DC07 / 08
CV-List from December 2014

White: CV is for DC07 and DC08
Yellow: CV is only for DC07
Red: Motoromanagment, be careful when changing

CV address	Description	Factory Default	Value Range
01	DCC – Short Address (May not be equal to CV 03)	1	1-126
02	Speed at speed step 1 Speed at step 28 unchanged All intermediate values recalculated Value MUST be at least 28 less than CV05	20	3-140
03	DCC – Second short address (May not be equal to CV 01)	2	1-126
05	Speed at speed step 28 Speed at step 1 unchanged All intermediate values recalculated Value MUST be at least 28 greater than CV02	168	31-168
06	---		
07	Version (Read only)		
08	Manufacturer (Read only)		
09-10	---		
11	Switch address (high value/part) servo 1	0	
12	Switch address (low value/part) servo 1 Note: CV11 must be programmed first, then immediately CV12	1	
13	Switch address (high value/part) servo 2 or steering	0	
14	Switch address (low value/part) servo 2 or steering Note: CV13 must be programmed first, then immediately CV14	2	
15	Second Long-DCC address higher part	7	128-9999
16	Second Long-DCC address lower part (Default address is 2001)	209	
17	Long-DCC address higher part	7	128-9999
18	Long-DCC address lower part (Default address is 2000)	208	
19	Functions **0** = Normal decoder functions **2** = Turn signal reversed in automatic mode **64** = Slowly braking / accelerating with speed change **128** = Demo Mode: automatically controlling lights CV69=100: Light 1 ON Turn signal light left ON Brake light ON Turn signal light right ON Light 1 OFF Brake light OFF Hazard light Light flash Beacon lights Light 1 Light 2 Light 3 and 4 Everything OFF cycle starts again	0	0 / 2 / 8 / 10 / 64 / 66 / 74 / 128

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CV address	Description	Factory Default	Value Range

20	Outputs MF1, MF2 and blue lights
	0 = MF1 is used as light 4
	    MF2 is used as light 3
	    Light 4 is connected with light 3
	1 = MF1 is used as servo 1 output
	    MF2 is used as light 3
	2 = MF1 is used as the servo 2 output
	    MF2 is used as the light 4
	3 = MF1 is used as the servo output 1
	    MF2 is used as the servo output 2
	4 = Trailer available
	8 = Light 4 operated with F9, Light 3 operated with F8
	16 = Light 4 as moving light (switched on together with front flash lights)
	32 = The times setting in CV33, CV35, CV37 and CV138
	    or CV126, CV129, CV132 and CV135 are not used
	    The times will be determined randomly
	128 = After -2 speed step command will be automatically accelerated
		4	0-255

21	DC –Car advanced functions **2** = Second DCC address will be used **4** = Remote control with DC-Car Booster **24** = Remote control mode PC Transmitter **32** = 0: Servo 1 is operated with turnout address CV11 + CV12 **32** = 1: Servo 1 is operated with throttle output 1 **64** = 0: Servo 2 operated with turnout address CV13 + CV14 **64** = 1: Servo 2 is operated with throttle output to 2 **128** = 1: TBS-Micro sound module is connected to MF1 and MF2 (function buttons of second throttle operate the sound - extra functions of TBS module)	0	0-255
22	Free		
23	**0** = Sound output is turned on when front flashers are turned on **1** = Sound output is turned on when front flashers are on AND a car is detected in front	0	0 / 1 / 2 / 3
24	Lights that are activated when vehicle is first turned on **0** = No lights **1** = Left turn signal always on **2** = Right turn signal always on **3** = Warning lights on **4** = Light 2 always **8** = Light 3 always on (Depending on CV20) **16** = Light 4 always on (Depending on CV20) **32** = Blue lights always on **64** = Front flashing lights always on **128** = Lights always on	0	0-255
25	Configuration of MF4 / MF5 / active feedback by IR **0** = MF5 is switching output operated by F12. IR feedback is deactivated **1** = transmits: vehicle type, vehicle number and battery status by IR LED from the back of the car **4** = transmits: vehicle type, vehicle number and battery status by MF5, deactivates switch output function of MF5 **16** = Hall sensor deactivated, MF4 is switching output operated by F11	0	0 / 1 / 16 / 17 / 20

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26	Actions when low battery occur (battery check in CV27 must be activated and battery type must be defined in CV28)
	  1 = 0: Speed step 28
	  1 = 1: Speed step 0
	  2 = 0: Hazard lights ON
	  2 = 1: Blinking turnout lights (equal to DC05)
	  4 = 0: Battery status is transmitted as good or bad
	  4 = 1: Battery status transmitted as percentage 0 – 15 (15= battery full, 0=battery Low
	  8 = Riding time limitation, depending of battery status (see CV156 – 159)
	  64 = Watchdog: if there is no speed change after 4 min. Vehicle is stopped and turn out lights will be lit side by side.
	  128 = Battery voltage is written in e eprom every 4 min. (for future development)
		0	0 - 255

27	On and Off functions
	  0 = Normal operation
	  1 = Battery test port off (see CV21)
	  2 = Drive light sensor disabled
	  4 = Blue light is set to F3
	    Front flasher is set to F4
	    F5 and F6 have no function
	  8 = Reed switch disabled
	  16 = DC-Car plus function:
	    The function outputs "Light 1 OFF"
	    (? Leaves alone) lights 2, 3, and 4
	  32 = DC-Car plus function:
	    The function module output "Light 1 OFF"
	    Also turns lights 2, 3, and 4 off
	  64 = DC-Car plus function:
	    Turn signal outputs form function module are linked.
	    Activating turn signal activates hazard lights
	  128 = Reserved
		0	0-255

28	Reference value for the battery test 3.6 volts LiPo .... 3.6 volts LiPo with series diode 1N4001 .... 3.6 Volt NiCd / NiMH (3 cells)................................... 3.6 Volt NiCd / NiMH (3 cells) with series diode 1N4001......... 2.4 Volt NiCd / NiMH (2 cells)................................... 2,4 Volt NiCd / NiMH (2 cells with PowerOff circuit.................... 1.2 Volt NiCd / NiMH (1 cell)......................................	 182 144 164 128 112 090 058	0-255

29	Function
	  0 = Short DDC address will be used
	  32 = Long DDC address will be used
		0	0 or 32

30	Left turn signal time **0** = Continuous On	90	1-254
31	Right turn signal time **0** = Continuous On	90	1-254

32	Timing blue flashing light 3 (CV57=0)
	  0 = Blue flashing light 3 is always off
	  1-254 = Blue flashing light 3 on period
	  255 = Blue flashing light 3 is always on
	Note: CV32 and CV33 must have different values
		21	0-255

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CV address	Description	Factory Default	Value Range
33	Blue flashing light 3 off period Note: CV32 and CV33 must have different values	78	1-254

34	Timing blue flashing light 1 (CV57=0)
	   0 = Blue flashing light 1 is always off
	1-254 = Blue flashing light 1 on period
	  255 = Blue flashing light 1 is always on
	Note: CV34 and CV35 must have different values
		23	0-255

35	Blue flashing light 1 off period Note: CV34 and CV35 must have different values	76	1-254

36	Timing blue flashing light 2 (CV57=0)
	   0 = Blue flashing light 2 is always off
	1-254 = Blue flashing light 2 on period
	  255 = Blue flashing light 2 is always on
	Note: CV36 and CV37 must have different values
		19	0-255

37	Blue flashing light 2 off period Note: CV36 and CV37 must have different values	70	1-254
	Timing blue flashing light 4 see CV136 and CV137		
38	**1 – 254** = Front flash time 1 on period **255** = Front flash time is continuous	7	1-255
39	**1 – 254** = Front flash time 2 off period	32	1-254
40	**1 – 254** = Front flash time 3 on period	9	1-254
41	**1 – 254** = Front flash time 4 off period (pause between flashes) Note: CV38, CV39, CV40, CV41 must all have different values!	150	1-254
42	Lower threshold of light sensor (high value) Light switches off when sensor is below the value ((CV42 * 256) + CV43)	2	0-3
43	Lower threshold of light sensor (low value) Light switches off when sensor is below the value ((CV42 * 256) + CV43)	96	0-255
44	Upper threshold of light sensor (high value) Light switches on when sensor is above the value ((CV44 * 256) + CV 45)	2	0-3
45	Upper threshold of light sensor (low value) Light switches on when sensor is above the value ((CV44 * 256) + CV 45)	168	0-255
46	Braking power when speed step 0 is received from the command station	4	1-255
47	Braking power when vehicle in front sends STOP signal	4	1-255

48	Braking power when vehicle in front sends DRIVING signal
	  1-31 = braking power
	    32 = unused
	    64 = Brake Mode 1
	  128 = Brake Mode 2
		4	1-255

49	Braking power for reed switch	32	1-255
50	Wait time in 100x ms when accelleration can start after a STOP signal	3	1-255
51	Wait time in 100x ms when accelleration can start after a DRIVING signal	1	1-255
52	Faster accelleration below this value, slower above	142	96-150
53	5x ms gearshift time between each speed level increase below CV52	100	1-255
54	5x ms gearshift time between each speed level increase above CV52	200	1-255
55	Brake light duration 0.06x seconds	25	5-63

56	Starting traction force in the lowest speed step
	  0 = Off
	  1 = On
		1	0 or 1

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CV address	**Description**	**Factory Default**	**Value Range**

57	Blue light functions:
	  0 = Normal blue lights (1-4) (setting via CV32-CV37 and CV136, CV137)
	  1 = Flashing Light (USA-type Bus) Applies to blue light 1 and 2
	  16 = Double flasher for the new police car (blue lights 1-4) (settings via CV124-CV135)
	  32 = American police
		0	0, 1, 16, 32

58	Speed step emitted by the rear IR-LED emitter
	  0 = Sent is equal to the set speed
	  2 = Sent is the set speed / 2
	  4 = Sent is the set speed / 4
	
	Special feature:
	096 = Rear transmitter sends speed step 28
	098 = Rear transmitter sends speed step 27
	100 = Rear transmitter sends speed step 26
	102 = Rear transmitter sends speed step 25
	104 = Rear transmitter sends speed step 24
	106 = Rear transmitter sends speed step 23
	108 = Rear transmitter sends speed step 22
	110 = Rear transmitter sends speed step 21
	112 = Rear transmitter sends speed step 20
	114 = Rear transmitter sends speed step 19
	116 = Rear transmitter sends speed step 18
	118 = Rear transmitter sends speed step 17
	120 = Rear transmitter sends speed step 16
	122 = Rear transmitter sends speed step 15
	124 = Rear transmitter sends speed step 14
	126 = Rear transmitter sends speed step 13
	128 = Rear transmitter sends speed step 12
	130 = Rear transmitter sends speed step 11
	132 = Rear transmitter sends speed step 10
	134 = Rear transmitter sends speed step 09
	136 = Rear transmitter sends speed step 08
	138 = Rear transmitter sends speed step 07
	140 = Rear transmitter sends speed step 06
	142 = Rear transmitter sends speed step 05
	144 = Rear transmitter sends speed step 04
	146 = Rear transmitter sends speed step 03
	148 = Rear transmitter sends speed step 02
	150 = Rear transmitter sends speed step 01
	152 = Rear transmitter sends speed step 00
		0	0, 2, 4, or 96 - 152

59	**RESET**. Decoder address reset to 1 To set CV59, the address of the decoder must be set to 1 (no matter what address the decoder has) otherwise the reset will not be completed. **The value set in CV59 during a reset will be written to CV27!** **See also CV27**		0-255

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CV address	Description	Factory Default	Value Range

60	Assignment of light outputs to function keys
	  Note: light outputs 3 and 4 are dependent on CV20
	  0 = F0 headlight and taillight
	    F7 light output 2
	    F8 light output 3 + 4
	  1 = F0 headlight and output 2
	    F8 light output 3 + 4
	  2 = F0 headlight and taillight and 3 + 4
	    F7 light output 2
	  3 = F0 headlight and taillight, output 2, and 3 + 4
		0	0-3

61	Reversing polarity of light outputs 2, 3, and 4
	  0 = Light 2, and 3+4 switch to –Negative
	  1 = Light 2 switch to +Positive
	    3 + 4 switch to –Negative
	  2 = Light 2 switches to –Negative
	    3 + 4 switch to +Positive
	  3 = Light 2, 3+4 switch to +Positive
	Note: Headlights 1 cannot be reversed
		0	0-3

62	Unused	0	---
63	Duration of brake lights in 100x ms when a car approaches the rear of another	10	1-63
64	Time in 100x ms (from zero to half speed)	0	1-254
65	Time in 100x ms (Where the vehicle will not respond to function module / command station)	20	1-254
66	Braking power to use when receiving a lower speed step than the current one	2	1-254
67	Accelleration power to use when receiving a higher speed step than the current one	2	1-254
68	Start up speed step after a stop-coil (Reed switch)	2	1-28

69	Starting behavior at turn on:
	  0 = Starts stationary, needs command from DCC OR Function module to start
	  1 = Starts at speed step 1
	  2 = Starts at speed step 2
	    ...
	  27 = Starts at speed step 27
	  28 = Starts at speed step 28
	  100 = Starts stationary, needs command from DCC to start
		2	0-28
			Or 100

70-97	The motor speed at each speed step is set with these CVs		
70	Speed step 28	168	3-168
71	Speed step 27	163	3-168
.....	....	....	....
96	Speed step 02	45	3-168
97	Speed step 01	41	3-168
98	Time in which a repeated command from Function module C +2 or -2 speed steps is ignored CV98 * 70ms = x milliseconds Used to avoid rapid switching while still in the range of the IR LED	16	0-255
99	Unused	0	

CV address	Description	Factory Default	Value Range

100	Vehicle Type Description
	0 = General
	1 = Short Truck
	2 = Long Truck
	3 = Truck with trailer
	4 = Tractor-Trailer (Lorry with load)
	5 = Tractor without Trailer (Lorry with no load)
	6 = Agricultural tractor
	7 =
	8 = Delivery van (Dodge Sprinter)
	9 = Car
	10 = Emergency Vehicle [Car distance braking is switched OFF during a Stop]
	    Note: One additional emergency vehicle will stop as well, other traffic will pass.
	11 = Emergency Vehicle [Car distance braking stays ON during a Stop]
	    Note: All vehicles behind emergency vehicles will stop.
	    Note for setting 10 and 11: (If the first emergency vehicle is stopped by the second magnet then the next emergency vehicle will do the same function)
	12 =
	13 = Garbage truck, Postal delivery van, etc.
	14 = Bus [Car distance braking is switched OFF during a Stop]
	    Note: Another bus will stop behind the bus, other traffic will pass.
	15 = Bus [Car distance braking is stays ON during a Stop]
	    Note: All vehicles will stop behind the bus
		0	0-15

101	Blink time for Function module E7	5	1-63
102	Speed step that Function module E7 will apply brakes to	10	1-28
103	Waiting time in sec. for bus and emergency vehicles Works after receiving a STOP command from Function module E2 to E5 or when passing the 2e magnet at Hall sensor automatic mode If set to 0, then automatic departure will be disabled (will only activate on external command)	20	0-63
104	Time in seconds a vehicle will blink and wait for departure. Works with function module E6 command or Hall sensor automatic mode	5	1-63
105	Speed step at which a vehicle starts after the time in CV103 and CV104 has expired Works with function module E or Hall sensor automatic mode	10	1-28
106	Timing of turn out signal after departure of bus or emergency vehicles. Period of time the turn signal remains on after time in CV104 expires. Works with function module command or Hall sensor automatic mode	2	1-63
107	Period of time which a STOP command is ignored during an automatic start.	2	1-63
108	Holding time for Function Module D1-D4 **0** = Hold until a start command is received **1-63** = Hold for 1-63 seconds	10	0-63
109	Automatic bus function: Period which flashers are on for function module D or after passing the first magnet with Hall sensor automatic mode	5	0-63
110	Automatic bus function: Starting speed step for function module D7 and D8 or after passing the first magnet with Hall sensor automatic mode	10	1-28

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CV address	**Description**	**Factory Default**	**Value Range**

111	Defines MF4, Hall Sensor features:
	0 = Switches on blue lights and front flashing lights
	    After passing the first magnet:
	        blue lights and flashing lights ON
	    After passing the second magnet:
	        blue lights and flashing lights OFF
	_____
	1 = Hall sensor enables the automatic mode (bus, garbage truck, fire, etc)
	    When CV100 is set to 10 (queuing emergency vehicles supported from software version 01.07.2014)
	    After passing the first magnet:
	        Blue lights, flashing lights turned ON
	    After passing second magnet:
	        Vehicle stops, blue lights remain on flashing lights are switched off
	        Stop time = CV103
	        Lighting = CV112
	    After CV103 time expires:
	        Blue lights OFF
	        Vehicle drives away
	        Departure behavior determined by CV104, 105, 106
	
	With several emergency vehicles in a queue the command "2e magnet passed" will be transmitted from first vehicle to followers. After timer has expired a reaction on 2e magnet will be ignored by followers.
	
	    When CV100 is set to 11
	    After passing the first magnet:
	        Blue lights, flashing lights turned ON
	    After passing second magnet:
	        Vehicle stops, blue lights remain on flashing lights are switched off
	        Stop time = CV103
	        Lighting = CV112
	    After CV103 time expires:
	        Blue lights OFF
	        Vehicle drives away
	        Departure behavior determined by CV104, 105, 106
	    When CV100 is set to 13-15:
	    After passing the first magnet:
	        Turn signal period = CV109 (If second magnet is not reached in time, auto-off)
	        Speed step = CV110
	    After passing the second magnet:
	        Vehicle stops, front strobes turned off
	        Stop time = CV103
	        Lighting = CV112
	        After CV103 time expires:
	        Vehicle departs
	        Departure behavior determined by CV104, 105, 106
	_____
	122 = Same as 1
	_____
	123 = Light 2 is turned on during the stop. Otherwise same behavior as value 1
		0	0 / 1 / 2 / 122 / 123

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CV address	Description	Factory Default	Value Range
112	If CV111 is greater than 0 (Automatic bus function): Lights activated after passing second magnet **0** = No light controls **1** = Left turn signal on **2** = Right turn signal on **3** = Hazard flashers on **4** = Light 2 always on **8** = Light 3 always on (depending on CV20) **16** = Light 4 always on (depending on CV20) **32** = Blue lights on **64** = Front strobes on **128** = Head lights on	0	0-255
113	Vehicle Number	1	1-31
114	TBS sound module **0**= Normal use of TBS-Micro module **1**= Learning mode (have to be set to 0 after learning!)	0	0/1
115	Period of time which hall sensor ignores magnetic pulses 120x ms	2	1-255
116-123	Reserved		
124	Blue flash 1 used as double flash 1 (active when CV57=16) **0**= Double flash 1 OFF **1-254**= ON time double flash 1 **255**= double flash 1 always ON	2	0-255
125	OFF duration for double flash 1	30	1-254
126	Period between flashes in double flash 1 (Randomly determined)	127	1-254
127	Blue flash 2 used as double flash 2 (active when CV57=16) **0**= Double flash 2 OFF **1-254**= ON time double flash 2 **255**= double flash 2 always ON	2	0-255
128	OFF duration for double flash 2	30	1-127
129	Period between flashes in double flash 2 (Randomly determined)	127	1-254
130	Blue flash 3 used as double flash 3 (active when CV57=16) **0**= Double flash 3 OFF **1-254**= ON time double flash 3 **255**= double flash 3 always ON	2	0-255
131	OFF duration for double flash 3	30	1-254
132	Period between flashes in double flash 3 (Randomly determined)	127	1-254
133	Blue flash 4 used as double flash 4 (active when CV57=16) **0**= Double flash 4 OFF **1-254**= ON time double flash 4 **255**= double flash 4 always ON	2	0-255
134	OFF duration for double flash 4	30	1-254
135	Period between flashes in double flash 4 (Randomly determined)	127	1-254
136	ON duration of flashing light 4	20	1-254
137	OFF duration of flashing light 4 (CV136 and 137 must have different values)	75	1-254

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138	Servo 1 speed Only works if MF2 is set to servo 1 (CV20) and a servo 1 is set to the switch controller (CV21)	16	1-255
139	Servo 2 speed Only works if MF2 is set to servo 2 (CV20) and a servo 2 is set to the switch controller (CV21)	16	1-255
140	Servo 1 green position 0,5 (left) - 2,5 ms (right)	0	44-200
141	Servo 1 red position 0,5 (left) - 2,5 ms (right)	0	44-200
142	Servo 2 green position 0,5 (left) - 2,5 ms (right)	0	44-200
143	Servo 2 red position 0,5 (left) - 2,5 ms (right)	0	44-200
144	Servo 1 accepts current position as green	0	1 - 255
145	Servo 1 accepts current position as red	0	1 - 255
146	Servo 2 accepts current position as green	0	1 - 255
147	Servo 2 accepts current position as red	0	1 - 255
148	Definition Assistance Servo 1 and Servo 2 **1 = 0** Servo 1 turns to max. end position **1 = 1** Servo 1 turns to position as set in CV 140 / 141 of 144 / 145 **3 = 1** Servo 1 turns to position by turnout address **7 = 1** Servo 1 continuous moving as set by CV 140 / 141 of 144 / 145 **8 = 0** Servo 2 turns to max. end position **8 = 1** Servo 2 turns to position as set in CV 140 / 141 of 144 / 145 **24 = 1** Servo 2 to position by turnout address **32 = 1** Servo 2 back and forth continuous moving as set by CV 140 / 141 of 144 / 145	0	0 - 63
149	Settings for servo 1 and servo 2 **1 = 0** Servo 1 in mid position **1 = 1** Servo 1 start position green **2 = 0** Servo 1 in mid position **2 = 1** Servo 1 start position red **4 = 0** Servo 2 in mid position **4 = 1** Servo 2 start position green **8 = 0** Servo 2 in mid position **8 = 1** Servo 2 start position red	0	0 - 12
150	Repetitive movement of servo 1	5	1 - 63
151	Repetitive movement of servo 2	5	1 - 63
152	Basic counter servo 1	25	1 - 255
153	Basic counter servo 2	25	1 - 255
154	Accelerate if steep step is increasing (only valid if CV19 = 64)	128	1 - 255
155	Decelerate if steep step is decreasing (only valid if CV19 = 64)	128	1 – 255
156	Batteries (only valid if CV26 = 2 ON) **1 =** single battery 1,2 Volt **2 =** two batteries 2,4 Volt **3 =** three batteries 3,6 Volt **4 =** three batteries 3,6 Volt with diode in series **5 =** LiPo 4,2 Volt **6 =** LiPo 4,2 Volt with diode in series	2	1 / 2 /3 /4 /5 /6
157	Battery capacity in 10 mAh per step. Max. 2550mAh	80	1 – 255

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CV address	**Description**		**Factory Default**	**Value Range**
158	Driving time x 4 minutes (Factory setting 3 hours)		45	1 - 255
159	Define battery as fully loaded		0	0-1

The red shaded CVs should only be changed when adjusting the spacing control and behavior of the vehicles. The preset values have been determined after extensive testing.

Note 1: The lights may still be used with function keys on DCC or function mogules. This allows for additional lighting controls, such as work lights, spot lights, etc.

Programming of the decoder must ONLY be done through the DCC main track programming. Programming on the programming track will NOT work!

Programming the address:

New short address, with an existing address
Loco Address = Current short address (1-127)
CV   = 1
Value   = New address (1-127)

New long address, with existing short address
Loco Address = Current short address (1-127)
CV   = 17
Value   = New long address high part

Loco Address = Current short address (1-127)
CV   = 18
Value   = New long address low part

Loco Address = Current short address (1-127)
CV   = 29
Value   = 32

New short address, with existing long address
Loco Address = Current long address (128-9999)
CV   = 1
Value   = New short address (1-127)

Loco Address = Current long address (128-9999)
CV   = 29
Value   = 0

For New long address, with existing long address decoder MUST be set to SHORT address, otherwise the decoder will lose its current address.
First, set a short address (Example: address = 1)
Loco Address = Current long address (128-9999)
CV   = 1
Value   = 1

Loco Address = Current long address (128-9999)
CV   = 29
Value   = 0

Second, set new long address
Loco Address = Current short address (1-127)
CV   = 17
Value   = New long address high part
CV   = 18
Value   = New long address low part
CV   = 29
Value   = 32

Note:
Some DCC command stations have special selection for long addresses.

Calculating values for CV17 and CV18 (high and low parts of long addresses):

Long addresses range from 128-9999.
If the desired address falls in the range 128-256:
CV17 = 0
CV18 = address

If the desired address falls in the range 257-9999:
Divide the address by 256
CV17 = Whole
CV18 = Remainder

Examples:
Address = 130:
CV17 = 0
CV 18 = 130
CV29 = 32

Address = 257:
257 / 256 = 1 remainder 1
CV17 = 1
CV18 = 1

Address = 500:

500 / 256 = 1.95
256 x 1 = 256
500 - 256 = 244
CV17 = 1
CV18 = 244
CV29 = 32
Address = 2523:
2523 / 256 = 9.85
256 x 9 = 2304
2523 – 2304 = 219
CV17 = 9
CV18 = 219
CV29 = 32

Programming the blue lights 1 and 2 as flashing lights:

Disable blue light 3:
Loco Address = Current address
CV   = 32
Value   = 0

Set the flash times of blue light 1 and 2:
Loco Address = Current address
CV   = 34
Value   = 100
CV   = 35
Value   = 100
CV   = 36
Value   = 100
CV   = 37
Value   = 100

Set the flashing function of blue light 1 and 2:
Loco Address = Current address
CV   = 57
Value   = 1

Programming blue lights 1-4 as a double flash:
Loco Address = Current address
CV   = 57
Value   = 16

Programming the Intellibox via main line programming:

Set the Loco address to the Intellibox
Turn the vehicle on.
Set vehicle speed step to 0.
(Without the speed set to 0 you cannot program the decoder!)
With the intellibox mode button in the "Programming Mode" position:
Press "Menu"
Press (down) key until "DCC Programming" appears
Press (Right) button
Press (down) key until "<Programm on main>" appears
Press (Right) button
The Intellibox is now in DC Car decoder programming mode!

To program an individual CV:

Select the current address of the decoder
Press "Enter"
Enter the CV number
Press (Right) button
Enter the CV value

Before confirming the value, make certain the vehicle is within reception of an IR transmitter

Press "Enter" to begin programming.
After a successful programming, the decoder will briefly turn off and back on to load the new data.
The brake light will turn on for a successful programming, while the headlights and turn signals will turn on when there is an error. If this occurs the vehicle must be switched off and back on.

Resetting the Decoder:

Note: In the unlikely event that a vehicle is no longer controllable or behaves differently than expected, you can reset the decoder to factory settings using CV59.

To reset the decoder to factory settings:

On the main track programming:
Loco Address = 1
CV   = 59
Value   = Desired value for CV27

Press "Enter" to program CV59.
Decoder resets take a bit longer than a single CV programming. WAIT until the brake light comes on before turning the vehicle off, or else you may corrupt the decoder's data.

It is recommended to write down any CV values that are not factory default before performing a reset. This will enable you to change them back to your settings after a reset