



**EasyIO FT Series User Reference**



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### **Federal Communication Commission Interference Statement**

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

### **FCC Caution**

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

### **FCC Radiation Exposure Statement**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

RF Exposure: A distance of 20 cm shall be maintained between the antenna and users, and the transmitter module may not be co-located with any other transmitter or antenna.



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## Prerequisites

1. HTML5 supported Web browser.
2. Latest CPT Tool 29<sup>th</sup> Dec 2018 or later.
3. The EasyIO FT Series Sedona Controller running latest firmware.

Contact EasyIO support at [support@easyio.com](mailto:support@easyio.com) if you need assistance.

## Introduction

EasyIO FT Series is the most smallest wireless Sedona controller in the market. It is equipped with a all in one microprocessor with built in Wi-Fi, the first in the Automation industry, with a 240MHz processor and also with a lightweight *freeRTOS V8.2.0* OS for premium performance. Supports BACnet IP server over Wi-Fi and TCom or premium performance with Niagara AX and N4.

- The Build in boot loader can be carried out remotely. No more manual service button needed is used.
- Firmware upgrading can be done remotely and without any assistant.
- Firmware upgrading is via web browser. No extra program or software required.

This document describe about basic connection and technical specifications.

FT Series range of products comes in few options.  
Options are referring to IO (Input/Output) configurations.

FW Model	UI	AO	DO	EIA-485	Protocol Supported
FT-04B	2	1 (Voltage only)	1	1	Sedona BACnet IP server

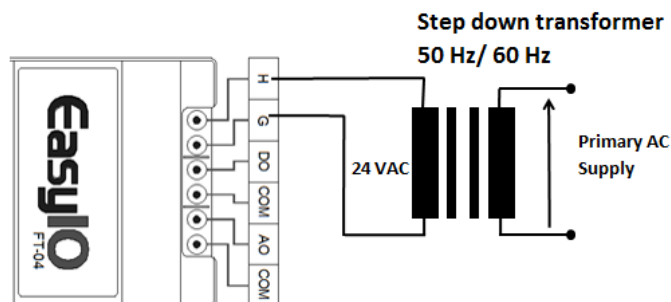
*Table shown above show the IO configuration*

## Hardware Configurations

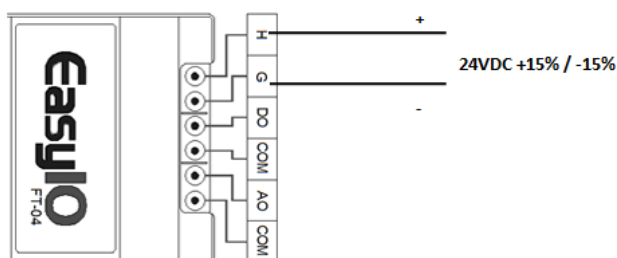
### Power supply Connection

Both AC and DC can be used for EasyIO FT Series controller. Refer to electrical specification for the working range. In order to avoid damage on the controller input/output devices and RS485 connection, use individual power supply for each controller. If a single power supply is used to power up multiple EasyIO FW series, make sure controller power supplies are connected with the same polarity.

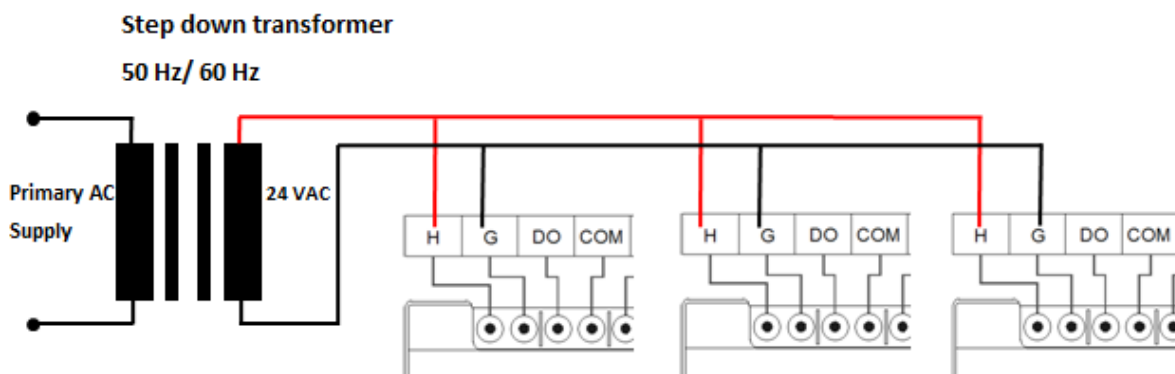
Electrical	
<b>Power Supply</b>	24V AC +/- 5% or 24V DC +/- 15%
<b>Consumption</b>	100 mA
<b>Operating Temperature</b>	32 to 150 Deg-F (0 to 65 Deg-C)
<b>Storage Temperature</b>	-4 to 150 Deg-F (-20 to 65 Deg-C)
<b>Operating Humidity</b>	10% to 70% relative humidity non-condensing



OR



Power Supply Connection



Multiple controllers share single transformer connection



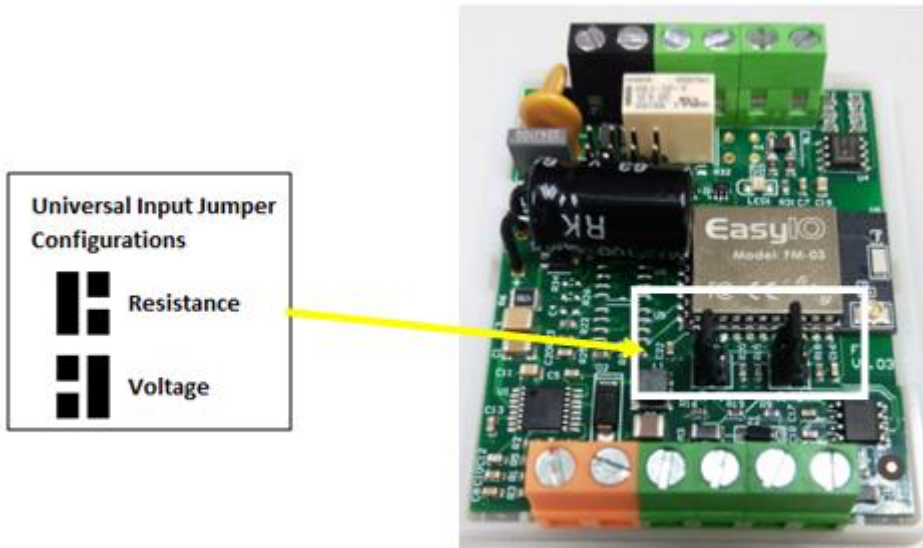
## Input Output configuration

FT Series range of products comes in few options.  
Options are referring to IO (Input/Output) configurations.

FW Model	UI	AO	DO	EIA-485	Protocol Supported
FT-04B	2	1 (Voltage Only)	1	1	Sedona BACnet IP server

## Jumpers Configurations

Below image shows the jumper setting for Universal Input and Watchdog Jumper  
Jumper not shown below are for internal use ONLY.

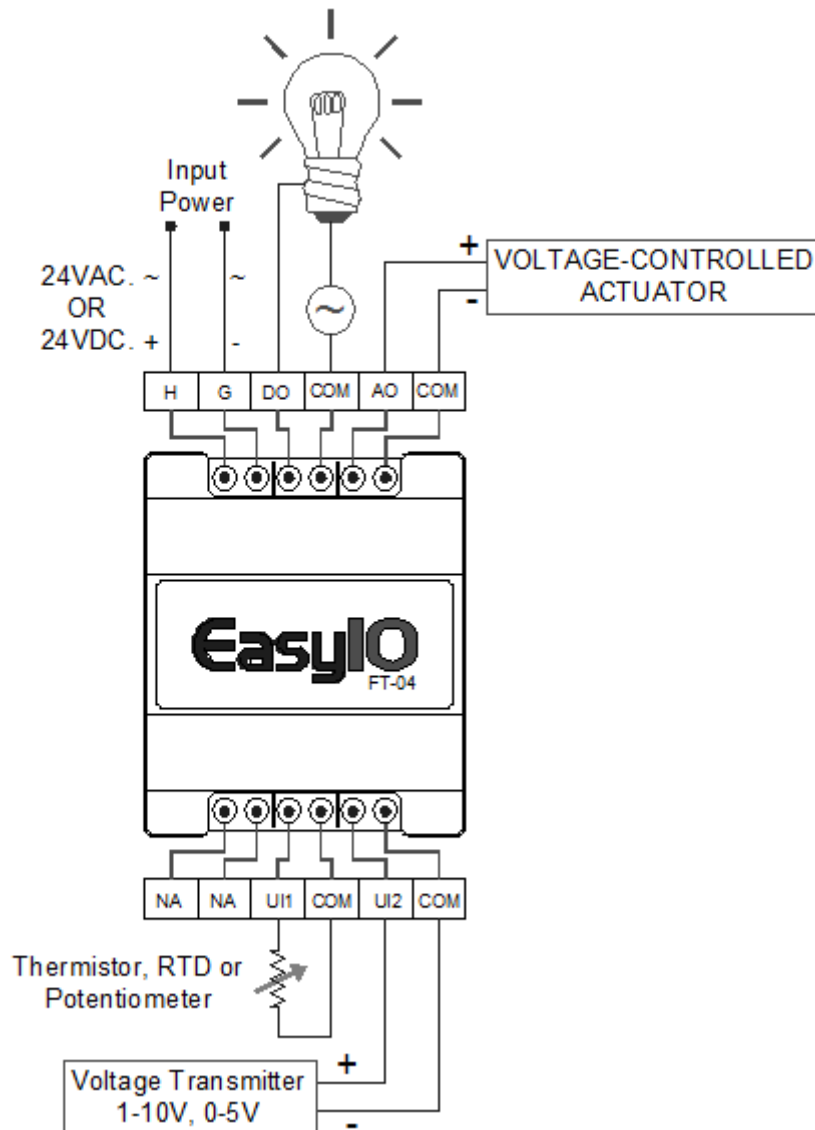






## Wiring diagram

Below diagram shows the general wiring diagram for FT series according to its model.



## Digital Output Wiring Connection

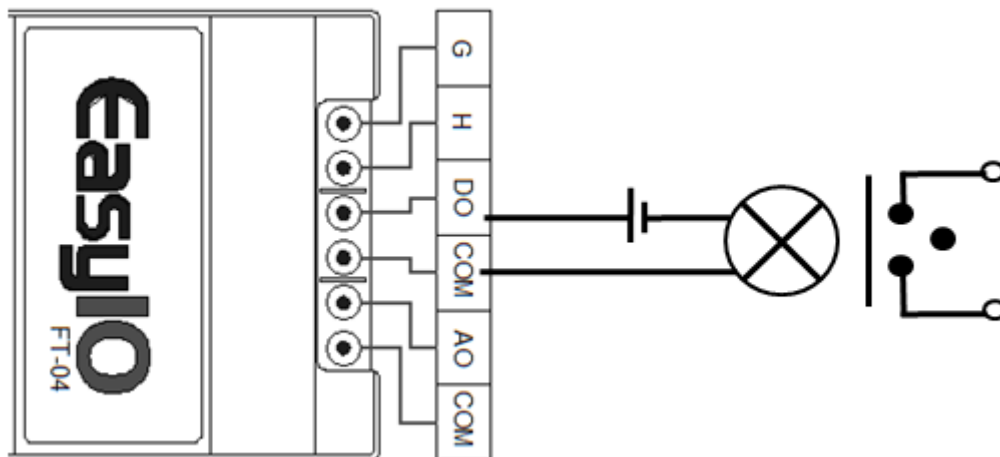
EasyIO FT Series digital output is for general purpose isolated digital output connections (relay output).

Pilot Duty rating is as below (Pilot Duty);

- 24 VAC , 2.0A
- 24 VDC , 2.0A

<b>Digital Output</b>	<b>1 ~ 2 Channels</b>
<b>Type</b>	Relay Contacts, SPST NO, 48VA at 24VAC,

***It does not output voltage or current. It is a dry relay contact.  
No triac output.***



*Digital Output Connection*

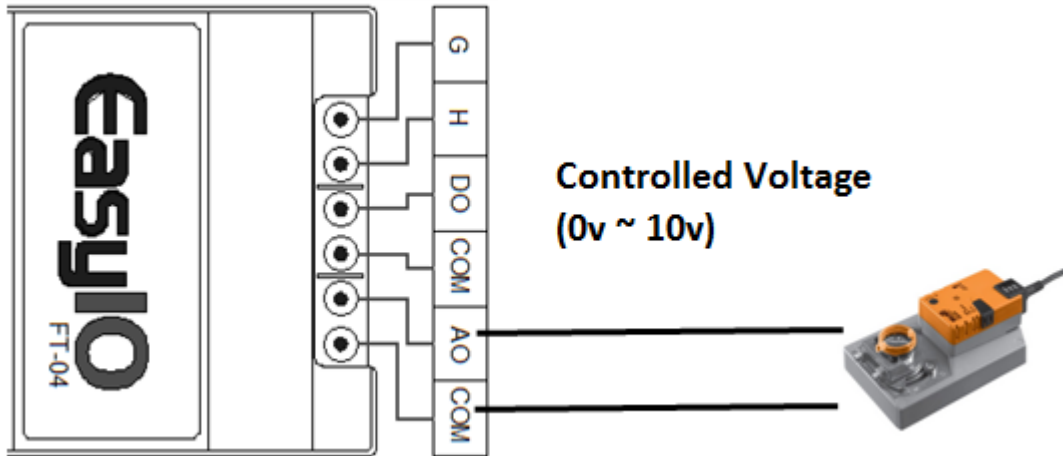


## Analog Output Connection

EasyIO FT series has Analog Output connections. Each Analog Output can only drive voltage.

The working range for voltage is 0 – 10V.

<b>Universal Output</b>	<b>1 ~ 2 Channels</b>
<b>Type</b>	<b>Voltage: 0 – 10VDC , Min Impedance 10K Ohm.</b>



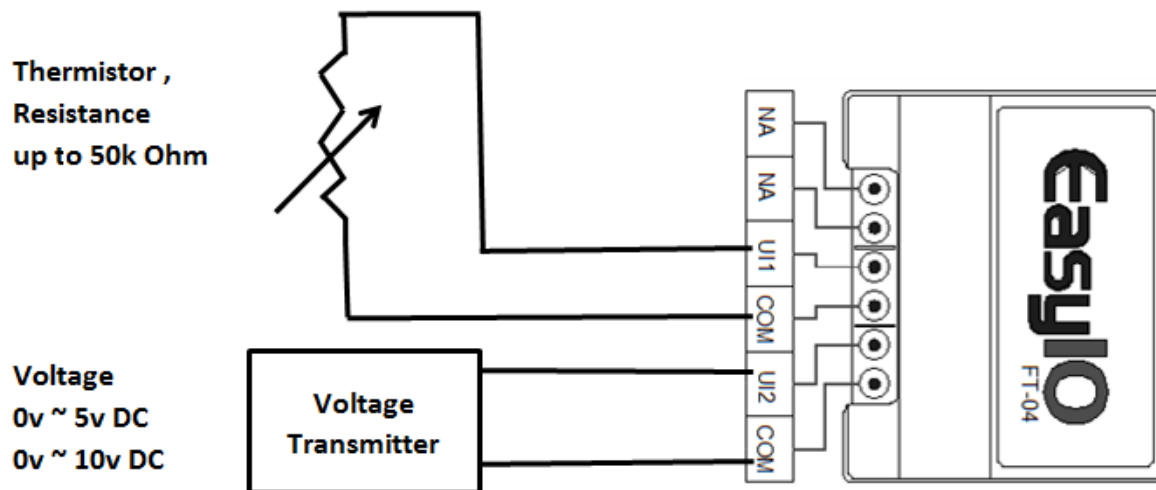
*Analog Output Connection*

## Universal Input Connection

EasyIO FT series has non-isolated universal inputs. The universal input supports two type of analog signal i.e. resistance and voltage via hardware jumper and internal register settings:

Universal Input	2 Channel
<b>Resistance</b>	3K - 50K (+/-10 Ohm)
<b>Thermistor</b>	10K Type 3, 10K Type 2, 20K,: All (+/-0.1 Deg-C)
<b>UI as Digital Input</b>	Voltage Free Contact

- a) Resistance – The working range of resistance is 3000 Ohm – 50k Ohm.  
The commonly used Thermistor such as 10K Type 2, 10K Type 3 and 20K Thermistor.
- b) Voltage – Supports 0 – 10V and 0 – 5V (scaling required).  
The minimum input impedance of voltage mode input is **1 Mega Ohm**.



## Network and Wireless

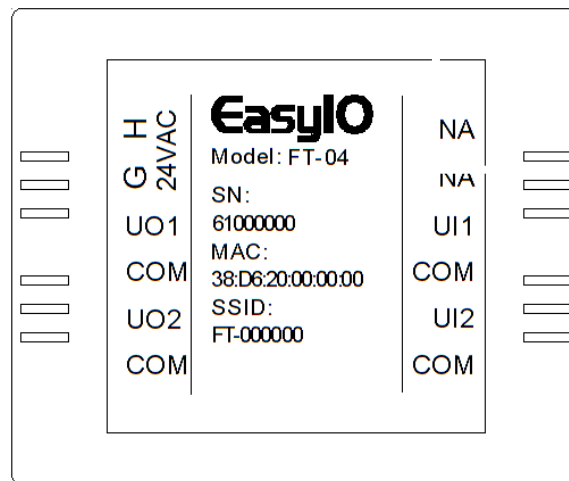
EasyIO FT series comes with on board wireless connection.  
 The wireless network comply to IEEE 802.11 standards.  
 It supports IEEE 802.11 b/g/n standard.  
 Each unit is supplied on board internal antenna.

FT Series is Wi-Fi Access Point (AP).  
 The AP connection is used to configure the FT controller.

Access Point SSID : FT-xxxxxx , where xxxxxx is the last 6 digit of the MAC address.

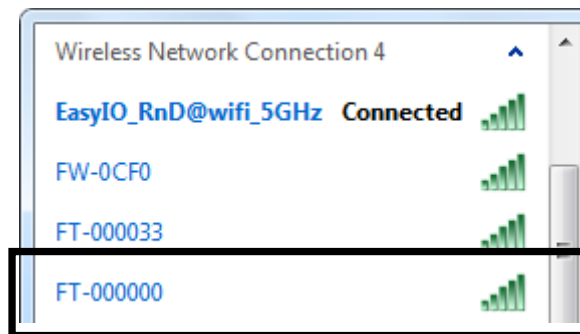
Mac Address label located at the bottom casing of each FT series controller.  
 The MAC address label is available below circuit board as well  
 Password for FT-xxxxxx SSID by default is 12345678.

**\*\* Please change the password to secure the connection\*\***



In the example above, the MAC address is *38:D6:20:00:00:00*, you should be able to scan the SSID as ***FT-000000*** from any Wi-Fi Scanner.

Image below shows a Wi-Fi scanner from a Windows Operating system.



## Login Details

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EasyIO FW Series default IP address and login details are as below.

### FT AP SSID (FT-xxxxxx)

Default IP address : 192.168.4.1  
 Default Subnet : 255.255.255.0

### Sedona Login via CPT

Username : admin  
 Password : <no password>

### Web Browser login

No login require at the moment.

## Establish a connection for the first time

---

In this chapter we will guide you to connect the FT Series controller for the first time.

A brand new FT controller Wi-Fi Access Point is always enable.

It has DHCP server enable.

The best approach to connect to a brand new FT series controller is by utilizing its DHCP server and run automatic IP address in your device.

This reduces the hassle of manually configuring your computer IP address and other network settings as well as reducing error.

### Step 1

From your computer wireless network shortcut locate the controller SSID (default main SSID is FT-xxxxxx) and connect.

Enter password as **12345678** when prompt.

### Step 2

Once your computer is connected it will be most likely IP address 192.168.4.2 assign automatically by the FT controller.

You should be able to ping the controller via command line.

FT default IP address is 192.168.4.1 in AP mode.



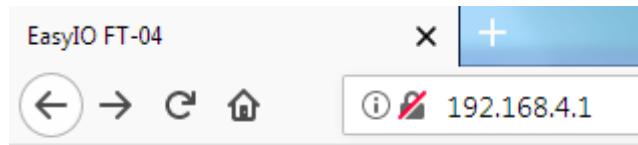
- Wi-Fi Client
- DHCP IP address
- IP address is 192.168.4.2
- Subnet Mask is 255.255.255.0



- Wi-Fi Access Point
- DHCP Server
- IP address is 192.168.4.1
- Subnet Mask is 255.255.255.0

**Step 3**

Use any HTML5 compatible web browser and connect to the FT controller with the IP address 192.168.4.1.



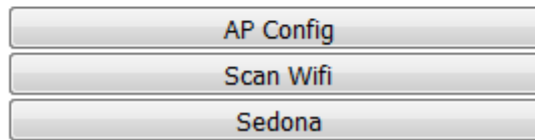
**Step 4**

Once connected you should be able to see 3 options.

# EasyIO FT-04

Current SSID : [EasyIO\\_RnD@wifi](#)

Current IP : [192.168.18.118](#)



## AP Config

### AP Configuration

<b>SSID :</b>	<input type="text" value="FT-000032"/>	<input type="button" value="Update AP Config"/>
<b>PWD :</b>	<input type="text" value="12345678"/>	
<b>AUTH MODE :</b>	<input type="text" value="WPA2_PSK"/>	

Menu	Description
<b>SSID</b>	Access Point SSID name. By default each SSID is named according to its MAX address. You can change the SSID name to your preference.
<b>PWD</b>	Access Point SSID password. By default it is 12345678. You can change the password to strengthen the security to your preference.
<b>AUTH MODE</b>	Access Point SSID authentication mode. Several options of authentication mode is supported. At the moment, WPA2 Enterprise is not supported.

## Establish connection of FT to a Wi-Fi network

Before proceeding to this chapter, please make sure you manage to connect to the FT controller using the above chapter, **Establish connection for the first time**

In this chapter we will guide you to connect the FT Series controller to a Wi-Fi network. Once this chapter is completed your FT series controller is a Wi-Fi client to a Wi-Fi network. Below image is an example of FT controller is part of a Wi-Fi network.



- Wi-Fi AP
- DHCP Server
- IP address is 192.168.18.1
- Subnet Mask is 255.255.255.0



- Wi-Fi Client
- DHCP Client
- IP address is 192.168.18.118
- Subnet Mask is 255.255.255.0

Once connected navigate to *Scan Wi-Fi* menu.

### Scan Wi-Fi

#### WIFI STATION CONFIGURATION.

Current SSID : [EasyIO\\_RnD@wifi](#)

Current IP : [192.168.18.118](#)

- FW-012A (Signal : 61 %) - Secured
- EasyIO\_RnD@wifi (Signal : 59 %) - Secured
- FW-0CF0 (Signal : 58 %) - Secured
- FT-000034 (Signal : 56 %) - Secured
- FW-0058 (Signal : 55 %) - Secured
- FT-0000F0 (Signal : 54 %) - Secured
- EasyIO\_Level03@wifi (Signal : 51 %) - Secured
- FT-000033 (Signal : 48 %) - Secured

Password:





Select the radio button of the preferred SSID then enter the password for the particular SSID. Finally click Update to complete the task.

Once the Wi-Fi connection as a Wi-Fi client is successful, the current SSID and current IP will show. In the example above the FT series controller is connected to a SSID named “*EasyIO\_RnD@wifi*” and it gets an IP address from the SSID DHCP server, “*192.168.18.118*”.

Now the FT series controller is part of *EasyIO\_RnD@wifi* network.

## EasyIO FT-04

Current SSID : [EasyIO\\_RnD@wifi](#)

Current IP : [192.168.18.118](#)

### Connecting to FT Series (CPT Tool)

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Before proceeding to this chapter, please make sure you manage to connect to the FT controller using the above chapter, *Establish connection for the first time*

In this chapter we will guide you to connect to a EasyIO FT Series controller with CPT tools for programming.

Make sure you have all the prerequisite before we start.

#### Step 1

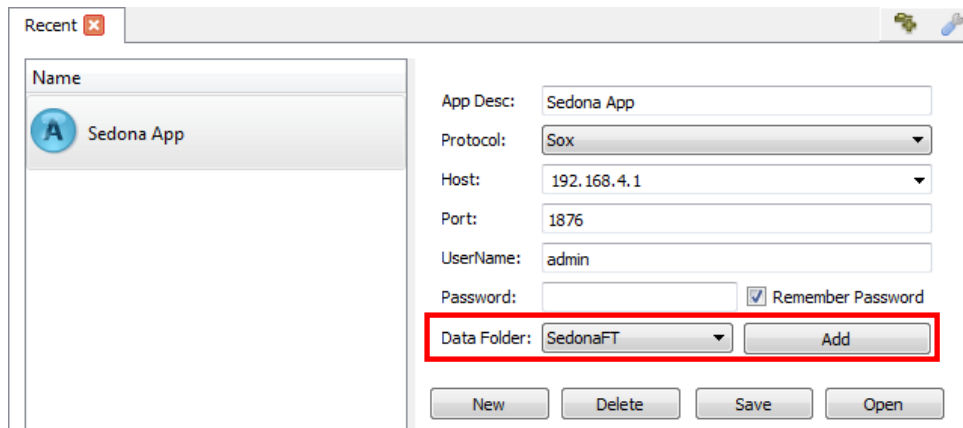
Connecting to the FW Series Sedona environment using the CPT Tools.

The default IP address for the FW Series controller is 192.168.4.1

\*\*Depending to which connection you made to the FT, if you are connecting to the FT which is connected to another Wi-Fi SSID, please refer to *Establish a connection of FT to a Wi-Fi network* chapter for current IP address.

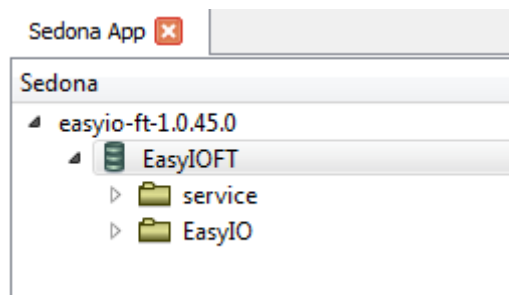
At the CPT Tool open device pane, put in the FT controller IP address.

Make sure the “DataFolder” is reference to *SedonaFT*.



**Step 2.**

A successful connection will open the FW Series Sedona programming environment. Proceed to create your Sedona program, installing additional kits and etc.



## LED Indicator

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	Colour	Behaviour	Description
1		Constantly Blinking at 1 Hz	Device Running Normally

## Technical Support

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For technical issue, please contact

Email : [support@easyio.com](mailto:support@easyio.com)