

Power

Emergency Stop - Press **ST KEY**
(Page 23*)
Power off **ST KEY F0**

Addressing

Selecting Locomotive Address –
CI LOCO# [enter]

Selecting an engine from the Stack –
CI LOCO# or **-/+** Until you see loco you want **[enter]**

Erasing Locomotives from Stack –
F9 1 5 + 1 5 + [enter] ESC ESC CI - enter)(-) [enter]

Setting Locomotive addresses
See page 52
Must be on programming track
To read existing address:
F8 [enter] [enter] [enter] [enter]
To write new address
CI new LOCO# [enter]

Speed

Controlling Locomotive Speed –
UP or **DOWN** Arrows

Changing Locomotive Throttle Speed Steps-
LOCO# (+)(+)(+) [enter]

Functions

Using Function Keys

Functions 0-8 can be activated directly while you are controlling a locomotive (that is the locomotive address or the speed step is displayed), using keys the '0' to '8'.

To turn functions 9 to 12 on and off, you must first switch the display over to the high order function block using the '9' key: The "F" in the lower row changes to a slowly flashing "8". The '1' key now turns on function 9, the '2' key function 10 and so on. You must simply add the number 8 to the displayed

function (flashing display) . To return to functions 1 to 8, again press the '9' key.

Configuring Loco Function keys –
LOCO# F1 [ENTER] (page 25)

Function Key mapping

F#	Description	Page
F0	Power off after ST key press	23
F1	Configure function keys	25
F2	Double heading	27
F3	MU Consisting	32
F5	Activating turnouts	38
F6	Reading feedback	44
F7	Programming on the Main	45
F8	Programming on Programming track	50
F9	Erasing Locomotives from the stack/	66

Consisting

Double-head (page 27)

- Creating a Double Heading–
LOCO# F2 2nd LOCO# [enter]
- Disassembling a Double Header – **LOCO# F2 -- LOCO# [enter]**

MU (page 32)

- Multi-Unit Consist – **LOCO# F3 + then 2nd LOCO# <>** (change Loco dir)
- Assembling a Multi-Unit Consist – **LOCO# F3 + MU# [enter] then 2nd Loco and repeat keystrokes**
- Displaying Locomotives within a Consist – **MU# - [enter]**
- Removing Locomotives from a Consist – **LOCO# F3 - [enter] repeat** for next Loco

Turnouts

Throwing Turnouts and setting Signals –
(Page 38)

F5 [enter] TURNOUT# or **SIGNAL# [enter] +/-** to change signal

Feedback

(Page 41)
Displaying Feedback

F6 Controller# [enter]

Programming

Programming on the Main (POM) –
(Page 45)

Select the Loco

CI LOCO# [enter]

Begin programming

F7 [enter] CV# [enter] CV(Value) [enter]

ALL CV's EXCEPT CV1, CV17 & CV18 can be programmed on the main.

Short Cut To Common Settings –
CV 2 thru CV 5

F7 - dir [enter] + +

Setting and erasing bits On CV's –
(Page 48)

**LOCO# F7 - CI LOCO# [enter] CV# [enter]
[enter] Bit# +/- [enter]**

Whistle Signals

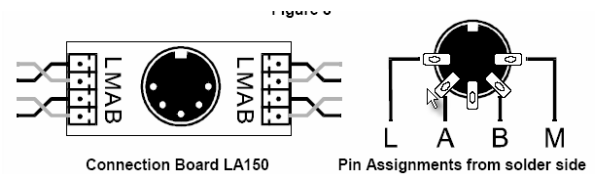
• = Short Blast	— = Long Blast
— — • —	Approaching Grade Crossing. (Hold final blast until crossing is reached.)
• —	Approaching a bridge or tunnel
•	Stop, set brakes
— —	Release brakes and proceed forward
• • •	Backup
• • • •	Request signal from Trainman
— •	Warning whistle, used when approaching points where view is obstructed.

NMRA DCC Plug Pin out



View Looking Into the Socket From the Plug

Lenz DIM plug pin out



Common Decoder CV'S

CV 1	Short Loco address
CV 2	Starting voltage
CV 3	Acceleration
CV 4	Deceleration
CV 5	Maximum speed
CV 6	Mid speed
CV 7	Version of decoder
CV 8	Manufacturer's id
CV 17	Long Address High Byte
CV 18	Long Address Low Byte
CV 19	Consist address
CV 23	Consist acceleration
CV 24	Consist deceleration
CV 29	Decoder configurations

QSI Decoder Functions

F-Key	FWD/REV	Neutral
F1	Bell on/off (if assigned7)	Bell on/off (if assigned)
F2	Whistle/Horn w/ Doppler Shift	Whistle/Horn
F3	Coupler Crash/Coupler Fire	Coupler Arm (Enable) or Coupler Fire
F4	Steam Blower Hiss/ Diesel Fans and Louvers/ Electric Cooling Fans	Steam Blower Hiss/ Diesel Fans and Louvers/ Electric Cooling Fans
F5	Dynamic Brakes	Dynamic Brakes
F6	Doppler Shift Locomotive	Start Up
F7	Squealing Brake/Flanges and Air Brakes	Steam Cylinder Cocks Arm Diesel Long Air Let-off Electric Long Air Let-off Gas Turbine/Diesel Transition
F8	Audio Mute Audio	Mute
F9	Heavy Load8	Shut Down9: Disconnect-Standby- Total Shut Down
F10	Status Report (SMPH)	Status Report (ID's, etc.)
F11	Alternate Horn Selection/Number Board or Marker Lights on/off	Alternate Horn Selection/Number Board or Marker Lights on/off
F12	Automatic Cab Lights	Automatic Cab Lights

Tsunami Decoder Functions

Steam Decoders

Function Key Effect

F0	Headlight/Backup Light/Dynamo
F1	Bell
F2	Whistle
F3	Short Whistle
F4	Steam Release
F5	FX5 Output
F6	FX6 Output
F7	Dimmer
F8	Mute the Sound
F9	Water Stop
F10	Injectors
F11	Brake Squeal/Release
F12	Coupler Clank

Tsunami CV Quick reference

CV 1	Primary Address Control
CV 2	Vstart
CV 3	Baseline Acceleration Rate
CV 4	Baseline Braking Rate
CV 7	Manufacturer Version ID (Read Only)
CV 8	Manufacturer ID
CV 10	BEMF Cutout
CV 11	Packet Time Out Value
CV 12	Power Source Conversion
CV 13	Analog Function Enable 1
CV 14	Analog Function Enable 2
CV 15	CV Unlock Register
CV 16	CV Lock ID Code
CV 17,18	Extended Address
CV 19	Consist Address
CV 21	Consist Function Group 1
CV 22	Consist Function Group 2
CV 23	Consist Acceleration Rate
CV 24	Consist Braking Rate
CV 25	Speed Table Select Register
CV 29	Configuration Register 1
CV 30	Error Information/Alternate
Mode Selection	
CV 33	FL(f) Output Location
CV 34	FL(r) Output Location
CV 35	F1 Output Location
CV 36	F2 Output Location
CV 37	F3 Output Location
CV 38	F4 Output Location
CV 39	F5 Output Location
CV 40	F6 Output Location
CV 41	F7 Output Location
CV 42	F8 Output Location
CV 43	F9 Output Location
CV 44	F10 Output Location
CV 45	F11 Output Location
CV 46	F12 Output Location
CV 47	Analog Whistle Control
CV 49-52	Hyperlight Effect Select(for FL(f), FL(r), Function 5, 6)
CV 59	Flash Rate
CV 60	Crossing Hold Time
CV 61	F11 Braking Rate
CV 62	Transponding Control
CV 66	Forward Trim
CV 67-94	Loadable Speed Table
CV 95	Reverse Trim
CV 105	User Identifier #1
CV 106	User Identifier #2
CV 112	Sound Configuration 1
CV 113	Quiet Mode Timeout Period
CV 114	Bell Ring Rate
CV 115	Whistle Select
CV 116	Engine Exhaust Control
CV 119	Effect Processor Select
CV 128	Master Volume Control
CV 129	Whistle Volume
CV 130	Bell Volume
CV 131	Exhaust Volume
CV 132	Air Pump Volume
CV 133	Dynamo Volume
CV 134	Blower Volume
CV 135	Rod Clank Volume
CV 136	Steam Release Volume
CV 137	Coupler Volume

CV 138	Reserved
CV 139	Brake Squeal Volume
CV 140	Brake Release Volume
CV 141	Snifter Valve Volume
CV 142	Johnson Bar/Power Reverse Volume
CV 143	Pop Valve Volume
CV 145	Blower Draft Volume
CV 146	Water Stop Volume
CV 147	Injector Volume
CV 148	Fireman Fred's Shovel Volume
CV 149	Fireman Fred's Wrench Volume
CV 150	Fireman Fred's Oil Can Volume
CV 151	Fireman Fred's Grease Gun Volume
CV 153	Equalizer Control
CV 154	62 Hz Equalizer Cut/Boost
CV 155	125 Hz Equalizer Cut/Boost
CV 156	250 Hz Equalizer Cut/Boost
CV 157	500 Hz Equalizer Cut/Boost
CV 158	1K Hz Equalizer Cut/Boost
CV 159	2K Hz Equalizer Cut/Boost
CV 160	4K Hz Equalizer Cut/Boost
CV 161	Reverb Control
CV 162	Reverb Output Level
CV 163	Reverb Delay
CV 164	Reverb Gain
CV 169	Whistle Reverb Effect Send Level
CV 170	Bell Reverb Effect Send Level
CV 171	Exhaust Reverb Effect Send Level
CV 172	Air Pump Reverb Effect Send Level
CV 173	Reserved
CV 174	Reserved
CV 175	Reserved
CV 176	Reserved
CV 177	DDE Throttle Gain
CV 178	DDE Motor Load Gain
CV 179	DDE Attack Time Constant
CV 180	DDE Release Time Constant
CV 181	Exhaust Low Volume Limit
CV 182	Exhaust High Volume Limit
CV 183	Side Rod Clank Low Volume Limit
CV 184	Side Rod Clank High Volume Limit
CV 185	DDE Filter Initial Frequency
CV 186	DDE Filter Control Gain
CV 187	DDE Filter Initial Frequency
CV 188	DDE Tracking Coefficient
CV 193	Automatic Bell-On Set Point
CV 194	Automatic Bell-Off Set Point
CV 195	Grade Crossing Whistle Sensitivity
CV 196	Brake Squeal Sensitivity
CV 197	Analog Mode Automatic Sound Configuration
CV 198	Digital Mode Automatic Sound Configuration
CV 201	Event Probability: Fireman Fred Shovels Coal
CV 202	Event Probability: Fireman Fred Fills the Tender
CV 203	Event Probability: Fireman Fred Turns His Wrench
CV 204	Event Probability: Fireman Fred Uses His Grease Gun
CV 205	Event Probability: Fireman Fred Uses His Oil Can
CV 206	Event Probability: Fireman Fred Uses the Injectors
CV 207	Event Probability: Fireman Fred Uses the Firebox Blower
CV 208	Event Probability: Pop Valve Blow Off
CV 209	Kp Coefficient
CV 210	Ki Coefficient
CV 212	Motor Control Intensity
CV 213	Motor Control Sample Period
CV 214	Motor Control Sample Aperture Time

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