Understanding QSI references.

For the lights and a number of other functions, QSI uses an indexed table on the decoder. The indexes are accessed by CVs 49 and 50. QSI uses a short hand representation in their manuals for this reference. The middle value is programmed into CV 49, the far right value is programmed into CV 50 and the left value is programmed into the first CV number. You always program from right to left, ie 50, 49, 55 in the example below. You can also do middle, right, and left, but left is always last.

Example QSI reference 55.70.1 = 6

	Program in order from left to right		
QSI Reference	CV 49	CV 50	
55.70.1 = 6	70	1	CV 55 = 6
115.70.0=2	70	0	CV 115 = 2

When only 2 numbers are referenced, for example 55.20 = 1, program the right one, then the left to access the CV

	Program in order from left to right	
QSI Reference	CV 49	
55.20 = 1	20	CV 55 = 1

The following is a description of setting up the lights to be On in the direction of travel and stay on when stopping from that direction, and the off in the reverse direction.

The board is a model designation FX-DO and is supposed to be in the Titan series.

The wiring diagram shows the ports and recommended use. On early units the builder did not necessarily do this as on my E7s. Lets assume that the ports are correct.

The recommendations listing only ports used (not grounds etc). All lights appear to be LEDs and use the +5 volt common ports.

L1 = Headlight
L2 = Rear Light
L3 = Mars Light

L8 = Front Marker
L9 = Rear Marker
L10 = Cab

On QSI you have to configure the port first to do something such as headlight, marker etc.
Then you have to configure how that automatic function works

For the light functions this requires entering 3 CV values.

The following table lists the sequence for the two units to use the indexed CVS (lookup table) In programming mode, program the 3 CVs in sequence.

CV Number	Headlight	Back Light
49	70	73
50	1	1
55	6	96
Page #	128	138

The page number is the page in the large QSI manual giving the bit assignments used to create the value entered in CV55.

The 3 CV entries in each column define the behavior of the lighting function in automatic mode.   49 is the primary index and 50 tells it automatic behavior if 1.   The last value is the decimal equivalent of what the light should do in Forward, neutral from Forward, Reverse and neutral from Reverse.   These are defined in the big QSI manual as page numbers noted above.   You have to write down the bit sequence in order as shown and then use page 372 of the big QSI manual to convert the HEX to decimal.   Write the BIT sequence from right to left as indicated by the tables on the respective pages.

These Decoders behave differently than motor decoders I have.   They apparently store the information in a memory block, and load it to the chip when powered up.   So after programming the CVs, you need to remove the power from the loco and repower it.   If on the main, I just tip it off the rails and count to 10.   If on the programming track, moving it to the regular track accomplishes this.

A second note, the "front marker" lights are supposed to function 104.   However, I tried programming function 104 for this port multiple times with no luck.   But when I tried programming function 106 which is "rear marker lights", it worked.   Hence even though the markers are on the front of the loco, apparently they are programmed in the chip as rear markers.

Programming the automatic Horn

The horn can be programmed to blow for forward movement, reverse moves, and stop automatically.

To Do this program the following sequence:

Automatic Horn	Manual control horn
CV 49 = 20	CV 49 = 20
CV 51 = 17	CV 51 = 0

This does not need a power cycle to implement.   Also this is not in the big manual but in the Titan A and U small manuals

Changing the volume for all sounds

The overall volume for all sounds can be changed.   There is a master volume control that will allow you to reduce or increase the volume for all sounds at one time.   This information is in the Titan A & U manuals.

To Do this program the following sequence:

 CV 49 = 0
CV 51 = vol,   where is a number between 0 and 127.   0 is minimum and 127 is maximum.

Momentum Features

Page 16 of the big manual describes the types of throttle settings available in a QSI decoder.

The index refers you to "QSI Throttle Mode, PI = 4" on Page 305-306

This allows you to change from the load momentum that is default to basic throttle/motor control.

This is another Indexed CV.   You first set CV 49 to 4, then you set CV 56 to a value of 0, 1, 2, or 3. The default is 1.   0 is direct throttle control.

If you set this 0, you can then set CV 3 and CV 4 to get the momentum effects you may want.