

## 230Vac Radio Link The Original Pump Overrun Solution

### Features:

- Supplied ready to operate
- Replaces a “Switched Live Cable”
- Quick and Simple to Install
- Up to 5Km range line of sight.
- Up to 1Km range in buildings
- Screw Terminal Connections
- 110Vac or 230Vac Operation
- FSK/LoRa Spread Spectrum RF Modulation
- Weatherproof IP68 Enclosures
- RED Compliant and FCC Certified
- High Quality UK manufacture



### Description

MAINSLINK is a plug and play solution to replace a switched live cable. When 230Vac “LIVE” is input to the transmitter, the receiver provides a 230Vac “LIVE” switched output at its screw terminals.

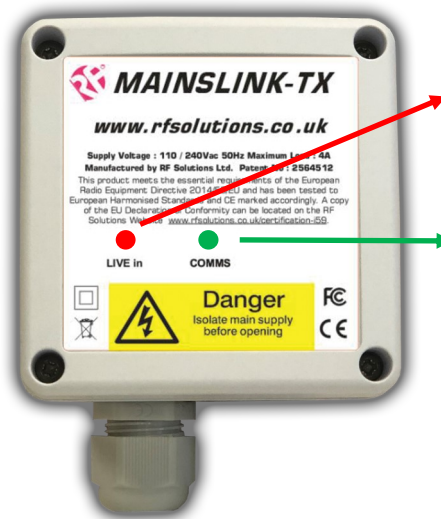
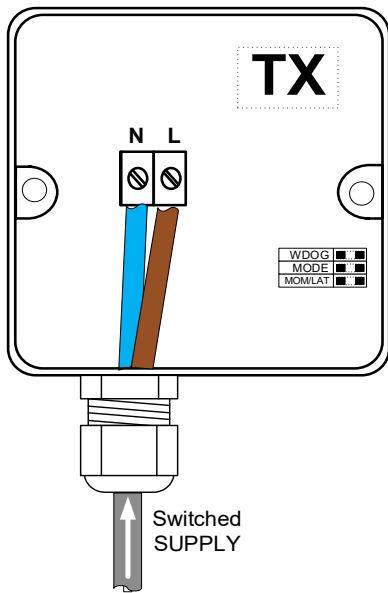
MAINSLINK utilises the RF Solutions state of the art RF-LoRa Spread Spectrum Frequency Modulation transceiver design to achieve a the highest performance / Range available from any Radio System, upto 1Km within a building environment and 5Km Line of sight.

When used as a Pump Overrun solution the TX is placed by the boiler and connected to the Boiler Pump output. The RX directly drives the pump from its Live switched output

### Ordering Information

Part Number	Description
MAINSLINK	System (TX and RX) ready to go

## Installation



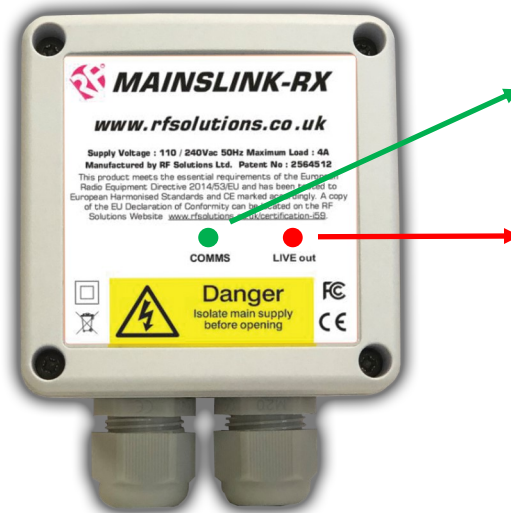
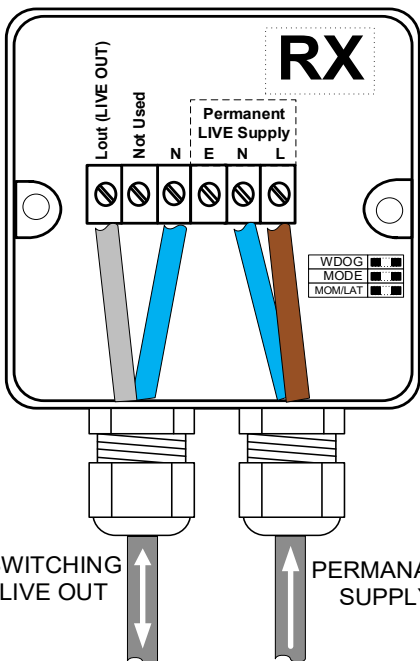
Indicates that input is LIVE

Flashes when RF Transmitting

### Connect the Switched Input Lin

Connect the Switching Live input to Lin.

When this input is 'LIVE' the Red LED will illuminate, and MAINSLINK-RX will then switch Live out at its output



Flashes when RF Active (also indicates error mode)

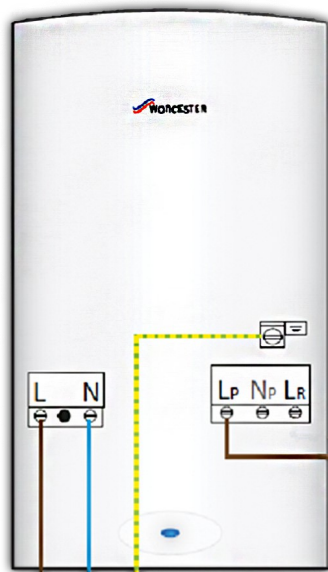
Indicates that output is LIVE

### Connect

1. Permanent LIVE and NEUTRAL supply.
2. Your Load to Switching Lout

When the Live Output (LOUT) is LIVE the Red LED will illuminate

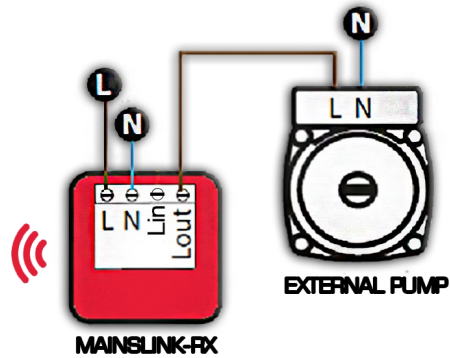
## Application example: WORCESTER-BOSCH Boiler Installation



### Operation

When the Boiler switches the Pump ON, MAINSLINK-TX is switched Live, then, MAINSLINK-RX Lout will automatically switch the pump on.

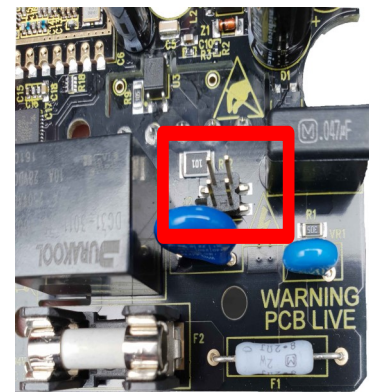
MAINS SUPPLY



## Switching Lower Power LED Lights

Mainslink-RX incorporates a “snubber” protection circuit which is recommended with Load connections such as a Motor or pump.

If switching lower power LED lighting the snubber circuit can cause the LED lights to faintly glow when switched off. To remove the snubber, remove Jumper link J2 on the rear of the PCB (as image shows).

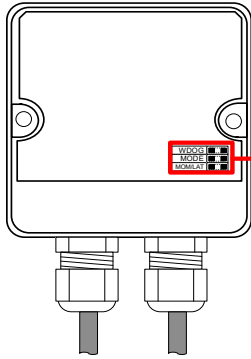


### Warnings :

- Product is not independently isolated, ISOLATE the mains electricity supply before removing the cover and observe any relevant safety precautions. Maintenance to the product that involves removal of the cover should only be carried out by a competent person or qualified electrician.
- F2 Fuse rating is 4A (T) 250 H (Ceramic). Replace fuse with same type and rating.
- Relay is rated at 10A peak, and 5A constant.
- Product must be connected to a switch fused (spur/supply) or BS 1363 Plug. It is recommended a single Fuse Spur is used to supply the Boiler and MAINSLINK jointly so that they are isolated together.

## Jumper Link Setting

There are three Jumper Links which may be used to configure the following



Link	Open	Fitted
WDOG	Watchdog OFF	Watchdog Active
MODE	FM	LORA Mode 3
MOM/LAT	Momentary	Latching

### WDOG - WATCHDOG

This provides improved reliability and security, useful with electrically noisy Loads. When the WDOG link is fitted each MAINSLINK automatically sends a background watchdog RF signal and expects to receive a corresponding WDOG signal from its partner. If the WDOG signal is not received within 90 seconds, the output will drop out and comms LED will flash.

### MODE

**FM:** Fast operation shorter range (Line of sight upto 500m/100m in buildings)  
This mode is recommended for general operation.

**LORA Mode 3:** Slower operation Long range (Line of sight upto 5Km/1Km in buildings)  
This mode can be used where additional RF penetration / range is required.

**NOTE:** In this mode a transmitted signal can take 2 seconds to trigger the receiver.

### MOM/LAT - Momentary or Latching Output

Sets the Relay changeover contacts to operate as Momentary or Latching.

**MOMENTARY:** Used for MAINSLINK TO MAINSLINK.

**LATCHING:** Select this when MAINSLINK-RX is controlled by a Remote transmitter - e.g. pocket keyfob.

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Specifies certain limits for hazardous substances.

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## Advanced Operation Pairing a MAINSLINK-TX to a MAINSLINK-RX

**NOTE:** This system does not require pairing, they are supplied ready to operate!  
This process is described for advanced use only.

1. Apply a 230Vac supply to the MAINSLINK-RX
2. Briefly swipe a magnet along Right side as shown
3. The GREEN comms LED will flash 3 times to show "in Pairing Mode"

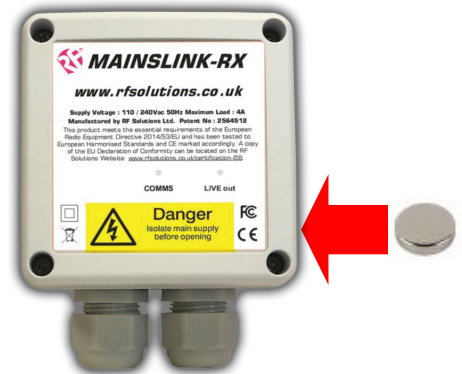
MAINSLINK-RX COMMS LED		
Operation	2 x Flashes	3 x Flashes
Status	Unpaired	In Pairing Mode

1. Apply a 230Vac supply to the MAINSLINK-TX
2. Briefly swipe a magnet along left side as shown
3. MAINSLINK-TX will now send a special Pairing message
4. The MAINSLINK-TX and MAINSLINK-RX will now Auto pair together - allow 15 secs.



## Erasing a MAINSLINK-RX

To erase the system hold a magnet beside the top left side of the enclosure until the Green COMS LED is ON solid (about 5 seconds).



## Technical Specification:

Dimensions: 92 x 92 x 59mm

Electrical Characteristics	Min	Typical	Max	Units
Supply Voltage TX/RX:	100	230	250	Vac
Operating Frequency*		869.50		MHz
RF Output power			+20	dBm
Bandwidth (Spreading Factor)		60		KHz
Maximum switching load (RX)		1000		W
Time delay from TX Transmit to RX Relay operation: Mode FM Mode 3		0.02 2		Secs

## Product Revision History

The below shows the product Development / Improvements that have been made to the product through the product Lifecycle

MAINSLINK REVISION CHANGE HISTORY			
Date	Eng Change	New Revision	Product Change / Improvement
18/10/18	ECN314	2	Update to firmware to prevent lockup when pairing in Mode 3. Using Mode 3 only, the length of RF packet is >2secs, if, when in LEARN mode both MAINSLINKS' transmit at the same time then they can both be in the position of waiting for a response. New F/W randomly sets one as master on initial RF signal, then only one response is received removing the RF competition.
12/2/19	ECN319	6	If the input (RX signal) immediately coincides with an output (TX signal) in very rare cases (two reported) the RF transceiver has locked up, this is a fix to this issue.
1/9/19	ECN331	8	Addition of LEDs on Front panel for visual indication or operation. Improvements to the enclosure.

## Version Identification

The product part number and revision of build can be viewed on the white label on the outside of the enclosure and also on the Circuit board assembly.