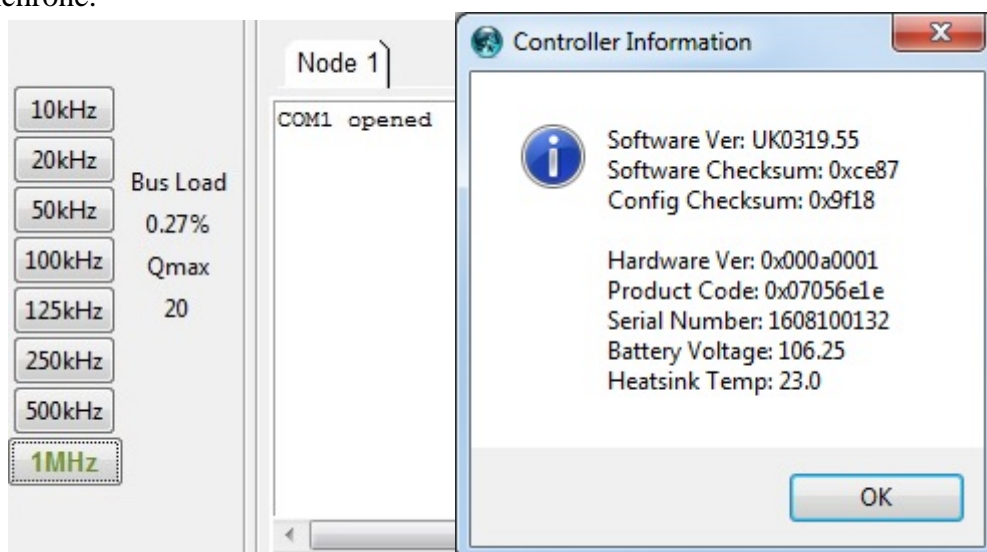


Le Blog e-Kart.frt 152, rue de Grandmont 37 550 Saint AVERTIN Tel : 02 47 25 93 64 Fax : 09 72 44 29 60 Portable : 06 89 73 80 58 Mail : thierry.lequeu@gmail.com	 http://www.e-kart.fr
Opérateur : Thierry LEQUEU Date : le lundi 24 juin 2019 Client : Kit Elec Shop	Moteur : ME0913 sous 96VDC Variateur : SEVCON GEN4 110V 300A Part : 634 A 13 210 Serial : 1608 100 132

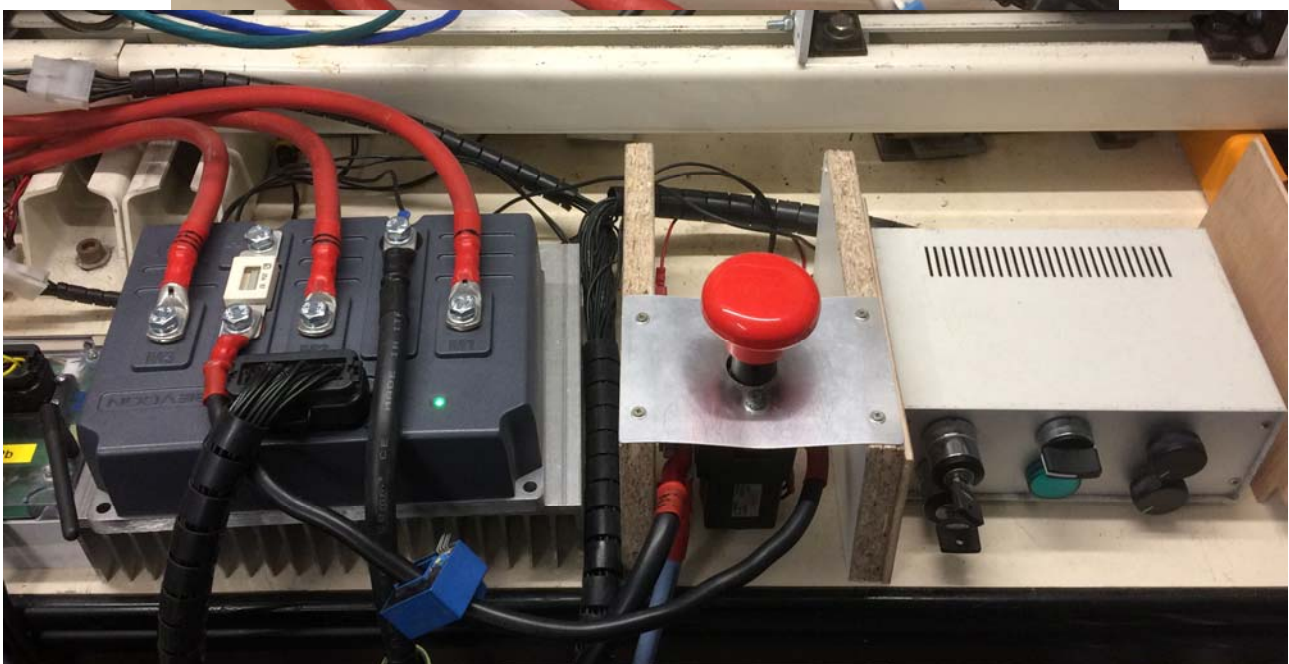
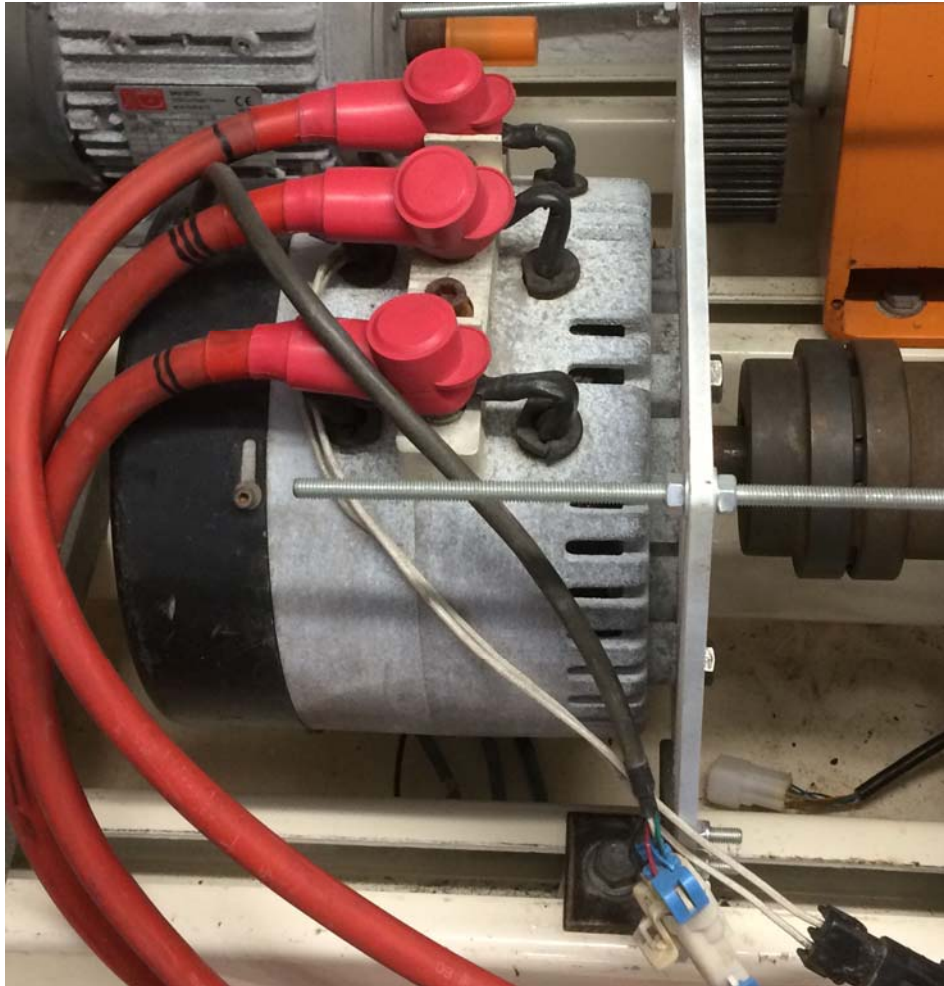


- Bus CAN = 1 MHz – Logiciel DVTC version 13.9
- Création du fichier EDS du genre « **Gen4_pc0x07056e1e_rev0x00010015.eds** »
- Software ver. : UK0319.55 : ce n'est pas la dernière du software 0703.0013 pour moteur synchrone.



- Photo du câblage de puissance :

- **Phase U sur M1**
- **Phase V sur M3**
- **Phase W sur M2**



- Il faut débrancher les autres appareils du bus CAN (ClearView, GEN4...) et s'assurer qu'il y ait bien la résistance de terminaison de 120 ohms.
- Sauvegarde du fichier DCF : (510 ko, pas d'erreurs)
2019-06-24-MOTEUR-UK0319-55-110V-300A-S4-GEN4-Config-origine.dcf
- « Go Preoperational » puis chargement du nouveau SOFTWARE «0705_0013.dld » pour moteur synchrone PMSM, il y a des erreurs (normal) :

Node 1 fault (0x4681, Preop) set at 19:48:03, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x1000
found 1 memory ranges in C:/DVTC-DCF-DLD/DLD/0705_0013.dld (modified 10/08/2018 - 16:39:48):

...dsp-zeffer

programming dsp-zeffer on node 1OK

block checksum 0x012d6695

Node 1 fault (0x5043, Param fixed range) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300

Node 1 fault (0x5044, Param dyn range) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300

Node 1 fault (0x4F41, Internal) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6100

Node 1 fault (0x5043, Param fixed range) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300

Node 1 fault (0x5044, Param dyn range) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300

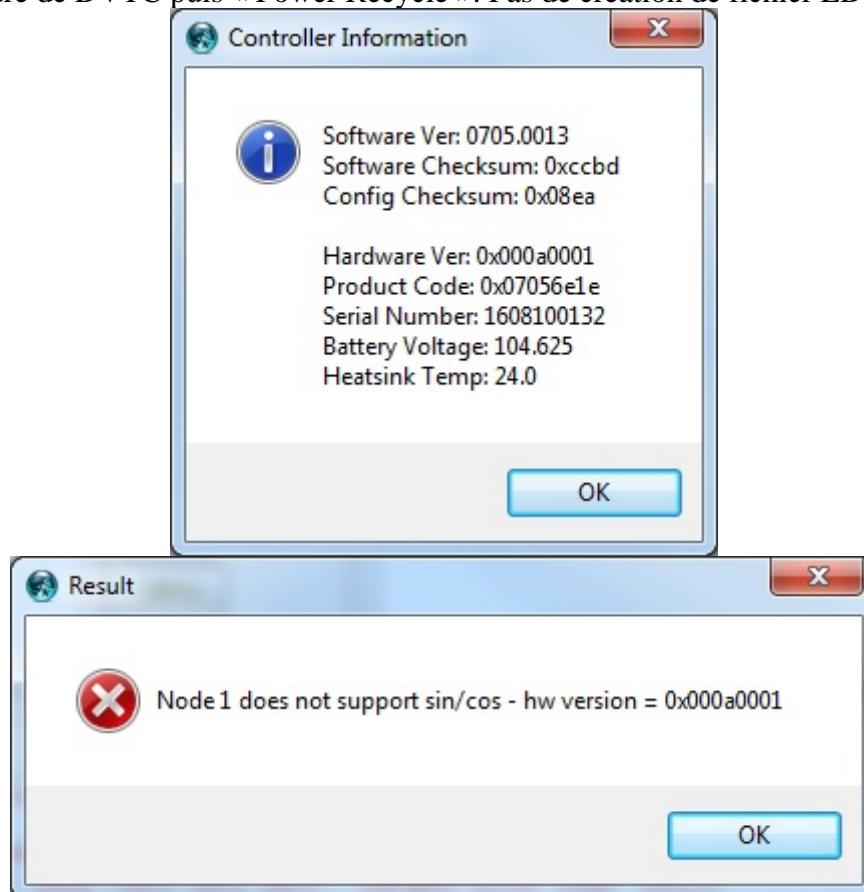
Node 1 fault (0x4F41, Internal) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6100

Node 1 fault (0x5043, Param fixed range) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300

Node 1 fault (0x5044, Param dyn range) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300

Node 1 fault (0x4F41, Internal) set at 19:50:21, 24/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6100

- Fermeture de DVTC puis « Power Recycle ». Pas de création de fichier EDS .



- « Go Pre-operational » et chargement du fichier DCF dans le variateur : un warning (normal...)

2019-06-13-ME0913-0705-0013-GEN4-110V-300A-PARINAUTES-Ok-a-vide-19h39.dcf

Node 1 fault (, Invalid event ID) set at 09:50:39, 25/06/19. Data (). CANopen Error Code:

Node 1 fault (0x5044, Param dyn range) set at 09:50:40, 25/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300

Node 1 fault (0x4F41, Internal) set at 09:50:40, 25/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6100
 Node 1 fault (0x5043, Param fixed range) set at 09:50:40, 25/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300
 Node 1 fault (0x5044, Param dyn range) set at 09:50:40, 25/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6300
 Node 1 fault (0x4F41, Internal) set at 09:50:40, 25/06/19. Data (0x00 0x00 0x00). CANopen Error Code: 0x6100
 sdo_wnx 1 0x4617 0x1 0xffffffffffffffffffff...

Node 1 fault (0x4F4C, OBD SS) set at 09:55:15, 25/06/19. Data (0x05 0x00 0x00). CANopen Error Code: 0x6100

Already logged in at a higher level

Failed writing 0 to 6086, 0 ("Motion profile type" Read Only !)

C:/DVTC-DCF-DLD/DCF/2019-06-13-ME0913-0705-0013-GEN4-110V-300A-PARINAUTES-Ok-a-vide-19h39.dcf
 downloaded to device OK

HEX!!! – 0x5620 – ROOT

- « Recycle Power » et relance de DVTC.
- Le bus CAN est en **250 kHz**. Il n'y a plus d'erreur.

- ~~Passage en 110V 300A avec la commande :~~

~~dvt(9) %lg 1 ?
 Access Level: 0x00
 0x00
 dvt(10) %lg 1 4
 OK
 dvt(11) %lg 1 ?
 Access Level: 0x04
 0x04
 dvt(12) %configure_voltage_items 1 110 300
 set 0x2e00 0 to 0x06e0
 set 0x2e01 1 to 0x0840
 set 0x2e01 2 to 0x0959
 set 0x2e02 1 to 0x04d0
 set 0x2e02 2 to 0x0478
 set 0x2C30 6 to 0x37
 set 0x4612 1 to 0x0000
 set 0x4612 3 to 0x0478
 set 0x4612 5 to 0x05d8
 set 0x4612 7 to 0x0948
 set 0x4612 9 to 0x09e6
 set 0x4612 11 to 0x09e6
 set 0x4612 13 to 0x09e6
 set 0x4612 15 to 0x09e6
 set 0x4612 17 to 0x09e6
 set 0x6075 0 to 0x000493e0
 set 0x4641 2 to 0x012e
 set 0x4641 12 to 0x06e0
 invalid bareword "Abort"
 in-expression "Abort 0x06020000 / pow(2,6)";
 should be "\$Abort" or "{Abort}" or "Abort(...)"
 or ...
 dvt(13) %~~

- Configuration des entrées/sorties :

Motor Control

Node Controls: Motor drive left informé ▼

Digital Inputs

of Inputs: 3 ▼

Digital In. 1:	Forward Switch ▼	Pin.18
Digital In. 2:	Reverse Switch ▼	Pin.30
Digital In. 3:	FS1 switch ▼	Pin.19
Digital In. 4:	Not Mapped ▼	Pin.31
Digital In. 5:	Not Mapped ▼	Pin.20
Digital In. 6:	Driveability Select 1 sv ▼	Pin.09
Digital In. 7:	Driveability Select 2 sv ▼	Pin.32
Digital In. 8:	Not Mapped ▼	Pin.21
Digital In. 9:	Not Mapped ▼	
Digital In. 10:	Not Mapped ▼	
Digital In. 11:	Not Mapped ▼	
Digital In. 12:	Not Mapped ▼	
Digital In. 13:	Not Mapped ▼	

Analog Inputs

of Inputs: 1 ▼

Analog In. 1:	Throttle Input Voltage ▼	Pin.22
Analog In. 2:	Not Mapped ▼	Pin.23
Analog In. 3:	Not Mapped ▼	Pin.34
Analog In. 4:	Not Mapped ▼	Pin.35
Analog In. 5:	Not Mapped ▼	Pin.33

Contactor Outputs

of Outputs: 3 ▼

Contactor 1:	Line contactor ▼
Contactor 2:	Not Mapped ▼
Contactor 3:	External LED ▼

- La tension du relais est bien de 24V (18V après une seconde).

Contactor Output Configuration		
Pull-In Voltage	24.0	V
Pull-In Time	1.0	Seconds
Hold-In Voltage	18.0	V

- Vérification de « Voltage Control Enable » pour la réduction de tension à 24V sur toutes les sorties analogiques :

Voltage Control Enable																	
Voltage Control Enable for Contactor Drives 1..8	<table border="1"> <tr><td>Line Contactor</td><td>On</td></tr> <tr><td>Pump Contactor</td><td>On</td></tr> <tr><td>Power Steer Contactor</td><td>On</td></tr> <tr><td>Electromechanical Brake</td><td>On</td></tr> <tr><td>External LED</td><td>On</td></tr> <tr><td>Traction Motor Cooling Fan</td><td>On</td></tr> <tr><td>Buzzer</td><td>On</td></tr> <tr><td>Horn</td><td>On</td></tr> </table>	Line Contactor	On	Pump Contactor	On	Power Steer Contactor	On	Electromechanical Brake	On	External LED	On	Traction Motor Cooling Fan	On	Buzzer	On	Horn	On
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Voltage Control Enable for Contactor Drives 9..16	<table border="1"> <tr><td>Lights</td><td>Off</td></tr> <tr><td>Service</td><td>Off</td></tr> <tr><td>Motor Isolation</td><td>Off</td></tr> <tr><td>Precharge Output</td><td>Off</td></tr> <tr><td>Belt Electromechanical Brake</td><td>Off</td></tr> <tr><td>Belt ChangeOver Contactor</td><td>Off</td></tr> <tr><td>Electro-mechanical Park brake</td><td>Off</td></tr> </table>	Lights	Off	Service	Off	Motor Isolation	Off	Precharge Output	Off	Belt Electromechanical Brake	Off	Belt ChangeOver Contactor	Off	Electro-mechanical Park brake	Off		
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Service	Off																
Motor Isolation	Off																
Precharge Output	Off																
Belt Electromechanical Brake	Off																
Belt ChangeOver Contactor	Off																
Electro-mechanical Park brake	Off																

- Vérification de « Reduce to Hold Level Enable » uniquement sur le relais de puissance pour réduire la tension à 18V après une seconde :

Reduce to Hold Level Enable																	
Reduce to Hold Level Enable for Contactor Drives 1..8	<table border="1"> <tr><td>Line Contactor</td><td>On</td></tr> <tr><td>Pump Contactor</td><td>Off</td></tr> <tr><td>Power Steer Contactor</td><td>Off</td></tr> <tr><td>Electromechanical Brake</td><td>Off</td></tr> <tr><td>External LED</td><td>Off</td></tr> <tr><td>Traction Motor Cooling Fan</td><td>Off</td></tr> <tr><td>Buzzer</td><td>Off</td></tr> <tr><td>Horn</td><td>Off</td></tr> </table>	Line Contactor	On	Pump Contactor	Off	Power Steer Contactor	Off	Electromechanical Brake	Off	External LED	Off	Traction Motor Cooling Fan	Off	Buzzer	Off	Horn	Off
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Electro-mechanical Park brake	Off																

- Ajustement de la tension du potentiomètre à 10.9V max. C'est normal que le « Speed Limit Mode » soit égal à « Fixed at maximum ».

Throttle parameters		
Throttle Flags	Proportional Braking	No
	Directional Throttle	No
	Speed Limit Mode	Fixed at maximum
	Braking Directional Throttle	Yes
	Reverse Speed Limit Encoding	No
	Handbrake Fault	Enabled
	Proportional Speed Limit in Braking	Enabled
	Driveability profile generation style (some builds only)	Use lowest values
	Allow step change in steer angle	No
	Virtual FS1	Disabled
	Absolute Steer Angle in single traction	Disabled
	Separate Seat Regen Braking settings	Disabled
	Slave Left Motor Speed Inversion	Disabled
	Brake Light when Neutral Braking	Disabled
	Inching functionality	Generic
	Proportional Speed Limit in Drive	Enabled
Throttle input characteristic		Linear
Throttle Start Voltage 1		0.1
Throttle Start Value 1		0.0
Throttle End Voltage 1		10.9
Throttle End Value 1		1.0000000000000002
Throttle Start Voltage 2		0
Throttle Start Value 2		0.0
Throttle End Voltage 2		0
Throttle End Value 2		0

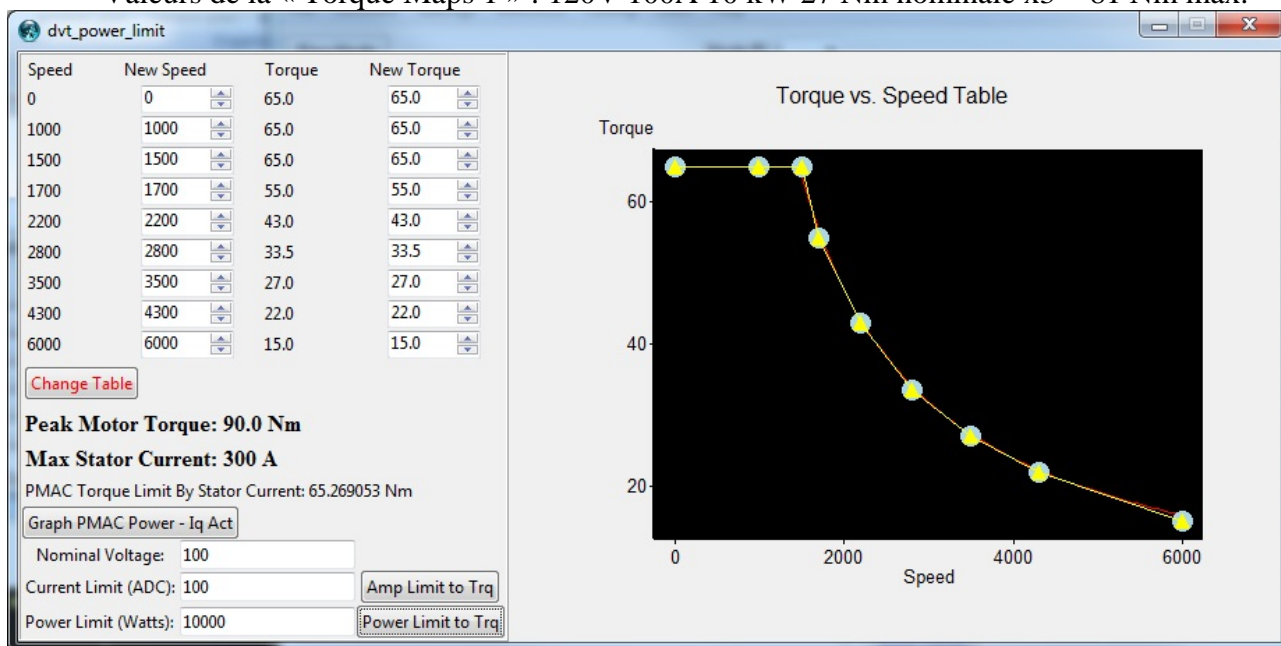
- « Baseline Profile » : mises à jour

Traction baseline profile		
Maximum Torque applied during drive	40.0	%
Maximum Torque applied during a direction change	20.0	%
Maximum Torque applied when neutral braking	0.0	%
Maximum Torque applied when footbraking	20.0	%
Maximum Speed in forward direction	3000.0	rpm
Maximum Speed in reverse direction	1500.0	rpm
Ramp up rate during drive	200.0	%/s
Ramp up rate during direction change braking	200.0	%/s
Ramp up rate during neutral braking	200.0	%/s
Ramp up rate during footbraking	200.0	%/s
Ramp down rate during drive	200.0	%/s
Ramp down rate during direction change braking	200.0	%/s
Ramp down rate during neutral braking	200.0	%/s
Ramp down rate during footbraking	200.0	%/s
Speed limit ramp up rate when in torque mode	2000.0	rpm/s
Speed limit ramp down rate when in torque mode	2000.0	rpm/s

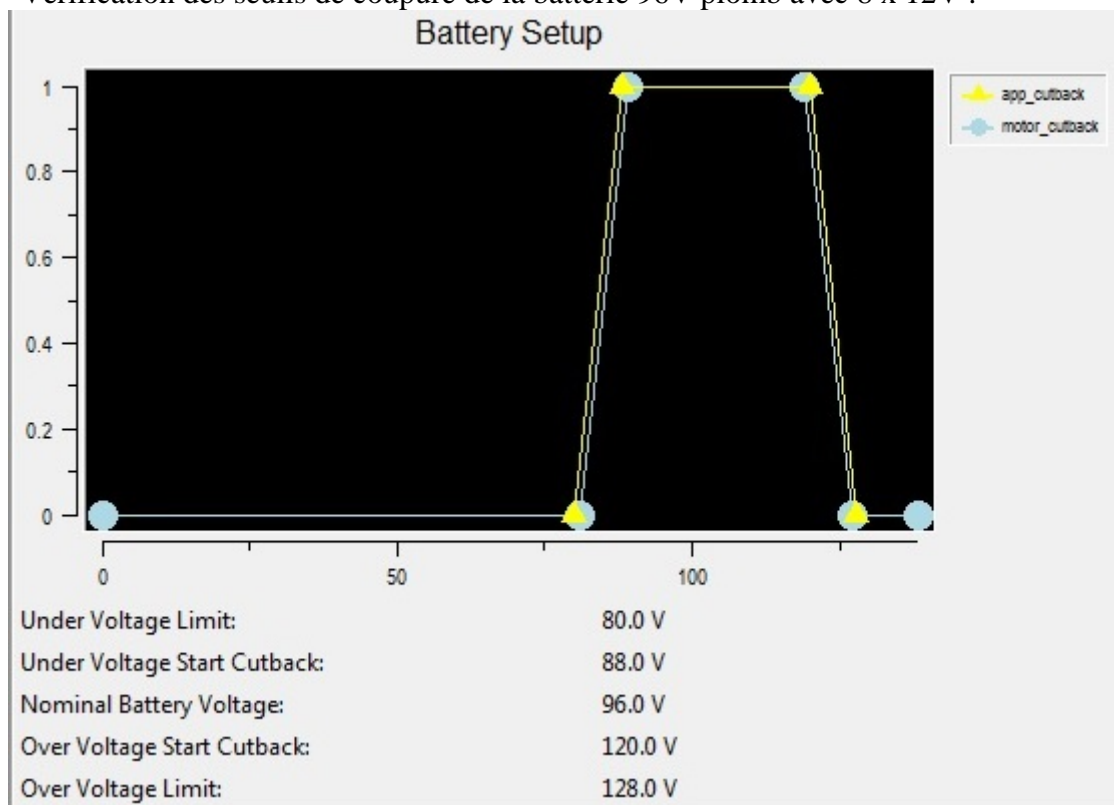
- Valeurs des gains : il y a un peu plus d'instabilité sur la régulation de vitesse

Speed and Current Gains	
Proportional gain	0.03125
Integral gain	0.0078125
Low Speed proportional gain	0.0
Low speed integral gain	0.0
Current control proportional gain (Kp)	2.5
Current control integral gain (Ki)	0.002471923828125

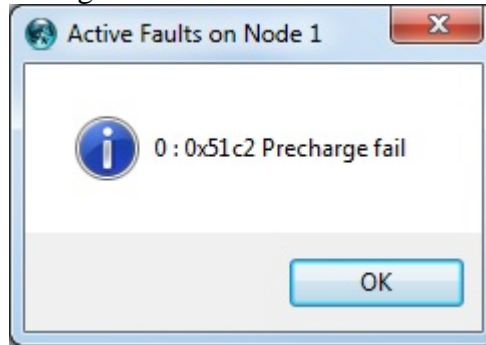
- Valeurs de la « Torque Maps 1 » : 120V 100A 10 kW 27 Nm nominale x3 = 81 Nm max.



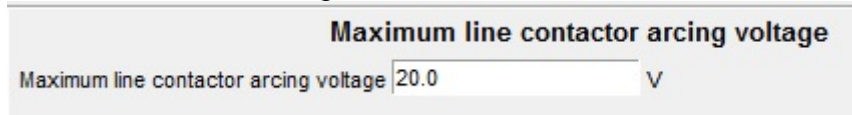
- Vérification des seuils de coupure de la batterie 96V plomb avec 8 x 12V :



- On a plus le défaut « Precharge Fail » ...



- Comparaison avec le fichier d'origine « 0x5824 Maximum line contactor arcing voltage » :



- Comparaison avec le fichier d'origine « 0x5820 Final precharge level » : de 80% vers 90%



- Comparaison avec le fichier d'origine « 0x5820 Minimum precharge level » : 5V → 10V



- Plus d'erreur « Precharge Fail » !
- « Go Operationnal » . Le moteur fonctionne très bien en marche avant et en marche arrière, sans couronne inertielle.
- Passage en « Node = 1 », « Recycle Power » et relance de DVTC.
- **En 250 kHz « Go Pre-operational »** pour la sauvegarde du fichier DCF : (518 ko, 0705.0013, pas d'erreur)

2019-06-25-ME0913-0705-0013-GEN4-110V-300A-KES-Ok-a-vide-10h11-Pre-Op.dcf