



Class 101 Locomotive

DCC Sound Information Sheet

Important: Please read this sheet before running your locomotive.

Many thanks for purchasing one of our **Bachmann Branchline** Class 101 DCC Sound fitted multiple unit. Please take the time to read through this sheet carefully before running your multiple unit to ensure you get the most out of your model.

Introduction

The decoder in this locomotive incorporates Back EMF monitoring to ensure fine control of the motor at slow speed. Back EMF is the electromotive force that is generated by the rotation of the motor against the power supply to the motor. By continuous comparison of the Back EMF during operation the decoder can keep the motor turning smoothly at the desired speed.

The decoder settings have been tailored for best performance in conjunction with the sound settings but the handling may differ from a locomotive run with a DC controller. Please take time to familiarise yourself with the performance characteristics and how the speed controller setting affects the locomotive sound.

Features

- High frequency 32Khz pulse power for quiet operation.
- User configurable Back EMF control.
- 6 function outputs to control functions (where fitted) on the locomotive (e.g. lighting).
- Complies with NMRA DCC requirements.
- Automatic detection of speed steps (14, 28, 128 steps).
- 2 digit and 4 digit addresses.
- Overload protection on outputs.
- Program on main or programming track.
- Operable on DC controlled layouts.
- Supports Lenz® brake sections.
- Uses 4ohm speakers only.

Loco Decoder Address.

This model is set with a default decoder address of 3.

Technical Specification

Current carrying capacity	
Motor Output:	1.1A
Function outputs:	250mA each, 280mA Total
Speed steps:	14, 28, 128
Addresses:	1-9999

Running on DC.

The default settings for this model allow it to be run on a DC power supply but with basic engine noise and directional lights only.

Important.

Do not use this locomotive on a layout with an electronic high frequency track cleaner connected.

The decoder will become warm when in use as it contains an audio amplifier.

PWM (pulse width modulation) / Feedback controllers are not recommended to be used with this model.

Hints for Best Results.

The operation of the DCC sound decoder requires that the power supply to the model is not interrupted. Track, wheels and pick-ups should be kept clean and all rail-joiners must give good connections between sections of track.

Improved reliability of DCC performance may be obtained by disabling DC operation of the model, this is controlled by CV29, Bit 2.

Speed Step Graduations.

On DCC the speed graduation between 0 and full speed is broken down into a series of steps. The greater the number of steps the smoother the locomotive operates. **This model comes with a default setting of 28 Speed Steps.**

Options for 14 & 128 Speed Steps are also available, controlled by CV29, Bit 1.

Please note: the use of 14 speed steps is not recommended as it may have an adverse effect on other functions.

DCC Controllers - Trigger & Latch

Some DCC equipment, such as Bachmann E-Z Command Dynamis, allows function keys to be set to either trigger or latch according to user requirements. Please refer to your DCC equipment instructions and use the above information to configure your unit.

Functions

The following functions, both sound effects and decoder performance functions, can be operated by the corresponding function button on the control unit. Functions can be controlled subject to the limit of functions on your DCC controller.

Function List - Class 101

No.	Sound	Feature	Type
F0		Direction & Interior Lights On / Off	Latch
F1	Engine Sound (Start up/Stop)		Latch
F2	Horn 1		Latch
F3	Horn 2		Trigger
F4	Door Slam		Latch
F5	Air Build Up		Latch
F6	Coupling & Brake Pipe Connect		Trigger
F7	Brake Pipe Disconnect & Uncoupling		Trigger
F8	Engine Coasting (On/Off)		Latch
F9	Flange Squeal		Latch
F10		Inertia (On/Off)	Latch
F11	Guard's Whistle, Buzzer & Horn		Latch
F12	Volume Level		Latch
F13	N/A	N/A	Latch
F14	N/A	N/A	Latch
F15	Uncoupling Cycle	Uncoupling Action	Latch

Notes:

Function Type: Trigger and Latch.

Trigger A single use function that will reset automatically.

Latch A continuous function that will require a second button press to stop/reset.

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| F1 | On (one press) Two engine start.
On-Off-On (three presses) Two engine manual start. |
| F2 | Under 2 Sec Press - Plays a single note from a selection.
Over 2 Sec Press - Plays a double note from a selection. |
| F3 | Will play one or two notes from a selection of four sequences. |
| F4 | If cancelled early less doors will slam. |
| F12 | Latch (default) - Mutes and un-mutes the sound.
Trigger (optional) - Increases volume to next pre-set level (1-6).
When on level 6, pressing F12 will return to pre-set level 1. |
| F15 | Units will uncouple if your layout has auto uncouplers. |

Configuration Variables (CV) Programming.

The Configuration Variables (CVs) are the functions and settings of the decoder that can be altered to the users preference, as many times as they wish, using an appropriate DCC command unit or standalone programmer.

A full CV list features in the ESU LokSound Select user guide which is available from www.bachmann.co.uk.

Please note: The default CV values of this decoder have been selected to achieve the best performance from this decoder and locomotive. **Inappropriate CV values may cause the decoder and locomotive to operate in an erratic manner. Values should not be altered unless you have an understanding of DCC decoders. If you have any doubts please take advice from your retailer or Bachmann Europe Plc.**

