

Quick Start Guide NTBatteryManagementSystem

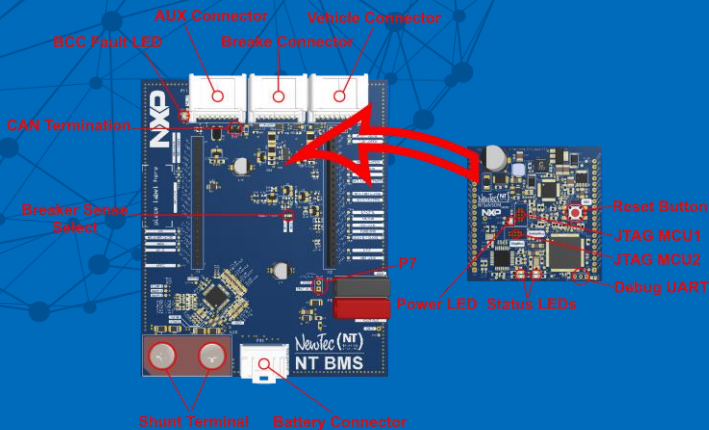
Reference Design for Battery Management Systems

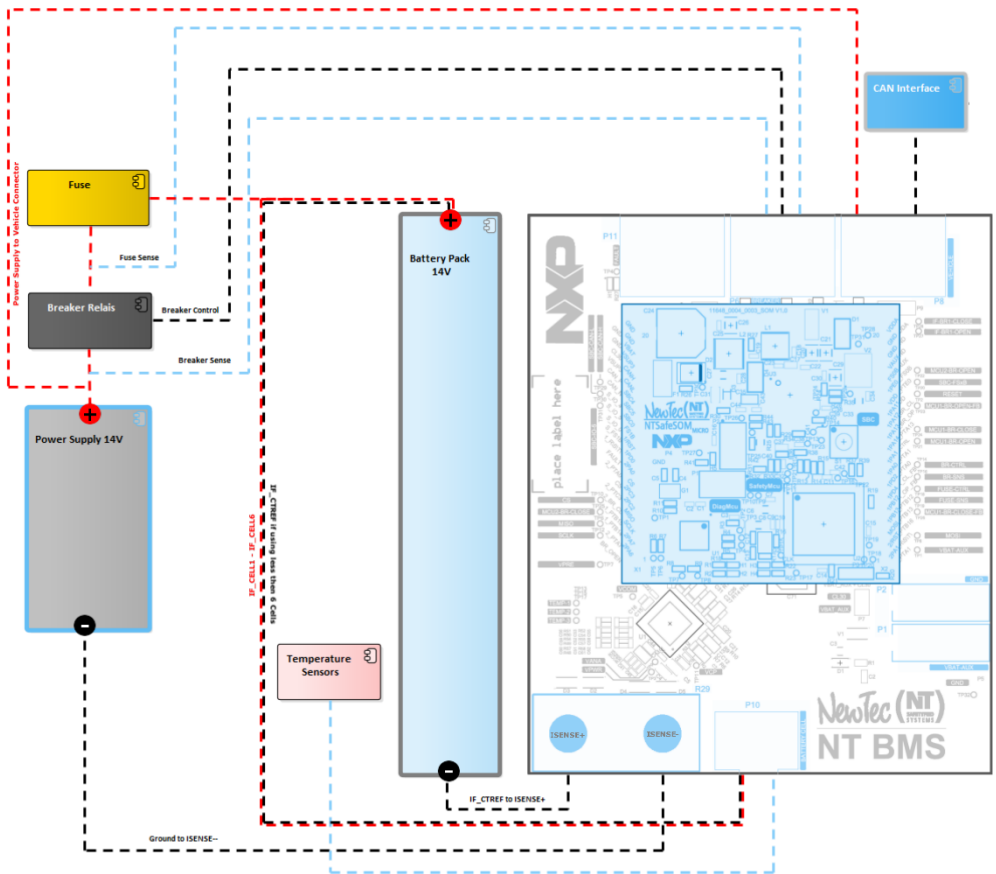
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IMPORTANT NOTE

READ USER MANUAL CAREFULLY BEFORE USE





Required components

Quantity	Component	Description
1	NT BMS	Battery Management System
1	NTSafeSOM Micro	Safety System on Module
1	Power Supply	Max Voltage: 14V
1	Battery Pack	up to 6 cells, max Voltage: 14V
3	Temperature Sensor	
1	Breaker Relais	recommended type: TE Connectivity V23130-C2021-A400
1	Fuse	Select Fuse with fitting characteristics to Battery Pack
1	CAN or UART Interface *	Optional: NT BMS monitoring with NXP's FreeMASTER Application
1	DB9 connector *	Female or Male Connector to connect to CAN Interface
1	USB-to-UART Bridge *	Use a USB-to-UART converter if using UART to connect to FreeMASTER Application

Connectors on SOM

P3: TTL UART Connector, 5V

Pin Number	Description
1	GND
2	MCU TX
3	MCU RX

Connector Description BMS BaseBoard

P5: GND

P6: Breaker Connector (Molex 34793-0080)

Pin Number	Description	Pin Number	Description
1	12V	5	NC
2	Breaker Close	6	NC
3	12V	7	Fuse Sense Input (optional)
4	Breaker Open	8	Breaker Sense Input

P8: Vehicle Connector (Molex 34793-0082)

Pin Number	Description	Pin Number	Description
1	CL30 Input	5	Feature Connector
2	CAN High	6	Feature Connector
3	CAN Low	7	Feature Connector
4	Crach detection input	8	GND

P10: Battery Cell Connector (Molex 501876-1640)

Pin Number	Description	Pin Number	Description
1	GND	9	Cell 1
2	Temp Sensor 1	10	CTRef
3	GND	11	Cell 3
4	Temp Sensor 2	12	Cell 2
5	GND	13	Cell 5
6	Temp Sensor 3	14	Cell 4
7	GND	15	VBAT_AUX
8	GND	16	Cell 6

Jumper Settings BMS Base Board:

- P3: Soldering Jumper for Breaker sense control selection:
Short Pin 1+2: BCC (default), Short Pin 2+3: MCU1
- P4: Close Jumper to enable CAN Termination
- P7: Close Jumper to supply VBAT_AUX from CL30



Attention: P7 shall only be closed when operating without a battery!
Otherwise charging current can bypass battery breaker through P7.

Technical Data

Product Dimensions

The dimensions of the base board are: 100mm x 120mm x 23mm

Supply Voltage

The device is designed for operation with 12V to a maximum of 18V DC power supply. Typical supply voltage is 14V DC. Operation with other supply voltages is not permitted.

The supply voltage is connected via the connection cable provided for this purpose.

Operating Current

The current consumption during operation is 20mA without battery charging current.

Maximum Battery charging / discharging current

The maximum charging or discharging current of the battery shall not exceed 180A.

Temperature

The device is designed for storage and operations at the following temperature ranges:

- Storage temperature: -15°C to +70°C
- Operating temperature: 0°C to +40°C

Manufacturer Information

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Further information:

<https://www.newtec.de/web/de/sicherheitstechnik/produkte/NTBatteryManagementSystem/NTBatteryManagementSystem.php>