

The contents of the entries in the logs are these:

Header for all entries in BMS log and MBB log

Bytes	Content	Example
1	0xB2	178
1	Length of entry	125
1	Type of entry	251
4	unix timestamp	1770258390
4	milliseconds	354000
1	Log entry counter	74
1	Always '1'	1

For both BMS log and MMB log the first entry is of type 251 which is mostly text (Batt serial, Board part num, Board serial, Firmware part num, Firmware build number, Firmware build hash, Firmware revision, VIN, model type)

BMS log and MMB log have text entries is of type 253

BMS log has binary entry types 75, 76 and 77 which are of length 52, 70 and 78

Sometimes there are one or two extra bytes of value 0xFE which can be ignored (the entry lengths are higher then)

Byte sequences of 0x00F0FF00 are errors. Some values can be restored (length of entry is number f bytes between 0xB2 bytes, time goes up steadily, log entry counter increments by

Entry type 77 contains the same fields as 76 plus 8 additional bytes

Entry type 76 contains the same fields as 75 plus 18 additional bytes

Structure is as follows (after header)

Bytes	Content	Example
4	Flags (only for type 77)	0
4	Flags (only for type 76 and 77)	0
4	Flags	0
4	Flags	0
2	Cell voltage MIN mV	3750
2	Cell OCV low mV	3912
2	Cell voltage MAX mV	3771
1	SOC	67
4	Current (mA)	91638
1	BMS state code	11
1	Constant 0x33	51
1	1B Flag (0x00=normal, 0x0C=transitional)	0
1	1B Load flag (0x78=idle, 0xFF=active)	255
1	1B Bus engaged (0x01=load, 0x00=idle)	1
4	4B Reserved/padding (mostly 0)	0
4	4B Reserved/padding (mostly 0)	0
1	1B Report mode (1=std, 3=min, 7=active)	7
4	Voltage	105387
1	Flag	1
1	Flag	10
1	? (only for type 76 and 77)	13
1	? (only for type 76 and 77)	14
1	? (only for type 76 and 77)	93
1	? (only for type 76 and 77)	208

1	? (only for type 76 and77)	3
1	? (only for type 76 and77)	152
1	? (only for type 76 and77)	0
4	(rising while RUN) (only for type 76 and77)	134901
1	? (only for type 76 and77)	0
1	? (only for type 76 and77)	21
1	? (only for type 76 and77)	0
4	(rising while RUN and CHARGE) (only for type 77)	134830

MBB log has entry types 72, 73, 81, 82, 83, 84

Type 72 occurs while charging every 640 seconds. I get two entries: one for the standard charger and one for the rapid charger

Bytes	Content	Example
1		32
1		54
1		107
1		87
1		32
1		0
1		0
1		0
1		0
1		0
1		0
1		128
1		0
4	OUT mV,	105450
1	OUT A,	24
1		0
1		55
1		0
1		8
1		201
1		1
1		0
1	CMD IN,	12
1		10
1	IN V,	226
1	IN A,	11
1		0
1	In Hz	50
1		23
1	CANid	16
1	Version	200
1		0
4	Serial Nr	2314135
1		10
1		0
4		113950
1	CMD OUT,	37
1		0
1		12

1 0  
1 1

Type 73 occurs while charging every 640 seconds between the type 72 entries.

Bytes	Content	Example
4	Max_Charge_Voltage mV	117600
1	?	71
1	?	0
1	Charge target?	80
1	?	30
1	?	0
1	?	60
1	?	0
1	?	0
1	?	0
1	?	0
1	?	0
1	?	0
1	?	0
1	?	0
1	?	0
1	?	1
1	?	12
4	Storage_Voltage mV	106000

When the bike is turned off entries 81 and 84 appear approximately every hour.  
When the bike is in state "RUN" there are entries for every second in the following order:  
81 and 84, 82, 81 and 84, 83, ...

Type 83 (length 106 bytes) is type 82 plus 14 bytes. Type 83 is type 81 plus 17 bytes.

Bytes	Content	Example
4	Flags	0
4	Flags	0
4	Flags	0
4	Flags	0
4	DC_Bus_Voltage mV	101000
4	DC_Bus_Current mA	20200
4	n rpm	2112
1	SOC %	45
4	U (pack_voltage_mv)	100845
4	I mA	15618
5	State	RUN
4		0
4	T_ambient °C * 100	760
4	Motor_Temp	44
4	Inverter_Temp	18
4	H temp (cell)	14
4	L temp (cell)	12
4	12V_Battery microV	13117160
2		257
4	ODO km * 10	304552
4	Speed (mm/h)	53268750

2	Est. Range km * 100	7889
1		0
4		0
4		0
2		0

Type 84:

Bytes	Content	Example
4	torque microNm	22200000
4	current A	111
4	counter	67
4	discharge power W	104422