## Notes:

Note 1: WNI-32 has a solderless connector. To use this, insert a very small jeweller's screwdriver or a largish needle into the upper hole (you have to push quite hard) to open the contacts in the lower hole. While doing this, insert the straight, tinned end of the wire into the lower hole. Remove the screwdriver or needle to allow the contacts to grip the wire. Holes for soldering are located either side as an alternative.
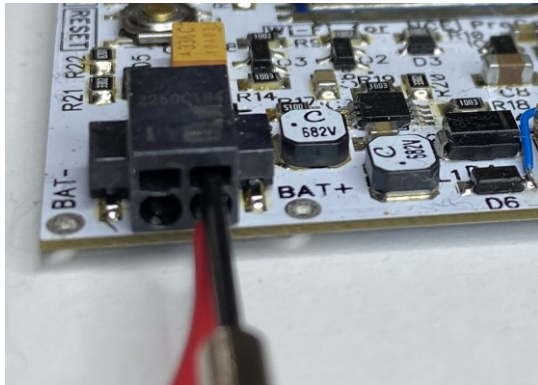
Trickle Charge Option

A link is provided with the installation kit. When this link is placed as shown in Figure 1, a 50mA current will flow through the batteries when the Pro Cab is connected to an NCE Cab Bus (i.e. tethered). This will gradually charge the batteries. **Be sure to remove this link if you are using batteries that are not rechargeable as it could cause overheating, and possibly fire. Do not leave rechargeable 900mAHr batteries on charge for more than 18 hours or they may be damaged.**

WifiTrax products are made in Australia using globally-sourced components and services. Check our website for warranty information.

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WNI-32 Getting Started Guide

This document is online at http://www.wifitrax.com/appNotes/quickStart/WNI-32-Quick-Start.pdf. Please consult the full WNI-32 manual for much more detail at http://www.wifitrax.com/manuals/WNI-32/WNI-32-Manual.pdf

Package Contents
1 x WNI-32 Module in Static Shielding Bag, this document, user installation kit.
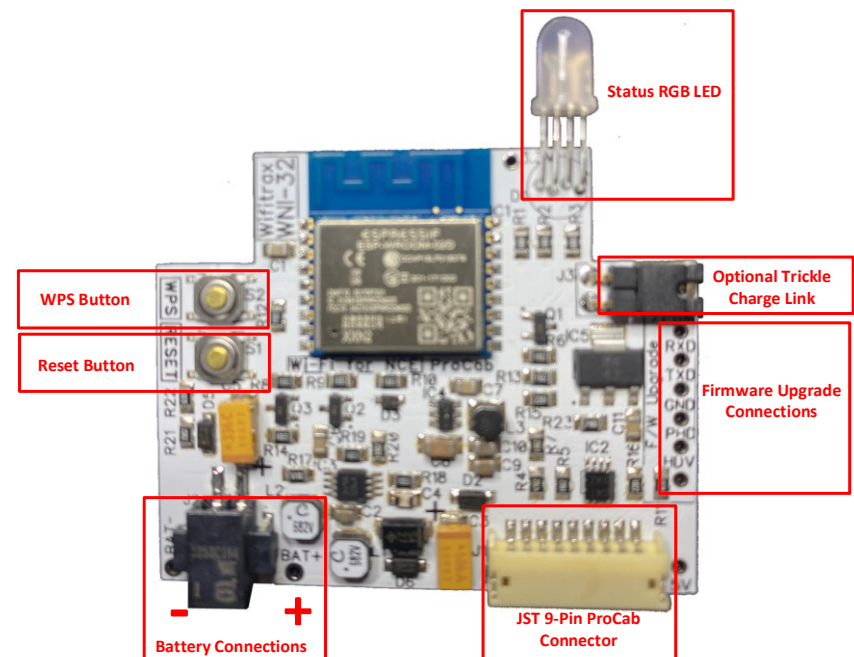
WNI-32 NCE Pro Cab Wi-Fi Interface Module

Figure 1 WNI-32 Connections

The WNI-32 Insert Module converts your NCE Pro Cab into a Wi-Fi Pro Cab that will work with any DCC Command Station that uses the WiThrottle Interface.

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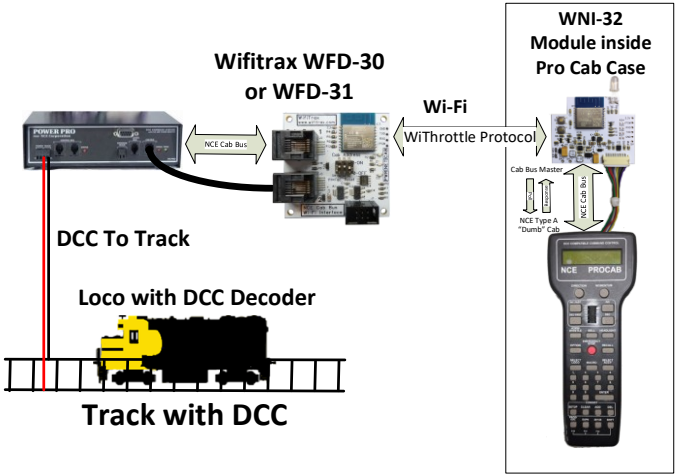
Example Usage Configurations

Figure 2 Basic configuration to use a Wi-Fi Pro Cab with NCE Command Station with WFD-30 or WFD-31

Figure 2 shows the WNI-32 installed in a Pro Cab working with a WFD-30 connected on the Cab Bus of an NCE Command Station. The WFD-30 is working in Direct mode, i.e. NOT on a home network. Consult the WNI-32 manual to see how to set up the WNI-32 on a home network.
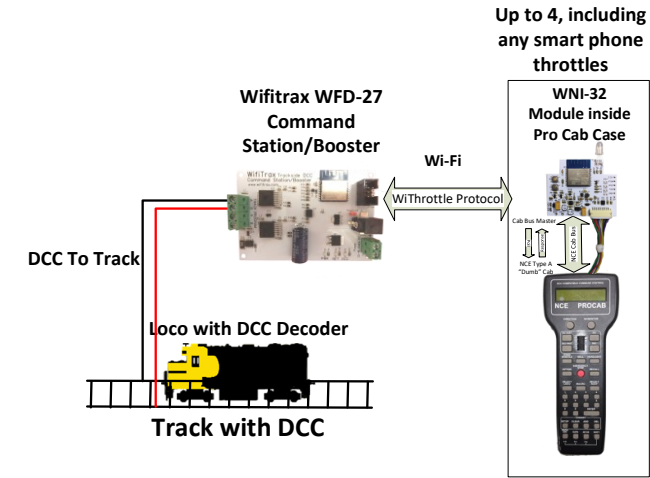

Figure 3 Basic configuration with WFD-27 Command Station/Booster

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Your newly installed WNI-32 must first try to find a Wifitrax Product such as a WFD-30 or WFD-31 that acts as a WiThrottle Protocol Server (If you are connecting to JNRI or a Wifitrax module on a home network, please see the section in the manual "Getting Started on a Home Network").

To do this, the WNI-32 will scan the Wi-Fi environment looking for one of these products. It can only find one if it is turned on, so you will see the screens in Figure 4 alternating.

S	C	A	N	N	I	N	G		F	O	R			
W	I	F	I	T	R	A	X		D	E	V	I	C	E	S

T	U	R	N		O	N		A						
W	I	T	H	R	O	T	T	L	E		S	V	R	.	

Figure 4 The WNI-32 Connecting Screens

(5) Now turn on your WFD-30 or WFD-31 connected to your NCE Command Station or Power Cab. The Pro Cab equipped with the WNI-32 module will quickly find the WFD-30 or 31 and establish first a network connection, then a WiThrottle Protocol connection. The LED, if installed will change to white and the Pro Cab screen will change to the operating screen as in Figure 5. This is the same screen as a tethered Pro Cab would show

L	O	C	:			*	0		0	2	:	4	9	P	M
F	W	D	:		0	0	0		-	-	-	-	-	-	-

Figure 5 The WNI-32 Pro Cab Operating Screen

You can now select and drive locomotives in almost the same way as with a normal tethered Pro Cab. For example, to select a loco with DCC address 1234, press Select Loco, then press key 1, key 2, key 3 and key 4, followed by Enter. You can now drive the loco using the Thumbwheel, INC, DEC, INC FAST etc. You can use the HORN, BELL and numeric function keys.

To turn off your WNI-32, press EXPN followed by Key 1. Please check the manual for much more information.

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Driving your First Trains

Setup of the simplest case where your Pro Cab works with a WFD-30 or WFD-31 as in Figure 2, is completely automatic. All you have to do is power up your WFD-30 and turn on your Wi-Fi Pro Cab using the red button.

(1) Remove any Cab Bus cable from your Pro Cab. If a cable is plugged in, 12 Volt Cab Bus Power on the cable will disable the WNI-32 from operating.

(2) Press the Red Emergency Stop button on your Pro Cab firmly. If you have installed with the LED option, the LED will immediately light Red to indicate power is present on the WNI-32 module. The normal Startup screen will appear on the Pro Cab, typically as Figure 6. Note that the Cab Address here is 03. The WNI-32 will work with any Cab Address from 02 to 63.

N	C	E		P	R	O	C	A	B			V	1	.	3
C	A	B		A	D	D	R	E	S	S			=	0	3

Figure 6 The Pro Cab Startup Screen

(3) If your module has been installed successfully, after a short while, this screen will be replaced by the WNI-32 Startup screen in Figure 7. This screen shows the WNI-32 firmware version and indicates "CAB OK" meaning that communication between the WNI-32 and the Pro Cab is working OK. At the same time, the LED, if installed, will change to Magenta (pink).

W	I	F	I	T	R	A	X		W	N	I	-	3	2	
V	1	.	0	.	0						C	A	B		O	K

Figure 7 The WNI-32 Startup Screen

After another short period of time, the screen will change to show the Wi-Fi/WiThrottle Connection Status. To operate properly, the WNI-32 must do two things: First it must connect to a Wi-Fi Network, then it must connect to a WiThrottle Server on that network. Let's assume that you are setting up the basic arrangement in Figure 2.

Figure 3 shows a WNI-32 installed in a Pro Cab working with a Wifitrax WFD-27. The WFD-27 is a complete Command Station/Booster and connects to the track. The WFD-27 is in Direct Mode, i.e. NOT on a home network. Consult the manual to see how to set up the WNI-32 on a home network.
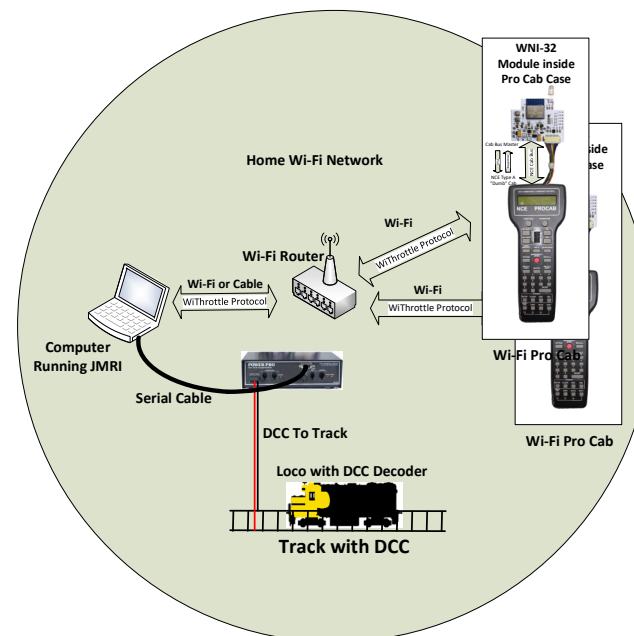

Figure 8 Wi-Fi Pro Cabs used with JMRI and an NCE Power Pro Command Station/Booster

Figure 8 shows two WNI-32 each installed in a Pro Cab operating on a home network with a computer running JMRI. The computer is connected via a serial cable to an NCE Command Station/Booster. Consult the manual to see how to set up for this configuration.

Figure 9 shows a WNI-32 Pro Cab controlling a Large-Scale Battery Loco fitted with a Wifitrax WDMI-27 or WDMI-32. The WDMI-27 is in Direct mode. The WNI-32 can also work with a WFD-60 with multiple locos on a home net. This is all described in the manual.
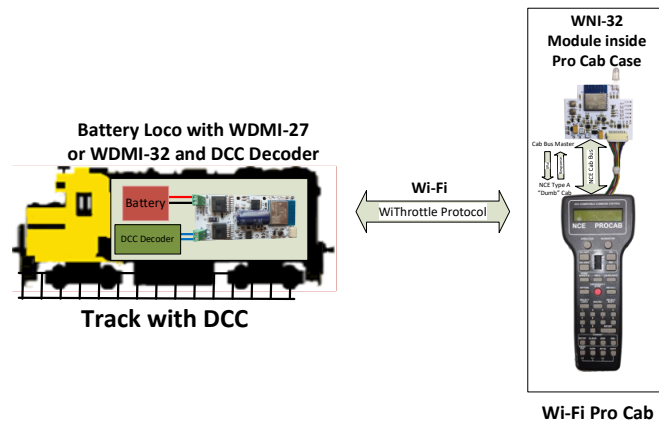
Figure 9 Battery Powered Large-Scale Locomotive fitted with WDMI-27 driven from Wi-Fi Pro Cab

Please check the WNI-32 manual for many more ways of using this module http://wifitrax.com/manuals/WNI-32/WNI-32-Manual.pdf

(6) Replace the main PCB in its position and replace the back of the Pro Cab, tightening the screws. Insert the batteries as in Figure 10 and replace the battery cover.
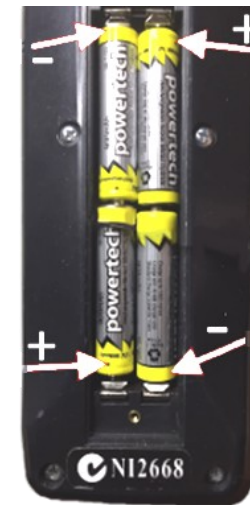

Figure 10 Insert the batteries with the correct polarity. Screw on the battery cover

Figure 11 The Pro Cab Re-assembled

Now you have a Wi-Fi Pro Cab and are ready to test it!

If it is necessary to remove the connector, be sure to grasp **ALL** of the leads before pulling, or carefully lever the connector out with the finger nails. <u>Take great care not to pull any of the leads out of the connector.</u>
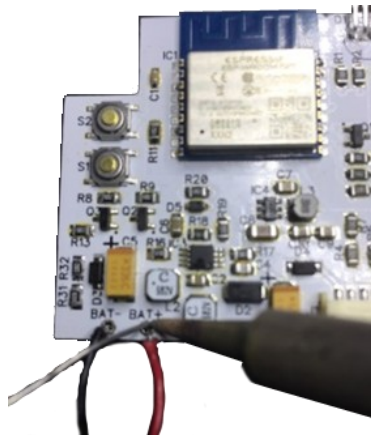

Figure 12 Solder the power leads - make sure the polarity is right!

(5) Solder the power leads from the battery connectors to the battery holes on the module. Be sure to get the polarity right and take care not to damage any components with your iron. Use a small conical bit. PLEASE ALSO SEE NOTE 1 at the end of this document for solderless alternative.

Figure 13 Replace the main PCB in the Pro Cab. Make sure all the wires are free and none are trapped.

Installing the WNI-32 in your Pro Cab

Figure 14 The nine screws holding the back on a Pro Cab. The tenth, smaller screw secures the battery cover

(1) Remove the nine screws shown in Figure 14 that fix the back on your Pro Cab. Also remove the tenth, smaller screw that secures the battery cover.
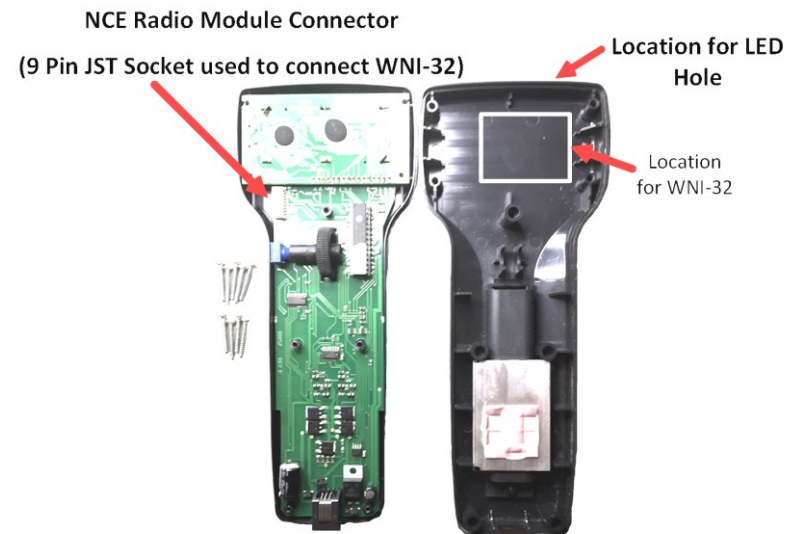

Figure 15 Identify the location of the 9-pin JST socket and the location for the WNI-32

Remove the back of your Pro Cab and check the 9-pin JST radio connector is present. Check the position where the WNI-32 will be placed.

> If the 9-pin radio connector has not been attached to the board by NCE, you may need to have your dealer install it. Wifitrax can supply the connector but installing it requires great care and precision soldering otherwise you may damage your Pro Cab. You must not short any pins on this connector as a result of poor soldering.

Figure 16 Installing the Battery Connectors and routing the leads

(2) Pass the red and black leads through the slots and install the battery clips as in Figure 16. Ensure the springs correspond to the negative side of the pairs of batteries. Make sure the battery clips are firmly seated and square on the plastic rims of the battery compartment. Route the wires to the left of the battery compartment as in the second picture in Figure 16. Fix them down with a small piece of sticky tape.

Figure 17 Fix the WNI-32 in position with its 9-way cable attached

(3) Connect one end of the nine-way cable to the 9-pin JST socket on the WNI-32 and place the module on a pad of double-sided adhesive tape in its correct location. Be sure that the 9-pin connector is firmly in place.
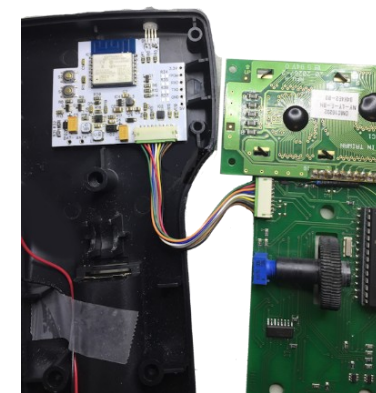

Figure 18 Connect to the main PCB of the Pro Cab

(4) Connect the other connector of the nine-way cable to the 9-pin radio connector on the main board of the Pro Cab. Again be careful to ensure the connector is fully seated in the socket.