Quick Start Guide

For Bachmann®
Large Scale Thomas & Friends™
Sound-Equipped Locomotives

DCC Sound Technology by SoundTraxx®

- 16-Bit Sound Processor

- Automatic Dual Mode Decoder for DC and DCC Operation

Overview

This state-of-the-art Digital Sound Decoder™ will provide all the pleasures of high quality, digital onboard sound and the benefits of today's DCC (Digital Command Control) technology.

This **Quick Start Guide** assumes that you have some understanding of, or experience with DCC. It covers the differences you may need to know between this decoder and any you may have previously used.

Your Bachmann Sound Decoder is both a DCC Sound Decoder and a DC Sound System. The sound decoder performs numerous functions on both Analog (DC) and Digital (DCC or Digital Command Control). The operation of some of these functions will be different depending on which you are using:

Motor control – the sound decoder controls the motor in both DC and DCC, enabling proper coordination of the locomotive's movement with other operating features and sound effects.

Sound – The authentic sounds of your favorite characters are digitally reproduced through the powerful 3-watt audio amplifier. All sounds are polyphonic; one sound will never interrupt another.

Lights – Headlights and/or backup lights are NOT factory installed - however, should you wish to add LEDs, the sound decoder has the ability to turn them on or off in DCC mode using F0 (or F10 on the Bachmann E-Z Command® DCC system). Refer to the wiring diagram on the Bachmann website.

Features and Specifications

The custom decoder installed in your locomotive has been pre-programmed for a great ready-to-run experience. However, there are features available that you may wish to experiment with or adjust to suit your personal preferences. These adjustments will require the use of a DCC system capable of changing CV values (Configuration Variables). Some features will require a little explanation.

Sound Features
The volume levels of the individual sound effects have been pre-adjusted to provide the best possible sound for each character. However you can also adjust the volume of levels of the individual sound effects.

Throttle Features
The Digital Sound Decoder has many advanced throttle features as part of SoundTraxx's Hyperdrive system. With the addition of these features, you will be able to better control your locomotive speed under varying conditions.

Decoder Specifications
- Supports extended address mode for assigning any locomotive number up to 9,999.
- Supports advanced consist addressing.
- Supports 'Operation Mode Programming', allowing CVs to be changed on the mainline without using a programming track.

Throttle Specifications
- Supports 14, 28 and 128 speed step modes.
- Programmable acceleration, deceleration and starting voltage for prototypical starting and stopping.
- Use of standard and alternate speed tables.

Additional information about automatic sound functions can be found in the User's Guide available on both the Bachmann (www.bachmanntrains.com) and SoundTraxx (www.soundtraxx.com) websites.

Let's Get Started!

Operating with DCC

Your locomotive will respond to address 3 as it would if you had just installed any DCC decoder. Your sound decoder has been shipped with all CVs pre-programmed so you can begin using your locomotive immediately without having to worry about what adjustments to make. The locomotive's sound decoder is factory-set with the following "default" function assignments:

Sound Decoder Function Assignments	
Function Key	**Default Effect**
F0	Lighting (Lights NOT Factory Installed)
F1	Bell On/Off (Toby Only)
F2	Whistle On/Off (All Characters Except Toby)
F3	Short Whistle (All Characters Except Toby)
F4	Blowdown
F5	(Not Assigned)
F6	(Not Assigned)
F7	(Not Assigned)
F8	Mute

For now, simply set your controller to Locomotive 3, place the locomotive on the mainline and see what happens!

Ring the Bell (Toby Only)
To ring the bell, press F1 on your controller. This is an on/off function, i.e., once on, the bell will continue to ring the bell sequence until you turn it off by pressing F1 again to turn it off.

Blow the Whistle (For All Characters Except Toby)
To activate the Whistle, press F2 on your controller to blow the whistle. The longer you press the key, the longer the whistle will blow. While this allows you to make short or long signals, F3 is designated as a 'short' whistle so you can create whistle signals that will have that nice, crisp, 'toot' regardless of how responsive your controller may be.

Blowdown
Press the F4 key to open the blowdown valve (steam hiss). Press the F4 key again to close the blowdown valve.

Exhaust Chuff
The exhaust chuff and sounds are automatically generated whenever the locomotive is set into motion.

Mute the Sound
Pressing F8 will gradually mute all sound effects. Pressing it a second time will allow you to hear the sounds again.

Programming the CVs

As you see, no programming is necessary to begin enjoying your sound system. However… after you have had a chance to play with your decoder for a little while, you may wish to make some changes such as selecting a new address or altering a sound effect. The following section will introduce you to CVs and how and why you might wish to change them.

What is a CV?

CV stands for Configuration Variable, which is the industry-adopted term for a decoder's user-programmable memory locations. CVs allow you to customize individual decoder properties such as the address, momentum, throttle response, sound volume and much more. Once a CV has been programmed, the setting will be permanently remembered even after the power has been turned off. A CV can be modified as often as necessary by simply reprogramming it with a new value. These adjustments will require an NMRA-compatible DCC system capable of changing CV values.

The factory installed decoders are preset so that they ship with the proper "voices". Items such as the exhaust chuff rate have already been calculated and optimized for the locomotive. The decoder is set to operate immediately using either a 12 Volt DC power pack or NMRA-compatible DCC command station.

Programming Procedure

As each DCC system is different, the procedure for programming a CV will vary depending upon the system. Unfortunately, we cannot provide detailed instructions to cover every command station and have to assume that you have some level of understanding regarding its capabilities and operating procedures. For specific programming procedures, please consult your DCC system manual.

Resetting the CVs or Starting Over

Occasionally, something goes wrong and the sound system will not respond as expected. Usually, this is caused by one or more CVs being programmed to the wrong value. All CVs can be quickly reset to their factory default values using the following procedure.

1. Program CV 8 to a value of 8 using either Service Mode or Operations Mode.
2. Place the locomotive on a powered section of track. If locomotive is already on the mainline, turn power to the track off and then back on.
3. After power is restored to the track there should be no indication of activity for a period of six seconds. If sound comes on immediately upon restoring power, the decoder did not reset. Repeat steps 1 and 2.

4. Once the six-second period has elapsed, the sound should come on indicating that the CVs were successfully reset.
5. The decoder should now respond to short address 3 just as it did when it was first used or installed and all CVs are now reset to their original factory-programmed values (default values).

Sound Volume
CV 128 selects the Master Sound Volume for each character. This adjustment will adjust the overall volume up or down of *all the sounds associated with the character.*

Note: The volume control on the underside of the locomotive must be ON. Make sure that it is turned up enough so that you can hear your changes before entering a value into CV 128.
In addition to the Master Volume CV, the following individual sound volumes can be adjusted:

Sound Volume CVs			
CV	**Description**	**Range**	**Default**
128	Master Volume	0 - 255	125
129	Whistle Volume	0 - 255	195
130	Bell Volume	0 - 255	125
131	Steam Exhaust Volume	0 - 255	150
136	Blowdown Volume	0 - 255	135
137	Steam Release Volume	0 - 255	64

Selecting a Different Character
Please note that not all characters have all sound effects! If for some reason you wish to select a different "character", adjust the value in CV 115 (Character Select CV) as follows:

CV 115, Character Selection	
Character	**CV Value**
Thomas	0
Percy	1
Edward	2
James	3
Henry	4
Gordon	5
Toby	6
Spencer	7
Emily	8

Operating Using a DC Power Pack

While the sound system installed in your Bachmann model is first and foremost a DCC decoder, it may be used on a DC powered layout. When operating in analog mode, you may control your locomotive using an ordinary power-pack though operation will be a bit different than when running non-decoder equipped locomotives.

With the power pack's throttle set to zero, the decoder will be silent as it has no power. The throttle must be turned up to approximately 9 Volts to provide sufficient voltage to power up the internal circuitry of the decoder.

Increasing the throttle further will set the locomotive in motion, increasing speed as the throttle is increased. Note that the direction can only be changed when the locomotive is stopped.

When operating in analog mode, be careful not to exceed the decoder's input voltage rating of 26 Volts. When your track voltage exceeds 28 Volts, the decoder will automatically shut off the sound and motor: back down on the throttle immediately.

Power Supply

Important: Your sound decoder will work best in analog mode when using a high quality, electronically regulated power pack, preferably one that supplies smooth, filtered DC power. Older rheostat style power packs and pulse power packs will result in erratic and unreliable operation and should NOT be used with this sound decoder.

Operating the Model

Once the throttle has achieved sufficient voltage, if the throttle is set to move the locomotive forward, two blasts of the whistle (except Toby) will sound as the throttle is increased.

Increasing the throttle further will set the locomotive in motion, increasing speed as the throttle is increased. The exhaust chuff is synchronized to the speed of the locomotive. Once the locomotive has reached and maintained a constant speed, the whistle will sound approximately every 20 seconds. If the throttle is decreased slowly to stop, you will also hear a steam release effect just before stopping.

Adjusting the Master Volume in DC

Mounted on the bottom of the model is a volume control potentiometer. Turn the knob clockwise to turn on the audio portion of the sound decoder. This will not affect the operation of the motor, but allows you to increase or decrease the overall volume of all the sound effects simultaneously. Turn the knob all the way counter-clockwise to turn the audio off.

Use of the "Polarity" Switch
Due to varying standards, if you are running in analog mode with a DC power pack, you may set the locomotive's default direction of travel with the "polarity" switch under the model. Set to "Large Scale" or "NMRA" according to your preference. When running in DCC, changing this switch has no effect.
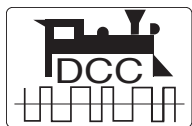
COMPATIBLE WITH
THE NMRA DCC STANDARDS
AND RECOMMENDED
PRACTICES

Troubleshooting Checklist
1. If there is no sound, be sure the volume control knob has not been turned all the way off.
2. If operating in DCC mode, follow the "Starting Over" instructions on page 5 to reset the locomotive to factory default settings.

For service/repair, contact the Bachmann Service Department by visiting www.bachmanntrains.com/home-usa/service.php, calling 1-800-356-3910 (toll-free within the U.S. and Canada), calling 215-533-1600 (for all countries), or emailing service@bachmanntrains.com. Bachmann's Service Department is available Monday through Friday, 8:00 am to 4:00 pm ET.

Please be aware you may need to leave a message on our voice mail system. Your call will be returned as soon as a service technician is available. We thank you in advance for your patience.

You can also send your locomotive to:

Bachmann Trains
Service Department
1400 East Erie Avenue
Philadelphia, PA 19124

Please include a detailed description of your concern and complete contact information. For some service issues regarding DCC sound decoders, the Bachmann Service Department may forward your locomotive to SoundTraxx for resolution.