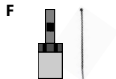


Energy Recovery System E.R.S mini Edition Installation Guide

1: Getting Started

Thank you for purchasing the PowerFlow Energy Recovery System, E.R.S mini. Please read fully, and take note of, the required installation conditions set out by this installation guide, before commencing work. If you are unsure about installation, further design and installation advice can be found in the full technical manual available for download at www.powerflowenergy.com. All electrical work should be carried out by a competent, qualified person and all relevant building regulations should be considered prior to installation.

1.1: Unpacking: PowerFlow E.R.S mini: The following elements are included:



A: 1 x Energy Recovery System: E.R.S mini

B: 1 x PowerFlow Current Clamp: PF-0750-005

C: 1 x 3 PIN IEC Male power OUT connector: PFM-PC-03-M

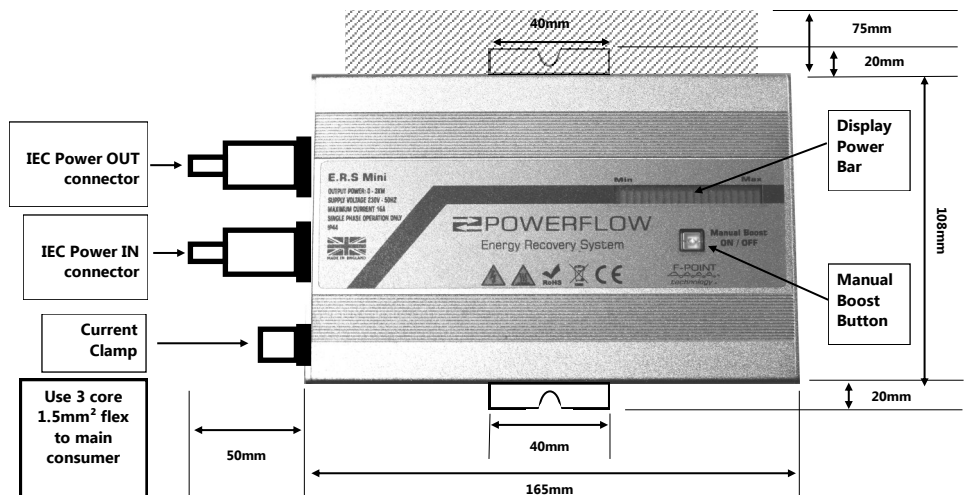
D: 1 x 3 PIN IEC Female power IN connector: PFM-PC-03-FM

E: 2 x M6 Fixing Set

F: 1 x Current clamp connector & zip tie

G: 1 x 2.5mm² Push Fit Through Connector

1.2: Mounting: When selecting a mounting location (vertically mounted, normally close to the main consumer unit) ensure E.R.S mini has enough ventilation. A minimum of 75mm above and to the sides is required. Note the position of the connections when considering mounting.



2: Connector Assembly: Assemble each connector following the guide below

3 PIN IEC Power OUT Connector (C)

PFM-PC-03-M

(Recommended cable: 1.5mm² 3 core flex)

3 PIN IEC Power IN Connector (D)

PFM-PC-03-FM

(Recommended cable: 1.5mm² 3 core flex)



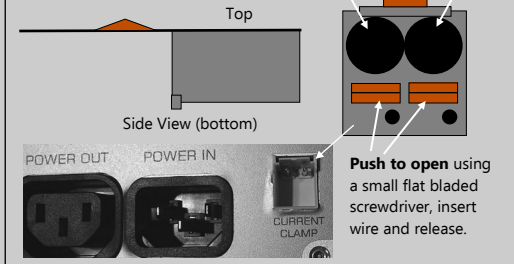
PIN 1: ERS Live OUT (brown)

PIN 2: Earth (Green/Yellow)

PIN 3: Neutral OUT (Blue)

Current Clamp Connector:

(orientate connector with picture)

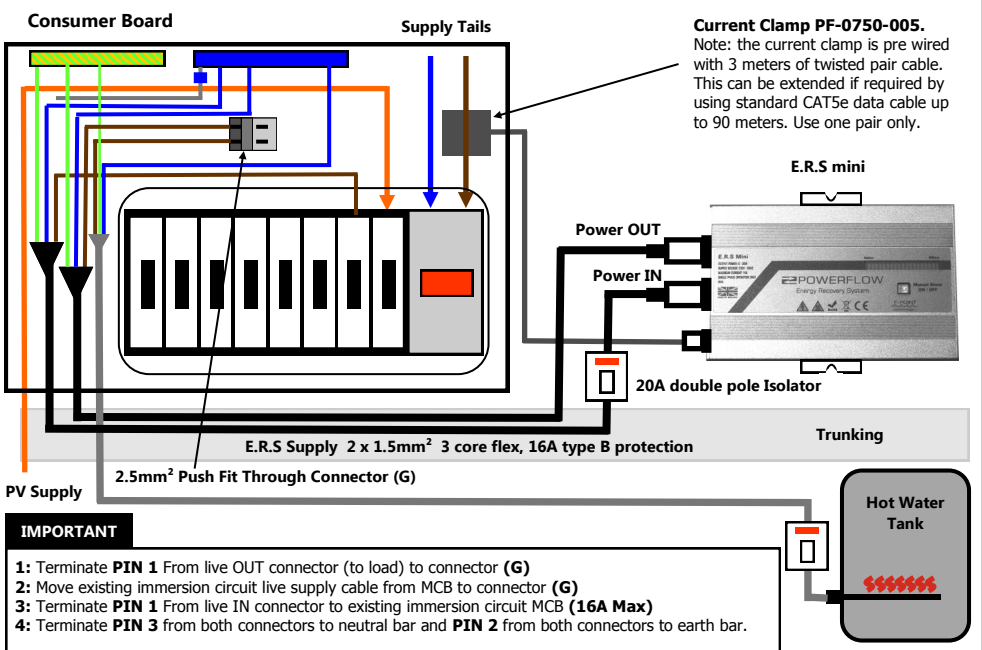


PIN 1: ERS Live IN (Brown)

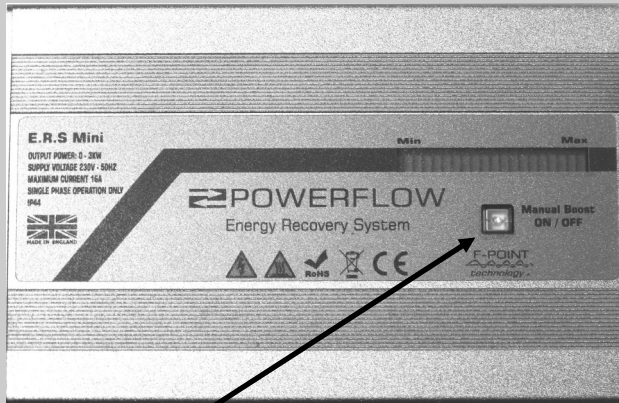
PIN 2: Earth (Green/Yellow)

PIN 3: Neutral IN (Blue)

3: Wiring Diagram: Typical wiring configuration for E.R.S Mini Edition



4: Control Elements:

 Take note of all control elements before first commissioning.

LED status Indicators

20 LED Power Bar

The power bar will only operate when savings are being made. The power bar indicates when ERS is diverting energy to the load. The more LEDs illuminated, from left to right, the more power is being diverted.

When the two outer LEDs are illuminated, the load is switched off. This could indicate, for example, that the water is now hot.

If an over temperature situation occurs, the 3 centre LEDs above the boost button will illuminate. ERS will stop operation for 2 minutes before automatically re-booting. Should the over temperature situation still exist, the process will repeat until the internal temperature has fallen. During this period, ERS will not drive the load.

Boost button LED

On start up, the LED on the boost button will flash five times. During manual boost operation, the LED will be permanently illuminated. This will switch off automatically after the timed period. The power bar will not illuminate during manual boost operation.

Manual Boost Button

The manual boost feature has been designed to override the ERS operation should a boost of hot water be required. Press once and the internal LED will illuminate indicating the manual boost is in operation. A fixed 90 minute count down timer is started, once completed, ERS mini will automatically revert back to normal operation. Pressing the manual boost whilst running will override the timer and stop the boost function, the LED will switch off to indicate the operation has stopped.

5: Commissioning

 Before switching on for the first time, follow the commissioning check list:

1. E.R.S has been mounted vertically to a secure heat tolerant surface, the correct way up and with adequate ventilation
2. All cable runs are correctly fixed or supported
3. The main power cables has been terminated observing the correct pin numbers
4. A double pole 20A rated isolator has been installed between the consumer board and the ERS device.
5. Ensure all the terminations inside the consumer unit are correct and the terminals have been tightened
6. Ensure earth continuity between the earthing bar inside the consumer unit and one of the end plate screws. This should typically be less than 0.5 of an ohm
7. Ensure the current clamp connector has been terminated observing the correct pin numbers and is securely clamped around the incoming live supply conductor in the correct orientation between the main meter position and the main consumer board.



E.R.S Setup:

PowerFlow E.R.S is an intelligent device with no initial setup required. It automatically detects the import/export voltage and current, and the size of the load. Once installation is completed, switch on the DP isolation switch. The manual boost button LED will flash 5 times to indicate ERS is carrying out its setup procedure, Once this is completed ERS will begin operation. Please refer to the user guide on device operation.

For use with immersion heaters where hot water is currently heated by;

Gas or Oil boilers: all default settings are optimised for installations containing gas or oil boilers.

To maximise savings, it is advisable to re-time the boiler's domestic hot water timer to come on after sunset to allow the E.R.S to heat or pre-heat the hot water. This will allow maximum energy capture.

Affix Serial No. label
from carton here

6: Specification

TECHNICAL DATA	POWERFLOW
Output power: Max / Nominal	3200 / 3000 Watts
Output current: Max / Nominal	13A / 12.5A
Phase Operation	Single Phase
Voltage range / frequency	206-262V / 50 Hz
Fuse Protection (replaceable)	20A (internal)
Compatible Generator Type	Solar PV / Wind / Hydro
Recommended renewable generator size	2.0kW +
Output load	Resistive Only
Output control range	5% - 100%
Minimum output load	300 W
Minimum export power level / Export tracking range	25W / 25-200W

General Data

Dimensions (without connectors) (W / H / D) mm	160 / 109 / 45
Weight	1.1kg
Noise emissions	< 10dBA
Self-consumption (night)	8mA
Degree of protection	IP20
Operating temperature range	-10 °C to +60 °C
Cooling concept	Convective Cooling
Efficiency	99%
Compliant Standards	CE / RoHS / BS EN: EMC / LVD



IMPORTANT SAFETY INFORMATION

Caution: Please take note of the following:

- 1. Risk of burns due to hot enclosure.**
During operation the ERS enclosure may become hot to touch. Always use caution when touching the enclosure after long periods of operation.
- 2. DO NOT place objects over the enclosure.**
PowerFlow ERS uses the metal enclosure to dissipate heat. Covering the enclosure may cause product failure. Please ensure adequate ventilation is provided.
For further information refer to the installation guide.
- 3. DO NOT disassemble the ERS unit at any time.**
PowerFlow ERS contains live parts inside, never disassemble the system.

Important: Legionella Advice: ERS Mini should NOT be installed in all electric houses without a secondary water heat source. (Please speak to your installer for further information)

Legionella is a bacteria that can grow in water below 60°C. It is common practice for hot water and heating systems to raise the water temperature on a weekly basis over 60°C in order to kill any bacteria growth. Due to the very nature of ERS it is possible during periods of low energy export to partially heat the water. In systems without a second heating source such as a boiler to 'top up' the water temperature, it is possible that unused warm water could remain in a temperature range where bacteria can grow. Because the particulars of each installation are different, PowerFlow Energy cannot take responsibility for controlling the risk of legionella. It is the installer's responsibility to ensure that this risk is controlled. Adequate water exchange and/or additional heating must be supplied in order to raise the water temperature above 60°C on a minimum of a weekly basis. This can NOT be achieved using ERS mini as it does not contain a timer feature. In this instance ERS 4 is required. Further advice on Legionella can be found at www.hse.gov.uk/legionnaires