

Important Information for your PowerFlow: Energy Gateway

- **Installation and User Manual**

IMPORTANT SAFETY INFORMATION, PLEASE READ AND UNDERSTAND THIS MANUAL BEFORE COMMENCING WORK



Thank you for choosing PowerFlow

PowerFlow's Mission is to continually develop efficient energy storage technologies in order to increase the availability of low carbon generated power. This will contribute to CO2 reduction and help to protect our planet for future generations, something all of us at PowerFlow are very passionate about.

Over five decades of combined experience has been deeply integrated into your PowerFlow product. From its class leading efficiency, to the highest of safety standards, every component has been carefully considered to ensure long lasting reliable operation. All of our products are fully designed and 100% manufactured in the UK at our factory in Herefordshire, helping to support Great British manufacturing. By purchasing PowerFlow Products, you are supporting the development of this important technology so future generations can benefit and prosper from cleaner, greener more sustainable energy.

Ian Murray: Managing Director
PowerFlow Energy Ltd

Register Your Product.

Don't forget to register your product on the PowerFlow website.

Visit: www.powerflowenergy.com/warrantyregistration

Contact Us

If you have any questions about our products, our website is designed to provide support. Should you not find what you are looking for, you can contact us using the details below.

website: www.powerflowenergy.com

PowerFlow Energy Ltd
Netherwood Road
Rotherwas Industrial Estate
Herefordshire
HR2 6JU
United Kingdom
Tel: 01452 421271
Email: info@powerflowenergy.co.uk



Made in England

Table of Contents

Page 1	Foreword
Page 2	Table of Contents
Page 3	1. Introductory Information <ul style="list-style-type: none">1.1 Validity1.2 Additional Information1.3 Supply Parameters1.4 Appropriate Usage1.5 Safety Instructions
Page 4	2. Product Description
Page 5	3. Unpacking <ul style="list-style-type: none">3.1 Scope of Delivery
Page 6-7	4. Mounting <ul style="list-style-type: none">4.1 Selecting a Suitable Mounting Location4.2 Fixing Dimensions4.3 Product Dimensions4.4 Mounting Clearances
Page 8-9	5. Connections and Display Elements <ul style="list-style-type: none">5.1 Typical System Layout5.2 Display Elements
Page 10-12	6. Connecting to the Internet <ul style="list-style-type: none">6.1 Setting up the WiFi connection6.2 Setting up the LAN connection
Page 13	7. Registering a new PowerFlow Portal Account
Page 14	8. Technical Specification

1. Introductory Information

1.1 Validity

Read fully and understand this manual before commencing work

The tasks described in this manual may be performed by skilled persons. It describes the installation, commissioning, maintenance and warranty procedures for the following PowerFlow products:

- PowerFlow Energy **Gateway**

1.2 Additional Information

You can find additional information on the design of the complete Energy gateway system at www.powerflowenergy.com.

1.3 Supply Parameters

The Energy Gateway is designed to be connected to an AC mains outlet via the supplied mains adaptor. It is important to only use the supplied mains adaptor or to ensure that the input voltage to the Energy Gateway does not exceed 5.1 V DC. Failure to comply with this instruction will result in product damage and will void all warranties.

1.4 Appropriate Usage

The PowerFlow Energy Gateway is an internet connected energy monitoring system designed for use with the PowerFlow Sundial battery Storage system. It cannot be used with 3rd party battery storage systems.

Do not use the Energy Gateway for any other purpose other than described in this manual. Alternative uses or modifications to the product are expressly NOT permitted. Any other use will void any warranty claims and operation permissions.

1.5 Safety Instructions

The following terms will be used throughout this manual. Please observe the safety instructions.

CAUTION: Risk of injury, illness or damage to property.

- All work detailed by this instruction should be carefully considered.
- Children may not play with or have access to the Energy Gateway.

IMPORTANT: Recommendations or advice that if not followed correctly may cause installation or system problems and may result in additional product support. Failure to comply with these recommendations may result in the warranty being void.

2.0 Product Description

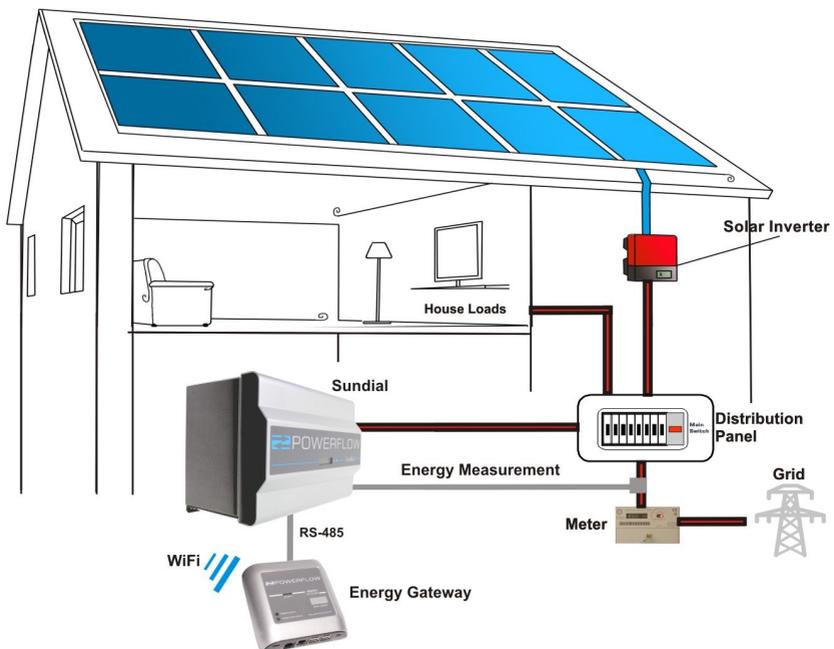
The PowerFlow Energy Gateway is a device designed to connect the Sundial battery storage system to the internet via the building's broadband connection. The Energy Gateway then performs the task of connecting the battery storage system to PowerFlow Portal, a free online monitoring website run by PowerFlow Energy.

PowerFlow Portal provides a number of features for the monitoring and control of the Sundial battery storage system.

Monitoring includes a live energy flow reading of the building and the live battery status updated every 15 seconds. In addition to the live display historical data is recorded and can be displayed by selecting time periods for day, month and year.

Battery system control setup pages are also available to set pre defined charge periods for use with night rate and multi-rate energy tariffs available from various supply companies. The programming page enables adjustments for seasonal changes as well as differing energy use profiles. Further information on PowerFlow Portal can be viewed online at www.powerflowenergy.com

The diagram below illustrates a typical system layout.



3. Unpacking

3.1 Scope of Delivery

Please check the delivery for completeness and for any visible external damage. Contact your supplier if anything is damaged or missing. Ensure that the Product Identification Documentation is retained.

The following components should be included:

A



B



C



D



E



F



Object	Quantity	Description
A	1	Energy Gateway
B	2	2M CAT5e data cable
C	1	Euro mains power adaptor set
D	1	WiFi USB dongle
E	1	Wall fixing set
F	1	Installation and User Manual set

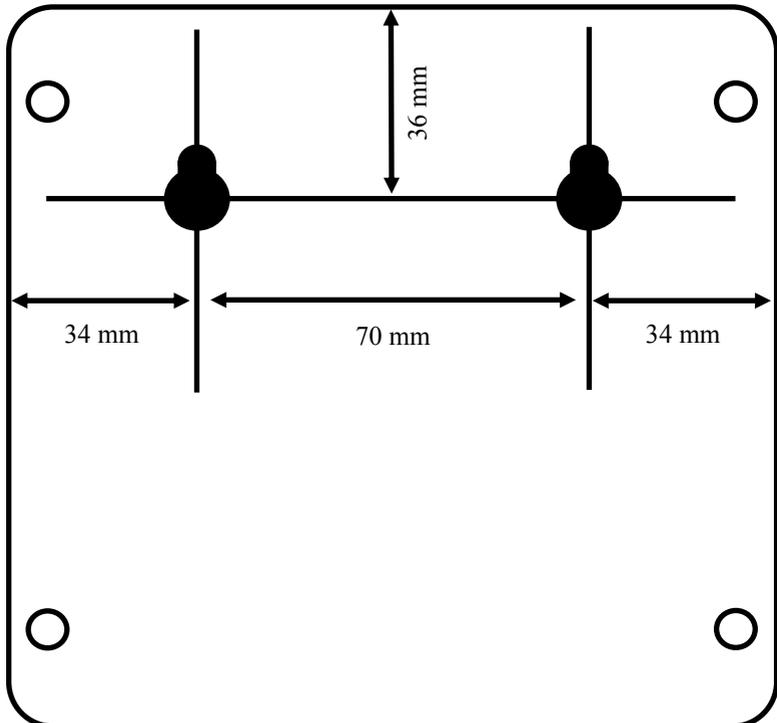
4. Mounting

4.1 Selecting a Suitable Mounting Location

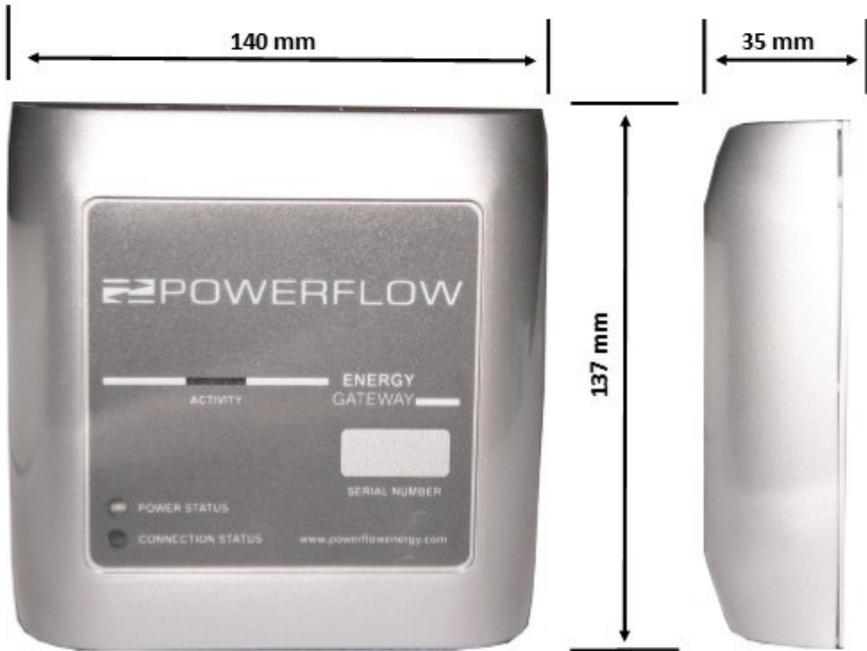
The Energy Gateway is designed to be wall mounted using the two mounting holes on the back of the device. Mounting recommendations are:

- Ensure the Energy Gateway is mounted onto a secure surface using the supplied fixings.
- Do not mount the Energy Gateway outside, observe the IP20 ingress protection rating.
- Do not expose the Energy Gateway to direct sun light, as this can cause excessive internal heating.
- It is recommended to mount the Energy Gateway close to the Sundial battery system for easy installation and to ensure good connectivity of the RS485 data line using the supplied 2M CAT5e data cable. If it is not possible to mount the Energy Gateway next to the Sundial System, a longer CAT5E cable may be used up to a maximum of 30 meters.
- The Energy Gateway will require mains power and therefore should be installed next to a 230V mains socket outlet.
- The Energy Gateway will require an internet connection. Ensure that if using the hard wired LAN connection it is possible to run the CAT5e cable back to the internet router. It is possible to use a longer CAT5e than the 2M one supplied. It is also possible to use an additional powerline adaptor if it is not possible to run the CAT5e cable back to the internet router. If a WiFi connection is required, please ensure the mounting position of the Energy Gateway is within range of the WiFi signal within the building's WiFi router.

4.2 Fixing Dimensions



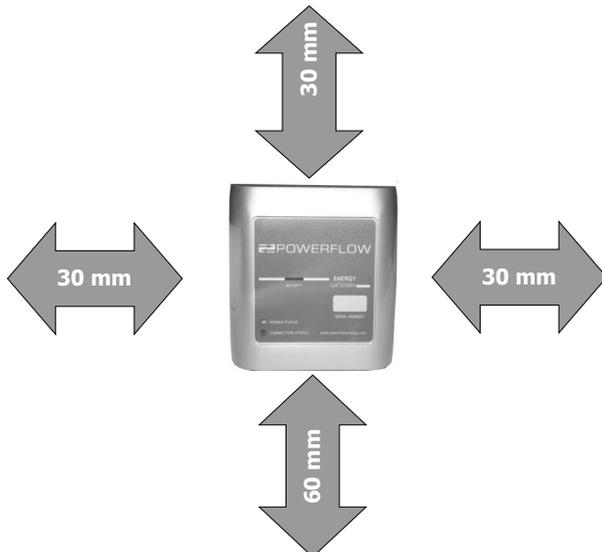
4.3 Product Dimensions



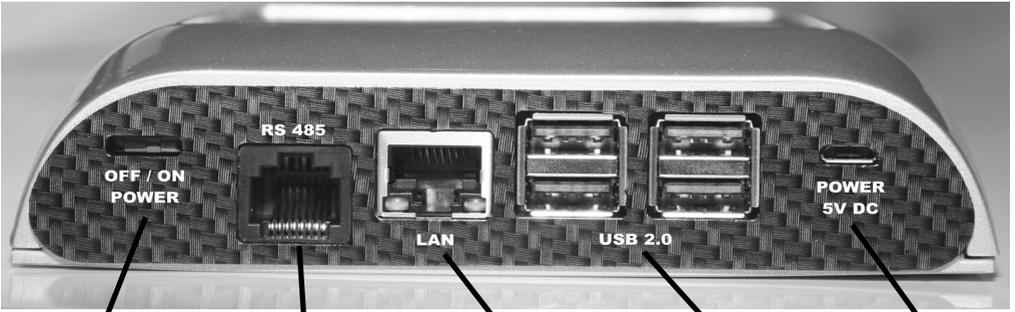
Note: Dimensions without cable connections

4.4 Mounting Clearances

Observe the minimum clearance to walls and other devices. This is to ensure that there is sufficient and suitable space for cabling connections and heat dissipation.



5. Connections and Display Elements



Internal UPS and reset slide switch

To switch ON during setup, slide switch to the right with a small screwdriver.

RS485 Data connection

Connect to the RS485 data connection on the Sundial device using the included CAT5e cable.

LAN Data connection

Connect to the buildings internet router via a CAT5e data cable. This will provide hard wired internet connectivity.

WiFi is also available

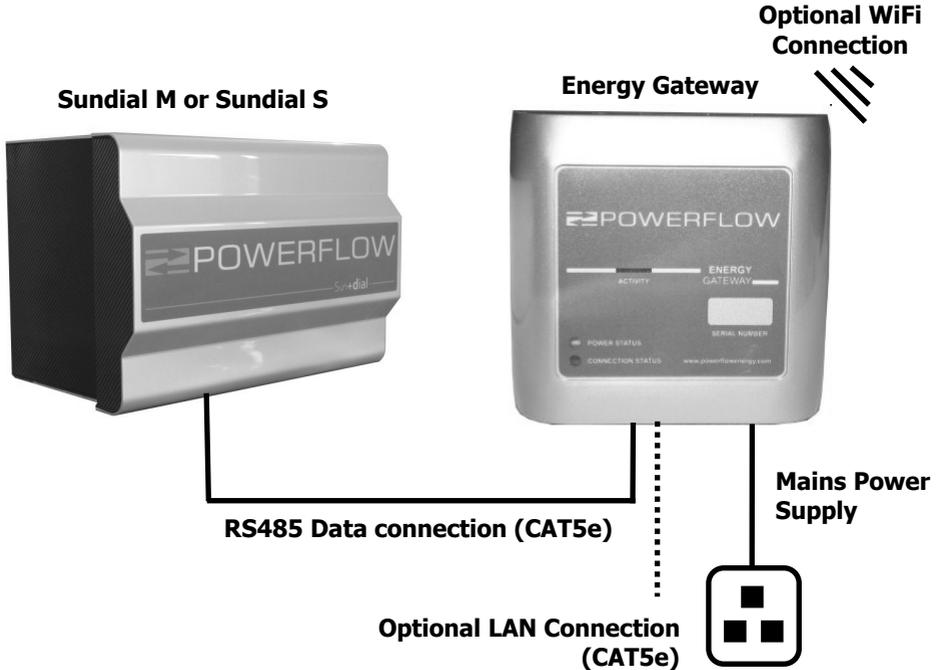
USB Data connection

Connect the included USB WiFi dongle. This is required to setup WiFi internet connection.

Mains Power Connection

Connect the included mains power adaptor. Only use the supplied power adaptor, 5.1V DC only.

5.1 Typical System Layout



5.2 Display Elements

The Energy Gateway has a number of LED status indicators for Power, Connection and Activity. The status indicators are as follows:

Activity Status LED

Represents active data transfer to PowerFlow Portal

Orange Flashing = Data transfer is active

No LED = No data transfer

Power Status LED

Represents the condition of the supply power to the Energy Gateway

Solid Green = Mains Power ON

Flashing Red = Mains power supply is OFF, Gateway in standby on internal UPS power

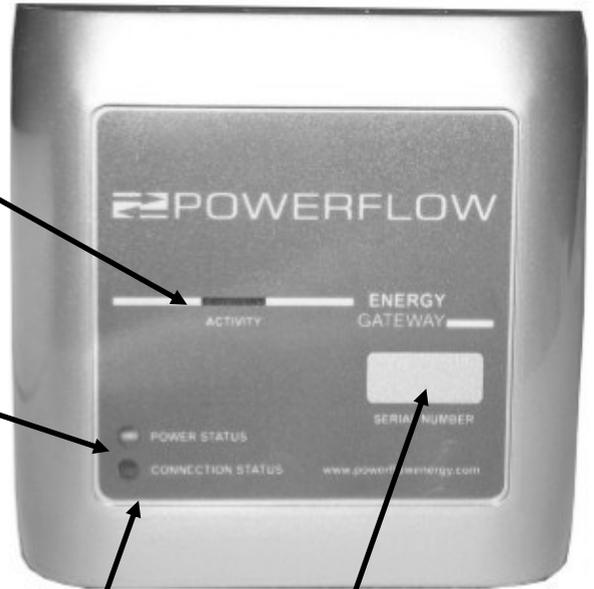
No LED = Both mains and internal UPS power supplies are switched OFF

Connection Status LED

Represents the condition of the internet connection to the Energy Gateway

Solid Green = Connection active

Solid Red = No connection



Serial Number

Displays the Gateway serial number.

This is also the wireless (WiFi) ID number and the registration number required to create a PowerFlow Portal account.

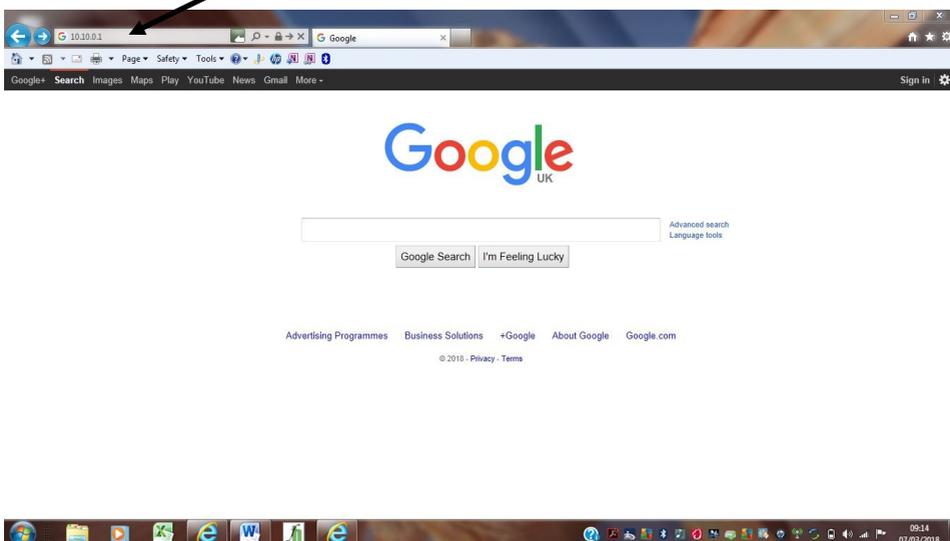
6. Connecting to the Internet

The Energy Gateway must be connected to the internet in order to connect the Sundial battery storage system to PowerFlow Portal. The Energy Gateway can be connected in two ways, either by hard wired LAN connection using the RJ45 LAN connection or by using the internal WiFi capability to connect to the buildings WiFi service.

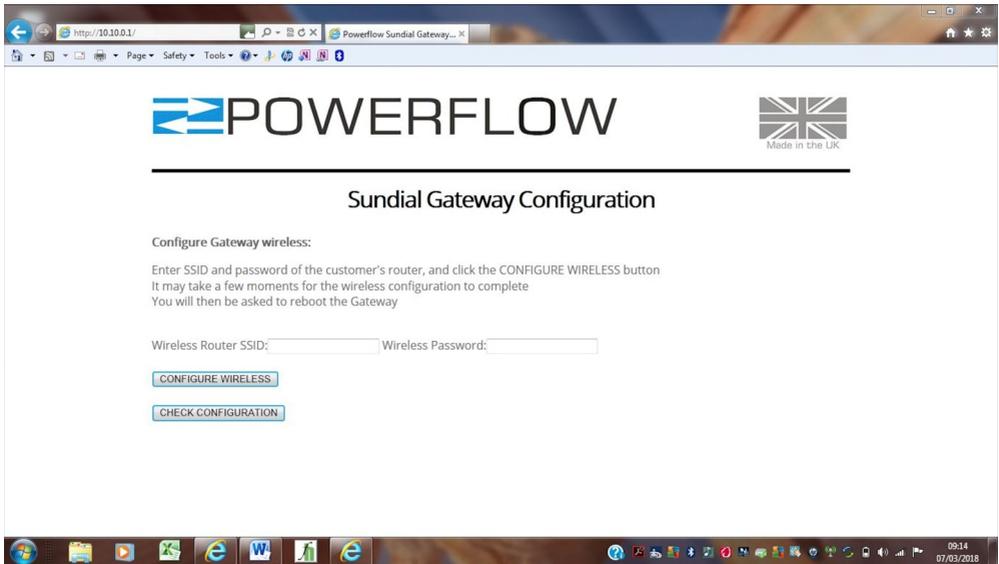
6.1 Setting up the WiFi connection

The Energy Gateway has an internal WiFi capability which can be setup to connect to the building's WiFi router. In order to connect to the Energy Gateway and setup the internal WiFi connection a second WiFi connection is provided in the form of the included USB WiFi dongle. By plugging this into one of the USB connections on the Energy Gateway, it is then possible to connect to the Energy Gateway via the WiFi dongle using the WiFi connection from a laptop, PC or tablet.

1. Ensure the installation of the Energy Gateway has been completed, the WiFi dongle is plugged into one of the USB sockets and the mains power adaptor has been switched on. The green power LED will indicate correct connection, Wait 2 minutes for the Energy Gateway to boot up.
2. Ensure that the PC being used is within WiFi range of the both the Energy Gateway and buildings WiFi router.
3. Open the Wireless network connection window on your PC and look for new WiFi networks. The serial number of the gateway (this can be found on the front label of the gateway) will be displayed in the Wireless networks connection list. Click on the serial number to connect to the Energy Gateway, the password is **000000000** (ten zero's) and required for connection.
4. Once connected to the Energy Gateways WiFi network, open a new internet page and in the address bar type the following IP address: **10.10.0.1** (all other browsers are possible), press 'Enter'



5. The following page will open: Enter the buildings wireless router name (SSID) and the password for the buildings wireless network. Click 'Configure Wireless' to save the settings, a setting page will display the connection information.



6. Exit the configuration page and switch off the Energy Gateway at the mains plug to allow the Energy Gateway to shut down. Wait until the power status light is flashing red.
7. Turn the Energy Gateway back on at the mains plug and wait 2 minutes, allowing time for the Energy Gateway to boot up.
8. The Energy Gateway should now be connected to the buildings router via WiFi.
9. It is possible to check the connection status by logging back into the configuration page.
10. To do this, repeat steps 2 — 4 and click on the check configuration button. The checking wireless configuration page will be displayed and the following information can be viewed:
 - Gateway Serial Number
 - Gateway MAC address
 - SSID of connected WiFi Network
 - Password of connected WiFi Network
 - Connection Status
11. Click the back button to exit the page, The Energy Gateway is connected to the internet.
12. Go to Section 7, Registering a new PowerFlow Portal account for next steps.

6.2: Setting up the Hard wired LAN connection

The Energy Gateway has an RJ45 LAN connection which can be used to connect to the building's internet router.

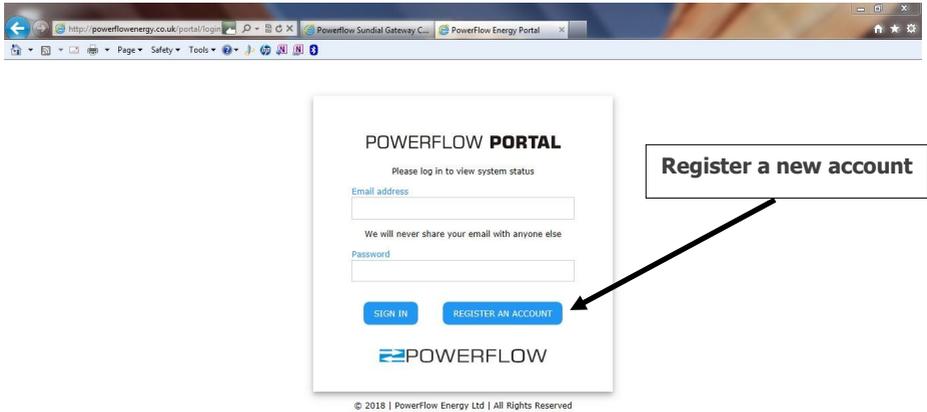
TIP: If it is not possible to connect the LAN cable from the Energy Gateway to the internet router because of its location, and the Energy Gateway is out of range of the WiFi signal, it is possible to use the LAN connection together with a Powerline Line adaptor device (sold separately) to achieve connection.

1. Ensure the installation of the Energy Gateway has been completed, the LAN cable has been connected to the internet router and the mains power adaptor has been switched on. The green power LED will indicate correct connection, Wait 2 minutes for the Energy Gateway to boot up.
2. The Energy Gateway will automatically connect to the internet.
3. The network connection status can be checked by following steps in section 6.1. Once the configuration page is available click on the connection status button to review the connection details.
4. Should it be required to disable the WiFi connection when using the hard wired LAN connection follow the steps in section 6.1 to create a new WiFi connection. Once the configuration page is available, input **XXXXXX** into both the SSID and password fields, this will disable the WiFi. It can always be changed in the future by inputting the correct wireless network SSID and password.
5. Once the Energy Gateway is successfully connected to the internet Go to Section 7, registering a new PowerFlow Portal account for next steps.

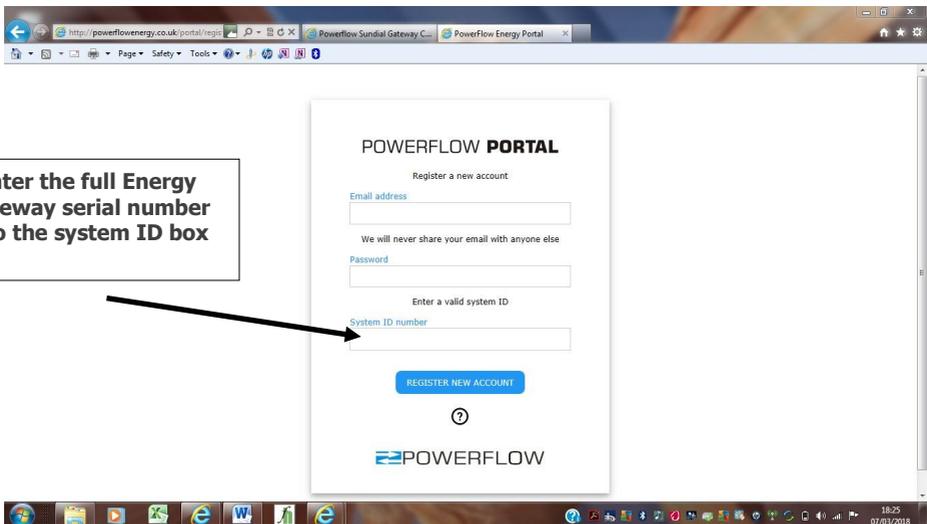
7. Registering a new PowerFlow Portal Account

Once the Energy Gateway has been connected to the internet it will automatically connect to PowerFlow Portal. The Energy Gateway's serial number has been pre registered during manufacture but must be linked to a new PowerFlow Portal account.

1. Please go to <http://powerflowenergy.co.uk/portal/login.html> and click on 'Register an Account'.



2. In the registration page an email address and password must be entered. In addition enter the Gateway serial number into the system ID number box. The location of the system ID number (serial number) can be found on page 9. Once the account has been activated it is then possible to login and view the system.



8. Technical Specification

Electrical and Connectivity Parameters	Energy Gateway	Units
Supply Voltage	230V / 50Hz	Vac / Hz
5V supply transformer (Included)	Yes	-
Rechargeable Battery backup UPS with auto shutdown	Yes	-
Phase Operation	Single	-
Network connectivity: Wireless / Wired	WiFi / RJ-45	-
Aux Connections	4 x USB 2.0	-
Sundial Connectivity	RS-485	-
DC ON/OFF switch	Yes	-
General Parameters		
Dimensions (W/H/D) (without connectors)	140 / 137 / 35	mm
Weight	0.5	kg
Noise Emissions	<10	dB
Ingress Protection	IP-20	-
Operating Temperature Range	-10 to +60	C
Gateway Compatibility	Sundial M2, S2, M6, S6, M8, S8	-
Cooling Concept	Convective	-
Display	Power Status, Connection Status & Activity	-
Mounting Type	Wall Mounted	-
Finish	Silver Metallic / Carbon Fibre	-
Warranty*	2	Years
Compliant Standards	CE, RoHS, BS EN 61000-(6-1)(6-2)(6-3)(3-2)(3-3)	

 POWERFLOW

www.powerflowenergy.com



Made in England