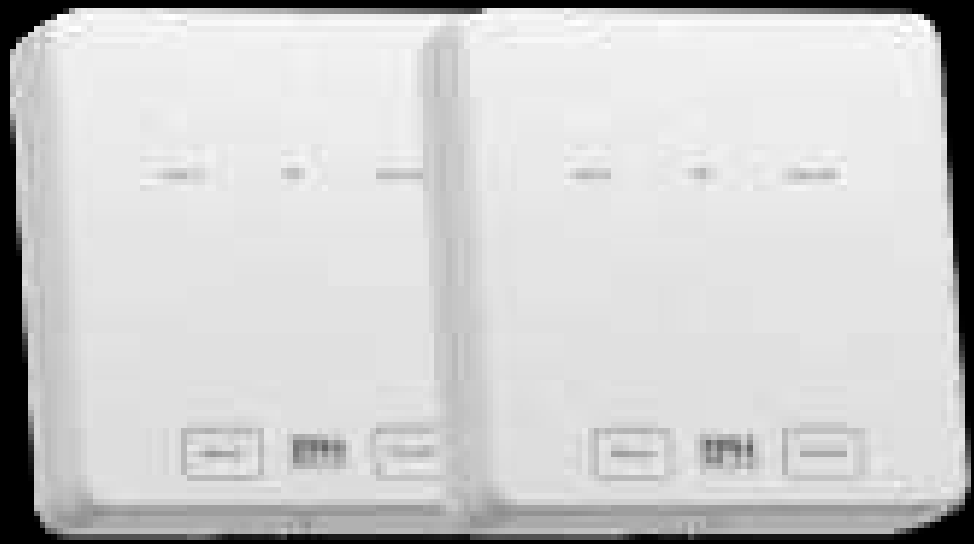
# TR1 TR2 V2



## RF Mains Switch

Installation and Operation Guide

EPH CONTROLS

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# How your TR1 TR2V2 works

Your TR1 TR2V2 is used to send a wireless signal from one location to another when running cables is difficult, expensive or otherwise not an option.

The product comprises of two devices: a TR1V2 and a TR2V2.

Both devices are pre-paired during manufacturing for user convenience.

When 230V is applied to the Live in terminal of the TR1V2, the COM and Live out connection closes which sends voltage from Live out on the TR2V2.

It is possible to send a wireless signal in one direction or both.

When a signal is sent from the TR1V2 to the TR2V2 a green light will activate on the TR2V2.

When the TR2V2 sends a signal to the TR1V2 a green light will activate on the TR1V2.

Common uses include sending a signal from a programmer to a boiler or hot water cylinder which are in a different locations. These are also used to control pump overrun and many other applications.

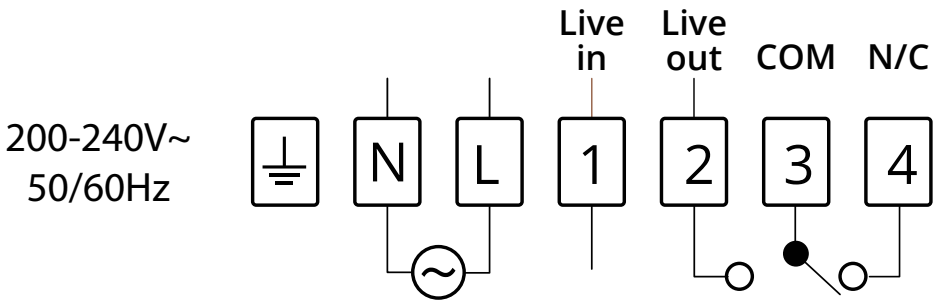
It is possible to have more than one set of TR1 TR2V2 where required.

Please see page 9-13 for wiring examples.

# Specifications & Wiring

| | |
|---|---|
| Power supply: | 200 - 240Vac 50-60Hz |
| Contact rating: | 230 Vac 10(3)A |
| Ambient temperature: | 0…45˚C |
| Automatic action: | Type 1.C. |
| Appliance classes: | Class II appliance ⧈ |
| Pollution degree: | Pollution degree 2 |
| IP Rating: | IP20 |
| Rated Impulse Voltage: | Resistance to voltage surge 2500V as per EN 60730 |

## Internal wiring diagram for TR1TR2$^{V2}$




**CAUTION!**

Installation should only be carried out by a qualified person and in accordance with wiring regulations.

**Switching Options**

**Mains Switching**
- Link L to 3

**Low Voltage Switching**
- Remove the external controls link from the boiler PCB.
- Connect 2 and 3 to these terminals.

# Mounting & Installation

1) The TR1V2 should be wall mounted in an area within 30 metres of the TR2V2.
It is important that both TR1V2 & TR2V2 are mounted more than 25cm away from metal objects as this will affect communication.

   The TR1V2 & TR2V2 should be installed at least 1 metre from any electronic devices such as radio, TV, microwave or wireless network adapter.

   They can be fitted to:
   1. Single gang recessed back box
   2. Surface mounting boxes
   3. Directly mounted on a wall

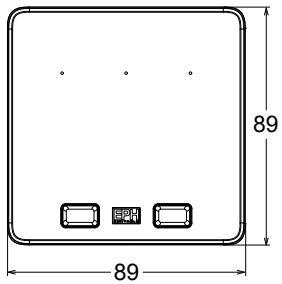
2) Use a Phillips screw driver to loosen the screws of the backplate on the bottom of the TR1V2 & TR2V2, lift upwards from the bottom and remove from the backplate. (see page 4)

3) Screw the backplate to the wall with the screws provided.

4) Wire the backplate as per the wiring diagram on page 2.

5) Mount the TR1V2 & TR2V2 on the backplate making sure the pins and the backplate contacts are making a sound connection. Push the TR1V2 & TR2V2 flush to the surface and tighten the screws of the backplate from the bottom. (See page 4)

**1**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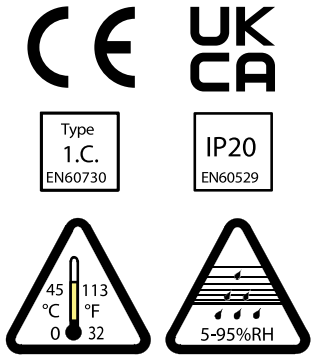
89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IP20
EN60529
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5-95%RH

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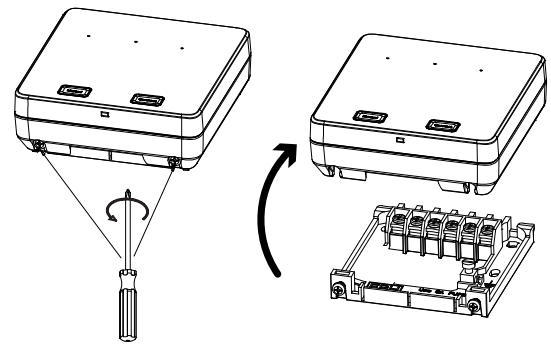

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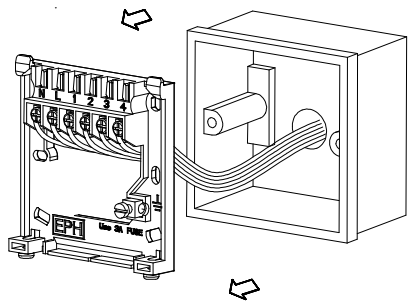
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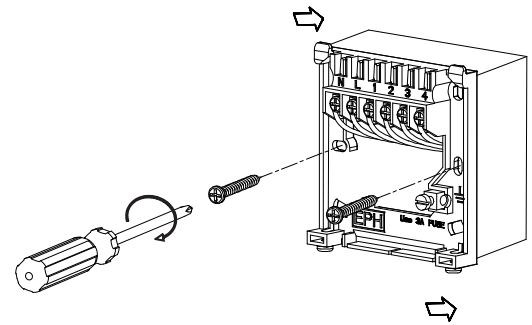
**4**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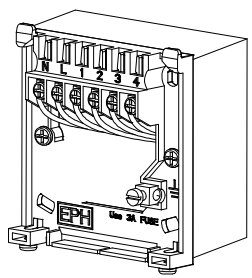
**5**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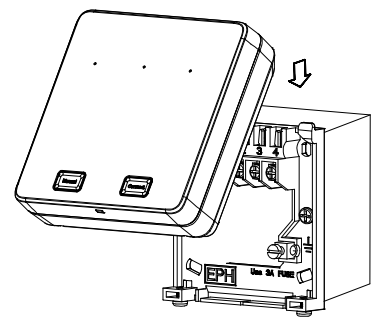
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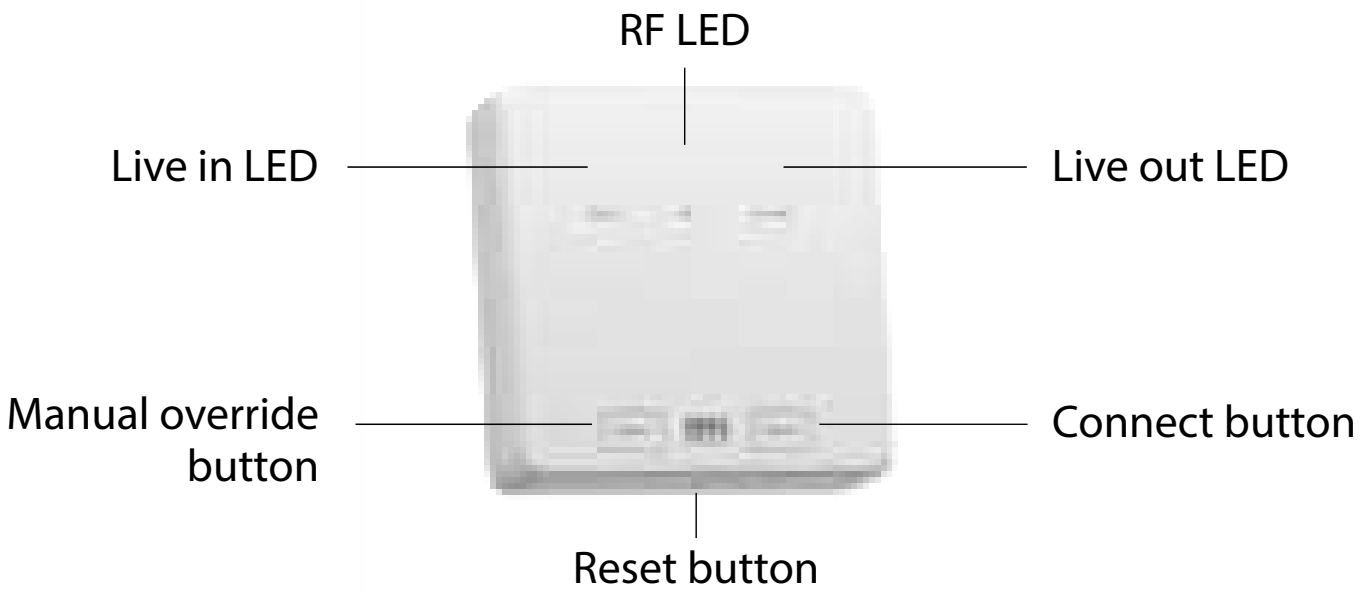
# Button / LED Description




| | | |
|---|---|---|
| Manual | Manual | Press to activate or deactivate the Live out terminal. |
| Connect | Connect | Hold for 3 seconds to initialise the pairing process. The RF light will flash. |
| ■ | Reset | Press to reset the TR1 TR2$^{V2}$. |

**Note:** The connection procedure is not required as both TR1 & TR2$^{V2}$ are pre-paired.

# LED Description

| LED | Colour | Description |
|---|---|---|
| Live in LED | Red | There is no voltage on Live in terminal. |
| | Green | There is voltage on Live in terminal - Now an RF signal will be sent to the other RF Mains Switch to activate the Live out terminal. |
| | | |
| RF LED | White | Solid White LED indicating that the thermostat is connected. |
| | | The RF light will double flash when the thermostat is disconnected. Check thermostat pairing. |
| | | **Note:** The RF light will blink intermittently when the system is sending and receiving a signal for communication. |
| | | **Note:** The RF light will blink once every second when in RF pairing by holding Connect. Press Manual to exit from this state. |
| | | |
| Live out LED | Red | There has been no RF activation signal received from the other RF Mains Switch. |
| | Green | RF activation signal has been received from the other RF Mains Switch. |

# To connect the TR1 TR2$^{V2}$

**Please note:** When installing TR1 TR2$^{V2}$ RF mains switches, both TR1 & TR2$^{V2}$ are pre-paired. The below procedures are not required.

**On TR1$^{V2}$:**

Hold [Connect] for 3 seconds until RF LED flashes white.

**On TR2$^{V2}$:**

Hold [Connect] for 3 seconds.

The RF LED will begin to flash and the Live out LED will appear solid green.

When connected all three LED's will appear solid.

**On TR1$^{V2}$:**

Press [Manual] to exit the pairing mode.

After connecting successfully, the RF LED on both TR1$^{V2}$ & TR2$^{V2}$ will appear solid.

# To disconnect the TR1 TR2$^{V2}$

## On TR1$^{V2}$:

Hold Connect for 3 seconds until the RF LED flashes white.

Hold Connect for 10 seconds until the Live in LED appears solid red.

## On TR2$^{V2}$:

Hold Connect for 3 seconds until the RF LED flashes white.

Hold Connect for 10 seconds until the Live in & Live out LED appears solid red.

## On TR1$^{V2}$:

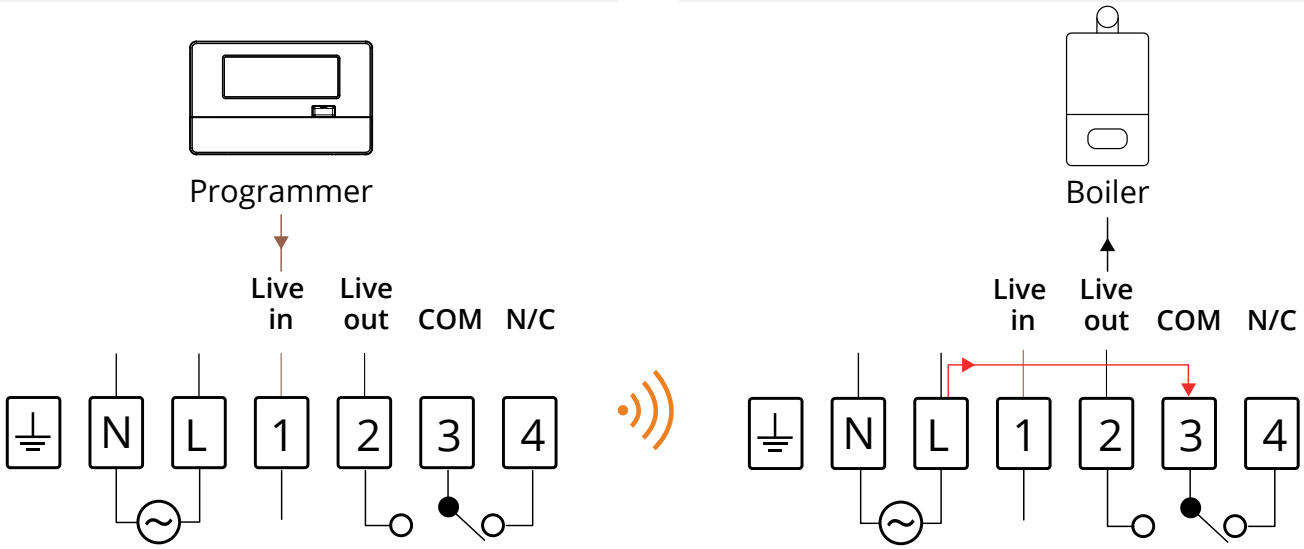
Press Manual to exit.

The TR1 TR2$^{V2}$ are now disconnected.

# Wiring Examples

## Example 1 **One way RF Switch:** Programmer to Boiler - Mains Switching

| TR1$^{V2}$ | TR2$^{V2}$ |
|---|---|
| **a.) On TR1** When Live in receives 230V from the programmer, TR1 sends a wireless signal to TR2. | **b.) On TR2** The COM & Live out contact closes, sending 230V to activate the boiler. |




| Installation Notes | | | |
|---|---|---|---|
| **1. Mains Switching Boiler** | On the TR2$^{V2}$ | - | Link L to 3. |
| **2. Low Voltage Switching Boiler** | On the boiler PCB | - | Remove the external controls link. |
| | On the TR2$^{V2}$ | - | Connect terminals 2 & 3 to the external controls terminals on the boiler PCB. |

## Example 2 Two way RF Switch:

### 1) Programmer to Motorised Valve

**TR1$^{V2}$**

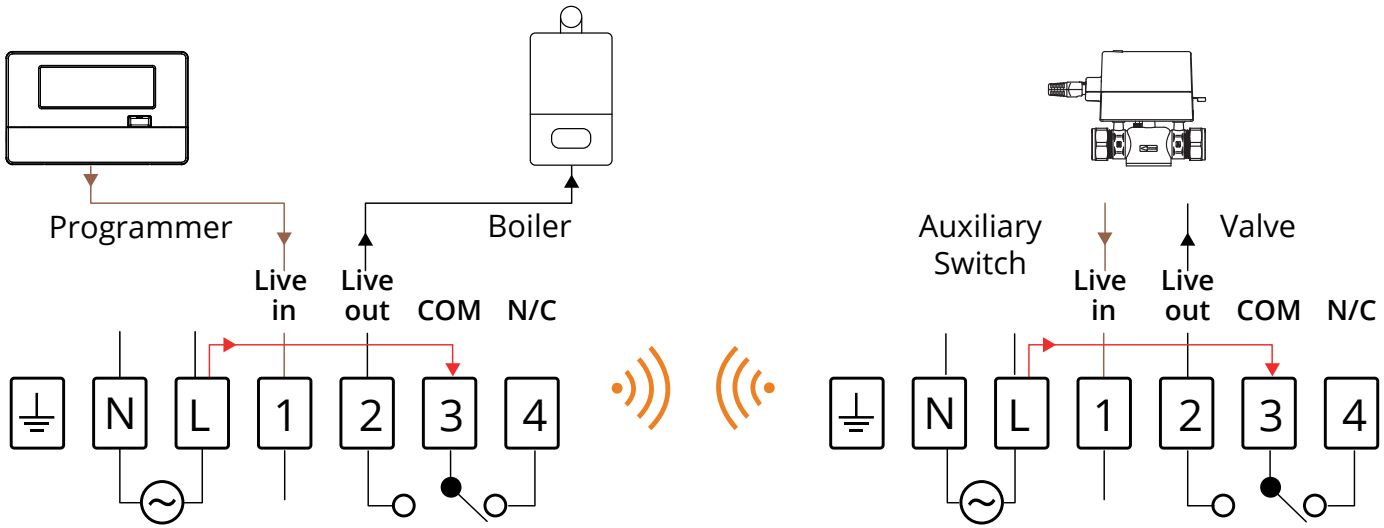
**a.) On TR1** When Live in receives 230V from the programmer, TR1 sends a wireless signal to TR2.

**c.) On TR1** Live out contact closes, sending 230V to activate the boiler.

### 2) Motorised Valve to Boiler - Mains Switching

**TR2$^{V2}$**

**b.) On TR2** The COM & Live out contact closes, sending 230V to activate the motorised valve. When the valve auxiliary switch engages, it sends 230V to the Live in contact. TR2 then sends a wireless signal to TR1.

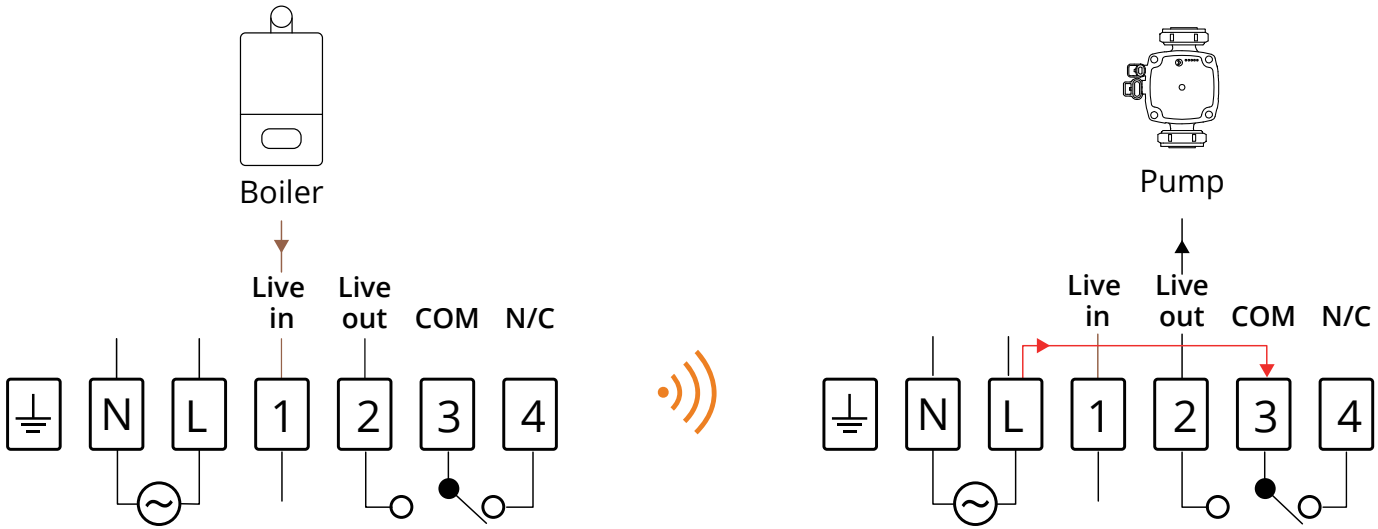



| Installation Notes | | | |
|---|---|---|---|
| **1. Mains Switching Boiler** | On the TR1$^{V2}$ | - | Link L to 3. |
| **2. Low Voltage Switching Boiler** | On the boiler PCB | - | Remove the external controls link. |
| | On the TR1$^{V2}$ | - | Connect terminals 2 & 3 to the external controls terminals on the boiler PCB. |
| **3. Motorised Valve** | On the TR2$^{V2}$ | - | Link L to 3 to power the Live out terminal to the motorised valve. |

## Example 3 One way RF Switch:

### Pump Overrun - Mains Switching

| TR1V2 | TR2V2 |
|---|---|
| **a.) On TR1** When Live in receives 230V from the boiler, TR1 sends a wireless signal to TR2. | **b.) On TR2** The COM & Live out contact closes, sending 230V to activate the pump. |




| Installation Notes | | | |
|---|---|---|---|
| **Pump** | On the TR2V2 | - | Link L to 3 to power the Live out terminal to the pump. |

## Example 4 Two way RF Switch: Pump Overrun

### 1) Programmer to Boiler

**TR1$^{V2}$**

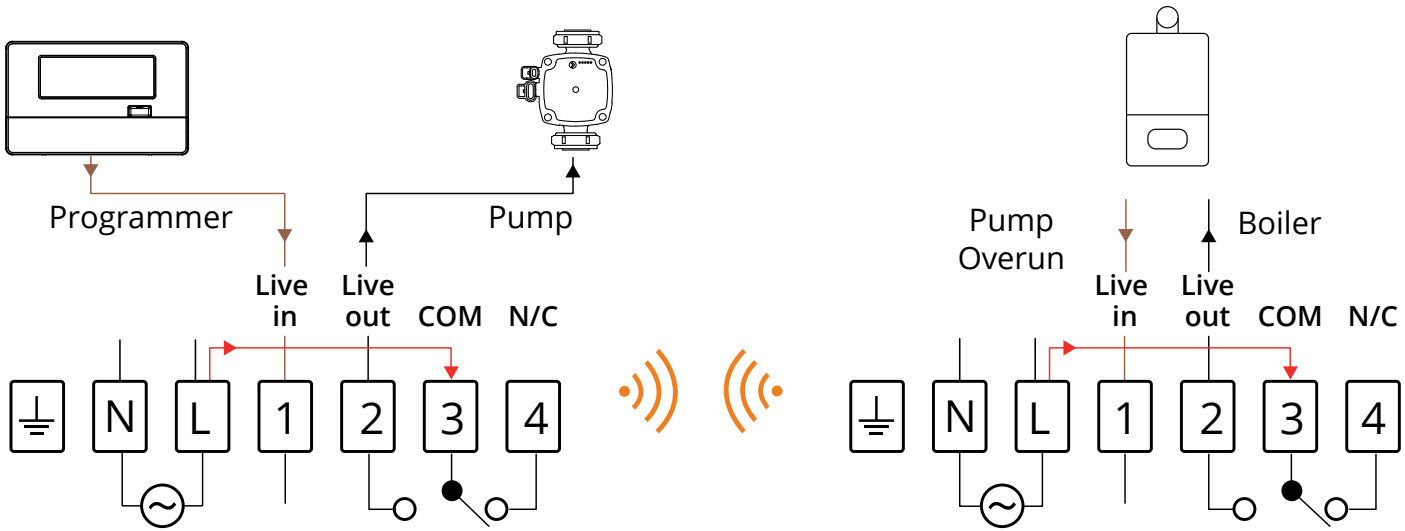
**a.) On TR1** When Live in receives 230V from the programmer, TR1 sends a wireless signal to TR2.

**c.) On TR1** Live out contact closes, sending 230V to activate the pump.

### 2) Boiler to Pump - Mains Switching

**TR2$^{V2}$**

**b.) On TR2** The COM & Live out contact closes, sending 230V to activate the boiler. When the boiler turns off, the pump overrun activates, sending 230V to the Live in contact. TR2 then sends a wireless signal to TR1.




| Installation Notes | | | | |
|---|---|---|---|---|
| | **1. Mains Switching Boiler** | On the TR2$^{V2}$ | - | Link L to 3. |
| | **2. Low Voltage Switching Boiler** | On the boiler PCB | - | Remove the external controls link. |
| | | On the TR2$^{V2}$ | - | Connect terminals 2 & 3 to the external controls terminals on the boiler PCB. |
| | **3. Pump** | On the TR1$^{V2}$ | - | Link L to 3 to power the Live out terminal to the pump. |

## Example 5 Two way RF Switch: Unvented Cylinder:

### 1) Programmer to High Limit Thermostat

**TR1$^{V2}$**

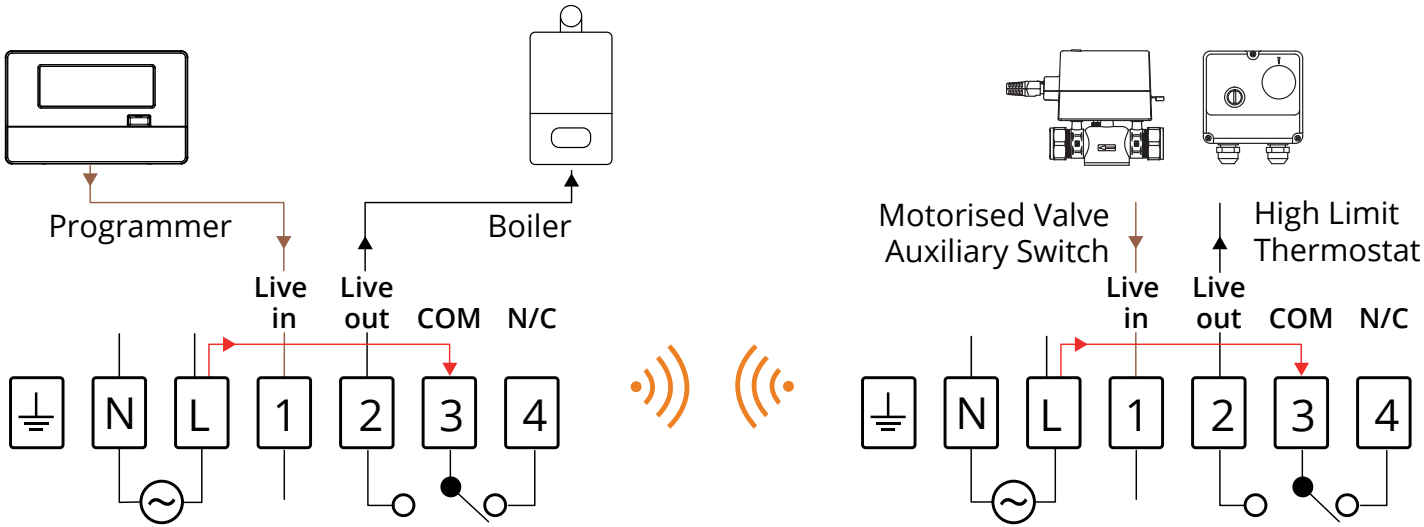
**a.) On TR1** When Live in receives 230V from the programmer, TR1 sends a wireless signal to TR2.

**c.) On TR1** Live out contact closes, sending 230V to activate the boiler.

### 2) Motorised Valve to Boiler - Mains Switching

**TR2$^{V2}$**

**b.) On TR2** The COM & Live out contact closes, sending 230V to the high limit thermostat, powering the brown cable of the motorised valve. When the motorised valve auxiliary switch engages, it sends 230V to the Live in contact. TR2 then sends a wireless signal to TR1.




| Installation Notes | | | |
|---|---|---|---|
| **1. Mains Switching Boiler** | On the TR1$^{V2}$ | - | Link L to 3. |
| **2. Low Voltage Switching Boiler** | On the boiler PCB | - | Remove the external controls link. |
| | On the TR1$^{V2}$ | - | Connect terminals 2 & 3 to the external controls terminals on the boiler PCB. |
| **3. High Limit Thermostat** | On the TR2$^{V2}$ | - | Link L to 3 to power the Live out terminal to the High Limit thermostat. |
| **4. Motorised Valve** | The N/O of the High Limit Themostat powers the brown cable of the motorised valve. | | |

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