Common Digitrax Usage, Troubles and Solutions (12/12/2007)

Introduction

For anyone interested in Prototypical Model Operations I would recommend caution since I believe the throttles are not rugged enough. Also, the system can be overly complex if you just want to reliably run trains. The UT4r throttle s have been a big improvement and by use of a lanyard much of the damage due to dropping can be avoided. On the plus side Digitrax has many potential features that may make it a good choice for some users. Just know what you are getting into and what the alternatives are.

The following is a summary of common issues and troubles that seem to come up with Digitrax. The problem with Digitrax is these issues arise at the most inopportune times, usually when visiting operators are present. Since the actual Digitrax manuals are written in a fashion only a Jet Propulsion Engineer could like, the following are simplified summaries of various issues.

"Clicking" on Multiple Throttles in Unison

This indicates that multiple throttles have somehow become selected, or in control of, the same engine address locations. This is referred to by Digitrax as "slot following" and they consider it an feature, but during operating sessions it is usually a disaster!

Configuration Variables

Locations that control the performance of an address (engine).

Acceleration Rate	CV 03
Deceleration Rate	CV 04
Mid-Point Voltage	CV 06 (voltage at middle step 7 or 14)
Loadable 28 Step Speed Table	CV 65 through CV 95 enabled by CV 29 (28 steps)
QSI Sound Volume	Set CV 49 to 0 and enter a value between 0 and 127(loudest) in CV 51 to set volume.

DCS100 versus DB150

The DCS100 is not intended to be used as a booster. However this should work; set the op switches to convert the DCS 100 to booster status as follows. From the Digitrax website,

1. Set Op switch 2 to "c"
2. 2. Set Op switch 5 to "t

It is also advised to purge all the assignments by using op switches 37, 38 and 39

Option Switch #	Effect on System operation when "closed"	Def
OpSw 36*	Clear all mobile decoder info & consists	t
OpSw 37*	Clear all routes	t
OpSw 38*	Clear the loco roster	t
OpSw 39*	Clear all internal memory states, including sections. OpSw 36/37/38 clears	t

The DB150 is to be used as a booster.

Programming Mode

This mode is the process of selecting various values for the configuration variables (CV's) available in the system. This may done in paged (Pg) mode on a programming track, or in OPS (Po) mode while on the mainline for some CV's from a DT series throttle. UT series throttles are only for operations and do not allow programming.

Operations (OPS) Mode Programming

Changes can be made to CV's but not to the engine address while on the mainline.

Switch "Sw" Mode

This mode is used for sending commands to accessory decoders and changing switch settings in options mode.

To throw a switch:

- Press SWCH button on DT 400
- OPTN "t" indicates thrown
- CLOC "c" indicates closed
- If the switch selected is connected to an accessory decoder the decoder will change from closed to open (or vice versa).
- If the switch controls an ops switch setting it will be changed

(Note that a flashing "t" of "c" indicates the system does not know or have a current setting.)

Options Mode (while using switch mode, see DCS 100 setting to clear roster)

OP Toggle setting on the DCS 100

The center toggle position is used to customize the option switch settings.

Releasing an Address from a Throttle DT400

To ensure that an address is release in the system and does not become "logged" into multiple throttles it must be released and dispatched as follows:

- Return the speed to ZERO,
- Press Select (it will flash on LCD screens)
- Press DISP to dispatch the address on the throttle and release to the system, the flashing should cease

Failure to follow this procedure will result in multiple throttles logged into an address (see "Clicking") and may tie up address slots (I am not really clear how this works).

Releasing (and selecting) an Address from a Throttle UT 4R

To ensure that an address is release in the system and does not become "logged" into multiple throttles it must be released and dispatched as follows:

- Unplug from Loconet port
- Press and **Hold** Disp
- Plug back into Loconet

To select using UT 4R:

- Dial address while unplugged
- Plug into Loconet
- Green indicates selected, red indicates engine is already selected by another throttle
- If already plugged in just press select and follow light indications

Releasing (and selecting) an Address from a Throttle UT 1

To ensure that an address is released in the system and does not become "logged" into multiple throttles it must be released and dispatched as follows:

- Plug into Loconet port
- Make sure loco is selected
- Press ACO/DISP and SHIFT keys together

To select using UT 1:

- Plug into Loconet port
- Make sure loco is selected on knobs

- Press ACO/DISP once, if pressed twice it will be released back to system
- If the LED displays green you have selected locomotive or red indicates selected, but in reverse
- If the top four lights strobe you have a speed mismatch so turn the throttle in the direction of the strobe to gain control
- If the LED status light is dark loco is already selected by another throttle and is not available

Editors Note: The procedures for different throttles seem unnecessary and are a real pain, why can't this be standardized??

Tech support Responses------System Phantom's (i.e. slots used) and Digitrax Demons

Question 1

During a recent operating session an otherwise good operating locomotive went completely dead while running. I was only able to recover the locomotive by returning it to the programming track and resetting the address. There was no loss of track power and the other ten or so operating locomotives were unaffected. Any idea what happened?

Question 2

Also during this same session the second unit of two MU'd loco consists would resume running under its own address after the MU' d consist was set to zero power. It seemed that some other throttle was controlling the loco. Any idea what happened?

Responses

1. "Has to be a decoder problem. "

2. "Don't know…. but consisting is done by the command station and I would clear the loco registry just in case there is a "phantom" in the system by closing Option Switch 39. The booster/command stations, the DB-150 and the DCS-100 have Option Switches that can be used to configure the boosters. However, it will not be necessary under most conditions to change any of the switches. The switches are discussed in the system manuals where you will find a complete description of the switches and the options. Most problems that occur with the boosters are caused by operators failing to zero the speed of unused addresses and not dispatching unused address off the throttles. Phantom addresses can be removed by closing the appropriate option switch in the booster. Closing OPSW#39 will clear ALL the registers in the booster and will cure most problems. Be sure that you are properly changing the correct switches as the booster can be crippled by closing the wrong switches. To CLOSE Option Switches such as 36 to clear the Loco Registry you go to the DB150 or the DCS100/200 and place the MODE toggle switch in the OP (center) position, go to Switch Mode on your throttle then

call up 36 (or which one you want) then push the "c" key on the throttle..you will hear a beep..you then go back to the command station and push the MODE toggle down to SLEEP then back up to RUN. You then turn Track Status back on."

Problems with QSI Sound Systems (Compilation of E-mail)

E-Mail to KC Operators Group October 24, 2005

Gentlemen:

I thought I would share information I have stumbled into regarding incompatibility between the QSI® Quantum System Sound Systems (BL, Atlas, LifeLike) and DCC systems. (If you all already know this I apologize.) My Digitrax system would not automatically reboot after a minor short and, of course, I blamed Digitrax for the problem. In a conversation with a rather busy and frustrated sounding tech rep named Dave, he informed me the QSI sound systems use a large capacitor with a heavy current draw. When you have multiple engines with these systems on a layout and a short occurs, they have the combined effect of creating "permanent" short and don't allow the system to reset. He suggested that I reprogram the short time out period to 1/2 second (opsw 18 to "c") to help. However, he said if you have many of the sound equipped locomotives on a layout this probably would not work. He went on to say that a few users have introduced a 12-volt auto light bulb into the main power circuit to act as a type of a surge protector. Apparently this has the effect of allowing enough time for short circuit detector to reset. He said this is not a 100 percent answer either.

After this explanation, and my recent purchase of seven sound equipped locomotives, I was not fully buying into this answer so I spoke with Al at CVP, the maker of Easy DCC. He confirmed that this really is a problem with all DCC systems using the QSI Sound, including Easy DCC. He said it helps to have more power districts and really good wiring, but this does not make the problem go away. He also suggested the light bulb solution, although he confirmed it is not a 100 percent fix. Al said to avoid concentrating sound locomotives in a power district if possible. He also said SoundTraxx uses a different design and does not experience the problem of QSI sound.

I hope this is useful and most of you don't have to experience the warm glow and joy of your layout refusing to reboot after a derailment during an open house. At least it was not a Digitrax demon, but rather just a spooky sound system ghost. I would not recommend using the QSI sound system until a better solution is found.

If anyone has experience with solving these problems please let me know. I am going to start posting work around information on my layout website www.sfnorthern.com so that others need not suffer my pain. I am beginning to think that pre DCC days really weren't that bad!

Response from Bill Hirt

Jeff
From what I've read, QSI has been developing a solution to this problem to place between a DCC booster and your layout wiring. How soon exactly it will be available, I do not know. With the latest Broadway switchers I just got two weeks ago, I have found that a nominal current draw of 1000 milliamps is necessary in order to reliably program them. So 1 amp per QSI equipped engine at start-up is probably a pretty realistic rule of thumb. Since my layout was wired in the pre-PM4/PM-42 days, I have seven 5 amp boosters to power all my blocks and I have yet to see this problem. But most of sound resides in yards where each have their own booster. If you are using the PM-4/PM-42, you might want to look at changing the current limit on each block. The default is 3 amps. You can change this by setting some option switches for each (via your throttle) to 4.5 amps. This is probably a better setting if you have 5 amp boosters.

DCS 200 Issues

I purchased an 8 AMP DCS 200 to help support the sound decoders I was using and mitigate reboot problems due to lack of Amperage. However Digitrax does not produce an 8 amp matching power supply. I was able to get a 5-6 Amp supply from Loy's Toys and they assured me it would support an 8 AMP booster.

Time will tell if this works.