

# TECHNICAL DOCUMENT

ref: 5Wv2

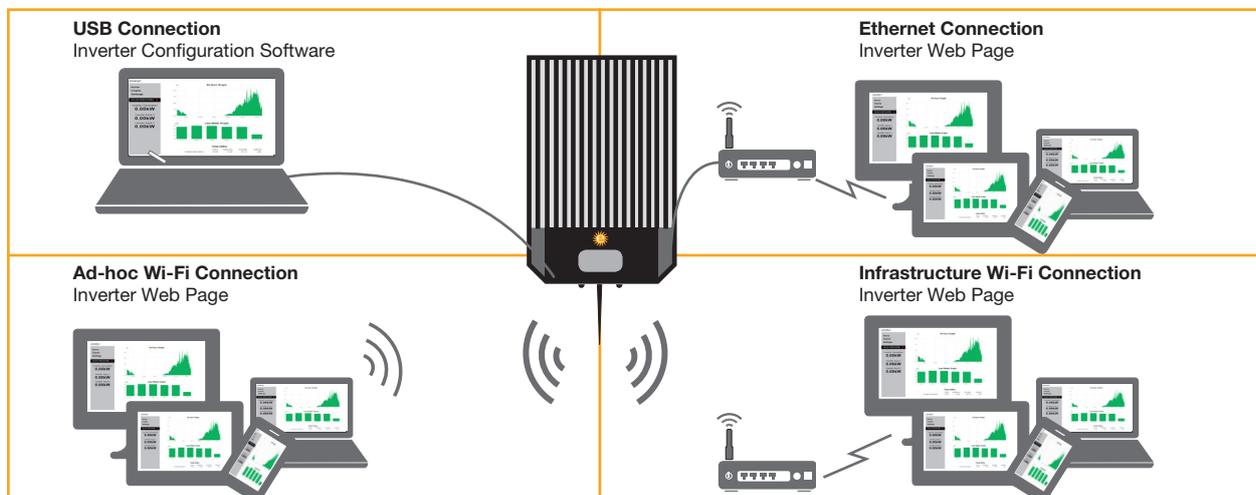
**Subject:** Inverter Wi-Fi Set Up

**Created:** 17 October 2016

## Configuration Overview: New Connection or Re-Connection

This process and instruction can be used for new customers for first time installations or where a re-connection is required, such as when replacing a router.

A connection between a computer and the inverter is required to configure customer specific settings. There are four different connection methods as detailed below. For most installations, a USB connection is recommended for initial configuration. After configuration, the user will generally use ethernet or Wi-Fi to access the inverter web page to view information or to further customize their inverter.



## Connection & Configuration Methods

<b>USB Connection</b> <i>(only used for configuration and downloading)</i>	A direct wired connection between the installer's computer and the inverter. This method requires a USB Mini-B cable and the inverter configuration software., which is available for download at <a href="https://www.enasolar.net/support/">https://www.enasolar.net/support/</a> .
<b>Ethernet Connection</b> <i>(use when Wi-Fi is not available)</i>	A wired connection between the network and the inverter. Configuration is carried out via the inverter web page. This method is only applicable to the ethernet inverter version.
<b>Ad-hoc Wi-Fi Connection</b> <i>(used when there is no router)</i>	A direct wireless connection between a Wi-Fi enabled device and the inverter. Configuration is carried out via the inverter web page. Note that only certain devices and operating systems support the ad-hoc mode, eg Android OS and Windows 8 and later do not support ad-hoc connection.
<b>Infrastructure Wi-Fi Connection</b> <i>(most common connection type)</i>	A wireless connection between the network and the inverter. Initial configuration is required via either USB or ad-hoc Wi-Fi connection. Further setup can be carried out using the inverter web page.

Configuration is carried out to enable the user to view the inverter's web page. The inverter will still operate without configuration.



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Regardless of the connection method used, the following settings should be configured. There are also advanced settings available which are explained later in this document.

Date, Time and Time Zone	The inverter contains a clock that is used to generate charts on the inverter web page and internal log files.
Network Settings	Depending on your connection method and network, some settings may need to be set/changed so that the inverter can connect to the network.
Inverter Name	A personalised name to be displayed at the top of the inverter's web page. If multiple inverters are installed on a site, each name must be unique. This is required for compliance to AS/NZS 4777.2:2015: ensure it is enabled.

## Configuration Details

The settings section of the inverter web page requires a username and password known as the *Web Administrator Username/Password*. The default username is 'Admin' and password 'Admin1', but these can be changed in the *Network* section of the inverter web page, or in the *Advanced Network* tab in the Inverter Configuration Software. If the username or password is lost, see instructions for resetting the *Web Administrator Username/Password* in the FAQs section on the Enasolar website.

An IP address is a numerical label assigned to each device on a network. From a device connected to the network or directly to the inverter via ad-hoc, the inverter web page can be accessed by entering the inverter's IP address into a web browser (such as Chrome, Safari, Internet Explorer, etc.) as four numbers separated by dots (eg http://192.168.1.105). When the inverter is connected to a network, its IP address will be displayed on the *Network* screen – see the *Using the Inverter* section of the Solar Inverter Manual.

Most networks use DHCP to automatically assign an IP address to new devices connected to the network. The inverter is configured to use DHCP by default, so an IP address will generally not need to be manually set. If a static IP address needs to be assigned, this can be done in the *Advanced Settings Network* section of the Inverter Configuration Software.

The hostname is an alternative to entering the inverter's IP address. By default, the hostname is ENASOLAR-GT, meaning that you can enter 'http://ENASOLAR-GT' into a web browser to view the inverter web page. When choosing a hostname, please note that it:

- may be up to 15 characters long
- can include letters (A through Z, and these are not case sensitive)
- can include numbers (0 through 9)
- can include hyphen(s)
- cannot include spaces

If multiple inverters are being installed the hostname should be unique for each inverter.



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## Inverter Configuration Software

The USB external connector has been fitted to all EnaSOLAR GT Inverters from 1 April 2016. This allows the system owner the option to re-configure the WiFi Network parameters without having to remove the inverter front-panel. Please refer to separate user document (ref. 160201A), for information and instructions on how to install this connector.

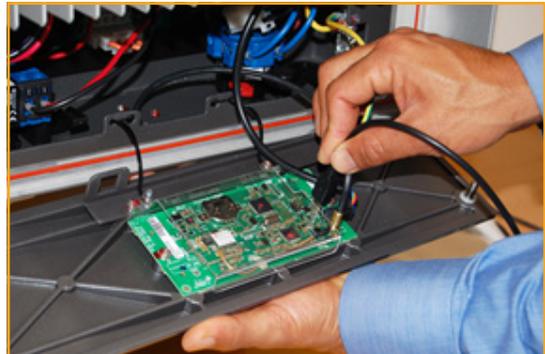


A computer with Windows XP or later is required for USB configuration. Download and install the latest version of Inverter Configuration Software from our website: <https://www.enasolar.net/support/>.

Connect a USB cable between a computer and the 'USB Mini-B' socket on the back of the display module (or use the external USB connector) and then open the Inverter Configuration Software.



**WARNING:**  
This is deemed electrical work and must only be carried out by a qualified professional.



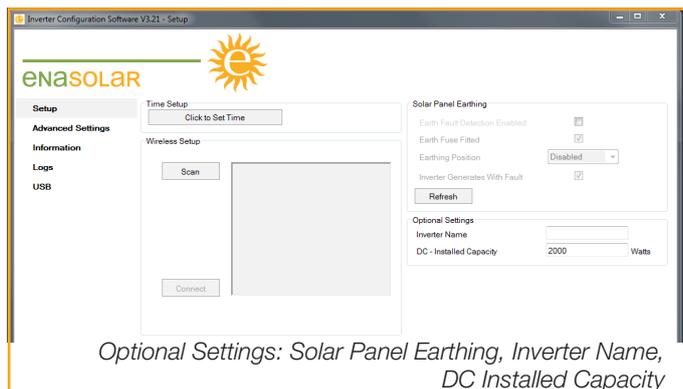
Connecting the USB cable

The following should be set in the *Setup* menu:

- *Click to Set Time* (include: Date and Time Zone), (this will set the inverter time to the same time as your connected computer. Ensure that the time and date are correct)
- *Inverter Name*

If connection is via Wi-Fi (default setup scenario) is being installed, click the *Scan* button on the *Setup* page. A list of wireless networks within range of the inverter will be displayed. Select the customer's wireless network from the list and click the *Connect* button. The Inverter Configuration Software will prompt for any required Wi-Fi passwords.

If connection is via ethernet (optional setup scenario, specified at purchase) is being installed, further settings can be found in the *Advanced Settings*.



Optional Settings: Solar Panel Earthing, Inverter Name, DC Installed Capacity



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## Configuration through the Inverter Web Page

Most settings in the inverter can be configured through the inverter web page. Either of the three network connection methods can be used to access the inverter web page; see the *Ethernet Connection*, *Ad-hoc Wi-Fi Connection* or *Infrastructure Wi-Fi Connection* sections for more information.

Using a device connected to the customer's network, or directly to the inverter via ad-hoc, access the inverter web page by entering the inverter's IP address into a web browser e.g. <http://192.168.1.105>. The inverter web page has three sections; *Home*, *Charts* and *Settings*.

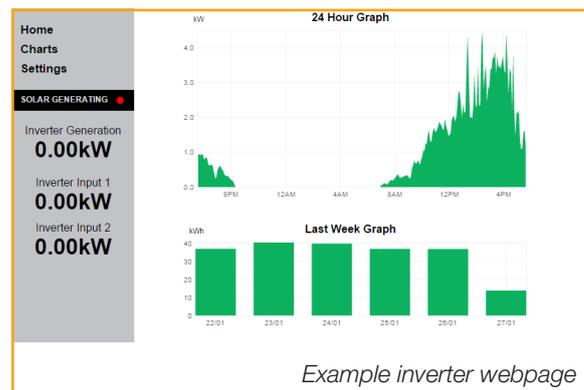
To access the *Settings* section, click on the *Settings* link and enter the username and password when prompted. By default, the username is: Admin and the password is: Admin1.

The inverter name should be set in the *Network* sub-section and the time and date settings should be set in the *Time* sub-section.

If a Wi-Fi connected version is being installed, enter the customer's wireless network name, security mode and password in the *Wireless* sub-section.

If an incorrect wireless network name, security mode or password is entered, the inverter will fail to connect to the network. If this happens, an ad-hoc connection will be available which can be used to retry.

The *Network* sub section allows the inverter's advanced network settings to be changed. For more information on these settings see the *Configuration Details* section.



Example inverter webpage

## Ethernet Connection

An ethernet connection is a direct wired connection between the network and the inverter. Ethernet connections require the ethernet version of the inverter, rather than the standard Wi-Fi version.

Generally, there will be no additional network setup required for ethernet connected inverters as the inverter is configured by default to common network settings (DHCP enabled). If the display module displays an IP address in the *Network* screen, the inverter has successfully connected to a network and configuration can proceed - see the *Configuration through the Inverter Web Page* section.

If the inverter fails to connect to an ethernet network, use a USB connection to set the network settings as required by the network administrator. Relevant settings are located in the *Advanced Network* section of the Inverter Configuration Software.



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## Ad-hoc Wi-Fi Connection

EnaSolar inverters have a built-in web server presenting inverter power production data. To view these web pages, the inverter must be connected to your home network.

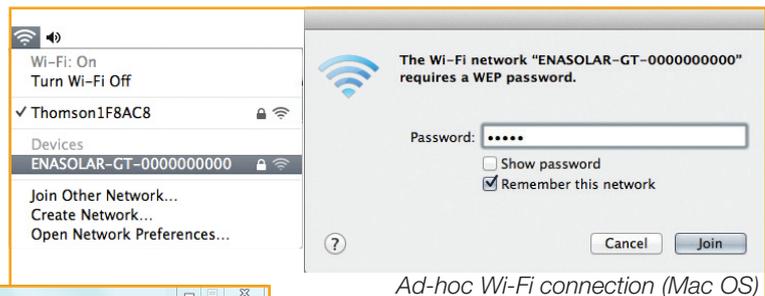
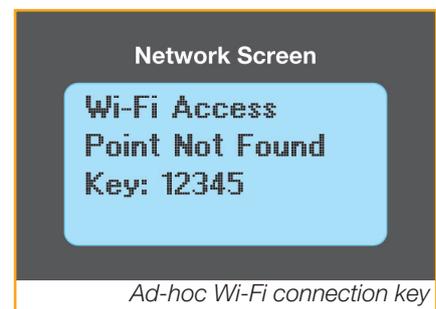
However, if there are no routers/modems or Wi-Fi access points near the inverter, the generation data can be accessed directly via a Wi-Fi capable device that supports ad-hoc operation.

This direct connection between a Wi-Fi capable device directly to the inverter is called Ad Hoc Wi-Fi connection.

When connected to the inverter via ad-hoc, the inverter web page can be accessed by entering the inverter's IP address into your web browser, as detailed in the *Configuration Details* section. Note that the inverter's IP address will default to 10.10.5.5 when connected via ad-hoc. Note that only certain devices and operating systems support the ad-hoc mode, eg Android OS and Windows 8 and later do not support ad-hoc connection.

For general use, an infrastructure Wi-Fi connection (detailed below) is preferred, because only one device at a time can be connected to the inverter via ad-hoc.

If the inverter fails to connect to a Wi-Fi network, or none is available, the inverter will become available for connection via ad-hoc. When the inverter is available for ad-hoc connection, a unique five digit key will be displayed on the inverter's *Network* screen.



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The ad-hoc network name for the inverter is based on the inverter's hostname. By default, the hostname is ENASOLAR-GT, so the default ad-hoc network name is 'ENASOLAR-GT-' followed by the inverter's 10 digit serial number. Connect to this network using a Wi-Fi enabled device and when prompted enter the 5-digit key displayed on the inverter.

Process:

1. Initialise the inverter's Wi-Fi by tapping on the inverter front panel 4 times to toggle to the **Network** screen. The inverter will show a 5-digit key and the message 'Wi-Fi Access Point Not Found'. This is the Wi-Fi Ad Hoc connection password (**WEP key**).
2. The inverter is now available for a Wi-Fi ad-hoc connection, and its network name will show up as ENASOLAR-GT-xxxxxxxx ('xxxxxxxx' is your inverter's serial number).
3. a) Make your *Windows PC/smartphone/tablet* ready to connect to the inverter. Depending on what device you have:
  - i. Click on the wireless icon  in the task bar, or
  - ii. Go to the **Network and Sharing Centre** and click on **Connect to a Network** and look for available networks.b) For *Apple iOS devices (iPhone/iPad)*: Look for **Wi-Fi Devices**.
4. Choose the **Wi-Fi** network called ENASOLAR-GT-xxxxxxxx, connect to it when prompted and use the 5-digit key as network password.
5. The inverter's network screen will now display the inverter's default IP address: 10.10.5.5
6. Open a browser (Chrome or Safari) and enter <http://10.10.5.5> in the address bar to view inverter reporting

## Default Ad-hoc Wi-Fi Settings:

IP Address:	10.10.5.5
Host Name:	ENASOLAR-GT
Wireless Network Name (SSID):	ENASOLAR-GT-xxxxxxxx (10 digit serial number).
Wireless Network Password:	Five digit key, displayed on the inverter's Network Screen.
Security Mode:	WEP with Open Authentication.



**Android and Windows 8 (and later) do not support ad-hoc. If you have trouble viewing the menus, graphs or text once a Wi-Fi connection is secured, please try alternative browsers. In some cases, Java prevents the ability to import and display the data. Earlier versions of Internet Explorer require 'compatibility mode' to be turned on. Later versions are unlikely to display complete information at all. Chrome or Firefox have proven to be reliable. For more useful information go to Technical Document 5J.**



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## Infrastructure Wi-Fi Connection

Infrastructure Wi-Fi is the standard type of Wi-Fi connection. In this mode, the inverter will connect to the wireless access point (or modem, router, etc.), which makes the inverter web page accessible to any device connected to the network. Infrastructure Wi-Fi is preferred over ad-hoc, since it allows for multiple devices to simultaneously access the inverter web page.

Initial setup for infrastructure Wi-Fi requires some configuration through either an ad-hoc or USB connection and the method will differ slightly depending on which is used. In either case, the following information will be required:

- Name of the wireless network (SSID).
- Security Mode (encryption method) used by the network (Open, WEP, or WPA). Usually this is WPA2-PSK.
- The wireless password, if the network is encrypted.
- Authentication type (Open or Closed) if WEP security is used.

## Infrastructure Wi-Fi Setup through a USB Connection

Follow the instructions in the *Inverter Configuration Software* section to connect with the inverter and start the Inverter Configuration Software.

## Infrastructure Wi-Fi Setup through an Ad-hoc Wi-Fi Connection

Connect to the inverter as detailed in the *Ad-hoc Wi-Fi Connection* section. Once connected, access the inverter web page as in the *Configuration through the Inverter Web Page* section. Fill in the appropriate information in the Wireless Network section of the inverter web page. The inverter will attempt to connect to the newly specified network after the *Apply Settings* button is clicked. If the connection fails, the inverter will again be available for an ad-hoc connection.

Note: If any of the above fails - refer to the *Wi-Fi FAQ* on the EnaSolar website. More advanced settings can be found on the *Advanced Settings* page in the configuration software.

