Digitrax Series7/8 Mobile and Sound decoder family CV settings: Rev 0.3 September 2025

This revision documents new dual speaker and other capabilities available on some series7 and series8 decoders.

Digitrax series7 and series8 mobile decoders have many industry standard Configuration Variable (CV) numbers and values, as well as numerous Digitrax custom CV numbers and definitions or controls. The series7 and series8 CV values are a superset of older Digitrax FX3 series3 and series6 decoders, already covered in Digitrax Decoder Manual V2 on the Digitrax Web site.

The "CV8 to 8 default" columns indicate current factory defined value after writing a value of 8 to CV8, using; Service mode programming track or Mainline Operations Mode Write to the active decoder address. An entry with value/xx indicates a xx number invokes the value *before* the / character. The tables shown are read or write values for Direct or Mainline program. The factory defaults may change without notice, and sound projects may also modify CV settings.

The following groupings and tables define many of the current series7 and 8 CVs.

A) **Address selection type CVs**: These configure the DCC command addresses the decoder will respond to from the track digital packets. If these values and CV29 are set incorrectly, the decoder may not respond as expected on the track and appear dead. Many decoder returns for 'repair' simply need the CV8 to 8 Factory reset to start working again.

CV#	Name	Range	CV8 to 8 default	Note
1	Short/2 digit address	1-127	03	Active when CV29.5=0 (default)
17	Hi 6 bits Long/4 digit address	192-231	0	CV29.5=1 to enable [.5 means bit5]
18	Lo 8 bits Long/4 digit address	0-255	0	Combined with CV17 for Long address
19	Advanced Consist Short/2digit address	1-127	0	0 = inactive, bit7=1 = rev. direction

B) **Mobile Configuration Cvs**: These configure decoder features.

CV#	Name	Range	CV8 to 8 default	Note
29	Primary Configuration	0-255	02	Defined in Appendix A1
53	Digitrax Config A	0-255	0	Defined in Appendix A2
54	Digitrax Config B	0-255	64	Defined in Appendix A3
61	Digitrax Config C	0-255	0	Defined in Appendix A4
64	Digitrax Config D	0-255	64	Defined in Appendix A5

C) **Motion response CVs**: These configure how the decoder handles motor drive when speed commands sent to its active digital address.

CV#	Name	Range	CV8 to 8 default	Note
2	Vstart	0-255	0	Drive at digital speed step1
3	Acceleration rate	0-32	0, snd =3	16mS periods per speed step
4	Deceleration rate	0-32	0, snd =4	16mS periods per speed step
5	Vhigh	0-255	255/0	Drive at step128/maximum speed step
6	Vmid	0-255	128/0	Drive at step 64/mid speed
9	Motor drive frequency(pwm)	4-50	16/0	KHz rate, 0 sets value 16
10	Motor back emf (bemf) trim	16-127	64/0	Adjusts for motor bemf efficiency
55	Bemf Static Gain	0-256	128	
56	Bemf Dynamic Gain	0-256	80	
57	Bemf Intensity	0-15	6	

If the locomotive speed seems to surge when changing speed with BEMF enabled, try lowering CV55, CV56 or CV57 in that order, while evaluating if the surging is reduced after each change. Using Operations Mode writes is the most convenient way to modify CV's whilst moving. Factory default CV settings typically provide decoder functionality, and a user generally need only set the desired address from the factory default short address 03.

D) **Identification CVs**: These READ ONLY [RO] CVs identify decoder hardware and software.

CV#	Name	Range	CV8 to 8 default	Note
7	Manufacturer device family	203/204	203/204/205	Series7: Sound=203/205, non-Sound=204
8	Digitrax ID	129	129	Indicates a Digitrax decoder
120	Decoder Interface type	0-255		See Appendix A6
121	Major Firmware version	02	02	
122	Sound decoder flag	12/60+		12=sound decoder, See appendix A7
123	Firmware family	0-255		
253	IPL version	3-255	12	Identifies last IPL version. [Sept. 2025 =12]

E) **Loadable 28/128 step speed tables**: CV66 to 95 configure an interpolated 28 step speed table, if enabled in CV29. These CVs are as defined for series6 in the Digitrax Decoder Manual V2 and are not repeated here, for brevity.

F) **Basic FX3 legacy Function/output line controls**: CV33-CV46 map the legacy FX3 function keys to output lines, and these work identically for XF implementation.

G) **Sound Cvs**: – These CVs above CV123 are typically related to Sound capable mobile decoders. Meanings of CV140- CV225 defined by sound project .sdf scheme in use. Refer to SPJ's "view>view project descriptions"

CV#	Name	Range	CV8 to 8 default	Note
124	Sound flash size	0-7		RO, Encodes total sound flash size usable
125	Free Sound flash blocks	0-255		RO, Encodes free sound flash available
126	SDF load flags	0-7		RO, 7 = SDF loaded
129	Sound Configuration	0-255	0	See appendix A8
132	Diesel Notch Rate	1-128	127	
133	Steam Chuff/Cam config	1-128	69	1-127=driver inches. >=128 uses external CAM in
134	Steam Gear ratio	16-200	32	32 = 100% ratio
135	Volume when muted	0-64	29	

H) Series7 Expanded Function (XF) control capablity: For IPL version 5 and above (as reported in CV253), Series7 and 8 standard and sound decoders implement an "XF" function key control expansion for; (a) Function key to output line mapping, (b) realigned FX7 type and Qualifier values, and (c) for sound, the capability of re-mapping Function keys to different sounds. These changes allow for FX7 effects beyond the F6/CV116 limit defined in FX3, and allows Function keys 0 to 28 to control any of the output lines from Output line 0 (White lead) to Output line 15, depending on decoder output lines implemented.

This new XF capability allows the decoder to be configured to separate Function key control of output lines/lights and the sounds created in *existing* SDF control files embodied in any downloaded SPJ sound project file.

(1) CV228 through CV237 are Digitrax reserved and defined for Series7/8 decoders that implement XF. Ignored in Series3 and 6.

(2) CV229 -Function Number: Is the Function Number/Index, or XF Page value. CV229 value 0 to 28 selects an XF page of 8 CV values [CV230 to CV237] that control XF settings for that function number. E.g.. CV229=**1** configures the XF settings CV230-CV237 related to F**1** Function key state sent by track commands.

(3) CV236 -XFSnd: Is the Sound Remapping: For a Function key number set in CV229; the value written to CV236 [if not zero] remaps this new CV236 Sound function number to be re-mapped for the current CV229 function key number.

For example, if CV229 is set to 21, *then* writing CV236 to 1 will then re-map F21 key to sound function F1, which is typically the Bell sound. The F1 key now will NOT control the Bell sound, but can control any output line/lamp. F1 or CV229=1 can now also be CV236 value remapped to a different sound function except the remapped Bell.

A CV236 special value of 63 is defined to select a F0 sound remap, since any CV236 value of zero/0 turns OFF XF sound remapping for that Function key # in CV229. CV230-237 and CV228/229 are non-volatile after they have been written, so after

setting CV229 you can write CV230-237 in any order or multiple times while the last function number is still in effect, so you can conveniently evaluate XF changes in real time when e.g. using Operations Mode/Mainline writes.

(4) CV234 -XfType code: This is FX7 effect code to apply to the output line for values of CV229# in range 1-28. Values 00 to 12 are the same as effects defined for FX3 decoders. For XF mode FX7 effects, the CV229# indexes the Op(CV229# **+1**) line. E.g for CV229=1 [default usually F1/Green/Output2 line control] the related page CV234/235 settings control the default Op2/green line effects. This is true even if F1 key is then mapped to control a different output line, and Op2/green line is mapped for key control by a different function key. This keeps consistency with legacy FX3 CV usages.

For CV229 = 1 to 28, if related CV234/235 values are default 0, then FX3 CV49-52 and CV113-116 control output effects. This is the default if the XF features are not programmed, reset or not used.

CV234 FX7 codes:	**FX7 Line Effect**
0	No effect- ON/OFF line
1	Random Flicker
2	MARS light
3	Flashing Headlight
4	Single pulse strobe
5	Double pulse strobe
6	Rotary beacon
7	Gyralite
8	Rule17 dimmable affect
9	FRED light
10	RIGHT ditch light
11	LEFT ditch light
12	Single pulse uncoupler

(5) CV235 -XfQualify: This is the FX7 effect Qualify value. Same as high nibble of FX3 control value, but not combined with the XfType byte. The FX7 cvs CV234/235 control the output effect to apply to the **final** *output bit* Op.n selected by n = number value # in XfnPg [CV229]. This FX control Qualifier applies to the final state ON/OFF of Op.n calculated by the output logic, and does not require the current page# to select the output line.

Example: XfnPg (#) CV229 = 1 page configures any F1 function key contribution to the output lines by Cvs: CV231/232 (if matrix bit Op2 =1), but the applied output FX7 effect for line Op2-grn (Op#) is defined by this page1 CV234/235 values. This "green" output line is the typical default for the F1 output line in legacy factory FX3 configurations set by CV33 to CV46.

CV235 Qualify CV code:	**FX7 Qualify effect**
00	ON/OFF lead, controlled by Function output line maps
16	ON/OFF lead, controlled by Function output line maps
32	FWD qualified
48	REV qualified
64	F0 qualified
80	F0 qualified
96	F0 & FWD qualified
112	F0 & REV qualified
160	SPD = 0, non directional qualify
176	SPD > 0, non directional qualify

[Note: CV229=0 or Function key F0 is a special case: For this CV229/XF page = 0, CV234 sets the FX7 type for Op0/F0F/white and CV235 sets the FX7 type for Op1/F0R/yellow.

Standard FX3 CV49 high 4 bits is the Op0/F0F/White Qualify and CV50 high 4 bits is the Op1/F0R/Yellow qualify control, using the same CV values as shown in table for CV235].

(6) CV228 -XF Disables: This is a non-volatile XF disable that will selectively turn OFF a group of XF capability for all functions whilst leaving all underlying XF settings in CV229 through 237 unchanged. Any combination of these 3 bits is allowed, and value of 0 will default enable all XF capabilities.

CV228 bit #	ON Value	Effect
0	1	Disable all XF CV231/232 output maps
1	2	Disable all XF CV234/235 FX7 types and Qualifiers
2	4	Disable all CV236 Sound function remaps

This CV228 allows selective temporary disabling of an XF type to evaluate a setting without erasing the underlying XF values already programmed.

(7) CV7 -XF selective erase commands: If you wish to **permanently erase** types of XF settings you may write the following values to CV7

CV7 write value -	**To:**
7	Erase all XF settings back to factory default 0.
1	Erase all XF CV231/232 output line mapping values to 0
2	Erase all XF CV234/235 FX7 types and Qualifiers to 0
4	Erase all CV236 Sound function remaps to 0

Writing these values to read-only CV7 is permanent and you will need to re-write any active/non-zero XF CVs you need again. A write of 8 to CV8 for decoder Factory reset will also erase all XF CV values to factory defaults.

(8) CV230 -XF Control: Writing a value of 1 to CV230 will disable all the XF features *for just the current CV229 function number*. Set to 0 to restore action. This will not modify any other CV value.

(9) CV231 & CV232 -Function key to output line mapping: For each CV229 value, (or function) 1 to 28, the CV231 and CV232 values control XF mapping of that function to output lines Op0/white to Op15. *These two XF CVs defined for output control and legacy FX3 bit maps CV33-CV46 are logically OR'ed together for all the implemented output lines/lamps.*

XF CV number/bit:	**CV231- Op1 to 7 map**	**CV232- Op8 to 15 map**	**Value for ON**
Bit.0	Op0/White	Op8	1
Bit.1	Op1/Yellow	Op9	2
Bit.2	Op2/Green	Op10	4
Bit.3	Op3/Violet	Op11	8
Bit.4	Op4	Op12	16
Bit.5	Op5	Op13	32
Bit.6	Op6	Op14	64
Bit.7	Op7	Op15	128

CV231/232 Example: Set CV229 to 15 to select the Function key 15 XF page output map. Set CV231 to ON value (4+8) or 12. Now F15 key ON will turn ON both the Op2/Green and Op3/Violet output lines, bits.2 and bit.3 from table. You could also write (1+2) or 3 to CV232 and this would then allow F15 ON to also turn ON Op8-bit.0 and Op9-bit.1.

Default FX3 CV35 = 4 sets F1 control of the Op2/Green line, so if F1 is ON then F12 going OFF will not turn OFF Op2/Green. In this example to have sole F12 control of Op2/Green line, remove legacy FX3 control of this line by writing CV35 to 0 to remove F1 control.

CV231 and CV232 allow function keys1 to 28 to control from zero (default 0) to 16 output lines at a time.

[CV229=0 or F0 line/lamp control is a special case. Control of F0 output lines [Op0/Op1] use only the FX3 implementation of CV33 (F0F) and CV34 (F0R), using the same values in the CV231 table.]

10) <u>"SPJ stacking" on 128Mbit/ 'Y' type Sound decoders</u>: Decoders with an 'Y' in the name are equipped with 128Mbit sound flash capacity. This increased sound Flash allows SPJs larger than the 'X' size of 16Mbits to be downloaded, up to 128Mbits total.

These 'Y' decoder versions can download 'X' sized 16Mbit SPJ's and add or "stack" up to 8 different SPJs, numbered from CV60 value 00 to 70 decimal, in steps of 10. *The CV60 high decimal digit is the SPJ number loaded by* ***SoundLoader4***. If a loaded SPJ has more schemes than the default 0, then the low CV60 digit can be used to select an implemented scheme for a selected SPJ high digit.

<u>To perform stacking:</u> Using SoundLoader4, read in the desired SPJ file and then set the desired download SPJ number from 0 to 7 using the SPJ# drop-down menu. Then press the "standard" SoundLoader4 'green' button to "Download Sound Project". This will; first Erase all sounds, then download the SDF and then WAV files. The SPJ# chosen is the high digit CV60 will use to select this SPJ.

<u>To stack up another SPJ:</u> If you have sufficient free sound flash, read in the new SPJ file to be stacked. Set the new desired SPJ number, then press **only:** the "Program SDF" and **then** "Program WAVS" buttons. At this point each new SPJ will be downloaded for SDF and WAV files <u>without any Erase steps</u>, so the downloads will accumulate and "stack" using unique SPJ numbers 0 to 7, that will be selected by CV60 values 00 to 70 respectively. You can stack the SPJ numbered projects in any order, and a number repeat will overload the prior SPJ, while still using up flash memory.

These 'Y' decoders allow use of larger and more complex SPJ's with e.g. longer sounds, higher wav bit resolutions etc, or allow multiple SPJ's to be stacked, as a customer choice.

Note that Digitrax factory "Compact Hi Definition" SPJs are downloaded as 8channels with 8bit /11Ksps wavs, for download speed and minimum flash size that allows stacking of 8 different factory projects. You can use SoundLoader4 to erase the factory SPJ's and then load a factory SPJ from the Digitrax Web site, and you can then select to download any wave file at 8bit/12bit or 16bit resolution.

11) <u>'ST' decoder versions with 2 speaker outputs</u>: If you have a Digitrax sound decoder with dual speaker outputs then CV200-CV205 are defined as Balance-CVs in factory projects to allow sounds to be 'balanced' or defined in volume/level between FRONT and REAR speaker outputs. The "rear" speaker typically on the 2-pin speaker connector. The Balance % adjustment is applied to the volume configured for the wav and channel settings of the SDF.

This is a new SDF5 instruction capability, and applies across all 8 channels of Series7 and 16 channels of Series8 decoders.

Two speaker outputs [even if the sound has equal volumes for FRONT/BACK speakers] provides a better perceived "sound image" than a single speaker 'point source' does. The greater the FRONT/BACK speaker physical separation is, the more any Balance-CV setting difference creates a different perceived sound-image 'positions'. This setup is most useful on larger scales that can support dual speaker drives with physical separation.

If an SPJ with Balance-CV usages is loaded into a single-speaker output decoder then the effects of Balance commands in the SDF are ignored by the decoder, and the sounds should play at full volume configured for that wav. This allows a newer "Compact Hi Definition" SPJs to also run on many older Series7 sound decoders, and the 8channel/16Mbit configuration allows SPJ use in less capable SFX decoders of sufficient 'X' memory size with just the loss of some newer SDF5 features not present in older units.

Depending on the specific SPJ-included SDF control file, the individual sound channels may be grouped into the default 6 Balance-CV controlled sound image intentions, like:

CV #	**Digitrax SDF5 Defined typical sound image position**	**Typical grouped sounds/Channel #**	**Factory reset value**
200	Front	Horn/Ch1	61
201	Mid-front	Reverser/Ch2, Bell/Ch3	76
202	Center	Prime mover/Ch1, Train brake/Ch4, Traction/Ch5	204
203	Mid-rear	Sander/Ch2, Drier/Ch6, Compressor/Ch8	196
204	Rear	Fans/Ch2, AUX gen/Ch4, Dynamics/Ch4	211
205	Tender		210

To set CV200-205 balance settings, simply add the value terms for Front and Rear % from the table below, as wanted, and program this combined number into the Balance-CV you wish to configure. The 12 active/non-zero % steps allow adjusting of the sounds to be imaged to *at least* 12 different 'positions', like a stereo balance control. Front/Rear settings are independently coded as 4 bits in the 6 Balance-CV entries.

Balance-CV values for preset level % for Front and Rear are defined in following table:

Balance % level	**Front Speaker value term**	**Rear Speaker value term**	**Note**
No change	0	0	Keeps last volume
0%	1	16	0% is muted
8 %	2	32	
16%	3	48	
25%	4	64	
33%	5	80	
42%	6	96	
50%	7	112	
58%	8	128	
68%	9	144	
75%	10	160	
84%	11	176	
92%	12	192	
100%	13	208	100% is full level

Full volume % Front and Rear would be (13+208) or 221 value, and would image as a ‘centered’ value at the full channel volume in effect for that wav sound(s). A zero Front and/or Rear contribution allows the last level settings for that speaker to remain in effect, so the CV only affects the levels of a non-zero% entry.

Using the 0% speaker setting will allow the sound to only appear in the other speaker that has 8% to 100% level. For example set CV201, typically for Bell/Reverser to (1+208) = 209 to ‘move’ these sounds from Mid-front to a 100% Rear setting, making these sounds appear to now emanate only from the ‘rear’ location.

A value of 255 in a Balance-CV will also put both channels to 100% volume.

Steam SPJ’s have predefined Balance settings, fixed to place the near- and far-cylinder chuffs of both simple and articulated engines to provide image separation of sounds when using two speaker output decoders.

All the speaker outputs are differential power driven so you cannot connect any of the + or- leads together, or connect a speaker lead to ground/common.

12) Hi Current Motor capacity, Thermal shutdown temperature setting: Series7 or Series8 decoders with a motor current rating of 4 or more amps include CV248 as a decoder maximum temperature setpoint.

Write CV248 to a degree Fahrenheit temperature number in range of 100 to 194, to set the maximum decoder temperature for Series7 and Series8 decoders with current ratings of 4 Amps or more. Once the decoder has exceeded this temperature, the motor will be turned off until the unit has cooled by at least 10 degrees F.

13) Higher wave download Speed for Series8 sound decoders: Series8 sound decoders can download wavs at approximately x2, x3 or x4 the normal x1 wav download speed using **Digitrax SoundLoader4** and a; DCS240+, DCS210+ or DCS52, with an IPL update from August 2025 onwards that supports faster xWrate capability.

SoundLoader4 has a xWrate drop-down selector box feature that is **usable** at a wav rate above x1 *if it detects a command station that supports the xWrate feature.* If available, select the desired xWrate number and *then* download as usual. This mode will typically speed up the SPJ loading by about 2 to 4 times, depending on the PC and the USB port connection/configuration.

If the sound decoder on the programming track is not xWrate capable it will not be able to use this higher speed wav download feature. Best practice is to use the xWrate higher than x1 setting on Series8 sound decoders. Ensure that the Program Track wiring is not excessively long, which may lead to waveform distortion issues. If the decoder sees any data errors it will abort then, and exit downloading. A quick quality check is to download a small SDF file. It is typically about 6kbytes and can be downloaded at e.g. x1, and then higher xWrate values. Check the decoder keeps responding with buzzing sounds during download, when the xWrate increases, to ensure it can work OK at the higher speed. The final test is to Erase flash and download an SPJ and check it works correctly.

The normal Erase, Program SDF and decoder IPL command/download rates and timing are unaffected by xWrate setting.

14) Series8 sound decoders and 22Ksps wav files: Series8 decoders are capable of downloading and playing wav files at 22Ksps as well as 11Ksps, when programmed by SoundLoader4. For Series8 sound decoders, you have a choice if the factory SPJ wave file is 22Ksps to then download the wav(s) at 22Ksps instead of 11Ksps.

Doing a 16bit/22Ksps wav download will provide slightly better sound output, but need about four times the flash memory to download into, than a "compact" Series7 8bit/11Ksps format.

If you download a 22Ksps wav file into a Series7 decoder that does not support 22Kps wavs, the sound will play back at ½ speed. You can correct this by downloading at the correct 11Ksps wav format, compatible with Series7 (and Series6 etc.)

I) **Decoder Firmware Updates (IPL):** The firmware in all Series7 and series8 sound mobile and non-sound decoders may be updated or IPL'ed on the programming track of a Digitrax USB type programmer using the free SoundLoader App from the Digitrax web site. The XF capability was introduced for newer Series7 decoders having more than 8 output lines that are beyond legacy FX3 control capabilities.

XF capability also allows users to configure Series7 sound decoders with existing SPJ/sound projects to change which sounds are mapped to particular function keys. See CV236 section above. A number of Series7 decoders released before XF (i.e. CV253 is less than 5) may have XF updates available. Check the product page for possible available IPLs.

a) Place the working decoder on the Digitrax program track.

b) Start the SoundLoader App, selecting the correct COM port number in use by the Digitrax programmer. If the App sees a valid programmer on the selected USB COM port, it will identify the Digitrax programmer device and indicate the programming track is occupied with a Digitrax decoder, even though the Series7 decoder may not be sound capable.

c) Select "IPL>IPL Update Sound Decoder," then select the correct DMF file you have downloaded from Digitrax web site for the model of Series7 decoder needing IPL download.

d) Press the "Start IPL Download" button. If the **decoder** detects the correct product IPL version it will execute the IPL update and flash lights and make clicking sounds. When completed, change the decoder to a mainline track and ensure it responds OK to e.g. motor or functions after the IPL. The decoder CVs are not modified by the IPL process, so the decoder address and settings should not be affected by a good IPL.

e) If the decoder does not exit IPL mode, press the "Start IPL Download" button again. You can IPL as many times as needed to get a good update.

If you have a number of Series7 decoders, consider the utility of having a Digitrax USB programmer capability at your layout to perform mobile decoder IPL updates. The PR4 is the most economic choice. The DCS52 is the most convenient, and the DCS210+, DCS240 and DCS240+ also have suitable USB programmers.

J) **CV programming**: In some cases the industry standard Service Mode decoder ack motor pulse may move or disturb the decoder on a programming track with marginal contact, and may briefly break continuity of the track connections. In some rare instances this might affect CV programming.

If the decoder does not respond after CV programming, or ever "seems dead", try a Factory Reset on a programming track, by programming CV8 to 8 to configure factory fail-safe defaults of short address 03, etc. The majority of customer returns respond to a CV8 to 8 reset to restore decoder functionality. This reset will not erase any loaded SPJ/sound schemes.

K) **When using Digitrax SoundLoader** in ">SoundTest" mode, the motor is placed in a neutral state that allows the screen throttle to ramp up motor speed for sounds while motor does not move. If the program track is overloaded by excessive lamp loads, sound volume or input power is insufficient, a sound decoder may brownout reset and then lose the neutral setting and try to move. You have to exit SoundTest and restart to place the motor properly into neutral for this testing.

L) **The DT602** firmware date after 15 May 2024 has an added "menu>4" item for 'XF Fn Configure'. You can download the new DMF from Digitrax and IPL to use this new DT602 capability XF configuration editor. This will allow you to more easily set XF CV values by following the scroll prompt information.

<section end>

Appendix A: Setting values for multi-bit configuration Cvs. Some CVs are not just 8 bit data bytes, but consist of up to 8 flag bits for decoder configuration.

To calculate the values to load for these CV's add up the active state value shown in the CV bit table right-hand column and then write this sum to the CV. Inactive/unmarked bits are simply value 0 (ignore) to add to the CV sum to program.

A1) CV29: Primary decoder configuration, and only has bit1 and bit2 active by default, as marked in bold, and add up to 06 total. For other combinations of any bit type CVs, simply add up any active or set bits for the new CV value to program.

Bit#	**CV29: Bit meaning when active**	**Active decimal value**
0 (ls)	Reverse Motor direction [NDOT]	1
1	**28 step mode**	**2**
2	Enable Analog conversion	4
3		8
4	Use 28 step speed table, CV66-95	16
5	Use 4 digit address, CV17/18	32 (if 0, be sure CV1 is a value you want, if 32 ensure CV17/18 are correct)
6		64
7 (ms)		128
CV Sum	[factory default]	[**02**]

A2) CV53: Digitrax Config A

Bit#	**CV53: Bit meaning when active**	**Active decimal value**
0 (ls)	Torque.0	1
1	Torque.1	**2**
2	Torque.2	4
3	Torque.3	8
4		16
5		32
6		64
7 (ms)		128
CV Sum	[factory default]	[2] range 0-1

A3) CV54: Digitrax Config B

Bit#	**CV54: Bit meaning when active**	**Active decimal value**
0 (ls)	Switch speed- 50% with F6 ON	1
1		**2**
2		4
3		8
4	Torque comp OFF	16
5		32
6	Decoder Lock OFF	**64**
7 (ms)		128
CV Sum	[factory default]	[64]

A4) CV61: Digitrax Config C

Bit#	**CV61: Bit meaning when active**	**Active decimal value**
0 (ls)	Incandescent lamp FX	1
1	Transponder Enable	2
2		4
3		8
4	BEMF OFF when F5 ON	16
5	Spd128 ignore CV5/CV6	32
6		64
7 (ms)		128
CV Sum	[factory default]	[**00**] from CV253=12+

A5) CV64: Digitrax Config D

Bit#	**CV64: Bit meaning when active**	**Active decimal value**
0 (ls)		1
1		**2**
2		**4**
3		8
4		16
5		32
6	**Functions F3-6 std 12V (MT)**	**64**
7 (ms)		128
CV Sum	[factory default]	[**64**]

A6) CV120 - Decoder Interface type

Decoder Interface	**CV120 Code**
N-8pin	1
N-K0 light board	2
N-K1 light board	3
N-K2 light board	4
N- Next18	5
N- IN pins	6
N- A0 light board	7
N- A1 light board	8
N- E24	9
Series6 legacy product	32
HO- 9pin	33
HO – MT 21pin	34
HO – A0 board	35
HO – K0 board	36
HO – K1 board	37
HO – P/PS-wired	40
HO – 9pin/6pin	41
HO – 4A wired	42

A7) CV122 – Decoder type

Decoder type	**CV122 code**
SFX sound decoder	12
Std(No sound) /2 function decoder	62
Std/4 function decoder	64
Std/6 function decoder	66
Std/8 function decoder	68
Std/11 function decoder	71
Std/13 function decoder	73

A8) CV129: Sound configuration bits

Bit#	**CV129: Bit meaning when active**	**Active decimal value**
0 (ls)	No Diesel-startup move delay	1
1		**2**
2		4
3		8
4		16
5		32
6		64
7 (ms)		128
CV Sum	[factory default]	[**0**]

eoe

[end rev0.3]