Drop-In Frequency Selection Using Older Throttles

T9000 Throttle

Drop-In decoder uses frequencies numbered from 0 to 16 and these are the numbers used when setting the Drop-In to the desired frequency. However, the T9000 throttle uses different numbers for the frequencies, depending on what command is used to set the T9000 transmit frequency.

To use just the Drop-In's first 8 frequencies, 0 thru 7, you may use the same frequency number for both the Drop-In and the T9000 throttle. However, you must use the SEL-1 command to set the desired frequency into the T9000 and you are limited to just the first 8 frequencies.

To use all 17 available frequencies, 0 thru 16, on the Drop-In decoder, you must set the T9000 throttle transmit frequency to the appropriate number from the table below using the SEL-0 command.

RF1300 Throttle

Owners of, or users of an RF1300 throttle, must select from among the first 8 frequencies, 0 to 7, for use with the Drop-In .

When programming CV200, enter the Drop-In frequency that matches the internal switch settings on the RF1300. The right column shows the 8 different settings and the corresponding Drop-In frequency.

Write The Frequency Down - While you may remember the frequency next week; how about in 6 months? Use a sticky label on which to record the frequency. If you use a locomotive address other than the obvious cab number, write it down too. Place the label somewhere on the locomotive where it can be seen. We put our label on the bottom of the fuel tank.

Setting The Frequency - The desired frequency is stored inside the decoder in configuration variable number 200 which is abbreviated CV200. Use SERVICE PROGRAM mode to set the decoder's frequency into CV200.

Frequency Switch Setting - The table shows the RF1300 switch setting for each of the 8 frequencies. Frequency 0 is with all switches (the white actuators) OFF or down.

Drop-In Frequency	T9000 SEL-1 Mode	T9000 SEL-0 Mode	RF1300 Switch Setting
0	0	74	
1	1	68	
2	2	50	
3	3	39	
4	4	27	
5	5	21	
6	6	15	
7	7	3	
8		93	na
9		87	na
10		81	na
11		61	na
12		56	na
13		44	na
14		33	na
15		9	na
16		54	na

© 2014 CVP Products www.cvpusa.com

Setting The Operating Frequency - New And Improved!

Caution!!!

This Drop-In decoder does not have a mechanical rotary frequency selector switch as mentioned in the Drop-In User Guide and in the locomotive's Drop-In Installation Guide. All references to the rotary frequency selector switch must be ignored. Please refer to this instruction sheet instead.

Your Drop-In decoder features an all new and much improved method for setting its frequency. Gone is tiny rotary frequency selector switch. In its place is a new radio receiver section that uses your throttle to set the frequency. With this new receiver, you may change the frequency at any time and without opening up the locomotive. We think you will enjoy this new found freedom. So, take a moment to familiarize yourself with the new procedure.

Quick Start

The "Quick Start" section assumes you have already installed your Drop-In. As delivered from the factory, the Drop-In's frequency is set for 0 and the locomotive address is 3. The steps below are for the T5000 throttle. If you have a different throttle, refer to your throttle's user guide.

Make sure the antenna is pointed vertical.

Step 1: Turn Power on to the Drop-In

• The Drop-In's power green LED and the RF module's green LED will glow brightly indicating power is connected.

• If you have not done so, set the throttle to frequency 0. Assuming your Drop-In still has the factory default address setting, also set the throttle's locomotive address to 3.

• When the throttle is turned on to the proper frequency, the RF module's red GP LED will be on. When the throttle is set to the proper locomotive address, the Drop-Ins red LED will also be on. If the neither red LED is on, then your throttle is not on the proper frequency or is set to the wrong address. Do not proceed to step 2 until both red LEDs and both green LEDs are on.

Step 2: Set the Drop-In Decoder Address

• Select SERVICE PROGRAM mode. Press the green menu key twice and then push the number 4.

• Now push 1 and push ENT which selects CV1 for changing the address.

• Enter the decoder address that you want to use. The address must be unique. The loco's cab number is always a good idea. Once you have entered the numbers, push ENT. [Address 0 is not allowed].

Step 3: Set the Throttle To The New Address And Verify That The Loco Runs

Step 4: Changing The Drop-In Frequency

• Select SERVICE PROGRAM mode on the throttle.

• Enter 200 followed by ENT. CV200 is where the desired frequency (from 0 to 16) is stored in te Drop-In decoder. *Note: CV200 is used to avoid conflicts with other CVs used in the Drop-In.*

• Enter the desired frequency number and push ENT. Your Drop-In is now on the new frequency. If you can see the small radio module's red LED, it will now be off because your throttle is still on the old frequency.

• Push ESC to cancel SERVICE PROGRAM mode.

• Be sure to enter the new frequency on your throttle.

Drop-In, AirWire900, the stylized AirWire name and the logo are registered trademarks of CVP Products © 2014

Quick-Start - Resetting The Drop-In Frequency

There may come a time when your locomotive no longer responds to what you believe is the correct frequency, or you can not remember the correct frequency. Here's how to reset the frequency

Step 1 Turn off all AirWire throttles. This is very important since it is the combination of the <u>absence</u> of a throttle signal, plus a <u>decoder power-cycle (</u>turning the decoder's power off and then back) that allows the decoder to temporarily jump to frequency 0 where you can set a new frequency.

Step 2 Turn off the Drop-In decoder if it was powered on.

Step 3 Turn on the Drop-In decoder and <u>wait at least one minute</u>. Do not turn on any throttles during this time.

Step 4 Turn on your throttle, and set it to frequency 0.

Step 5 - Use SERVICE PROGRAM to set CV200 to the desired frequency. The locomotive address does not matter when using SERVICE PROGRAM mode. Be sure and make a note of the new frequency.

Detailed Explanation Of Changing The Frequency

How This Works: If the frequency is unknown, a unique technique to reset the frequency is used. This technique is called the "Jump Mode." When activated, the Drop-In temporarily "jumps" to frequency 0 where the SERVICE PROGRAM mode is used to permanently set the frequency. We recommend using the SERVICE PROGRAM mode to make the frequency change since you will not have to know the decoder address.

To be safe, turn off all G3 equipped locos or locos with one of the new Drop-In decoders assigned to frequency 0. If not, they will be reprogrammed if they "hear" the throttle command.

Using SERVICE PROGRAM During Jump Mode
• Step 1: Turn off **all** AirWire throttles. This is very important since it is the <u>absence</u> of any throttle signal that forces the Drop-In to temporarily jump to frequency 0.
• Step 2 - Turn off the Drop-In if it was powered and then turn it back on. .
• Step 3 - Wait at least one minute. You must wait the full minute before moving to step 4.
• Step 4 - Turn on your throttle, and set the throttle frequency to 0.
• Step 5 - Use SERVICE PROGRAM to set CV200 to the desired frequency. Be sure and reset your throttle to the new frequency. Be sure to change your throttle to the new frequency.
• Step 7 - Use SERVICE PROGRAM to change or reset the decoder's address.

Using OPS PROGRAM During Jump Mode
If you are confident you know the Drop-In's address, then you can use OPS PROGRAM to change its assigned frequency. OPS PROGRAM is the safest way to change the assigned frequency and insures no other decoders will have their frequency changed. The only caution is that you <u>must know the Drop-In's address</u>. If you are not sure, then use SERVICE PROGRAM mode.

• Step 1: Turn off **all** AirWire throttles. This is very important since it is the <u>absence</u> of any throttle signal that forces the Drop-In to temporarily jump to frequency 0.
• Step 2 - Turn off the Drop-In if it was powered and then turn it back on. .
• Step 3 - Wait at least one minute. You must wait the full minute before moving to step 4.
• Step 4 - Turn on your throttle, set it to <u>frequency 0</u> and enter the decoder's address.
• Step 5 - Use OPS PROGRAM to set CV200 to the desired frequency. Be sure and reset your throttle to the new frequency.

Need Help? Contact Your Dealer/Installer First!

Should you have any questions regarding AirWire or installations, your dealer is your best source of information, tips and techniques. Also, almost all dealers will do installations or can recommend good installers. It might take a little more time cost a bit more, but you'll be assured of an installation that works and works well.

Miscellaneous Notes and Tips

Factory Settings: As delivered from the factory, the Drop-In's frequency is set to 0. Its address is set to 0003.

Forcing Reset To Factory Settings: Although this will rarely, if ever, be necessary, the procedure is included here, "just in case." With the throttle on the same frequency as the Drop-In issue a SERVICE PROGRAM command on CV8 with a value of 135. When this is done, both the frequency and the address will be reset to the factory defaults of frequency 0 and address 3.

You must follow the reset command with a reprogramming of the decoder's address for all functions to work normally.

Notes About Jump Mode Operation

• If the throttle is turned on with the same frequency as the Drop-In, the Drop-In *__will not__* enter the Jump mode even if the throttle is subsequently turned off. The Jump Mode requires a combination of no throttle signal plus a decoder power-cycle.

• The Jump Mode is canceled and normal operation on its current frequency resumes if, **within one minute,** a throttle is turned on that matches the present Drop-In's frequency setting.

• If the Drop-In jumps to frequency 0 because you waited too long to turn on the throttle, just cycle the Drop-In's power and make sure the throttle is turned on within one minute.

• The jump to frequency 0 is temporary and **__nothing is changed__** in the Drop-In. However it will stay on frequency 0, until power is cycled or you change the frequency by setting CV200 to a new value. If you did not change the frequency, the Drop-In will revert back to its previously stored frequency as soon as its power is cycled off then back on.

• The Drop-In will not jump to frequency 0 if a throttle having a matching frequency but a different address is turned on within one minute of turning on the CONVRTR. This is why <u>all</u> throttles must be turned off in order for the Jump Mode to occur even though might be on a different address and frequency.

• If a frequency number higher than 16 is selected when programming CV200, it is ignored and the Drop-In uses frequency 0.

• One minute will seem like forever if you are anxiously waiting. Use a watch to verify you have waited a full 60 seconds before attempting to use the Jump Mode.

Drop-In Radio Module

• The antenna must be vertical for optimum range.
• Keep antenna away from all wiring and metal objects.
• Do not bend module - the connection pins are easily broken.
• The red GP LED is on when throttle with matching frequency is on.
• The green PWR LED is on when power is applied to the Drop-In.

Antenna

Red GP LED   Green Power LED

Connection Pins