

2015

Instellen Mcc-cars decoder



Patrick Peeters ModelTrein-Support 25-3-2015 Het instellen van de decoder doen we in het programma jDinamo

Communication Car-Control Detection	Output About
Communication	
Channel de line	
Choose device	Dinamo UCCI 1.0 Controller
Normal v priority	
2 📩 USB latency (ms)	499 messages/s Stop
Message queue's	
waiting outgoing messages	0 Clear
waiting incoming messages	1 Clear
System messages	- Send Clear
14:42:23 : RMH v3.10	
dinamo Communication started	

We controleren of er verbinding is (UCCI moet aan staan en USB kabel aangesloten aan PC)

Dan gaan we naar het tabblad "Car-control" en starten daar het configuratie scherm op. Zorg er voor dat er maar 1 decoder actief is en vink aan "broadcast to all available cars on the track".

Instellen Mcc-cars decoder

🍰 jDinamoCC2		
Communication	Car-Control Detection Output About	
Car control	1 Deceder address	
	Control window	Create
		Create
	and create a window with controls for a single car	
		Remove
	<u> </u>	
	CV configurator window	
	Choose decoder address above or V broadcast to a	available cars on the track
	Choose your decoder version Version 2	Create
	Calibrator window	
	Choose decoder address above	Create
dinamo Communica	ition started	

Dan klik je op "Create" in het vak "CV configurator window" om het configuratie scherm te openen.

Het standaard scherm gaat open en je kan beginnen met het instellen. We laten eerst de standaard schermen zien en daarna wat we voor onze autobus moeten invullen.

	Configuration Values	
SIC functions speed acceleration PID development help & about	Close list	
Factory reset	Ciedi list	
Resets all values to the factory default, this is done before setting the other values and can be send in one	Send	
action. This command is automatically added to the CV list.		
	Config Value	-
New decoder address	0-	_
1 (14095) If you don't know the current address of the decoder, start this	1n.a.	
editor with a "broadcast" function and set a new address. Just be	2 -	
some that there is only one (1) decoder insterning:	3 -	
Battery	4n.a.	
Choose battery type Choose amount 1 add >>	5 -	
	6 -	
Discharging too deep can be damaging for your batteries.	7-	=
Choose alarm minimum voltage 1.00 V	8 -	- 11
u	9-	-11
Battery alarm behaviour When using a low voltage alarm	10 -	-11
Maximimum speed 6 Disable battery alarm entirely level < 1.5V the EMP values in the speed settings are doubled to have better motor.	11-	
braking speed 4 - alarm lights ves - control.	12-	
	14 -	-11
Description	15 -	_
This has no effect on the settings of the	16 -	_
decoder. It is just for your own	17 -	_
administration. The text is stored when you	18 -	
save the set of CV settings.	19 -	
	20 -	
	21-	
	22 -	_
	23-	_
	24-	_
	25-	_
	20-	_
	27-	-
D	20	-
Page settings	30 -	_
Resets all the settings on this page or removes them from the CV list Defaults Remove	31n.a.	-
	22	- I - I

-i- functio				and hale 0 should			Configuration	Values	
SIC	speed	acceleration	PID develo	oment neip & about			1	Clear list	
Decoder st	artup functi	ons							
Head	📄 Brake	🗸 Left 🛛 🗸	Right These fu	nctions are switched or nev are shown until an	when the decoder			Send	
F1	F2	F3 F	4 the deco	der falls asleep.	puncers received of	add >>	Config	Value	
Output Fu	nctions							0 -	
Brake	F2	F3	F4	Left Right	Head and F1			1n.a.	_
🕅 X0	X0	🕅 X0	X0	X0 blink	X0			3 -	-11
V X1	X1	🕅 X1	X1	X1 blink	X1			4n.a.	
X2	X2	X2 Seq	X2 Seq	X2 blink	X2			5 -	
X3	X3	X3 Seq	X3 Seq	X3 blink	X3			6 -	
X4	X4	X4 Seg	X4 Seg	X4 blink				7 -	=
W V5	- Y5	V5 Sec	V5 Sec	V5 blick	orange = 12%			0-	_
N NG		I NO SEQ	xo seq	X9 Dillik	vellow = 100%			10 -	
X6	X6	X6	<u>x6</u>	Y0 blink	,			11 -	
V Auto	ABO	ABO	ABO	Y1 blink	a	dd >>		12 -	
								13 -	
Sequencer	patterns 9	tep 116						14 -	_
Sequence	er X2					cycle time		15-	_
Sequence	er X3 📃					0.80 s 👻		17 -	_
Sequence	er X4							18 -	
Sequence	er X5					add >>		19 -	
								20 -	_
Typical cor	nections							21 -	
(0 - Headlid	hts	X5 - Ext	tra brake					22 -	
(1 - Brake/	Tail	X6 - Re	ceive indicator					24 -	
(2 - Tail	oliabt	Y0 -Indi	icator left					25 -	
s/x4 - gyr	oligni	r 1 - Ind	licator right					26 -	
								27 -	
								28 -	
Page settir	ngs							29 -	_
	1 Ale	a an this same	an companyon the	m from the CV list				30-	

Instellen Mcc-cars decoder



sic functions speed acc	celeration PII	D developme	ent help & about		Configuration Values	
Dealler					Clear list	
Profiles					Send	
Acceleration profile 0	0 🚔	(0127)	Auto brake lights	add >>		
Acceleration profile 1	1 ≑		Auto brake lights	add >>	Config Value	-ĥ
Acceleration profile 2	2		Auto brako liabte		0- 1n.a.	- 11
Acceleration profile 2	2 💌		Auto brake lights	auu >>	2 -	
Acceleration profile 3	4 🌩	V	Auto brake lights	add >>	3 -	
Acceleration profile 4	8 🚔		Auto brake lights	add >>	4n.a.	- 11
					6-	
Acceleration profile 5	16 ≑	1	Auto brake lights	add >>	7 -	=
Acceleration profile 6	32 🜲		Auto brake lights	add >>	8 -	
					9-	_
Acceleration profile 7	64 🌩		Auto brake lights	add >>	10-	_
					11-	
					12 -	
					12 -	
8 profiles for (de)accelera	ation. A larger	value means a	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 - 18 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 -	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12- 13- 14- 15- 16- 17- 18- 19- 20- 21- 22-	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12- 13- 14- 15- 16- 17- 18- 19- 20- 21- 22- 22- 23-	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 23 - 24 -	
8 profiles for (de)accelere enables the braking light i	ation. A larger if auto-brake is	value means a	a slower acceleration. The brak	e light option for this profile	12- 13- 14- 15- 16- 17- 18- 19- 20- 21- 22- 23- 23- 24- 25-	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a	a slower acceleration. The brak	e light option for this profile	12- 13- 14- 15- 16- 17- 18- 19- 20- 21- 22- 23- 24- 25- 26- 26- 24- 25- 26- 26- 26- 27- 28- 28- 28- 28- 28- 28- 28- 28	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a	a slower acceleration. The brak	e light option for this profile	12- 13- 14- 15- 16- 17- 18- 19- 20- 21- 22- 23- 24- 25- 26- 27-	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a	a slower acceleration. The brak	e light option for this profile	12- 13- 14- 15- 16- 17- 18- 20- 21- 22- 23- 24- 25- 26- 27- 20- 22- 23- 24- 25- 26- 27- 27- 28- 29- 29- 20- 20- 21- 22- 22- 22- 22- 22- 22- 22	
8 profiles for (de)accelera enables the braking light i	ation. A larger if auto-brake is	value means a	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 - 18 - 19 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 27 - 28 - 29 - 20 - 29 - 20 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 29 - 29 - 29 - 29 - 20 -	
8 profiles for (de)accelera enables the braking light i Page settings	ation. A larger if auto-brake is	value means a selected	a slower acceleration. The brak	e light option for this profile	12- 13- 14- 15- 16- 17- 18- 20- 21- 22- 23- 24- 25- 25- 26- 27- 28- 29- 29- 29- 29- 29- 29- 29- 29	
8 profiles for (de)accelera enables the braking light i Page settings Resets all the settings on	ation. A larger if auto-brake is this page or ro	value means a selected	a slower acceleration. The brak	e light option for this profile	12 - 13 - 14 - 15 - 16 - 17 - 18 - 20 - 21 - 22 - 23 - 24 - 25 - 26 - 27 - 28 - 29 - 29 - 30 -	

			Conferentian	Values	
sic functions speed a	cceleration PID development help & about		Configuration	values	
Drepartianal torm				Clear list	
16 🚔 (063)	The proportional term responds to a change in the pro	cess variable proportional to the		Send	
	more sensitive system.	arge response to a small error, a	Config	Value	<u>^</u>
•				0 -	
Integral term	The contribution from the integral term is propertional	to the post and surrent values and		1n.a.	_
4 🔤 (07)	duration of the error signal While this will force the sig	to the past and current values and		2 -	_
	guicker than a proportional controller alone and elimin	ate steady state error.		3-	
	It may also contribute to system instability as the con	troller will always be responding to		4n.a.	
	past values, even after the process variable has read	hed the desired setpoint.		5-	_
Derivative term				7	_
9 (0 62)	The derivative term provides a braking action to the c	ontroller response as the process			E
0 (003)	variable approaches the setpoint. Derivative control is		9-	_	
	of the overshoot produced by the integral component, but the controller will be a bit slower to reach the setpoint initially.		10 -	_	
			11 -	_	
				12 -	
EMF timeout				13 -	_
0 🔷 (015)	The EMF of motors with high self-inductance cannot be measured correctly at			14 -	
	high-frequency-PWM. For these motor-types an addit	ional EMF-timeout is necessary.		15 -	
	When you find the motor cannot be controlled (the ca	r 'shakes' heavily and this cannot		16 -	
	if it works. If so, tune the motor (speeds and PID para	ameters) and then decrease the		17 -	
	EMF timeout to the value just high enough to avoid pr	oblems. An increased EMF		18 -	
	timeout increases motor-hum, so choose lowest possib	ble value		19 -	_
				20 -	
Filters				21 -	
EMF input filter	Suppresses input noice, less direct control, major			22 -	
EME output filter	impact			23 -	
CHE output litter	Output low pass filter, less direct control, small			24 -	_
	inpact. Mainly for preventing motor hum.	add >>		25-	_
				20-	_
				28-	
Page settings				29 -	_
Resets all the settings or	n this page or removes them from the CV list	Defaults Remove		30 -	
				31 n.a.	_
				32	

De andere tabbladen hebben we niet nodig.

Voor onze "De Lijn autobus" moeten we de volgende instellingen doen op het eerste tabblad "Basic"

- Stel het gewenste decoder adres in en voeg dit toe aan de lijst op de rechterkant door op "add" te klikken.
- Stel in welk type batterij er gebruikt is en het aantal.
- Dan stel je het "alarm minimum voltage in" (dit wordt door het systeem al aangegeven. Enkel bij "Lipo" batterijen moet je dit zelf hoger in stellen anders wordt deze teveel ontladen.
- De instellingen van maximum speed en braking speed kan je standaard laten staan.
- Op "add" drukken om de gegevens weg te schrijven in de configuratietabel

De gegevens op het eerste blad zijn nu ingevuld (zie volgende schermafdruk)

Voor onze autobus zijn onderstaande gegevens ingevuld.

Tabblad "Basic"

		Configuration Val	195	
ic functions speed acceleration PID development help & al	pout		Class list	
Eactory reset			Clear list	
Resets all values to the factory default, this is done before se action. This command is automatically added to the CV list.	tting the other values and can be send in one		Send	
		Config	Value	<u> </u>
New decoder address) -	
346 (14095) If you don't know the current address		In.a.		
editor with a proadcast function and sure that there is only one (1) decode	add >>		2 90	_
sare and are is only one (2) accode		:	3 1	
Battery			1n.a.	
Choose battery type LiPo (3,7V) - amount 1 -	add >>	1	5 188	
			5 150	
Nominal Voltage 3.7V, advise: a minimum of 2.7 V			7-	=
Choose alarm minimum voltage 3,08 V		1	3 -	_
	U	9) -	_
Battery alarm behaviour	When using a low voltage alarm	10)-	_
Maximimum speed 6 💌 🔲 Disable battery alarm entirely	settings are doubled to have better motor	1	1-	- 11
braking speed 4 -	control.	1	2-	
alannights yes •		1.	5-	_
		1	5	_
Description	The hard of the state of the second state of the	1	5-	
Lipo accu 150mAh 3,7V	Inis has no effect on the settings of the	1	7 -	_
	administration. The text is stored when you	10	3 -	_
	save the set of CV settings.	19	ə -	_
		20) -	_
		2	1 -	
		2	2 -	
		2	3 -	
		24	4 -	
		2	5-	
		20	5-	_
		2	/-	_
		20	<u>s</u>	_
Page settings		29	/	_
Resets all the settings on this page or removes them from the CV lis	st Defaults Remove	30	/- 1 a a	_
		3	111.d.	_

- Decoder adres 346
- Lipo batterij 3,7V
- 1 stuk
- Minimum voltage (voorstel systeem in 2,7V) maar we nemen 3,08V
- Andere zaken laten we ongewijzigd.

Tabblad "functions"



- Bij het opstarten van de decoder moeten de lichten en de linker en rechter richtingaanwijzers gaan branden (er is nog geen verbinding met de UCCI)
- X0 koplampen branden op 12% met F1 branden deze 100%
- X1 achterlichten branden op 12% (100% wordt gebruikt als stoplicht) vinkje in kolom brake.
- X2 achterlichten (boven achterraam) idem als achterlichten
- X3 binnen verlichting branden steeds op 100%
- X4 contour verlichting deze staan op 12% (sequencer X4)
- X5 (niets)
- Y0 knipperlicht links
- Y1 knipperlicht rechts

Tabblad "speed"



- In de laatste kolom stel je het maximum Voltage in, dit is de maximum snelheid van je wagen. (hier 2,30V)
- Via de knop "set 0..15 lineair" wordt de snelheid per decoderstap berekend. (indien je het rijgedrag niet mooi vindt kan je hier handmatig wijzigingen aanbrengen)
- De timeout is ingesteld op 40

Tabblad "acceleration"

	elevation and the			Configuration Values	
ac functions speed acc	PID devel	opment help & about		Clear list	
Profiles				Cicul list	
				Send	
Acceleration profile 0	0 (0127)	V Auto brake lights	add >>	Config Value	
Acceleration profile 1	1 🜩	📝 Auto brake lights	add >>	0-	
Acceleration profile 2	2 🌩	V Auto brake lights	add >>	1n.a.	
				2 90	
Acceleration profile 3	4 🛬	Auto brake lights	add >>	31	
				4n.a.	
Acceleration profile 4	8 👻	V Auto brake lights	add >>	5 188	
Acceleration profile 5	16	Auto brake lights		6 150	
Acceleration profile a	10 🗸	Add brake lights	ddd 22	7 40	=
Acceleration profile 6	32 🌩	Auto brake lights	add >>	8 128	
				9 129	
Acceleration profile 7	64 🌩	Auto brake lights	add >>	10 130	
			<u>(</u>)	11 132	
				12 136	
8 profiles for (de)accelera	ation. A larger value me	ans a slower acceleration. The brake	e light option for this profile	13 144	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake I	light option for this profile	13 144 14 160 15 192 16 0 17 9	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 19 28 19 27	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 19 28 20 37 21 7	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selecter	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 19 28 20 37 21 47 21 47	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selecter	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 19 28 20 37 21 47 22 56 5	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 20 37 21 47 22 56 23 65 23 65	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 20 37 21 47 22 56 23 65 24 75	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	e light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 28 20 37 21 47 22 56 23 65 24 75 25 84	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selecter	ans a slower acceleration. The brake	e light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 19 28 20 37 21 47 22 56 23 65 24 75 25 84 26 93	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	e light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 20 37 21 47 22 56 23 65 24 75 25 84 26 93 27 103	
8 profiles for (de)accelera enables the braking light i	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	e light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 20 37 21 47 22 56 23 65 24 75 25 84 26 93 27 103 28 112	
8 profiles for (de)accelera enables the braking light i age settings	ation. A larger value me f auto-brake is selected	ans a slower acceleration. The brake	e light option for this profile	13 144 14 160 15 192 16 0 17 9 18 19 20 37 21 47 22 56 23 65 24 75 25 84 26 93 27 103 28 112 29 121	
8 profiles for (de)accelera enables the braking light i 'age settings Resets all the settings on	ation. A larger value me f auto-brake is selected this page or removes t	ans a slower acceleration. The brake	e light option for this profile	13 144 14 160 15 192 16 0 177 9 18 19 20 37 21 47 22 56 23 65 24 75 25 84 26 93 27 103 28 112 29 121 30 131	

Hier hebben we de standaard gegevens laten staan, enkel bij alle profielen het "auto brake lights aangevinkt.

Tabblad "PID"

	Configuration Values	
ic functions speed acceleration PID development help & about	Clear list	
Proportional term		
(063) The proportional term responds to a change in the process variable proportion	al to the Send	
more sensitive system.	Config Value	-
	0-	
Integral term	1n.a.	
4 (07) The contribution from the integral term is proportional to the past and current	t values and 2 90	
duration of the error signal. While this will force the signal to approach the set	point 3 1	
uncker than a proportional controller alone and eliminate steady state error. It may also contribute to system instability as the controller will always be resr	ponding to 4 n.a.	
past values, even after the process variable has reached the desired setpoint.	t. 5 188	
	6 150	
Derivative term	7 40	E
8 (063) The derivative term provides a braking action to the controller response as the	e process 8 128	
variable approaches the setpoint. Derivative control is used to reduce the mag	gnitude 9 129	
slower to reach the setpoint initially.	10 130	
borrer to reach the begoint initially i	11 132	
	12 136	_
EMF timeout	13 144	
8 (015) The EMF of motors with high self-inductance cannot be measured correctly at	14 160	
Migh-frequency-YVM. For these motor-types an additional EMF-timeout is netty When you find the motor cannot be controlled (the car 'shakes' beavily and thi	is cappot 15 192	
be fixed by the PID parameters) increase the EME timeout to e.g. 6 or higher	and see 16 0	
if it works. If so, tune the motor (speeds and PID parameters) and then decre	ase the 17 9	
EMF timeout to the value just high enough to avoid problems. An increased EM	4F 18 19	
timeout increases motor-hum, so choose lowest possible value	19 28	
	20 37	
Filters	21 47	
EMF input filter Suppresses input noice, less direct control, major	22 56	
impact	23 65	
Output low pass filter, less direct control, small	24 75	
impact. Mainly for preventing motor num.	add >> 25 84	
	26 93	
	27 103	
Page settings	28 112	
Resets all the settings on this page or removes them from the CV list	29 121	
Defaults	emove 30 131	
	31 140	

- Hier laten we normaal de standaard waarden staan.
- Omdat onze bus zeer schokkend rijgedrag vertoonde, is de EMF timeout verhoogd van 0 naar 8.
- Met deze instelling moet je spelen tot je tevreden bent met het resultaat.

Ook hier niet vergeten alle waarden via "add" naar het configuratie bestand te schrijven.

Je kunt al deze instellingen bewaren door dit bestand op te slaan met een door u te kiezen naam. Je kunt dan later dit bestand terug openen in jDinamo om indien nodig de decoder opnieuw te programmeren.

Nu moeten we nog alle configuratie gegevens naar de decoder sturen door boven op de knop "Send" te drukken.

De lichten van het voertuig gaan even knipperen als het bestand wordt ingelezen.

Onze autobus is nu volledig klaar voor gebruik.