QSBMS
Quad Smart Battery Management System

Product Introduction

Introduction

The Quad Smart Battery Management System (QSBMS) Controller is a modular and scalable PCB level, open frame charger for use with commercial and military Lithium-Ion batteries. Up to 32 controller modules can be integrated into a battARRAY system as each has a CAN Bus interface onboard. Each charger module can have both its charging voltage and current programmed by the onboard MCU, offering increased flexibility.
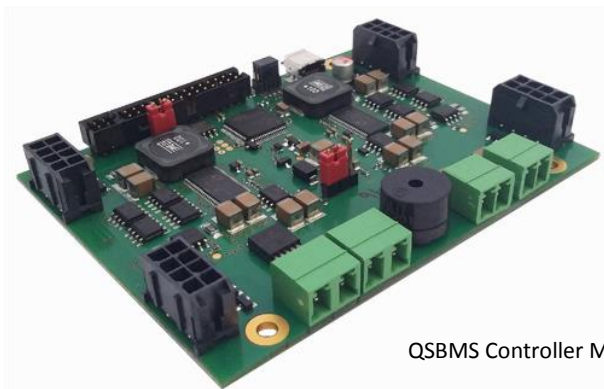
The controller has a footprint of just 90mm x 70mm and weighs <46g, allowing it to be easily designed into OEM devices with minimal effort. A PC/104 PCB size format is also available.

The QSBMS is available off the shelf or can be customised to suit a particular OEM requirement. Customisation includes software and display visualization set-up. The QSBMS can also be used as a platform for charging other smart batteries, reducing NRE costs and getting you to market faster. Please contact us to discuss your requirements.
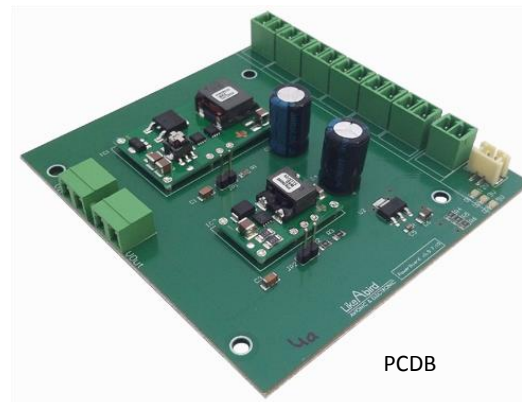
As an open frame charger the QSBMS is susceptible to damage if not used correctly. Only purchase this part if it is to be used by an experienced electronics technician or engineer.

![LIKEABIRD]

QSBMS Controller Main Features

- 1-4 Smart Battery operation
- On-demand scaling of 1 to 128 batteries (battARRAY)
- Includes all SMBus Level 3 Charger V1.1 safety features
- Fully customizable embedded software (firmware) and display
- Stand-alone battery charger/discharge or MCU based intelligent management system
- Simultaneously charging/discharging of up to all 4 batteries
- Simultaneously power connected systems and charging
- CAN Bus and I2C for system expansion and further enhancement
- Serial ports for configuration and display
- PC/104 size option
- Variety of enclosure and case options and customizations
- Customizable Power Conditioning & Distribution Boards (PCDB)

QSBMS Controller Module

PCDB

2x16 or 4x20 LCD Display

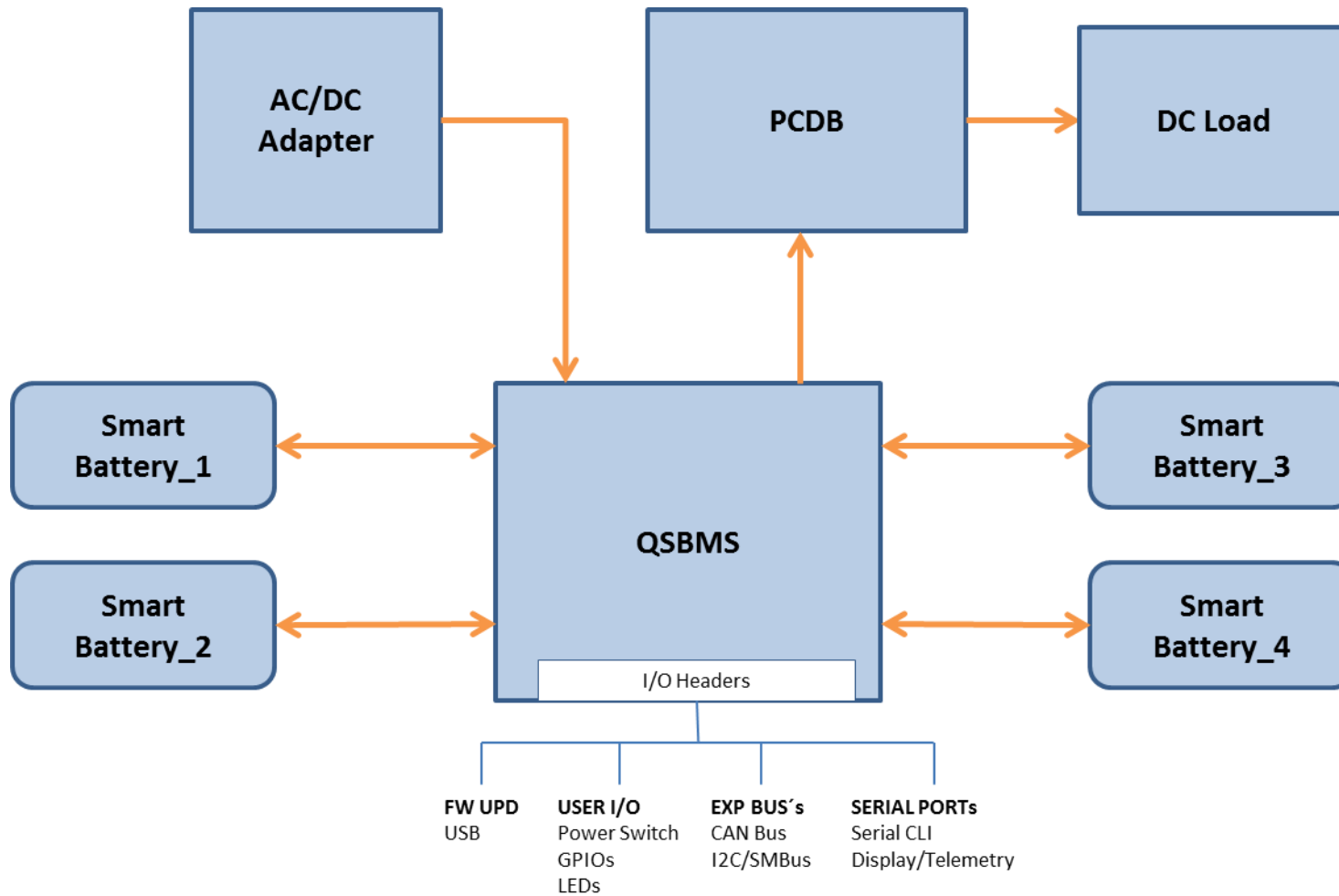# QSBMS Smart Battery Management Reference System

Features

- QSBMS Controller module
- Four Smart Batteries
- 16x2 LCD display
- Power Conditioning & Distribution Board
- Power button
- Power adapter and cabling

The QSBMS Smart Battery Management Reference System is a proof-of-concept battery power subsystem and supports four Smart Batteries providing raw battery along with stabilized 12V, 9V and 5V power outs for mobile embedded systems. The QSBMS system allows developers to easily and quick implement battery power in own applications requiring high mobility in the following ways:

- Emulates the battery power subsystem functionality of a prototype system during the design phase
- Functions as a ready-made battery power subsystem for a customized system
- Provides a reference design to integrate a battery power subsystem into a custom-designed carrier

QSBMS Block Diagram

FW UPD
USB

USER I/O
Power Switch
GPIOs
LEDs

EXP BUS´s
CAN Bus
I2C/SMBus

SERIAL PORTs
Serial CLI
Display/Telemetry

LKB PPM 141 – The Personal Power Manager

The LKB PPM 141 is a personal power manager able to charge up to 4 SMBus compliant commercial or military battery packs and to provide universal power to a variety of battery powered devices.

AC/DC Power Supply

Foldable Solar Panels

Fuel Cells

4-Stroke Portable Power Generator

Input Sources

Single Controller Module

1-4 Batteries Sources

Commercial SMBus Battery Packs

Military SMBus Battery Packs

Power Supply or USB Charging Targets

Handheld Devices (GPS, Smartphones, Tablets)

Cameras

Laptops

Radio Communication Equipment

battARRAY – Rugged Smart Portable Power Solution

The "battARRAY" is a multi-battery power source that incorporates the latest Lithium-Ion smart battery technology, intelligent charging circuitry and efficient regulated power control in a high energy, rechargeable battery system that is ideal to uninterruptible power source (UPS) a variety of commercial, industrial, law enforcement, first responder and military applications.

Each battARRAY system are composed of minimum 1 up to a maximum of 32 Battery Block Modules (BBM), each containing of 1 to 4 smart battery packs, allowing to charge up to 128 batteries at the same time which minimises battery and device downtime. battARRAY series rack chargers can be mounted into a 19" rack or into a ruggedised case for field use. The battARRAY series charger do not come with a power supply, instead customers are recommended to specify a 20 VDC rack mounted supply from Meanwell or similar.

battARRAY series chargers must be selected depending on the battery being charged. Please contact us to discuss your requirements.
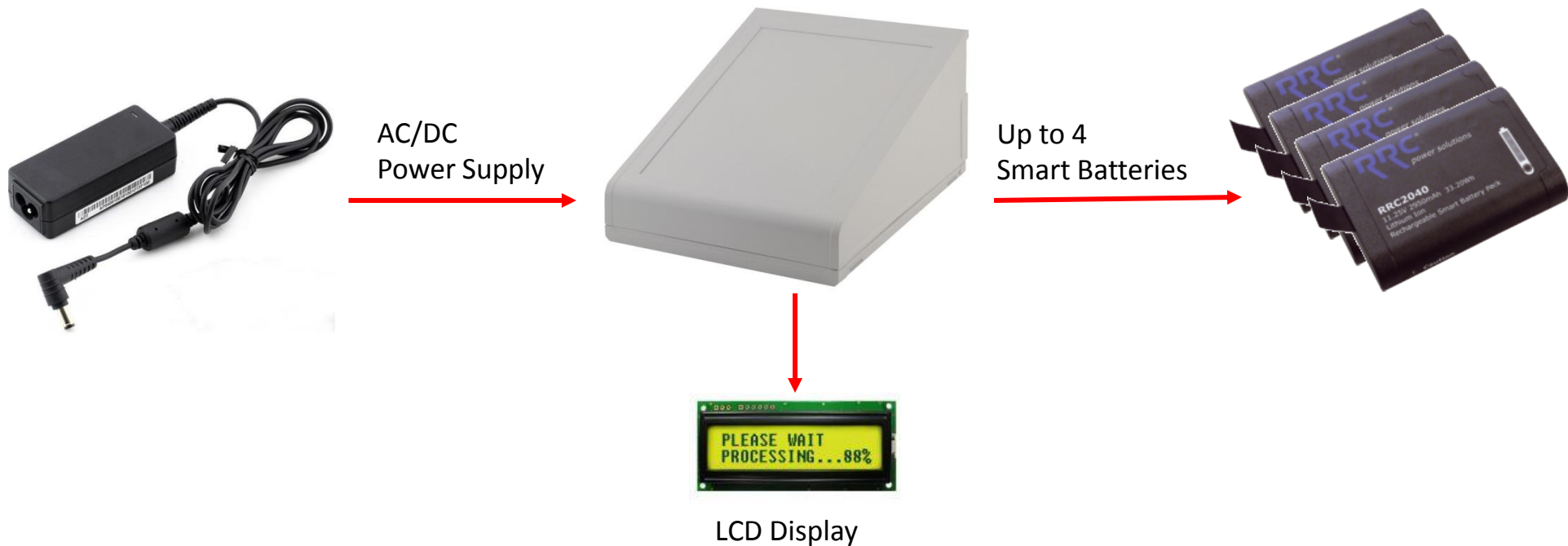
battARRAY – Solution Examples

battARRAY solutions are available in various formats, from desktop, rugged portable, to 19" rack mount transport cases; from 4 up to 120 battery packs.

Up to 32 QSBMS
Controller Modules
(desktop, rugged, portable, 19")

LKB CHG4 – Commercial SMBus Battery Charger

The LKB CHG4 is designed as a stand-alone desktop charger for up to 4 SMBus compliant commercial battery packs and it can accomodate 3 or 4 cell Li-Ion packs. Dedicated battery adapters are provided.
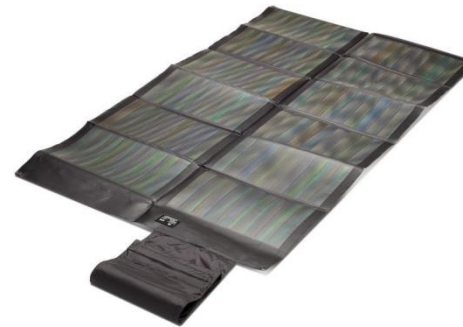
AC/DC
Power Supply

Up to 4
Smart Batteries

PLEASE WAIT
PROCESSING...88%

LCD Display

Accessories: **Power Sources**

- AC/DC Power Adapter
- DC/DC Power Adapters
- Portable Solar panels
- Fuel Cell System
- 4-Stroke Power Generators

Foldable Solar Panels

AC/DC Power Supply

Fuel Cell System

4-Stroke Power Generator

Accessories: Example of Li-Ion SMBus Batteries

- Commercial: RRC, Inspired, Accutronics
- Military: LI-145, LI-80, BB-2557, BB-2590
- Adapters for all supported battery types available

3-4 cell RRC/Inspired Packs

4-cell VR420A Pack

Cylindrical Energy Source (CES)

BB-2590

BB-2557

LI-80

LI-145

Accessories: Li-Ion SMBus Battery Manufacturer

Commercial SMBus Batteries

- http://www.accutronics.co.uk
- http://inspired-energy.com
- http://www.rrc-ps.com

Military SMBus Batteries

- http://www.ultralifecorporation.com
- http://www.patcoelectronics.com
- http://www.bren-tronics.com
- http://www.denchipower.com
- http://www.milpower.co.uk
- http://www.epsilor.com
- http://www.saftbatteries.com

Application Examples

The LikeAbird QSBMS supports a variety of commercial and military battery powered applications.

Customer Target Example

Reseller and System Integrators

- Manufacturer and system integrators of unmanned systems (air/land/sea) and ground control stations
- Value added reseller (VAR) and system integrator (SI) in the field of industrial, military, law enforcement, first responder and aerospace
- Value added reseller (VAR) of smart batteries for commercial, industrial and military applications
- Value added reseller (VAR) and system integrators in the field of broadcast and pro video

Target Applications

- Unmanned systems (UAS, ROV, UGV)
- Video and broadcast production
- Mobile Emergency Operation Center (EOC)
- First Responders, law enforcement officiers, fire fighters
- Soldiers on battlefields
- Embedded computing
- Mobile electronic equipment
- Ground Telemetry Test Systems

Contact us for more infos

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