

EZ Mini Wifi Manual

Version 1.0

6/2019

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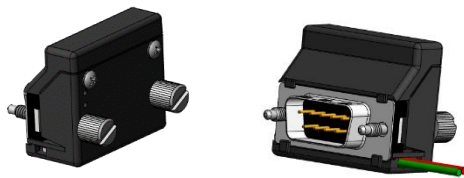
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EZ Mini WiFi Module

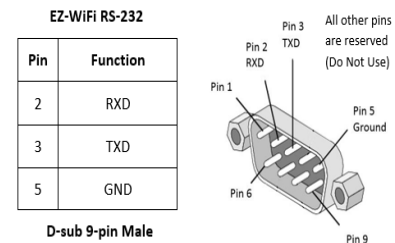
EZ WiFi module allows you to connect over Wi-Fi to serial ports of EZ Automation devices. This allows our users to program and monitor our panel and other products over WiFi. The module can be used in AP (Access Point: direct connection between PC and the module, without need for a router), or in STA (Station mode, connection through a router). The module requires no setup in AP mode, and is simple to setup for STA mode. The module requires 24 V DC power.

Features:

- Wi-Fi to serial bridge, specifically designed for EZ products,
- AP (Adhoc or Access Point: Direct PC to Panel) or STA (Infrastructure: Connection using a router) modes (AP+STA mode to setup STA connection)
- 24 V DC power supply.
- PC or HMI based Configuration
- Factory default mode AP, so nothing to configure to use in AP mode
- For security, factory default set to no broadcast of SSID



Red: +24 V DC
Black: Common



Factory Default Settings

The module is set to following factory defaults:

- Mode: AP (Adhoc or Access Point for direct connection between PC and the module)
- AP IP Address: 192.168.4.1
- AP name: AVG_XXXXXX, where XXXXXX are the last 6 characters of the AP MAC-ID of the module
- AP Name Broadcast: Hidden for security; This require user to type the name to connect to Hidden network
- AP Password: Default password wiXXXXXXfi, where XXXXXX are last six characters of the MAC ID.
- AP Authentication: WPA2

These setting can be changed by browsing to AP IP address.

Installation and Wiring

To use the EZ Mini WiFi module with an EZ panel, plug the module's 9 pin D-sub connector into the 9 pin connector of the EZ Panel (such as EZTouch, EZ3, EZ12, etc). Thumb tight the two screws.

The module requires 24 VDC power input. Simply connect +24VDC to the red wire, and – (ground) to black wire. These may be conveniently connected to the 24V power-input terminals of the same Panel.



Using Mini WiFi Module

PC can be connected to the Mini WiFi module directly, or through an existing router/network. Direct connection requires the Wifi module to be in AP mode (factory default).

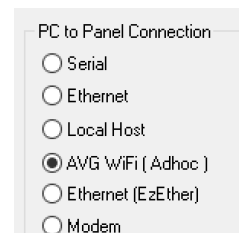
Direct Connection (AP Mode)

Prerequisite: Wifi Module in **AP mode**, and knowledge of **AP Name** and **AP password**

(These instructions assume factory default settings)

To use an EZTouch Editor to program or monitor an EZPanel over WiFi, follow these steps:

1. Power the module.
2. Use AP Name and AP Password to connect PC WiFi to the module. Since module with default settings does not broadcast AP Name, it would not show up in the list of available networks on the pc; the name would have to be typed manually.
3. Once PC is connected to the WiFi Module, select AVG WiFi (Adhoc) option in PC to Panel connection in EZTouch Editor



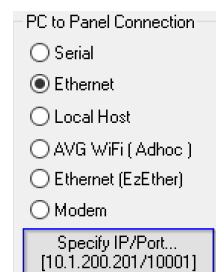
Connection through a router (STA mode)

Prerequisite: Wifi Module in **STA mode**, and knowledge of **STA IP address**

Note that the module is factory-set to AP mode. To change the mode to STA (or other items), see section ##### below.

To use an EZTouch Editor to program or monitor an EZPanel over WiFi, with WiFi in station mode, follow these steps:

1. Power the module.
2. If the module mode is already changed to STA, and a router/network connection is defined with proper credentials, the module would connect to the network.
3. Once PC is connected to the same network, select Ethernet option in PC to Panel connection in EZTouch Editor, and specify IP address of the module.




Connecting to Hidden Networks

This sections details how to connect to a hidden network from a Windows 10 PC. For directions on how to do this from other platforms you can check out Netgears article on this at:

<https://kb.netgear.com/30740/How-do-I-connect-to-a-hidden-network>

Windows 10 Connection Directions:

1. Power the module.
2. Then go to your Wifi on your PC. It is the lower right corner icon ().
3. Click on **Network Settings > Wi-Fi > Hidden Network > Connect.**
4. Now enter the SSID of your Wifi module (AVG_XXXXXX, where XXXXXX are the last 6 characters of the AP MAC-ID of the module).
5. Click Next.
6. Enter your password which is wiXXXXXXfi, where XXXXXX are last six characters of the MAC ID.
7. Now click Next again and your computer will be connect to your Wifi module.

Module Modes

AP Mode

AP Mode (Adhoc) or Access Point Mode is when the module is its own Wifi network. In this mode any Wifi enabled device can connect to the modules network and use IP address 192.168.4.1 to communicate with the module. This mode as default does not broadcast and has a WPA2 password. This can be changed or eliminated. When no STA Mode network is setup this mode is used as default. For configuration direction see [Configuring direct connection setup \(Adhoc setup – AP mode\)](#).

STA Mode

STA Mode or Station Mode is when the module is connected to your already setup Wifi network. This mode has to be setup by selecting the Wifi network you will connect to and inputting its password. When a configured network is detected then the module will connect to it and by default go into this mode. This mode will either have a user setup static IP or use DHCP. For configuration direction see [Configuring Infrastructure setup \(use existing WiFi router – STA mode\)](#). To figure out the module IP see [Module Configuration \(IP Address Information\)](#).

AP + STA Mode

This combo mode is when AP and STA mode are running concurrently. The EZ-Wifi module will not remain in this state indefinitely. If a configured STA Mode network is detected then the module will connect to it and go to STA Mode. If no network is detected or configured it will go to AP Mode.

Module Configuration (IP Address Information)

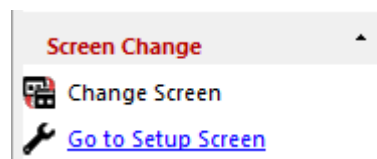
Prerequisites: To view/manage, the module configuration, you would need:

- An EZ Panel with firmware revision of L.1.20 or later, and
- EZTouch Editor version 2.0.15 or later.

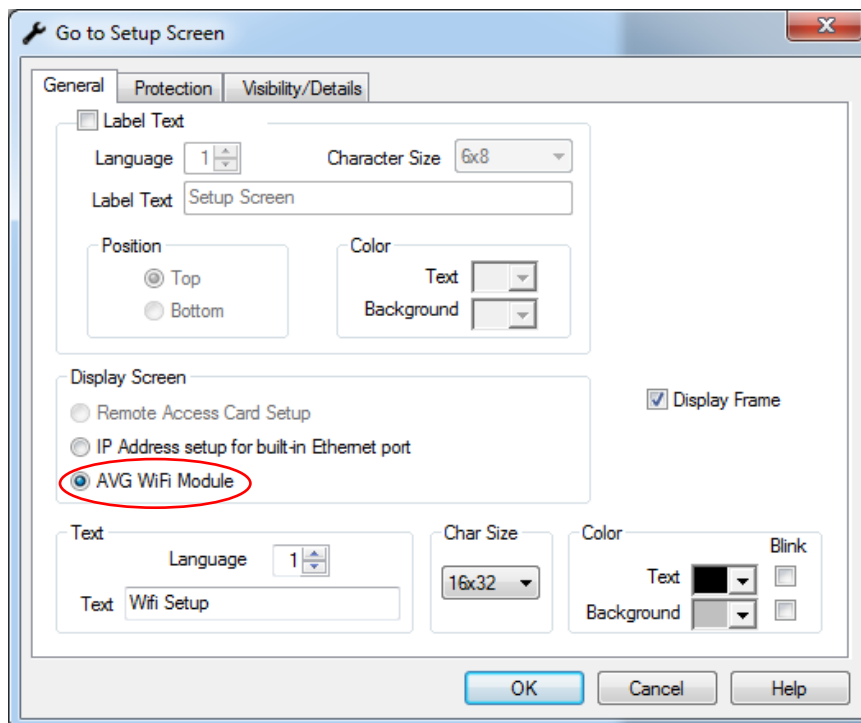
Starting with these revisions, panel firmware and editor supports a new object to get to WiFi Module setup screen. You would need to add this object to a screen in your HMI project to take advantage of the object. (You can use the WiFi module in factory default AP Mode with any revision of the firmware).

Follow these steps to program WiFi setup object in your HMI project:

1. In your EZTouch Editor project select menu item the “Objects > Screen Change > Go to Setup Screen”.

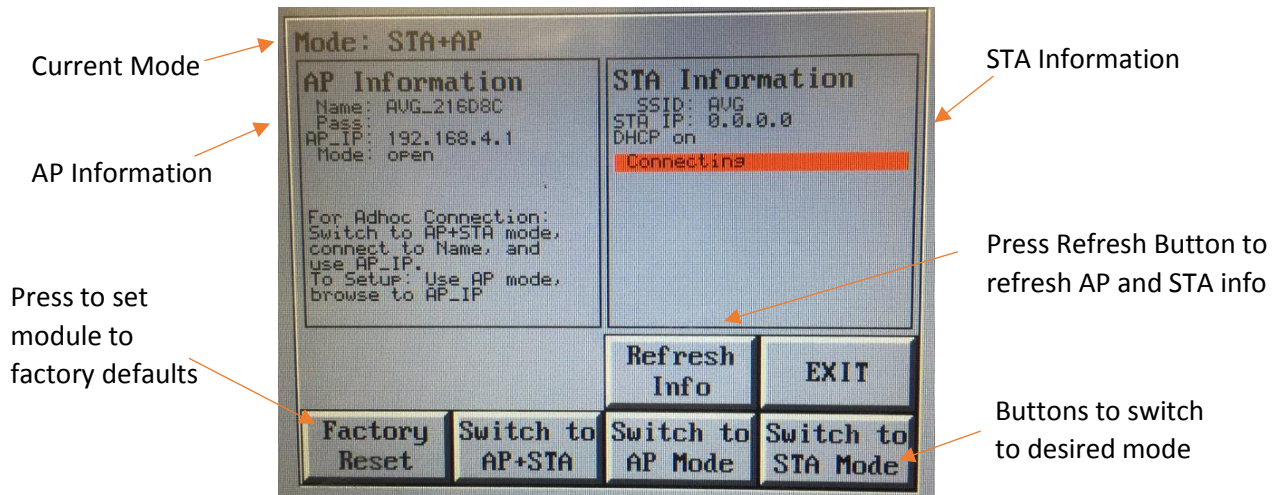


2. In the “Go to Setup Screen” option select the AVG Wifi Module



3. Now place the button object on a screen and download the project to the HMI. (The button can be included in any HMI Project)
4. Next connect the EZ-Wifi to power and connect it to the 9 pin D-sub port on the HMI.

- To access the WiFi Setup screen, press the WiFi Setup Button placed on the screen in step 3. You will get the screen shown below.



- Here you will see the AP configuration as well as the STA IP address (either Static or DHCP assigned).
- You can reset the module to Factory default as well as switch between all 3 modes (AP, STA, AP+STA)
- To configure STA mode or AP mode, you would need to switch the module to AP mode (or to AP+STA mode), connect your PC over WiFi to the AP_Name shown in the AP Information, browse to 192.168.4.1. The webpage at this IP will allow you to configure AP and STA modes. See [Configuring Infrastructure setup \(use existing WiFi router – STA mode\)](#) and [Configuring direct connection setup \(Adhoc setup – AP mode\)](#) below for more information

How to use with EZ Products

Connecting to EZ Panel HMI

1. To use the EZ-WiFi module with an EZ Panel HMI just plug the module into the RS-232 port on the HMI. For power the 24 VDC from the EZPanel can be used for the EZ-WiFi module.



2. Turn on power for the EZ-WiFi module. Then connect using the correct way for adhoc mode (AVG_##### and 192.168.4.1) or infrastructure mode (use module IP address). For setup of these modes see [Adhoc setup](#) or [Infrastructure setup](#).
3. Now in the EZTouch Editor Software select the correct communication channel and then you can download to the panel.
 - Adhoc (AP mode) – Use AVG WiFi (Adhoc) selection in PC to Panel Connection.
 - Infrastructure (STA mode) – Use Ethernet and in Specify IP put in the module IP Address

**Adhoc
(AP mode)**

PC to Panel Connection

Serial

Ethernet

Local Host

AVG WiFi (Adhoc)

Ethernet (EzEther)

Modem

Check AVG WiFi
[192.168.4.1/10001]

**Infrastructure
(STA mode)**

PC to Panel Connection

Serial

Ethernet

Local Host

AVG WiFi (Adhoc)

Ethernet (EzEther)

Modem

Specify IP/Port...
[10.1.200.222/10001]

Connecting to EZ Marquee

1. To use the EZ-WiFi module with an EZ Marquee you will need a RS-232 9 pin cable with 3 wires on the other end (see diagram below). Connect the EZ-WiFi module to the EZ Marquee using the cable to connect to the RS-232 port of the Marquee.
2. [EZ-WiFi Pinout](#)



3. Once you have connected the EZ-WiFi module to the EZ Marquee turn on power to both the Marquee and the EZ-WiFi module. The setup should look like below. Note: Marquee should be using Baud Rate 38400.
4. Now connect using the correct way for AP (Adhoc) mode (AVG_##### and 192.168.4.1) or infrastructure mode (use module IP address). For setup of these modes see [Adhoc setup](#) or [Infrastructure setup](#).
5. Now if using the EZMarquee software you can use either the Adhoc or Infrastructure mode to communicate. For the EZPLC to communicate to the Marquee using EZ-WiFi you will need to use the Infrastructure mode for the EZ-WiFi. The EZPLC will then communicate to the module using its IP address over Ethernet.
 - a. Adhoc (AP mode) – Use 192.168.4.1 from you WiFi enabled computer to communicate to the Marquee.
 - b. Infrastructure (STA mode) – Use your setup IP address to communicate to the Marquee.

Configuring Infrastructure setup (use existing WiFi router – STA mode)

The procedure below outline how to configure the module to Infrastructure mode – STA mode.

Initial Setup (Webpage setup)

This setup has no requirements other than a Wifi enabled device with a web browser. Note: If the module has been previously configured with your network please see [Module Configuration \(IP Address Information\)](#).

1. Connect the EZ-Wifi module to 24 VDC power.
2. Use AP Name and AP Password to connect PC WiFi to the module. Since module with default settings does not broadcast AP Name, it would not show up in the list of available networks on the pc; the name would have to be typed manually.
3. Next in your web browser go to the webpage 192.168.4.1 (AP IP Address). You will see the following page. When in STA mode this webpage can be accessed through your setup IP address.

The screenshot displays the AVG WiFi configuration interface. At the top is a yellow header with the text "AVG WIFI". Below this is a grey header "AVG Module Overview" containing a table with fields: Hostname (avg-wifi), WiFi mode (AP), Description, Serial Baud (38400), Serial Format (8N1), and TCP Bridge Port (10001, 49999). A link "Switch to AP+STA mode" is present. Below is another grey header "Direct Connect to AVG Module / Access Point Mode (AP Mode)". This section is split into two columns. The left column, "AP State", contains a text block explaining AP mode and a table with fields: AP SSID (AVG_AC4C9A), AP Password, AP Hidden (disabled), AP Auth Mode (OPEN), and AP MAC (86:f3:eb:ac:4c:9a). A link "Switch to AP+STA mode" is at the bottom. The right column, "AP Settings", contains a text block "AP main settings, use with care!", a table for AP SSID (AVG_AC4C9A) and AP Password, a dropdown for AP Auth Mode (OPEN), a checkbox for "AP SSID hidden", and a blue "Change AP settings!" button.

4. Next click the Switch to AP+STA mode option. This will add the STA mode settings to the webpage.

AVG WiFi

AVG Module Overview

Hostname avg-wifi WiFi mode AP+STA Description:	Switch to AP mode Switch to STA mode	Serial Baud 38400 Serial Format 8N1 TCP Bridge Port 10001, 49999
-------------------------------------------------------	-------------------------------------------------------------------------	------------------------------------------------------------------------

■
■
■

AVG Module to Other WiFi Router Connection / Station Mode (STA Mode)

WiFi State

In STA (Station) mode, the module and your PC, both connect to a WiFi Router. The module acts as a station or client to the router. The PC connect to the module via the router.

Configured network	
WiFi status	idle
WiFi address	0.0.0.0
WiFi MAC	84:f3:eb:ac:4c:9a

Available WiFi Routers

To connect to a WiFi network, please select one of the detected networks, enter the password, and hit the connect button...

Network SSID

Scanning... ●

WiFi password, if applicable:

password

- Allow the EZ-Wifi module to scan for your Wifi Network. Then select the Network you would like to connect to. If your network has a password please enter in the field at the bottom.

AVG Module to Other WiFi Router Connection / Station Mode (STA Mode)

WiFi State

In STA (Station) mode, the module and your PC, both connect to a WiFi Router. The module acts as a station or client to the router. The PC connect to the module via the router.

Configured network	
WiFi status	idle
WiFi address	0.0.0.0
WiFi MAC	84:f3:eb:ac:4c:9a

Switch to [STA mode](#)

Available WiFi Routers

To connect to a WiFi network, please select one of the detected networks, enter the password, and hit the connect button...

Network SSID [\[Scan again for WiFi Routers\]](#)

- AVG
- AVG_219AE4
- DIRECT-D8-HP OfficeJet 4650
- DIRECT-06-HP OfficeJet 4650

WiFi password, if applicable:

password

[Connect!](#)

Special Settings

Special settings, use with care!

DHCP Static IP

[Change!](#)

- If you would like to assign a Static IP select the Static IP radio button and then enter your selected IP address. Otherwise your module will use DHCP and let you know what your EZ-Wifi module IP address is.

Special Settings

Special settings, use with care!

DHCP Static IP

Static IP address

0.0.0.0

Netmask (for static IP)

0.0.0.0

Gateway (for static IP)

0.0.0.0

[Change!](#)

WiFi State

In STA (Station) mode, the module and your PC, both connect to a WiFi Router. The module acts as a station or client to the router. The PC connect to the module via the router.

Configured network	AVG
WiFi status	got IP address
WiFi address	10.1.200.130
WiFi MAC	84:f3:eb:ac:4c:9a

[Switch to STA mode](#)

Configuring direct connection setup (Adhoc setup – AP mode)

To connect to the module in Adhoc mode – AP mode follow the directions below. No setup is necessary. If you would like you can add

Connect Directions (Webpage)

This is has no requirements other than a Wifi enabled device with a web browser.

1. Connect the EZ-Wifi module to 24 VDC power.
2. Use AP Name and AP Password to connect PC WiFi to the module. Since module with default settings does not broadcast AP Name, it would not show up in the list of available networks on the pc; the name would have to be typed manually.
3. Next in your web browser go to the webpage 192.168.4.1 (AP IP Address). You will see the following page.

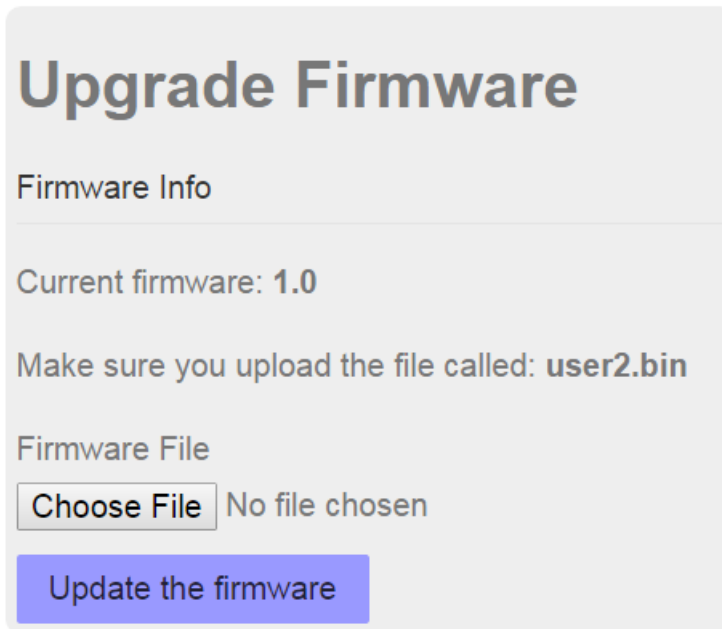
The screenshot displays the AVG WiFi web interface. At the top is a yellow header with the text "AVG WiFi". Below this is a grey header for "AVG Module Overview". The main content area is divided into two columns. The left column contains a table with fields: Hostname (avg-wifi), WiFi mode (AP), and Description. A link "Switch to AP+STA mode" is positioned between the WiFi mode and Description fields. The right column contains a table with fields: Serial Baud (38400), Serial Format (8N1), and TCP Bridge Port (10001, 49999). Below the overview is another grey header: "Direct Connect to AVG Module / Access Point Mode (AP Mode)". This section is split into two columns. The left column is titled "AP State" and contains a paragraph of explanatory text and a table with fields: AP SSID (AVG_AC4C9A), AP Password, AP Hidden (disabled), AP Auth Mode (OPEN), and AP MAC (86:f3:eb:ac:4c:9a). A link "Switch to AP+STA mode" is at the bottom of this column. The right column is titled "AP Settings" and contains the text "AP main settings, use with care!". It includes input fields for AP SSID (containing AVG_AC4C9A) and AP Password, a dropdown menu for AP Auth Mode (set to OPEN), and a checkbox for "AP SSID hidden". A blue button labeled "Change AP settings!" is at the bottom of this column.

4. You are now connected to the module in AP mode. To use with a device you can see [How to use with EZ Products](#). Also on this page you can modify your AP mode name, add password protection and select which Authorization mode (WPA_PSK, etc.) is used.

How to upgrade Firmware

If there is ever a need to upgrade firmware of the EZ-WiFi please power it on. Then follow the direction below.

1. Using web browser access the EZ-WiFi AP IP address which is 192.168.4.1. Or you can use the Infrastructure (STA) mode known IP address to go to the same webpage.
2. Once on the website go to the sidebar on the left and choose Upgrade Firmware.
3. On the website follow the direction there. In the case below browse to the user2.bin file provide for the Firmware upgrade using the Choose File option. It will request the user1.bin file the second time or vice versa. **Please make sure to update twice so that both user1 and user2 are the newest version.**



Upgrade Firmware

Firmware Info

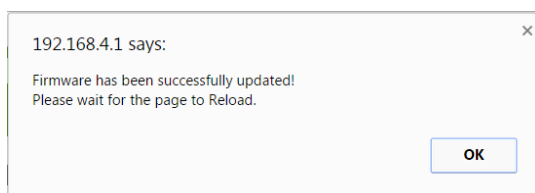
Current firmware: **1.0**

Make sure you upload the file called: **user2.bin**

Firmware File

No file chosen

4. Now click Update the firmware. The firmware will be update and it will inform you that it has been successfully updated.



5. All settings should usually be retained. If settings are reset then follow direction here to redo settings for infrastructure mode: [Directions](#).

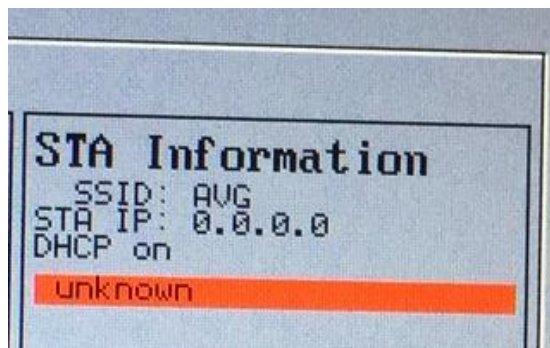
Frequently Asked Questions (FAQs)

How do I tell what mode the module is in?

The module defaults to STA mode if a Network connection has been configured and the network exists. Otherwise it will be in AP mode. You can check the EZ-Wifi mode at any time using the HMI utility.

Wifi is not connecting to Wifi Network?

If there are any problems with the module connecting you will need to check HMI Wifi screen for the error reporting function. The screen will let you know what is causing your connection issue. Depending on the network the Red message can give an indication of what issue the module has (incorrect password, network not found, etc.) but otherwise it will be in unknown state with module in AP+STA mode so user can connect to Access Point. Then user can use the website (192.168.4.1) to find out more information.



How do I switch modes?

The web interface allows for changing to STA+AP mode. From this mode you can then change to AP mode again or STA mode.

The module is already configured in STA mode. How do I find out its IP address?

Please see the [Module Configuration \(IP Address Information\)](#) Section.

How do I reset the EZ-WiFi module?

The HMI utility allow have a reset to Factory Default setting.

How do access the EZ-Wifi Webpage?

If the module is in AP mode and you are connected to it then you will use a web browser and go to 192.168.4.1. If the module is in STA mode and connected to your network then you will go to the module IP address in your web browser, for example 10.1.200.130.

How do I upgrade my EZ-WiFi module?

Please follow directions in the [How to upgrade Firmware](#) section.

Can I password protect my EZ-WiFi module Access Point (Adhoc) connection?

Yes the EZ-WiFi module Adhoc connection can be password protected. Use the AP settings area to decide on the Authorization Mode type and the password for the Adhoc connection.

AP Settings

AP main settings, use with care!

AP SSID

AVG_219B8E

AP Password

AP Auth Mode

AP SSID hidden

[Change AP settings!](#)

Marquee not displaying message sent to it?

Please make sure that the EZMarquee is using Baud Rate 38400 when communicating.

What to do if you need help or have more questions?

Although most questions can be answered by consulting the EZ-WiFi Help, you may find additional answers on our web site at www.EZAutomation.net. However, if you still need assistance, please free to call our technical support, Monday through Friday between 6:00am to 12:00pm CST at 1-877-774-EASY.

Tech Support: 1-877-774-EASY

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