



FULL THROTTLE



DIESEL

The Power of Railroading... In **YOUR** Hands

LOKSOUND



New Features and Description

“Full Throttle” Decoder Operation for Diesels

It is often challenging to make a scale model preform like it has the mass of a 260,000lb locomotive pulling 5,000 tons or more! Some of this can be done with BEMF - when the loco “feels” a load, it will automatically rev up to work harder to pull this actual load. But this is often a flawed method in modeling. Today, model train car wheels are so free rolling that they often do not simulate sufficient drag to replicate a typical prototype situation. Also, often we do not sufficiently weigh our cars to represent a scaled-down version of the prototype. One of the biggest problems with BEMF controlled load is due to the fact that in our modeling and operations we often “simulate” loads inside a closed car. The payload inside a prototype car can weigh as much as 100-tons more than the car itself. This is especially important at operating sessions. Empties in and Loads out or vice versa. There is no way for a decoder to know the proposed weight of the cars it is pulling. Our “car cards”, showing whether a car is loaded or empty, are seen only by the operator, not by our decoders!

To compensate for what the decoder cannot know, we have created Full Throttle decoder features! This series of new features includes “Drive Hold”, “Run 8”, “Coast”, improved “Dynamic Brakes” and a new “Independent Brake” feature.

Drive Hold:

This feature allows the modeler to easily simulate a loaded or empty train by adding a single “Drive Hold” function button. When the button is pressed, the motor will remain at a constant speed, while the sound can be controlled independently from the motion with the throttle knob! This exciting, new feature gives the operator the ability to have his or her train crawl in notch 8 or coast at 50mph. Then, by releasing the Drive Hold function button you simply go back to throttle-controlled speed and motion. No more switching between manual notching and programming on the main to go back and forth. All of this can be done on the fly with hardly even thinking about it.

Run 8:

There are times when hauling a heavy train over rolling hills that you may wish to remain in notch 8 at any speed desired. You could have the train slow, as it climbs a steep grade and then speed up upon levelling out. The Run 8 feature will allow for exactly that. Simply press the button and the prime mover will increase RPMs from wherever you are, all the way up to Notch 8 and hold. Once the function button is pressed, the sound is disengaged from the speed. Using the throttle knob you can now speed up or slow down with the sound remaining constant, at full throttle.

Coast:

The opposite of “Run 8”. Often when coming to a stop, the throttle of a real locomotive is put into Idle and the engineer coasts to a stop. Another situation that occurs is that once a train is up to speed when operating over rolling terrain, the engineer can coast to maintain a certain speed. By pressing the coast function button, the sound drops from wherever you are to idle and remains there. Once this function button is pressed, the sound is disengaged from the speed. Using the throttle knob, you can now speed up or slow down the train with the sound remaining constant, at idle.

Brake:

Along with Dynamic Brakes, a locomotive has an Independent Brake as well. This allows for the locomotive to stop more quickly than its regular momentum would normally carry it. LokSound Decoders now also have a working Independent Brake. This one is pretty self-explanatory – just press the brake and come to a stop! While this will work with whatever deceleration settings are in the loco, it tends to work more realistically if the loco has a large amount of deceleration. With these settings the loco will drift or coast much further when the brake is not applied. Then, by applying the brake, the loco will stop in a much shorter distance. As a note, you can now do standing brake tests by keeping the brake on and advancing the throttle knob so the sound of Notch 4 can be heard. In EMDs this is the point at which the Shaft-Driven compressor reaches its second stage, and pumps air faster through the train.

Dynamic Brake:

The ESU Dynamic Brake works like the prototype. Once applied, the sound will drop to idle. Then (once the electricity dissipates from the traction motors) the prime mover will rise depending on the prototype. Most EMDs rise to about notch 4. Other brands will vary. Once the prime mover comes up, the dynamic brake fans will be heard. During this time, a deceleration will be quicker since you “have your dynamic brakes on.” Once you release the button the fan will shut off as the prime mover drops again to idle. After a short delay the prime mover will once again come up to match the speed of your throttle - (other Full Throttle features may affect where your prime mover sound returns after the dynamic brake is turned off.) Please note, if you come to a stop when your dynamic brake is applied, the fan sound will cease and the prime mover will go down to Idle. You will need to turn it off before you begin to move or the cycle will start again. Prototype locomotive dynamics will not work while stopped.

The ESU Dynamic Brake has not really changed much with the new added features. But the new files will now work better when consisted together and using the Dynamic Brake.

Function Mapping

Also since not all locos have dynamics, you will now be able to set up your non-dynamic locos to work correctly with consisted locos using dynamic brakes. The ESU Dynamic Brake Logic Feature does increase the deceleration rate so please take this into account. If your loco does not have dynamic brakes you should still apply the "Dynamic Brake" LOGIC when consisting so that the engine slows with other dynamic brake-equipped locos in consist. If your loco is not equipped with dynamic brakes please choose Sound Slot 21 (Coast) for the sound on the dynamic brake function button. This will have your loco drop the prime mover sound to idle while the dynamic brake-equipped locos in the consist go through the dynamic brake cycles. You should not use the "Shift" logic with non-Dynamic brake locos. Doing so will result in the prime mover rising up to Notch 4. This is not correct for Non Dynamic Brake Locomotives in a consist. It needs to stay at idle.

See the following Figures for Function Mapping examples:

Function mapping

Conditions	Physical outputs	Logical functions	Sounds
Forward, F0	→ Front light [1]: Headlight Front	-	-
Reverse, F0	→ Rear light [1]: Headlight Rear	-	-
F1	→ -	-	Bronze Bell
F2	→ -	Grade crossing	Leslie RSST
F3	→ -	-	Coupler
▶ Drive, F4	→ -	Dynamic brake, Shift Mode	Dynamic Brake
F5	→ AUX3: AUX3 Rotary Beacon	-	-

Figure 1: Default Dynamic Brake Function Mapping

Function mapping

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Forward, F0	→ Front light [1]: Headlight Front	-	-
Reverse, F0	→ Rear light [1]: Headlight Rear	-	-
F1	→ -	-	Bronze Bell
F2	→ -	Grade crossing	Leslie RSST
F3	→ -	-	Coupler
▶ Drive, F4	→ -	Dynamic brake	Coast
F5	→ AUX3: AUX3 Rotary Beacon	-	-

Figure 2: Suggested NON-Dynamic Brake Function Mapping Using the new "Coast" feature

”Full Throttle” Download and Use

Like all LokSound features, these functions can be freely mapped to any function button. Because these are sound- related features they are stored in Sound Slots. You will need to map which sound slot you would like to the function button of your choice. Default with the Full Throttle features will now have “*Drive Hold*” mapped to F9, and “*Independent Brake*” mapped to F10. “**Run 8**” and “**Coast**” will need to be mapped to be used. Please refer to LokSound Select and LokSound V4.0 manuals for General Function mapping instructions.

Sound Slot Locations

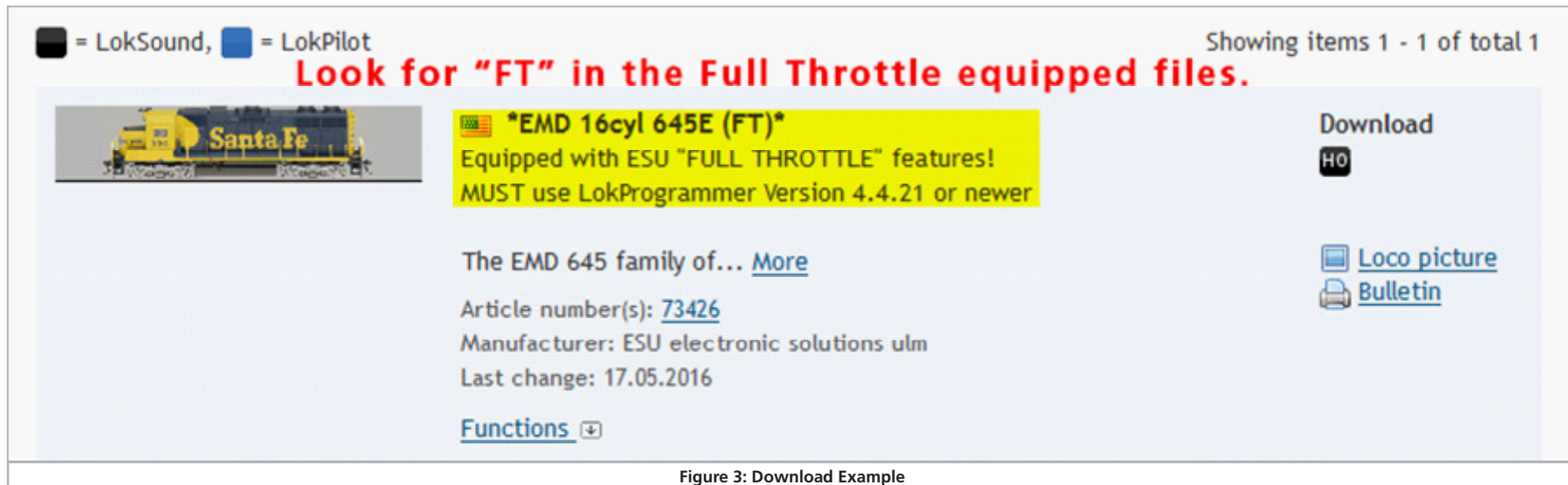
Drive Hold: Sound Slot 2

Independent Brake: Sound Slot 11

Run 8: Sound Slot 20

Coast: Sound Slot 21


“Full Throttle” Availability, Download, and Use



Showing items 1 - 1 of total 1

■ = LokSound, ■ = LokPilot

Look for “FT” in the Full Throttle equipped files.

 ***EMD 16cyl 645E (FT)***
Equipped with ESU “FULL THROTTLE” features!
MUST use LokProgrammer Version 4.4.21 or newer

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The EMD 645 family of... [More](#)

Article number(s): [73426](#)
Manufacturer: ESU electronic solutions ulm
Last change: 17.05.2016

[Functions](#) ⌵

[Loco picture](#)
[Bulletin](#)

Figure 3: Download Example

*Please note- Only sound files with names ending in “FT” (Full Throttle) have the new settings. All existing applicable North American files will eventually get these features. All new applicable files will now be available with these features.- New features will be available in both Select and V4.0 formats. “Full Throttle” sound files MUST be used with LokProgrammer Software Version 4.4.21 or newer.

**Please check the ESU LokSound sound file download pages often to check for updates:

Select: <http://www.esu.eu/en/downloads/sounds/loksound-select/loksound-select-usa/>

V4.0: <http://www.esu.eu/en/downloads/sounds/generation-4/loksound-v40-usa/>

Instructional Videos

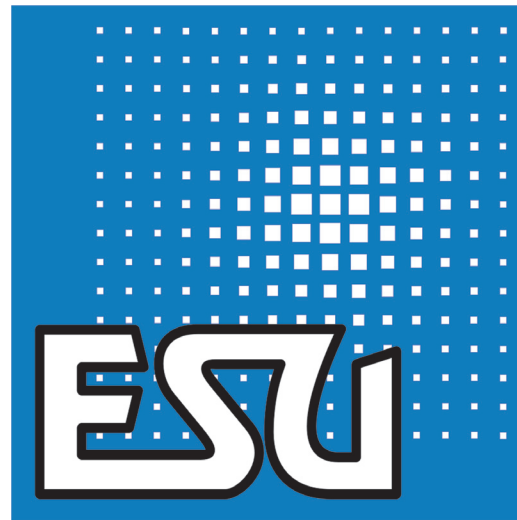
For more info on "Full Throttle" and other features of ESU Products please see our ESU Videos page:

<http://www.esu.eu/en/videos/>

Support

"Full Throttle" is a feature currently in North America Sound files only. For questions concerning these features please refer to:

ESU.LLC.Support@LokSound.com



[www. LokSound.com](http://www.LokSound.com)

