23. CV Table

In the table below you will find the complete list of configuration variables (CVs) of the Lokommander Mini DCC decoder. We recommend to change the default values only if you know their function. Wrong settings can have negative effect ower the performance of the decoder, or can cause non-expected actions of the decoder to the DCC commands sent by the command station. The CV No. column contains the number of the configuration variables, while the Value Range contains the valid range of values for each of the CVs. The Default Value column contains the factory default values for each CV (after performing a decoder reset each CV will contain this value). The Description column will give you a brief description of each of the CVs. To perform a decoder reset (in case of wrong CV settings) please write to CV8 any numerical value.

CV	Default Value	Value Range	Description
1	3	0-127	Decoder Adresse Short, 7 bits
2	2	1-127	Vstart
3	5	0-63	Acceleration Rate 0=Fastest acceleration
4	7	0-63	Deceleration Rate 0=Fastest deceleration
5	100	1-127	Vhigh
6	60	0-127	Vmid, recommended value = [25%-75%] Vhigh

7	105	-	Software Version (only readable)
8	78	-	Manufactured ID/RESET (readable 78 = train-O-matic, any written value will reset the decoder to the factory default values
9	3	0-9	Motor Control Algorithm, 0-8 User defined = 9 (see CV 60)
13	0	0-255	Analog Mode, Alternate Mode Function Status F1-F8 Bit 0 = 0(0): F1 not active in Analog mode = 1(1): F1 active in Analog mode Bit 1 = 0(0): F2 not active in Analog mode = 1(2): F2 active in Analog mode Bit 2 = 0(0): F3 not active in Analog mode = 1(4): F3 active in Analog mode Bit 3 = 0(0): F4 not active in Analog mode = 1(8): F4 active in Analog mode Bit 4 = 0(0): F5 not active in Analog mode = 1(16): F5 active in Analog mode Bit 5 = 0(0): F6 not active in Analog mode = 1(32): F6 active in Analog mode Bit 6 = 0(0): F7 not active in Analog mode = 1(64) F7 active in Analog mode Bit 7 = 0(0): F8 not active in Analog mode

			= 1(255): F8 active in Analog mode
14	3= 1+ 2	0-255	Analog Mode, Alternate Mode Function. Status F0f,F0r, F9-F14, Bit 0 = 0(0): F0f not active in Analog mode = 1(1): F0f active in Analog mode Bit 1 = 0(0): F0r not active in Analog mode = 1(2): F0r active in Analog mode Bit 2 = 0(0): F9 not active in Analog mode = 1(4): F9 active in Analog mode Bit 3 = 0(0): F10 not active in Analog mode = 1(8): F10 active in Analog mode Bit 4 = 0(0): F11 not active in Analog mode = 1(16): F11 active in Analog mode Bit 5 = 0(0): F12 not active in Analog mode = 1(32): F12 active in Analog mode Bit 6 = 0(0): F13 not active in Analog mode = 1(64) F13 active in Analog mode Bit 7 = 0(0): F14 not active in Analog mode = 1(255): F14 active in Analog mode
15	0	0-7	LockValue: Enter the value to match Lock ID in CV16 to unlock CV programming. No action and ACK will be performed by the decoder when

			LockValue is different from LockID. In this situation only CV15 write is allowed.
16	0	0-7	LockID: To prevent accidental programming use unique ID number for decoders with same address (0..7) For example: 1-loco decoder, 2-sound decoder, 3-function decoder, …
17	192	192-255	Extended Address, Address High
18	3	0-255	Extended Address, Address Low
19	0	0-127	Consist Address If CV #19 > 0: Speed and direction is governed by this consist address (not the individual address in CV #1 or #17+18); functions are controlled by either the consist address or individual address, see CV's #21 + 22.
21	0	0-255	Functions defined here will be controlled by the consist address. Bit 0 = 0(0): F1 controlled by individual address = 1(1): …. by consist address Bit 1 = 0(0): F2 controlled by individual address = 1(2): …. by consist address Bit 2 = 0(0): F3 controlled by individual address = 1(4): …. by consist address Bit 3 = 0(0): F4 controlled by individual address = 1(8): …. by consist address

			Bit 4 = 0(0): F5 controlled by individual address = 1(16): …. by consist address Bit 5 = 0(0): F6 controlled by individual address = 1(32): …. by consist address Bit 6 = 0(0): F7 controlled by individual address = 1(64): …. by consist address Bit 7 = 0(0): F8 controlled by individual address = 1(255): …. by consist address
22	0	0-63	Functions defined here will be controlled by the consist address. Bit 0 = 0(0): F0 (forw.) controlled by individual address = 1(1): …. by consist address Bit 1 = 0 (0): F0 (rev.) controlled by individual address = 1(2): …. by consist address Bit 2 = 0(0): F9 controlled by individual address = 1(4): …. by consist address Bit 3 = 0(0): F10 controlled by individual address = 1(8): …. by consist address Bit 4 = 0(0): F11 controlled by individual address = 1(16): …. by consist address Bit 5 = 0(0): F12 controlled by individual address

			= 1(32): …. by consist address
27	0	0-7	Decoder Automatic Stopping Configuration Bit 0 = 0(0): STOP/Zerospeed constant braking distance disabled = 1(1): STOP/Zerospeed constant braking distance enabled Bit 1 = 0 (0): IR sensor for constant braking distance disabled = 1(2): IR sensor for constant braking distance enabled Bit 2 = 0(0): DC Braking disabled = 1(4): DC Braking enabled
29	6= 2+ 4	0-63	Configuration Data Bit 0 = 0(0): Locomotive Direction normal = 1(1): Locomotive Direction reversed Bit 1 = 0(0): 14 speed steps = 1(2): 28 /128 speed steps Bit 2 = 0(0): Power Source Conversion NMRA Digital Only (only DCC) = 1(4): Power Source Conversion Enabled (DC + DCC) Bit 3-Not available Bit 4 = 0(0): speed table set by configuration variables #2,#5, and #6 = 1(32): Speed Table set by configuration variables #66-#95 Bit 5 = 0(0): one byte addressing (short addressing) = 1(64): two byte addressing (extended/long addressing) Bit 6 -Not available

			Bit 7 -Not available
30	0	0-7	Error CV. If the read out value is “1”, an overcurrent event occurred since the last reset. The value can be cleared with programming “0” to CV30 Error Information (combination of each case is possible): 0-No error 1-Motor Short Protection 2-Aux Output Short Protection 4-Overtemperature
33	1= 1	0-15	F0, Forward move mapping Bit 0 = 0(0): Out1 not active on F0 forward = 1(1): Out1 active on F0 forward Bit 1 = 0(0): Out2 not active on F0 forward = 1(2): Out2 active on F0 forward Bit 2 = 0(0): Out3 not active on F0 forward = 1(4): Out3 active on F0 forward Bit 3 = 0(0): Out4 not active on F0 forward = 1(8): Out4 active on F0 forward
34	2=	0-15	F0, Backward move mapping Bit 0 = 0(0): Out1 not active on F0 backward = 1(1): Out1 active on F0 backward Bit 1 = 0(0): Out2 not active on F0 backward

	2		= 1(2): Out2 active on F0 backward Bit 2 = 0(0): Out3 not active on F0 backward = 1(4): Out3 active on F0 backward Bit 3 = 0(0): Out4 not active on F0 backward = 1(8): Out4 active on F0 backward
35	4= 4	0-15	F1, Forward move mapping Bit 0 = 0(0): Out1 not active on F1 forward = 1(1): Out1 active on F1 forward Bit 1 = 0(0): Out2 not active on F1 forward = 1(2): Out2 active on F1 forward Bit 2 = 0(0): Out3 not active on F1 forward = 1(4): Out3 active on F1 forward Bit 3 = 0(0): Out4 not active on F1 forward = 1(8): Out4 active on F1 forward
36	4= 4	0-255	F1, Backward move mapping Bit 0 = 0(0): Out1 not active on F1 backward = 1(1): Out1 active on F1 backward Bit 1 = 0(0): Out2 not active on F1 backward = 1(2): Out2 active on F1 backward Bit 2 = 0(0): Out3 not active on F1 backward = 1(4): Out3 active on F1 backward

			Bit 3 = 0(0): Out4 not active on F1 backward = 1(8): Out4 active on F1 backward
37	8= 8	0-255	F2 mapping Bit 0 = 0(0): Out1 not active on F2 = 1(1): Out1 active on F2 Bit 1 = 0(0): Out2 not active on F2 = 1(2): Out2 active on F2 Bit 2 = 0(0): Out3 not active on F2 = 1(4): Out3 active on F2 Bit 3 = 0(0): Out4 not active on F2 = 1(8): Out4 active on F2
38	0	0-255	F3 mapping Bit 0 = 0(0): Out1 not active on F3 = 1(1): Out1 active on F3 Bit 1 = 0(0): Out2 not active on F3 = 1(2): Out2 active on F3 Bit 2 = 0(0): Out3 not active on F3 = 1(4): Out3 active on F3 Bit 3 = 0(0): Out4 not active on F3 = 1(8): Out4 active on F3
39	0	0-255	F4 mapping

			Bit 0 = 0(0): Out1 not active on F4 = 1(1): Out1 active on F4 Bit 1 = 0(0): Out2 not active on F4 = 1(2): Out2 active on F4 Bit 2 = 0(0): Out3 not active on F4 = 1(4): Out3 active on F4 Bit 3 = 0(0): Out4 not active on F4 = 1(8): Out4 active on F4
40	0	0-255	F5 mapping Bit 0 = 0(0): Out1 not active on F5 = 1(1): Out1 active on F5 Bit 1 = 0(0): Out2 not active on F5 = 1(2): Out2 active on F5 Bit 2 = 0(0): Out3 not active on F5 = 1(4): Out3 active on F5 Bit 3 = 0(0): Out4 not active on F5 = 1(8): Out4 active on F5
41	0	0-255	F6 mapping Bit 0 = 0(0): Out1 not active on F6 = 1(1): Out1 active on F6 Bit 1 = 0(0): Out2 not active on F6

			= 1(2): Out2 active on F6 Bit 2 = 0(0): Out3 not active on F6 = 1(4): Out3 active on F6 Bit 3 = 0(0): Out4 not active on F6 = 1(8): Out4 active on F6
42	0	0-255	F7 mapping Bit 0 = 0(0): Out1 not active on F7 = 1(1): Out1 active on F7 Bit 1 = 0(0): Out2 not active on F7 = 1(2): Out2 active on F7 Bit 2 = 0(0): Out3 not active on F7 = 1(4): Out3 active on F7 Bit 3 = 0(0): Out4 not active on F7 = 1(8): Out4 active on F7
43	0	0-255	F8 mapping Bit 0 = 0(0): Out1 not active on F8 = 1(1): Out1 active on F8 Bit 1 = 0(0): Out2 not active on F8 = 1(2): Out2 active on F8 Bit 2 = 0(0): Out3 not active on F8 = 1(4): Out3 active on F8

			Bit 3 = 0(0): Out4 not active on F8 = 1(8): Out4 active on F8
44	0	0-255	F9 / F13 mapping Bit 0 = 0(0): Out1 not active on F9 = 1(1): Out1 active on F9 Bit 1 = 0(0): Out2 not active on F9 = 1(2): Out2 active on F9 Bit 2 = 0(0): Out3 not active on F9 = 1(4): Out3 active on F9 Bit 3 = 0(0): Out4 not active on F9 = 1(8): Out4 active on F9 Bit 4 = 0(0): Out1 not active on F13 = 1(16): Out1 active on F13 Bit 5 = 0(0): Out2 not active on F13 = 1(32): Out2 active on F13 Bit 6 = 0(0): Out3 not active on F13 = 1(64): Out3 active on F13 Bit 7 = 0(0): Out4 not active on F13 = 1(128): Out4 active on F13
45	0	0-255	F10 / F14 mapping Bit 0 = 0(0): Out1 not active on F10

			= 1(1): Out1 active on F10 Bit 1 = 0(0): Out2 not active on F10 = 1(2): Out2 active on F10 Bit 2 = 0(0): Out3 not active on F10 = 1(4): Out3 active on F10 Bit 3 = 0(0): Out4 not active on F10 = 1(8): Out4 active on F10 Bit 4 = 0(0): Out1 not active on F14 = 1(16):Out1 active on F14 Bit 5 = 0(0): Out2 not active on F14 = 1(32):Out2 active on F14 Bit 6 = 0(0): Out3 not active on F14 = 1(64):Out3 active on F14 Bit 7 = 0(0): Out4 not active on F14 = 1(128): Out4 active on F14
46	0	0-255	F11 / F15 mapping Bit 0 = 0(0): Out1 not active on F11 = 1(1): Out1 active on F11 Bit 1 = 0(0): Out2 not active on F11 = 1(2): Out2 active on F11 Bit 2 = 0(0): Out3 not active on F11

			= 1(4): Out3 active on F11 Bit 3 = 0(0): Out4 not active on F11 = 1(8): Out4 active on F11 Bit 4 = 0(0): Out1 not active on F15 = 1(16):Out1 active on F15 Bit 5 = 0(0): Out2 not active on F15 = 1(32):Out2 active on F15 Bit 6 = 0(0): Out3 not active on F15 = 1(64):Out3 active on F15 Bit 7 = 0(0): Out4 not active on F15 = 1(128): Out4 active on F15
47	0	0-255	F12 / F16 mapping Bit 0 = 0(0): Out1 not active on F12 = 1(1): Out1 active on F12 Bit 1 = 0(0): Out2 not active on F12 = 1(2): Out2 active on F12 Bit 2 = 0(0): Out3 not active on F12 = 1(4): Out3 active on F12 Bit 3 = 0(0): Out4 not active on F12 = 1(8): Out4 active on F12 Bit 4 = 0(0): Out1 not active on F16

			= 1(16):Out1 active on F16 Bit 5 = 0(0): Out2 not active on F16 = 1(32):Out2 active on F16 Bit 6 = 0(0): Out3 not active on F16 = 1(64):Out3 active on F16 Bit 7 = 0(0): Out4 not active on F16 = 1(128): Out4 active on F16
48	255	0-255	Out 1 Light intensity, [1-255] , 0-continous
49	255	0-255	Out 2 Light intensity, [1-255] , 0-continous
50	255	0-255	Out 3 Light intensity, [1-255] , 0-continous
51	255	0-255	Out 4 Light intensity, [1-255] , 0-continous
60	3	0-7 and 128-135	Motor, Back EMF measurement Delay value of 0 or 128 swithes BackEMF Off, value>0 or > 128 changes the BEMF measurement Delay. Delay(ms)=0.75+CV Value*0.25 Bit7=0 uses 32kHz PWM (CV range 0-7) Bit7=1 uses 16kHz PWM (CV range 128-135)
61	80	0-255	PID P constant
62	120	0-255	PID I constant
63	40	0-255	PID D constant
64	0	0-15	Brake Distance configuration 0-No brake

			1-15 Braking rate, the CV value influences the Constant Braking Distance, CV64=1 means the Shortest Braking Distance from maximum Speed to STOP. Increase the CV value to increase the braking distance. Distance=Value * Shortest Breaking Distance
65	25	0-255	Brake Delay CV65= 0 means no Brake Delay. To increase breaking distance above the value configured in CV64, increase in small amounts the value of CV65, which will delay the start of the braking, resulting in a longer braking path. Brake Delay = CV65 Value * 8ms (ms) Extra Distance = MaxSpeed * BrakeDelay Ex: 200ms(delay)=8(ms)*25(CV value)
67	2	1-127	Speed Table 1-28 ST[1] 1 position speed value
…..			Throttle position speed mapping values, ex. 1 position=2 speed, 28 position=120 speed
94	120	1-127	ST[28], 28 position speed value
105	0	0-255	USER data, freely configurable. It is not cleared after a decoder reset
106	0	0-255	USER data, freely configurable. It is not cleared after a decoder reset
112	15	1-127	Fade ON effect on outputs, ex.:1=8ms, 15=120ms 125=1000ms
113	3	1-127	Fade OFF effect on outputs, ex.:1=8ms, 15=120ms 125=1000ms
114	4	0-255	Shunting speed, Function mapping F1-F8, F3 default (bit 0 is mapping F1, bit 7 is mapping F8). Mapping is possible only for F1-F8

115	8	0-255	Switch Off Acceleration Deceleration, Function mapping, F4 default (bit 0 is mapping F1, bit 7 is mapping F8). Mapping is possible only for F1-F8
116	16	0-255	Disable Constant Braking, Function mapping, F5 default (bit 0 is mapping F1, bit 7 is mapping F8). Mapping is possible only for F1-F8
117	0	0-15	Bit 0 = 0(0): Out1 could be dimmed and faded = 1(1): continues signal with no fading on Out1 Bit 1 = 0(0): Out2 could be dimmed and faded = 1(2): continues signal with no fading on Out2 Bit 2 = 0(0): Out3 could be dimmed and faded = 1(4): continues signal with no fading on Out3 Bit 3 = 0(0): Out4 could be dimmed and faded = 1(8): continues signal with no fading on Out4
118	0	0-4	Electrical Coupler Output mapping for AUX 1-4 outputs. Only one of the AUX outputs can be configured as ECoupler Output CV118 = 0, None of the AUX selected for ECoupler operation CV118 = 1, AUX1 selected for ECoupler operation CV118 = 2, AUX2 selected for ECoupler operation CV118 = 3, AUX3 selected for ECoupler operation CV118 = 4, AUX4 selected for ECoupler operation
119	50	0-255	Electrical Coupler, Kick_time = Val*8ms, ex: 400ms=50*8ms
120	50	0-255	Decoupling, Locomotive move Time=Val*8ms, ex: 400ms=50*8ms

121	50	0-255	Decoupling Locomotive moving speed
122	0	0-1	Second Config, bit 0 0-LocoWire, 1-SUSI
123	16	0-255	SPP (Smart Power Pack) Timeout=16ms*Value Ex: =16ms*16=256ms
124	0	0-1	ECoupler Mode CV124 = 0, PWM Output CV124 = 1, Full Output on selected AUX in CV118
126	102	0-255	SUSI CV transport, SUSI CV=800+Value
127	0	0-255	SUSI DATA transport, Data write to CV=800+cv126
133			Chip temperature read out (the value is expressed in degrees Celsius. The precision of the readout is +/- 2 degrees). Prior to the readout the F5 function must be switched On and Off
134	100	60-120	Temperature Limit for the temperature protection (value in degrees Celsius)