

# Wi-Fi Layout Quick Start



How to get going with your new WifiTrax Wi-Fi Layout System

*Practical notes by Steve Shrimpton*

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To use this leaflet, you need to have purchased one or more WifiTrax Wi-Fi Layout Controller products and have downloaded and installed the Tower Operator App either on Android or on Windows 10.

This document is a brief guide to getting going with controlling your layout features quickly with basic information. If you need more help and guidance you can find a great deal of information at <http://www.wifitrax.com/appNotes/howToArticles.html>.

## Installing Your WifiTrax Layout Controllers

Before you can use the Tower Operator App, you must equip your layout with one or more WifiTrax Layout Controllers. These are fixed Wi-Fi Controllers intended to control active layout features such as switches (points or turnouts) , lights, signals and power. At the time of writing, you have the choice of WFS-46 for switches, WFG-80 for lighting and/or signals and WFP-40 for power. You can read about these at

<http://www.wifitrax.com/products/fixedControllers.html>

You may have already worked through the Getting Started leaflets provided with your WifiTrax modules. If so, you might want to skip to the section “Going Forward with the Tower Operator App”.

# WFS-46 4-Way Universal Switch Controller Getting Started

## WFS-46 Installation

This document is online at <http://www.wifitrax.com/appNotes/quickStart/WFS-46-Quick-Start.pdf>. Please see our website for information on our limited warranty.

### Package Contents

- 1 x WFS-46 Module in Static Shielding Bag
- 1 x Mounting Kit (4 screws, 4 spacers, 4 nuts, 4 washers)
- Getting Started: WFS-46 Installation (this document)

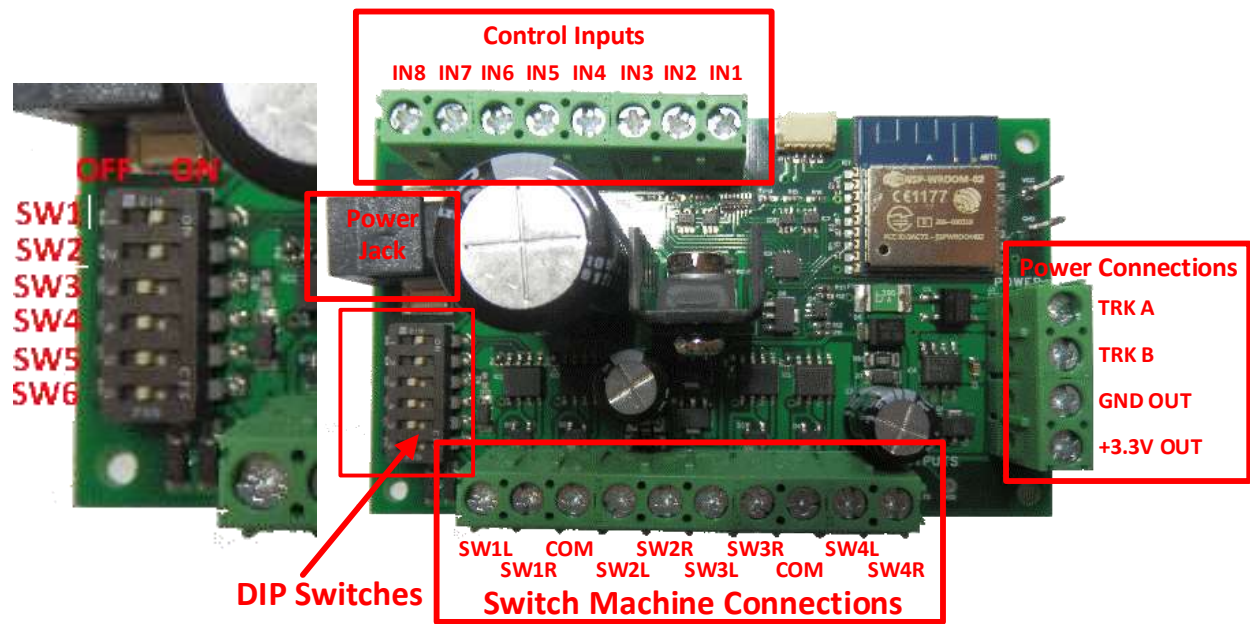


Figure 1. WFS-46 Connections

Switch	ON Function	OFF Function	Remarks
SW1		Always set to ON	
SW2		Always Set to ON	
SW3	Twin Coil Mode	Stall Motor Mode	Mode Switch
SW4, SW5 SW6		See Table 2	

Table 1. DIP Switch Settings

SW4	SW5	SW6	Output Voltage	
			SW3 = ON (Twin Coil Mode)	SW3 = OFF (Stall Motor Mode)
OFF	OFF	OFF	Up to 24V	Approx. Track Voltage – 3V
ON	OFF	OFF	19V	Approx. Track Voltage – 3V
OFF	ON	OFF	12V	12V
OFF	OFF	ON	9V	9V

Table 2. Voltage DIP Switch Settings

# WFS-46 4-Way Universal Switch Controller Getting Started

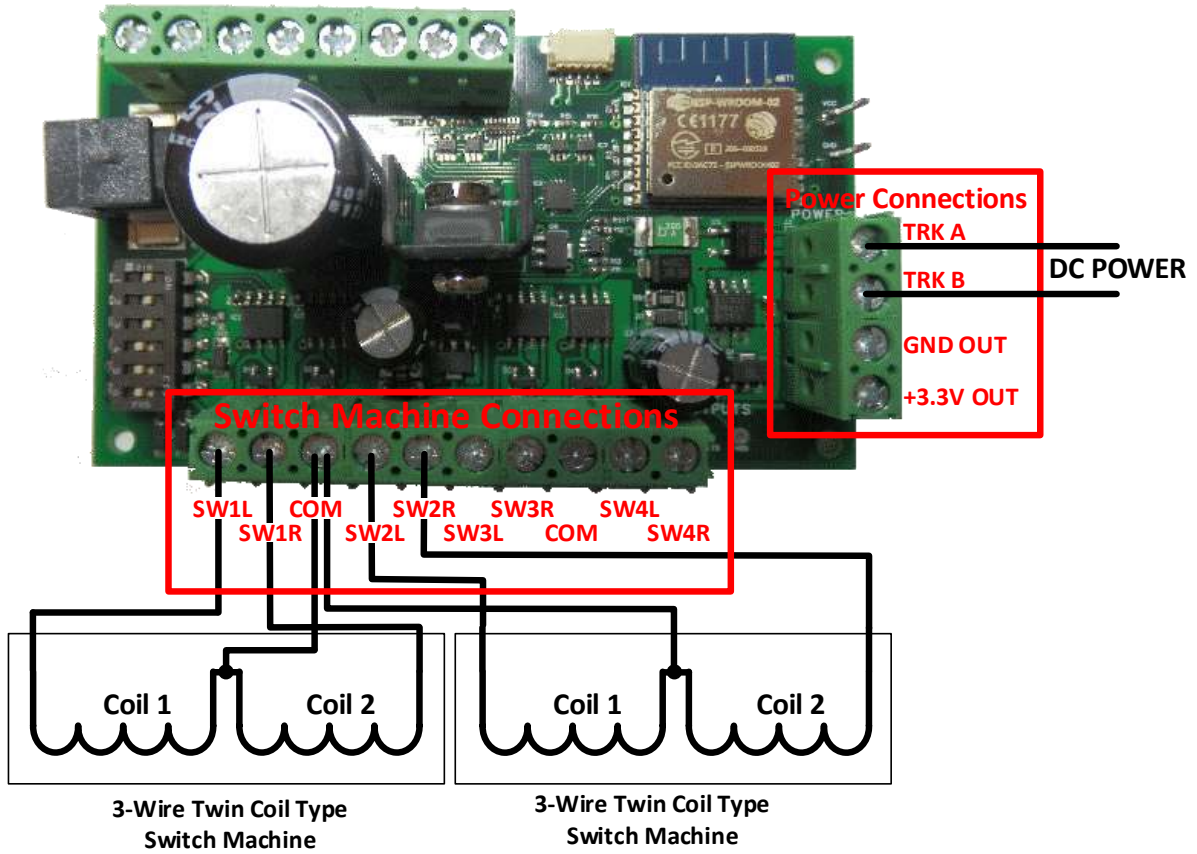


Figure 2. Connection Diagram for 3-Wire Twin Coil Switch Machines

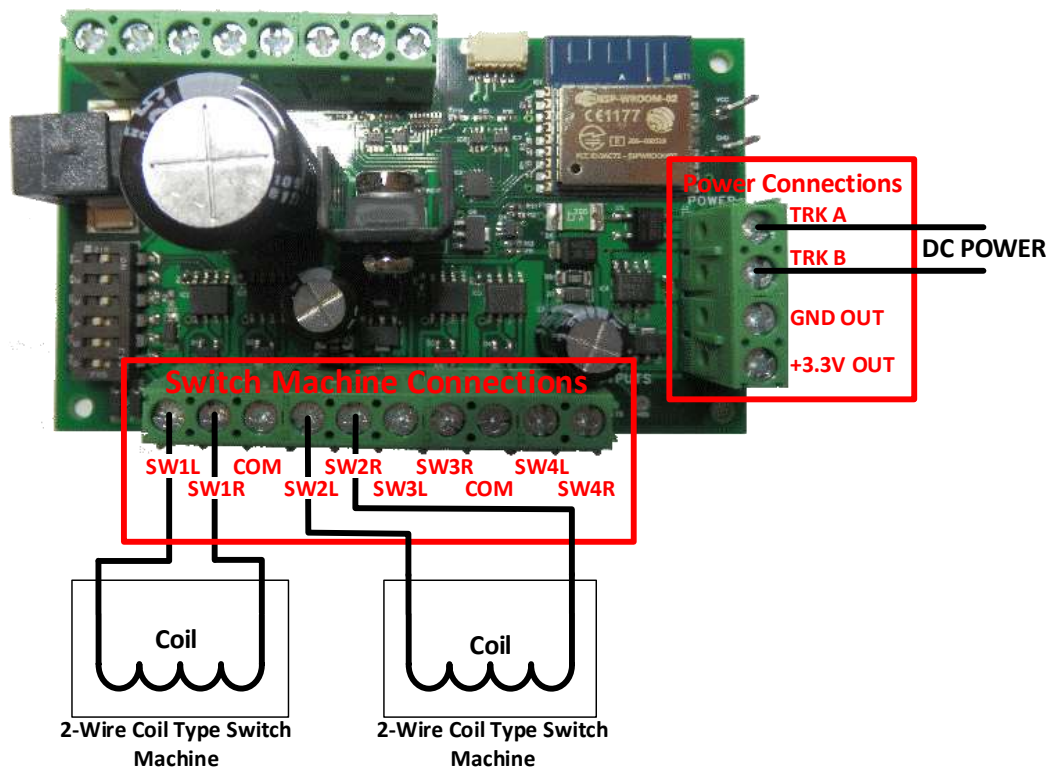


Figure 3. Connection Diagram for 2-Wire Coil-Type Switch Machines

# WFS-46 4-Way Universal Switch Controller Getting Started

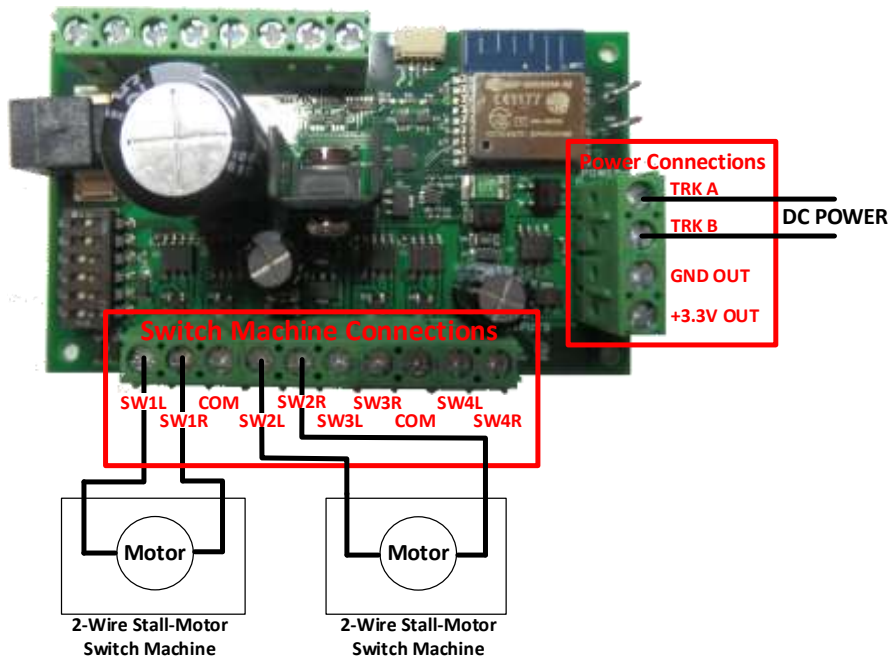


Figure 4. Connection Diagram for Stall Motor Switch Machines

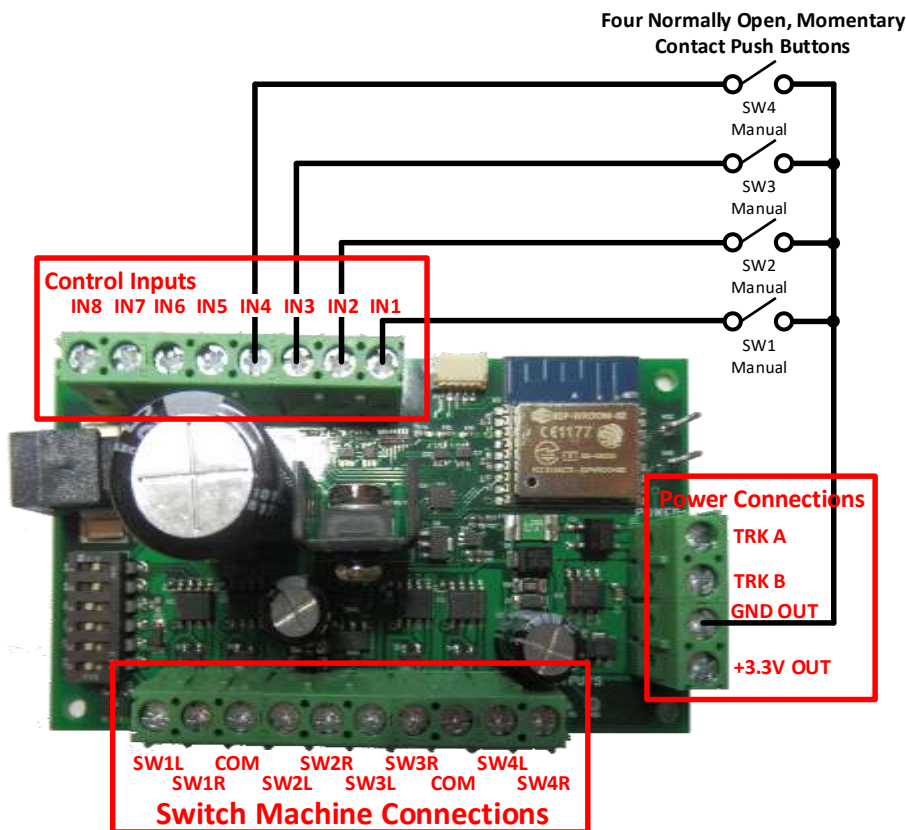


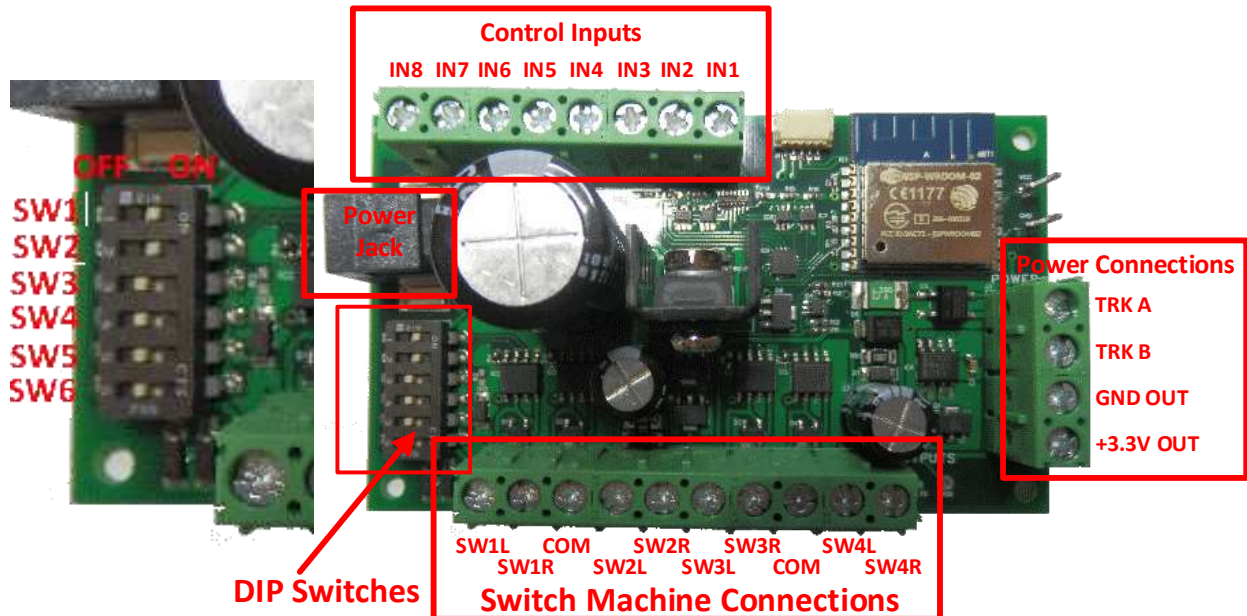
Figure 5. Connection Diagram for Manual Push Buttons

This product is not a toy. Keep away from children. It is not suitable for use by persons under 14 years of age

# WFS-46 4-Way Universal Switch Controller Getting Started

## Installation Instructions

- (1) First determine what kind of switch machines you wish to control. WFS-46 will control three basic types: 3-Wire Twin Coil, 2-Wire Coil-Type (Bipolar) and Stall Motor. **Any one WFS-46 module can control EITHER Stall Motor OR Coil-type but not both.**

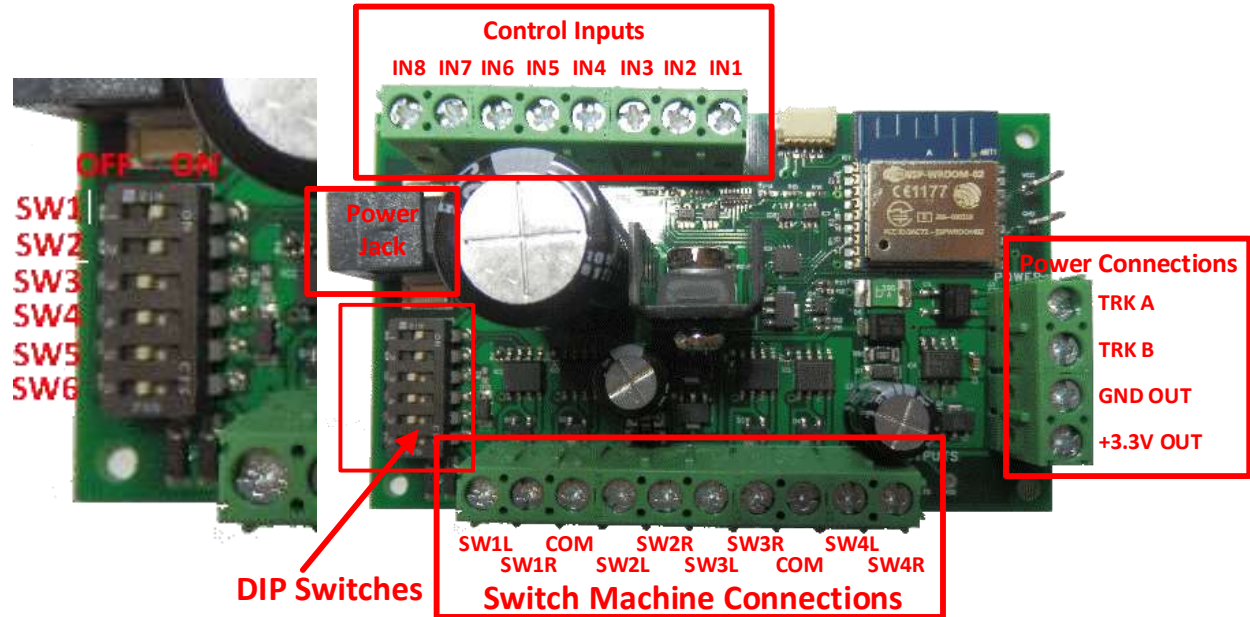


- (2) Figure 1 shows the WFS-46 module with its connections and switches labelled. Configure the switches on your module for your choice of switch machine type as in Table 1 and Table 2. Please take great care that SW3 is in the correct position – ON only for coil-type solenoid switch machines, OFF for stall motor like Tortoise. **If you connect the wrong type, you may damage either the switch machine or the WFS-46. Do not change any switch without first switching off the power!**
- (3) Configure switches SW4, SW5 and SW6 to provide the best output voltage for your switch machine. Some switch machines – Tortoise, for example – require that no more than 12 Volts be used.
- (4) Wire your module to the switch machines as shown in Figure 2 , Figure 3 and Figure 4. A WFS-46 can control four switch machines. You can use each channel or leave it unconnected. You can mix 3-Wire and 2-Wire Coil-type Switch Machines on the same unit, but if you choose the stall-motor settings, all channels must be connected to stall-motor machines or left unconnected.

Connect power to your unit either at the Power Jack or at TRKA and TRKB as shown in Figure 2 , Figure 3 and Figure 4. It does not matter which way round you connect the power. You can also use DCC track power but NOT AC. The power should be between 12 and 18 volts. As an alternative to the TRKA and TRKB connections,

# WFS-46 4-Way Universal Switch Controller Getting Started

you can connect a power adapter to the Power Jack marked in



- (5) Figure 1. The power adapter must supply between 12 and 18 Volts DC with a Barrel Plug (2.5mm I.D. x 5.5mm O.D. x 9.5mm). A recommended power adaptor is available from WifiTrax:  
<http://www.wifitrax.com/products/product-PA15-43-1-detail.html>
- (6) Optionally, install four normally open, momentary contact push buttons as shown in Figure 5.

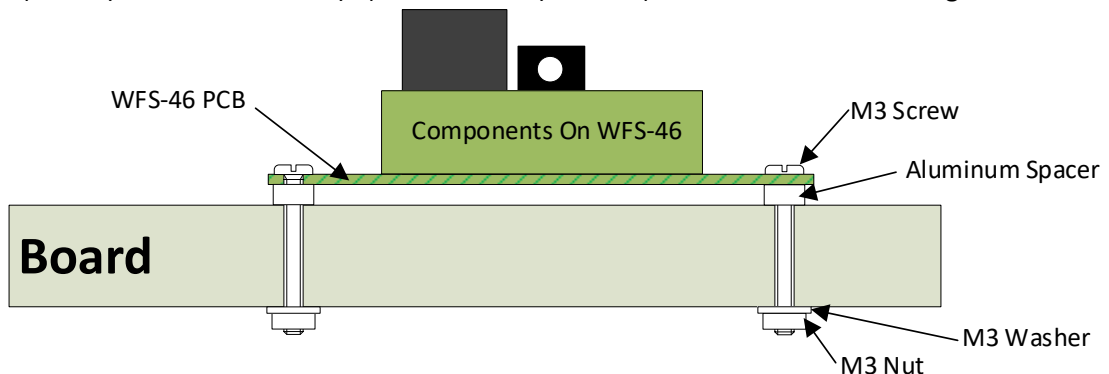


Figure 6 Mounting Suggestion

- (7) Mount the unit to your baseboard using the four M3 metric screws, nuts and spacers provided. Mount the unit on a suitable piece of board, either your baseboard (top or bottom) or a separate board perhaps at the front of your model railroad. The component side of the module should face away from the board as in Figure 6. If you omit the spacers be sure not to tighten screws so that the unit bends. Take care that no part of the unit touches any metal as this may cause a short circuit and result in permanent damage. Do not mechanically stress or bend the module as this may cause permanent damage. **Take care to ensure that there is adequate ventilation to avoid overheating.**
- (8) Turn on the power. If you have installed manual push buttons you may test the unit by pressing each button momentarily in turn. If you have not installed push buttons, refer to the Tower Operator Quick Start, or Full Help Pages for instructions on setting up a schematic control panel on your Windows or Android computer or tablet.

<http://www.wifitrax.com>

<http://www.wifitrax.com/appNotes/howToArticles.html>

# WFG-80 8-Way Lighting/General Controller Getting Started

## WFG-80 Installation

This document is online at <http://www.wifitrax.com/appNotes/quickStart/WFG-80-Quick-Start.pdf>. Please see our website for information on our limited warranty.

### Package Contents

- 1 x WFG-80 Module in Static Shielding Bag
- 1 x Mounting Kit (4 screws, 4 spacers, 4 nuts, 4 washers)
- Getting Started: WFG-80 Installation (this document)

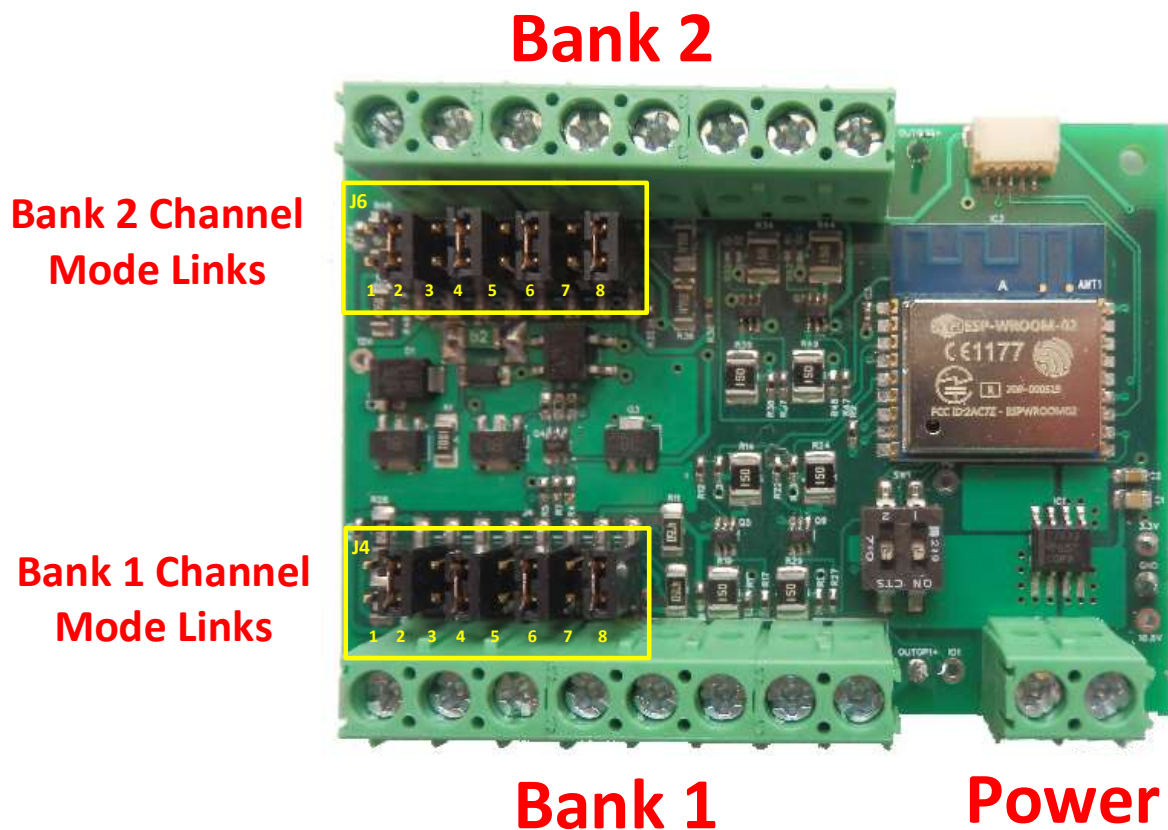


Figure 7. WFG-80 Module

Link	Linked	Open	Remarks
J4 1	OUT 4 Direct	Filament Lamp	
J4 2	OUT 4 475 Ohm	LED Bright	Leave open for 1K
J4 3	OUT 3 Direct	Filament Lamp	
J4 4	OUT 3 475 Ohm	LED Bright	Leave open for 1K
J4 5	OUT 2 Direct	Filament Lamp	
J4 6	OUT 2 475 Ohm	LED Bright	Leave open for 1K
J4 7	OUT 1 Direct	Filament Lamp	
J4 8	OUT 1 475 Ohm	LED Bright	Leave open for 1K
J6 1	OUT 8 Direct	Filament Lamp	

# WFG-80 8-Way Lighting/General Controller Getting Started

J6 2	OUT 8 475 Ohm	LED Bright	Leave open for 1K
J6 3	OUT 7 Direct	Filament Lamp	
J6 4	OUT 7 475 Ohm	LED Bright	Leave open for 1K
J6 5	OUT 6 Direct	Filament Lamp	
J6 6	OUT 6 475 Ohm	LED Bright	Leave open for 1K
J6 7	OUT 5 Direct	Filament Lamp	
J6 8	OUT 5 475 Ohm	LED Bright	Leave open for 1K

Table 3. Link Option Settings

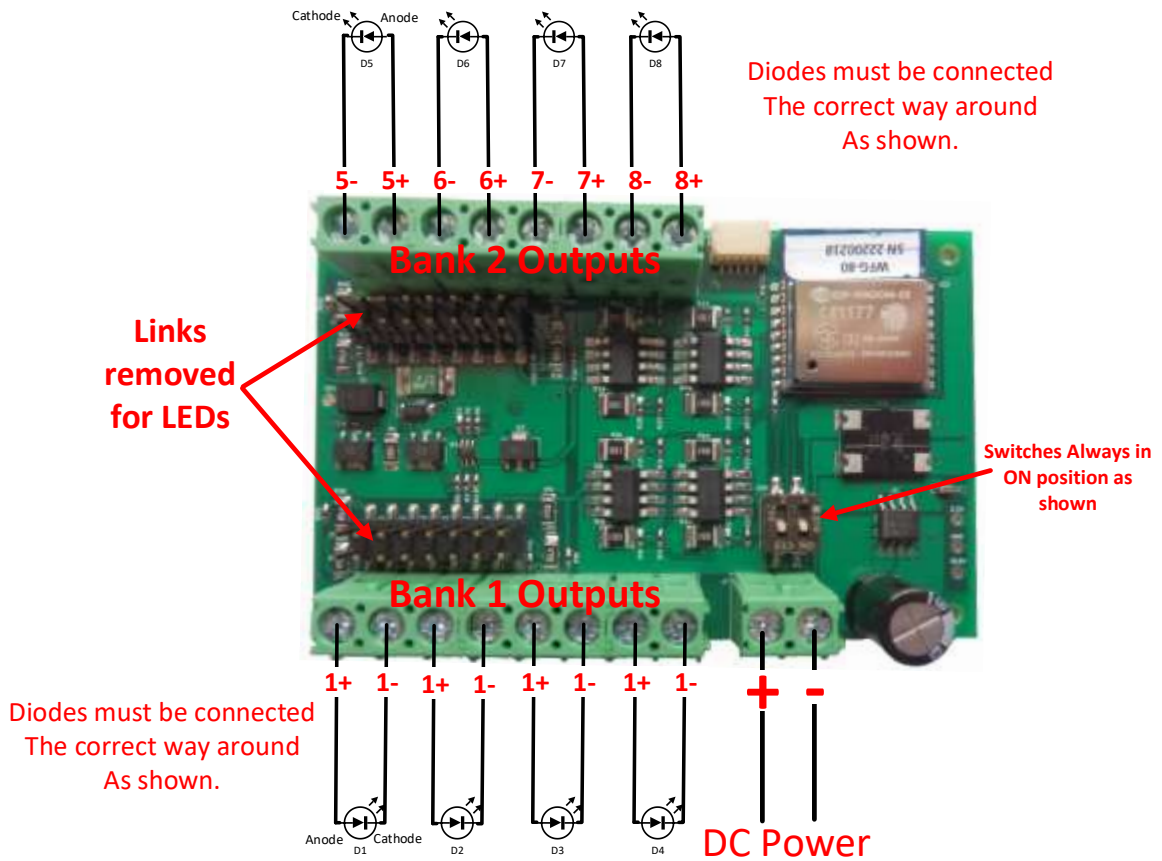


Figure 8. Connection Diagram for LED Lights



# WFG-80 8-Way Lighting/General Controller Getting Started

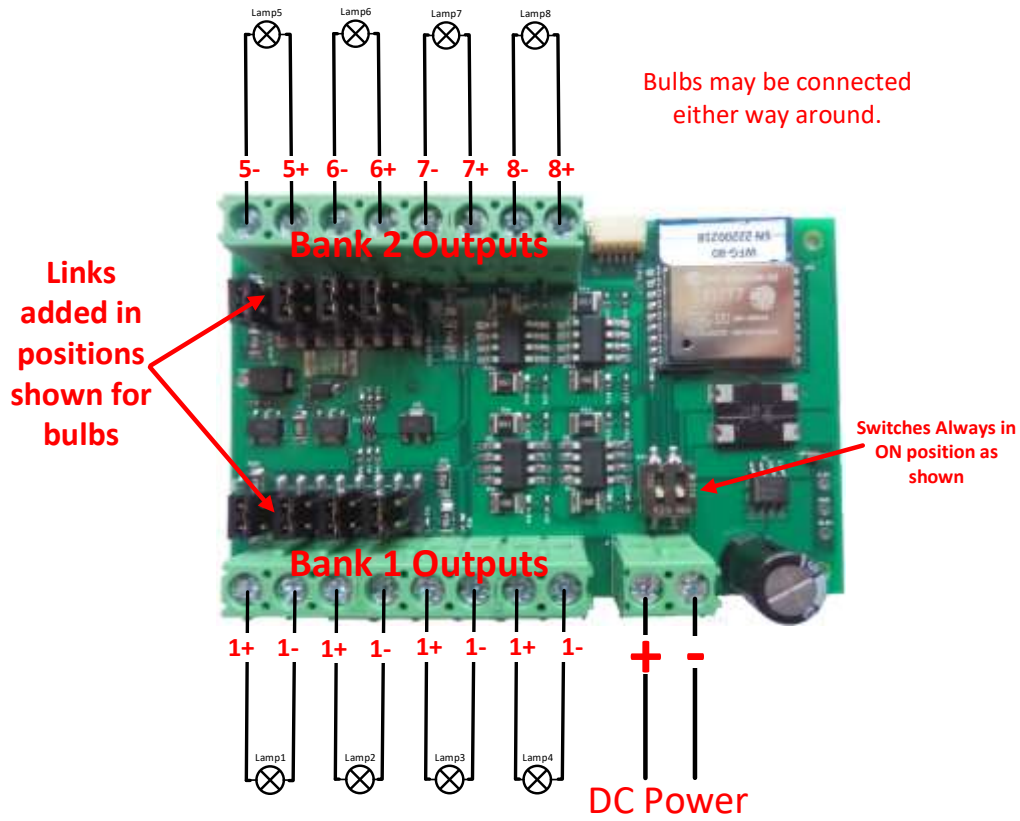


Figure 9. Connection Diagram for Grain-of-Wheat Lamps

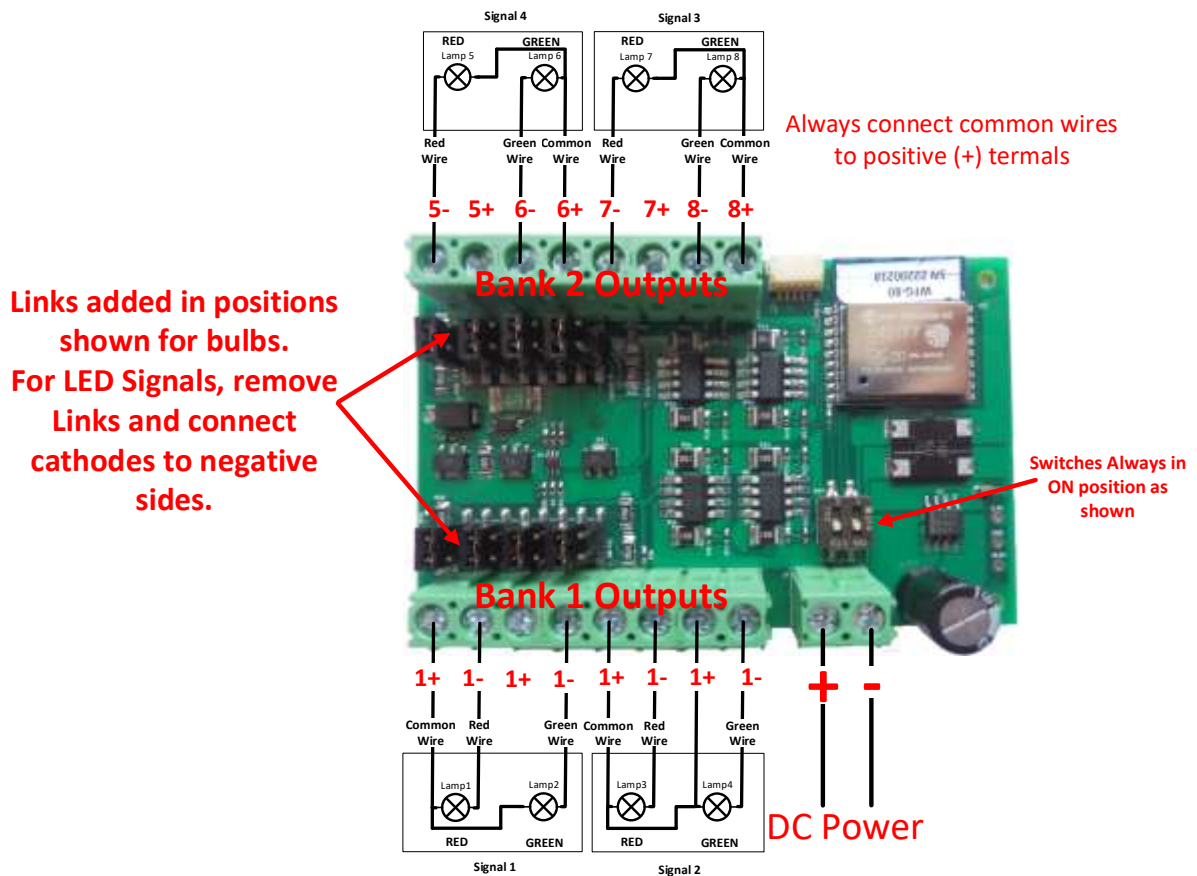


Figure 10. Connection Diagram for 2-Light Signals

# WFG-80 8-Way Lighting/General Controller Getting Started

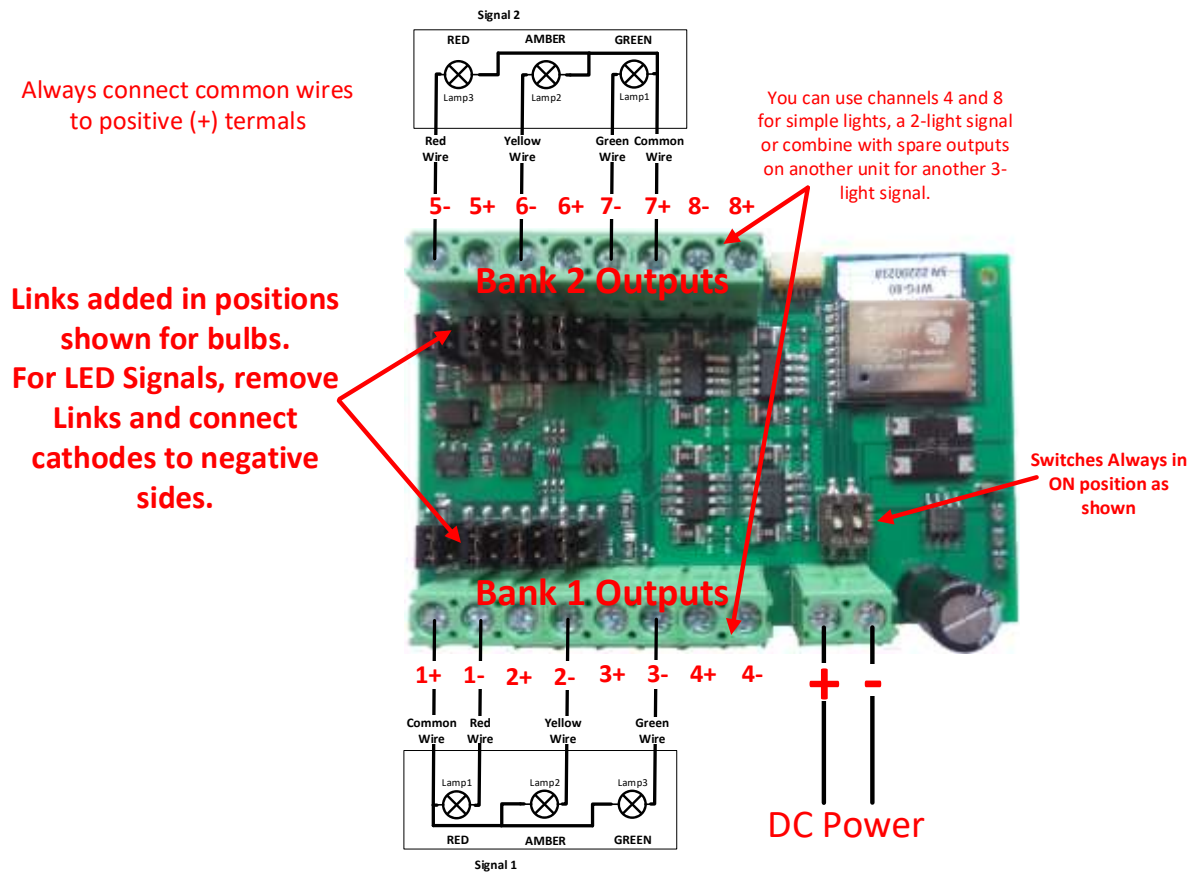


Figure 11. Connection Diagram for 3-Light Signals

## Installation Instructions

- (1) First determine what kind of lights you wish to control. WFG-80 will control two basic types: Light Emitting Diodes (LEDs) and low power filament lamps such as “Grain of Wheat Bulbs”. You are advised to use those rated around 12 Volts. Higher voltage bulbs can be used but they will not be very bright. You can make the lights brighter by using a higher power supply voltage such as 15 Volts instead of 12Volts. Also note that you can turn the dimmers to a higher setting using Tower Operator. You can mix LEDs and filament lamps on the same board but you must be careful to place the links correctly. The links provide three options for each channel, Direct, 475 Ohm series resistor and 1000 Ohm series resistor. If you use LEDs you **MUST** use the 475 or 100 Ohm option for those channels. Direct mode will **DESTROY** LEDs. If you use filament lamps you need to use Direct mode for those channels or the lamps will be very dim. Table 3 shows the link settings. You can also combine channels to control features with multiple lights like signals. Tower Operator allows you to assign channels to the signal device on the screen once it is physically connected.
- (2) Wire the WFG-80 to your lights or signals according to Figure 8, Figure 3, Figure 4 or Figure 11. If you have multiple types of device, you can take account of more than one figure. Be sure to connect common wires to the positive side of each of the eight channels.
- (3) Note that each of the two banks can be dimmed independently through software using the Tower Operator app.
- (4) Note that the two DIP switches must be always in the On position. These are only used for factory configuration.
- (5) Connect power to your unit at TRKA and TRKB as shown in Figure 8, Figure 3, Figure 4 or Figure 11. It does not matter which way round you connect the power. You can also use DCC track power but NOT AC. The power should be between 12 and 18 volts.

## WFG-80 8-Way Lighting/General Controller Getting Started

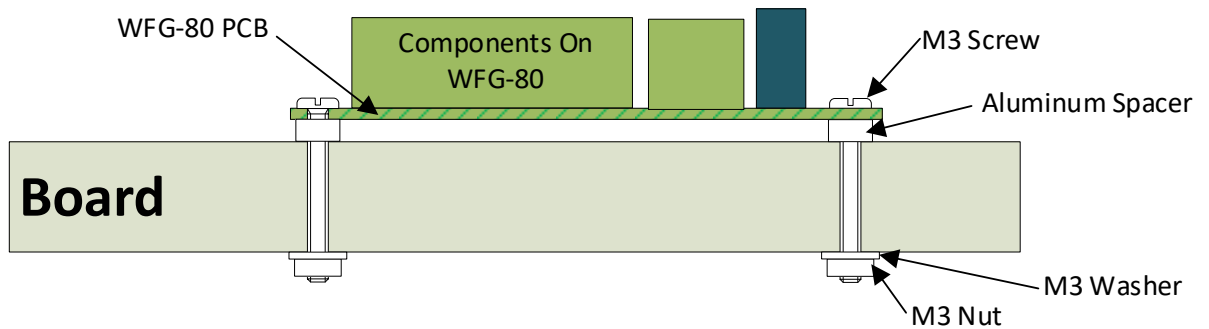


Figure 12 Mounting Suggestion

- (6) Mount the unit to your baseboard using the four M3 metric screws, nuts and spacers provided. Mount the unit on a suitable piece of board, either your baseboard (top or bottom) or a separate board perhaps at the front of your model railroad. The component side of the module should face away from the board as in Figure 6. If you omit the spacers be sure not to tighten screws so that the unit bends. Take care that no part of the unit touches any metal as this may cause a short circuit and result in permanent damage. Do not mechanically stress or bend the module as this may cause permanent damage. **Take care to ensure that there is adequate ventilation to avoid overheating.**
- (7) Turn on the power. You may test the unit using the Tower Operator App. Refer to the Tower Operator Quick Start, or Full Help Pages for instructions on setting up a schematic control panel on your Windows or Android computer or tablet.

<http://www.wifitrax.com/appNotes/WifiLayout-Quick-Start.pdf>

<http://www.wifitrax.com>

<http://www.wifitrax.com/appNotes/howToArticles.html>

**This product is not a toy. Keep away from children. It is not suitable for use by persons under 14 years of age.**

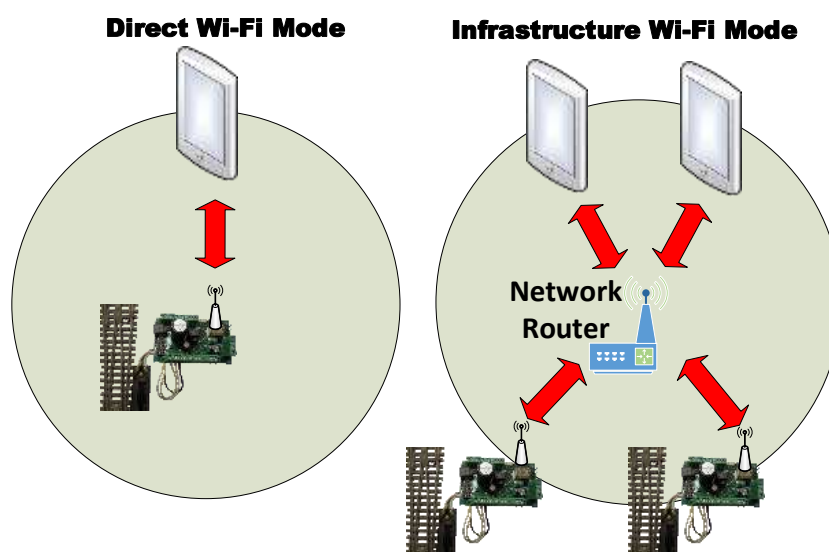
## Tower Operator App

This document is available at <http://www.wifitrax.com/appNotes/quickStart/Tower-Operator-Quick-Start.pdf>

The Tower Operator app allows you to control many of your active layout features – such as switch machines, lights, signals and power blocks – fitted with a WifiTrax Fixed Controller such as WFS-46 or WFG-80 or WFP-40. You can download and install the app from the Microsoft Store for Windows 10 or the Google Play Store for Android. Go to our website to find the current version:

<http://www.wifitrax.com/products/product-tower-operator-app-detail.html>

### Wi-Fi Direct and Infrastructure Modes



**The first thing to understand is that there are two ways of controlling your layout features over Wi-Fi, Direct Mode and Infrastructure Mode.**

In direct mode, your computer or tablet must be connected to the Wi-Fi Access Point within the controller. In this mode, you can control only one controller with each installation of Tower Operator on a computer or tablet. This mode is needed for initial setup of a new controller.

In Infrastructure Mode, the controllers and your computer, tablet or phone all connect as *Wi-Fi Stations* to the Wi-Fi Access Point of your network router. You can then build a full model railroad network with many layout features, locos, computers, tablets and phones. You can control many layout features with one installation of Tower Operator. You will usually want to work in this mode but this short document is limited to direct mode. Go to the following link for the full Wi-Fi Layout Quick Start document.

<http://www.wifitrax.com/appNotes/WifiLayout-Quick-Start.pdf>

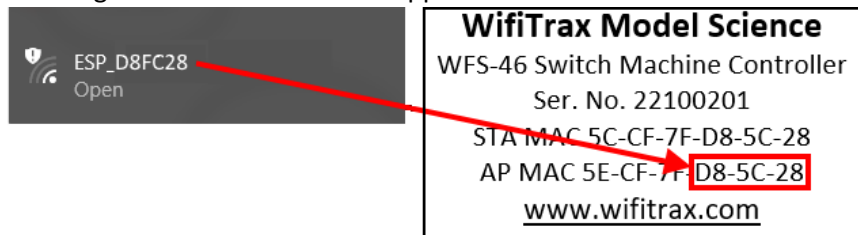
Also, you can consult the help pages for Tower Operator.







<http://www.wifitrax.com/help/towerOperator/help.html>

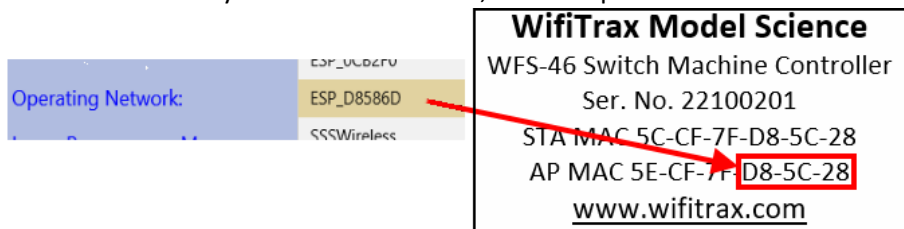
## Quick Start – Controlling Features in Direct Wi-Fi Mode




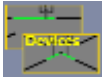
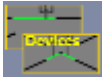
The way to get your controller running and give it a test is in direct mode.


- (1) Connect your WifiTrax controller such as WFS-46, WFG-80 or WFP-40 to the features it will control and apply power (refer to the Quick Start leaflet for your particular controller).
- (2) Connect your computer to the WifiTrax controller’s access point using Settings and Wi-Fi, just like connecting to Wi-Fi in a restaurant. You will see the access points listed and the WifiTrax controller’s access point ends in the last six digits of the AP MAC printed on the label of the bag in which the unit was shipped.



- (3) Start the Tower Operator App on your computer or tablet .
  - (4) On the App, select the Settings Tab , then the Networks Page , and Click or Tap the Scan Nets button . If this is the first time you have run Tower Operator, this will happen automatically – just click Continue on the pop-up.
  - (5) Go to the General Page  of the Settings tab,
  - (6) Click or tap the Operating Network drop-down.
- 
- (7) Select by tapping. The network that has the last six digits equal to the last six digits of the AP MAC on the label of your WifiTrax module, for example:



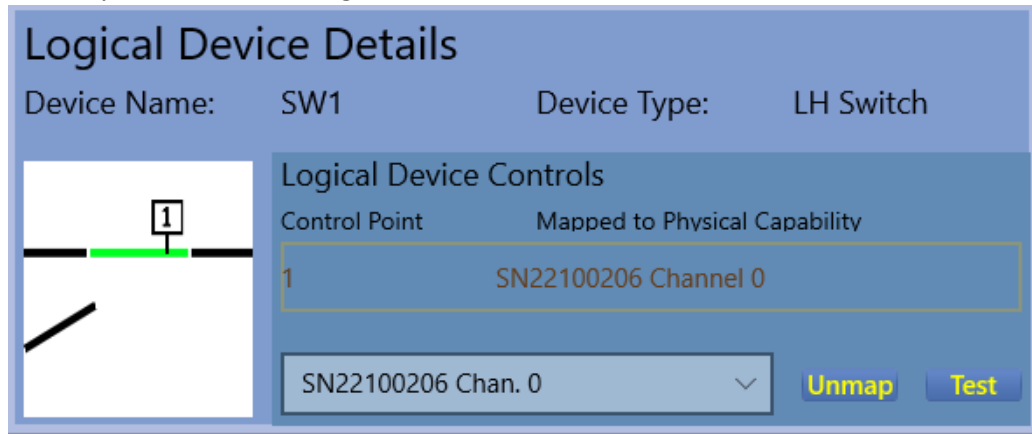
- (8) Click or tap the Save Settings button  and OK on the pop-up.
  - (9) Select the Controllers Tab.  Check the controller’s network is shown, then click the Scan Controllers button  and Continue on the pop-up.
  - (10) Check that your controller appears and shows as On-line. Its name will be SN followed by the serial number on the label, e.g. SN22100206. You can change this later. If nothing appears, go back and check step (2). Your computer must be connected to the controller’s access point during this stage.
- 
- (11) Go to the Devices Tab . Select the Device Category according to your controller. For example, WFS-46 controls switches so you would select Switches. Click the New Device


button  and create a new switch LH or RH, giving it a name SW1. The rest of this document will assume you have purchased a switch machine controller.



- (12) Now you should see your new switch listed. Click on it and observe the Logical Device Details at the bottom. You now need to assign a controller channel to your switch's tie bar.
- (13) To assign a controller click on the control point labelled "1" in the Logical Device Controls list which corresponds to the tie bar in the image. Don't click on the image. These are called "Capabilities". Select the first one – Channel 0.




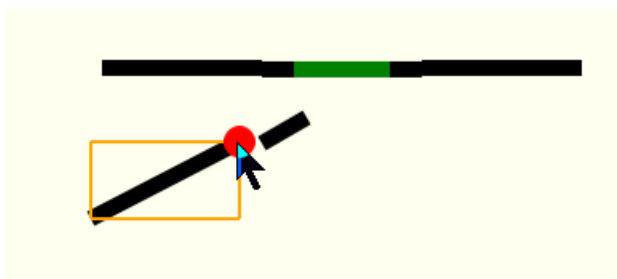
- (14) You have now created a Switch logical device and assigned its tie bar to the first channel of your new controller. Of course, if you have connected a different channel to your physical switch, you will need to assign that channel.






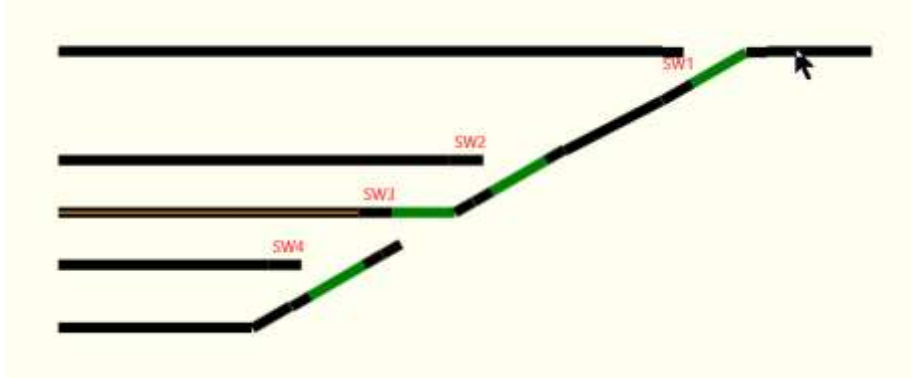
- (15) Click the Test button  several times. The tie bar should move back and forth. Notice that, only when working in Direct Wi-Fi Mode like this, if you cycle power on the WifiTrax controller, you will need to reconnect your computer to its access point.

- (16) Now click on the Maps button . Create a new map by clicking the New button  giving it a name "Test Map".

- (17) Click the Edit button . You can now see a list of logical devices at the bottom left. You will see your new SW1 switch there. Click on it and then click somewhere on your map. A symbol for the switch will appear. Now click on Track and again click on the map. This will create a length of track. Repeat this action twice more to add three sections of track to your map. Drag them around using the cursor and snap the ends to the three connecting points on your switch.



- (18) Click Save  and then Edit Exit . Now click Connect . This connects your map to your controllers so that it becomes what we call a Schematic Control Panel.
- (19) Now you can try clicking or tapping on the switch symbol on your map (now a control panel). The switch should toggle left and right.
- (20) Finally try clicking the entry track, then clicking one of the exit tracks (or the other way around). The switch should change to set up the correct route. You can extend this demo by creating some more RH switches (remember to assign the tie bars to controller channels) then making up a ladder network of sidings as below. Select the route to the required siding by clicking it, then the entry track. This routing happens without the need to change any settings in the controller – it's all determined by your map. Note that the tracks and switches must be connected for routing to happen. They need to snap together when editing!



## Common Problems

### 1. My switch goes the wrong way.

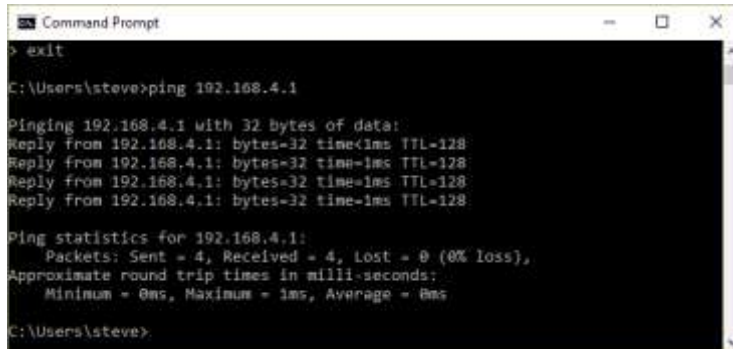
When I select the turnout track, the switch moves to the straight position. You can solve this by going to the Controllers tab, selecting the controller and channel for the switch and changing the “Reversed” capability tuning:



### 2. Nothing happens when I click on a switch on my map.

- Make sure that you have clicked the Connect button on the Map screen.

- b. Make sure you have assigned controller channels to the switch's tie bar on the Devices screen.
- c. Make sure that your computer or tablet can reach your controller's Wi-Fi Access point. You can open a command window and, in direct Wi-Fi mode, type ping 192.168.4.1:



```
Command Prompt
> exit
C:\Users\steve>ping 192.168.4.1

Pinging 192.168.4.1 with 32 bytes of data:
Reply from 192.168.4.1: bytes=32 time<1ms TTL=128
Reply from 192.168.4.1: bytes=32 time=1ms TTL=128
Reply from 192.168.4.1: bytes=32 time=1ms TTL=128
Reply from 192.168.4.1: bytes=32 time=1ms TTL=128

Ping statistics for 192.168.4.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\Users\steve>
```

3. **I don't want to work in Direct Wi-Fi mode, it's a pain, I keep getting disconnected and I can't access other things like the internet.**

Read the full Quick Start document and set your controllers for infrastructure mode, it's very easy.

## More Detail

When you are ready for more detail, continue reading the full quick start guide on our website:

<http://www.wifitrax.com/appNotes/WifiLayout-Quick-Start.pdf>

Also, you can consult the help pages for Tower Operator.

<http://www.wifitrax.com/help/towerOperator/help.html>

There you will find out how to create a Model Railroad Wi-Fi network working in Infrastructure Mode and make your fixed controller operate as a Wi-Fi station among the others on your layout. You will also find out about all the other things you can do with Tower Operator such as the full map editing features and how to share your maps, devices and controllers among different installations of Tower Operator.



# Tower Operator App – More Detail

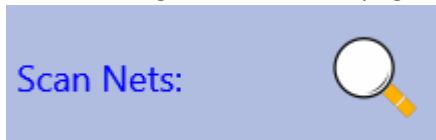
## Going Forward with the Tower Operator App

### Operate your First Wi-fi Layout Controller in Infrastructure Mode

#### Configuring your Home Network

Your WifiTrax Home Network is the network to which all your controllers will connect as stations. This includes Wi-Fi Layout controllers and also Loco Controllers

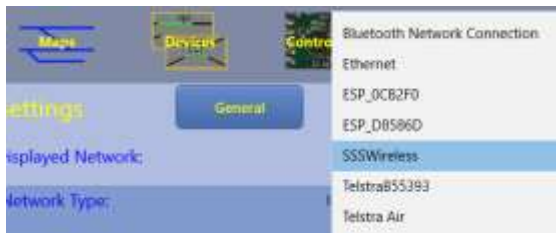
- (1) If you have already operated your controller in Direct Wi-Fi Mode, you now need to go back to the Settings tab, Networks page, click the Scan Nets button again just to be sure.



- (2) Click or tap the Displayed Network drop-down selector



- (3) Display the network that is provided by your Network Router, for example, our test lab Wi-Fi network is called SSSWireless



## Tower Operator App – More Detail



Figure 13. The Settings for the Infrastructure Network that you will Choose as your Home Network.

- (4) Figure 13 shows the settings for the network SSSWireless which is provided by the Access Point of a network router. We will use this network as the *home network* which means the network that controllers on your layout will connect to as Wi-Fi Stations. Yours will have a different name (SSID) of course and a different password.
- (5) Make sure the Wireless Router SSID is the correct SSID for the wireless access point of your router.

Wireless Router SSID:

SSSWireless

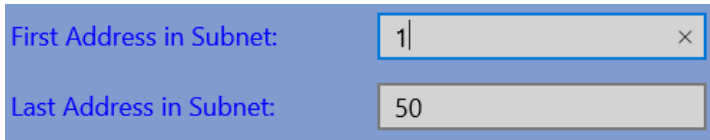
- (6) Enter your Wi-Fi password in the text box of that name. This password will be saved on the computer, tablet or phone on which you have installed Tower Operator. It will then be sent to each Wi-Fi Layout Controller that you instruct to connect to this network.

Wifi Password:

x2w3rs5wwwAP

- (7) Choose a suitable range of IP Addresses that the controllers will have. You can leave the default settings of 1 to 254, but if you don't have many computers on your network it will save time if you set the range say 1 to 50 or even less. This is because scanning for controllers requires Tower Operator to scan this whole range.

## Tower Operator App – More Detail



First Address in Subnet: 1

Last Address in Subnet: 50

General

- (8) Go to the General page of the Settings tab.
- (9) Tap on the Home Network drop-down selector and choose the network you have just configured as your home network. Remember the home network is the network that controllers will be told to connect to as stations. Only infrastructure networks can be home networks.



Home Network: SSSWireless

- (10) Click or tap on the Save button to save the settings.



- (11) Now you have completed setting up your home network. The next thing to do is to tell your new controller to connect to it.

### Note for Advanced Users

When you scan for controllers on the network, it will take quite a long time with the default settings of 1 – 255. You can reduce this in two ways:

Reduce the range of IP addresses that the DHCP server of your router can allocate. This is OK if you only ever have a few devices on your network. You then would enter this range at step (7) above.

Set up IP Address reservations for your controllers in your router. You can define a small range of IP addresses say just 5 or 10, then use that range in step (7). This will also avoid problems if one of your controllers gets assigned a different IP address by DHCP.

### Configuring your Wi-Fi Layout Controller as a Station

Your controllers (such as WFS-46, WFG-80 or WFP-40) must all be configured with the SSID and Password for the home network router access point. This is how you do it for your first controller:

- (1) To give this information to the controller, you need to connect to the Controller Network of the Wi-Fi Layout Controller (i.e. its Wi-Fi Access Point. This is the same as when you were testing the controller in Direct Wi-Fi mode.
- (2) Power up your WifiTrax controller. You do not need to connect physical switch machines, etc. for this operation so you could do it on a bench if you have a 12-18 Volt power supply available. For some controllers, you can connect a 15V DC adapter to a barrel connector on the controller as an alternative.



General

- (3) On the App, select the Settings Tab, then the General Page.
- (4) Click or tap the Operating Network drop-down and select the Wi-Fi access point for the controller, for example, for a controller with STA MAC 2C-3A-E8-D8-58-6D (see the label on its bag) it will be like this:



Operating Network: ESP\_D8586D

## Tower Operator App – More Detail

Don't get confused between the Home Network and the Operating Network. The Home Network is the Wi-Fi Access point that you are *telling* the controllers to connect to. The Operating Network is the network that Tower Operator is actually *working* on.

- (5) Connect your computer, tablet or smart phone to the same operating network, just as though you were connecting to a Wi-Fi access point in a restaurant. This is outside the Tower Operator App, under the Settings, Wi-Fi page for Android or using the Networks system tray icon for Windows 10



- (6) Go to the Controllers tab  and see if the controller is on-line. If it is not visible click the Scan button . The controller should be shown as in Figure 14 for this example.




Figure 14 The Controllers Tab showing a Controller Visible on its own Controller Net ESP\_D8586D

- (7) Around the middle of this page you will see a section "Controller Tunings for 22100206:". This section contains tunings (settings) for the controller module. At the bottom of the page, there are also tunings for each channel, but it is the controller tunings that concern us here:

## Tower Operator App – More Detail

Controller Tunings for:	SN22100206	
	Present Value	New Value
Name:	SN22100206	<input style="width: 100%;" type="text"/>
Serial Number:	22100206	
Firmware Version:	1.0.0	
Home Net SSID:		SSSWireless
Home Net Password:		x2w3rs5wwwAP

(8) Note that the Home Net SSID and Home Net Password included in the controller tunings are blank, meaning that the controller does not know which infrastructure network access point to connect to. This is how it leaves the factory.  
There is not a text box for you to enter these in the New Value column. Instead, the values from your Home Network on the settings page are copied here.

(9) Now all you need to do is to click on the Set Home Net button  and these values will be sent to the controller. The controller will then connect to that Home Network as a Click on the button, read the pop-up information and click Continue.

(10) You now should see these as the present values in the controller:

firmware version:	1.0.0	
Home Net SSID:	SSSWireless	SSSWireless
Home Net Password:	x2w3rs5wwwAP	x2w3rs5wwwAP

(11) Now you can disconnect your computer from the controller's Network and reconnect to the infrastructure network you have chosen as Home Network. Use the Settings, Wi-Fi for your device or the Networks icon from the System Tray, as before.

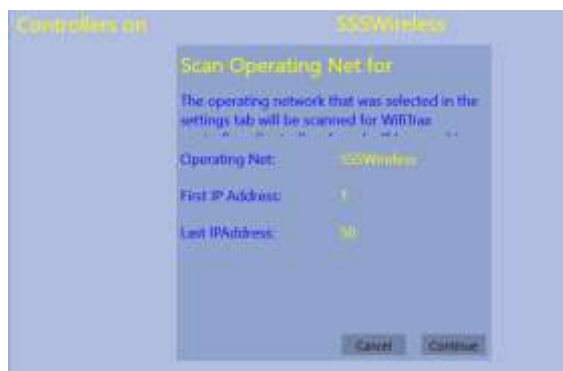
(12) Next go to Settings tab General page on the Tower Operator App and select your home network as the operating network.



Save the settings .

(13) Finally, go to the Controllers tab, make sure it shows your Home Network this time, and do a

Scan .



## Tower Operator App – More Detail



- (14) Now you should see your controller available on this network as in Figure 15. You are operating on your home network. You can now go to the Devices tab and assign controllers and channels to existing or new devices. You can repeat this procedure for all the controllers that you have.



Figure 15. The controller now Appears on the Home Network when that Network is Chosen as the Operating Network

Notice that in Figure 15 you do not have the option to change or clear the Home Network settings for the controller. To change or clear these you must connect to the controller on its own Wi-Fi access point (its Controller Net as before).

- (15) Now you can re-map your logical devices to the controllers and channels as they appear on your home network.

**Note for the beta version of Tower Operator**

## Tower Operator App – More Detail

The controllers actually appear as options for assigning to logical device control points twice. They appear as their values on the controller's own network and the home network. This is a bug. To avoid this, once a controller has joined the Home Network, go to the Controllers page, and use the Clear function to delete all the controllers. Then do a new scan. This will avoid confusion when assigning controllers to logical devices.

(16) That completes the procedure for placing a controller on the Home Network.

### Review of Concepts

#### Networks

In Tower Operator, a Network is a collection of devices accessible to the computer, tablet or phone on which Tower Operator is installed via either a wired LAN or a Wi-Fi access point. The computer, tablet or phone must connect to the network to access the devices on it.

#### Controller Network

The Wi-Fi network exposed by a WifiTrax Wi-Fi Layout Controller. It will always have the controller accessible on it at IP Address 192.168.4.1. Your computer, tablet or phone can connect to it if it has a Wi-Fi adapter.

#### Infrastructure Network

A network controlled by a network router that exposes a Wi-Fi access point that many controllers can connect to as well as many computers, tablets or phones running instances of Tower Operator. There may be other devices on the network such as printers etc. It may also have internet access. If it does have internet access, you will be able to view the on-line help pages for Tower Operator.

#### Wired LAN Network

A network that is accessible using a wired ethernet connection from the computer on which Tower Operator is installed. To be useful, this network must also contain a Wi-Fi access point to which WifiTrax controllers can connect to as their home network.

#### Home Network

The Home Network is the network accessible via Wi-Fi Access point that the controllers can connect to as Wi-Fi Stations. The home network must be a Wi-Fi Infrastructure network with a Wi-Fi Access point that controllers can connect to.

#### Operating Network

The Operating Network is the network that the installed instance of Tower Operator uses to contact controllers, configure and operate them. It can be a Wi-Fi Infrastructure Network, a Wired LAN Network or a Controller Network. If it is a Controller Network, only the controller exposing that network can be contacted by Tower Operator.

#### Displayed Network

This is simply the network chosen for display and edit on the Networks page of the Settings tab.

### Help Pages

Full help for Tower Operator is to be found on:

<http://www.wifitrax.com/help/towerOperator/help.html>