

TRAIN CONTROL SYSTEMS

UWT-100

QUICK START GUIDE

UWT-100 Quick Start Guide

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Getting Started

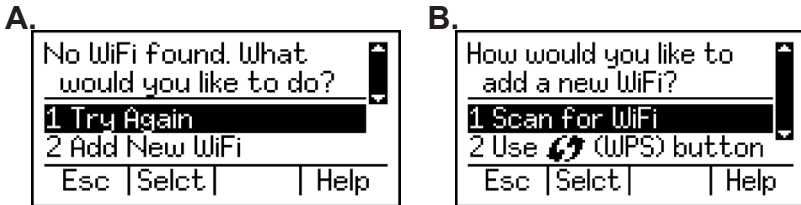
The UWT-100 is powered using two “AA” batteries. Many battery chemistries can be used, including Alkaline, NiCd, NiMH, Lithium, etc. The two AA batteries must be installed into the battery holder in the correct orientation in order to power up the throttle. The required polarity of the batteries is indicated within the battery holder.

Once two “AA” batteries have been installed, press any button and hold for 3 seconds to “wake up” the UWT-100. Once the unit is awake, press button 2 to complete the startup process.

Pro Tip: Pressing button 7 at this time will startup the throttle in bootloader mode. Pressing any other button besides button 2 or 7 will cancel the startup and power the unit down.

Connecting to WiFi

On startup, the UWT-100 will begin searching for known WiFi networks to reconnect to. It is safe to assume your network(s) will not be identical to ours. Since this is the case, the throttle will acknowledge the lost connection and will display a screen that will look like **Fig A**. In order to connect to a new WiFi, select option 2 “Add New WiFi” which will call up a list of methods for adding a new WiFi connection. **Fig B**.



It is recommended from this point that you use Option 1 “Scan for WiFi” to find your WiFi network - this may be a WiFi router connected to your JMRI, a LNWI, or other device. A list of available WiFi options will be displayed. Select your desired WiFi. Digitrax LNWI devices will start with a prefix “Dtx1-LnServer_...”.

Pro Tip: Digitrax LNWI devices do not require a password to be entered to connect. If your WiFi router is password-protected, you will be prompted to enter your WiFi password.

Connection Issues

There are two network connections the throttle must make in order to communicate to your command station: WiFi and Server.

WiFi - The WiFi connection is your router or WiFi device.

Server - The server is the host which communicates and translates between your command station and throttle.

Pro Tip: Digitrax LNWI and MRC WiFi modules function as both the WiFi and the Server simultaneously.

Please refer to the steps below to troubleshoot your connection.

Troubleshooting the WiFi connection

This section will help you troubleshoot your network connection after a “No WiFi found” error. If no WiFi is found, there are a few likely causes:

1. Your router or WiFi network is not turned on or otherwise inoperational.
2. You have not yet connected to a WiFi.
3. Your WiFi password was entered incorrectly.

Solutions for WiFi issues:

1. Turn WiFi device or router on, and check power supply for issues.
2. Follow the steps in First-time Setup Process to connect to a WiFi.
3. Double-check and re-enter your password.

Troubleshooting the Server connection

This section will help you troubleshoot your server connection in the event the “Server Not Found” menu is displayed. One of the following likely has happened:

1. The JMRI WiThrottle Server is not on/running.
2. Your command station is not turned on/plugged in.
3. The wrong connection mode is selected. JMRI, LNWI, and all other potential connections communicate via the “WiThrottle” protocol. If your connection mode is set to “LCC” for the connection to your layout, change this to the WiThrottle protocol.
4. mDNS failed to find the WiThrottle Server.

Solutions for server issues:

1. Reboot the computer running JMRI, turn JMRI and command station on, and restart the WiThrottle server. Once complete, select menu option "Try Again."
2. Use the menu options labeled "Auto-detect LCC/WT" or "Change LCC/WT Mode" and select "WiThrottle Protocol" - an asterisk (*) will appear next to the current mode.
3. mDNS is a WiFi protocol which is used to automatically load the IP address and Port number of a server connection. This protocol is not bulletproof and can fail. If you use phone apps, you may be familiar with manually entering the IP and Port Number of your JMRI WiThrottle Server. The UWT-100 is also capable of doing this. Select "Set IP Address" from the Server Not Found menu (option 2) and set the IP address and port number as indicated on your WiThrottle server window in JMRI.

Troubleshooting an LNWI connection

If you are unable to establish a connection with your LNWI device, follow the steps below:

1. As simple as it sounds, turning the LNWI device off and on again will often solve connection issues.
2. Ensure that the number of connections to a specific LNWI device is not greater than four. LNWI devices have a limit of four connected devices at one time - including phones running apps like WiThrottle and EngineDriver. Turn off or disconnect one of the devices connected to the LNWI and see if the problem disappears.
3. Check that your saved LNWI device is turned on. In situations where there are multiple LNWI devices in use, the throttle may attempt to connect to one that is not powered on and available.

Using the UWT-100

Power On/Off

To turn on the UWT-100, press and hold any button on the keypad for 3 seconds, followed by button 2 to power up the throttle. If you would like to access the bootloader mode for firmware updating, press button 7 instead of 2.

If left idle, the throttle will automatically shutdown on its own after a user-configurable timeout. The default is 15 minutes. You may choose to shut down the throttle at any time via the main menu. To do so, enter the Menu  and select option 9 “Power Off”.

Menu Navigation

The Menu  button will open the UWT-100 main menu. There are functions and options in the menu that can customize your user experience and are helpful for throttle operations. Within the menu structure of the UWT-100, a color-inversion cursor is used to indicate the position of the selection within each specific menu. A selected menu item will be indicated by a black bar surrounding white text.

Navigating the main menu can be performed a variety of ways. Rotating the scroll wheel will navigate up or down through menu items one at a time. Use of the Single Chevron keys   will also shift the cursor one item at a time, and use of the Double Chevron keys   will move the page up or down one full screen width at a time.

Each menu option corresponds to a keypad button from 0 - 9. Pressing the corresponding button will immediately select that numbered menu option. If you choose to manually browse for a menu option using the cursor, that option may then be selected by pressing the Enter  key. If you would like to know what a menu option does, first consult the Help Text.

The “Help” Button

The Universal WiFi Throttle contains information that explains most menu options and operations. To access these tips, you may press the  button at any time to access the help text for the currently highlighted menu option. Help text is also available in menus by using the  button and will be labeled “Help” on-screen.

A scroll bar will appear on the right side of the screen if more text is available. Scroll up or down to see additional text by using the thumbwheel or the chevron keys. The Single Chevron keys   will navigate one line at a time, and the Double Chevron keys   will navigate one page.

The “Help” Button on the Drive Window

Pressing the  button on the drive window will bring up the “Function Help” screen. This screen displays all available function buttons, what they do, and their status (on/off). Pressing the Shift key  will cycle through the pages of functions from 0-28. Functions highlighted in a black box with white text are “on.” This feature will *only* display named functions for each function number if the throttle is connected to a JMRI WiThrottle server *and* has a roster entry whose functions have been defined in the “Labels and Media” section. A LNWI device or other system that is unaware of function assignments will not use text labels, but will still indicate whether the function is on or off.

Programmable Buttons

There are eight buttons on the UWT-100 that can be assigned functions by the user. These buttons can be reprogrammed to activate a function different than their default assignment. The top four buttons (directly below the screen) have on-screen descriptions that indicate their assignment. If not assigned a function, they will revert to their defaults or be blank.

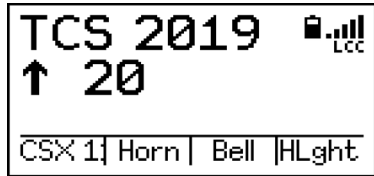


You can access button configuration options via the Settings menu. The remappable buttons will adjust based on your configured choices, the command station, and the selected locomotive’s roster entry. If you are using a command station which does not communicate function data such as a LNWI, the buttons may return to their defaults or not display names.

When connected to JMRI, the throttle will display function names and operate the functions of your locomotive based on your roster entry regardless of decoder manufacturer or the numerical function assignments of that locomotive. The buttons will intelligently display and operate based on the function names as established in your JMRI roster entry under [Your locomotive]>Labels and Media>Function Labels.

Operations (Drive Window)

The Drive Window provides an overview of your currently selected locomotive and other important status indicators.



When no locomotive is selected, an “E” will be displayed in the top left which stands for “Empty”. If you had previously acquired a locomotive address prior to powering down, the throttle will attempt to re-acquire it. In order to operate a locomotive, use the Select Locomotive button . Button 1  defaults to the quick recall function which will swap between the two most recently used addresses/names.

Select A Locomotive

Press the  button on the keypad to access the locomotive selection screen. Users are given two options for selecting a locomotive.

1. Enter the cab number manually using the numerical keypad.
2. If the throttle is connected to JMRI, all locomotive IDs (names or numbers) will be automatically loaded from the JMRI roster list. If you have a long roster, you can start typing the address to filter your available options. Use the scroll wheel or chevrons to navigate to the desired locomotive, then press the Enter  key to select it and return to the drive window. To assume control of a different locomotive, press the locomotive  button on the keypad again.

Pro Tip: If you would like to relinquish control of your currently selected address, enter the Menu  and select “Release” followed by either the “Release” or “Dispatch” options. Once a locomotive address has been released, it will become the first option available in the recall list.

Using Loco Functions

Pressing the numerical buttons on the keypad will operate the function assigned to that number on your locomotive. When a function is turned on, the function number will be displayed on the screen.

To select higher function numbers than 9, press the Shift key . The new function page selected will “persist,” meaning that you must press the shift key again in order to continue through function pages. This was designed to allow for easy repeated operation of higher-number functions. On the left side of the screen, a small 1 or 2 will indicate that you are controlling higher functions: 1 for functions 10 -19, or 2 for functions 20 - 28. Function 29 is not a valid function on most DCC systems.

Reverse Direction

The direction of the locomotive is indicated by the arrow displayed under the cab number. The upward facing arrow  indicates the unit will travel in it's forward direction, and the downward facing arrow  indicates it will travel in reverse. Users may change the direction of the unit by using the Reverse Direction  key directly below the thumb wheel.

Change Speed Step

To adjust the speed of the active locomotive, roll the thumb wheel in the direction of the screen to increase speed, and away decrease the speed. The   keys will increment or decrement the speed by 1 step. The   keys will increase or decrease the speed in larger steps. This is a configurable option in the "Drive Settings" menu. These buttons are programmable and can be assigned other functions by the user via the "Mappable Buttons" menu. Refer to the Programmable Buttons section in this guide for more information.

Emergency Stop

The UWT-100 has a unique 3-Stage Emergency Stop function.

Some stages will not be supported on certain DCC systems. Stage 1 is supported under all DCC systems that communicate via the WiThrottle Protocol.

1. To bring the active locomotive to an immediate stop, press the red Emergency Stop (E-STOP) button once. A message will appear: "E-STOP THIS LOCO." This message will persist until the speed is adjusted OR the E-stop button is pressed again. A countdown will appear beside the E-STOP message.
2. If the E-STOP button is pressed a second time before the countdown finishes, the E-STOP button will stop ALL of the locomotives on the layout/track. The countdown timer will reset also.
3. If the E-STOP button is pressed for a third or more times before the countdown finishes, the E-STOP button will power off the layout. The screen will read "E-STOP LAYOUT OFF" and "POWER OFF." Locomotives will not respond to commands until the E-STOP LAYOUT OFF is lifted. Press the E-STOP button again while in shutoff mode to restore operation.

To release any of these stages of E-STOP, wait until the countdown has finished and press the E-STOP button again.

Resets and Troubleshooting

In the event that your UWT-100 encounters software issues or becomes unresponsive, please follow the instructions below to reset the throttle.

Option 1: Remove Batteries

99% of crashes can be fixed by simply removing the batteries. This will power down the throttle. Simply replace the batteries and power up normally.

Option 2: Factory Reset

In the event that things have gone completely sideways and removing the batteries from the UWT-100 does not solve the problem, a factory reset may be performed. To perform a Factory Reset, Navigate to Menu > 8 Throttle Settings > 2 Factory Reset.

Performing a factory reset will erase all network profiles, user settings, and throttle settings. After performing a factory reset, you will need to re-enter your WiFi connection information as outlined in the section First-time Setup Process.

Pro Tip: Often, a crash will cause your unit's LED flashlight to blink in a short sequence. Power down and reset your throttle to restore operation.

Warranty

Train Control Systems, Inc. warrants this product to be free from defects in workmanship and materials, under normal use and conditions, for a period of one (1) year from the original invoice date. Please visit our website for additional warranty information.

Support and Contact

If you experience issues with your UWT-100 unit or would like to speak with a technical support representative, please contact us.

Main Office

tcs@tcsdcc.com
(215) 453-9145

Technical Support

techsupport@tcsdcc.com
(267) 733-3408

Safety and Regulatory Information



Train Control Systems Inc.

845 Blooming Glen Rd, Blooming Glen, PA 18911 USA

<https://tcsdcc.com/contact>

Model: UWT-100

FCC ID: 2AUJ6-UWT100

IC: 25442-UWT100

CAN ICES-3(B)/NMB-3(B)

SAR (CE/AU/NZ): Measured Value: 0.204 W/kg (Limit 2.0 W/kg)

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 15.21 Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

FCC 15.105 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.

ISED warning RSS-Gen 8.4

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

- (1) This device may not cause interference; and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

European Users

Train Control Systems Inc. EU Support Contact Information:

PO Box 17749, BROMSGROVE, B60 9NJ, UNITED KINGDOM

- Hereby, Train Control Systems Inc. declares that the radio equipment type UWT-100 (WiFi) is in compliance with Directive 2014/53/EU.

The full text of the EU declaration of conformity is available at the following internet address: <https://tcsdcc.com/DoC>



Waste Electrical and Electronic Equipment (WEEE)

This symbol means that according to local laws and regulations your product and/or its battery shall be disposed of separately from household waste. When this product reaches its end of life, take it to a collection point designated by local authorities. Proper recycling of your product will protect human health and the environment.

- **Caution:** risk of explosion if battery is replaced by an incorrect type. Dispose of used batteries according to the instructions.

• RF Exposure Information (SAR)

This device has been tested and meets applicable limits for Radio Frequency (RF) exposure. Specific Absorption Rate (SAR) refers to the rate at which the body absorbs RF energy. SAR limits are 1.6 Watts per kilogram (over a volume containing a mass of 1 gram of tissue) in countries that follow the United States FCC limit and 2.0 W/kg (averaged over 10 grams of tissue) in countries that follow the Council of the European Union limit. Tests for SAR are conducted using standard operating positions with the device transmitting at its highest certified power level in all tested frequency bands. To reduce exposure to RF energy, use a hands-free accessory or other similar option to keep this device away from your head and body. Carry this device at least 5 mm away from your body to ensure exposure levels remain at or below the as-tested levels. Choose the belt clips, holsters, or other similar body-worn accessories which do not contain metallic components to support operation in this manner. Cases with metal parts may change the RF performance of the device, including its compliance with RF exposure guidelines, in a manner that has not been tested or certified, and use such accessories should be avoided.

E-Labeling, Compliance and Certification

To access the certification and compliance details of your UWT-100 follow the steps below

- 1) Power on the UWT-100 by pressing button 2 until the screen lights up and then pressing button 2 again.
- 2) Press the Menu () button, scroll to [Settings], and press Enter ()
- 3) Scroll to [Regulatory] from the [Settings] menu, and press Enter ()

You can now read and review the e-labeling details of your UWT-100

UWT-100 DIAGRAM

