# **Orion BMS Bi Charger CAN control**

This document outlines the steps needed to create a CAN message from the BMS to the bi charger.

#### Step 1:

Open Orion BMS 2 Utility and connect to the BMS. Download the current profile when asked.

### Step 2:

Select the CANBUS settings tab and click Edit CAN BUS Messages.

Image: Setup Wizard       Image: Setup Setup Wizard       Image: Setup Setu	3rd Party Data Diagnostic	Trouble Codes	Live Text Data Live Graph & D	ata Logging	Live Cell [	Data Live CA	NBUS Traffic	Histogra	m & Events	
Charqe Limits       Discharqe Limits       Relays       Thermal Settings       Addon Settings         Ceneral Settings       CCI Settings       SOC Settings       Soc Nati/Sectings       Addon Settings         CANBUS # 1 Frequency (Mbps)       Soc Nati/Sec       Soc Nati/Sec       Soc Nati/Sec       Soc Nati/Sec         CANBUS # 1 Frequency (Mbps)       Soc Nati/Sec       Soc Nati/Sec       Soc Nati/Sec       Soc Nati/Sec         CANBUS # 1 Frequency (Mbps)       Soc Nati/Sec       Ox753       Soc Nati/Sec       Soc Nati/Sec         CANBUS # 1 Frequency (Mbps)       Soc Nati/Sec       Ox753       Soc Nati/Sec       Soc Nati/Sec         Canable Battery Cell Broadcast Speed (ms)       Bottery Cell Broadcast CAN ID       Soc Nati/Sec       Ox753       Soc Nati/Sec         Battery Cell Broadcast CAN ID       Soc Controller       Soc Controller       Soc Controller       Soc Nati/Sec       Soc Setting       Soc Setting       Controller       Soc Setting       Controller       Soc Setting       Soc Setting       Controller       Soc Setting       Soc Seting       Soc Setting       Soc Seting			Profile Setup Wiz	ard	- 46	Connect To	BMS	J	Receive Current Profile From BMS	1 Send
CANBUS #1 Frequency [Mbps]       500 kBit/sec         CANBUS #2 Frequency [Mbps]       500 kBit/sec         1393 ECU Address       60 cords3         1393 ECU Address       60 cords3         1393 ECU Address       10 cordsat         1394 ECU Address       10 cordsat         1404 EVU       11 cordsat         1404 EVU       141 X       X       0         1404 EVU       141 X       X       0       1			Charge Limits Discharge L General Settings Cell Setting	imits Re s SOC Se	lays The ettings C/	ermal Setting ANBUS Setting	s Fault S Is Addon S	ettings Settings		
J239 ECU Address       0			CANBUS #1 Frequen	cy [Kbps] cy [Kbps]	0 500 0 500	) kBit/sec ) kBit/sec	~			
Battery Cell Broadcast Speed [ms]       0 °C         Battery Cell Broadcast CAN Dig       0 °C         Edit CANBUS Messages       0 °C         Chief of the controllers       0 °C         Controllers       0 °C         Maximum Controllers       0 °C         HPFV Curts 1238/1239 (CAN)       0 °C         Victor inverter       1 °C         BMS Firmware: 3.7.0       BMS Serial#:         Loaded Cells: 96 (108       CAN#:       Trouble Codes         Victor inverter       1 °C         Det Celler:       0 °C         0       0 °C			D1939 ECU Address OBDII ECU Identifier Enable Battery Cell B	roadcast	O Bro	adcast Disab	0xF3 🜩 0x7E3 🜩 ed 🗸			1
Edit CANBUS Messages         CHAdeMO Charging Protocol         CHAdeMO Charging Protocol       CHAdeMO Charging Protocol         CHAdeMO Charging Protocol       CHAdeMO Charging Protocol         Charging Protocol       CHARGE Display         Hotor To corroller       Helpinis         Charging Protocol       CHARGE Display         Studer Inverters       Studer Inverters         Studer Inverters       Studer Inverters         BMS Firmware: 3.7.0       BMS Serial#:         Loaded Cells: 96 (108       CAN#:         To UklCPCASU       1         O       UklCPCASU			Battery Cell Broadca Battery Cell Broadca	st Speed [m st CAN ID	s] 🕜		¢ 0 0x0			IO
Help           BMS Firmware: 3.7.0         BMS Serial#:         Loaded Cells: 96 (108         CAN#:         Trouble Codes         Profile Checksum:           0         UXLCPELABU         1         Path         KX         U         0         0			Other and the second seco	Charging Pr a EVIC Displ isplay tor Controll s 1238/1239 erter / MPP erter (Stude nverter	er er er (CAN) F r BMS Proto	ccol)	I	•	BN	
0 UXLCFEC480 1 419 KX U 8	BMS Firmware: 3.7.0	BMS Serial#:	Loaded Cells: 96 (108 Max)	CAN#:	Trouble (	Codes	Profile Ch	ecksum:		
	0	UXICHECAS	U	1	419	КX	U	8		

#### Step 3:

Change the CANBUS message at the bottom to the address **0x18008FD0**. While selected set the speed to below 200ms and Receive/Transmit to Transmit. Click Apply on the bottom left.

Enabled	ID	Length	Byte0		Byte1	Byte2	Byte3		Byte4	Byte5	Byte6	Byte7	
	0x355	6	Pack	k SOC	IN USE	Pack Health	IN U	SE	Adaptive SOC	IN USE	0.0.000000		
~	0x351	8	Maxim	um Pa	IN USE	Pack CCL	IN U	SE	Pack DCL	IN USE	Minimum Pac	IN USE	
	0x35B	4	Isolati	ion ADC	IN USE	Custom Flag	IN U	SE					
	0x1806E7F4	8	Maxim	um Pa	IN USE	Pack CCL	IN U	SE	Custom Flag	Blank	Blank	Blank	- L.
	0x1806E5F4	8	Maxim	um Cel	IN USE	Pack CCL	IN U	SE	Custom Flag	Blank	Blank	Blank	
	0x1806E9F4	8	Maxim	um Cel	IN USE	Pack CCL	IN U	SE	Custom Flag	Blank	Blank	Blank	
$\checkmark$	OVI OCCSOCS	0	RI	ank	Blank	Blank	Bla	nk	Blank	Blank	Plank	Blank	
Message Settir Speed (ms)	igs200	Receive	/Transmit	Transm	iit v	Field Settings Field Length (B)	/tes):   [		0	Multiply Value E	By: 1	Clo	se
Message Settir Speed (ms)	igs200	Receive	/Transmit	Transm	nit v	Field Settings Field Length (By	/tes):		0	Multiply Value E	Ny:	¢ Clo	se
Message Settir Speed (ms) Is-Charging	igs200	Receive	:/Transmit 5 Interface	Transm CAN1 8	iit ~	Field Settings Field Length (By Bit Order (First)	/tes):	lost Si	0 € gnificant Bit ∨	Multiply Value E	By: 1	Clo Edit F	se lags
Message Settir Speed (ms) Is-Charging Is-Ready	igs200	Receive CANBUS Extende	e/Transmit 5 Interface ed ID	Transm CAN1 8	nit ∨ ⊾CAN2 ∨	Field Settings Field Length (By Bit Order (First) Byte Order:	/tes):  : ₪	lost Si ig End	0 € gnificant Bit ∨	Multiply Value E Then Divide By: Then Add:	Ny: 1 1 0	Clo	se lags
Message Settir Speed (ms) Is-Charging Is-Ready MPI1 Active	igs	Receive CANBUS Extende Keep-A	:/Transmit 5 Interface ed ID live Mesg	CAN1 8	hit V k CAN2 V	Field Settings Field Length (By Bit Order (First) Byte Order: Zero While Cha	rtes):	lost Si ig End	0 € gnificant Bit ∨	Multiply Value E Then Divide By: Then Add: Signed Value:		Clo Clo Edit F	se lags lp
Message Settir Speed (ms) Is-Charging Is-Ready MPI1 Active MPI2 Active	igs200	Receive CANBUS Extende Keep-A	/Transmit 5 Interface ed ID live Mesg	CAN1 8	hit v	Field Settings Field Length (B) Bit Order (First) Byte Order: Zero While Cha Maximum Value	/tes):	lost Si ig End	0 🗘	Multiply Value E Then Divide By: Then Add: Signed Value:	WY:         1           1         1           0         0	<ul> <li>Clo</li> <li>↓</li> <li>Edit F</li> <li>↓</li> <li>He</li> </ul>	se lags lp

## Step 4: Set Byte0 to Custom flag. Click Apply on the bottom right.

Enabled	ID	Length	Byte0		Byte1	Byte2	Byte3	Byte4	Byte5	Byte6	Byte7	
~	0x355	6	Pack	SOC	IN USE	Pack Health	IN USE	Adaptive SOC	IN USE			1
	0x351	8	Maximu	um Pa	IN USE	Pack CCL	IN USE	Pack DCL	IN USE	Minimum Pac	IN USE	1
	0x35B	4	Isolatio	on ADC	IN USE	Custom Flag	IN USE					1
	0x1806E7F4	8	Maximu	um Pa	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	1.
<u>~</u>	0x1806E5F4	8	Maximu	um Cel	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	
~	0x1806E9F4	8	Maximu	um Cel	IN USE	Pack CCL	IN USE	Custom Flag	Blank	Blank	Blank	
									Blank			_
Message Settin	0x18FF50E5	8	Custo	m Flag	Blank	Blank Field Settings	Blank	Blank	Blank	Blank	Blank	
Message Settin Speed (ms)	0x18FF50E5 gs200	8	Custor	m Flag Transn	Blank	Blank Field Settings Field Length (By	Blank /tes):	Blank	Blank Multiply Value B	Blank y: 1	Blank Close	
Message Settin Speed (ms) Is-Charging	0x18FF50E5 gs 200	Receive/T CANBUS I	Custor	m Flag Transn CAN1 8	Blank	Blank Field Settings Field Length (By Bit Order (First)	/tes):	Blank 1	Blank Multiply Value B Then Divide By:	Blank y: 1	Blank Close	s
Message Settin Speed (ms) Is-Charging Is-Ready	0x18FF50E5	Receive/T CANBUS Ir Extended	ransmit nterface ID	Transn CAN1 8	Blank	Blank Field Settings Field Length (By Bit Order (First) Byte Order:	/tes):  : Big E	Blank 1 💭 Significant Bit 🗸	Blank Multiply Value B Then Divide By: Custom Flag #:	Blank y: 1 1	Blank Close Close Edit Flag	15
Message Settin Speed (ms) Is-Charging Is-Ready MPI1 Active	0x18FF50E5	Receive/T CANBUS I Extended Keep-Alive	Tansmit nterface TD e Mesg	Transm CAN1 8	Blank	Blank Field Settings Field Length (By Bit Order (First) Byte Order: Zero While Cha	rtes): I: Big E rging:	Blank	Blank Multiply Value B Then Divide By: Custom Flag #: Signed Value:	Blank y: 1 1 1 0	Close	]5
Message Settin Speed (ms) Is-Charging Is-Ready MP11 Active MP12 Active	0x18FF50E5	Receive/T CANBUS Ir Extended Keep-Alive	Custor ransmit nterface ID e Mesg	Transn CAN1 8	Blank	Blank Field Settings Field Length (By Bit Order (First) Byte Order: Zero While Cha Maximum Value	rtes): Hiter Most Big E rging: e:	Blank       1       Significant Bit       ndian       0	Blank Multiply Value B Then Divide By: Custom Flag #: Signed Value:	Blank           y:         1           1         0	Blank Close Close Edit Flag	32

## Step 5:

Click Edit Flags on the right hand side. Select Custom Flag #0 and change bit #1 to Constant 1. Click Apply.

π	<u>ځ</u>		$\times$		Byte4	Byte5	Byte6	Byte7
1				E	Adaptive SOC	IN USE		
		Custom Flags		šΕ	Pack DCL	IN USE	Minimum Pac	IN USE
4	Custom Flag #0			E	0.1.5		<b>a</b> l 1	
•	Custom Flag #1			E	Custom Flag	Blank	Blank	Blank
	Custom Flag #2			E C	Custom Flag	Blank	Blank	Blank
	Custom Flag #3			k	Blank	Blank	Blank	Blank
	Custom Flag #4							
gs	Bit #1 (0x01) Type	Constant 1	~					
ſ	Bit #2 (0x02) Type	Blank	~		1	Multiply Value B	y: 1	Close
Ì	Bit #3 (0x04) Type	Blank	$\sim$	at Ci	anificant Dit	Then Divide By:	1	Edit Elags
	Bit #4 (0x08) Type	Blank	~	JSL SI	gnincant bit 🗸	men binde by:		- Edic Hogs
	Bit #5 (0x10) Type	Blank	~	) End	ian $\checkmark$	Custom Flag #:	0	+ Help
	Bit #6 (0x20) Type	Blank	$\sim$	)		Signed Value:		
	Bit #7 (0x40) Type	Blank	$\sim$	1	0 1			
	Bit #8 (0x80) Type	Blank	~		0 🗸			Event DBC
	Apply	What's This?			0 🌩			Export DBC
1								

Step 6:

Click Close on the CANBUS Editor and click Send Profile Changes To BMS. Once send has completed and the HV is present the DCDC will become active.