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

Warranty Information

This warranty covers substantial defects in materials and workmanship of the T1300 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 charging jack or other wear caused by use and abuse.

Warranty Duration

The coverage of this warranty lasts for 1 year. 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 T1300 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 T1300 Throttle *directly* from CVP Products, you may call the office number below. 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 and click on the blue box labeled Repair Services.

Warning - Absolutely Never Drill The Throttle Case

Absolutely nothing can be mounted to the top area of the throttle's case or on the bottom of the case. Do not screw, drill or mount items such as lanyards to the throttle's top or bottom. Never drill the case since the LiPo battery may be punctured resulting in a fire hazard and damage to the throttle. If drilling has been done and is observed 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 website and click on the blue 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

CVP Products P.O. Box 835772

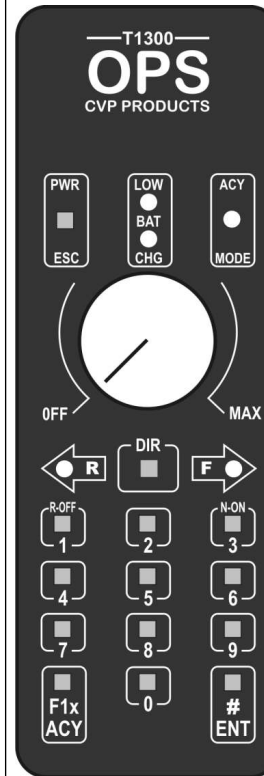
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T1300 Wireless Throttle User Guide

Operator's Guide 3
Simplified instructions for using the OPS throttle

Owner's Setup Guide 5
Instructions for setting or selecting various options for the OPS throttle



This throttle uses a rechargeable Lithium-Polymer (LiPo) battery. LiPo batteries are volatile. Read the safety instructions and warnings on page 11 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.

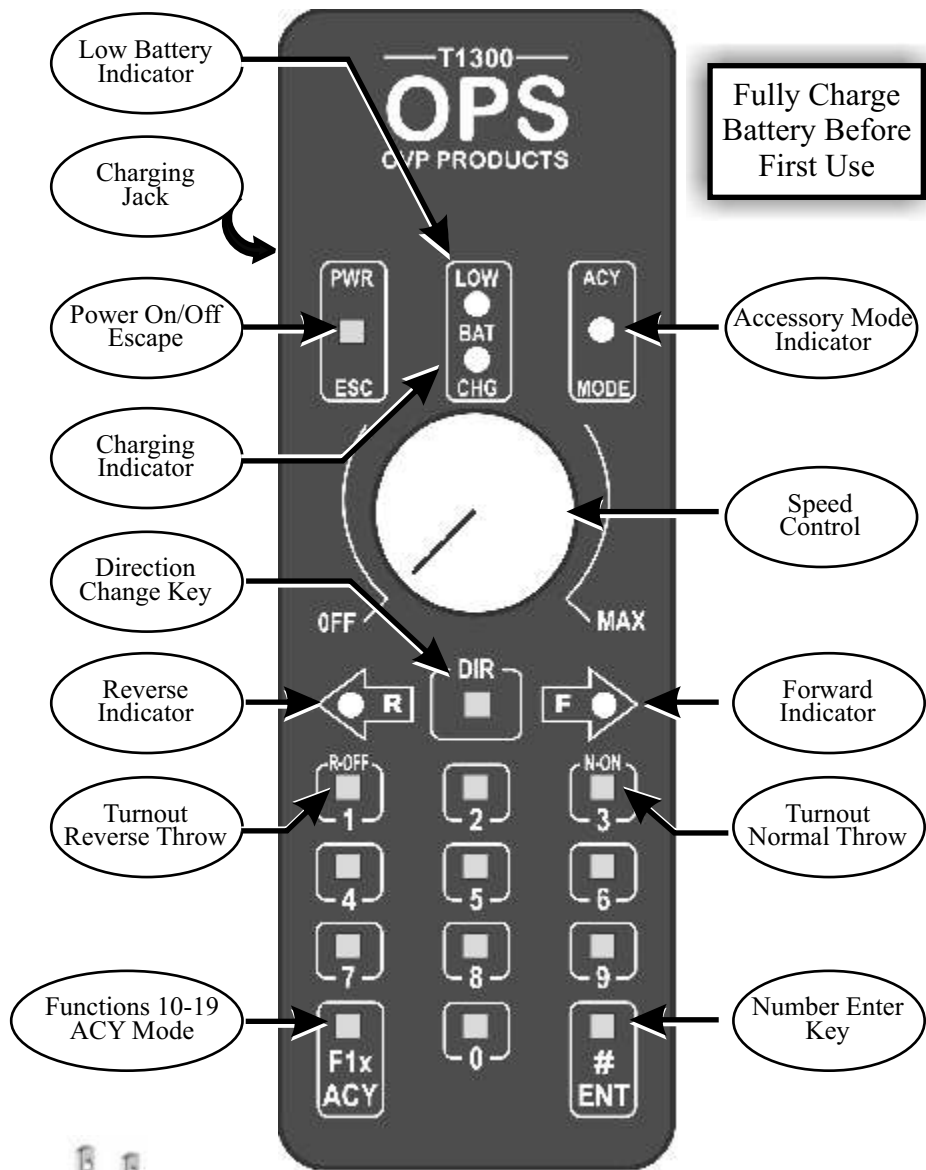
T1300 OPS Combo Contents

- T1300 Throttle
- Plug-in Wall Charger
- Charger Interface Cable
- This Manual

AIRWIRE® 900

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T1300 OPS Wireless Throttle - Front View



Plug-In Wall Charger



USB Charging Cable

Replacing Internal Battery

The T1300 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 pack can be ordered from CVP Products. Call for ordering information and the latest price.

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

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 the old tape and apply a fresh piece.

Reattach the new battery in the same position as the old battery using the photo as a reminder.

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-Polymer Rechargeable Battery (LiPo)
Battery Voltage	3.7V typical, 4.2V maximum, 2.45V 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

LiPo Rechargeable Battery Pack Precautions

- NEVER use a NiCd/NiMH charger to charge LiPo batteries.
- ALWAYS store LiPo 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 LIPO batteries out of reach of children or pets.
- NEVER puncture, cut or drill into the battery pack.

Miscellaneous Notes

Automatic Power Off Timer

The OPS 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 Indicator

When the battery has about 60 minutes of life remaining, the LO LED begins to flicker. When the battery life drops to 30 minutes the LO LED 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 not be controllable.

If The Train Doesn't Run

Don't worry about what loco number is currently active in the throttle. Instead, just key in the desired loco number. Remember that both throttle frequency and loco must match for the throttle to control a train.

Use The Reset Command To Put Throttle Into A Known Frequency And Loco Number

If your operator has managed to make the throttle no longer operate the locomotive, it is possible that the setup mode was accidentally entered. If you suspect this, the throttle should be reset back to factory defaults. Once this has been done, setup the throttle for the desired frequency, speed steps, consist and/or loco number.

Power On Indication

After pushing the power key, the forward LED will light up. If it doesn't light up, then the battery is probably depleted and must be first recharged.

Battery Has Automatic Shutoff When Depleted

If the battery is fully depleted, it will automatically shut down. The throttle can't be used and none of the LEDs will be on when the power key is pressed. The battery must be charged before the throttle can be used again. *The battery will not develop a "memory" and can remain plugged into charger.*

Tips For Best Throttle Performance

The T1300 OPS throttle operates in an unlicensed band shared by many other transmitters. These transmitters can and will create interference causing intermittent throttle operation or complete failure of one or more of your throttle's frequencies. The sources of these external interfering signals can be from your other 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: of course other 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.

OPS Throttle Operator's Guide

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 5.

Power On or Off



Push and release the blue key labeled PWR. The direction LED labeled F will turn on brightly. The throttle is now operating and sending out commands to the last locomotive number used. If this is the first time the throttle has been turned on, the factory setting for the active loco number is 3. Turn off the throttle power by pushing the PWR key again.

Safety Feature - If the Forward [F] LED Is Blinking After Turning On Power

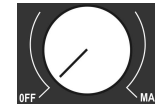
A blinking F LED right after pushing the power key means the speed control is not set fully counterclockwise to the OFF position. No speed control is possible if the F LED is blinking. To stop the blinking, just rotate the speed knob to the **OFF** position. This feature insures that the last loco used doesn't start running when the throttle is turned on and the speed is not first set to zero. Always set the speed control to the **OFF** position before turning off the throttle.

Entering a Locomotive Number [# , nnnn , #] 46 used for the example



Push and release the # key. Both the F and R direction LEDs turn on. Push the number keys that match the loco you wish to control. For example, loco number 46 is to be operated. Push and release 4 and push and release 6. The F direction LED turns on and the R LED turns off. The range of numbers is 1 to 9999. Loco number 0 is not a legal loco number.

Controlling Locomotive Speed



The large silver knob controls the locomotive speed. Turn it clockwise, towards MAX, to increase the locomotive speed. Turn it counterclockwise, towards OFF, to decrease locomotive speed. When not using the throttle, always set the speed control to OFF.

Controlling Locomotive Direction [DIR]



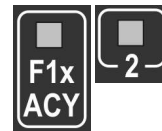
Push and release the yellow DIR key to change the locomotive's direction. Either the R or F LED indicator will be on to show the locomotive's direction.

Beware that the direction arrow doesn't indicate the physical movement of the locomotive. Rather it shows the locomotive movement relative to the locomotive's cab. For example, if the R LED is on, the locomotive is moving in the reverse direction. If the F LED is on, the locomotive is moving in the forward direction.

Activating Decoder Functions [0-9 and F1x plus 0-9]



For functions 0 to 9, just push and release the desired number key to active the locomotive's decoder function. For example, to blow the whistle or horn, push the 2 key. As long as the key is held down, the whistle or horn will continue to blow. Release the key to stop the blowing. All other function keys are latching which means push the key to turn on the function and push to turn off.



For functions 10 to 19, first push and release the F1x key, then push and release the desired number key. For example, to activate function 12, push and release F1x followed by pushing and releasing 2.

OPS Throttle Operator's Guide - continued

To Cancel Any Entry And Make No Changes [ESC]



If in the midst of entering a loco number, push and release the ESC key to abort the number entry. No changes will occur and the previous loco number will still be active if ESC is pressed before the # key is pressed a second time.

If this key is pressed at any other time, the throttle will turn off.

Last Loco Swap [#]



Push and Hold the # key for about 1 second or until you see the R and F LEDs turn on followed by just one of the direction LEDs. This will swap the present active loco number with the last used loco number. The swap is always between the current active loco number and the last used loco number.

The “Active Loco”

The “active loco” phrase simply means the locomotive number that is presently receiving speed, direction and function commands.

Control Accessory Decoders [ACY, # nnnn #] *The accessory address number, nnnn, must be known. It is usually different than a loco number. For the example below, accessory decoder number 8 will be used. Check with the owner if unsure what the accessory decoder addresses are for the turnouts.*



Push and release the ACY key. Next push the # key to begin entering the accessory number. Notice the ACY LED turns on to indicate all numbers entered are for accessory decoders. Enter the desired number, 8 for this example, and then press # again. The ACY LED will blink to indicate the number has been accepted.



To activate the turnout in the normal direction, tap the N-ON key which is also the 3 key. The ACY LED will flash when the command is transmitted. N 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 reverse direction, tap the R-OFF key which is also the 1 key. The ACY LED will flash when the command is transmitted. R means “reverse” or curved when referring to a turnout’s direction of travel. If using ON/OFF accessories, this will turn OFF the accessory.



To select a different accessory decoder number, 5 for this example, just enter #, 5, # again.

As long as the ACY LED is on, all numbers are treated as accessory decoder numbers, not loco numbers.

The locomotive will continue to respond to direction, speed and function commands while in the accessory mode. However, for functions 1 and 3, you must **push and hold** the 1 or the 3 key to activate the function. The short key press is for throwing the turnout. This is the only time that you must press and hold the 1 and 3 keys to activate the decoder functions.

Escape Or Cancel From Accessory Decoder Mode [ESC]



To Cancel ACY Mode - push and release the ESC key. The ACY LED will turn off and any new number entries will be treated as loco numbers. The appropriate direction LED will turn on for the locomotive being controlled.

Multi-Unit Locomotive Consists - continued

Activating A Consist

A consist is made active by setting the throttle to the lead locomotive number. If the headlights are not set properly on the consist locomotives, just select each individual locomotive and set the headlights as desired. The throttle’s frequency will automatically change to whatever frequency was used when the consist was built.

#, nnnn, # this will make the consist active and controllable by the throttle.

Using SWAP With Consists

The swap command will work with either a consist or a single locomotive number. Be sure to set the speed control to off before swapping.

Function Commands In Consist

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

Deleting and Flipping Consists

Editing or changing a consist is not allowed. If errors were made during consist entry, you must delete it and start over. If a consist is already in memory and you enter the consist build mode, the MODE LED will slowly flash and all entries will be ignored. To create a new consist, delete the previous consist first.

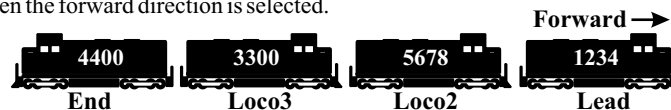
To Delete A Consist

Deleting the consist clears it from the throttle’s memory. The consist does not have to be active to be deleted from memory.

F1x, DIR, #, 0, 0

Consist Flip Concept

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.

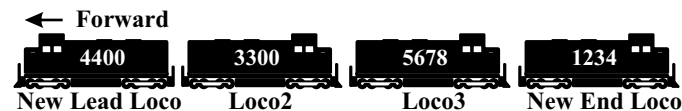


To Flip the Consist, use the following key sequence.

F1x, DIR, #, 0, DIR

After the flip, the end locomotive becomes the lead locomotive with forward now being in the opposite direction. Internally, the throttle knows that the lead loco number has changed and will now send function commands to the new lead loco number of 4400.

The flip command can be used at any time or as many times as desired.



When a consist is flipped, the new lead loco number will be what was the last locomotive. This will be the loco number to use when entering the loco number to control with the throttle.

Consist Saved When Throttle Turned Off

If the throttle is controlling an active consist and the power is turned off, the throttle stores the consist as the last active loco. The consist will be recalled and made active when the throttle is powered up.

Building A Multi-Unit Locomotive Consist

An OPS throttle is perfect for use with a set of consisted locomotives that stay together and are seldom changed. The CONSIST can be recalled from memory and a CONSIST can be flipped end for end. The big assumption is that the set of consisted locomotives will seldom be changed.

There must be at least two locomotive numbers in a consist. The maximum number is 4.

Building a multi-locomotive consist with the OPS throttle is somewhat cumbersome and prone to error since there isn't a display on the OPS throttle. But it can be done, and once completed, the consist will remain stored in the OPS throttle memory. However, if you plan to create or change lots of consists or need to add or delete specific locomotives, the T5000 throttle makes this task much easier.

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

Aborting Consist Build Mode - Nothing Is Saved

Pushing the ESC key at anytime during the building of a consist cancels the command and nothing is saved.

Step 1: Make The Consist's Lead Locomotive Active

First step is to make the first or **lead locomotive active**. Just enter the loco number as usual. Set the direction to forward and the speed to Off.

Step 2: Activate The Consist Build Mode

Push following keys to enter into the build mode.

F1x, DIR, #, 0 The MODE LED will turn on solid. The F LED will also be on.

Step 3: Enter The Second Locomotive Number and Direction

If the cab of the second loco faces the same direction as the lead, then it is oriented "forward." If it is oriented in the opposite direction compared to the lead, then the second locomotive is "reversed." Note the extra keystroke for the reversed locomotive.

If second loco is same direction as lead loco: F1x, nnnn, # "forward"

If second loco is reversed: F1x, nnnn, DIR, # "reversed"

Step 3: Enter The Third Locomotive

If the cab of the third loco faces the opposite direction compared to the lead, then the third locomotive is reversed. Note the extra keystroke for the reversed locomotive.

If third loco is forward: F1x, nnnn, #

If third loco is reversed: F1x, nnnn, DIR, #

Step 3: Enter The Last Locomotive - Also Called The End Locomotive

If the cab of the third loco faces the opposite direction compared to the lead, then the third locomotive is reversed. Note the extra keystroke for the reversed locomotive.

If forth loco is forward: F1x, nnnn, #

If forth loco is reversed: F1x, nnnn, DIR, #

If Less Than 4 Locos In Consist

After entering the end locomotive in the consist push the # key one more time. In the example below, there are only 3 locos in the consist. So after third loco is entered, push the # key one more time. (underlined in the example below). This will end the consist build mode with a total of 3 locos.

If third(end) loco is forward: F1x, nnnn, #, # Ends the build at 3 locos.

If third (end) loco is reversed: F1x, nnnn, DIR, #, # Ends the build at 3 locos.

Owner's Guide For OPS Throttle Setup

Note 1: The OPS T1300 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 11.

Note 3: Fully Charge Battery Before First Use

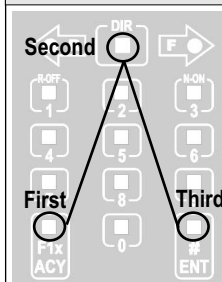
The internal Lithium-Polymer battery is only partially charged. Be sure to charge it up completely before using the throttle. Allow at least 4 hours or until the blue charging LED turns off.

Note 4: Getting Into Setup Mode Requires Special Key Sequence

To prevent operators from accidentally getting into any of the throttle setup modes, the key sequence combination is slightly longer.

Note 5: Swap memory is retained with power off. However, if swap has never been used, or if a factory reset is issue, the memory is reset to loco number 9999 and frequency 16.

Entering Setup Mode



Press and release each key, in the sequence shown to initiate the throttle setup mode. The fourth entry is a number that select what will be setup or changed inside the throttle. The list below shows the available setup options. Initiating the setup is sufficiently different from normal operation so users are unlikely to accidentally get into the setup mode.



plus a number between 0 and 9

OPS Throttle Setup Commands

Setup Commands

Factory Reset	F1x, DIR, #, 9	5
	Resets the throttle to original factory settings.	
Set Frequency	F1x, DIR, #, 7	6
	Allows the setting of the throttle transmit frequency.	
Select Speed Steps	F1x, DIR, #, 8	7
	Allows selection of either 28 or 128 speed steps.	
Show Software Version	F1x, DIR, #, 5	7
	Uses the LEDs to show the software version code.	
Consist Setup	F1x, DIR, #, 0	8
	Activates the multi-unit consist build mode.	

Other Important Topics

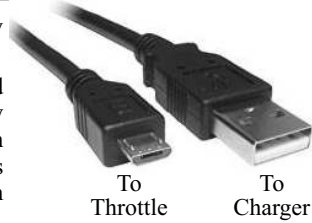
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Charging The Battery - Fully Charge Before Using!

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. The blue CHG LED turns on while charging and will automatically turn off when the battery is fully charged. Always turn throttle off while charging (red direction LED is off).



Change Throttle Frequency

The factory default setting for the transmit frequency is frequency 0. Use the sequence below to change the transmit frequency. There is no way to determine the frequency previously set into the throttle. If there is any doubt about the frequency, just set it again.

F1x, DIR, #, 7 places the throttle into the frequency set mode, then,

F1x, nn, # The value of nn is the desired frequency number. The numbering is the same as the T5000 throttle.

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		

Not All Frequencies Are Available On Older Decoders

G3, K27, SD40 decoders 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 support only 16 frequencies, numbered 0 to 9 and A to F. For the letter frequencies, above 9, use the above table to load the appropriate frequency **number** into the throttle.

G2 decoders and older decoders support only 8 frequencies, numbered 0 to 7. Use the appropriate frequency number when matching decoder to throttle frequency.

Stanton decoders can only use frequency 16.

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.

Change Speed Step Setting

Change From 28 Speed Steps to 128 Speed Steps

The normal factory setting for speed steps is 28 speed steps. To change to 128 steps, use the following key sequence to change the transmitted speed steps to 128. There is no need to push the ESC key after this sequence.

F1x, DIR, #, 8, 3 and the throttle returns to normal operation.

Change From 128 Speed Steps to 28 Speed Steps

To change back to the factory setting of 28 speed steps use the following key sequence. The change takes effect immediately.

F1x, DIR, #, 8, 2 and the throttle returns to normal operation.

Check Software Version

This feature allows the internal software to flash the LOBAT LED. For example, one long flash followed by one short flash means the version 1.1 software is in the throttle. This is a one time command and after flashing the LED, the throttle returns to normal operation. There is no need to push the ESC key after this sequence.

F1x, DIR, #, 8, 5 and note the duration and number of flashes.

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 is erased and the defaults shown below are reloaded.

F1x, DIR, #, 9 resets the throttle. It is ready to use, no need to push the ESC key.

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

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 and holding the # 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.