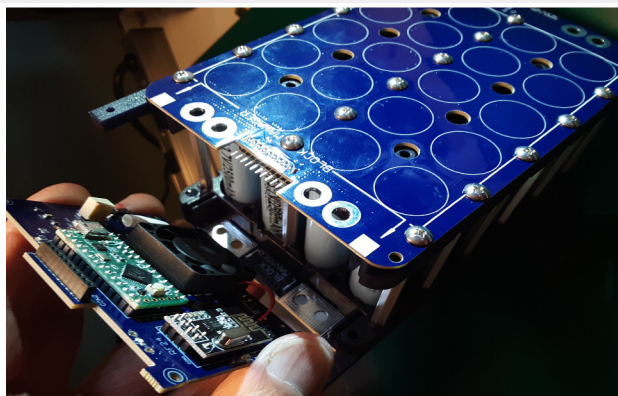# DKblock®

An open source engineered solution to cylindrical battery cell packaging with integrated battery management system.

## FEATURES AND BENEFITS

- Built-in wireless Battery Management System – no low power wiring needed
- Pack builder supplies 18650 cells – block keeps up with latest technology
- Cells are compression packaged – no welding required
- Energy density 2X that of LiFePO4 cells – build lighter weight packs
- Easily scalable – build packs from 1.2 – 66.0 kilowatt-hour
- Quick assembly and dis-assembly - cells are easily recycled when spent

| Dkblock® specifications | |
|---|---|
| Dkblock configuration | 20 cells – 2s10p (2 series by 10 parallel) |
| Block Dimensions (mm) | 148 x 76 x 99 (6 x 3 x 4 in) approx. |
| Weight (kg) | 1.26 (2.77 lbs) with Sanyo NCR18650BD |
| Dimensions of Pack Supervisor PCB (mm) | 100w x 130l x 30h (4 x 5 x 1.25in) approx. |
| Module nominal capacity (ahrs - whrs) | 35 - 259 (with Sanyo NCR18650BD) |
| Module nominal voltage (VDC) | 7.40 |
| Module internal impedance (AC, mohms) | < 80 dominated by cell impedance |
| Spring contact impedance (AC, mohms) | < 1.7 |
| Energy density (watt-hours per kg) | > 200 (using LG, Sanyo, or Samsung cells) |
| Charge protection | Yes via relay on Pack Supervisor |
| Discharge protection | Yes via relay on Pack Supervisor |
| Balancing current /Maximum current | 250ma / 100A for block for 5 min (35A cont) |
| Air flow for cooling and warming (m³/min) | 3.0 (105 cfm) suggested |
| Spring contact material | Beryllium copper (Ph-bronze) with gold plating |
| Operating and storage temp(C) | -40º to 60ºC |



Reusable
Recyclable

open source hardware

Offgrid Systems LLC

**Dkblock** Is comprised of 3 main pieces – **Block Manager** connects to **Battery Block** that communicates to **Pack Supervisor**
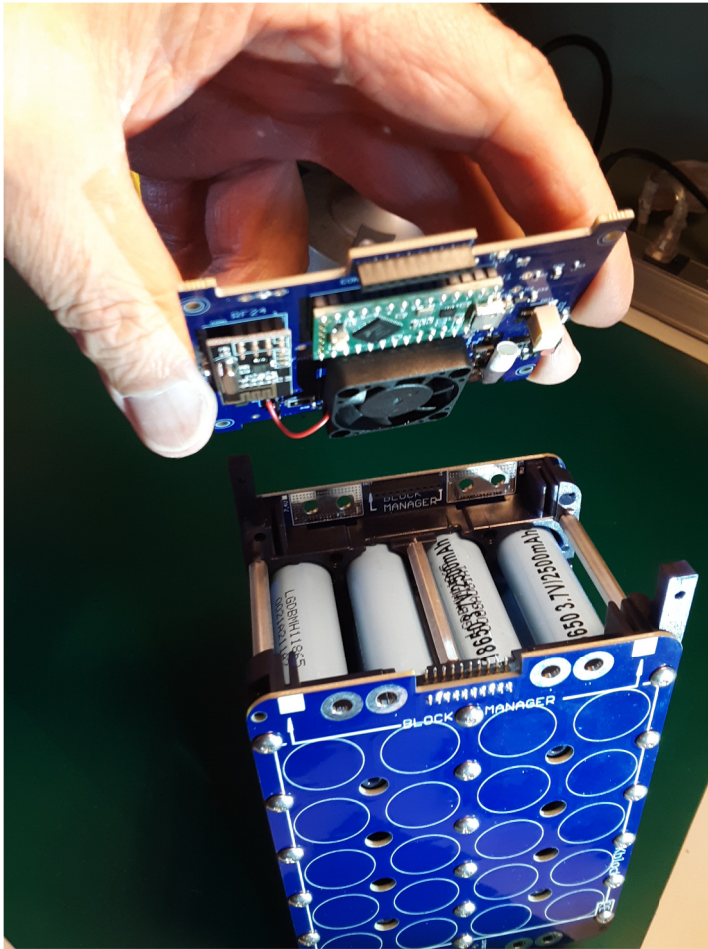


**Block Manager**
Battery management and wireless comms to Supervisor

**Battery Block – 7.4VDC**
With 20 cells in 2 series 10 parallel (2S10P) clamped between two circuit boards

**Pack Supervisor**
Wireless comm with Blocks and provides motor and charge control