

Restore Original Factory Settings

There are many settings of the throttle that are remembered, even if the power switch is turned off and the batteries are removed. However, 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 are reloaded.

Step 1: Push MENU twice.

Step 2: If you are sure you wish to restore the original factory settings, push the 7 key.

When you push the 7 key, the EASYDCC splash screen appears followed by the normal home page. You see that the frequency, ID and address are now back to their original factory settings. The table below shows the complete set of factory reset values.

Item	Default	Item	Default
Loco Memory	Cleared	Loco Address	1
Direction	Forward	Functions	All Off
Transmit Mode	SCAN	Transmit Freq	0
Speed Steps	32	ID number	1

Push MENU Twice

4. ID SELECT
5. TRANSMIT MODE
6. TRANSMIT POWER
7. FACTORY RESET

EASYDCC

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Warning

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. This will severely degrade the throttle's performance and range and may damage the circuit board.

There is an application note on the website showing how to use picture-hanging D clips to which the lanyard can be attached. An optional belt-clip is also available which can be drilled or trimmed if needed. Once the lanyard is attached to the clip, mount the belt clip to the throttle's case using the provided screws.

If Your Throttle Needs Service

Visit the CVP website and click on the service and support link. Follow the instructions for obtaining service for any of your throttle. Be sure to include a copy of your invoice or your invoice number.

FCC ID: X7J-A10040601

CVP Products P.O. Box 835772
Richardson, TX 75083 www.cvpusa.com

T5000E Wireless Throttle User's Guide



Updated For XF-Series Receiver Use

The T5000 throttle is compatible with your existing Command Station software and wireless receiver installations with no modifications.

The T5000 can be used along with your existing wireless throttles as long as it has a unique throttle ID and uses a compatible frequency and transmission mode.

This Manual Is For All Models Of The T5000E Throttle

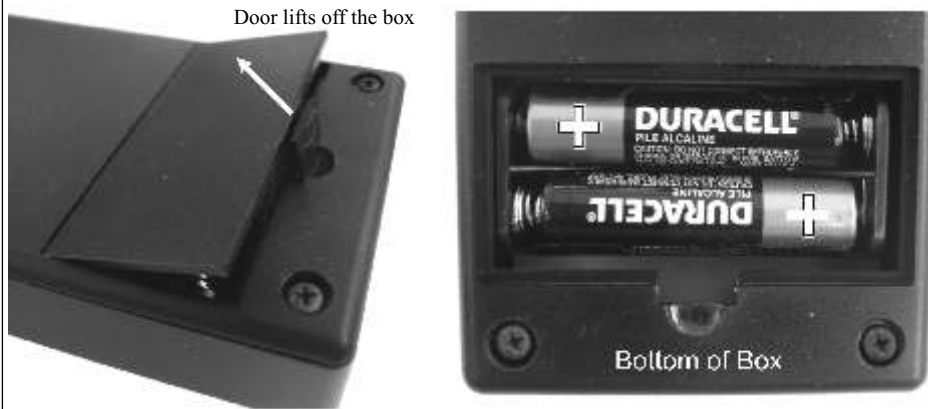
Battery Installation/Using Rechargeables

Use AAA-Lithium for longest battery life. The T5000E requires two AAA batteries. Use only 1.5V rated batteries. For best results, the Energizer e2 L92BP battery provides nearly 3 times the life of standard alkalines.

Rechargeable batteries can also be used. The rechargeables must be rated at about 1.5 volts each, but will have only about half the life of regular batteries.

Maximum battery voltage for each battery is 1.8V. Higher voltages will destroy the throttle.

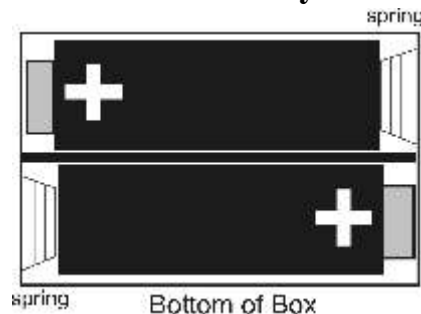
Battery lifetime depends on several factors. With the original factory settings and a fresh set of high quality alkaline batteries, expect about 40 hours of use. Factors that decrease battery lifetime are a longer time before auto-shutoff, higher transmit power settings and scan mode transmission. Also if your model has a backlight, long periods of backlight operation will significantly shorten the battery life.



Correct Battery Orientation Is Mandatory.

If the batteries are installed incorrectly, the throttle will not operate, the batteries will rapidly discharge and there is danger of battery leakage.

As soon as batteries are installed, the throttle will turn on. Check for the normal startup display. If the display does not appear immediately, remove the batteries and insert them correctly.



Remove Batteries Before Storing Throttle

Always remove the batteries before storing the throttle for long periods of time. This prevents corrosion of the spring contacts and insures against battery leakage. All throttle settings are stored even with the batteries removed.

Battery Monitor

The T5000E home page always shows the present status of the battery using the battery shaped icon in the lower right hand corner.

Brand new alkaline batteries color the icon black. As the batteries discharge, the black area shrinks. When only the battery outline shows, your batteries are within a few minutes of their end of life. This is your cue to change them. To prevent loss of control, bring all operating locomotives controlled by this throttle to a stop as soon as possible. Once all locomotives have been stopped, turn off the throttle and replace the batteries.

When the empty battery symbol appears, you still have a few minutes before the batteries are totally drained. Now is the time to stop any running locomotives that may be stored in memory. Once the batteries are fully drained, the throttle will not be usable. In fact, you will see a new message when this occurs.

If the batteries are completely exhausted, the screen shows the message **SYSTEM LOCKOUT - CHANGE BATTERIES**. The throttle **can not** be used as long as this message is showing.

Only a fresh set of batteries will clear the message and allow normal throttle operation.



SYSTEM LOCKOUT
CHANGE BATTERIES

Troubleshooting Tips

Should you ever experience unusual operation or no operation, check the following symptoms and causes to determine and fix your source of problems. In most cases, the problem will be caused by something simple.

Symptoms Caused By Reversed Batteries

- Batteries are hot
- Throttle is dead

Note that reversed batteries will either discharge very quickly into each other or discharge through the throttle protection circuit. In either case, the batteries will be drained in less than 15 minutes. Install new batteries and make sure the orientation matches the picture inside the compartment.

Train Won't Run

- Check/confirm for correct decoder address;
- Check/confirm for correct frequency;
- Check for proper throttle power level;
- Make sure train is powered;
- Verify another throttle is not on your frequency or has the same id number;
- Move closer to the train since it could be a range issue.

Changing The Throttle ID Number

Each throttle used on the EASYDCC System must have a unique ID number. For wireless throttles, the ID number range is 1 to 8 for a Group-1 receiver and 9 to 16 for a Group-2 receiver.

The factory default ID number is 01. If using the scan mode, there is nothing unique about the throttle ID and they can be used in sequence. However, if you are using Burst Mode, we have a recommendation for ID assignment shown in the table below. Changing the ID number is easy.

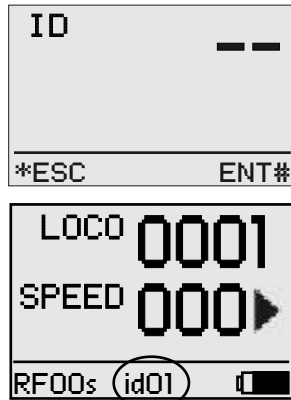
Step 1: Push MENU twice followed by the 4 key.

Step 2: Enter the ID number and then push #. Leading zeroes are not required.

After pushing #, the home page appears. The bottom line of the home page shows the "id" symbol followed by the number. Verify that the ID number showing is the one desired.

Push MENU Twice

4. ID SELECT
5. TRANSMIT MODE
6. TRANSMIT POWER
7. FACTORY RESET



For Lenz Systems and the older EASYDCC v4xx System, Group 1 and Group 2 comments below don't apply. Just be sure to select compatible ID numbers. See your wireless receiver manuals for more information.

Burst Mode, Legacy Receivers and Recommended ID Number Sequence

If using **burst mode** with older legacy wireless receivers, these are the recommended ID numbers. These IDs have been selected to provide the least amount of jamming and interference especially when more than 5 throttles are in use. For best operation, consider upgrading your old wireless receiver to the new XF-Series radio modules.

Group 1 - Throttle IDs from 1 through 8 [Applies only to EASYDCC v6xx Systems]

First T5000E	ID 1	Fifth T5000E	ID 3
Second T5000E	ID 8	Sixth T5000E	ID 6
Third T5000E	ID 2	Seventh T5000E	ID 4
Fourth T5000E	ID 7	Eighth T5000E	ID 5

Group 2 - Throttle IDs from 9 through 16 [Applies only to EASYDCC v6xx Systems]

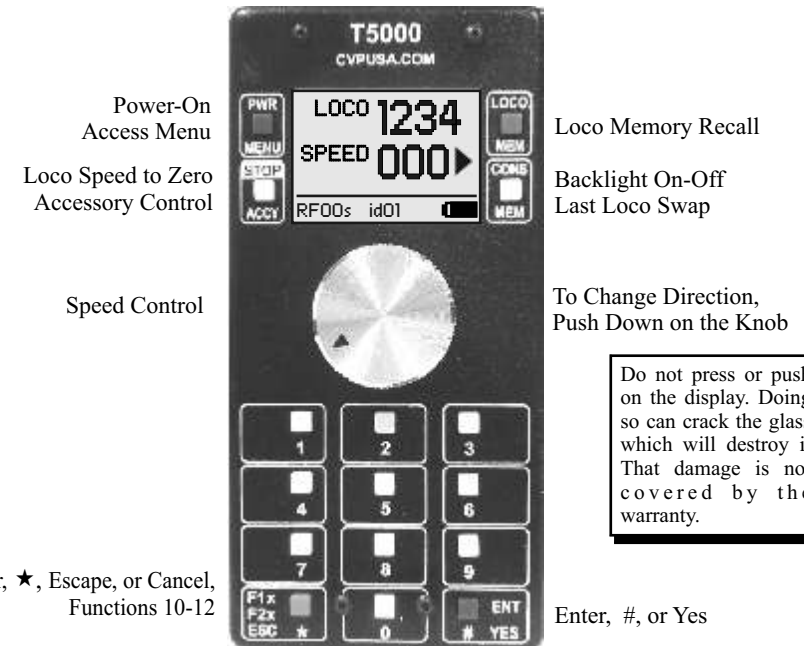
First T5000E	ID 9	Fifth T5000E	ID 11
Second T5000E	ID 16	Sixth T5000E	ID 14
Third T5000E	ID 10	Seventh T5000E	ID 12
Fourth T5000E	ID 15	Eighth T5000E	ID 13

Wireless Throttle Familiarization - Power On/Off

Your new throttle is easy to learn and easy to use with the most important information continuously displayed during normal operation as shown below. This specific display is called the home page.

Although you may not need this guide, you should at least give it a quick review. Inside, you will find additional tips and details to help you obtain the most from your new throttle.

To Turn On and Off The Throttle: If the throttle is off, push and release MENU. To turn off the throttle, push and release MENU then push and release the 1 key.



There Are Two Push And Hold Keys That Access Additional Features

The following two features are accessed by pushing and holding the indicated key. Note that the backlight contrast enhancement is only available on the T5000EBL model.

Stop - Push and hold **STOP** to zero the speed of the active locomotive.

Backlight control - Push and hold **CONS** to turn on, push and hold to turn off.

Some Helpful Terms and Tips

- Home Page (shown above) is the screen display shown during locomotive operation.
- Escape or Cancel is always done with the ★ key, referred to as the star key.
- The # key is always used to start and end the entry of a loco address.
- The active loco address is the loco address shown on the home page.
- The swap key (CONS/MEM) is used to recall the previously active loco address.
- The MENU key access all of the throttle setup and option selections.

The Power-On “Splash” Screen And Software Version

EASYDCC

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Push and release the green key in the upper left hand corner, labeled PWR/MENU. When power is first turned on, this is the first screen that appears.

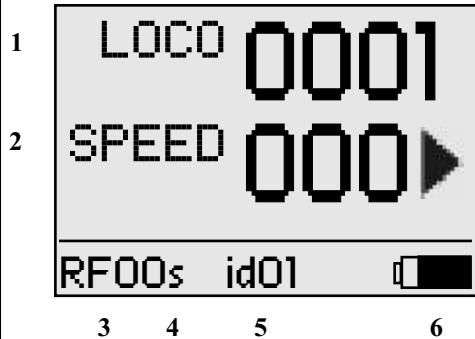
The splash screen shows EASYDCC along with the software version number. The screen changes to the home page in a couple of seconds.

Vxx is based on the supported systems shown in the list below.

V10.....Legacy EASYDCC System with version 4 software and Lenz/Atlas Systems

V20.....Latest EASYDCC System with version 6 software

The Home Page Tour



8 This is the “home” page. The home page displays the present locomotive address being controlled as well as important options that have been selected.

7 When performing various functions, the throttle will always return to the home page upon completion.

The list below contains more details about each of the display’s sections.

1. The first line, shows the type of equipment being controlled. You will see either LOCO (locomotive), or ACCY (accessory) on this line.
2. This line shows the speed of the locomotive or consist. The number shown is based on the speed steps in use. You may select from 3 different speed step values: 16, 32 or 128. The factory default setting is 32 steps which is a bit more than one full turn.
3. The two digits after RF are the frequency being used. This number ranges from 00 to 15. For legacy **EASYDCC** Systems use only frequencies 00 to 07. The frequency is stored with the locomotive number. The factory default setting is frequency 00.
4. The small “s” indicates the throttle is set for SCAN mode. A small “b” indicates the throttle is set for BURST mode. The factory default setting is SCAN.
5. This is the throttle ID number. The range is from 1 to 32 although wireless throttles are normally set for 1-8 (Group-1) or 9-16 (Group-2). The factory default setting is 01.
6. This is the battery charge indicator. It is solid black for a fresh set of new AAA alkaline cells. It shows just an outline when the batteries are drained and must be replaced. In this example, the battery has had about 1/4th of its charge used.
7. The direction arrow points to the right for forward and to the left for reverse relative to the cab of the locomotive. In other words, it is as if you were sitting in the locomotive cab. For this setting, LOCO 1, it will move forward if the speed is increased.
8. This is the active locomotive or accessory address being controlled. The factory default setting is 0001.

Changing Automatic Power-Off Timer

AUTOSHUT OFF TIMER: This timer sets the duration before the throttle automatically powers down. The timer range is 1 minute to 9,999 minutes. The factory default is 15 minutes.

There is a special rule built into the throttle to insure it doesn’t power down when the active locomotive speed is something other than zero.

However, once the loco’s speed is zero, the timer resumes. If the timer had expired prior to the speed being zero, the throttle will automatically turn off as soon as the speed is set to zero.

We recommend that the timer be set for a time that represents the length of an average operating session.

Always instruct your operators to turn off the throttle before setting it down.

Following these guidelines will insure you obtain maximum life from the batteries.



Changing Throttle’s Speed Steps

Changing the throttle’s speed steps merely changes the number of rotations between OFF and Full Speed. It does not change the number of speed steps sent to the decoder. A 14 step setting takes less than 1 turn. A 32 step setting takes about 1 full turn. A 128 step setting takes about 6 turns from Off to Full On. The settings can be changed at any time.

Step 1: Push MENU followed by the 2 key.

Step 2: Push the key for the desired number of steps. Once the selection is made, the home page reappears.

The actual number of speed steps being sent to the decoder is set by the Command Station, not the throttle. Every locomotive can have a different speed step setting. If your locomotive’s are registered using the default Command Station settings, then your decoders are using 28 steps.

See the Command Station Users Guide for how to change the default speed step setting or to change a registered locomotive’s speed steps.

- 0. AUTO OFF
- 1. POWER OFF
- 2. SS SELECT
- 3. FREQ SELECT

- 1. 16 STEPS
- 2. 32 STEPS
- 3. 128 STEPS

Power Off - What Happens, What’s Remembered

When the power is turned off, or the batteries are removed, the internal memory always stores the active locomotive’s address. The speed value is to zero and the direction is set to forward. All functions set to off.

When power is turned off, any non-zero speeds stored in loco memory are set to zero.

Finally, the frequency, ID, power level, transmission mode, and timer settings are all stored.

Tips For Best Throttle Performance

The T5000E 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 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 throttles range.

Use Fresh Batteries. Weak batteries can affect the transmission range. When the battery monitor shows almost empty, replace the batteries.

One Throttle per Frequency In Scan Mode. Do not have two throttles on the same frequency (except if in burst mode). They will jam each other and neither will work properly. Only one throttle may be on a frequency at one time. The throttle should be labeled with its frequency number.

Wait until the speed value changes from dashes to a number or 000 after entering or recalling an address. Once the speed value appears, then data will be transmitted.

Assign Throttles to an unused address such as 99 or 9999 before turning them off. At a later time, this insures operators won't power up the throttle and crank up the speed on a parked locomotive they can't see.

Always Check Frequency and ID before using the throttle.

All Throttle IDs must be unique. You can not have two throttles sharing an ID.

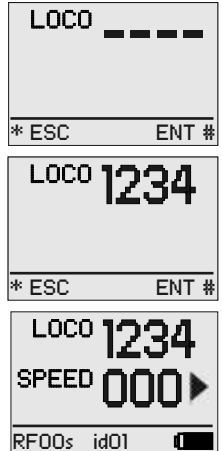
Don't Set Power Levels To Maximum without a reason. Not only does the throttle eat batteries, a high power level may cause a distant throttle not to be heard. Use the lowest power level that is compatible with your layout and operation.

Quick-Start: Entering A Locomotive Address

Step 1: Push the # key. This brings up the address entry page. If you wish to cancel, with no changes, push the * key.

Step 2: Key in the numbers of the locomotive decoder. Leading zeroes are not required. For this example, the address is 1234. The display will show each number as it is pressed, with previous numbers moving to the left. If an incorrect number is entered, just continue and enter the proper 4 digits ; no need to start over because **only the last 4 entries** are used when the # key is pushed. You can still cancel by pushing the * key without any changes.

Step 3: Push the # key again to tell the throttle to use the address showing on the display. The speed display appears with dashes, followed by 000. Wait until you see the zeroes before changing the speed.



Controlling Loco's Speed and Direction

Speed control is with the big knob. Turn the knob clockwise to increase the speed of the locomotive. Turn the knob counter-clockwise to decrease the speed. The speed control is a continuously turning rotary encoder. But, unlike some speed controllers, it does not use a center-off position. Turning the speed control clockwise, increases speed until the maximum value is reached. Turning the control counterclockwise, decreases speed until the minimum value is reached.

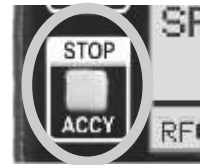
Direction control is a push switch built into the speed knob. Push down on the knob's top and release it to change directions. Notice the direction arrow changes.

A right facing direction arrow indicates FORWARD relative to the locomotive's cab. A left facing direction arrow indicates REVERSE direction, relative to the cab. The direction arrow does not indicate the physical direction of movement.

Stop Loco - Set Speed To Zero

Push and hold the yellow key to immediately set the speed value to zero. The locomotive will come to a stop providing it receives the command.

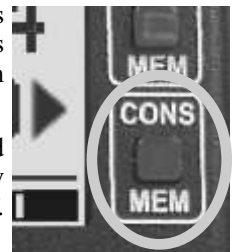
The locomotive decoder's deceleration rate will determine how quickly it comes to a stop.



Last Loco Swap and Backlight Control

The MEM swap key is used to recall the last locomotive address used. To use, quickly press and release the CONS/MEM key. This is a handy feature which allows you to quickly bounce back and forth between two addresses. See page 7 for additional details.

If your throttle model comes with the LED backlight, push and hold this key to turn on the backlight. This will enhance the display contrast (CONS) in a dark room. Push and hold to turn it off. Frequent use of the backlight will shorten the battery lifetime.



Controlling Decoder Functions

The T5000E throttle controls functions F0 thru F12 which are the standard NMRA-DCC functions supported by the EASYDCC System. Functions F13 to F28 are not available on the EASYDCC System. Also, it is the locomotive decoder that sets the total number of available functions. Check your decoder manual for what functions are available.

F0 to F9: Each of the T5000 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. When a function key is pressed, the function number appears on the display and when the key is release, it stays on for a couple more seconds and then the normal display reappears. 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 function number momentarily replaces the speed value. A few seconds after the function key is released, the speed value reappears.

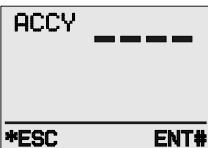
F10 to F12: Push the red * key once and then enter the second number. Notice that the display shows F1_ with a blinking underscore. Push the second number to finish.

F2 is special: 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.

Controlling Accessory Decoders

Like locomotive decoders, accessory decoders have addresses and functions which may be controlled from the T5000E throttle. The accessory decoder address range is 1 to 2044. Selecting and controlling accessory decoders is easy and you can still control your locomotive’s speed and direction while throwing turnouts.

Step 1: Quickly press and release the yellow STOP/ACCY key. This brings up the Accessory control page. Note: release the key quickly since holding it down invokes the STOP command.



Step 2: Enter the accessory decoder’s address. Leading zeroes are not needed. And similar to the locomotive address, what you see in the display is the address to be used. So if you make a mistake, just keep going until the address is what you want. Push the # key to tell the throttle you are done entering the address.

Step 3: The display now shows the two keys for controlling the decoder. Pushing the 3 key turns on or throws the turnout normal. Pushing the 1 key turns on or throws the turnout reverse.



To use another address, push #. This erases the ACCY address and shows dashes. That is why there is --> in front of the #.

To exit the ACCY mode, simply push *.

Accessory Decoder activation commands are transmitted once. If the transmission is jammed, the switch may not throw. Push the same key again to retransmit the activation command.

Note: Your installation and wiring of the switch machines will determine the actual direction the switch throws. If a turnout throws the wrong direction reverse the two wire going to the turnout.

Transmit Mode Option - SCAN Recommended

With the release of the XF-Series wireless receivers, the recommended transmit mode is SCAN mode. This is the default setting for the T5000E wireless throttle. Scan mode allows each throttle to have its own dedicated frequency. The XF-Series receivers offer 16 unique frequencies. Thus, there is no chance of jamming by other throttles and response time is the fastest possible. Scan mode is always preferred unless there is a mix of old and new wireless throttles or your T5000E will be used with legacy wireless receivers.

Using The T5000E With Older Wireless Receivers

For legacy systems using the older RX904 receivers, the T5000E throttle supports two forms of data transmission, Scan and Burst. When there are fewer than 8 throttles, the scan mode is best. When you need to use more than 8 throttles, or you have some frequencies that are experiencing jamming problems, burst mode offers some benefits. All of the throttle features are the same regardless of transmission mode.

You can switch between transmission modes at any time. The radio receiver/basestation must match the throttle setting. For a much more detailed explanation of the two modes, along with the pros and cons of the two modes, please see the EASYDCC Installation and Operation Manual (the orange book).

Scan mode is the most commonly used mode when there are no more than 8 throttles in use. Each throttle has its own dedicated frequency and transmits continuously. This mode provides the fastest system response time and can not be jammed by any other throttle. The benefits are fast response time, no time delay, and no interference from other throttles.

Burst mode allows up to 8 throttles to share a single, specific frequency. The selected frequency is set into the radio receiver and it stays on this frequency, processing all throttles using it. When the throttle is set for burst mode, it turns on its transmitter for a short moment and “bursts”out the data. It then turns off the transmitter and waits fixed amount of time before bursting out again. During the quiet time, another throttle can burst out its data.

There is always a chance that two throttles will turn on and burst at the same time and jam each other. The jamming can cause delays and slower response time. Keep in mind that as more throttles are added, the chances of one or more throttles being occasionally jammed goes up.

Frequency Number	Frequency	Scan	Burst
0	903.37 MHz	Yes	Yes
1	906.37 MHz	Yes	Yes
2	907.87 MHz	Yes	Yes
3	909.37 MHz	Yes	Yes
4	912.37 MHz	Yes	Yes
5	915.37 MHz	Yes	Yes
6	919.87 MHz	Yes	Yes
7	921.37 MHz	Yes	NO

You Should Upgrade Your Old Wireless Receivers!

Consider upgrading your old receivers to gain access to the 8 new frequencies offered your new throttle. It’s easy to do and won’t break your budget.

Selecting The Transmit Mode

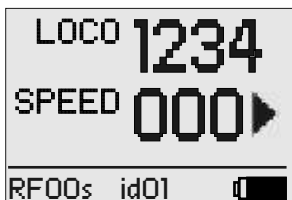
The transmit mode allows the selection of either burst or scan mode.

Step 1: Push the MENU key twice followed by the 5 key.

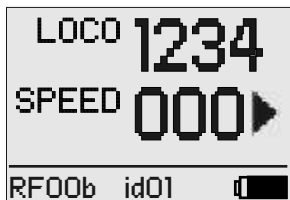
Step 2: Select one of the two modes by pushing the appropriate number key.

The new mode takes effect immediately and remains until changed again. The mode is remembered with power off.

On the home page, a lower case “b” or “s” will be displayed next to the transmit frequency as illustrated below.



Throttle set for scan mode



Throttle set for burst mode

Please see page 11 for more information about the transmit mode setting.

Push MENU Twice

4. ID SELECT
5. TRANSMIT MODE
6. TRANSMIT POWER
7. FACTORY RESET

1. BURST MODE
2. SCAN MODE

Changing Transmitter Power Level

The T5000E throttle offers 11 different transmit power levels from 0 to 10. These allow you to select the best combination of range and battery life. The factory setting for the power level is a value of 5 which is about the same power and range as the T9000E and RF1300 wireless throttles.

Lower power levels values decrease the throttle’s range but provide an increase in battery life. Higher power levels increase the throttles range but at the expense of battery life.

The power level can be changed at any time and the change takes effect immediately. Experiment with the POWER LEVEL value and decide which works best for your operation and layout.

Step 1: Push MENU twice and then the 6 key.

Step 2: Enter in your choice for the power level from the table below. Push # to enter and return to the home page.

The battery lifetimes are estimates based on battery current. A transmitter range estimate is not provided simply because it depends on a large number of factors over which we have no control.

Notice the battery life increase when using burst mode.

Push MENU Twice

4. ID SELECT
5. TRANSMIT MODE
6. TRANSMIT POWER
7. FACTORY RESET



Backlight And Battery Life

The battery life time will be shortened with frequent use of the LED backlight.

Power Level	Scan Life	Burst Life	Range Notes
0	65 hrs	74 hrs	Shortest range ~ 3 feet
1	64 hrs	72 hrs	-
2	62 hrs	72 hrs	-
3	59 hrs	71 hrs	-
4	55 hrs	70 hrs	-
5	50 hrs	67 hrs	Range = T9000E/RF1300
6	46 hrs	67 hrs	-
7	41 hrs	65 hrs	-
8	36 hrs	65 hrs	-
9	32 hrs	64 hrs	-
10	29 hrs	63 hrs	Longest Range

Storing And Recalling Locomotives From Memory

There are 8 memory slots into which you can store locomotive addresses for later recall. Typically, locomotive memory is used to store running locomotives that can be later recalled with the same speed and direction as when they were store. Also, when a locomotive address is stored, its frequency, speed/direction and function status are also stored.

The 8 unique locomotive address memory slots are numbered from 1 through 8. If a 9th locomotive is put into memory, the oldest entry, #1, is automatically deleted to make room for the newest address. Unused slots are shown with dashes.

Bear in mind that you do not have to store the locomotive address to control it.

Storing A Loco Into Memory

Pushing the LOCO/MEM key twice stores a “snapshot” of the active locomotive’s address, speed, and direction into the LOCO memory at the first available address. This can be done at any time and you may repeat the store command on the same address as often as desired. Doing so does not use additional memory slots.

Selecting A Loco From Memory

Push LOCO and rotate the speed knob to scroll through the 8 slots. When the desired loco address is found, press # to recall the address and restore the loco original speed and direction. Also recalled will be the status of the functions as well as the frequency if different.

Deleting A Stored Loco From Memory

Push LOCO, and rotate the speed knob to the loco address to be deleted. When the address is found, press 0 followed by #. This will replace the address with dashes and exit to the home page.

Note: When the throttle is turned off, all stored speeds are reset to 0.

Using The Last-Loco Swap Feature

The last-loco swap key is a new feature for the EASYDCC throttles. It serves the same function as the “Last” key on your TV remote control.

Any time a new loco is used, or a loco is recalled from memory, the active address on the home page is placed into the temporary memory location. Note that the temporary memory is separate from the main locomotive memory discussed above.

Pressing the CONS/MEM key swaps the active locomotive address with the last locomotive address. You may bounce back and forth between the same two locos as often as desired. The sequence is illustrated below.



With 1234 as the active loco, enter loco 34.

34 is now the active loco making 1234 the last loco.

Press CONS/MEM key to recall 1234. Now, 34 is the last loco.

Press CONS/MEM key to recall 34. You can bounce back and forth as often as desired.



The center icon is the scroll icon and is your cue to use the speed knob to look through the memory slots.

T5000E Menu Pages and Setup Options

All of the setup options are found within the two MENU pages. Pushing the MENU key once brings up the first page. Pushing the MENU key a second time brings up the second page. If MENU is pressed a third time, you return to the home page. At any time you may push ESC to cancel and return to the home page.

On each page are 4 items that may be selected using the appropriate key. For example, to turn off the throttle, push MENU followed by the 1 key. To change the throttle ID, push MENU twice, followed by the 4 key.

Selecting a specific MENU item takes you to the page where changes or options may be selected.

Below are the explanations for each of the menu selections along with a reference page number.

Push MENU Once

- 0. AUTO OFF
- 1. POWER OFF
- 2. SS SELECT
- 3. FREQ SELECT

Push MENU Twice

- 4. ID SELECT
- 5. TRANSMIT MODE
- 6. TRANSMIT POWER
- 7. FACTORY RESET

Menu Setup Option Table Of Contents

This table of contents lists each setup option, a brief explanation and a page number for additional details on its use.

<u>Menu #</u>	<u>Option or Function</u>	<u>Page</u>
0	AUTO OFF Set time before the throttle automatically turns itself off.	13
1	POWER OFF Immediately turns off the throttle and stores several items to memory.	13
2	SS SELECT Allows you to select the number of steps from off to full speed.	13
3	FREQ SELECT Selects the transmitter frequency. Must be in correct range for ID number.	9
4	ID SELECT Change the throttles ID number. Must be in correct range for frequency.	14
5	TRANSMIT MODE Allows selection of the throttle transmission mode of either scan or burst.	10,11
6	TRANSMIT POWER Allows the selection of 11 different transmit power modes.	10
7	FACTORY RESET Resets the throttle to the original factory settings and clears out memory.	Back

Selecting Transmit Frequency

The T5000E has **16 frequencies** from which to pick. However, it is your wireless receiver that sets which ones can be used. The XF-Series wireless receivers allow all 16 frequencies to be used. But if you have an older RX904 receiver, without an XF radio module upgrade, you are restricted to frequencies 0 to 7.

Step 1: Push the MENU key once, then push the 3 key.

Step 2: Enter the number corresponding to the frequency you wish to use from the table below.

Step 3: Push the # key to enter. The change takes effect immediately.

On the home page, the frequency in use is the number following the RF. The lower case letter indicates which transmit mode is in use. The example shows frequency 4, scan mode.

Push MENU Once

- 0. AUTO OFF
- 1. POWER OFF
- 2. SS SELECT
- 3. FREQ SELECT

FREQ --

*ESC ENT#

ID Numbers and XF Frequencies

Note: Every throttle must have a unique ID number.

Group 1 IDs are from 1 to 8. They are assigned to Group-1 frequencies from Freq-0 to Freq-7. IDs and frequencies do not have to be sequential. You may use ID 1 on frequency 7. But you can't use ID 1 on frequency 8.

Group 2 IDs are from 9 to 16. They are assigned to Group-2 frequencies from Freq-8 to Freq-15.

If an out of range ID is received by the XF receiver, the red CD light turns on and the GP light will be off. You must use the correct ID and frequency pair for proper receiver operation.

LOCO 1234
SPEED 000▶

RF04s id01 

Group 1 [ID# 1 to 8]

Freq #	Freq MHz
0	903.37
1	906.37
2	907.87
3	909.37
4	912.37
5	915.37
6	919.87
7	921.37

Group 2 [ID# 9 to 16]

Freq #	Freq MHz
8	904.87
9	910.87
10	913.62
11	916.87
12	918.12
13	923.12
14	924.62
15	926.12

Scan Mode Provides
Best System Performance