Basic Decoder Mode CVs

CV Name	CV #	Default Value	Range	Comments	
Primary Address	1	3	1-128	Ignored - responds to any address	
Vstart	2	10	0-255	Start voltage - changing will update speed table	
Acceleration Rate	3	0	0-255	0 is off - higher values for longer acceleration	
Deceleration Rate	4	0	0-255	0 is off - higher value for slower deceleration	
Vhigh	5	255	0-255	High voltage - changing will update speed table	
Vmid	6	127	0-255	Midpoint voltage - changing will update speed table	
Manufacturer Version No.	7	14	read only	Basic decoder	
Manufactured ID	8	59	read only	Tam Valley Depot ID #	
Total PWM Period	9	5	0-15	see table. changes the PWM frequency.	
Extended Address	17	0	0-255	Ignored - possible future use	
Extended Address	18	0	0-255	Ignored - possible future use	
Consist Address	19	0	0-255	Ignored - possible future use	
Non-standard Options	20	1	0-255	see table. This CV is trapped in DCC mode and not passed on to an external decoder	
Configuration Data #1	29	2	0-255	bit 0 (direction) only currently implemented	
Kick Start	65	25	0-255	Higher values add more initial kick to start from stop	
Speed Table	67-94	various	0-255	Usually set by 3,5,6 but can overwrite	
CV9 PWM values	**Value**	**Hz**		These values were changed in version 1.9	
	0	41		Best slow speed but most vibration	
	1	80			
	2	122			
	3	160			
	4	320			
	5	1900	Default value	Works well with most motors	
	6	700			
	7	850			
	8	860			
	9	1100			
	10	1300			
	11	1560			
	12	490		old default value in pre v1.9	
	13	2500			
	14	3800			
	15	7800		Least vibration but higher start voltage may be needed	
				Notes: small motors can use lower values effectively for slow speed performance- large G scale motors need higher values to avoid excessive vibrations hum and current draw. Older open frame motors should use 15. The highest speed is the same on all values so changing CV 9 will not make engine go faster.	
CV 20 bits	Bit	Decimal	Mode	CV 20 is unused in NMRA DCC standard	
Service Mode Address	0	0	DCC	Controls writing address CVs (1,8,17,18,29) in service mode instead of ops mode. Not relevant in Basic Mode	
Service Mode Always	1	2	DCC	Controls writing all CVs in service mode instead of ops mode. Not relevant in Basic Mode	
Reverse light ON-OFF	2	4	Basic	For Light and Sound Hats - change light ON to high voltage. (The hat transistor inverts the signal back)	

Reverse function ON-OFF	3	8	Basic	For Light Hat - change F1 and F2 ON to high voltage. (The hat transistor inverts the signal back)	
Swap LFOR and LREV	4	16	Basic	Swaps the direction sense of forward and reverse for the lights. Can set this instead of rewiring the motor or the lights.	
Future use	5	32			
Future use	6	64			
Future use	7	128			