Specialist in custom DCC installs... sound - lighting - smoke - crew - detailing - coach lighting & population

YouChoos Individual Model Locomotives

YouChoos *DCC Sound*

immersive Drive

Certificate & Quick Reference

Thank-you for purchasing a YouChoos sound decoder!

This certificate provides specific details of your decoder including your unique build number. Each sound decoder I load is individually catalogued and assigned a unique certificate, indicating the load date and an individual code...

Your decoder has unique number: E350-TEMPLATE-1077

YouChoos Sounds
EMU Class 350/1 Desiro

DCC Address: 3



Included in this package:

PART NUMBER	YouChoos Sounds - EMU Class 350/1 Desiro YC-E350
DECODER	MS series - template
SPEAKER	N/A - template

Functions:

FKey	Category	Action
F0fwd:	LIGHT	FOfwd Forward lights
F0rev:	LIGHT	F0rev Reverse lights
F1:	SOUND	Running Sounds
F2:	ACTIVE BRAKE	Active Brake
F3:	SOUND	Horn
F4:	SOUND	Horn 2
F5:	SOUND	Heavy Acceleration
F6:	LIGHT	FA1
F7:	SOUND	Primer
F8:	SOUND	SetOff 2
F9:	SOUND	Guard's Whistle
F10:	SOUND	Warning Buzzer
F11:	SOUND	Compressor
F12:	LIGHT	FA2
F13:	SOUND	Announcement
F14:	SOUND	Wheel Flange
F15:	SOUND	Announcement 2
F16:	SOUND	Single Door Slam
F17:	SOUND	Doors Pneumatic
F18:	SOUND	Horn 6
F19:	SOUND	Mute
F20:	SHUNT + HALF SPEED	Shunting Mode / Half Speed
F21:	SOUND	Horn 4
F22:	SOUND	Horn 3
F23:	SOUND	Doors Closing with Beeps
F24:	SOUND	Announcement 3
F25:	SOUND	Horn 5
F26:	SPEEDLOCK	SpeedLock
F27:	VOLUME	Volume Decrease
F28:	VOLUME	Volume Increase

All functions are ON/OFF.

Feature Notes:

Active Braking – To slow down, choose the desired speed on the throttle, then use the Brake key to control the slow-down to that speed If you prefer more traditional throttle-based braking, simply decrease the value in CV#4, or even simpler: leave ACTIVE BRAKE switched on all the time!

Shunt Mode – Momentum/Inertia is reduced to ¼ the normal effect and the throttle range is halved to simulate driving light-engine.

Quick Select – For steam, switches from standard chuff sounds to light-engine where chuffs are quieter. For hybrid locomotives, switches engine type – usually effective only at standstill. Some steam projects contain a 'QuickSelect#2' which normally gives heavier chuffs compared to the default. For diesel, sometimes provided for alternative cold start.

Solo – usually defined on the same key as QuickSelect for light-engine on a steam loco – has various effects including reducing the effect of momentum.

SpeedLock – while the SpeedLock key is switched on, the throttle will control the engine sounds only, and leaves the physical speed of the motor unchanged.

NotchUp – for diesel/electric projects, the NotchUp key will raise the base engine level to notch 1 when standing idle. Switch off to return to idle. Has no effect while in motion. Allows you to manually rev the engine up.

Coast – for diesel/electric sounds, the Coast key brings the base engine level down to idle, regardless of the current speed. Switch off to return to speed-dependent engine level.

LowBeam – for some projects, a LowBeam key is provided which dims the forward-motion headlights.

Mute – Fades all sounds out to silent until unmuted, where sounds will be faded back to their previous level.

Volume Up/Down – Overall volume level will be decreased / increased gradually while VOLUP / VOLDOWN is switched on, eventually reaching silent or the maximum defined in the project (usually around 90%). Affects CV#266 master volume level. If you lose sound, check that you haven't simply reduced the volume to silent! Default is recommended around 65%.

Dynamic / Exponential Inertia – Linear throttle-to-speed response is not particularly realistic, so speed change is exponential as speed increases, simulating slow starts from standstill. Similarly, harder throttle requests will result in faster acceleration. This is all built-in to the project working automatically on your throttle requests.

Looping Sounds – Some sounds are looping and will continue repeating until that function is switched off.

Steam Chuff Rate – Use CV#267 to adjust the chuff rate to match wheel rotation.

Random Sounds – Some sounds may be configured to play at random intervals, usually at reduced volume.

IMPORTANT – WARRANTY INFORMATION!

Damage caused by mishandling, short-circuit, or undue force is NOT covered by warranty. Normally, a repair/replacement charge will be levied in such cases. Decoders are delicate, so please handle with care. The most common cause of damage is caused by excessive force on wires, or by short-circuit via the speaker output. Also be careful that the coloured coating on the wires does not get pulled back exposing bare wire at the solder pads, thus increasing risk of short-circuit.

More Information on Your Sound Decoder

User Sound Assignments

The following table lists the sound effect files loaded onto your decoder, with their unique sample numbers which are used in CVs to assign a sound to a specific feature. Where a sound has no Function Key listed, this indicates that it is an additional sound included in your project which you can manually assign instead of another sound – for example, an alternative whistle/horn which you can swap in for one of the default ones. Please refer to the supplied CV Table document where you can see which CV is used to assign a sound to each Function Key (starts at CV#513).

Of course there are many more sound files that make up your project, such as engine sounds, braking, set-off etc., but these are not included here – only those that are available as user sounds, assignable to Function Keys.

Random Sounds

Zimo decoders include 8 random sound generators, Z1 to Z8, which are also indicated here along with the sample number assigned to them, and whether they are to be played randomly at standstill, in motion, or both.

Likewise, please refer to the CV Table document supplied with your YouChoos sound decoder to see which CVs are used in random sound definition (CVs#744 to 767 and CVs#315 to 338).

Effect Sound Sample Number	Name	Looping	Function Key(s)	Random Generator	Random at Standstill	Random in Motion
19	Horn		F3 (CV#519)			
20	Horn 2		F4 (CV#522)			
21	Horn 3		F22 (CV#679)			
22	Horn 4		F21 (CV#676)			
23	Horn 5		F25 (CV#688)			
24	Warning Buzzer		F10 (CV#540)			
25	Single Door Slam		F16 (CV#558)			
26	Doors Pneumatic		F17 (CV#561)			
27	Doors Closing with Beeps		F23 (CV#682)			
28	Compressor	Loops	F11 (CV#543)			
29	Primer		F7 (CV#531)			
30	Heavy Acceleration		F5 (CV#525)			
31	SetOff 2		F8 (CV#534)			
32	Wheel Flange		F14 (CV#552)			
33	Announcement		F13 (CV#549)			
34	Announcement 2		F15 (CV#555)			
35	Announcement 3		F24 (CV#685)			
36	Guard's Whistle		F9 (CV#537)			
37	Horn 6	Loops	F18 (CV#564)			
38	Rail Clack	Loops				
39	Wheel Flange 2	Loops				
40	Wheel Flange 3	Loops				
41	Announcement 4					
42	Announcement 5					
43	Announcement Birmingham					
44	Announcement Euston					
45	Announcement Tring					

Remember, you can always reset to the project's original configuration if you make a mess, by sending CV#8=8, though note that the DCC Address of the decoder will also be reset (normally back to 3)!

Physical AUX Outputs

The table below states how the physical outputs (for lighting etc.) are configured in your decoder. Outputs that are assigned for FKey0-12 are achieved with Zimo Extended Function Mapping (where CV#61=97). For any outputs assigned to FKeys above FKey12, Swiss Mapping (also known as Zimo Advanced Mapping) is used instead (not shown in this table).

Physical Output	Wire Colour (if wired)	FKey	Effect / Direction	Notes
F0Fwd	WHITE	FKey0FWD	Constant (simple ON/OFF)	FOfwd Forward lights
F0Rev	YELLOW	FKey0REV	Constant (simple ON/OFF)	F0rev Reverse lights
FA1	GREEN	FKey6	Constant (simple ON/OFF)	FA1
FA2	BROWN	FKey12	Constant (simple ON/OFF)	FA2

E350-TEMPLATE-1077 - YouChoos Sounds - EMU Class 350/1 Desiro

CV List MS series - template – Configuration Values at shipping time

CV	Description	Value
1	Short Address	3
2	Starting voltage	1
3	Rate of acceleration	20
4	Rate of deceleration	100
5	Maximum speed	1
6	Middle speed	1
7	Version Number (Part1)	5
8	Manufacturer Id / HARD RESET	145
9	Motor frequency	55
10	EMF Feedback cut-off	0
12	Operation Types - disable specific protocols	5
13	Analog mode active functions F1-F8	3
14	Analog functions and Inertia	195
17	Extended address (byte 1)	0
18	Extended address (byte 2)	0
19	Consist Address - high	0
20	Consist Address - low	0
21	Consist functions for F1 - F8	0
22	Consist functions F0 & F9-F12 + DC Inertia	0
23	Acceleration trimming	0
24	Deceleration trimming	0
27	Direction dependent stops (Lenz ABC)	0
28	RailCom Configuration	3
29	Configuration bits - decoder properties	14
31	Index page - high	0
32	Index page - low	0
33	Function mapping F0 forward	1
34	Funtion mapping F0 reverse	2
35	Function mapping F1	0
36	Function mapping F2	0
37	Function mapping F3	0
38	Function mapping F4	0
39	Function mapping F5	0
40	Function mapping F6	4
41	Function mapping F7	0
42	Function mapping F8	0
43	Function mapping F9	0
44	Function mapping F10	0
45	Function mapping F11	0
46	Function mapping F12	8
49	HLU acceleration	0
50	HLU deceleration	0
51	HLU limit HU	20
52	HLU limit U	40
53	HLU limit UL	70
54	HLU limit L	110
55	HLU limit LF	180
56	Back-EMF control (P and I values)	55
57	Voltage reference	0
58	Back-EMF intensity	255
59	HLU delay	5
60	Reduced function output voltage (Dimming)	50
61	Special ZIMO function mapping	97
62	Effects dimming	0
63	Effects cycle	62
64	Effects ditch	0
65	Version Number (part2) sub-version	29
66	Directional speed trimming - FWD	0
67	Free speed curve	4
68	Free speed curve	7
69	Free speed curve	10
70	Free speed curve	13
71	Free speed curve	16
72	Free speed curve	20
73	Free speed curve	24
74	Free speed curve	28
75	Free speed curve	32
76	Free speed curve	36
77	Free speed curve	42
78	Free speed curve	48
79	Free speed curve	54
80	Free speed curve	60
81	Free speed curve	68
82	Free speed curve	76
83	Free speed curve	84
84	Free speed curve	92
85	Free speed curve	102
86	Free speed curve	112
87	Free speed curve	124
88	Free speed curve	136
89	Free speed curve	152
90	Free speed curve	168
91	Free speed curve	188
92	Free speed curve	208
93	Free speed curve	230
94	Free speed curve	252
95	Directional speed trimming - REV	0
97	Consist FKey	0
100	Current asymmetry	0
101	Comparison asym. offset	0
102	SUSI Slave 3	0
105	User CV / ManuId	145
106	User CV / Provider Id	13
107	Light suppression on cab side 1 - front	0
108	Light suppression on cab side 2 - rear	0
109	Automatic unilateral light suppression	0
110	Automatic unilateral light suppression	0
111	Emergency stop deceleration rate	0
112	Special ZIMO configuration bits	0
113	EMF reduction - compensation	0
114	Dimming mask	255
115	Uncoupler control (KROIS and ROCO couplers)	0
116	Automated uncoupling procedure	0
117	Flasher functions	0
118	Flashing mask	0
119	Low beam mask for F6	0
120	Low beam mask for F7	0
121	Exponential acceleration	11
122	Exponential deceleration	11
123	Adaptive acceleration and deceleration	22
124	Shunting key functions and SUSI	2
125	Special effects F0FWD	0
126	Special effects F0REV	0
127	Special effects FuncOutput1	0
128	Special effects FuncOutput2	0
129	Special effects FuncOutput3	0
130	Special effects FuncOutput4	0
131	Special effects FuncOutput5	0
132	Special effects FuncOutput6	0
133	FO4 as Cam sensor Or FO4 as fan of smoke generators of steam engines.	0
134	Asymmetrical stopping ABC	106
135	Km/h – Speed regulation	0
136	Railcom mph factor	24
137	Smoke generator voltage - standstill	0
138	Smoke generator voltage - cruising	0
139	Smoke generator voltage - acceleration	0
140	Constant braking distance - config	0
141	Constant braking distance - distance	20
142	High speed correction - ABC	5
143	High speed correction - HLU	0
144	Programming and update lock - not in MS	0
145	Experimental - Alternative motor control method	0
146	Compensation for gear back-lash	0
147	BackEMF I-value (Integral)	141
148	BackEMF D-Value (Differential)	100
149	BackEMF P-Value (Proportional)	141
150	Experimental motor reg - deviation control	0
151	Motor brake and reduce motor BackEMF in Consist	0
152	Dim Mask 2 - FO7-FO12, RiBi	0
153	Stop time after DCC signal loss	0
154	Zimo configuration part 2	0
155	FKey for half-speed	20
156	FKey for deactivating momentum	20
157	FKey for MAN function	0
158	Sound/RailCom config	0
159	Special effects FuncOutput7	0
160	Special Effects FuncOutput8	0
161	Servo outputs: Protocol	0
162	Servo 1 - Left stop	49
163	Servo 1 - Right stop	205
164	Servo 1 - Center position	127
165	Servo 1 - Rotating speed	10
166	Servo 2 - Left stop	49
167	Servo 2 - Right stop	205
168	Servo 2 - Center position	127
169	Servo 2 - Rotating speed	10
170	Servo 3 - Left stop	49
171	Servo 3 - Right stop	205
172	Servo 3 - Centre position	127
173	Servo 3 - Rotating speed	10
174	Servo 4 - Left stop	49
175	Servo 4 - Right stop	205
176	Servo 4 - Centre position	127
177	Servo 4 - Rotating speed	10
179	DC speed adjustment	0
180	Motor reg EMK-difference max	0
181	Servo 1 - FKey assignment	0
182	Servo 2 - FKey assignment	0
183	Servo 3 - FKey assignment	0
184	Servo 4 - FKey assignment	0
185	Special assignment for live steam engines	0
186	Pantograph 1 - FKey assignment	0
187	Pantograph 2 - FKey assignment	0
188	Pantograph 3 - FKey assignment	0
189	Pantograph 4 - FKey assignment	0
190	Brightening up times	0
191	Dimming down time	0
193	ABC commuting with stopping times in reverse	0
194	ABC commuting with additional pit-stops	0
195	Special effects FuncOutput9	0
196	Special effects FuncOutput10	0
197	Special effects FuncOutput11	0
198	Special effects FuncOutput12	0
199	Special effects FuncOutput13	0
201	SUSI#1 Configuration	0
202	SUSI#2 Configuration	0
203	IN1/IN2 Configuration	0
204	IN3/IN4 Configuration	0
248	Bootloader version	0
249	Bootloader subversion	0
250	Decoder ID	0
251	Decoder ID	0
252	Decoder ID	0
253	Decoder ID	0
254	Project Number	188
255	SubProject Number High Byte	-4
256	SubProject Number Low Byte	-53
260	Load Code P1	0
261	Load Code P2	0
262	Load Code P3	0
263	Load Code P4	0
264	Variable low voltage (large scale)	0
265	Loco type selection	101
266	Total volume	75
267	Chuff rate (using virtual cam)	90
268	Switching to real cam sensor	0
269	Lead-chuff accentuated	0
270	Longer chuff length at very low speeds	0
271	Overlapping effect at high speed	16
272	Blow-off duration	50
273	Delayed start after blow-off	20
274	Blow-off schedule	30
275	Engine (chuff) sound volume at low speed	175
276	Engine (chuff) sound volume at high speed and no-load	150
277	Degree of volume change under load for driving (chuff) sound.	25
278	Load change threshold	1
279	Reaction time to load change	1
280	Load influence (DIESEL)	10
281	Acceleration threshold for full load sound	1
282	Duration of acceleration sound	50
283	Engine sound volume at full acceleration	255
284	Threshold for deceleration sound	1
285	Duration of reduced volume on deceleration	50
286	Volume level during deceleration	125
287	Brake squeal threshold	55
288	Minimum driving time before brake squeal	50
289	Thyristor - stepping effect	1
290	Thyristor - pitch at medium speed	20
291	Thyristor - pitch at max speed	100
292	Thyristor - speed step for pitch increase	10
293	Thyristor - volume at cruising	2
294	Thyristor - volume during acceleration	255
295	Thyristor - volume during deceleration	1
296	eMotor - highest volume	255
297	eMotor - speed when audible begins	15
298	eMotor - speed for full volume	50
299	eMotor - pitch dependent on speed	100
300	Enter OpsMode	0
301	Inc/Dec programming of CVs	0
302	Start Calibration Mode/Sequence	0
303	Switching input 1 - key/options	0
304	Switching input 2 - key/options	0
305	Switching input 3 - key/options	0
306	Switching input 4 - key/options	0
307	Cornering squeals or reed configuration	0
308	Cornering squeal FKey	0
309	Brake Key	2
310	On/off key for engine and random sound	1
311	On/off key for function sound	0
312	Blow-off key	0
313	Mute key	119
314	Mute fade in/out time	0
315	Minimum interval for random generator Z1	40
316	Maximum interval for random generator Z1	100
317	Playback length for random generator Z1	0
318	Minimum interval for random generator Z2	45
319	Maximum interval for random generator Z2	105
320	Playback length for random generator Z2	0
321	Minimum interval for random generator Z3	50
322	Maximum interval for random generator Z3	110
323	Playback length for random generator Z3	0
324	Minimum interval for random generator Z4	55
325	Maximum interval for random generator Z4	115
326	Playback length for random generator Z4	0
327	Minimum interval for random generator Z5	60
328	Maximum interval for random generator Z5	120
329	Playback length for random generator Z5	0
330	Minimum interval for random generator Z6	65
331	Maximum interval for random generator Z6	125
332	Playback length for random generator Z6	0
333	Minimum interval for random generator Z7	70
334	Maximum interval for random generator Z7	130
335	Playback length for random generator Z7	0
336	Minimum interval for random generator Z8	75
337	Maximum interval for random generator Z8	135
338	Playback length for random generator Z8	0
339	NotchUp 1st FKey	0
340	Notch level and extra Notch FKeys	1
341	Switch input 1 Playback time	0
342	Switch input 2 Playback time	0
343	Switch input 3 Playback time	0
344	Follow-up time for fan noise	0
345	Quick-select FKey	0
346	Switch collection conditions	3
347	Switch-over key for solo driving	0
348	Switch-over parameters	0
349	Brake Time	10
350	Delay of switchgear sound after start up - ELECTRIC	0
351	Smoke fan speed at steady speed	0
352	Smoke fan speed at acceleration and motor start-up - DIESEL	0
353	Automatic shut-down of smoke generator	0
354	Steam chuff frequency at step 5	0
355	Exhaust fan speed at stand-still (steam and diesel)	0
356	Speedlock Key	26
357	Thyristor - lowering volume at high speed	0
358	Thyristor - volume reduction curve at high speed	0
359	Duration of Electric switch gear sound on speed changes	5
360	Electric switchgear duration on coming to stop	5
361	Switch gear sound - Playback delay - ELECTRIC	1
362	Thyristor - Switchover threshold for second thyristor sound	0
363	Switch gear sound - Dividing the speed into shift steps - ELECTRIC	0
364	Speed drop during upshifts (diesel with mechanical transmission)	10
365	Upshift rpm (diesel mechanical)	10
366	Turbo - max volume	125
367	Turbo - dependency on speed	25
368	Turbo - dependency on acceleration	5
369	Minimum load for turbo	5
370	Turbo - frequency increase	50
371	Turbo - frequency decrease	100
372	eMotor - volume dependent on speed	255
373	eMotor - volume dependent on braking	50
374	Coasting-Key (or Notching)	0
375	Coasting-Step (or Notching)	0
376	Driving sound	255
377	Volume - large scale decoders	0
378	Likelihood of switchgear sparks during accel	0
379	Likelihood of switchgear sparks during decel	0
380	Manual electric brake key	0
381	Electric brake - minimum speed	30
382	Electric brake - maximum speed	255
383	Electric brake - Pitch according to speed	0
384	Electric brake – Deceleration threshold	40
385	Electric brake – Hill descent	0
386	Electric brake – loops	8
387	Influence of accel to diesel sound steps	64
388	Influence of decel to diesel sound steps	64
389	Limit accel influence over diesel sound steps	30
390	Momentum reduction when driving solo	0
391	Driving with idle sound, when driving solo	0
392	Switch input 4 Playback time	0
393	Zimo Config 5 - switch inputs	0

394	Switchgear flash with sound plus Blending	16
395	Max Volume via FKey volume adjust	85
396	FKey to reduce volume	27
397	FKey to increase volume	28
398	Steps to trigger Automatice Coasting	25
399	Rule 17 speed dependent headlights	0
400	Input mapping for internal F0	0
401	Input mapping for internal F1	0
402	Input mapping for internal F2	0
403	Input mapping for internal F3	0
404	Input mapping for internal F4	0
405	Input mapping for internal F5	0
406	Input mapping for internal F6	0
407	Input mapping for internal F7	0
408	Input mapping for internal F8	0
409	Input mapping for internal F9	0
410	Input mapping for internal F10	0
411	Input mapping for internal F11	0
412	Input mapping for internal F12	0
413	Input mapping for internal F13	0
414	Input mapping for internal F14	0
415	Input mapping for internal F15	0
416	Input mapping for internal F16	0
417	Input mapping for internal F17	0
418	Input mapping for internal F18	0
419	Input mapping for internal F19	0
420	Input mapping for internal F20	0
421	Input mapping for internal F21	0
422	Input mapping for internal F22	0
423	Input mapping for internal F23	0
424	Input mapping for internal F24	0
425	Input mapping for internal F25	0
426	Input mapping for internal F26	0
427	Input mapping for internal F27	0
428	Input mapping for internal F28	0
430	Swiss Mapping Group 1 FKey	0
431	Swiss Mapping Group 1 MKey	0
432	Swiss Mapping Group 1 Forward 1st AUX	0
433	Swiss Mapping Group 1 Forward 2nd AUX	0
434	Swiss Mapping Group 1 Reverse 1st AUX	0
435	Swiss Mapping Group 1 Reverse 2nd AUX	0
436	SMG Group 2 FKey	0
437	SMG Group 2 MKey	0
438	SMG Group 2 Forward 1st AUX	0
439	SMG Group 2 Forward 2nd AUX	0
440	SMG Group 2 Reverse 1st AUX	0
441	SMG Group 2 Reverse 2nd AUX	0
442	SMG Group 3 FKey	0
443	SMG Group 3 MKey	0
444	SMG Group 3 Forward 1st AUX	0
445	SMG Group 3 Forward 2nd AUX	0
446	SMG Group 3 Reverse 1st AUX	0
447	SMG Group 3 Reverse 2nd AUX	0
448	SMG Group 4 FKey	0
449	SMG Group 4 MKey	0
450	SMG Group 4 Forward 1st AUX	0
451	SMG Group 4 Forward 2nd AUX	0
452	SMG Group 4 Reverse 1st AUX	0
453	SMG Group 4 Reverse 2nd AUX	0
454	SMG Group 5 FKey	0
455	SMG Group 5 MKey	0
456	SMG Group 5 Forward 1st AUX	0
457	SMG Group 5 Forward 2nd AUX	0
458	SMG Group 5 Reverse 1st AUX	0
459	SMG Group 5 Reverse 2nd AUX	0
460	SMG Group 6 FKey	0
461	SMG Group 6 MKey	0
462	SMG Group 6 Forward 1st AUX	0
463	SMG Group 6 Forward 2nd AUX	0
464	SMG Group 6 Reverse 1st AUX	0
465	SMG Group 6 Reverse 2nd AUX	0
466	SMG Group 7 FKey	0
467	SMG Group 7 MKey	0

468	SMG Group 7 Forward 1st AUX	0
469	SMG Group 7 Forward 2nd AUX	0
470	SMG Group 7 Reverse 1st AUX	0
471	SMG Group 7 Reverse 2nd AUX	0
472	SMG Group 8 FKey	0
473	SMG Group 8 MKey	0
474	SMG Group 8 Forward 1st AUX	0
475	SMG Group 8 Forward 2nd AUX	0
476	SMG Group 8 Reverse 1st AUX	0
477	SMG Group 8 Reverse 2nd AUX	0
478	SMG Group 9 FKey	0
479	SMG Group 9 MKey	0
480	SMG Group 9 Forward 1st AUX	0
481	SMG Group 9 Forward 2nd AUX	0
482	SMG Group 9 Reverse 1st AUX	0
483	SMG Group 9 Reverse 2nd AUX	0
484	SMG Group 10 FKey	0
485	SMG Group 10 MKey	0
486	SMG Group 10 Forward 1st AUX	0
487	SMG Group 10 Forward 2nd AUX	0
488	SMG Group 10 Reverse 1st AUX	0
489	SMG Group 10 Reverse 2nd AUX	0
490	SMG Group 11 FKey	0
491	SMG Group 11 MKey	0
492	SMG Group 11 Forward 1st AUX	0
493	SMG Group 11 Forward 2nd AUX	0
494	SMG Group 11 Reverse 1st AUX	0
495	SMG Group 11 Reverse 2nd AUX	0
496	SMG Group 12 FKey	0
497	SMG Group 12 MKey	0
498	SMG Group 12 Forward 1st AUX	0
499	SMG Group 12 Forward 2nd AUX	0
500	SMG Group 12 Reverse ast AUX	0
501	SMG Group 12 Reverse 2nd AUX	0
502	SMG Group 13 FKey	0
503	SMG Group 13 MKey	0
504	SMG Group 13 Forward 1st AUX	0
505	SMG Group 13 Forward 2nd AUX	0
506	SMG Group 13 Reverse 1st AUX	0
507	SMG Group 13 Reverse 2nd AUX	0
508	Dimming Group 1 Settings	0
509	Dimming Group 2 Settings	0
510	Dimming Group 3 Settings	0
511	Dimming Group 4 Settings	0
512	Dimming Group 5 Settings	0
513	F1 sound assignment	0
514	F1 volume adjust	0
515	F1 looping/short	0
516	F2 sound assignment	0
517	F2 volume adjust	0
518	F2 looping/short	0
519	F3 sound assignment	19
520	F3 volume adjust	0
521	F3 looping/short	0
522	F4 sound assignment	20
523	F4 volume adjust	0
524	F4 looping/short	0
525	F5 sound assignment	30
526	F5 volume adjust	0
527	F5 looping/short	0
528	F6 sound assignment	0
529	F6 volume adjust	0
530	F6 looping/short	0
531	F7 sound assignment	29
532	F7 volume adjust	0
533	F7 looping/short	0
534	F8 sound assignment	31
535	F8 volume adjust	0
536	F8 looping/short	0
537	F9 sound assignment	36
538	F9 volume adjust	0
539	F9 looping/short	0
540	F10 sound assignment	24

541	F10 volume adjust	0
542	F10 looping/short	0
543	F11 sound assignment	28
544	F11 volume adjust	0
545	F11 looping/short	8
546	F12 sound assignment	0
547	F12 volume adjust	0
548	F12 looping/short	0
549	F13 sound assignment	33
550	F13 volume adjust	0
551	F13 looping/short	0
552	F14 sound assignment	32
553	F14 volume adjust	0
554	F14 looping/short	0
555	F15 sound assignment	34
556	F15 volume adjust	0
557	F15 looping/short	0
558	F16 sound assignment	25
559	F16 volume adjust	0
560	F16 looping/short	0
561	F17 sound assignment	26
562	F17 volume adjust	0
563	F17 looping/short	0
564	F18 sound assignment	37
565	F18 volume adjust	0
566	F18 looping/short	8
567	F19 sound assignment	0
568	F19 volume adjust	0
569	F19 looping/short	0
570	F0 sound assignment	0
571	F0 volume adjust	0
572	F0 looping/short	0
573	IDLE sound assignment	0
574	IDLE volume adjust	0
575	CHANGEDIR sound assignment	0
576	CHANGEDIR volume adjust	0
577	COMETOHALT sound assignment	14
578	COMETOHALT volume adjust	0
579	THYRISTOR sound assignment	17
580	THYRISTOR volume adjust - not used	0
581	SETOFF sound assignment	13
582	SETOFF volume adjust	0
583	WATEROUTLET sound assignment	0
584	WATEROUTLET volume adjust	0
585	EMOTOR sound assignment	15
586	EMOTOR volume adjust	0
587	ROLLING sound assignment n/a	0
588	DRIVING SOUNDS volume adjustment	0
589	SWITCHVALVE sound assignment	0
590	SWITCHVALVE volume adjust	0
591	THYRISTOR2 sound assignment	18
592	THYRISTOR2 volume adjust	0
593	PANTOSTOP sound assignment	0
594	PANTOSTOP volume adjust	0
595	PANTODOWN sound assignment	0
596	PANTODOWN volume adjust	0
597	PANTODOWNSTOP sound assignment	0
598	PANTODOWNSTOP volume adjust	0
599	TURBO sound assignment	0
600	TURBO volume adjust - not used	0
601	DYNAMIC BRAKES - sound assignment	16
602	DYNAMIC BRAKES volume adjustment	0
603	CORNERING squeal sound assignment	0
604	CORNERING squeal volume adjust	0
671	Reed input 4 sound assignment	0
672	Reed input 4 volume adjust	0
673	F20 sound assignment	0
674	F20 volume adjust	0
675	F20 looping/short	0
676	F21 sound assignment	22
677	F21 volume adjust	0
678	F21 looping/short	0
679	F22 sound assignment	21

680	F22 volume adjust	0
681	F22 looping/short	0
682	F23 sound assignment	27
683	F23 volume adjust	0
684	F23 looping/short	0
685	F24 sound assignment	35
686	F24 volume adjust	0
687	F24 looping/short	0
688	F25 sound assignment	23
689	F25 volume adjust	0
690	F25 looping/short	0
691	F26 sound assignment	0
692	F26 volume adjust	0
693	F26 looping/short	0
694	F27 sound assignment	0
695	F27 volume adjust	0
696	F27 looping/short	0
697	F28 sound assignment	0
698	F28 volume adjust	0
699	F28 looping/short	0
700	unused	0
724	HS switching gear set	0
726	Sound id for trigger 1	0
727	AUX output to activate with trigger 1	0
728	Sound id for trigger 2	0
729	AUX output to activate with trigger 2	0
730	Sound id for trigger 3	0
731	AUX output to activate with trigger 3	0
732	Sound id for trigger 4	0
733	AUX output to activate with trigger 4	0
734	Sound id for trigger 5	0
735	AUX output to activate with trigger 5	0
736	Sound id for trigger 6	0
737	AUX output to activate with trigger 6	0
738	Reed input 1 sound assignment	0
739	Reed input 1 volume adjust	0
740	Reed input 2 sound assignment	0
741	Reed input 2 volume adjust	0
742	Reed input 3 sound assignment	0
743	Reed input 3 volume adjust	0
744	Z1 Random sound assignment	0
745	Z1 Random volume adjust	91
746	Z1 Random standstill / motion	72
747	Z2 Random sound assignment	0
748	Z2 Random volume adjust	91
749	Z2 Random standstill / motion	72
750	Z3 Random sound assignment	0
751	Z3 Random volume adjust	91
752	Z3 Random standstill / motion	72
753	Z4 Random sounds assignment	0
754	Z4 Random volume adjust	91
755	Z4 Random standstill / motion	72
756	Z5 Random sound assignment	0
757	Z5 Random volume adjust	91
758	Z5 Random standstill / motion	72
759	Z6 Random sound assignment	0
760	Z6 Random volume adjust	91
761	Z6 Random standstill / motion	72
762	Z7 Random sound assignment	0
763	Z7 Random volume adjust	91
764	Z7 Random standstill / motion	72
765	Z8 Random sound assignment	0
766	Z8 Random volume adjust	91
767	Z8 Random standstill / motion	72
768	Current sound set selected	0
769	Last known drive direction	1
770	Servo1 last known position	127
771	Servo2 last known position	127
772	Servo3 last known position	127
773	Servo4 last known position	127
774	Last used rail data format	1
775	Measured kmh/mph values	42
776	Measured kmh/mph values	26

777	Measured motor load parameter	0
778	Measured motor load parameter	0
779	Measured motor load parameter	0
780	Measured motor load parameter	0
783	PWM slow from auto-run	0
784	PWM fast from auto-run	0
800	SMG Group 14 FKey	0
801	SMG Group 14 MKey	0
802	SMG Group 14 Forward 1st AUX	0
803	SMG Group 14 Forward 2nd AUX	0
804	SMG Group 14 Reverse 1st AUX	0
805	SMG Group 14 Reverse 2nd AUX	0
806	SMG Group 15 FKey	0
807	SMG Group 15 MKey	0
808	SMG Group 15 Forward 1st AUX	0
809	SMG Group 15 Forward 2nd AUX	0
810	SMG Group 15 Reverse 1st AUX	0
811	SMG Group 15 Reverse 2nd AUX	0
812	SMG Group 16 FKey	0
813	SMG Group 16 MKey	0
814	SMG Group 16 Forward 1st AUX	0
815	SMG Group 16 Forward 2nd AUX	0
816	SMG Group 16 Reverse 1st AUX	0
817	SMG Group 16 Reverse 2nd AUX	0
818	SMG Group 17 FKey	0
819	SMG Group 17 MKey	0
820	SMG Group 17 Forward 1st AUX	0
821	SMG Group 17 Forward 2nd AUX	0
822	SMG Group 17 Reverse 1st AUX	0
823	SMG Group 17 Reverse 1nd AUX	0
824	Key inverted by IN1	0
825	Key inverted by IN2	0
826	Key inverted by IN3	0
827	Key inverted by IN4	0
828	Chuff sound beat for Set+1	0
829	Turbo - min step	0
830	Braking distance FWD high	0
831	Braking distance FWD low	0
832	Braking distance REV high	0
833	Braking distance REV low	0
834	Turbo - reduce dependency on accel	0
835	Number of Additional Quick Select FKeys	0
836	Probability of switchgear sparks	0
837	Script processes	0
839	Firmware patch number	0
840	Analog functions F13-F20	0
841	Analog functions F21-F28	0
843	Deactivate scripts 9 to 16	0