

Hi Performance Electric Vehicle Systems

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ORION BMS BYTE STRUCTURE

USE WITH HPEVS DRIVE SYSTEMS Generic 5.37 and Higher

Date: 2-8-18

Scope: The following details the information and set-up of the Orion BMS used with a HPEVS drive system with the Generic software version 5.37 and higher.

Disclaimer: This document assumes that the reader and the person making changes to the Orion BMS have knowledge on how to make the changes accordingly to the direction of this document. HPEVS is not responsible for any issues arising from changes made to the Orion BMS.

1. Open the Orion BMS utility. (Fig.1)

acces ritoine and Party Da	ta Diagnostic Trouble Codes Live Crayli & Data Logging Live Cell Data Live CANBUS Traffic Tools Tools Connect To BMS Connect To BMS From BMS F	a To BMS
	Charoe Limits Discharge Limits Relays Thermal Settings Fault Settings Addon Settings Cell Settings SOC Settings CANBUS Settings Addon Settings General Settings General Settings Current Sensor Selected	
	Multi-Purpose Dupt Function Carrent Sense Noted Signal Wulti-Purpose Output Function Carrent Sense Noted Show up as negative (-) Anways-On Power Source Not Med	
	Profile Password (Loding)	

Fig. 1

2. Select the CANBUS settings tab. (Fig. 2)

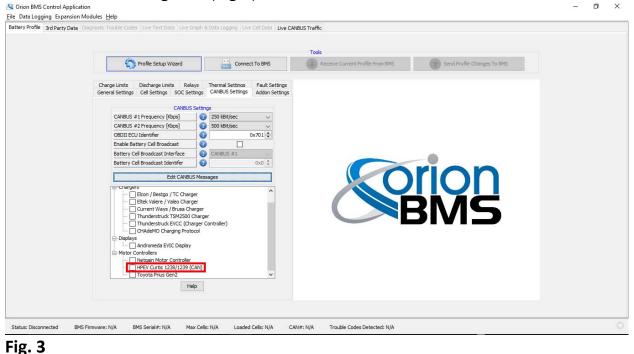
Section BMS Control Application Eile Data Logging Expansion Modules Help

Profile Setup Wiz	ard Connect To BMS	Tools Receive Current Profile From BMS Send Profile Changes To BMS	
Charoe Limits Discharge Limits General Settings Cell Settings	Relays Thermal Settings Fault Settings OC Settings CANBUS Settings Addon Settings		
Current Sensor Selected Multi-Purpose Input Function Multi-Purpose Output Function Turm MPO ONI If Gritical Fault Inver Multi-Purpose Output Polarit Pack Amp Hours [Ah] Current Sensor Polarity Inverted NOTE: Charging current should Always-On Power Source Not Used Profile Password (Lodding)	200.00 \	BMS	
Home Password (Looking)			

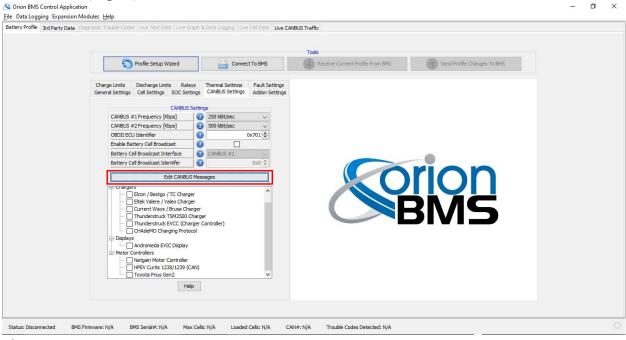
- 0 ×



3. Verify that the checkbox next to "HPEV Curtis 1238/1239 (CAN)" has been checked. The checkbox is located in the "Enable CANBUS Third Party Devices" dialog box. (Fig.3)



4. Select "Edit CANBUS Settings" box to open the CANBUS messages dialog box. (Fig. 4)





ORION BMS CANBUS MESSAGES SETTINGS

The following information needs to be verified/set so that the BMS is sending the correct information to the Curtis motor controller for both monitoring and control of the system.

 With the CANBUS messages dialog box open, verify that the checkbox next to both messages 0x300 and 0x301 are checked and enabled. (Fig. 5) If the two ID's are not checked, check the checkbox and click on the "Apply" button within the "Message Settings" dialog.

Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Dutor	Byte7	
Enabled	200-1	Length	Byteu			10.02.000	Byte4		Byte6	M. COMPA	
	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksum		IN USE	Custom Flag	^
	0x000	1.5	Constant Value	Constant Value		Constant Value	Constant Value		Constant Value		
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	IN USE	Pack Amphours	CRC Checksum	
	0x000	7	Pack Health	Pack DOD	Fan Voltage		Req. Fan Spee		IN USE		
	0x301	8	Pack SOC	High Temper	Pack CCL	Pack DCL	IN USE		High Cell Volt		
	0x300 0x1806E5F4	0.531	Low Cell Volt Constant Value	IN USE IN USE	High Cell Volt Pack CCL	IN USE IN USE	Pack Current Custom Flag	IN USE Blank	Pack Amphours Blank	IN USE Blank	
							-	2011/20170		,	
				1.1							
Message Set Speed (ms)		Receive/Transi	mit Transmit		ld Settings ld Length (Bytes):	1	n t	ultiply Value By:	1.0	Close	
Message Set Speed (ms) Extended	ttings	Receive/Transs	mit Transmit	Fie		Most Signific		ultiply Value By: nen Divide By:	1 🗘	Close Edit Flags	
Speed (ms)	104 🜩	-		- Fie Bit	ld Length (Bytes):		ant Bit 🧹 Th			Edit Flags	
Speed (ms) Extended	104	CAN1		Fie Bit By	eld Length (Bytes): Order (First):	Most Signific	ant Bit 🧹 Th	nen Divide By:	1 🗘		
Speed (ms) Extended IsCharging		CAN1 CAN2		Fie Bit By Zer	eld Length (Bytes): Order (First): te Order:	Most Signific	ant Bit 🧹 Th	nen Divide By: nen Add:	1 🗘	Edit Flags	5
Speed (ms) Extended IsCharging IsReady		CAN1 CAN2		Fie Bit By Zer Ma	ld Length (Bytes): Order (First): te Order: ro While Charging:	Most Signific	ant Bit Th	nen Divide By: nen Add:	1 🗘	Edit Flags	5



MESSAGE 0x300

 Looking at message 0x300, the following messages in order will need to be set/verified. 1) Low Cell Voltage, 2) High Cell Voltage, 3) Pack Current and, 4) Pack Amphours.

LOW CELL VOLTAGE

3. The following is the settings for Low Cell Voltage. The Bytes used are Byte0 and Byte 1 in message 0x300. In the dropdown menu for Byte0 make sure that Low Cell Voltage is selected. (Fig. 6 Fig. 7)

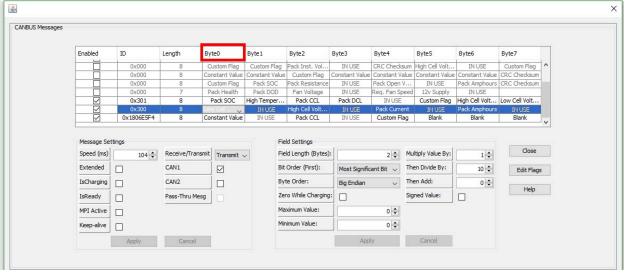


Fig. 6

Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksu	m High Cell Volt	IN USE	Custom Flag	^
	0x000	8	Constant Value	Constant Valu	e Custom Flag	Constant Value	Constant Val	ue Constant Value	Constant Value	CRC Checksum	
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.	IN USE	Pack Amphours	CRC Checksum	
	0x000	7	Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Spe		IN USE		
\checkmark	0x301	8	Pack SOC	High Temper		Pack DCL	IN USE	Custom Flag	High Cell Volt		
	0x300	8	Low Cel 🗸		High Cell Volt	IN USE	Pack Curren		Pack Amphours		
	0x1806E5F4	8	Low Cell Voltage High Cell Voltag		A Pack CCL	IN USE	Custom Flag	g Blank	Blank	Blank	~
Message Set Speed (ms)	ttings	Receive/Trans	Avg. Cell Voltag Low Opencell Vo High Opencell V Avg. Opencell V	oltage oltage	Settings Length (Bytes)	:	0 🗘	Multiply Value By:	1 🗘	Close	
Extended		CAN1	Low Cell Resista	ance	rder (First):	Most Signific	ant Bit 🔍	Then Divide By:	1 🔹	Edit Flags	
IsCharging		CAN2	High Cell Resist	ance -	, Order:	Big Endian	~	Then Add:	0 🗘		
IsReady		Pass-Thru Me	sg	Z	ero While Charging			Signed Value:		Help	8
MPI Active				M	aximum Value:		0 🌲				
Keep-alive				м	inimum Value:		0 🗘				
						App					



4. Make sure that the Message and Field Settings for Low Cell Voltage are the same as in (Fig 8).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: Checked CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 2 Bit Order (First): Most Significant Bit Byte Order: Big Endian Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 10 Then Add: 0 Signed Value: **UNCHECKED**

Enabled	ID	Length By	/te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
<u> </u>	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksur	n High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Co	instant Value	Constant Value	e Custom Flag	Constant Value	Constant Valu	e Constant Value	Constant Value	CRC Checksum	
	0x000	8 0	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	. IN USE	Pack Amphours	CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage		Req. Fan Spee		IN USE		
	0x301		Pack SOC	High Temper		Pack DCL	IN USE		High Cell Volt		
	0x300	8	w Cel v		High Cell Volt	IN USE	Pack Current	and the second se	Pack Amphours		
	0x1806E5F4	8 Co	nstant Value	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	V
Speed (ms)	104	Receive/Transmit	Transmit ·		eld Length (Bytes)			lultiply Value By:	1 🔹	Close	_
Extended		CAN1		Bit	t Order (First):	Most Signific	ant Bit 🗸 T	hen Divide By:	10 🜩	Edit Flag	s
IsCharging		CAN2		Ву	/te Order:	Big Endian	~ T	hen Add:	0 ≑		
IsReady		Pass-Thru Mesg		Ze	ero While Charging		S	igned Value:		Help	_
MPI Active				Ma	aximum Value:		0 🖨				
Keep-alive				Mi	nimum Value:		0 🜲				
	1										

Fig. 8

5. If any changes/additions have been made, click the "Apply" button to submit changes.

HIGH CELL VOLTAGE

 The following is the settings for High Cell Voltage. The Bytes used are Byte2 and Byte3 in message 0x300. In the dropdown menu for Byte2 make sure that High Cell Voltage is selected. (Fig. 9 Fig. 10)

Enabled	ID	Length By	/te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
Ħ	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag	^
Ē	0x000		instant Value			Constant Value	Constant Va	lue Constant Value	Constant Value		1
	0x000	8 0	Sustom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	IN USE	Pack Amphours		
	0x000	7 8	Pack Health	Pack DOD	Fan Voltage	IN USE	Reg. Fan Spi	eed 12v Supply	IN USE		1
	0x301	8	Pack SOC	High Temper	Pack CCL	Pack DCL	IN USE	Custom Flag	High Cell Volt	Low Cell Volt	
	0x300	8 Lo	w Cell Volt	IN USE	Han Celui 🧹	IN USE	Pack Curre	nt IN USE	Pack Amphours	IN USE	
	0x1806E5F4	8 Cc	nstant Value	IN USE	Pack CCL	IN USE	Custom Fla	g Blank	Blank	Blank	
MPI Active Keep-alive			1	<u></u>	aximum Value: nimum Value:		0 🜩				
	Apply	Cancel				Арр	łγ	Cancel			

Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
П	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag
Π	0x000	8 0	Constant Value	Constant Value	Custom Flag	Constant Value	Constant Va	lue Constant Value	Constant Value	CRC Checksum
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open \	IN USE	Pack Amphours	CRC Checksum
	0x000	7	Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Sp	eed 12v Supply	IN USE	
	0x301	8	Pack SOC	High Temper	Pack CCL	Pack DCL	IN USE	Custom Flag	High Cell Volt	
\leq	0x300		Low Cell Volt	IN USE	High Columny	IN USE	Pack Curre		Pack Amphours	
\checkmark	0x1806E5F4	8 0	Constant Value	IN USE	Low Cell Voltage High Cell Voltage		Custom Fla	ig Blank	Blank	Blank
Speed (ms) Extended	104 🗢	Receive/Transn CAN1	Transmit	Bit	High Opencell Vo Avg. Opencell Vo Low Cell Resista	oltage nce	2 ‡ It Bit ↓	Multiply Value By: Then Divide By:	1 🗘	Close Edit Flags
IsCharging		CAN2		By	High Cell Resista		~	Then Add:	0 ≑	1 July
IsReady		Pass-Thru Mes <u>c</u>		Ze	ro While Charging	· 🗆 🗆		Signed Value:		Help
MPI Active				Ma	aximum Value:		0 🗢			
Keep-alive				Mir	nimum Value:		0 ≑			
	Apply	Cancel				App	ły	Cancel		



7. Make sure that the Message and Field Settings for **High Cell Voltage** are the same as in (Fig 11).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: Checked CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 2 Bit Order (First): Most Significant Bit Byte Order: Big Endian Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 10 Then Add: 0 Signed Value: **UNCHECKED**

Enabled	ID	Length By	te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	1	ustom Flag	Custom Flag		IN USE	CRC Checksu	- Andrewson	IN USE	1	~
	0x000		nstant Value			Constant Value			Constant Value		A53
	0x000		ustom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.		Pack Amphours		
	0x000	7 P	ack Health	Pack DOD	Fan Voltage	IN USE	Reg. Fan Spe		IN USE		
	0x301	8 1	Pack SOC	High Temper	. Pack CCL	Pack DCL	IN USE	Custom Flag	High Cell Volt	Low Cell Volt	
	0×300		w Cell Volt	IN USE	High Cell-1 👽	INUSE	Pack Curren		Pack Amphours		
	0x1806E5F4	8 Co	nstant Value	IN USE	Pack CCL	IN USE	Custom Flag	g Blank	Blank	Blank	~
Speed (ms)	104 🔹	Receive/Transmit			eld Length (Bytes):			Multiply Value By:	1 🗢	Close	
Extended		CAN1		Bi	t Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	10 🜩	Edit Flags	
	-	CAN2		B	yte Order:	Big Endian	~	Then Add:	0 🗘		
IsCharging				74	ero While Charging:			Signed Value:		Help	-
IsCharging IsReady		Pass-Thru Mesg									
		Pass-Thru Mesg			aximum Value:		0				
IsReady		Pass-Thru Mesg		M	aximum Value: inimum Value:		0 ‡ 0 ‡				

Fig. 11

8. If any changes/additions have been made, click the "Apply" button to submit changes.

PACK CURRENT

9. The following is the settings for **Pack Current**. The Bytes used are Byte4 and Byte5 in message 0x300. In the dropdown menu for Byte4 make sure that **Pack Current** is selected. (Fig. 12 Fig. 13)

En	abled	ID	Length B	yte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	Ħ	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksu	m High Cell Volt	IN USE	Custom Flag	~
	Π	0x000	8 C	onstant Value	Constant Value	Custom Flag	Constant Value	Constant Val	ue Constant Value	Constant Value	CRC Checksum	
	Π	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open Vo	IN USE	Pack Amphours	CRC Checksum	
		0x000	7	Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Spe	ed 12v Supply	IN USE		
	\checkmark	0x301	8	Pack SOC	High Temper		Pack DCL	IN USE	Custom Flag	High Cell Volt	Low Cell Volt	
		0x300		w Cell Volt	IN USE	High Cell Volt	IN USE		V IN USE	Pack Amphours		
	\checkmark	0x1806E5F4	8 C	onstant Value	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	~
100	beed (ms)	104 🜩	Receive/Transmi	Transmit 、	Fie	ld Length (Bytes):		2 🗘 🛚	ultiply Value By:	1	Close	
E	ktended		CAN1		Bit	Order (First):	Most Significa	ant Bit 🗸 T	hen Divide By:	1	Edit Flag	s
Is	Charging		CAN2		By	te Order:	Big Endian	~ T	hen Add:	0	Help	
Is	Ready		Pass-Thru Mesg		Zer	ro While Charging:		S	igned Value:			
	PI Active				Ma	iximum Value:		0 🜲				
M	ep-alive				Mir	himum Value:		0 🜩				
-							Appl		Cancel			

Fig. 12

Enabled	ID	Length B	/te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
Ē	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksu	m High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Cc	instant Value	Constant Value	Custom Flag	Constant Value	Constant Valu	e Constant Value	Constant Value	CRC Checksum	
	0x000	8 (Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open Vo.	IN USE	Pack Amphours	CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Spei		IN USE	-	Č.
	0x301		Pack SOC	High Temper	Pack CCL	Pack DCL	IN USE	Custom Flag	High Cell Volt		
	0x300		w Cell Volt	IN USE	High Cell Volt	INUSE		/ IN USE	Pack Amphours		
	0x1806E5F4	8 Co	instant Value	IN USE	Pack CCL	IN USE	Pack Current Pack Inst. Volt	1	Blank	Blank	~
Message Set Speed (ms)	ttings	Receive/Transmit	Transmit 🕔		ld Settin <mark>g</mark> s ld Length (Bytes):		Pack Open Vol Pack SOC Pack Amphour Pack Resistan	s	1	Close	
Extended		CAN1		Bit	Order (First):	Most Significa	Pack DOD		1	Edit Flag	s
IsCharging		CAN2		By	te Order:	Big Endian	Pack Health	·····		Help	-
IsReady		Pass-Thru Mesg		Zer	o While Charging:		Si	gned Value:		nep	
MPI Active				Ma	ximum Value:		0 🜩				
Keep-alive				Mir	nimum Value:		0 🜩				
	Apply	Cancel				Appl		Cancel			

Fig. 13

10. Make sure that the Message and Field Settings for **Pack Current** are the same as in (Fig 14).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 2 Bit Order (First): Most Significant Bit Byte Order: Big Endian Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 1 Then Add: 0 Signed Value: **CHECKED**

Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
- H	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Check	sum High Cell Volt	IN USE	Custom Flag	~
	0x000	8 1	Constant Value	Constant Value	e Custom Flag	Constant Value	Constant V	alue Constant Value	Constant Value	CRC Checksum	
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open 1	Vo IN USE	Pack Amphours	CRC Checksum	ium i
	0x000	7	Pack Health	Pack DOD	Fan Voltage		Req. Fan S		IN USE		1
	0x301	8	Pack SOC	High Temper		Pack DCL	IN USE			Low Cell Volt	
N N	0x300 0x1806E5F4		Low Cell Volt Constant Value	IN USE	High Cell Volt Pack CCL	IN USE IN USE	Custom F	IN USE	Pack Amphours Blank	IN USE Blank	
Message Set			1		eld Settings	13				dan	_
Speed (ms)	tings	Receive/Transm	it Transmit 、	Fie	eld Length (Bytes):		2	Multiply Value By:	1	Close	
a second a second		Receive/Transm CAN1	it Transmit 🗸	Fie	SUBJECT VIEW AND	Most Significa		Multiply Value By: Then Divide By:	1 🜩	Close Edit Flag	S
Speed (ms)	104		inditatine s	Fie Bit	eld Length (Bytes):	1	ant Bit 🗸			Edit Flag	S
Speed (ms) Extended	104	CAN1		Fie Bit By	eld Length (Bytes): : Order (First):	Most Significa	ant Bit 🗸	Then Divide By:	1		S
Speed (ms) Extended IsCharging	104	CAN1 CAN2		Fie Bit By Ze	eld Length (Bytes): : Order (First): :te Order:	Most Significa Big Endian	ant Bit 🗸	Then Divide By: Then Add:	1 🜩 0 🜩	Edit Flag	S
Speed (ms) Extended IsCharging IsReady	104	CAN1 CAN2		Fie Bit By Ze Ma	eld Length (Bytes): : Order (First): :te Order: :ro While Charging:	Most Significa Big Endian	ant Bit 🗸	Then Divide By: Then Add:	1 🜩 0 🜩	Edit Flag	S

Fig. 14

11. If any changes/additions have been made, click the "Apply" button to submit changes.

PACK AMPHOURS

12. The following is the settings for **Pack AmpHours**. The Bytes used are Byte6 and Byte7 in message 0x300. In the dropdown menu for Byte6 make sure that **Pack AmpHours** is selected. (Fig. 15 Fig. 16)

Enabled	ID	Length By	rte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	8 0	ustom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	sum High Cell Volt	IN USE	Custom Flag	~
	0x000		nstant Value	Constant Value		Constant Value		alue Constant Value			
	0x000	8 C	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open	V IN USE	Pack Amphours	CRC Checksum	
	0x000		ack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Sp		IN USE		
	0x301			High Temper	Pack CCL	Pack DCL	IN USE		High Cell Volt		
	0x300 0x1806E5F4		w Cell Volt nstant Value	IN USE IN USE	High Cell Volt Pack CCL	IN USE IN USE	Pack Curre Custom Fla		Blank	IN USE Blank	
					eld Settings	÷					-
Speed (ms)	104 ≑	Receive/Transmit	Transmit		eld Securigs eld Length (Bytes):	1	2 🗘	Multiply Value By:	1	Close	
Speed (ms) Extended	104 🖨	Receive/Transmit		Fie		Most Signific	housed	Multiply Value By: Then Divide By:	1	Close Edit Flags	
1.0550		1 <u>-</u>	Transmit	Fiel Bit	eld Length (Bytes):		housed	100 Co.		Edit Flags	
Extended		CAN1		- Fie Bit By	eld Length (Bytes): : Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	1-		
Extended IsCharging		CAN1 CAN2		Fie Bit By Ze	eld Length (Bytes): Order (First): te Order:	Most Signific	ant Bit 🗸	Then Divide By: Then Add:		Edit Flags	
Extended IsCharging IsReady		CAN1 CAN2		Pie Bit By Ze Ma	eld Length (Bytes): Order (First): te Order: ro While Charging:	Most Signific	ant Bit ∨	Then Divide By: Then Add:		Edit Flags	



Enabled	ID	Length B	yte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksu	m High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Ci	onstant Value	Constant Value	Custom Flag	Constant Value	Constant Valu	ue Constant Value	Constant Value	CRC Checksum	1
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.	IN USE	Pack Amphours	CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage		Req. Fan Spe		IN USE		
	0x301		Pack SOC	High Temper		Pack DCL	IN USE		High Cell Volt		
	0x300		w Cell Volt	IN USE	High Cell Volt	IN USE	Pack Curren	and the second	Pack Am. , 🗸	IN USE	
	0x1806E5F4	8 Ci	onstant Value	IN USE	Pack CCL	IN USE	Custom Flag	g Blank	Rolling Counter Pack CCL		` .
Speed (ms)	104 🜩	Receive/Transmit			eld Length <mark>(</mark> Bytes):			Multiply Value By:	Pack Inst. Volta Pack Open Volta		
Extended		CAN1		Bit	Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	Pack SOC		
IsCharging		CAN2		Ву	te Order:	Big Endian	~	Then Add:	Pack Amphours	Help	~
IsReady		Pass-Thru Mesg		Ze	ro While Charging			Signed Value:			
MPI Active				Ma	aximum Value:		0 🜩				
				Mi	nimum Value:		0 🜩				
Keep-alive											

Fig. 16

13. Make sure that the Message and Field Settings for **Pack AmpHours** are the same as in (Fig 17).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 2 Bit Order (First): Most Significant Bit Byte Order: Big Endian Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 1 Then Add: 0 Signed Value: **CHECKED**

Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
- H	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksum	High Cell Volt	IN USE	Custom Flag	^
	0x000	8 (Constant Value	Constant Value	Custom Flag	Constant Value	Constant Value	Constant Value	Constant Value	CRC Checksum	
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	IN USE	Pack Amphours	CRC Checksum	
	0x000	7	Pack Health	Pack DOD	Fan Voltage		Req. Fan Spee		IN USE		
	0x301	8	Pack SOC	High Temper	Pack CCL	Pack DCL	IN USE		High Cell Volt		
	0x300		Low Cell Volt	IN USE	High Cell Volt	IN USE	Pack Current	IN USE	Pauk Amari 🧹	IN USE	
	0x1806E5F4	8 0	Constant Value	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	
Message Se	ttings			Fie	eld Settings		5 (S)		-		~
Message Se Speed (ms)		Receive/Transm	nit Transmit		eld Settings eld Length (Bytes):	1	2 🌩 M	ultiply Value By:	1 🗘	Close	~
	ttings	Receive/Transm		Fie	7241100700.	Most Signific	- 14	ultiply Value By: nen Divide By:			
Speed (ms)	104 🜩	1.		- Fie Bit	eld Length (Bytes):		ant Bit 🗸 T		1 🜩	Edit Flag	
Speed (ms) Extended	104	CAN1		Fie Bit By	eld Length (Bytes): : Order (First):	Most Signific Big Endian	ant Bit 🗸 Ti	nen Divide By:			
Speed (ms) Extended IsCharging	104 ÷	CAN1 CAN2		- Fie Bit By Ze	eld Length (Bytes): Order (First): te Order:	Most Signific Big Endian	ant Bit 🗸 Ti	nen Divide By: nen Add:		Edit Flag	
Speed (ms) Extended IsCharging IsReady		CAN1 CAN2		Fie Bit By Ze Ma	eld Length (Bytes): Order (First): te Order: ro While Charging:	Most Signific Big Endian	ant Bit v TI	nen Divide By: nen Add:		Edit Flag	

Fig. 17

14. If any changes/additions have been made, click the "Apply" button to submit changes.

 Looking at message 0x301, the following messages in order will need to be set/verified. 1) Pack SOC, 2) High Temperature, 3) Pack CCL, 4) Pack DCL, 5) CUSTOM FLAG, 6) High Cell Voltage, and 7) Low Cell Voltage.

PACK SOC

 The following is the settings for Pack SOC. The Byte used is Byte0 in message 0x301. In the dropdown menu for Byte0 make sure that Pack SOC is selected. (Fig. 18 Fig. 19)

Enabled	ID	Length B	yte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
H	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Cr	onstant Value	Constant Value	e Custom Flag	Constant Value	Constant Va	lue Constant Value	Constant Value	CRC Checksum	
	0x000	8 (Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open \	IN USE	Pack Amphours	CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage		Req. Fan Sp		IN USE		
	0x301	8		High Temper		Pack DCL	IN USE	Custom Flag	High Cell Volt		
	0x300		w Cell Volt	IN USE	High Cell Volt	IN USE	Pack Curre		Pack Amphours		
	0x1806E5F4	8 C	onstant Value	IN USE	Pack CCL	IN USE	Custom Fla	ig Blank	Blank	Blank	v
	tinas			Fi	eld Settinas						
Speed (ms)	104 🜩	Receive/Transmit	Transmit		eld Settings eld Length <mark>(</mark> Bytes):		1 🜩	Multiply Value By:	1+	Close	
		Receive/Transmit	Transmit	Fi		Most Signific		Multiply Value By: Then Divide By:	1 ↓ 2 ↓	Close Edit Flags	5
Speed (ms)	104 🜩		1 In Garlounie	× Fi Bi	eld Length (Bytes):					Edit Flags	5
Speed (ms) Extended	104 🔹	CAN1		Fi Bi By Ze	eld Length (Bytes): t Order (First): yte Order: ero While Charging:	Most Signific	ant Bit 🗸	Then Divide By:	2 🐳		5
Speed (ms) Extended IsCharging	104 🜩	CAN1 CAN2		P Fi Bi Z(M	eld Length (Bytes): t Order (First): yte Order: ero While Charging: aximum Value:	Most Signific	ant Bit v	Then Divide By: Then Add:	2 ÷	Edit Flags	5
Speed (ms) Extended IsCharging IsReady	104 🖨	CAN1 CAN2		P Fi Bi Z(M	eld Length (Bytes): t Order (First): yte Order: ero While Charging:	Most Signific	ant Bit 🗸	Then Divide By: Then Add:	2 ÷	Edit Flags	5



Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
<u> </u>	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag	^
	0x000	8	Constant Value	Constant Valu	e Custom Flag	Constant Value	Constant Va	lue Constant Value	Constant Value	CRC Checksum	
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open \	/ IN USE	Pack Amphours	CRC Checksum	i i
	0x000	7	Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Sp		IN USE		
\sim	0x301	8	Pack SDC	High Temper		Pack DCL	IN USE	Custom Flag	High Cell Volt		
	0x300		Rolling Counter		∧ igh Cell Volt	IN USE	Pack Curre		Pack Amphours		
	0x1806E5F4		Pack CCL Pack DCL		Pack CCL	IN USE	Custom Fla	ag Blank	Blank	Blank	~
Message Se Speed (ms)	ttings	Receive/Trans	Pack Current Pack Inst. Volta Pack Open Volta Pack SOC		Settings Length (Bytes):	1	Multiply Value By:	1	Close	
Extended		CAN1	Pack Amphours		✓ der (First):	Most Signific	ant Bit 🗸	Then Divide By:	2 🜲	Edit Flags	
IsCharging		CAN2		B	yte Order:	Big Endian	~	Then Add:	0		
IsReady		Pass-Thru Mes	g	Z	ero While Chargin	g: 🗌		Signed Value:		Help	-
MPI Active				м	laximum Value:		0 🜩				
Keep-alive				м	linimum Value:		0				
	Apply	Cancel				App		Cancel			



3. Make sure that the Message and Field Settings for **Pack SOC** are the same as in (Fig 20).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 1 Bit Order (First): Most Significant Bit Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 2 Then Add: 0 Signed Value: **UNCHECKED**

Enabled	ID	Length By	rte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
- <u></u>	0x000	8 C	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Co	instant Value	Constant Value	Custom Flag	Constant Value	Constant Va	lue Constant Value	Constant Value	CRC Checksum	i
	0x000		Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open \	/ IN USE		CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Sp		IN USE		
	0x301	8		High Temper		Pack DCL	IN USE		High Cell Volt		
	0x300 0x1806E5F4		w Cell Volt	IN USE IN USE	High Cell Volt Pack CCL	IN USE	Pack Currer Custom Fla		Pack Amphours Blank	IN USE Blank	
Message Set	tings			Fie	eld Settings						
Speed (ms)	104 🗘	Receive/Transmit	Transmit 🔨	- Fie	eld Length (Bytes):		1 🗘	Multiply Value By:	1 🗘	Close	
				Bit	t Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	2 🔹	Edit Flags	5
Extended		CAN1		Div		riosc orginine					
Extended IsCharging		CAN1 CAN2			te Order:	Big Endian	~	Then Add:	0 🜩	Hole	
	ALC: NOTE: N			Ву	1000000	Big Endian	~	Then Add: Signed Value:	0 🖨	Help	
IsCharging		CAN2		By Ze	te Order:	Big Endian	0 💠		[Help	
IsCharging IsReady		CAN2		By Ze Ma	rte Order: ro While Charging	Big Endian	~		[Help	

Fig. 20

4. If any changes/additions have been made, click the "Apply" button to submit changes.

HIGH TEMPERATURE

5. The following is the settings for **High Temperature**. The Byte used is Byte1 in message 0x301. In the dropdown menu for Byte1 make sure that **High Temperature** is selected. (Fig. 21 Fig. 22)

											1.000
Enabled	ID	Length By	yte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksum	High Cell Volt	IN USE	Custom Flag	~
	0x000	8 Co	onstant Value	Constant Value	Custom Flag	Constant Value	Constant Value	Constant Value	Constant Value	CRC Checksum	
	0x000	8 0	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	IN USE	Pack Amphours	CRC Checksum	
	0x000	7 F	Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Speed	12v Supply	IN USE		
	0x301		Pack SOC		Pack CCL	Pack DCL	IN USE		High Cell Volt		
	0x300		w Cell Volt	IN USE	High Cell Volt	IN USE	Pack Current	IN USE	Pack Amphours		
\sim	0x1806E5F4	8 Co	onstant Value	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	
Speed (ms)	104 🗘	Receive/Transmit	Transmit	Fie	d Length (Bytes):		1 🜩 Mu	ultiply Value By:	1 🖨	Close	
							1	unpry value by.	1		
Extended		CAN1		Bit	Order (First):	Most Signific	- <u>-</u>	ien Divide By:	1	Edit Flags	s
Extended IsCharging		CAN1 CAN2			Order (First): te Order:		ant Bit 🗸 Th				s
The second second			1 333	Ву		Most Signific	ant Bit V Th	nen Divide By:	1÷	Edit Flags Help	s
IsCharging		CAN2	1 333	By Ze	te Order:	Most Signific	ant Bit V Th	nen Divide By:	1 🗘 0 🗘		IS
IsCharging IsReady		CAN2	1 333	By Ze Ma	te Order: ro While Charging:	Most Signific	ant Bit V Th	nen Divide By:	1 🗘 0 🗘		IS



Enabled	ID	Length	Byte0	Byte 1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksu	m High Cell Volt	INUSE	Custom Flag	~
	0x000		Constant Value			Constant Value		e Constant Value	Constant Value		
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.	IN USE	Pack Amphours	CRC Checksum	
	0x000	7	Pack Health	Pack DOD	Fan Voltage		Req. Fan Sper		IN USE		
	0x301	8	Pack SOC	High Te 🗸	Pack CCL	Pack DCL	IN USE	Custom Flag	High Cell Volt		
N N	0x300 0x1806E5F4		Low Cell Volt Constant Value	Pack DCL KW	-	IN USE	Pack Current Custom Flag		Pack Amphours Blank	IN USE Blank	-
Message S Speed (ms Extended	104	Receive/Transr	mit Transmit	Simulated SOC Simulated Mode Simulated Req. TP ADC	e Mode	Most Signific		Multiply Value By:	1	Close	
IsCharging		CAN2		High Temperat By	vte Order:	Big Endian		Then Add:		Edit Flag	S
IsReady		Pass-Thru Mes	_	Ze	ero While Charging	The second se	5	Signed Value:		Help	
MPI Active		-		M	aximum Value:		0				
Keep-alive				Mi	nimum Value:		0 🖨				
	Apply	Cancel				App	ly	Cancel			

Fig. 22

6. Make sure that the Message and Field Settings for **High Temperature** are the same as in (Fig 23).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 1 Bit Order (First): Most Significant Bit Zero While Charging: UNCHECKED Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 1 Then Add: 0 Signed Value: UNCHECKED

Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksur	High Cell Volt	IN USE	Custom Flag
H H	0x000	8	Constant Value	Constant Value	Custom Flag	Constant Value	Constant Valu	e Constant Value	Constant Value	
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.	. IN USE	Pack Amphours	CRC Checksum
	0x000	7	Pack Health	Pack DOD	Fan Voltage		Req. Fan Spee	d 12v Supply	IN USE	
	0x301	8	Pack SOC			Pack DCL	IN USE	Custom Flag	High Cell Volt	
	0x300	8	Low Cell Volt	IN USE	High Cell Volt	IN USE	Pack Current		Pack Amphours	IN USE
\sim	0x1806E5F4	8	Constant Value	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank
								han Divide Duy		
Extended		CAN1			: Order (First):	Most Significa		hen Divide By:	1 🜩	Edit Flags
IsCharging		CAN1 CAN2		By	te Order:	Big Endian	v 1	hen Add:		
				By			v 1			Edit Flags Help
IsCharging		CAN2		By	te Order:		v 1	hen Add:	0 ≑	
IsCharging IsReady		CAN2		By Ze Mi	te Order: ro While Charging:		1	hen Add:	0 ≑	

7. If any changes/additions have been made, click the "Apply" button to submit changes.

PACK CCL

8. The following is the settings for PACK CCL. The Byte used is Byte2 in message 0x301. In the dropdown menu for Byte2 make sure that PACK CCL is selected. (Fig. 24 Fig. 25)

Enabled	ID	Length By	te0	Byte 1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	8 C	ustom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksur	m High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Co	nstant Value	Constant Value	Custom Flag	Constant Value	Constant Valu	e Constant Value	Constant Value	CRC Checksum	
	0x000		ustom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.			CRC Checksum	
	0x000		ack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Spee		IN USE		
	0x301		Pack SOC	High Temper	High Cell Volt	Pack DCL	IN USE	Custom Flag	High Cell Volt		
	0x300 0x1806E5F4		w Cell Volt	IN USE IN USE	Pack CCL	IN USE	Pack Current Custom Flag		Pack Amphours Blank	Blank	8
											~
Message Se	ttings			Fie	eld Settings						_
Speed (ms)	104 🖨	Receive/Transmit	Transmit -	- Fie	eld Length (Bytes)		1 ‡ P	Aultiply Value By:	1 🖨	Close	
Extended		CAN1		Bit	t Order (First):	Most Signific	ant Bit 🗸 🧵	Then Divide By:	5 🜩	Edit Flag	s
IsCharging		CAN2		Ву	rte Order:	Big Endian	v 1	'hen Add:	0 🜲		
IsReady		Pass-Thru Mesg		Ze	ro While Charging		5	Gigned Value:		Help	_
				Ma	aximum Value:		0 🗢				
MPI Active				Mi	nimum Value:		0				
MPI Active Keep-alive											

Fig. 24

Enabled	ID	Length	Byte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
<u> </u>	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksun	n High Cell Volt	IN USE	Custom Flag	^
	0x000	8	Constant Value	Constant Value	Custom Flag	Constant Value	Constant Value	e Constant Value	Constant Value	CRC Checksum	
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	. IN USE	Pack Amphours	CRC Checksum	
	0x000	7	Pack Health	Pack DOD	Fan Voltage		Req. Fan Spee	d 12v Supply	IN USE		
	0x301	8	Pack SOC	High Temper	Raid: CCL 🧹	Pack DCL	IN USE	Custom Flag	High Cell Volt		
	0x300		ow Cell Volt	IN USE	Pack CCL		 Pack Current 		Pack Amphours		
	0x1806E5F4	8	Constant Value	IN USE	Pack DCL Pack Current		Custom Flag	Blank	Blank	Blank	V
Message Set Speed (ms) Extended	104 🐳	Receive/Transm	Transmit	/ Fit	el Pack Open Volta Pack SOC Pack Amphours			Iultiply Value By:	1 🔹	Close Edit Flag	
IsCharging		CAN2			rte Order:	Big Endian		hen Add:	0 \$		
IsReady		Pass-Thru Meso		Ze	ero While Charging		s	igned Value:		Help	
MPI Active				Ma	aximum Value:		0 ≑				
Keep-alive				Mi	nimum Value:		0 🜩				

Fig. 25

9. Make sure that the Message and Field Settings for **PACK CCL** are the same as in (Fig 26).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 1 Bit Order (First): Most Significant Bit Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 5 Then Add: 0 Signed Value: **UNCHECKED**

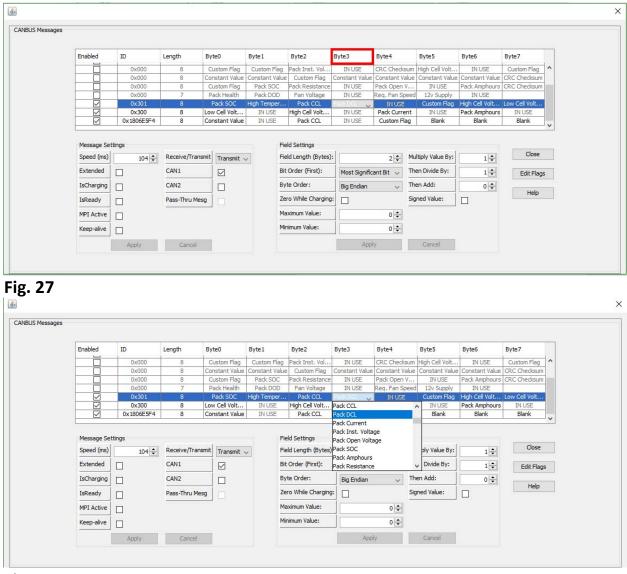
Enabled	ID	Length By	te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
H	0x000	8 0	ustom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Co	nstant Value	Constant Value	Custom Flag	Constant Value	Constant Va	alue Constant Value	Constant Value	CRC Checksum	
	0x000		lustom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open	V IN USE	Pack Amphours	CRC Checksum	
	0x000		ack Health	Pack DOD	Fan Voltage		Req. Fan Sp		IN USE		
	0x301		Pack SOC	High Temper		Pack DCL	IN USE		High Cell Volt		
	0x300 0x1806E5F4		w Cell Volt	IN USE IN USE	High Cell Volt Pack CCL	IN USE IN USE	Pack Curre Custom Fla		Pack Amphours Blank	IN USE Blank	3
Message Se			12		eld Settings	12				dee	
Speed (ms)	104 🜲	Receive/Transmit	Transmit	Fie	eld Length (Bytes):		1 🖨	Multiply Value By:	1 🜲	Close	
Extended		CAN1		Bit	: Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	5 🜲	Edit Flags	
IsCharging		CAN2		Ву	te Order:	Big Endian	~	Then Add:	0 🜲		
		Pass-Thru Mesg		Ze	ro While Charging			Signed Value:		Help	
IsReady				Ма	aximum Value:		0 🜲				
IsReady MPI Active				Mir	nimum Value:		0				
				1-10	and the second second						



10.If any changes/additions have been made, click the "Apply" button to submit changes.

PACK DCL

11. The following is the settings for **PACK DCL**. The Byte used is Byte3 and Byte4 in message 0x301. In the dropdown menu for Byte3 make sure that **PACK DCL** is selected. (Fig. 27 Fig. 28)





12. Make sure that the Message and Field Settings for **PACK DCL** are the same as in (Fig 29).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 2 Bit Order (First): Most Significant Bit Byte Order: Big Endian Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 1 Then Add: 0 Signed Value: **UNCHECKED**

Enabled	ID	Length B	yte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksur	High Cell Volt	IN USE	Custom Flag
	0x000		onstant Value			Constant Value				
	0x000	8	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.	. IN USE	Pack Amphours	CRC Checksum
	0x000	7	Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Spee	ed 12v Supply	IN USE	
	0x301	8	Pack SOC	High Temper	. Pack CCL	Pask DCL 😜	IN USE	Custom Flag	High Cell Volt	Low Cell Volt
	0x300		ow Cell Volt	IN USE	High Cell Volt	IN USE	Pack Current		Pack Amphours	IN USE
\checkmark	0x1806E5F4	8 0	onstant Value	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank
Speed (ms)	104 🜩	Receive/Transmi	Transmit	- H	eld Length (Bytes)		2 🖨 🕺	fultiply Value By:	1 🗘	Close
	and S	CAN1			it Order (First):			Then Divide By:		
				-	10000000	Most Signific		0 20100	1 🜩	Edit Flags
IsCharging		CAN2		B	yte Order:	Big Endian	~ 1	hen Add:	0 🜩	
IsReady		Pass-Thru Mesg		Z	ero While Charging		S	igned Value:		Help
MPI Active				м	laximum Value:		0			
Keep-alive	_			м	linimum Value:	-	0 ≑			

Fig. 29

13. If any changes/additions have been made, depressed the "Apply" button to submit changes.

CUSTOM FLAG

14.The following is the settings for **CUSTOM FLAG**. The Byte used is Byte5 in message 0x301. In the dropdown menu for Byte5 make sure that **CUSTOM FLAG** is selected. (Fig. 30 Fig. 31)

3											_
Enabled	ID	Length By	/te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	m High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Co	onstant Value	Constant Value	Custom Flag	Constant Value	Constant Val	ue Constant Value	Constant Value	CRC Checksum	
	0x000		Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V		Pack Amphours	CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage		Req. Fan Spe		IN USE		
	0x301 0x300		Pack SOC	High Temper IN USE		Pack DCL IN USE	IN USE Pack Curren		High Cell Volt Pack Amphours	Low Cell Volt IN USE	
	0x300 0x1806E5F4		w Cell Volt	IN USE	High Cell Volt Pack CCL	IN USE	Custom Fla	2	Blank	Blank	
Message Set	ttings										
				Fie	eld Settings						_
Speed (ms)	104 🜩	Receive/Transmit	Transmit		eld Settings eld Length (Bytes):		1 🜩	Multiply Value By:	1	Close	
Speed (ms) Extended	104 🖨	Receive/Transmit	Transmit	Fi		Most Signific		Multiply Value By:	1 ÷	Close Edit Flags	5
	(Line)		1	- Fi	eld Length (Bytes):		ant Bit 🗸			Edit Flag	3
Extended		CAN1		- Fil Bit By	eld Length (Bytes): t Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	1 🗘		5
Extended IsCharging		CAN1 CAN2		- Fil Bit By Ze	eld Length (Bytes): t Order (First): /te Order:	Most Signific	ant Bit 🗸	Then Divide By:	1 🗘	Edit Flag	;
Extended IsCharging IsReady		CAN1 CAN2		- Fil Bit By Ze Ma	eld Length (Bytes): t Order (First): rte Order: rro While Charging:	Most Signific	ant Bit 🗸	Then Divide By:	1 🗘	Edit Flag	5



ages											
Enabled	ID	Length B	yte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
										1.	
<u> </u>	0x000		Custom Flag	Custom Flag Constant Value		IN USE Constant Value	CRC Checksur	-	IN USE Constant Value	Custom Flag CRC Checksum	
	0x000		Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V			CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage		Reg. Fan Spee		IN USE	Gree Griecksum	
	0x301		Pack SOC	High Temper		Pack DCL	IN USE		High Cell Volt	Low Cell Volt	2
	0x300	8 Lo	w Cell Volt	IN USE	High Cell Volt	IN USE	Pack Current			IN USE	
	0x1806E5F4	8 Co	onstant Value	IN USE	Pack CCL	IN USE	Custom Flag	Relay State		Blank	
Message Speed (n		Receive/Transmit	Transmit		eld Settings eld Length (Bytes)		1	Populated Cells		Close	
Extender		CAN1		Bi	t Order (First):	Most Signific	cant Bit 🗸 🍈	hePack DCL		✓ Edit Flags	3
IsChargi	ng 🗌	CAN2		By	yte Order:	Big Endian	. · · · ·	Custom Flag #:	2 🜲		
IsReady		Pass-Thru Mesg		Ze	ero While Charging		S	igned Value:		Help	
MPI Activ	re 🔲		-	M	aximum Value:		•				
				Mi	inimum Value:		0 🜲				
Keep-aliv	e 🗌										



15.To open the **"Custom Flags"** dialog box, select the "Edit Flags" button as shown in Fig. 32.

1	ģ		

	ID	Length By	te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
П	0x000	8 0	ustom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Co	nstant Value	Constant Valu	e Custom Flag	Constant Value	Constant Va	alue Constant Value	Constant Value	CRC Checksum	
	0x000	8 C	ustom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open \	/ IN USE	Pack Amphours	CRC Checksum	
	0x000	7 P	ack Health	Pack DOD	Fan Voltage		Req. Fan Sp		IN USE	2	
\sim	0x301		Pack SOC	High Temper		Pack DCL	IN USE		High Cell Volt		
\checkmark	0x300	2.6	v Cell Volt	IN USE	High Cell Volt	IN USE	Pack Curre		Pack Amphours		
\checkmark	0x1806E5F4	8 Co	nstant Value	IN USE	Pack CCL	IN USE	Custom Fla	ag Blank	Blank	Blank	
Extended		CAN1		Bi	t Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	1 🗘	Edit Flags	
IsCharging		CAN2		B	yte Order:	Big Endian	~	Custom Flag #:	2 🔹		
IsReady		Pass-Thru Mesg		Z	ero While Charging	: 0		Signed Value:		Help	
MPI Active				M	aximum Value:		0 🜩				
MPI Acuve				M	inimum Value:		0 🜩				
Keep-alive											

×

Fig. 32

16. When the "Custom Flags" dialog box opens, select Custom Flag #2 (Fig. 33).

BUS Messages			Custom Flags		-						
		Custom Flag #0	-								
	Enabled	Custom Flag #1				Byte3	Byte4	Byte5	Byte6	Byte7	1
		Custom Flag #2				-			-		
		Custom Flag #3			: Vol	IN USE Constant Value	CRC Checksu Constant Valu		IN USE Constant Value	Customriag	1
					istance	IN USE	Pack Open V.			CRC Checksum	
					Itage	INUSE	Reg. Fan Spe		IN USE	GRC CHECKSUM	
		Bit #1 (0x01) Type	Charge Interlock		CCL	Pack DCL	INUSE		High Cell Volt	Low Cell Volt	
	N N N N N N N N N N N N N N N N N N N	Bit #2 (0x02) Type	DTC: Thermistor Fault		Volt	IN USE	Pack Curren		Pack Amphours		
		Bit #3 (0x04) Type	DTC: Weak Cell Fault	`	CCL	IN USE	Custom Flag	g Blank	Blank	Blank	
		Bit #4 (0x08) Type	DTC: Low Cell Voltage	Fault 🕔						•	4
	Message Set	Bit #5 (0x10) Type	DTC: Open Cell Voltage	e Fault	s						
	Speed (ms)	Bit #6 (0x20) Type	DTC: Current Sensor F	ault	(Bytes)		1	Multiply Value By:	1 🔹	Close	1
		Bit #7 (0x40) Type	Blank								÷
	Extended	Bit #8 (0x80) Type	DTC: High Voltage Isol	ation Fault 🔍	rst):	Most Signific	ant Bit 🗸	Then Divide By:	1 🔹	Edit Flags	
	IsCharging	Apply	What's Th	nis?		Big Endian	4	Custom Flag #:	2 🜲		
	IsReady	1	tornesg		tharging	: _		Signed Value:		Help	1
	MPI Active			Maximu	n Value:		0 🜩				
	Keep-alive	_		Minimun	Value:		0 🜩				
		Apply Ca	ancel			Appl	ly	Cancel			



17. Verify that the Bit settings reflect what is depicted in (Fig 33).

Bit #1 (0x01) Type: Charger Interlock Bit #2 (0x02) Type: DTC Thermistor Fault

Bit #3 (0x04) Type: DTC Weak Cell Fault

Bit #4 (0x08) Type: DTC Low Cell Voltage Fault

Bit #5 (0x10) Type: DTC Open Cell Voltage Fault

Bit #6 (0x20) Type: DTC: Current Sensor Fault

Bit #7 (0x40) Type: Blank

Bit #8 (0x80) Type: DTC: High Voltage Isolation Fault

Enabled	ID	Length E	lyte0	Byte 1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
- H	0x000	8	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksu	m High Cell Volt	IN USE	Custom Flag
	0x000	8 C	onstant Value	Constant Value	e Custom Flag	Constant Value	Constant Val	e Constant Value	Constant Value	CRC Checksum
	0x000		Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	IN USE	Pack Amphours	CRC Checksum
	0x000		Pack Health	Pack DOD	Fan Voltage		Req. Fan Spe		IN USE	
	0x301	8	Pack SOC	High Temper		Padk DCL	IN USE	Custom Flag	High Cell Volt	
	0x300 0x1806E5F4		ow Cell Volt onstant Value	IN USE IN USE	High Cell Volt Pack CCL	IN USE	Pack Curren Custom Fla		Pack Amphours Blank	IN USE Blank
				-	ld courses					
Message Se	-				eld Settings	1				Close
Message Se Speed (ms)	ttings	Receive/Transmi	t Transmit 、		eld Settings eld Length <mark>(</mark> Bytes):		1 +	Multiply Value By:	1 *	Close
-	-	Receive/Transmi	t Transmit	/ Fi		Most Signific		Multiply Value By: Then Divide By:		Close Edit Flags
Speed (ms)	104 🜩		, remained	- Fi Bi	eld Length (Bytes):		ant Bit 🗸			Edit Flags
Speed (ms) Extended	104 🜩	CAN1		r Fi Bi By	eld Length <mark>(</mark> Bytes): t Order (First):	Most Signific	ant Bit v	Then Divide By:	1 🔹	
Speed (ms) Extended IsCharging		CAN1 CAN2		Fi Bi By Ze	eld Length (Bytes): t Order (First): yte Order:	Most Signific	ant Bit v	Then Divide By: Custom Flag #:	1 🔹	Edit Flags
Speed (ms) Extended IsCharging IsReady	104 🜩	CAN1 CAN2		Fi Bi By Ze M	eld Length (Bytes): t Order (First): yte Order: ero While Charging:	Most Signific	ant Bit 🗸	Then Divide By: Custom Flag #:	1 🔹	Edit Flags





19. If any changes/additions have been made, depressed the "Apply" button to submit changes.

HIGH CELL VOLTAGE ID

20.The following is the settings for **HIGH CELL VOLTAGE ID**. The Byte used is Byte6 in message 0x301. In the dropdown menu for Byte6 make sure that **HIGH CELL VOLTAGE ID** is selected. (Fig. 35 & 36)

□ 0x000 8 Constant Value Constant											
0x000 8 Constant Value Pack Keistance IN USE Pack Open V IN USE Pack Keistance IN USE Visit Value IN USE Visit Value IN USE IN USE IN USE Pack Media IN USE Pack Might Value By: In USE I	Enabled	ID	Length By	te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
0x000 8 Custom Flag Pack SOC Pack Resistance IN USE Pack Open V IN USE Pack Amphours CRC Checksum 0x000 7 Pack Health Pack DOD Fan Voltage IN USE Reg. Fan Speed 12V Supply IN USE Pack Amphours CRC Checksum 0x000 8 Pack Health Pack COL Pack ACL IN USE Custom Flag Eacl Call USE Coverent IN USE Pack Amphours IN USE 0x300 8 Low Cell Volt IN USE High Cell Volt IN USE Pack Amphours IN USE Pack Amphours IN USE Pack Amphours IN USE Cove Cell Volt IN USE Pack Amphours IN USE IN USE IN U	Π	0x000	8 0	ustom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag
□ 0x000 7 Pack Health Pack 2000 Fan Yoltage PN USE Reg. Fan Speed 12v Supply IN USE □ 0x301 8 Pack SOC High Temper Pack COL PN USE Custom Flag Custom Flag Low Cell Volt □ 0x300 8 Low Cell Volt IN USE High Cell Volt IN USE Pack Amphours IN USE □ 0x300 8 Low Cell Volt IN USE High Cell Volt IN USE Pack Amphours IN USE □ 0x1806ESF4 8 Constant Value IN USE Pack CL IN USE Custom Flag Blank Blank Blank Message Settings Speed (ms) 104 Receive/Transmit Transmit ∨ Field Settings 1 Image: Speed (ms)		0x000	8 Co	nstant Value	Constant Value	Custom Flag	Constant Value	Constant Va	lue Constant Value	Constant Value	CRC Checksum
Image: Constant Value Pack SOC High Temper Pack CCL Pack											CRC Checksum
Image: Speed (ms) 104\$ Receive/Transmit Transmit Image: Speed (ms) 104\$ CAN1 Image: Speed (ms) 104\$ CAN1 Image: Speed (ms) Image: Spee						-					
Image: Speed (ms) 104 Image: Speed (ms) CAN1 Image: Speed (ms) 1.04 Image: Speed (ms) Image: Speed (ms) 1.04 Image: Speed (ms) 1.04 Image: Speed (ms) Imag		A STATE OF									
Message Settings Field Settings Speed (ms) 104 ÷ Receive/Transmit Transmit ∨ Field Length (Bytes): 1 ÷ Multiply Value By: 1 ÷ Extended CAN1 Bit Order (First): Most Significant Bit ∨ Byte Order: Big Endian Then Add: 0 ÷ Help											
IsCharging CAN2 Byte Order: Byte Order: Then Add: 0 ÷	Speed (ms)	104 🜩	Receive/Transmit	Transmit	v Fie	eld Length (Bytes):		1 🜩	Multiply Value By:	1 🜩	Close
IsCharging CAN2 Byte Order: Big Endian Then Add: 0 + Hep	Speed (ms)	104 🜩	Receive/Transmit	Transmit -	- Fie	eld Length (Bytes):		1	Multiply Value By:	1 😴	Close
	Extended		CAN1		-		Most Signific			1000 Contract (1000 Contract)	Edit Flags
	IsCharging		CAN2		By	te Order:	Big Endian	<u>v</u>	Then Add:	0 🜩	
	IsReady		Pass-Thru Mesg		Ze	ro While Charging			Signed Value:		нер
MPI Active Maximum Value: 0	MPI Active				Ma	aximum Value:		0 🜩			
Keep-alive Minimum Value: 0	10				Mi	nimum Value:		0 ≑			



Enabled	ID	Length By	te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
T	0x000	8 0	ustom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksur	n High Cell Volt	IN USE	Custom Flag	^
	0x000	8 Co	nstant Value	Constant Value	e Custom Flag	Constant Value	Constant Valu	e Constant Value	Constant Value	CRC Checksum	1
	0x000		ustom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V			CRC Checksum	
	0x000		ack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Spee		IN USE		
	0x301		Pack SOC	High Temper		Pack DCL	IN USE	Custom Flag	- X	Low Cell Volt	4
	0x300 0x1806E5F4		w Cell Volt nstant Value	IN USE	High Cell Volt Pack CCL	IN USE IN USE	Pack Current Custom Flag		High Opencell Ve		^
	UX 1806E5F4	8 00	nstant value	IN USE	Pack CCL	IN USE	Custom Flag	Diank	Avg. Opencell V Low Cell Resista		1
Message Se Speed (ms)		Receive/Transmit	Transmit -	-	eld Settings eld Length (Bytes):		1 🖨 🕴	fultiply Value By:	Avg. Cell Resist Maximum Cell Vo Minimum Cell Vo	oltage	
Extended		CAN1		Bit	t Order (First):	Most Signific	ant Bit 🗸 T	Then Divide By:	High Cell Voltage		~
IsCharging		CAN2		By	vte Order:	Big Endian	~ 1	Then Add:	0 🜩	Help	
IsReady		Pass-Thru Mesg		Ze	ero While Charging		S	Signed Value:		нер	
MPI Active				Ma	aximum Value:		0 🗘				
Keep-alive				Mi	nimum Value:		0 🜩				

Fig. 36

21. Make sure that the Message and Field Settings for **HIGH CELL VOLTAGE ID** are the same as in (Fig 37).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 1 Bit Order (First): Most Significant Bit Byte Order: N/A Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 1 Then Add: 0 Signed Value: **UNCHECKED**

Enabled	ID	Length B	yte0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
H	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checksu	m High Cell Volt	IN USE	Custom Flag	^
	0x000		onstant Value	Constant Value		Constant Value			Constant Value		
	0x000	8 (Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V.	IN USE	Pack Amphours	CRC Checksum	
	0x000		Pack Health	Pack DOD	Fan Voltage	IN USE	Req. Fan Spe	ed 12v Supply	IN USE		
	0x301		Pack SOC	High Temper		Pack DCL	IN USE	Custom Flag		Low Cell Volt	
	0x300		w Cell Volt	IN USE	High Cell Volt	IN USE	Pack Curren		Pack Amphours		
	0x1806E5F4	8 Co	onstant Value	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	V
Message Set	tings			Fi	eld Settings						
Message Se Speed (ms)	tings	Receive/Transmit	Transmit		eld Settings eld Length (Bytes):		1	Multiply Value By:	1 🗘	Close	
and a second sec		Receive/Transmit	t Transmit	- Fi		Most Signific		Multiply Value By:	1 *	Close Edit Flags	
Speed (ms)			1	- Fi	eld Length (Bytes):		ant Bit 🗸		- Amount j	Edit Flags	
Speed (ms) Extended		CAN1		 Fill Bit By 	eld Length (Bytes): t Order (First):	Most Signific	ant Bit 🗸	Then Divide By:	1 🖨		;
Speed (ms) Extended IsCharging		CAN1 CAN2		- Fi Bi By Ze	eld Length (Bytes): t Order (First): yte Order:	Most Signific	ant Bit 🗸	Then Divide By:		Edit Flags	
Speed (ms) Extended IsCharging IsReady		CAN1 CAN2		- Fi Bi By Ze	eld Length (Bytes): t Order (First): yte Order: ero While Charging:	Most Signific	ant Bit 🗸	Then Divide By:		Edit Flags	;

Fig. 37

LOWEST CELL VOLTAGE ID

22. The following is the settings for **LOWEST CELL VOLTAGE ID**. The Byte used is Byte6 in message 0x301. In the dropdown menu for Byte7 make sure that **LOWEST CELL VOLTAGE ID** is selected. (Fig. 38 & 39)

Enabled	ID	Length By	/te0	Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7
H	0x000	8 0	Custom Flag	Custom Flag	Pack Inst. Vol	IN USE	CRC Checks	um High Cell Volt	IN USE	Custom Flag
H H	0x000		instant Value	Constant Value		Constant Value		lue Constant Value		CRC Checksum
	0x000	8 0	Custom Flag	Pack SOC	Pack Resistance	IN USE	Pack Open V	IN USE	Pack Amphours	CRC Checksum
	0x000		Pack Health	Pack DOD	Fan Voltage		Req. Fan Sp	eed 12v Supply	IN USE	
	0x301			High Temper		Pack DCL	IN USE	Custom Flag	High Cell Volt	Low Cell 👽
	0x300		w Cell Volt	IN USE	High Cell Volt	IN USE	Pack Curren		Pack Amphours	
	0x1806E5F4	8 Co	instant Value	IN USE	Pack CCL	IN USE	Custom Fla	g Blank	Blank	Blank
Message Set	tings			Fie	eld Settings					•
Message Set Speed (ms)	tings	Receive/Transmit	Transmit v	4 6	eld Settings eld Length (Bytes):	1	1 🗘	Multiply Value By:	1	Close
		Receive/Transmit		Fie	100000000000000000000000000000000000000	Most Signific		Multiply Value By: Then Divide By:		
Speed (ms)	104		Transmit v		eld Length (Bytes):					Edit Flags
Speed (ms) Extended	104	CAN1		- Field Bit By	eld Length (Bytes): : Order (First):	Most Signific		Then Divide By:	1	
Speed (ms) Extended IsCharging	104	CAN1 CAN2		r Fie Bit By Ze	eld Length (Bytes): Order (First): te Order:	Most Signific		Then Divide By: Then Add:		Edit Flags
Speed (ms) Extended IsCharging IsReady	104	CAN1 CAN2		r Fil Bit By Ze Ma	eld Length (Bytes): Order (First): te Order: ro While Charging:	Most Signific	ant Bit v	Then Divide By: Then Add:		Edit Flags

Fig. 38

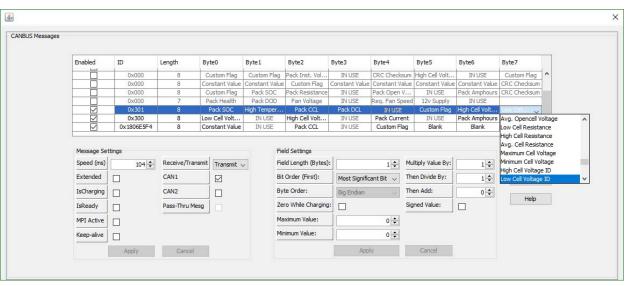


Fig. 39

- 23. Make sure that the Message and Field Settings for LOW CELL VOLTAGE
 - **ID** are the same as in (Fig 40).

Message Settings: Speed (ms): 104 Extended: UNCHECKED IsCharging: UNCHECKED IsReady: UNCHECKED MPI Active: UNCHECKED Keep-Alive: UNCHECKED Receive/Transmit: Transmit CAN1: CHECKED CAN2: UNCHECKED

Field Settings:

Field Length (Bytes): 1 Bit Order (First): Most Significant Bit Byte Order: N/A Zero While Charging: **UNCHECKED** Minimum Value: 0 Maximum Value: 0 Multiply Value By: 1 Then Divide by: 1 Then Add: 0 Signed Value: **UNCHECKED**

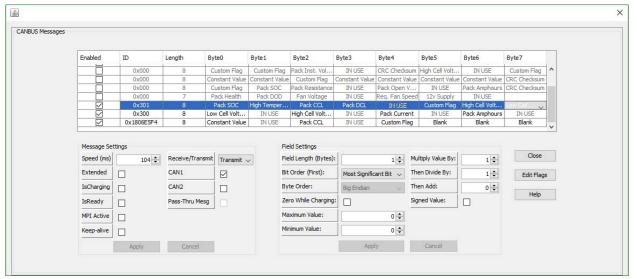


Fig. 40