

Disclaimer Of Liability

CVP Products (CVP) is not responsible for any direct, indirect, special, or consequential damages and personal injuries, including that to life, and health, resulting from the customer's application and use of CVP's devices. You, the customer, assume full and unlimited responsibility for all device applications and uses. Your purchase and/or use of this device constitutes your agreement to hereafter assume full and total responsibility for your subsequent utilization of the device and you agree to defend, protect, save harmless, and indemnify CVP Products, its owner and employees relative to your potential use and misuse of this device. By purchasing or using a CVP device, you agree to the above terms.

If buyer does not agree with these conditions, immediately return the product, in its original condition, to the place of purchase.

Warranty Information

This warranty covers substantial defects in materials and workmanship of the T2300 OPS throttle. This warranty does not cover the wall charger or the interface cable.

What This Warranty Does Not Cover

This warranty does not cover any problems which result from normal wear and tear, improper installation, modifications, battery failure, battery polarity reversal, leaking batteries, incorrect charging procedure, 3rd party battery chargers, abuse, accidents, or acts of God such as excessive heat, floods, damage caused by exposure to moisture and rain, lightning, earthquakes, volcanic events, tidal waves or hurricanes. Normal wear and tear includes dirty keys, broken pot, cracked case, broken/cracked display, broken charging jack or other wear caused by use and abuse.

Warranty Duration

The coverage of this warranty lasts for 90 days. After this period, standard repair rates apply. Depending on the problem, CVP reserves the right to repair or replace.

Help, Repairs and Returns

If you purchased your T2300 Throttle from one of our AirWire900 dealers, please call them first. They are your best and quickest for answers about the throttle and its operation.

If you purchased your T2300 Throttle directly from CVP Products, you may call our office during normal business hours. If the voice mail system answers, it is either after our normal business hours or we are busy helping other customers. Please leave a message. Be sure to leave your phone number and your location. Have your throttle, the instruction manual and your locomotive nearby before you call.

Do not send items to us for repair without first obtaining authorization. In many cases, problems are easily solved via phone or email without the need or expense to return items to us. For more information about repairs, go to the website home page and click on the red box labeled REPAIR SERVICES.

Warning - Absolutely Never Drill The Throttle Case

Absolutely nothing can be mounted to throttle's case; top or bottom. Do not screw, drill or mount items such as lanyards to the throttle's top or bottom. Never drill the case since the battery may be punctured resulting in a fire hazard and damage to the throttle. If drilling has been done and is discovered by CVP, the throttle cannot and will not be repaired and will be returned to you untouched. So don't do it!

If Your Throttle Needs Service

Visit the CVP home page and click on the red box labeled REPAIR SERVICES. Follow the instructions for obtaining service for your throttle. You must have an RMA before sending it. Be sure to include a copy of your invoice or your invoice number.

FCC ID: X7J-A10040601

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r1 T2300 022021

T2300 Wireless Throttle User Guide


Operator User Guide 3

Simplified instructions for operators and visitors using the T2300 throttle.

Owner Setup Guide 7


Instructions for selecting various hidden options for the T2300 throttle that are not visible to operators.



 This throttle uses a rechargeable Lithium-Ion (Li-Ion) battery. Li-Ion batteries are volatile if not handled properly. Read the safety instructions and warnings on page 15 before using or charging your throttle. Failure to do so may result in fire, personal injury, and damage to property including your new throttle.

Please read and understand the disclaimer of liability on the back page.

 **Fully Charge Battery Before Using.**
See Page 6.

 **T2300 Is Not A Programmer**

This throttle cannot program or setup a decoder. You must use a programming throttle.

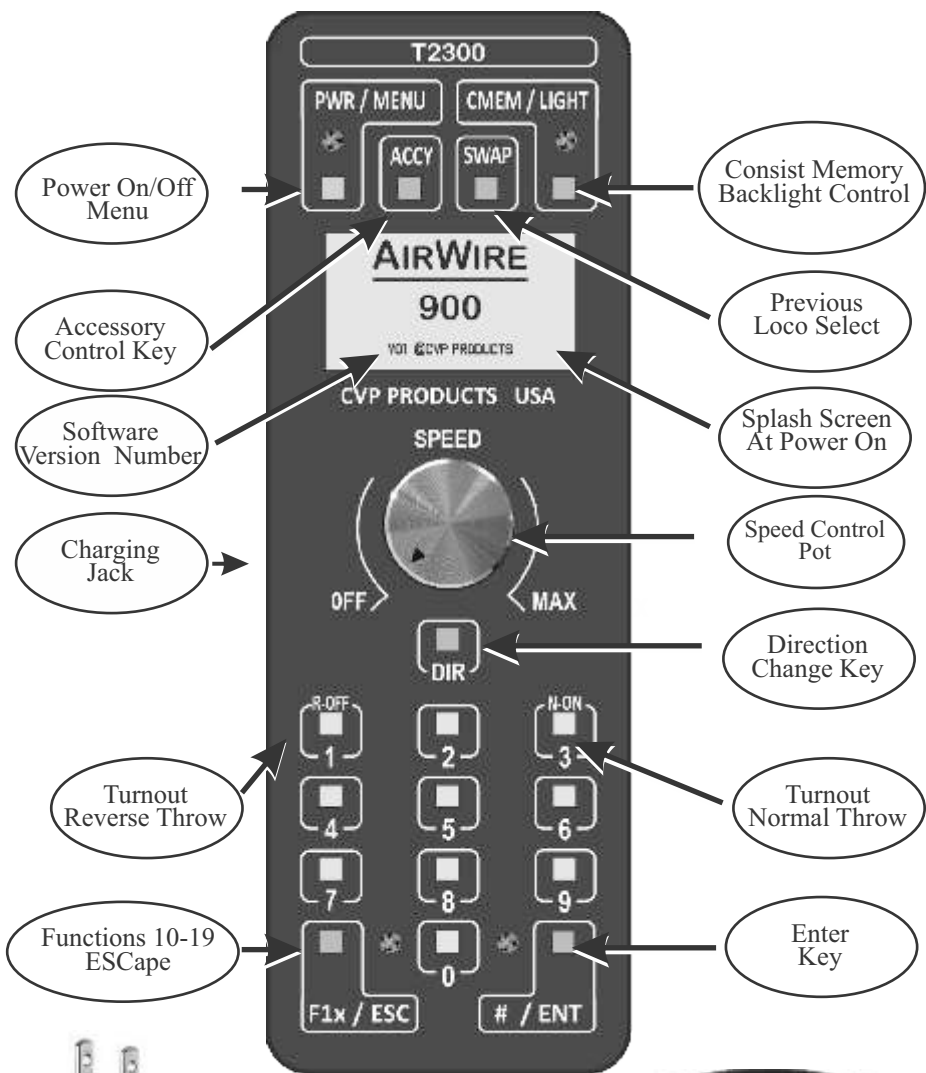
T2300 Combo Contents
T2300 Throttle
*USB Wall Charger
*USB to microUSB Cable
This User Guide

**If the T2300 is purchased alone, the * items will not be present.*



T2300 OPS Wireless Throttle - Front View

Fully Charge Battery Before First Use



USB Wall Charger

Vector



USB to microUSB Charging Cable

Replacing Internal Battery

The T2300 throttle's internal battery is specified for about 600 full charge-discharge cycles before needing replacement. This means the battery will last for many years of normal use.

However, should a replacement be required, that is simple to do. The replacement battery is called the BAT4 and the latest price is available on the CVP website. Call or email your order to CVP Products.

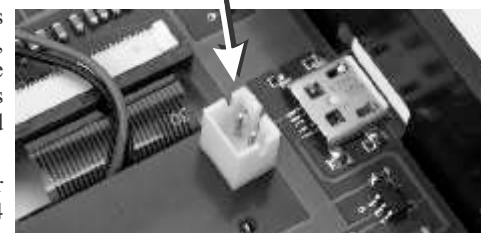
Open up the throttle by removing the 4 screws from the back. Lift the back up and lay it on its side.

The battery plug has two small tabs that keep it from being unplugged. Use a non-metallic tool to gently spread the socket to release the tabs. Then unplug the battery pack by pulling straight up on the plug's wires.

The battery is attached to the back with thin, double sided tape. Remove the battery from the tape and discard in a safe manner.

Remove every piece of the old tape from the back. Apply a fresh piece the same length as the battery. Using the picture as a reference, position the battery and press it firmly to the back. Plug in the new battery. The socket is polarized so the plug must be oriented correctly to be inserted.

Place the back onto the throttle and check for pinched wires. When all is clear, reinstall the 4 screws.



Battery And Charger Specifications

Battery Type	Lithium-Ion Rechargeable Battery (Li-Ion)
Battery Voltage	3.7V typical, 4.2V maximum, 2.75V cutoff
Battery Capacity	2000mAh
Battery Protection	Over voltage, under voltage, over current
USB Socket Type	microUSB socket on side of throttle
Charger Voltage	6 VDC maximum (higher voltages will damage throttle)
Charger Current	500mA maximum, lower is OK but charging takes longer

Li-Ion Rechargeable Battery Pack Precautions

- NEVER use a NiCd/NiMH charger to charge Li-Ion batteries.
- ALWAYS store Li-Ion batteries at room temperature. Never put them in a freezer.
- NEVER charge batteries if the ambient temperature is above 113°F.
- ALWAYS unplug the battery if storing the throttle for more than 2 months without charging.
- ALWAYS charge the battery if it has not been used for more than a month.
- ALWAYS keep Li-Ion batteries out of reach of children or pets.
- NEVER puncture, cut or drill into the battery pack.

Miscellaneous Notes *continued*

turns on and stays on. It is strongly recommended to park the train before the throttle automatically shuts down to protect the battery. If the train is still running when the throttle shuts down, the train will be uncontrolled.

Battery Has Automatic Shutoff When Depleted

If the battery is fully depleted, it will automatically shut off. The throttle can't be used and nothing will be displayed. A voltmeter will measure 0 volts. But, there is nothing wrong with the battery. It simply needs to be charged to reset the internal protection circuit. If the battery is allowed to be fully depleted, allow it to charge overnight. The battery must be charged before the throttle can be used again.

OK To Leave Battery Plugged Into Charger

The battery can remain plugged into the charger when not in use. It cannot be overcharged or harmed in any way. *The battery does not develop a "memory."*

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Tips For Best Throttle Performance

The T2300 OPS throttle operates in an unlicensed band shared by many other transmitters. These transmitters can and will create interference resulting in intermittent locomotive control or complete failure of the locomotive to receive throttle commands. The sources of these external interfering signals can be from other AirWire throttles, your own home, from adjacent homes, nearby businesses or noisy electrical motors including your own locomotives.

Interfering Transmitters. Here's a list of devices known to have caused interference to the throttle: other AirWire throttles on the same frequency, wireless devices attached to computers, TV remote controls, cordless telephones, wireless home or business alarm systems, baby monitors, unlicensed personal communication devices, lawn sprinkler controllers, remote starter switches, cordless light switches, outdoor lighting controllers, toys, wireless headphones, and games.

If you find a strong interfering signal on one or more of your frequencies, don't use those frequencies; pick a different frequency and try it.

Keep your hand away from the top edge of the box. The internal antenna is near this area and the presence of your hand can affect the throttle's range.

Beware Of Other Throttles On The Same Frequency. Each AirWire throttle, no matter what type, must be on a unique frequency. Frequencies can't be shared. Remember that loco numbers are saved with their frequency. Because of this, it is easy to forget that the newly activated consist or swap locomotive is on a frequency already being used by another operator.

If Your Throttle Needs Service

Visit the CVP website, www.cvpusa.com, and click on the red box labeled REPAIR SERVICES. Follow the instructions for obtaining service for your throttle. You must have an RMA before sending it. Be sure to include a copy of your invoice or your invoice number.

Operators User Guide: Turn Power On and Off

The solid black banner above indicates this is a section for operators. The pictorial instructions are only for basic throttle operation and can be used to explain to your operators, how to use the throttle. Other throttle setup information, not needed by your operators, starts on page 7.

Power On , Splash Screen, Home Page



Power Switch



Splash Screen and Version Number



Home Page

Turn On The Throttle

Push and release the green key labeled PWR. The AirWire splash screen will show briefly followed by the home page display.

The home page shows the loco number (the active loco) to which speed, direction and function commands are being transmitted. If this is the first time the throttle has been turned on, the default factory setting for the loco number is 3. If the throttle is not new, the last used locomotive number will be displayed.

A flashing speed value, after turning on the throttle, means the speed control is not set fully counterclockwise to the OFF position. The throttle cannot be used until the speed value stops flashing.

Turn Off The Throttle

First, set the speed value to 000 by rotating the pot fully counterclockwise.

Push the green PWR key. The display shows what key to push to power down the throttle.

Push the 0 key to turn off the throttle.

If you accidentally pushed the PWR key, push the red ESC key. The action is cancelled and the display returns to the home page.

Automatic Power Off

The throttle will automatically turn itself off after 15 minutes as long as the speed value is 000. If the speed value is not 000, the throttle will not turn itself off. The speed value must be 000 for the automatic shutoff to activate.

Rechargeable Battery Status

The battery shaped symbol shows the status of the rechargeable battery. When fully charged, the symbol is solid black. As the battery is used, the filled symbol empties out. When the symbol is not filled, there is only a few minutes of life remaining. The message CHARGE BATTERY will appear. Park the train and stop using the throttle. Connect it to the charger and allow it to charge overnight.

It is OK to leave the throttle plugged in to the charger between uses.



Primary Menu



Selecting The Locomotive Number To Control

For this example, the loco number to be used is number 3456. First press and release the ENT button. This brings up the LOCO number screen.

Now press the 3, 4, 5, 6 keys in sequence. Always verify you have the correct loco number showing in the display before continuing.

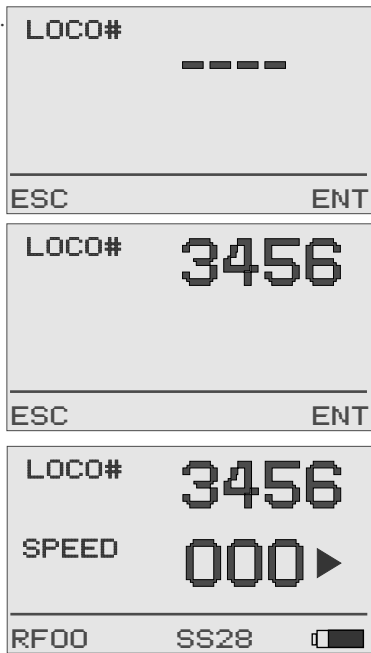
If a wrong number has been pressed, just tap the 0 key until you see 4 zeroes. Then enter the desired numbers. Only the numbers shown in the display are used.

After verifying the numbers are correct, press the ENT key again.

You can also cancel out of the loco number selection mode by pressing the red ESC key. If ESC is pressed before finishing the loco entry, the new number is canceled and the original loco number will be in the display.

When ENT is pressed, the home page will show the new loco number. The default direction is always forward shown by the pointed arrow next to the speed value.

You can change the loco number at any time. If the throttle is turned off, the last loco number used will be restored when the throttle is turned back on.



Controlling Locomotive Speed and Direction

The single turn “speed” pot with the large knob controls the locomotive speed. Turn it clockwise, towards MAX, to increase the locomotive speed. Turn it counterclockwise, towards OFF, to decrease locomotive speed. The speed value in the display represents the speed step number being transmitted. When not using the throttle, always set the speed control to OFF [speed value of 000.]

Push and release the yellow **DIR** key (below the knob) to change the locomotive’s direction. Forward is indicated with a right facing arrow next to the speed value. Reverse is indicated with a left facing arrow. The direction arrow doesn’t indicate the physical movement of the locomotive. Rather it shows the locomotive movement as if you were sitting in the locomotive’s cab.



Sending Function Commands

The T2300 throttle can activate decoder functions numbered F0 thru F19. It is the setup of the locomotive decoder that determines what each function command does.

F0 to F9: When the home page is being displayed, each of the T2300 number keys are also their respective DCC function keys. For example, the 0 key is F0, the 1 key is F1, the 2 key is assigned to F2, etc. Just push the key to activate the function. Except for F2, all function controls are latching. This means that the “activate” command is sent when the key is first pushed and released. Pressing and releasing the key a second time sends the “deactivate” command. When a function key is pressed, the word FUNC and the select function number replaces the speed value. A few seconds after the function key is released, the speed value reappears.

F10 to F19: Push the red F1x/ESC key once. The display shows F1-. Push the second number, from 0 to 9. to finish the two digit number. If the red key is accidentally pressed, just push it again to cancel the function command.

F2 is special: By convention, F2 is almost universally assigned to a horn or whistle momentary function. Pressing and holding the F2 key activates the horn or whistle. The activate or “blow” command is sent as long as the key is pressed. Releasing F2 turns off the horn or whistle off.

Reset Throttle To Original Factory Settings

There are several throttle settings that are remembered, when the power is turned off or if the battery is unplugged. But, at any time, you may force the throttle back to its original factory settings, just as you received it. When the FACTORY RESET command is issued, all memory and settings inside the throttle are erased and restored back to the original factory settings.

From the SETUP menu, select option 3 FACTORY RESET.

The moment 3 is pushed, the throttle is immediately reset.

Item	Default	Item	Default
Active Loco	3	Active Freq	0
Swap Loco	9999	Swap Freq	16
Consist	Cleared	Speed Steps	28
Frequency Select	Hidden		

Swap Loco - Operating Notes

New Throttle: As received from the factory, or after a throttle reset, swap memory is initialized to loco 9999 and frequency 16.

After First Use Of Swap: If swap has been used, the swapped loco and loco frequency are saved when power is turned off.

Swap Stores Loco Number And Frequency: A different frequency can be used with a swapped locomotive. Thus the OPS throttle can have its current active loco number on one frequency and it’s swapped loco on a different frequency.

To Setup The OPS Throttle With Two Locos On Different Frequencies: First step is to enter the first loco number. Next set the frequency. Activate the swap by pushing the SWAP key. Next, enter the second loco number. Now set the second loco’s frequency.

Now, the swap function will switch back and forth between the first and second locomotive. Both locos will be saved when power is turned off.

Consist Can Be Swapped Too: If controlling a consist and the swap is used, the consist is saved in the swap memory. This makes it easy to swap between a single loco like a helper, and a consist.

Miscellaneous Notes

If The Train Doesn’t Run

There is no linking or pairing required to run an AirWire equipped locomotive. The only requirement is for the throttle’s frequency and displayed loco number to match what is set in the locomotive in order to control it.

Automatic Power Off Timer

The T2300 throttle automatically turn itself off after 15 minutes of non-use but only if the speed knob is set to OFF. However, if the speed control is not set to OFF, like when you are operating a train, the throttle will not automatically turn off.

Teach your operators to always set the speed control to OFF when through running a train. Or, better yet, turn off the throttle power when done running a train.

Low Battery Warning

When the battery has about 30 minutes of life remaining, the LOBAT icon will show an empty rectangle. When the battery life drops to less than 5 minutes the RECHARGE BATTERY message

Speed Step Considerations

A speed step (SS) value is an arbitrary number transmitted from the throttle to the locomotive decoder. It does not contain actual speed information. Inside the decoder is a table that interprets the speed step and calculates the appropriate motor voltage.

Your throttle can be set to transmit any one of the 3 available speed step settings.

For the 14 speed step setting, the single turn pot is divided into 14 steps (0-14).

For the 28 speed step setting, the single turn pot is divided into 28 steps (0-28).

For the 128 speed step setting, the single turn pot is divided into 128 steps (0-128).

Except for the 128 step setting, the decoder must match the step setting of the throttle.

The factory default speed setting is 28 steps. The home page will always show which speed step setting is being used. In this example, it is 28 steps.



Change Speed Step Setting

In this example, the speed step setting will be changed to 128 steps. To change to 128 steps, use the following key sequence to change the transmitted speed steps to 128.

Get into SETUP MENU first.

Select option 0. SPEED STEPS,

The screen shows the 3 available settings. Push the 3 key to change to 128 steps.

The screen returns to the normal home page. Verify that the new speed steps value shows.

If no change is wanted, just push the ESC key.

The step change takes effect immediately.

1. 14 STEPS
2. 28 STEPS
3. 128 STEPS

ESC



Change Auto-Off Timer

The Auto-Off timer factory setting is 15 minutes. When the speed step value is 0, the timer will shut off the throttle 15 minutes later.

The Auto-Off timer will not be started if the SPEED value is not zero. Educate your operators to always set the speed control to OFF *and* verify the SPEED value is 000.

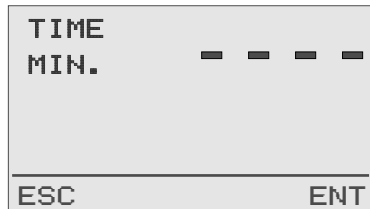
The timer can be changed to any value between 1 and 9999 minutes.

From the SETUP menu, select option 2 AUTO OFF TIMER.

Enter the desired value which is how many minutes before the throttle shuts off.

Push ENT when the value is correct. The new time takes effect immediately.

If no change is wanted, just push the ESC key.



Go Back To Last Loco Number

The SWAP key allows the previously used loco number to be restored as the active locomotive. For example, if loco number 42 was last used, and then loco number 567 was entered, pressing the SWAP key restores locomotive 42. Press it again and locomotive 567 is restored.



The swap key only remembers the very last used loco number. The last number is remembered even with the power turned off.

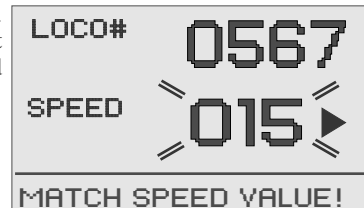
SWAP with A Running Locomotive

An active loco can be running when the swap key is pressed. When the swap key is pressed, the loco number, its current speed value and its direction are saved. But what if the speed value doesn't match the speed control position?

If the active locomotive's stored speed value doesn't match the present setting of the speed pot, the speed value will be flashing. A message will be displayed below the black line saying MATCH SPEED VALUE!

The flashing speed value is the value to which the pot must be set to. Since 15 is about halfway to max speed, the pot must be rotated clockwise. Once the pot position matches the speed value, the flashing stops and normal throttle operation resumes.

To avoid having to match the pot position with a saved speed value, we recommend that swap be done with stopped locomotives.



Accessory Decoder Control

The accessory decoder number must be known before it can be controlled. Check with the owner if unsure what the accessory decoder numbers are.

Push and release the ACCY key. For this example, the accessory decoder number is 2.

Enter the desired number, 2 for this example, and then press ENT again.

The display shows the active accessory decoder number as well as the two activation keys which are 1 and 3.

1 R-OFF means "reverse" or curved when referring to a turnout's direction of travel. If using ON/OFF accessories, this will turn OFF the accessory.

3 N-ON means "normal" or straight when referring to a turnout's direction of travel. If using ON/OFF accessories, this will turn ON the accessory.

To activate the turnout in the normal direction, tap the 3 key.

To activate the turnout in the reverse direction, tap the 1 key.

To select a different accessory decoder number, 5 for this example, push #/ENT KEY followed by a 5.

To exit from ACCY mode, push the red ESC key.

The locomotive will continue to respond to direction, speed and function commands while in the accessory mode. Except for the 1 and 3 key, all function commands remain the same. But, for functions 1 and 3, you must **push and hold** the 1 or the 3 key to activate the function.

The throttle cannot be turned off while in ACCY mode. Exit the ACCY mode first.



Backlight Control

When the throttle is turned on, the built-in backlight will always turn on.

Usually, the backlight is not needed when operating outdoors during the day or in normal room light.

To turn off the backlight, press and hold the yellow key labeled CMEM/LIGHT.

To turn on the backlight, press and hold the yellow key labeled CMEM/LIGHT.

The battery life will be about 10% longer with the backlight off.



Recharging The Battery

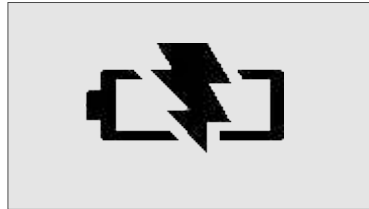
The charging jack is a microUSB style jack. It is located on the left side of the throttle.

The charging jack is fragile. The jack and plug are polarized so the plug fits only one way.

Do not force the plug into the jack.

Do not yank the plug out.

Don't pickup the throttle by the charging cable.



When the charging cable is plugged in and the charger is plugged into the wall outlet, the T2300 displays the charging symbol. The appearance of the charging symbol verifies the charger, cable and throttle are properly connected. After 15 seconds, the throttle shuts off for faster battery charging.

Connecting The Charger Cable and Charger

The CVP Products supplied universal USB charger plugs into any source of AC voltage from 90VAC to 240VAC. Output is 5VDC.

Plug one end of the supplied adapter cable into the USB charger and the other end into the throttle. The plugs are polarized and can only be inserted one way. Don't force them.

When the charger is connected to the throttle, the display will show a lightning bolt symbol for about 15 seconds. After that, the throttle shuts off.



Simple Battery Status Check

If the charger is connected, simply push the green PWR key. If the battery is fully charged, the charge symbol will not appear.

If the charge symbol does appear, then the battery is not fully charged. The throttle will turn off in about 15 seconds.

The appearance of the charging symbol verifies the battery is not fully charged, the charger is working, and the cable and throttle are properly connected.

The throttle cannot be used when the charger is connected.

Throttle Cannot Be Used While Charging

If the throttle is being charged, it cannot be used. If the PWR key is pressed, the charging symbol will appear, and the throttle turns off in about 15 seconds.

Activate a Stored Consist

To recall and make active the stored consist: Push CMEM followed by ENT. The stored consist becomes active with all of its original settings restored.

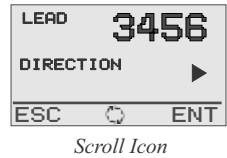
Function Commands In Consist

All throttle function commands go to the lead locomotive. The other locomotives in the consist will not receive the commands.

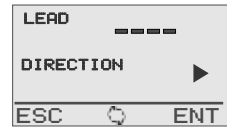
Consist Editing

Consist Editing: Once built, a consist can be modified. The consist does not have to be active (showing on the home page) to modify it. Push the CMEM key to view and/or edit the consist.

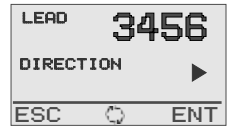
You will know a consist exists because the "Build consist?" message does not appear and the lead unit is shown. There is a new icon below the horizontal line. The icon is called the "scroll" icon. Use the speed knob to scroll through the locomotives in the consist.



Delete Entire Consist removes all of the locomotives in a consist. Make sure the lead unit is showing. Push 0. Notice the lead locomotive number changes to dashes. Push ENT to delete the consist and return to the home page.



Delete One Loco in the consist is similar except the locomotive to be deleted is showing. Push CMEM to edit. Rotate the speed control to find the locomotive to delete. When the loco address to be deleted is shown, press 0 and push ENT. Notice the numbers are replaced by dashes when you push 0. The home page will appear after the loco is deleted. If you made a mistake, push ESC to cancel any time before you push ENT.



To Add Locomotive Or Overwrite Existing Locomotive in a consist is easy. Push CONS to edit. Scroll to either a locomotive number you don't want or to an empty location shown with dashes. Enter the new locomotive number, set the direction and press ENT. The new locomotive is now added to the consist.

Flip Consist - End for End

Consist Flip

Flipping a consist is handy for point-to-point operation. This allows the end loco and the lead loco to exchange rolls. For example, in the graphic below, the lead loco is 1234 and the consist below moves to the right when the forward direction is selected.



To flip a consist, push the CMEM key. With the lead unit showing, push the DIR key. The display will now show the lead locomotive is now 4400. The remaining locomotives are reordered.



Swap Key Works With a CONSIST Too!

If the CONSIST was active when the swap key was pressed, the last loco number is recalled. Pushing swap again recalls the CONSIST.

Building And Storing A Multi-Unit Loco Consist

A multi-unit consist is a set of locomotives that operate together as a single locomotive. A consist is stored in throttle memory. The T2300 throttle allows up to 4 locomotives to be put into a consist. Only one consist is allowed. Once created, the consist can be saved, activated, or edited. There must be at least two locomotive numbers in a consist. The maximum number is 4.

All locomotives must be on the same frequency to build a consist. Only one consist can be created and stored in the OPS throttle.

Step 1: Whatever locomotive number is shown on the home page becomes the lead or first locomotive in a consist. Set the direction to forward and the speed value to 0. In the example, loco 3456 will be the head loco.

Step 2: Push and release the CMEM/LIGHT key and verify that the CONS address shown is your lead locomotive address. If not, push ESC and key in the proper address. Now push ENT to answer YES to the question.

Push ESC anytime during the building of a consist to cancel and exit without saving anything.

Step 3: Enter the 2nd loco address (5678). If the loco is backwards, relative to the lead unit, change its direction by pushing the DIR key. Unless changed, forward direction is assumed. Once the number and the direction are entered, push ENT.

Step 4: Now load the 3rd locomotive (3300) using the same sequence.

During the build consist mode, you will not be able to back up. If you think you have made an error, wait until you have loaded all of the locomotives and then EDIT the consist, described in the next section.

Step 5: Notice the display show END instead of LOCO4. This is the last loco number than can be entered in the consist. Enter the loco number (4400), and set the direction, (this one is reversed so the direction key is tapped to show reverse) and then push ENT.

Step 6: Finally, there are three possible responses to the ACTIVATE CONSIST question.

Push ESC to cancel the consist build without storing anything.

Push CMEM if you are ready to run the consist now. This will activate the consist **and** store it. When the consist is activated, the home page shows CONS# and the lead locomotive number.

Push ENT to store the consist **without** making it active. It can be activated later.

Less Than 4 Locos?

If the consist has only 2 or 3 locos, push the ENT key **twice** after the last loco is entered to indicate there are no more entries. Then proceed to step 6.

LOCO#	3456
SPEED	000▶
RFOO	SS28

CONS#	3456
BUILD CONSIST?	
ESC	ENT

LOCO2	5678
DIRECTION	▶
ESC	ENT

LOCO3	3300
DIRECTION	▶
ESC	ENT

END	4400
DIRECTION	◀
ESC	ENT

END	4400
ACTIVATE CONSIST?	
Y=CMEM	STORE=ENT

CONS#	3456
SPEED	000▶
RFOO	SS28

Delete A Consist

To delete the CONSIST, first make it active. Then, push CMEM. Make sure the LEAD loco number is displayed. Push 0. The lead loco number changes to dashes. Push ENT to confirm. All of the consisted locomotives are released. A new CONSIST can be now be created.

Owner's Setup Guide For T2300 Throttle

Note 1: The T2300 Cannot Program Decoders

The OPS throttle can't program decoders so you will need at least one T5000 throttle for the decoder programming task.

Note 2: Never Drill Into The Box

There is risk that the battery will be compromised which might result in battery failure, fire and/or explosion. Please review the battery precautions on page 15.

Note 3: Fully Charge Battery Before First Use

The internal Lithium-Polymer battery is only partially charged. Be sure to charge it overnight before using the throttle.

Note 4: Getting Into The T2300 Setup Mode Requires Special Key Sequence

To prevent operators from accidentally getting into any of the throttle setup modes, there is a special key sequence to use.

Getting Into The T2300 Setup Mode

The throttle setup mode requires entering a unique keystroke sequence. This will keep your operators from accidentally changing the throttle setup.

To enter the setup menu, first turn on the throttle. Now press the PWR/MENU key. Now push **and hold** the ENT key. The setup menu will now appear. This sequence must be used any time there is need to change the throttle setup.

- | |
|-------------------|
| 0. SS SELECT |
| 1. FREQ SELECT |
| 2. AUTO OFF TIMER |
| 3. FACTORY RESET |

Setup Menu

T2300 Throttle Setup Information

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Frequency Selection Mode

The normal factory setting for frequency selection mode is hidden. That means the operator cannot change the throttle's transmission frequency. However, if you prefer your operators to be able to change the throttle frequency, you have it appear on the primary menu. It can easily be changed back to being hidden at any time.

Adding FREQ SELECT to the primary menu is simple. First, put the throttle into the setup mode.

Press 1 for FREQ SELECT.

Push the SWAP key. Once the SWAP key is pressed, the setup mode is exited and the home page appears.

When the user pushes the PWR/MENU key, the frequency selection option will appear in the primary menu. This added selection will remain available until the mode is cancelled or the throttle is reset.

To remove the frequency selection option from the primary menu, repeat the same sequence used to enable this feature.

The screenshot shows a screen with 'FREQ#' at the top and two dashes below it. Below that are three buttons: 'ESC', 'SWAP', and 'ENT'. At the bottom, there are two menu options: '0. POWER OFF' and '1. FREQ SELECT'. The text 'Primary Menu' is centered at the very bottom.

Change Throttle Frequency

The factory default setting for the transmit frequency is frequency 0. Regardless of which mode is used, the key sequence is always the same once the FREQ SELECT screen is showing.

From either the SETUP mode, or the primary menu, push the 1 key to set the frequency.

For this example, the frequency will be set to 3.

Push 3 followed by ENT. When the ENT is pressed, the throttle is immediately change to frequency 3 and the home screen will show RF03.

Once a frequency is changed, verify the frequency number, shown next to "RF" on the lower left corner of the home page, is correct.

SWAP does not show on the primary menu. It only appears in the hidden frequency change mode.

The screenshot shows a screen with 'FREQ#' at the top and two dashes below it. Below that are two buttons: 'ESC' and 'ENT'. In the center, 'LOCO#' is followed by '3456' and 'SPEED' is followed by '000' with a right-pointing arrow. At the bottom, 'RF03' is followed by 'SS28' and a battery level indicator.

Frequency Is Stored With Loco Number

The active loco number and active transmit frequency are stored when swap is used. This allows two locos on different frequencies to be swapped.

Not All Frequencies Are Available On Older Decoders

G4, G3, K27, All Drop-In Decoders and CONVRTRS built After 2013 support all 17 frequencies, numbered 0 to 16. Use the appropriate frequency number in the throttle when matching decoder to throttle frequency.

Drop-In decoders designed before 2009 have a 16-position rotary switch that has only 16 frequencies, numbered 0 to 9 and A to F. For the letter frequencies, above 9, use the frequency table below to load the appropriate frequency *number* into the throttle.

G2 decoders and older decoders have an 8 position rotary switch that has only 8 frequencies, numbered 0 to 7. Use the appropriate frequency number when matching decoder to throttle frequency.

AirWire Frequency Table

Number	Frequency (MHz)	Number	Frequency (MHz)
0	.....921.37	9	.....924.62
1	.....919.87	10 (A)	.....923.12
2	.....915.37	11 (B)	.....918.12
3	.....912.37	12 (C)	.....916.87
4	.....909.37	13 (D)	.....913.62
5	.....907.87	14 (E)	.....910.87
6	.....906.37	15 (F)	.....904.87
7	.....903.37	16 (na)	.....916.37
8	.....926.12		

The screenshot shows a screen with 'LOCO#' followed by '3456' and 'SPEED' followed by '000' with a right-pointing arrow. At the bottom, 'RF03' is followed by 'SS28' and a battery level indicator. The 'RF03' text is circled in red.

Always verify that the newly selected frequency is showing on the home screen.

Changing Throttle Frequency Does Not Change Decoder Frequency

A common misconception is that changing the throttle frequency changes the decoder frequency. This does not happen. To change the decoder frequency you must use a programming throttle like the T5000 or T6000.