

2 Way Boiler & Pump Control

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
- Simple Screw Terminal Connections
- Operates from 110Vac or 230Vac
- Spread Spectrum RF Modulation
- Weatherproof IP68 Enclosures
- RED Compliant and FCC Certified
- High Quality UK manufacture



Description

MAINSLINK-PRO removes the need to lay all “Switched Live Cables” between the Boiler and the wiring Centre. It provides a bi-directional 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.

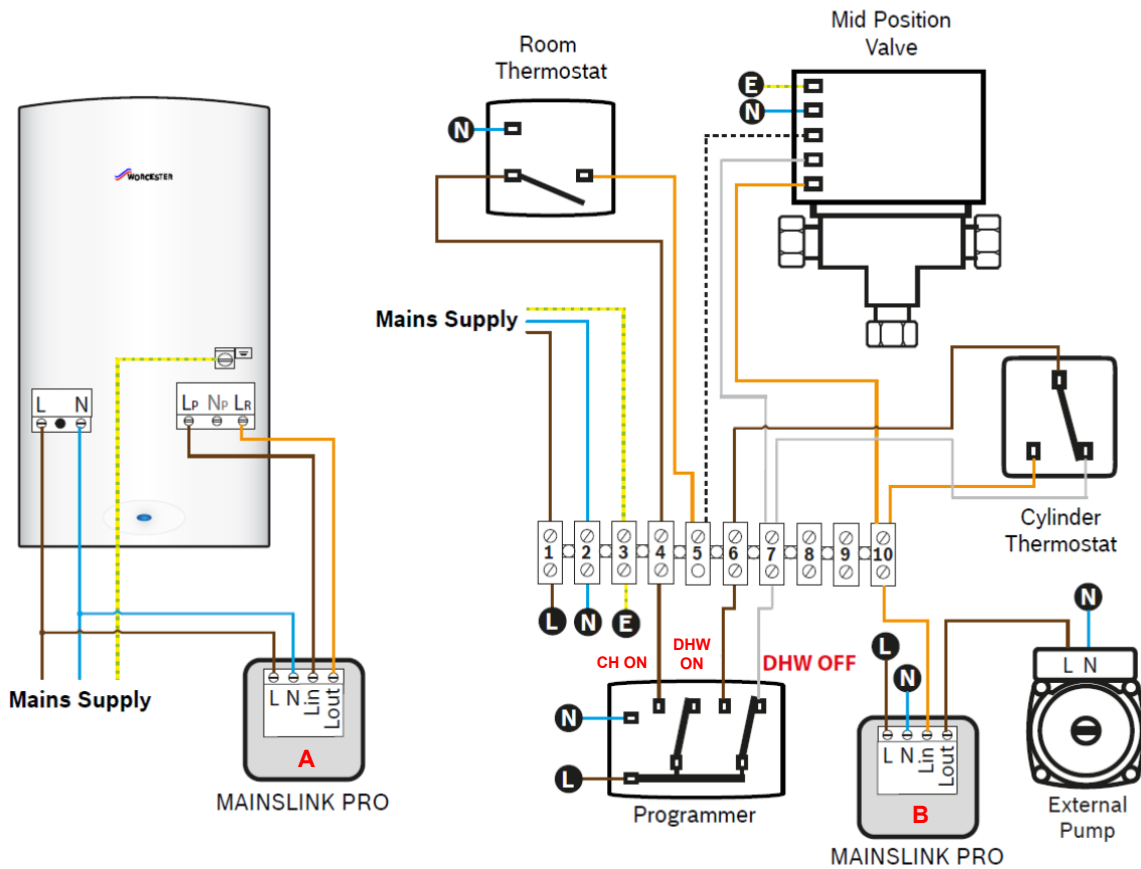
Each unit has a ‘Live In’, and a ‘Live Out’ screw terminal . When the ‘Live in’ is ‘LIVE’ at one unit it sends an RF signal to the other unit which switches its ‘Live out’ ‘LIVE’ , and vice versa,

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

Ordering Information

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

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.

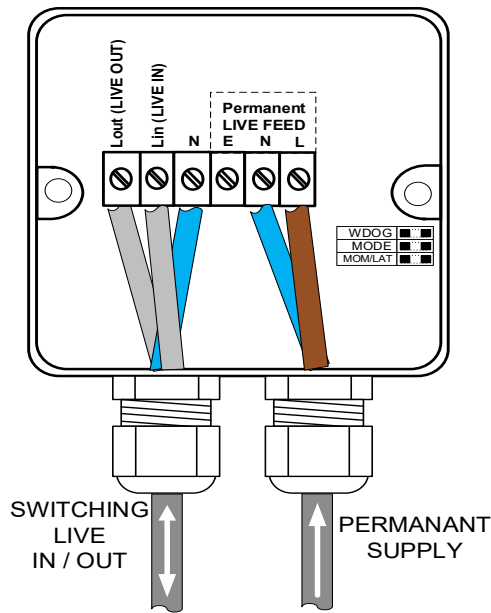
When the Boiler switches the Pump drive ON MAINSLINK-PRO, (Lin) "A" is switched Live then MAINSLINK-PRO B Lout will automatically switch the pump on.



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



Connect the Supply to both units

Connect the permanent LIVE Feed and NEUTRAL supply.

Connect the Switched Input Lin

Connect the Switching Live input to Lin

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

Connecting the Switching Load Lout

Connect your LOAD to Lout

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



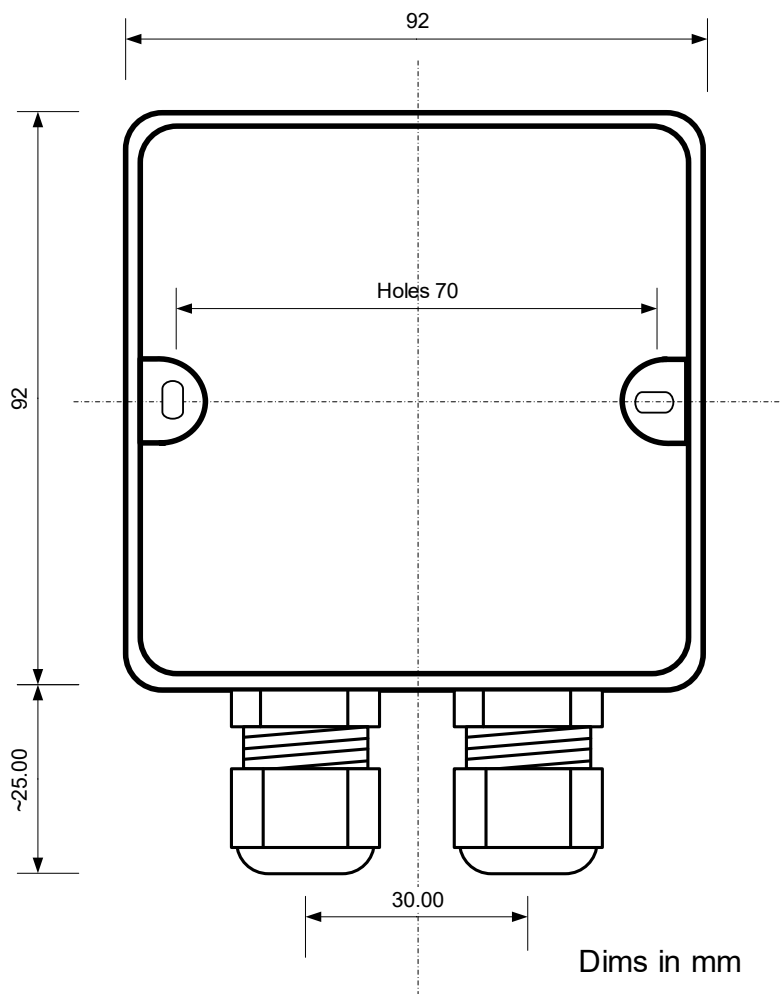
COMMS LED				
	ON	One Flash	Two Flashes	3 Flashes
Operation				
Status	RF Link Healthy	Out of range	Powered But unpaired	In Pairing Mode
Description	System operating OK	No RF connection to other MAINSLINK-PRO	Waiting to be paired to another MAINSLINK-PRO	Actively sending an RF 'Please Pair message'

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.

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)



Simplified Declaration of Conformity (RED)

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DO NOT

Discard with normal waste, please recycle.

ROHS Directive 2011/65/EU and amendment 2015/863/EU

Specifies certain limits for hazardous substances.

WEEE Directive 2012/19/EU

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.

Environment Agency Registration Number: WEE/JB0104WV



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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 (Right side as shown) to activate the internal reed switch.
3. The GREEN comms LED will flash 3 times to show in Pairing Mode
4. Apply 230Vac to the second MAINSLINK-PRO
5. Briefly place a magnet across enclosure (Right Side as shown) to activate the internal reed switch.
6. The GREEN comms LED will flash 3 times to show in Pairing Mode
7. 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 Right Side of the enclosure for 10 seconds as shown.

Repeat this process on both units to erase system.



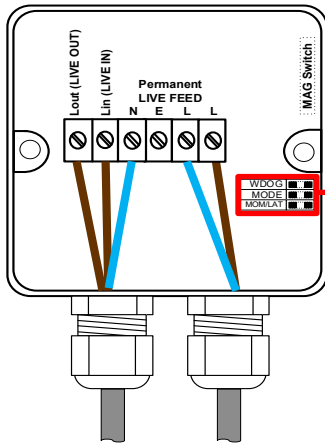
Technical Specification:

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 3		3		Secs
Mode 7		4		

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	LORA Mode 3	LORA Mode 7
MOM/LAT	Momentary	Latching

WDOG - WATCHDOG

This provides improved reliability and security useful in with electrically noisy Loads. When the WDOG link is fitted each MAINSLINKPRO 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 90seconds, the output will drop out and comms LED will flash.

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 MAINSLINKPRO TO MAINSLINKPRO

LATCHING: Select this when MAINSLINKPRO is controlled by a Remote transmitter.
eg pocket keyfob

Switching Lower Power LED Lights

MainslinkPRO incorporates a "snubber" protection circuit which is recommended with Load connections such as a Motor or pump.

If MAINSLINKPRO is being used to switch lower power LED lighting the snubber circuit can cause the LED lights to faintly glow.

To remove the snubber, remove Jumper link J2 is on the rear of the PCB (as image shows)



Product Revision History

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

EZTEXT 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 Mode7. Using Mode 7 only the length of RF packet is >2secs, if, when in LEARN mode both MAINSLINK-PRO 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	3	If the input (RX signal) immediately coincides with an output (TX signal) in vary rare cases (two reported) the RF transceiver has locked up, this is a fix to this issue
1/9/19	ECN331	3	Addition of LEDs on Front panel for visual indication or operation. The enclosure is now waterproof to IP68.

Revision 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 Circuitboard assembly