



# 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: DSENT-TEMPLATE-0960**

**YouChoos Sounds**  
**Diesel Sentinel**  
DCC Address: 3



Included in this package:

PART NUMBER	YouChoos Sounds - Diesel Sentinel YC-DSENT
DECODER	MS series - template
SPEAKER	N/A - template

**Functions:**

FKey	Category	Action
F0fwd:	LIGHT	F0fwd Forward lights
F0rev:	LIGHT	F0rev Reverse lights
F1:	SOUND	Running Sounds
F2:	SOUND + ACTIVE BRAKE	Apply Brakes 2 / Active Brake
F3:	SOUND	Horn
F4:	SOUND	Horn 2
F5:	SOUND	Horn 3
F6:	LIGHT	FA1
F7:	NOTCH UP	Notch Up
F8:	SOUND	Buffer Up
F9:	SOUND	Guard's Whistle
F10:	SOUND	Coupling Up
F11:	SOUND	Clag 4
F12:	LIGHT	FA2
F13:	SOUND	Point Lever
F14:	SOUND	Engine Covers
F15:	SOUND	Wheel Flange
F16:	SOUND	Brake Pressure Release
F17:	SOUND	Door open-close
F18:	SOUND	Horn 4
F19:	SOUND	Mute
F20:	SHUNT + HALF SPEED	Shunting Mode / Half Speed
F21:	SOUND	Buffer Up 2
F22:	SOUND	Horn 5
F23:	SOUND	Brakes
F24:	SOUND	Rail Clack
F25:	SOUND	Brake Release
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
22	Horn		F3 (CV#519)			
23	Horn 2		F4 (CV#522)			
24	Horn 3		F5 (CV#525)			
25	Horn 4	Loops	F18 (CV#564)			
26	Horn 5		F22 (CV#679)			
27	Coupling Up		F10 (CV#540)			
28	Buffer Up		F8 (CV#534)			
29	Brake Release		F25 (CV#688)			
30	Door open-close	Loops	F17 (CV#561)			
31	Guard's Whistle		F9 (CV#537)			
32	Clag 2					
33	Clag 3					
34	Clag 4		F11 (CV#543)			
35	Point Lever		F13 (CV#549)			
36	SetOff 2					
37	Engine Covers		F14 (CV#552)			
38	Wheel Flange	Loops	F15 (CV#555)			
39	Wheel Flange 2	Loops				
40	Wheel Flange 3	Loops				
41	Clatter					
42	Buffer Up 2		F21 (CV#676)			
43	Brakes		F23 (CV#682)			
44	Brake Pressure Release		F16 (CV#558)			
45	Rail Clack	Loops	F24 (CV#685)			
46	Apply Brakes 2		F2 (CV#516)			

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



398	Steps to trigger Automatic 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	46
517	F2 volume adjust	0
518	F2 looping/short	0
519	F3 sound assignment	22
520	F3 volume adjust	0
521	F3 looping/short	0
522	F4 sound assignment	23
523	F4 volume adjust	0
524	F4 looping/short	0
525	F5 sound assignment	24
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	0
532	F7 volume adjust	0
533	F7 looping/short	0
534	F8 sound assignment	28
535	F8 volume adjust	0
536	F8 looping/short	0
537	F9 sound assignment	31
538	F9 volume adjust	0
539	F9 looping/short	0
540	F10 sound assignment	27
541	F10 volume adjust	0
542	F10 looping/short	0
543	F11 sound assignment	34
544	F11 volume adjust	0

545	F11 looping/short	0
546	F12 sound assignment	0
547	F12 volume adjust	0
548	F12 looping/short	0
549	F13 sound assignment	35
550	F13 volume adjust	0
551	F13 looping/short	0
552	F14 sound assignment	37
553	F14 volume adjust	0
554	F14 looping/short	0
555	F15 sound assignment	38
556	F15 volume adjust	0
557	F15 looping/short	8
558	F16 sound assignment	44
559	F16 volume adjust	0
560	F16 looping/short	0
561	F17 sound assignment	30
562	F17 volume adjust	0
563	F17 looping/short	8
564	F18 sound assignment	25
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	4
576	CHANGEDIR volume adjust	0
577	COMETOHALT sound assignment	6
578	COMETOHALT volume adjust	0
579	THYRISTOR sound assignment	9
580	THYRISTOR volume adjust - not used	0
581	SETOFF sound assignment	5
582	SETOFF volume adjust	0
583	WATEROUTLET sound assignment	0
584	WATEROUTLET volume adjust	0
585	EMOTOR sound assignment	7
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	0
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	8
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	42
677	F21 volume adjust	0
678	F21 looping/short	0
679	F22 sound assignment	26
680	F22 volume adjust	0
681	F22 looping/short	0
682	F23 sound assignment	43
683	F23 volume adjust	0

684	F23 looping/short	0
685	F24 sound assignment	45
686	F24 volume adjust	0
687	F24 looping/short	8
688	F25 sound assignment	29
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
840	Analog functions F13-F20	0
841	Analog functions F21-F28	0
843	Deactivate scripts 9 to 16	0