EZ Mini Wifi Manual

Version 1.2

EZAutomation

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Contents

Warnings

Programmable control devices such as the EZ7 Series HMI are not fail-safe devices and as such must not be used for stand-alone protection in any application. Unless proper safeguards are used, unwanted start-ups could result in equipment damage or personal injury. The operator must be made aware of this hazard and appropriate precautions must be taken. In addition, consideration must be given to the use of an emergency stop function that is independent of the EZ7 Series HMI.
The diagrams and examples in this user manual are included for illustrative purposes only. The manufacturer cannot assume responsibility or liability for actual use based on the diagrams and examples.

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EU Information

The EZ7 Series HMI is manufactured in compliance with European Union (EU) Directives and carries the CE mark. They been tested under CE Test Standard #EN55011, and is submitted for UL Certification. Products with CE marks perform their required functions safely and adhere to relevant standards as specified by EU directives provided they are used according to their intended purpose and that the instructions in this manual are adhered to. The protection provided by the equipment may be impaired if this equipment is not used in accordance with this manual. Only replacement parts supplied by AVG Automation or its agents should be used.

Technical Support

Consult Panel Editor Programming Software Help. You may also find answers to your questions in the operator interface section of our website @ flash.ezautomation.net. If you still need assistance, please call our technical support at 1-877-774-EASY or FAX us at 1-877-775-EASY.

SELV Circuits

All electrical circuits connected to the communications port receptacle are rated as Safety Extra Low Voltage (SELV).

1 EZ MINI WIFI MODULE

EZ mini WiFi module allows you to connect over Wi-Fi to serial ports of EZ Automation devices. This allows users to program and monitor EZ 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

2 FACTORY DEFAULT SETTINGS

The module is set to following factory defaults.

These setting can be viewed and changed using panel and/or PC. Panel can do only limited changes (See section 7.1).

Using PC, all settings can be viewed and changed. (See section 7.1)

Please note that the module's default settings have changed from firmware revision 1.1 to 1.2. These differences are listed below. It is highly recommended that user sets their unique password for connection security and keep passwords safe.

Item	Default Values	
	Firmware Ver 1.1	Firmware Ver 1.2
Mode	AP	
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 (printed on the module label)	
AP Name Broadcast	Hidden (No broadcast)	Not hidden (Broadcast)
AP Password	wiXXXXXXfi, where XXXXXX are the last 6 characters of the AP MAC-ID	None
AP Authentication	WPA2	Open

3 INSTALLATION AND WIRING

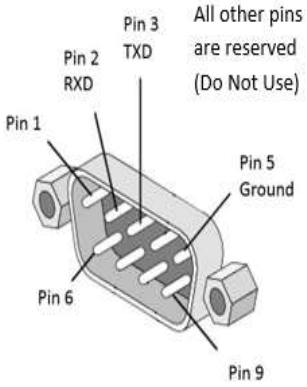
To use the EZ Mini WiFi module with an EZ panel, plug the module's 9 pin D-sub connector into the 9 pin connector of the EZ Panel (such as EZTouch, EZ3, EZ12, etc). Thumb tight the two screws. Table below gives the pins and signals for information.

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

EZ-WiFi RS-232

Pin	Function
2	RXD
3	TXD
5	GND

D-sub 9-pin Male



Red: +24 V DC
Black: Common

The module can be used with other EZ devices, such as EZPLC, EZRack, and EZMarquee. However, if you need view/change the settings, you would need to use a PC to do so.

4 USING MINI WIFI MODULE

PC can be connected to the Mini WiFi module in one of the two ways:

- Directly, or
- Through an existing router/network.

Direct connection requires WiFi module to be in AP mode (factory default).

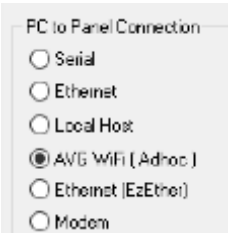
4.1 DIRECT CONNECTION (AP MODE)

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, the module with firmware ver 1.1 and 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.; Ver 1.2 factory default setting broadcasts the name and does not require password)
3. Once PC is connected to the WiFi Module, select AVG WiFi (Adhoc) option in PC to Panel connection in EZTouch Editor (or editors of other EZ devices, such as EZPLC editor, EZRack Editor, and EZMarquee editor)

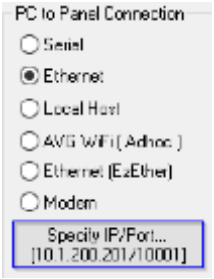


4.2 CONNECTION THROUGH A ROUTER (STA MODE)

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 7.1 below.

To use EZTouch Editor to program or monitor an EZPanel over WiFi, with WiFi in STA 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 automatically.
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.

5 CONNECTING TO HIDDEN NETWORKS

Since Module with firmware version 1.1 does not broadcast its ssid name, you will have to connect to it by selecting Hidden network in Windows 10 as outlined below:

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 connect to your Wifi module.

6 MODULE MODES

EZ minWiFi module operates in one of the three modes, described below. Each mode has its application:

6.1 AP MODE (ALSO KNOWN AS ADHOC MODE)

AP (for Access Point) Mode, also know as Adhoc or 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).

6.2 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).

6.3 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.

7 VIEW/MANAGE MODULE CONFIGURATIONS

As mentioned before, the module comes with certain factory default configuration. If those settings work for you, nothing needs to be changed. However, it's likely that you may need to change the configuration based on your requirements. You can view and change the settings from Panel and/or PC as described below:

7.1 USING EZPANEL

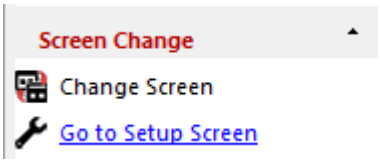
Prerequisites: To view/manage, the module configuration, you would need:

- 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).

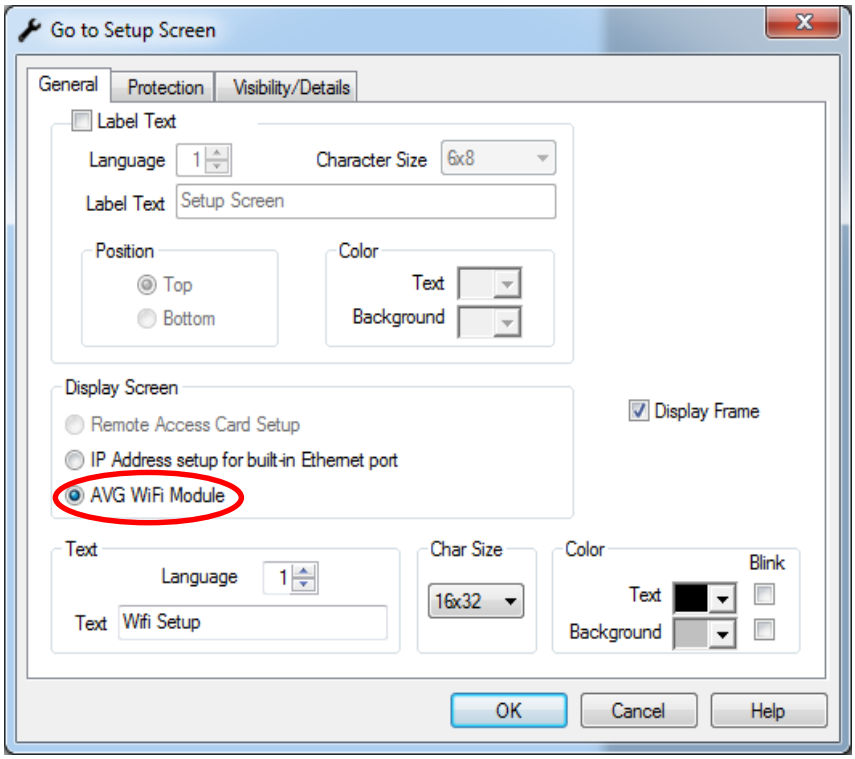
Follow these steps to program WiFi setup object in your HMI project:

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

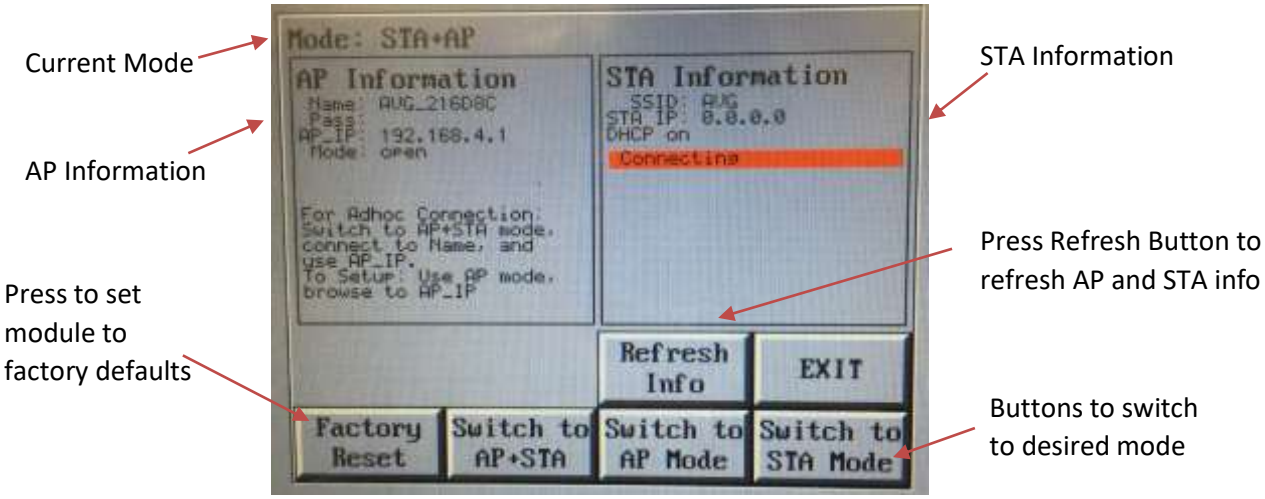


"Objects >

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.
5. 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.



On this screen, you can:

- see the AP configuration as well as the STA IP address (either Static or DHCP assigned).
- reset the module to Factory default as well as switch between all 3 modes (AP, STA, AP+STA)
- view module firmware revision (applicable with module firmware version 1.2 onward, and panel firmware rev L.2.31 or later)

For any changes that cannot be done from panel screen, use of PC is required.

7.2 USING PC

Module has a webpage that is used to view and change the module's settings.

To get to the webpage:
(If you don't know module's current settings, use ez panel to view those, as outlined above)

- *If module is in AP mode (or AP+STA)*: Connect PC wirelessly to the module using 'AP Name' (see section 2 for default settings). From browser of your choice, browse to IP address 192.168.4.1 to view the web page.
- *If module is in STA mode*, connect your PC to the same network on which the module is connected, and then browse to the IP address of the module to view the web page.

You will see one of the following pages depending upon the current mode of the module:

Webpage when module is in AP mode:

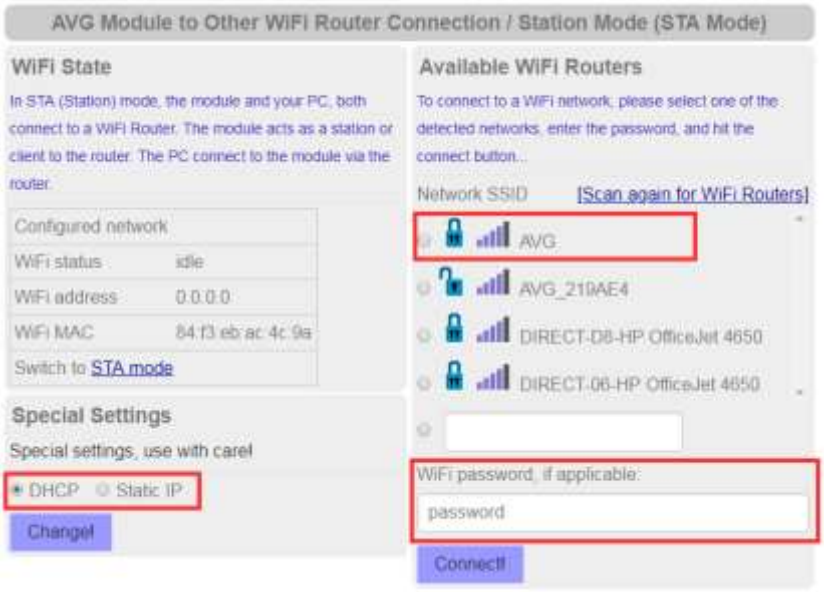
Webpage when module is in AP+STA mode

Webpage, when module is in STA mode would list available networks along with connection state.

7.2.1 Configuring module for STA (Infrastructure) mode (use existing WiFi router)

If the module is already in STA mode and connected to the desired network, nothing else to be done, otherwise follow below given steps:

1. While on the webpage, switch to AP+STA mode. You can do this from panel or from the webpage.
2. Wifi module would scan available networks, and show the list of available networks. It may take little time to scan all available networks.



3. On the webpage:
   a. Select desired network,
   b. type in the password if applicable, and
   c. select how the ip address would be assigned to the module (DHCP vs Static IP). For Static IP, you would be prompted to enter IP address, netmask and gateway, as shown below in the image under Special Settings heading
4. Once you connect to desired network (or switch to STA mode with new IP address), you may have to reconnect your PC to the network, and browse to the new IP address to view the webpage. You will see the details of connection as shown betow in WiFi State image. You can see these details on ez panel also.

7.2.2 Configuring AP or Adhoc mode for direct connection

If the module is not in AP mode, switch to AP mode ether from EZPanel or from Webpage.

On the webpage, make the necessary changes to the AP settings such as change the name of AP SSID, Password, etc. Note these values (you can also see these from EZ Panel as mentioned in section 7.1).

8 HOW TO USE WITH EZ PRODUCTS

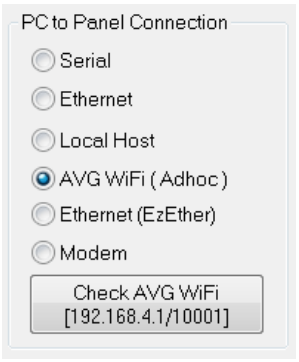
To use the EZ-miniWiFi module with an EZ Device, such as EZTouch families, EZPLC, EZRack, or EZMarquee,just plug the module into the RS-232 port on the HMI. For power the 24 VDC from the EZPanel can be used for the EZ-WiFi module.

With EZ Panels, you can view module's configuration using an object as shown in section 7.1. You can use the module with other headlessdevices in Adhoc or Infrastructure mode, as long as you know these settings.

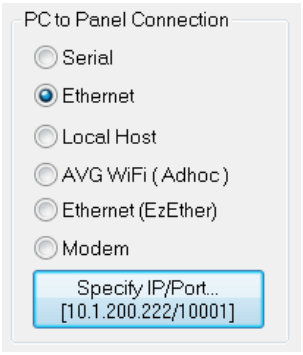
Now in the Editor Software corresponding to the EZDevice, select the correct communication channel and then you can download to the device.

- If module is connected in Adhoc (AP mode) – Use AVG WiFi (Adhoc) selection in PC to Panel Connection.
- If module is connected to Infrastructure (STA mode) – Use Ethernet and in Specify IP put in the module IP Address

Adhoc
(AP mode)



Infrastructure
(STA mode)



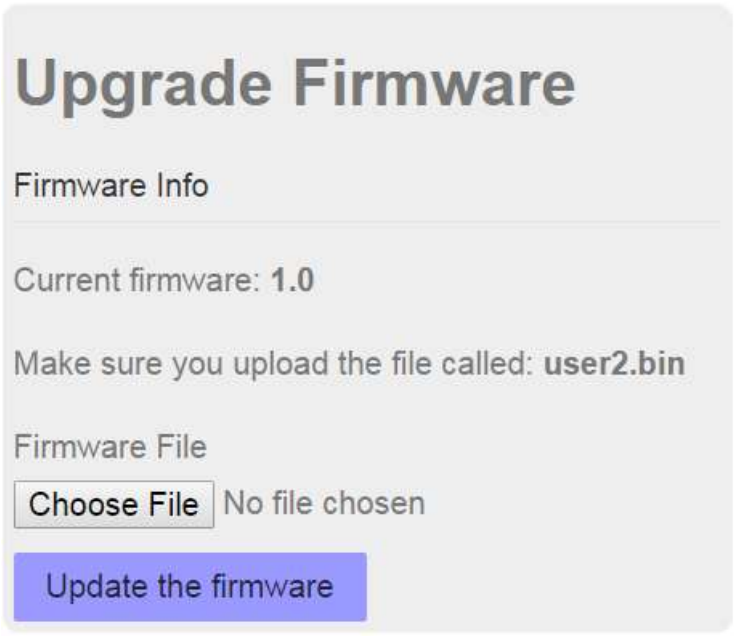
9 HOW TO UPGRADE FIRMWARE

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

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.

Once on the website go to the sidebar on the left and choose Upgrade Firmware.

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.**



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

All settings should usually be retained. If settings are reset then follow direction here to redo settings for infrastructure mode: Directions.

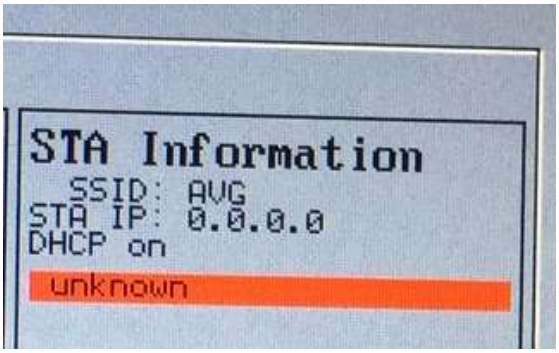
10 FREQUENTLY ASKED QUESTIONS (FAQS)

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-mini WiFi module?

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

How do access the EZ-mini Wifi Webpage?

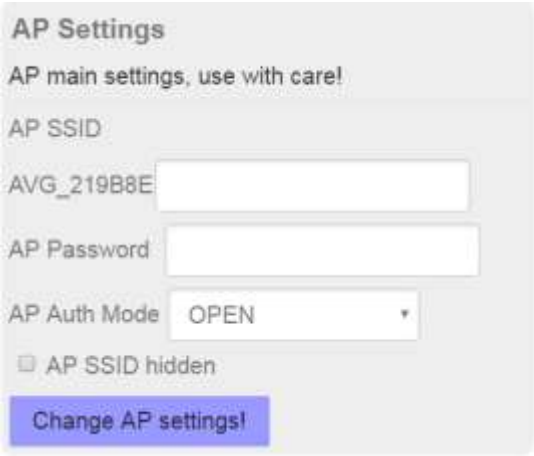
If the module is in AP mode and you are connected to it then you will use a web browser and go to 192.168.4.1. If the module is in STA mode and connected to your network then you will go to the module IP address in your web browser, for example 10.1.200.130.

How do I upgrade my EZ-mini WiFi module?

Please follow directions in the How to upgrade Firmware section.

Can I password protect my EZ-mini 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.



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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