



Data sheet: S0827

Duchess Class

Updated 02/19

The function keys are assigned as follows:

F0 Lights On/Off, F1 Sound On/Off (Slot 1), F2 Multi Whistle, Playable (Slot 7), F3 Ejector, (Slot 14), F4 Blower (Slot 21), F5 Shovelling Coal / Aux 1 (Fire box Led) (Slot 17), F6 Safety Valve (Slot 12), F7 Injectors (Slot 20), F8 Dynamic brake, F9 Flange (Slot 15), F10 Drive Mode (Light or Heavy), Enable shunt whistles F2, F11 Guards Whistle (Slot 10), F12 Drain Cocks (Slot 23), F13 Coupling clank (Slot 8), F14 Handbrake Slot (18), F15 Auto Uncoupling cycle, F16 Master Volume Control, Toggle On/Off to change or leave On for Mute, F17 Water Fill (Slot 25), F18 Shunt mode, F19 Acceleration On/Off, F20 AWS Bell (Slot 22), F21 Firebox Door (Slot 6), F22 Aux 2, F23 Aux 3, F24 Aux 4. Auto sounds, Steam Hiss (Slot 24), Intelli-Brake (Slot 27), Blower (Slot 21). Random Sounds when Stopped, Safety Valve, Injectors, Coal Shovelling.

- Note:** 1) **F15 works great with KD couplings. Turning On will reverse the Loco, Uncouple and move away all at the press of the Key. Direction dependent.**
2) **All bare wires must be insulated to prevent decoder damage**

How to set up your decoder

It is impossible for us to set up this decoder to run perfectly out of the box with every manufactures motor / gearbox combination. However, try it first and should your model run unsatisfactory, following these guidelines will ensure you get the very best running possible. Make sure the decoder has been installed correctly and that any unused wires are insulated and all track, wheels and pick-ups are clean.

Step:

1. Make sure your system is set to run on 128 speed steps to obtain the very best from this decoder.
2. With sound OFF, Set up the motor load control CV's 51 – 55. (info sheet available for download)
3. Set up speed required with CV's 2 – 6, or speed curve 67 - 94.
4. With sound ON re-sync the chuff rate with CV's 57, 58. (info sheet available for download)
5. Adjust volume levels. (info sheet available for download)

Notes:

1. Read CV's and make a note of their value before making any changes. However should you make a mistake changing CV 08 with a value of 08 will reset all CV's to SWD factory default. (As supplied)
2. No brake squeal if loco speed < 20%.
3. **Sound sync CVs for OO 57 = 47 & 58 = 12.**
- 4.

Getting the most out of your model.

We have created this project to further enhance your driving experience and allow you more interaction with your model.

Users of older DCC systems with a limited number of readily accessible F Keys will now find ours have been rearranged to give access to important functions without the need for re – mapping.

Please see the reverse of this sheet for a quick start guide, or see separate sheet for detailed driving instructions.

Have fun.

Caroline, Steve

(For further help & Advice please see our website: www.southwestdigital.co.uk)

SWD the *REAL* Sound in your loco - **NOW** with '**U**' Drive

Congratulations, you now have the best sound decoder you can buy with the latest and most versatile sounds available for British locos. This is as near as you can get to the correct sounds and methods of driving a model steam loco. With our **unique algorithm**, you have the very latest features inc, '**U**' Drive, not available anywhere else. Drive it hard, drive it gently, it's all up to you.

So it's early morning and you arrive at the loco shed to pick up the loco allocated to you for today's trip. You find the loco – today a **Duchess** – waiting for your first command. On your controller, select the appropriate address for the loco, (Default 03). **Press F1**. This will bring your loco to life and you will hear the gentle simmering sound of a steam loco at rest. **Press F4**. You will now hear also the locomotive's blower. The fire has been lit and the loco oiled round by the preparation crew, but now it is time for you to ready it for its day's work. **Press F5**. Now the sound of the fire door opening and the fireman shovelling coal into the fire can be heard. When sufficient coal has been fired onto the growing fire, **Press F5 again** to close the fire door. **Press F7** and you can hear the injector topping up the boiler with water, **Press F7** again to turn off the injector when you have put sufficient water into the boiler. Before you move off, be sure you have sufficient vacuum to safely operate the brakes. **Press F3** and you will hear the ejector working to create the vacuum and can be turned Off when required. Keep the blower on whilst all this has been going on. Turn the blower off (**Press F4**) and you are now ready for the road.

This is where you discover one of the latest features of your **SWD** sound decoder. You have two sound ranges to choose from. Since we are only moving the loco off shed and towards the station and your train, we shall be driving gently at first, so **Press F10**. The engine is currently known as being 'cold' – that is not fully warmed through – and there is probably condensate (water) in the valve chests and cylinders. We must clear this, so as not to damage the engine. Now open your controller, as you do so for the first time, you will immediately hear the loud hiss of steam passing through the cylinders and out to atmosphere via the cylinder drain cocks. As you move off the sound of the drain cocks will prototypically stop as you hear the engine gently chuffing along. When you reach the station, couple onto your train **Press F13** and prepare to leave. When ready, **Press F11** to hear the Guard's whistle, **Press F11 again** and the Driver replies with a single or double toot on the loco whistle. Now you are ready to go. **Press F10** and the loco will no longer behave in a gentle manner. With your controller start the train and enjoy the sound of your loco 'barking' loudly as it gets the train away and accelerates to whatever speed you choose. At high speed it will purr along. When you have reached the required speed, the sound will fall back automatically to that of a loco still pulling but in a notched-up manner. Increasing the throttle will return to a loud bark or If you wish to simply coast, turn back your controller one notch (this will vary slightly with differing makes of control equipment) and the loco will continue to run at whatever speed you set but you will only hear the sounds of a loco coasting, particularly the blower and vac pump. You can coast at any desired speed right down to bringing the train to rest. If you do so, the blower will remain on for short while then turn off. However this can be over ridden by **Pressing F4 when the blower will stay on**.

You can move between the two sounds (gentle or hard driving) at any time you choose with **F10**. You can also alter the overall volume via **F16**. This raises the volume in 5 steps and then returns to quiet again. We recommend that you play with the various facilities available to you – **Press F10** when running fast and hear your loco still pulling but somewhat more gently; **Press F9** when slowly moving around sharp curves in your station area and hear the flanges squeal against the rail; **Press F6** to hear the sound of the safety valve; **Press F2** to hear the playable whistles (**it continues as long as you hold down F2**).

We are sure you will enjoy using this latest SWD creation.

Detailed driving instructions

(F0) Lights

(F1) Sound On/Off

Driving. Opening your throttle will take power to the throttle position. When you have reached the required speed, the sound will fall back automatically to that of a loco still pulling but in a notched-up manner. Increasing the throttle will return to a loud bark whilst reducing your throttle a couple of digits (this will vary between different systems) will cause your loco to coast, where it will stay until the Loco stops or the throttle is increased. You can open your throttle whilst coasting and the exhaust sound will return to the throttle position. Likewise reducing the throttle will coast as above. **Turning F1 ON/Off on the move will fade sound In / Out.**

(F2) Whistle **Three whistles are possible as follows:**

Whistles 1 is playable when used whilst moving.

Whistles 2 & 3 are random toots when used whilst stationary.

(F3) Ejector The Ejector will create vacuum and can be turned On/Off at any time when either Stationary or at very low speed.

(F4) Blower The Blower can be played at any time. However this will automatically play when coasting.

(F5) Shovelling Coal F5 On/Off, Aux 1 is also set up as a Firebox flicker.

(F6) Safety valve F6 On/Off will turn the safety valve On/Off

(F7) Injectors F7 On/Off will turn the injectors On/Off

(F8) Dynamic Brake This is a **NEW** positive brake regardless of throttle position, the higher the value in CV 179 the quicker you will stop. Max value 255. F8 ON will look at the value in CV 179 (default 64) 25%. Turning Off F8 your throttle will again look at the value in CV4 (default 100) when slowing down. With a higher value in CV4 you can adjust CV179 to your liking therefore when coasting to a stop, will feel more prototypical.

(F9) Flange squeal This will not work when stationary, speed dependant.

(F10) Drive mode

Turning on F10 will allow you to drive with very light chuffs, ideal for a station pilot or light shunting. You can turn off at any time to automatically return to the main exhaust sound.

(F11) Guards whistle

Turning on when stationary will randomly blow one of two guards whistles and pause. When turned Off, the driver replies with either a single or double toot.

(F12) Drain cocks A continuous sound will play whilst stationary, but will be synchronised whilst moving.

(F13) Coupling F13 On/Off will play once

(F14) Handbrake When stationary with F14 On, the sound of the handbrake going On will play. **Loco will not move until F14 Off.** F14 off handbrake coming off will play.

(F15) Uncoupling cycle

Works great with KD couplings. Turning On will reverse the Loco, Uncouple and move away all at the press of the Key. Direction dependent. (Use with F10 on for more effect)

(F16) Master volume

Master Volume Control, Toggle On/Off to change or leave On for Mute

(F17) Water Fill	On/Off will play the water tower filling sound
(F18) Shunt mode	If On will reduce speed.
(F19) Acceleration mode	On will disable CVs 3 / 4
(F20) AWS Bell	Turning On will play the AWS Bell once. Turn Off to reset.
(F21) Fire Box door	Open/Close also Aux 1 firebox flicker
(F22) Aux 2	Purple wire. If not used insulate or Remove. In order to change the output voltage, adjust CVs as follows: CV 31 = 16, 32, = 0, 286 = (Default 15) Max value 31
(F23) Aux 3	Turquoise wire. If not used insulate or Remove. In order to change the output voltage, adjust CVs as follows: CV 31 = 16, 32, = 0, 294 = (Default 15) Max value 31
(F24) Aux 4	Pink wire. If not used insulate or Remove. In order to change the output voltage, adjust CVs as follows: CV 31 = 16, 32, = 0, 302 = (Default 15) Max value 31

Automatic Features

Coast sound inc rod clank **(Note: This is NOT the same as ESU's coast feature using an F key)**

Reducing your throttle a couple of digits (this will vary between different systems) will cause your loco to coast, **where it will stay until the Loco stops or the throttle is increased.** You can open your throttle whilst coasting and the exhaust sound will return to the throttle position. Likewise reducing the throttle will coast as above.

Drain cocks

When you come to rest, wait for the blower to go off and then wait for a further period of 30 sec or more when you next open your throttle the drain cocks sound, will vary in length automatically.

Intelli-Brake

Intelli-Brake will automatically apply the brake sound as you come to rest.

- 1) By reducing your throttle to zero whilst coasting will automatically apply the vacuum release sound.
Or
- 2) By reducing your throttle manually a little at a time allows you to apply the vacuum release as you step down.

Random Sounds

When stationary Safety valve simmer will play and cancel with Injectors.
Shovelling Coal.

Power Pack

Run time can be adjusted with CV 113 Default = 40 (1.31 sec) Max value = 255 (8.36 sec)

Speaker

If supplied with the ESU sugar cube speaker, the sound chamber is a kit, allowing you to make up what depth you require. We suggest that Plastic weld is used but care must be taken around the speaker.

Volumes

Before making any Volume changes make sure index CV 32 = 1

Individual volume range is between 0 – 128 and can be changed as follows:

F Key	Slot	Description	CV	Value
1	1	Engine	259	96
-	2	-	267	-
-	3	-	275	-
-	4	-	283	-
-	5	-	291	-
21	6	Firebox Door	299	32
2	7	Multi Whistle	307	128
13	8	Couple Up	315	64
-	9	Rod Clank	323	96
11	10	Guards Whistle	331	64
-	11	-	339	-
6	12	Safety valve	347	64
-	13	-	355	-
3	14	Ejector	363	32
9	15	Flange Squeal	371	96
-	16	-	379	-
5	17	Coal Shovelling	387	32
14	18	Handbrake	395	64
23	19	Eng Toot	403	128
7	20	Injector	411	64
4	21	Blower	419	64
20	22	AWS Bell	427	32
12	23	Drain cocks	435	64
-	24	Steam	443	96
17	25	Water Fill	451	32
-	26	-	459	-
-	27	Intelli-Brake	467	64
-	28	-		-
-	29	-		-
-	30	Random Coal	491	32
-	31	Random SV	499	64
-	32			
Before making any Volume changes to Slot 033 make sure index CV 32 = 2				
-	33	Brake Squeal	259	32