



# Econami Steam Sound Selection

## Overview

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

- ECO-100 Steam (P.N. 881001)
- ECO-200 Steam (P.N. 881002)
- ECO-21P Steam (P.N. 881003)
- ECO-400 Steam (P.N. 881005)

For information regarding installation, operation, and CV adjustments, refer to the following documentation available in the “Manuals” section of [www.soundtraxx.com](http://www.soundtraxx.com):

- Econami Installation Guide
- Econami Steam Quick Start Guide
- Econami Steam User’s Guide
- Econami Steam 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, Dynamo
F0(r)	Backup Light, Dynamo
F1	Bell
F2	Whistle
F3	Short Whistle
F4	Cylinder Cocks
F5	Drifting Mode Enable
F6	Drifting Mode Disable
F7	Dimmer
F8	Mute
F9	Grade-Crossing Signal
F10	Blowdown
F11	Brake Squeal/Release
F12	Not Assigned
F13	Coupler, Coupler Release
F14	Switching Mode
F15	Not Assigned
F16	Water Stop
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



## Whistle Select

### CV 120: Whistle Select

CV 120 is used to select the primary whistle that will play when you turn on the whistle function. Set CV 120 to a value from 0 to 15 to select a primary whistle. CV 120 has been set to a value of 0 to select the Lunkenheimer Flat Top 3-Chime whistle as the default primary whistle.

### CV 121: Auxiliary Whistle Select

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

CVs 120 and 121: Whistle Select	
Whistle	CV Value
Lunkenheimer Flat Top 3-Chime (default)	0
Hancock Step Top 3-Chime	1
Baldwin Single-Chime (5")	2
B&M Step Top 5-Chime	3
ATSF Step Top 6-Chime	4
B&O Step Top 3-Chime	5
Nathan Step Top 5-Chime (D&RGW #488)	6
D&RGW Step Top 5-Chime (D&RGW #487)	7
SP Step Top 6-Chime	8
Southern Flat Top 3-Chime (PS4)	9
Round Top Single-Chime (Peanut)	10
Reading 6-Chime	11
SP GS-4 #4449	12
N&W Step Top 3-Chime (Class J #611)	13
N&W Flat Top Single-Chime (Class A)	14
Leslie A200 Airhorn (SP GS/AC Classes)	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. You're able to adjust the value of CV 122 to select combinations of sound effects and ring rates.

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
Heavy Brass	Slow	0	128
	Medium-Slow	1	129
	Medium	2	130
	Medium-Fast	3	131
	Fast	4	132
Light Brass	Slow	5	133
	Medium-Slow	6	134
	Medium	7	135
	Medium-Fast	8	136
	Fast	9	137
Medium Brass 1	Slow	10	138
	Medium-Slow	11	139
	Medium	12	140
	Medium-Fast	13	141
	Fast	14	142
Medium Brass 2	Slow	15	143
	Medium-Slow	16	144
	Medium	17	145
	Medium-Fast	18	146
	Fast	19	147
Light Steel	Slow	20	148
	Medium-Slow	21	149
	Medium	22	150
	Medium-Fast	23	151
	Fast	24	152
Air-Rung Heavy Brass	Slow	25	153
	Fast	26	154



## Exhaust Chuff Select

### CV 123: Exhaust Chuff Select

Exhaust chuff selections accommodate a range of steam locomotives, from 4-4-0 Americans to 4-8-8-4 Big Boys, as well as geared engines.

CV 123: Exhaust Chuff Select	
Exhaust Chuff	CV Value
Light (default)	0
Medium	1
Heavy	2
Geared	3

## Locomotive Configuration Select

### CV 112: Sound Configuration 1

This CV is used to enable 3-cylinder\* or articulated type exhaust in place of 2-cylinder exhaust (default).

- 2-cylinder = 4 chuffs per rotation
- 3-cylinder = 6 chuffs per rotation
- Articulated = 8 chuffs per rotation

When a wheel-slip rate is selected with articulated exhaust, the chuff will be offset to simulate the front and rear wheels slipping in and out of sequence.

CV 112: Locomotive Configuration Select	
Configuration	CV Value
2-cylinder (default)	0
3-cylinder*	16
Articulated with wheel-slip disabled	128
Articulated with slow wheel-slip	160
Articulated with medium wheel-slip	192
Articulated with fast wheel-slip	224

## Engine Exhaust Control

### CV 114: Engine Exhaust Control

Setting CV 114 to a value from 0 to 255 will adjust the chuff rate in order to simulate a range of drive wheel sizes. Keep in mind that the chuff rate is automatically regulated, and CV 114 should merely be used to synchronize the chuff if it seems out-of-sequence.

CV 114: Engine Exhaust Control	
Chuff Rate	CV Value
Slowest Chuff Rate	0
Default	57
Fastest Chuff Rate	255

\* Not included in software releases prior to version 1.3



## Airpump Select

### CV 124: Airpump Select

Setting CV 124 to a value from 0 to 4 will select one of five airpump sound effects.

CV 125: Airpump	
Airpump	CV Value
Single-phase (default)	0
Cross-compound	1
Dual single-phase	2
Dual cross-compound	3
Vacuum Pump*	4

## Dynamo Select

### CV 125: Dynamo Select

CV 125 is used to select one of four dynamo sound effects.

CV 125: Dynamo Select	
Dynamo	CV Value
Dynamo 1 (default)	0
Dynamo 2	1
Dynamo 3	2
Dynamo 4	3

## 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. Like CV 128 (Master Volume Level), values from 0 to 255 may be programmed into mixer channel CVs to adjust the volume level. The adjacent table shows mixer channel CVs, each corresponding sound effect, and each default value.

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 whistle, for instance, usually creates the loudest sound. Then, adjust the volume levels of the remaining of the sound effects relative to the whistle. 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 whistle and exhaust chuff are usually simultaneously active, and you will likely want both of them to be as loud as possible without causing clipping. If you start to hear some distortion, lower volume levels accordingly.

CVs 129-150: Mixer Channel Volume			
Mixer Channel	CV	Sound Effect	Default CV Value
1	129	Whistle	225
2	130	Bell	85
3	131	Exhaust Chuff	180
4	132	Airpump	65
5	133	Dynamo	65
6	134	Blower	25
7	135	Side Rod Clank	80
8	136	Cylinder Cocks	100
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	Johnson Bar	64
15	143	Reserved	0
16	144	Blowdown	255
17	145	Blower Draft	25
18	146	Water Stop	50
19	147	Reserved	0
20	148	Emergency Stop	70
21	149	Glad Hand Release	150
22	150	“All Aboard!”/Coach Doors*	192

\* Not included in software releases prior to version 1.3