go to Settings – Bluetooth, untick "enable Bluetooth" - Save
13. Go to Settings – Access point, untick "Enable access point" - Save.
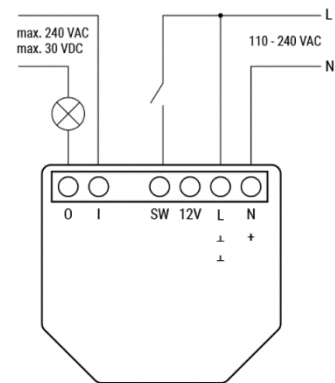
*These details will be provided as part of the site-specific install pack

** only if required

**MQTT Prefix**

An MQTT prefix is required for each device depending on its use below is how it is set, and details will be provided by Resicentral on what this should be for each site.

"site" – this is the site name and must be the same for every device on the site, i.e., "testfacility1"

"location" – this is the dwelling name and must be the same for every device in the dwelling, i.e. "101"

"device" – this is the device name and depends on the use of the resiNODE, i.e. "light01" or "heater01"

In a building all the lighting resiNODEs need to have the same room name so all the nodes that are installed in living rooms want to be named "light01" and all the kitchen lights need to be "light02", bathrooms – "light03" etc. There CANNOT be any 2 devices with the same site/location/device combination. ResiNODEs used for heaters do not need to be specific to a room but also cannot have the same device name.

A final example of a complete MQTT prefix would be – **theshard/201/light02**, this would be the resiNODE installed in the kitchen light switch in apartment 201 at the Shard.

# Heatmiser

To control the heating system in the dwelling we use a thermostat which has MODBUS control, this thermostat can replace the existing heating controller on a wet system or become a central controller for an electric system. The thermostat requires a 240v supply and has a dry relay contact which is found in most thermostats to control the "call" signal to the boiler on a wet system. If there is no cable for the call signal or this is replacing a wireless thermostat, we can use a resiNODE to wirelessly trigger the boiler. In the case of electric heaters, we can either use the contact to trigger a contactor to apply and remove power. To use an existing electric heater, the heater must be able to be put into a manual on mode or have no controls that reset when power is removed.

If a ResiNODE is being used the MQTT prefix must be set as site/location/heater01 and increment the device names for every additional heater Setup info for ResiNODES are on the previous page.
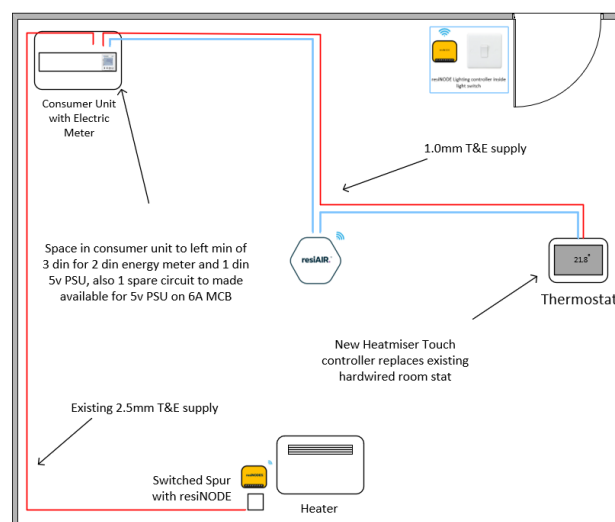
**Typical Heating with Combi Boiler**
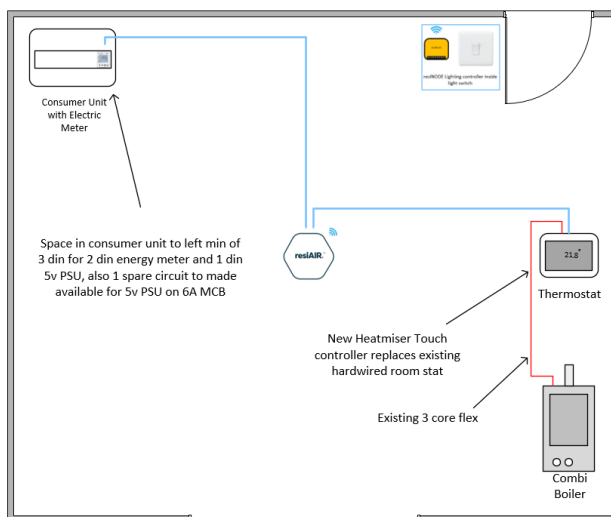
**Typical Heating with Electric Heater and Contactor**
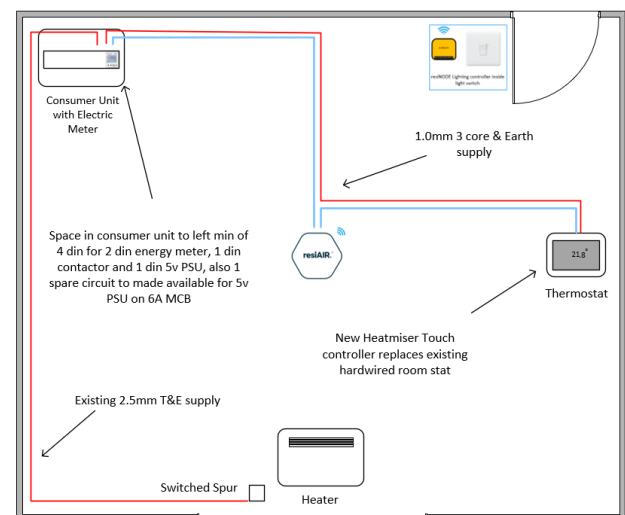
**Typical Heating with Electric Heater and resiNODE**

1. Install as system depending on existing design and requirements. MODBUS connections A + B are connected via green and white cores of the 4 core Belden cable to the ResiAIR device.
2. Turn on power supply to device.
3. Set Modbus address to 2 following the included instructions with each controller.
4. If a typical schedule is required, this must be programmed following the included instructions.
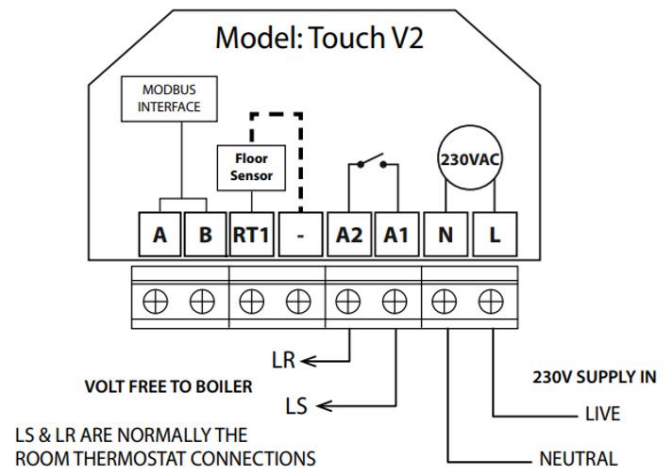


## ResiEM

A ResiEM energy meter is connected to the incoming Dwelling supply and can be achieved by a direct connection or a CT Meter. Both options have a MODBUS output and must be connected to the ResiAIR device via a Belden cable. The meter is self-powered and doesn't require any further setup beyond its connections.

The meter can be installed inside the existing consumer unit or in a separate enclose adjacent to the consumer unit. The MODBUS connections on each meter are marked + & - these connect to A & B on the resiAIR device.

Note. The direct connect meters neutral connection is for voltage reference only and can only accommodate 1x meter tail or smaller.
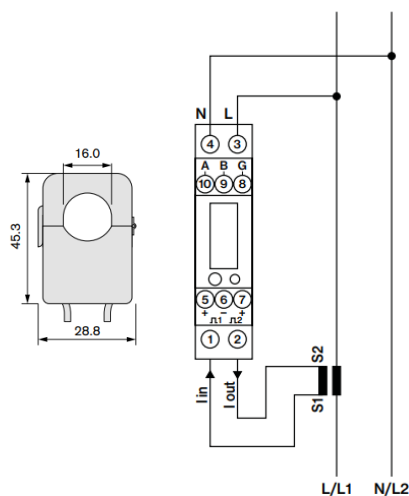
CT Meter  (100A)                    Direct Connect Meter (100A)
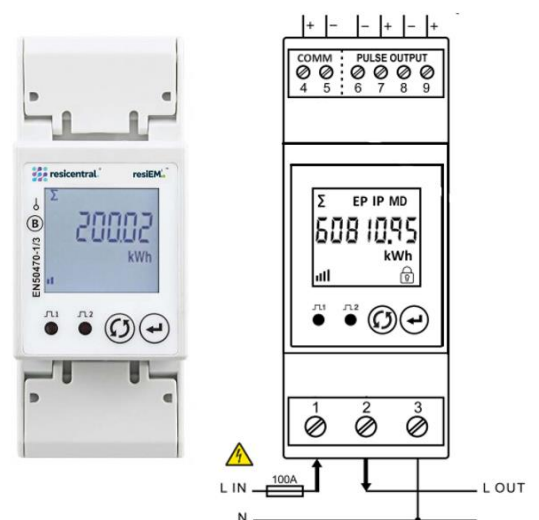
## ResiFlow

ResiFlow is a pulse counting unit that can be connected to pulse meters for Gas/Electric/Oil systems.

The device communicates over Wi-Fi in the same way a resiNODE does and is set up in a similar way. A 5v supply is required which is the same as the ResiAIR so using a Beldon cable they can be connected together for power. If needed a separate supply can be used.

**Connections for ResiFlow**
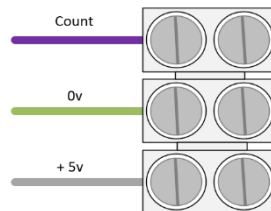


For setup of the ResiFlow sensor please see the above ResiNODEs section. When configuring a ResiFlow sensor the below device types can be used.

- Site/location/gasflow01
- Site/location/waterflow01

Example MQTT prefix - **theshard/201/gasflow01**

## Completion Checklist

1. Install Schedule completed including Node mappings and ResiAIR MAC address?
2. ResiNODES operating in each switch and all settings applied?
3. Heatmiser operating and connected – readings are shown on OLED display of ResiAIR?
4. ResiEM operating and connected – readings are shown on OLED display of ResiAIR?

Any Queries or assistance on system setup please contact - **Technical@resicentral.co.uk**