Econami Diesel Sound Selection

Overview

This document serves as a quick reference for default function assignments and sound selection CVs for Econami Diesel Digital Sound Decoders. This document applies to the following products:

- ECO-100 Diesel (P.N. 882001)
- ECO-200 Diesel (P.N. 882002)
- ECO-21P Diesel (P.N. 882003)
- ECO-PNP Diesel (P.N. 882004)
- ECO-400 Diesel (P.N. 882005)

For information regarding installation, operation, and CV adjustments, refer to the following documentation available in the "Manuals" section of www.soundtraxx.com:

- Econami Installation Guide
- Econami Diesel Quick Start Guide
- Econami Diesel User's Guide
- Econami Diesel Technical Reference

Function Control

Your Econami has been shipped with preprogrammed CVs so you can start right away without making any adjustments:

- You can activate various effects and features with function keys the first time you use Econami.
- The effects included in the adjacent table have been assigned to function keys F0-F28 by default.
- Pressing function keys will toggle functions F0-F28 "on" or "off."

Note: *The function keys labeled "Not Assigned" can be mapped to any of Econami's effects with SoundTraxx's Flex-Map function mapping CVs (Indexed CVs 1.257-1.512).*

Default Function Assignments

Function Key	Effect
F0(f)	Headlight
F0(r)	Backup Light
F1	Bell
F2	Airhorn
F3	Short Airhorn
F4	Dynamic Brake
F5	RPM+
F6	RPM-
F7	Dimmer
F8	Mute
F9	Grade-Crossing Signal
F10	Not Assigned
F11	Brake Squeal/Release
F12	Not Assigned
F13	Coupler, Coupler Release
F14	Switching Mode
F15	Not Assigned
F16	Not Assigned
F17	Not Assigned
F18	Not Assigned
F19	Not Assigned
F20	Not Assigned
F21	Not Assigned
F22	Not Assigned
F23	"All Aboard!"/Coach Doors*
F24	FX3 Function Output
F25	FX4 Function Output
F26	FX5 Function Output**
F27	FX6 Function Output**
F28	Not Assigned

**Available on select formats

* Not included in software releases prior to version 1.3

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Airhorn Select

CV 120: Airhorn Select
CV 120 is used to select the primary airhorn that will play when you turn on the airhorn function. Set CV 120 to a value from 0 to 15 to select a primary airhorn. CV 120 has been set to a value of 0 to select the Nathan K5LA airhorn as the default primary airhorn.

CV 121: Auxiliary Airhorn Select
Disabled by default, CV 121 is used to select an alternate airhorn sound effect that will play in place of the primary airhorn selection. When enabled, turning on the short airhorn function (F3 by default), and then turning on the long airhorn function key (F2 by default) will issue the alternate airhorn sound effect. Turn off the long airhorn function key to stop the airhorn blast.

CVs 120 and 121: Airhorn Select

Airhorn	CV Value
Nathan K5LA (default)	0
Nathan K5LLA	1
Nathan K5HL	2
Nathan P5	3
Nathan P3	4
Nathan M5	5
Nathan M3	6
Wabco E2	7
Wabco A2	8
Holden M3H	9
Holden K5H	10
Leslie A200	11
Leslie A125	12
Leslie A125/A200 Combo	13
Leslie S3L	14
Leslie S2M	15

Bell Select

CV 122: Bell Select
CV 122 is used to select the bell sound effect and adjust its ring rate. The selected bell will ring at the associated ring rate when you turn on the bell function (F1 by default). Turning off the bell function will stop the bell from ringing.

Enabling a grade-crossing bell will allow the selected bell to ring for the duration of the crossing hold timer countdown when Grade-Crossing Logic is activated.

Referring to the adjacent table, locate the value associated with your preferred bell sound effect and ring rate, and decide whether you want to enable the grade-crossing bell. Enter the associated value in CV 122.

CV 122: Bell Select

Bell	Ring Rate	Xing Bell Disabled	Xing Bell Enabled
EMD	Slow	0	128
	Medium-Slow	1	129
	Medium-Fast	2	130
	Fast	3	131
GE	Slow	4	132
	Medium-Slow	5	133
	Medium-Fast	6	134
	Fast	7	135
ALCO	Slow	8	136
	Medium-Slow	9	137
	Medium-Fast	10	138
	Fast	11	139
Electronic	Medium-Fast	12	140
Brass	Slow	13	141
	Medium-Slow	14	142
	Medium-Fast	15	143
	Fast	16	144
Heavy Brass	Slow	17	145
	Medium-Slow	18	146
	Medium-Fast	19	147
	Fast	20	148
Gong	Medium-Fast	21	149

Prime Mover Select

CV 123: Prime Mover Select
CV 123 is used to select a prototype-specific prime mover sound effect. Set CV 123 to a value from 0 to 4 to enable your preferred prime mover. You can increase and reduce engine RPM with the RPM+ (F5 by default) and RPM- (F6 by default) functions to simulate the engine operating at various intensities.

CV 123: Prime Mover Select		
Prime Mover	**CV Value**	**Recommended for…**
EMD 567 non-turbo (default)	0	BL1, F3, GP7, SD7, and more
EMD 645 turbo	1	GP15T, GP40, SD45, FP45, and more
EMD 710 turbo	2	GP59, SD60, SD80MAC, F59PH, and more
GE FDL-16 modern	3	Amtrak Dash 8-40BWH, AC4400CW, P42, and more
ALCO 244	4	FA, RS-3, PA, and more

Air Compressor Select

CV 124: Air Compressor Select
CV 124 is used to select the air compressor sound effect that will be active throughout operation.

CV 124: Air Compressor Select	
Air Compressor	**CV Value**
Engine-Driven (default)	0
GE “Whooping”	1

Coupler Select

CV 126: Coupler Select
Setting CV 126 to a value from 0 to 2 will select the couple/uncouple sound effect. Values from 0 to 2 will allow the couple and uncouple sound effect to be issued when each respective function is turned on.

Setting CV 126 to a value from 128-130 will select the couple/uncouple sound effect and invert the uncouple function polarity. Values from 128-130 will allow the couple sound effect to be issued when the couple/uncouple function is turned on, and allow the uncouple sound effect to be issued when the couple/uncouple function is turned off.

CV 126: Coupler Select	
Coupler	**CV Value**
Medium	0
Heavy	1
Link-and-pin	2
Medium: inverted uncouple (default)	128
Heavy: inverted uncouple	129
Link-and-pin: inverted uncouple	130

Volume Control

CV 128: Master Volume
CV 128 is used to adjust the volume level of all enabled sound effects, i.e., all mixer channels. Values from 0 to 255 may be programmed into CV 128 to set the volume level from 0 to 100%.

CVs 129-150: Mixer Channel Volume
CVs 129-150 are used for setting the volume level of each sound effect, similar to a modern sound studio mixing board. Values from 0 to 255 may be programmed into mixer channel CVs to adjust volume levels. The adjacent table shows mixer channel CVs, each corresponding sound effect, and each default value.

CVs 129-150: Mixer Channel Volume

Mixer Channel	CV	Sound Effect	Default CV Value
1	129	Airhorn	225
2	130	Bell	85
3	131	Prime Mover	150
4	132	Air Compressor	100
5	133	Dynamic Brake	125
6	134	Radiator Fans	75
7	135	Reserved	0
8	136	Reserved	0
9	137	Coupler Clank	128
10	138	Reserved	0
11	139	Brake Squeal	100
12	140	Brake Release	70
13	141	Reserved	0
14	142	Reserved	0
15	143	Poppet Valve	60
16	144	Reserved	0
17	145	Reserved	0
18	146	Reserved	0
19	147	Reserved	0
20	148	Emergency Stop	70
21	149	Glad Hand Release	150
22	150	“All Aboard!”/Coach Doors*	192

For the best sound quality, run the mixer as “hot” as possible by optimizing the volume levels. First determine the sound effect that should be the loudest and set the corresponding CV to around 225. The airhorn, for instance, usually creates the loudest sound. Then, adjust the volume levels of the remaining of the sound effects relative to the airhorn. When you have all the sound effects to their respective volume levels, adjust the overall volume level with CV 128 as needed.

Adjusting volume levels calls for a certain level of prudence to avoid a phenomenon known as “clipping” or “limiting,” which occurs when the sum of two or more signals exceeds the capacity of the output channel. As the name implies, clipping is the sound signal being cut off as it attempts to peak, causing the clicking or popping sounds you may have heard through broken headphones.

To avoid clipping, consider the sounds that are most played at the same time and make sure their volume levels aren’t set too high. For example, the airhorn should be as loud as possible without causing clipping. If you start to hear some distortion, lower the volume level accordingly.

* Not included in software releases prior to version 1.3