Websites with useful ESU Loksound Information

ESU's Official Website:

http://www.loksound.com OR http://www.esu.eu/en/start/

ESU Mini-Clinics and YouTube Videos:

https://www.youtube.com/user/ESUDCC/videos

Intermountain Railway's ESU Help page:

https://www.intermountain-railway.com/customerservice/dccwebpage/ESU-FAQ-Page.html

Bowser-Trains.com's DCC & Sound Information Page:

http://bowser-trains.com/history/dccdetails.html

Atlas Model Railroad Co's User Manuals Page:

https://shop.atlasrr.com/t-manuals.aspx

SBS4DCC – Streamlined Back Shop's info on ESU Decoders and Setup:

http://www.sbs4dcc.com/tutorialstipstricks.html

Facebook - ESU CabControl and LokSound Installations Group

https://www.facebook.com/groups/1845287662452221

Decoder Buddy

https://nixtrainz.com/

Loksound V.4.0 /Select Popular CVs (Configuration Variables)

LokSound Select Steam sound volume control table

Function (Steam)	CV	Default
Master volume control	63	180
Steam Chuff Sound Right side	259	99
Steam Chuff Sound Left side	267	99
Whistle Volume Control	275	128
Bell Volume Control	283	99
Coupler Sound Volume Control	291	128
Dynamo	299	128
Air pump	307	128
Blower	315	128
Injector	323	128
Crossing Comm Sound Volume Control	331	128
Railclank Volume Control	339	60
Brake Set / Brake Release	347	128
Sanding valve Volume Control	355	128
Oil burner (oil fired engines)	363	128
Coal shoveling	371	128
Short whistle	379	128
Johnson bar	387	80
Open cylinder cocks	395	128
Steam hissing (steam boiler)	443	99

LokSound Select Diesel sound volume control table

Function (Diesel)	CV	Default
Master volume control	63	180
Diesel Volume Control	259	99
Horn Volume Control	275	128
Bell Volume Control	283	128
Coupler Sound Volume Control	291	128
Dynamic brake Volume Control	299	128
Air Compressor Volume Control	307	128
Radiator Fan Volume Control	315	128
Detector Sound Volume Control	323	128
Crossing Comm Sound Volume Control	331	128
Railclank Volume Control	339	64
Brake Set / Brake Release	347	128
Sanding valve Volume Control	355	128
Short Air Let Off Volume Control	363	128
Short Airhorn Volume Control	371	128

Random sound volume control table

Function	Sound slot	CV	Range	Default
Random sounds	-	451	0 – 128	128
Brake sound	-	459	0 – 128	128

⚠ Before you change any of the volume control CVs, please make sure that the **CV 32 is set to 1**! As explained earlier, CV 32 is used as an index selection register to distinguish between the real function of CV 257 – 511.

Prime mover	CV 48 value
Prime mover sound #1	0
Prime mover sound #2	16
Prime mover sound #3	32
Prime mover sound #4	48

Bell type	CV 48 value
Bell slow type	0
Bell fast type	64

Brake squeal selection	CV 48 value
Brake squeal #1	0
Brake squeal #2	128

Based upon your selection, the value for CV 48 must be increased by the value you can find in the table above.

Physical Output	Mode Select CV	Brigthness CV	Special function CV
Headlight	259	262	263
Backup light	267	270	271
AUX1	275	278	279
AUX2	283	286	287
AUX3 (H0 only)	291	294	295
AUX4 (H0 only)	299	302	303

⚠ Please set index register CV 32 to 0 before changing

Loksound V.5.0
Popular CVs
(Configuration Variables)

Output	Mode Select CV	Switching-On/-Off Delay	Automatic Switch Off	Brightness CV	Special Function CV1	Special Function CV 2	Special Function CV 3
Headlight (Configuration 1)	259	260	261	262	263	264	258
Rearlight (Configuration 1)	267	268	269	270	271	273	266
AUX1 (Configuration 1)	275	276	277	278	279	280	274
AUX2 (Configuration 1)	283	284	285	286	287	288	282
AUX3	291	292	293	294	295	296	290
AUX4	299	300	301	302	303	304	298
AUX5	307	308	309	310	311	312	306
AUX6	315	316	317	318	319	320	314
AUX7	323	324	325	326	327	328	322
AUX8	331	332	333	334	335	336	330
AUX9	339	340	341	342	343	344	338
AUX10	347	348	349	350	351	352	346
AUX11	355	356	357	358	359	360	354
AUX12	363	364	365	366	367	368	362
AUX13	371	372	373	374	375	376	370
AUX14	379	380	381	382	383	384	378
AUX15	387	388	389	390	391	392	386
AUX16	395	396	397	398	399	400	394
AUX17	403	404	405	406	407	408	402
AUX18	411	412	413	414	415	416	410
Headlight (Configuration 2)	419	420	421	422	423	424	418
Rearlight (Configuration 2)	427	428	429	430	431	432	426
AUX1 (Configuration 2)	435	436	437	438	439	440	434
AUX2 (Configuration 2)	443	444	445	446	447	448	442

STEAM - Function	DIESEL/ELECTRIC	Soundslot	CV	CV 32	Range	Default Value
Sound on/off	Sound on/off	1	259	1	0 – 128	99
Sound on/off	Sound on/off	2	267	1	0 – 128	99
Whistle (spielbar)	Horn #1 (playable)	3	275	1	0 – 128	128
Bell	Horn #2 or bell	4	283	1	0 – 128	128
Coal shovelling / Oil Burner (AUX2 Firebox)	Fan motor (AUX2)	5	291	1	0 – 128	128
Air pump	Compressor	6	299	1	0 – 128	128
Station Announcement#1	Station announcement #1	7	307	1	0 – 128	128
Coupler sound	Coupler sound	8	315	1	0 – 128	128
Cylinder blowout	Air outlet valve (line free)	9	323	1	0 – 128	128
Conductor whistle	Conductor whistle	10	331	1	0 – 128	128
Sanding valve	Sanding valve	11	339	1	0 – 128	128
Safety valve	Close / Open doors	12	347	1	0 – 128	128
Brake Set / Brake release (automatically)	Brake Set / Brake Release (automatically)	13	355	1	0 – 128	128
Drain valve	Station announcement #2	14	363	1	0 – 128	128
Curve squeal sound	curve squeal	15	371	1	0 – 128	128
Short whistle	Short whistle	16	379	1	0 – 128	128
Rail joints	Rail joints	17	387	1	0 – 128	128
Rail joints	Rail joints	18	395	1	0 – 128	128
		19	403	1	0 – 128	128
		20	411	1	0 – 128	128
		21	419	1	0 – 128	128
		22	427	1	0 – 128	128
		23	435	1	0 – 128	128
Boiler noise		24	443	1	0 – 128	128

Common/Popular SHIFT MODE Assignments

Shift Mode	Description	Assigned Function
1	Dynamic Brake	F4
2	Manual Notching Up or Notch 8	F26
3	Manual Notching Down or Coast	F27
4	Isolation Switch Mode on F15 when Standing Still.Pressing F15 while not moving will lower the prime mover and lock the motor. F15 must be turned off to begin moving.	F15
5	"Reverser In Center Position". When pressing F24 while stopped, the motor will lock so you can throttle through the notches like the prototype in neutral. F24 must be turned off to begin moving.	F24

CV	Name	Description	Range	Default
31	Index register H	Should be either “0” or “16” for LokSound Decoders	16	16
32	Index register L	CV 32=0 if accessing CVs 1- 255, CV 31=1,2,3 if accessing CVs 257-511	0 - 4	0
53	Control Reference voltage	Defines the Back EMF voltage, which the motor should generate at maximum speed. The higher the efficiency of the motor, the higher this value may be set. If the engine does not reach maximum speed, reduce this parameter	0 - 255	140
54	Load control Parameter «K»	«K»–component of the internal PI-controller. Defines the effect of load control. The higher the value, the stronger the effect of Back EMF control.	0 - 255	50
55	Load control Parameter «I»	«I»–component of the internal PI-controller. Defines the momentum (inertia) of the motor. The higher the momentum of the motor (large flywheel or bigger motor), the lower this value has to be set.	0 - 255	100
56	BEMF Influence at VMin	0-100%. Defines the “Strengh” of the BEMF at minimum speed step	0 - 255	255
63	Sound volume «Master»	Master volume for all sounds.	0 - 192	192
64	Brake sound threshold «Brake On»	If the actual loco speed step is smaller than or equals the value indicated here, the brake sound is triggered.	0 - 255	100
65	Brake sound threshold «Brake Off»	If the actual loco speed step is smaller than the one indicated here (up to 255), the brake sound will be switched off again. .	0 - 255	25
66	Forward Trim	Divided by 128 is the factor used to multiply the motor voltage when driving forward. The value 0 deactivates the trim.	0 - 255	128
67-94	Speed table	Defines motor voltage for speed steps. The values „in between“ will be interpolated.	0 - 255	-

CV	Name	Description	Range	Default
95	Reverse Trim	Divided by 128 is the factor used to multiply the motor voltage when driving backwards. Value 0 deactivates the trim.	0 - 255	128
113	Power Fail Bypass	The time that the decoder bridges via the PowerPack after an interruption of voltage. Unit: A multiple of 0.016384 sec.	0 - 255	50
116	Slow speed BEMF Sampling period	Frequency of BEMF measurement in 0.1 milliseconds at speed step 1	50 - 200	50
117	Full speed BEMF Sampling period	Frequency of BEMF measurement in 0.1 milliseconds at speed step 255	50 - 200	150
118	Slow speed BEMF Measurement gap length VMin	Length of the BEMF measuring gap in 0.1 milliseconds at speed step 1	10 - 20	150
119	Full speed BEMF Measurement gap length Vmax	Length of the BEMF measuring gap in 0.1 milliseconds at speed step 255	10 - 20	15
124	Extended Configuration #2	**Additional important settings for decoders**	-	24

Bit	Description	Value
0	Bi-directional bit: Enable driving direction when shifting direction. Disable driving direction.	1 0
1	Disable decoder lock with CV 15 / 16 Enable decoder lock with CV 15 / 16	0 2
2	Disable prime mover startup delay Enable prime mover startup delay	0 4
3	Disable serial protocol for C-Sinus Enable serial protocol for C-Sinus	0 8
4	Adaptive regulation frequency Constant regulation frequency	0 16
5	Motor safety when blocking. Motor is not switched off when blocked. Motor is switched off for a few seconds when blocked to avoid burnout	0 32

125	Starting voltage Analog DC		0 - 255	30
126	Maximum speed Analog DC		0 - 255	130
127	Starting voltage AC	(For LokSound 5 Multiprotocol decoders only)	0 - 255	50
128	Maximum speed Analog AC	(For LokSound 5 Multiprotocol decoders only)	0 - 255	150
134	ABC-Mode „Sensibility”	Threshold, from which asymmentry on ABC shall be recognised.	4 - 32	12
155 - 162	Notch Points	Notch Point 1 - Notch Point 8: The internal speed step where the diesel engine sound notches to the next Notch (Not for all sound projects)	0 - 255	
163	Sound CV9	Horn Select CV	0 - 255	0
164	Sound CV10	Bell Select CV	0 - 255	0
165	Sound CV11	Brake Squeal Select CV	0 - 255	0
166	Sound CV12	Air Dryer Select CV	0 - 255	0