technical specifications

LITE BLOX LBXXXXMS

Revision V1.4

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Specifications

	value	deviation
height [mm]	XXX	±1
width (with baseplate) [mm]	XXX	±1
length (with baseplate) [mm]	XXX	±1
weight [g]	XXX	
voltage (nominal) [V]	13,2	±0,1
voltage (maximum) [V]	15,2	±0,1
charging voltage [V]	14,6	
charging current (recommended) [A]	XXX	
charging current (maximum) [A]	XXX	
discharge current (continuously) [A]	XXX	
Max discharge current (pulse) [A]	XXX	
Max discharge current (peak) [A]	XXX	
capacity (least) [Ah]	XXX	
cell chemistry	LiFePO4	
cell type	ANR26650M1-B (GEN3)	
cell configuration	4sXp	
battery impedance cellpack [mOhm]	XXX	
protection class (dust and water)	IP65	
temperature range for use [°C]	(- 20) to (+ 60)	
recommended temp storage [°C]	(+ 15) to (+ 25)	

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Functions

function	description
balancing	Balancing between the cell banks while the LITE BLOX is being charged (to prevent long term cell deviation)
data transfer	A connection between the LITE BLOX and an external device (smartphone/tablet/laptop) can be made via Bluetooth. Over this connection operation data can be displayed and changes in the configuration of the thresholds can be made.
warning	When running outside the intended operation limits, the integrated electronics, provided with a beeper, emits a coded alarm signal to highlight misuse or malfunction.
BMS	In accordance with the configured parameters the integrated electronic switches the output power off. In this condition no energy can be drawn from the LITE BLOX.
Ext. power out	Provided by a 12V relais (included in the delivery scope)
shut off signal	Extra shut off signal output for modern ECU`s with shut down routine

Protection modes

Under / Over voltage protection (UVP / OVP):

If the voltage exceeds the predefined (adjustable) threshold, that is set up in the integrated electronics, the power is switched off. Same behavior occurs, if the voltage of the battery pack exceeds the minimum value, which is also set up in the integrated electronics.

Overcurrent & short circuit protection (OCP):

The integrated electronics measures the current (in and out) of the battery pack at the positive pole terminal. When this current exceeds the pre-defined threshold, the power is switched off.

Over temperature protection (OTP):

The integrated electronics is equipped with two temperature sensors to monitor the temperatures inside the battery housing containing the cells and the electronics surface. Exceeding the set thresholds for temperature also provokes a power shut off.

Protection levels

The LITE BLOX can put itself in three different protection levels, when exceeding the pre-defined threshold:

1. Warning level: emits warning noises
2. Warning level: saves the error and switches to protection mode. As soon as the car is parking, the LITE BLOX shuts off and the error has to be confirmed by the user to reenable the power output.
3. Shut off level: will shut off immediately to prevent destruction of internal parts or vehicle peripherals

Reactivation of the LITE BLOX in protection-state (2 / 3) →

If the app detects a protection shut off, it will automatically send data to our server, where the it will be checked for irregularities. When the LITE BLOX is shut off permanently, the user has to connect via the App to delete the error and reactivate the normal running-state. The data will be send to the LITE BLOX data server for evaluation. If this happens repeatedly and the battery cells or the car peripherals could potentially be harmed, our support will contact the customer to identify the source of the error.

The "LITE BLOX Remote" app

Works with our Smartphone App to evaluate, control and update your LITE BLOX:

- Read out battery data such as voltage, current, temperature and send battery data to the LITE BLOX customer service
- Activate/deactivate the LITE BLOX
- Activate/deactivate external safety toggle switch operating the built in kill switch (race mode/street mode)
- Activate/deactivate Anti-Theft Mode (see our website for information)
- Chart function: this function allows to record battery data over time. The recorded data will be exported as a graph (*.png) and as data (*.csv)

CAN Communication:

- CAN Baud Rate = 1Mbaud
- No CAN termination inside of the Battery
- CAN Com only ON with Input on 0X300

ECU2BMS14V		ID=0X300 / calibrate		Freq. = 20ms (50Hz)
Bits	Size	Gain	Engineering Range	Describtion
[0]	1	1	[0 – 1]	Charge override
[1]	1	1	[0 – 1]	BT On
[2]	1	1	[0 – 1]	BT Off
[3]	1	1	[0 – 1]	Disable Crash
[4]	1	1	[0 – 1]	Reset Killswitch

BMS14V2ECU		ID=0X301 / calibrate		Freq. = 20ms (50Hz)
Bits	Size	Gain	Engineering Range	Describtion
[0 - 11]	12	0.001	[0 – 4.095] V	Voltage cell 1
[12 - 23]	12	0.001	[0 – 4.095] V	Voltage cell 2
[24 - 35]	12	0.001	[0 – 4.095] V	Voltage cell 3
[36 - 47]	12	0.001	[0 – 4.095] V	Voltage cell 4
[48 - 63]	16	0.001	[0 – 65.535] V	Voltage Pack 14V

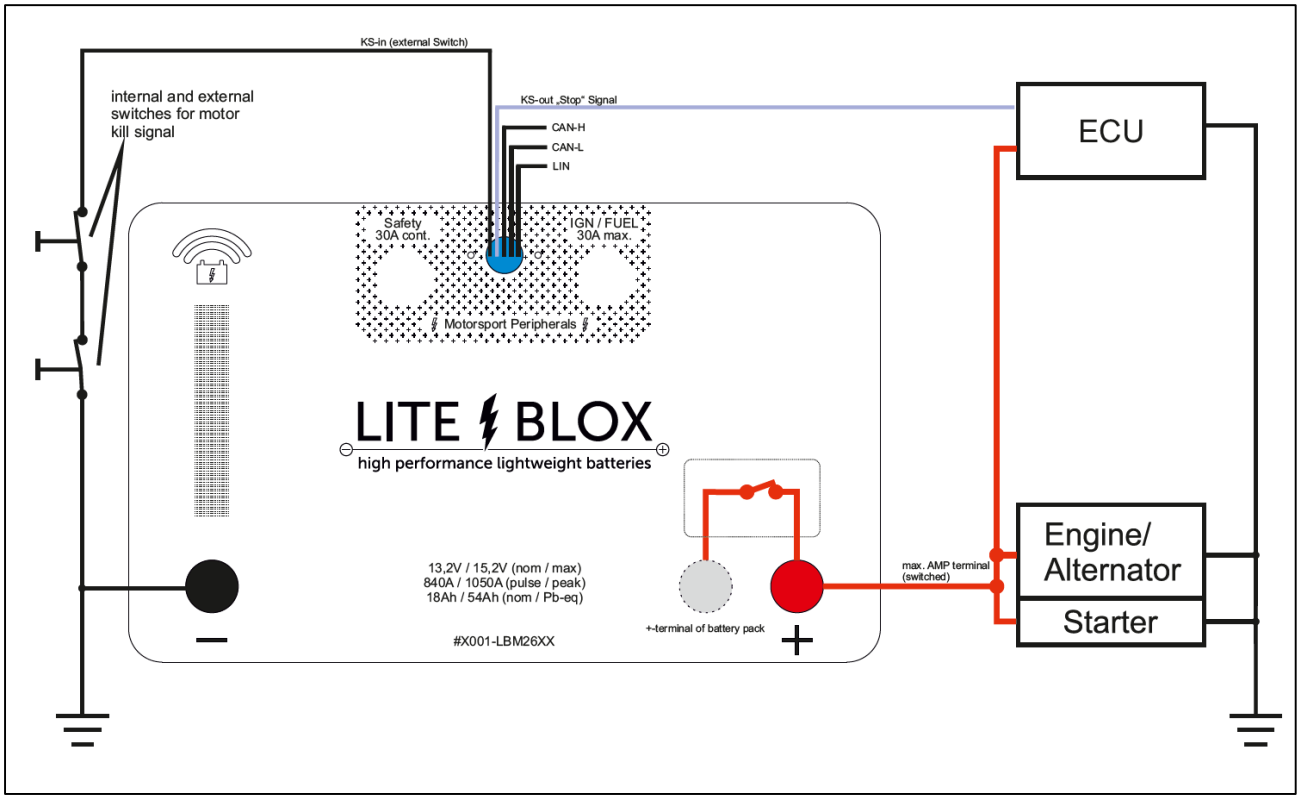
BMS14V2ECU		ID=0X302 / calibrate		Freq. = 20ms (50Hz)
Bits	Size	Gain	Engineering Range	Describtion
[0-3]	4	-	-	Alive Counter
[4]	1	1	[0-1]	Warnlevel 1
[5]	1	1	[0-1]	Warnlevel 2
[6]	1	1	[0-1]	Warnlevel 3
[7 - 14]	8	0.5	[0-100] %	SOC
[15 - 30]	16	0.1	[-3276.7 – 3276.8] A	Current Pack 14V
[31 - 38]	8	10	[0 – 2550] A	Max Current Charge
[39 - 46]	8	10	[0 – 2550] A	Min Current Discharge
[47 – 54]	8	1		Error flags

(LIN communication pending)

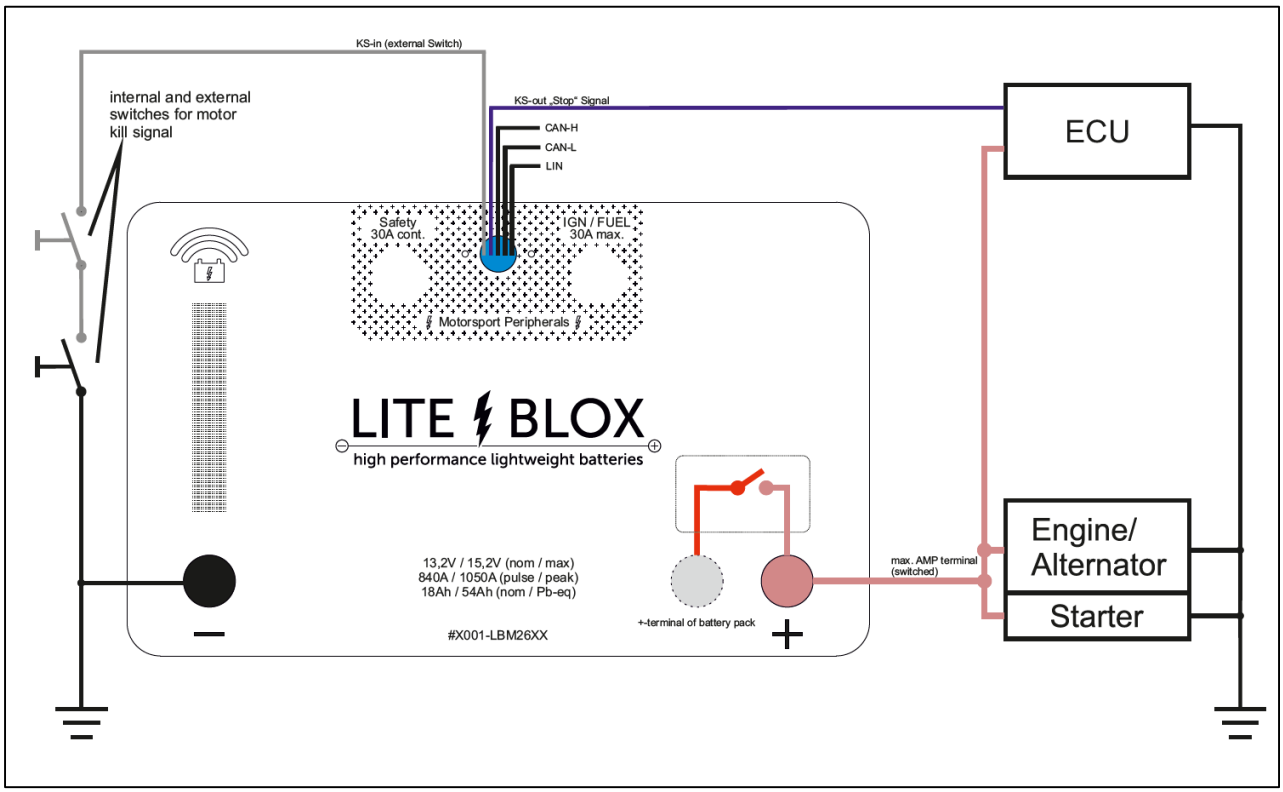
Connector Layout (DEUTSCH ASL006-05PN):

PIN	Name	description
1	Killswitch input	enables the LITE BLOX when connected to ground
2	Killswitch output	Transmits 12 Volt signal to shut down ECU, in disabled-state (White cable)
3	CAN high	CAN-communication
4	CAN low	CAN-communication
5	Vbat + or LIN (not implemented yet)	Vbat +; max 200mA, Please do not use without a fuse (green cable)

Kill switch disabled



Kill switch enabled



wiring diagramm