

Boiler Pump Overrun Solution

Features:

- Supplied ready to operate
- Replaces “Switched Live Cables”
- Quick and Simple to Install
- Up to 5Km range line of sight.
- Up to 1Km range in buildings
- Weatherproof IP65 Enclosures
- Simple Screw Terminal Connections
- Operates from 110Vac or 230Vac
- RED Compliant and FCC Certified
- High Quality UK manufacture
- Patent Pending



Description

MAINSLINK-PRO removes the need to lay “Switched Live Cables” between the Boiler and the wiring Centre. It provides a two way 230Va switching RF link.

MAINSLINK-PRO consists of two identical units. One unit is installed by the boiler and the other within the wiring Centre.

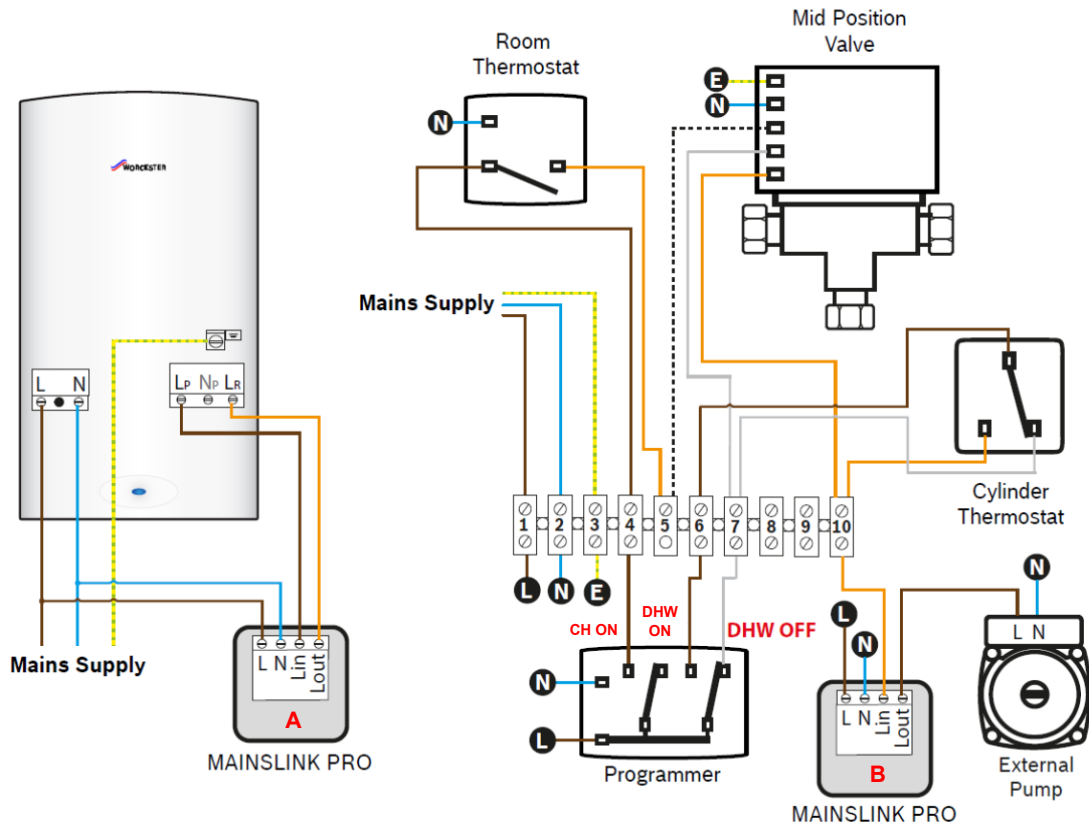
Each unit has a ‘Live In’, and a ‘Live Out’ screw terminal . When the ‘LIVE in’ is ‘Live’ at one unit it sends an RF signal to the other unit which switches its ‘LIVE out’ ‘LIVE’ , and vice versa,

MAINSLINK-PRO utilises the RF Solutions state of the art RF-LoRa spread Spectrum Frequency hopping transceiver design to achieve a the highest performance / Range available from any Radio link.

Ordering Information

Part Number	Description
MAINSLINK-PRO	System consisting Pair of Transceiver units, 868MHz

Application example: WORCESTER-BOSCH Boiler Installation



This system provides two functions, Switching of the Pump from the boiler and Switching of the Boiler from the wiring Centre.

Connections at the Boiler

The boiler output to the Pump is connected to the MAINSLINK-PRO A, (Lin)

The boiler switching input is connected to the MAINSLINK-PRO A (Lout)

It is recommended to use a single switch fuse spur to supply the Boiler and Mainslink together. (so that both appliances are isolated together)

Connections at the Wiring Centre

The thermostats switching output to switch the boiler is connected to the MAINSLINK-PRO B (Lin)

The Pump is connected to the MAINSLINK-PRO B (Lout)

Operation

When the wiring centre commands the Boiler ON MAINSLINK-PRO B (Lin) is switched is Live then MAINSLINK-PRO A Lout will automatically switch a LIVE signal to turn the boiler on.

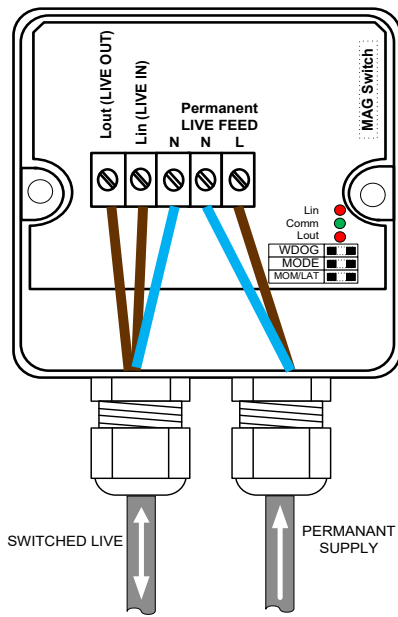
When the Boiler switches the Pump drive ON MAINSLINK-PRO, (Lin) "A" is switched Live then

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-PRO jointly so that they are isolated together

Installation



LED	Off	On	Flashing
L in	No Input	LIVE input at terminal	
Comms		RF Link Healthy	See Comms LED Table
L out	Output is OFF	Output is LIVE	

Connect the Supply to both units

Connect the permanent LIVE and NEUTRAL supply.

Comms LED

Check the Green LED is always ON when both units are powered

Connect the Switched Input L in

When the Switched Live input (LIN) is 'LIVE' the **Red** Lin will illuminate, and the L out at the other unit will then switch Live out

Connecting the Switching Load L out

Connect the LOAD Live to Lout

When the Switched Live Output (LOUT) is 'LIVE' the **Red** L OUT LED will illuminate

Watchdog Signal

MAISNLINK-PRO automatically transmits an rf 'watchdog' signal every ~30secs in the background. If the WDOG signal is not received within 90seconds, the output will drop out and comms LED will flash.

This provides improved reliability and security useful in noisy or poor reception areas.

Multiple System Operation:

Each MAINSLINK-PRO system contains a unique identity so multiple systems can operate within the same area without interfering with each other.

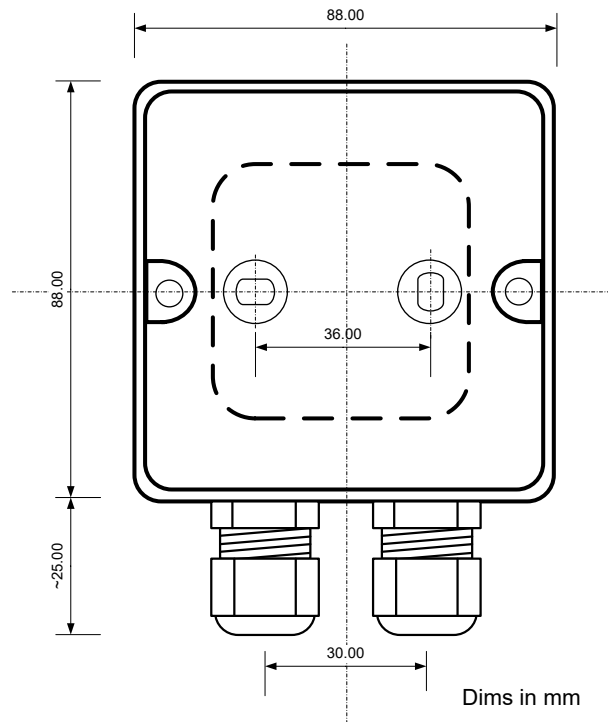
Comms LED

The **Comms** indicates the status of the MAINSLINK-PRO

COMMS LED Table				
Operation	ON	One Flash	Two Flashes	3 Flashes
Status	RF Link Healthy	Out of range	Powered But unpaired	In Pairing Mode
Description	System operating OK	No RF connection to other MAINSLINK-PRO	Waiting to be paired to another MAINSLINK-PRO	Actively sending an RF 'Please Pair message'

Dimensions and Wall mounting information:

MAINSLINK-PRO is a professional use product and should only be installed by a competent person. The product must be FIXED to the wall (EN60950 4.1)



Fixing Instructions:

1. Fix the rear of the MAINSLINK-PRO enclosure to the wall using the template above.
2. Ensure that all fixing screws are screwed flush to the enclosure.
3. Ensure that the screw covers are put in place. These ensure water proofing and insulate the PCB from the wall fixing screws. Screw Covers are found inside the rear of the enclosure.
4. Once the enclosure is fixed to the wall, screw on the front plate with the PCB in place.

Important European compliance information

This RF Solutions product meets the essential requirements of the European Radio Equipment Directive 2014/53/EU and has been tested to European Harmonised Standards and CE marked accordingly. A copy of the EU Declaration of Conformity can be located on the RF Solutions Website, www.rfsolutions.co.uk/certification-i59.

RF Solutions Ltd. Recycling Notice

Meets the following EC Directives:

DO NOT

Discard with normal waste, please recycle.

ROHS Directive 2002/95/EC

Specifies certain limits for hazardous substances.

WEEE Directive 2002/96/EC

Waste electrical & electronic equipment. This product must be disposed of through a licensed WEEE collection point. RF Solutions Ltd., fulfils its WEEE obligations by membership of an approved compliance scheme.



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Advanced Operation—Pairing together two MAINSLINK-PROs

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 first MAINSLINK-PRO
2. Briefly place a magnet across enclosure (top left corner as shown) to activate the internal reed switch.
3. The GREEN comms LED will flash 3 times to show in Pairing Mode



3. Apply 230Vac to the second MAINSLINK-PRO
4. Briefly place a magnet across enclosure (top left corner as shown) to activate the internal reed switch.
5. The GREEN comms LED will flash 3 times to show in Pairing Mode
6. The two MAINSLINK-PRO units which will now auto pair together (allow 30 secs -Green Comms LED will stay on.)



Erasing a MAINSLINK-PRO

To erase the system hold a magnet beside the top left corner of the enclosure for 10 seconds as shown.

Repeat this process on both units to erase system.



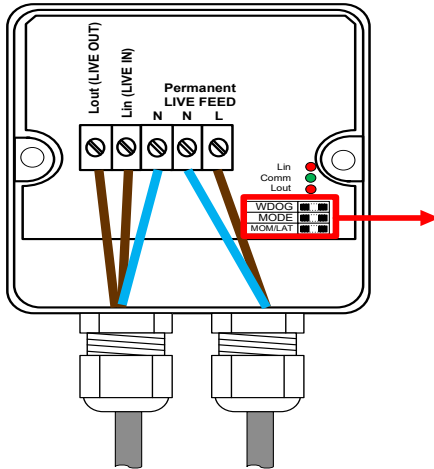
Technical Specification:

Dimensions: 88 x 88 x 54mm

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:				Secs
Mode 3		3		
Mode 7		4		

Jumper Link Setting

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



Link	Open	Fitted
WDOG		Watchdog Active
MODE	LORA Mode 3	LORA Mode 7
MOM/LAT	Momentary	Latching

WDOG - WATCHDOG

When the WDOG link is fitted each MAINSLINKPRO automatically sends a background watch-dog RF signal and expects to receive a corresponding WDOG signal from its partner. If the WDOG signal is not received within 90seconds, the output will drop out and comms LED will flash.

This provides improved reliability and security useful in noisy or poor reception areas.

MODE

LORA Mode 3, Faster operation shorter range (Line of sight upto 3Km / 500m in buildings)

This mode is recommended for general operation,

LORA Mode 7, 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

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

MOMENTARY: used for MAINSLINK TO MAINSLINK

LATCHING: is used when MAINSLINK is being controlled from an RF Solutions hand held Remote transmitter.

Switching Lower Power LED Lights

Mainslink incorporates a "snubber" protection circuit which is recommended when motor switching. This is incorporated when Jumper Link J2 is connected between pins 1 & 2 (horizontally across the top pins)

If using MAINSLINK to switch lower power LED lighting the snubber circuit can cause the LED lights to faintly glow. To remove this the snubber circuit can be removed by taking out the Snubber Jumper link as the image shows

