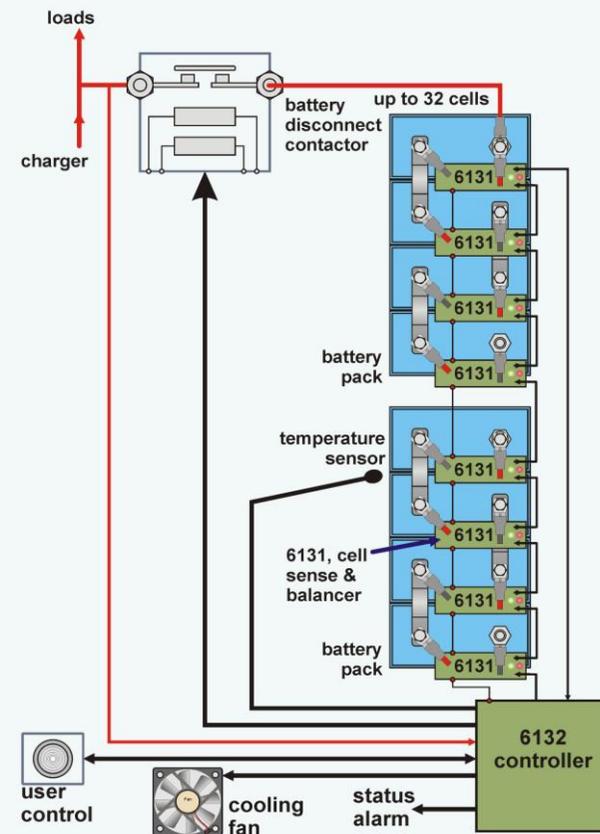
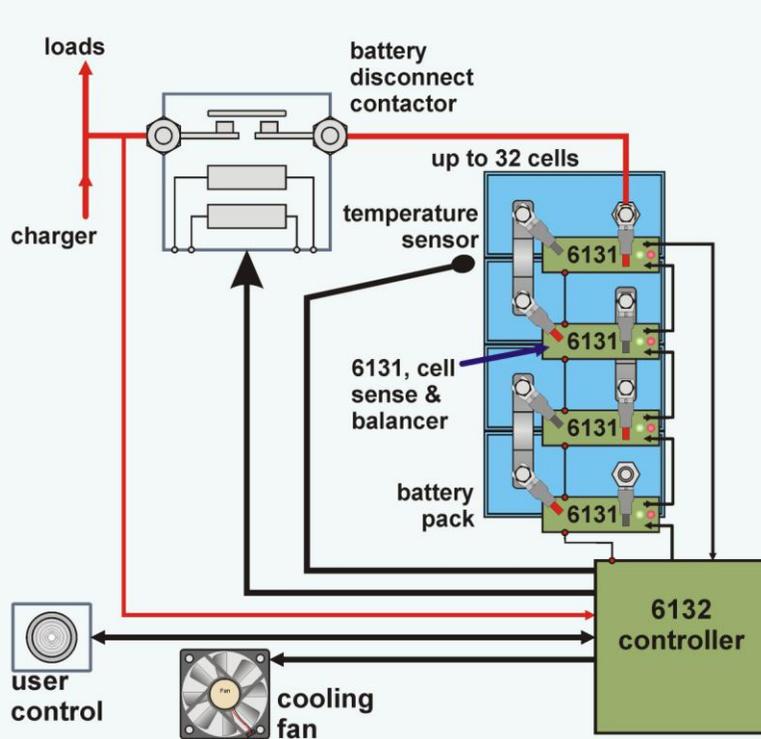


## LiFePO<sub>4</sub> battery management systems for up to 32 prismatic cells, 10 to 400 amp-hour

Low cost distributed system; single controller 6132 with cell sense & balancer 6131

[Datasheet](#)



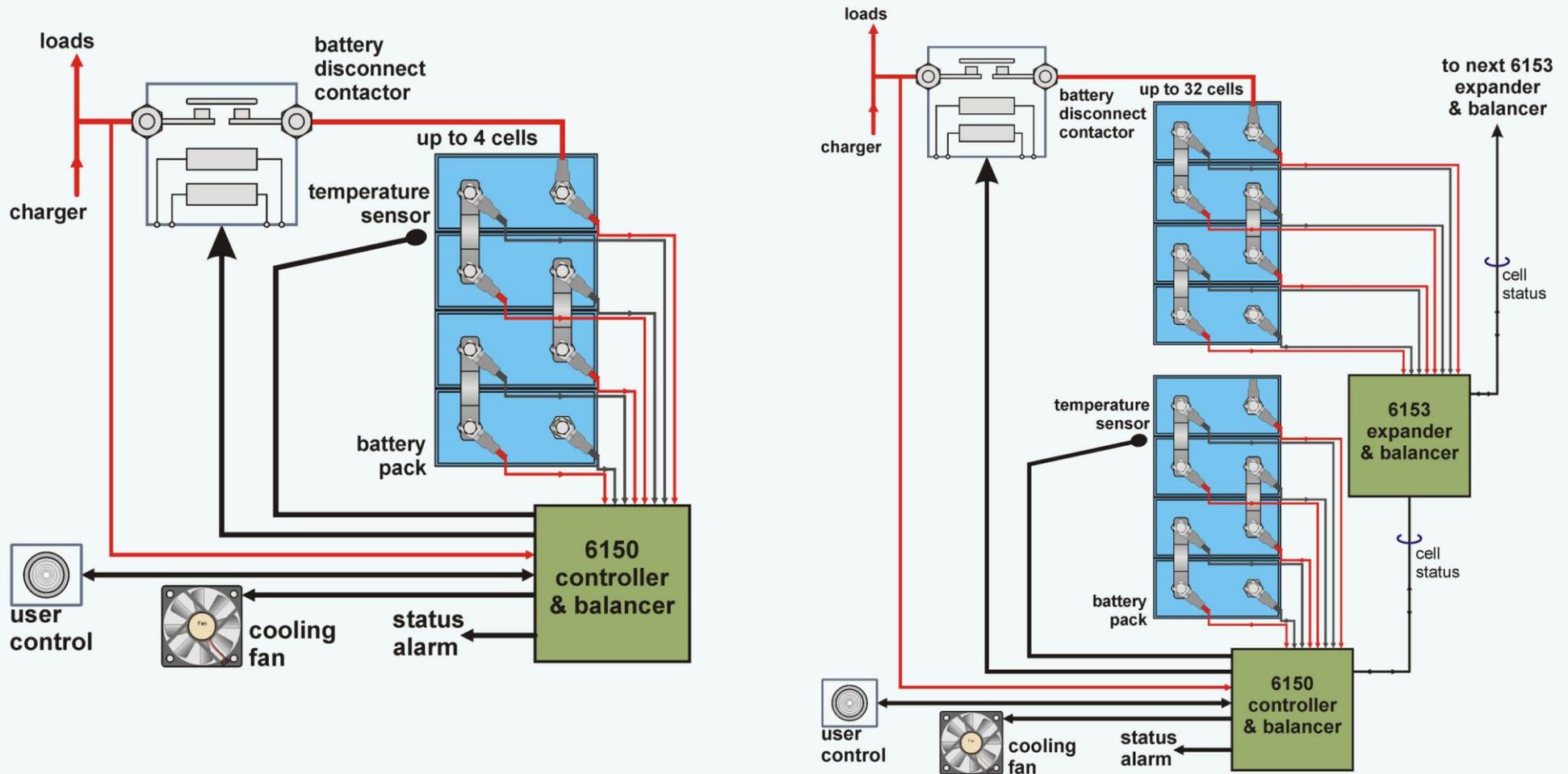
Key points: 5 amp balancing, with balancing & cell protection voltages set in hardware. Expand by adding 6131 cell sensor-balancers up to 96 volts. [More information . . .](#)



# Lithium ion battery management systems

Low cost programmable, centralised system; single controller 6150 with four cell expander & balancer 6153

[Datasheet](#)



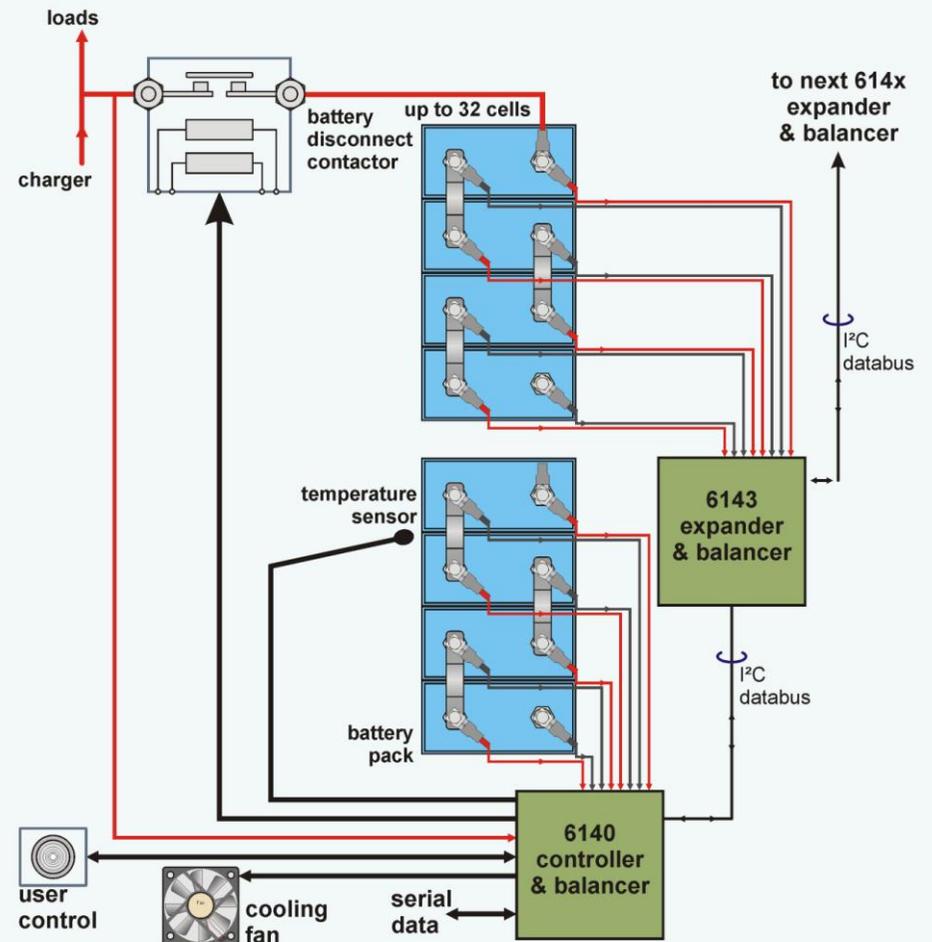
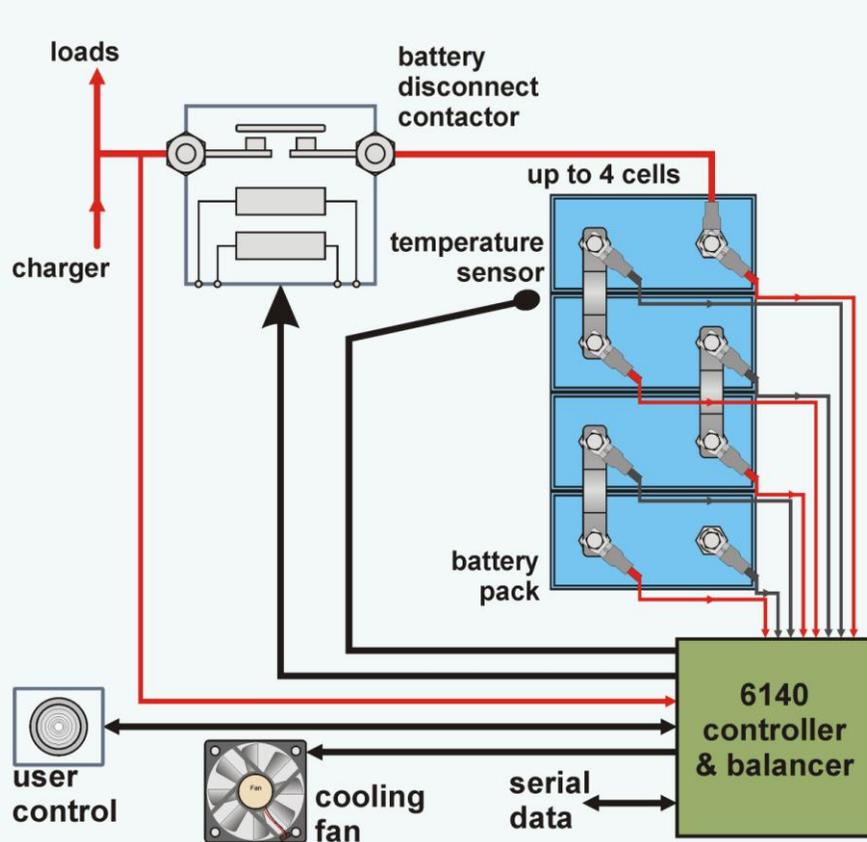
Key points: 1 amp balancing, with programmable cell protection settings. Add cells by adding 6153 expander modules up to 96 volts. [More information . . .](#)



# Lithium ion battery management systems

Programmable centralised Micro BMS; single controller 6140 with four cell expander & balancer 6143

[Datasheet](#)



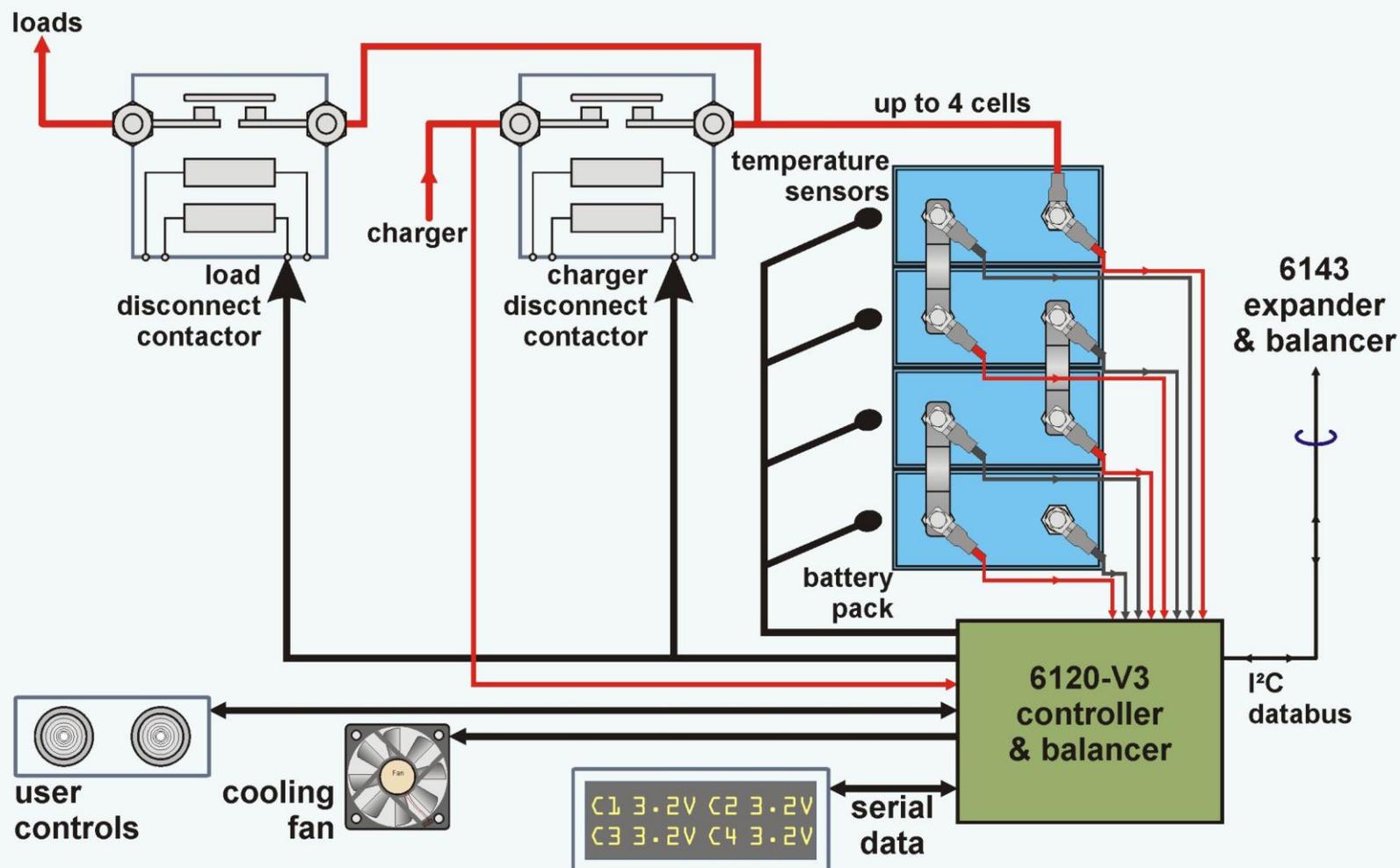
Key points: 1 amp balancing, with programmable cell protection settings. Add cells by adding 6143 expander modules up to 96 volts. Serial cell data port. [More information . . .](#)



# Lithium ion battery management systems

Programmable centralised Micro BMS; single controller 6120-V3 with four cell expander & balancer 6143

[Datasheet](#)



Key points: 1 amp balancing, with programmable cell protection settings. Add cells by adding 6143 expander modules up to 96 volts. Serial cell data port. [More information ...](#)



## Lithium ion battery management systems – system details

### System details:

Unit type no	Description	No of units	Settings
6132	<p><b>Controller for cell sense and passive balancer:</b></p> <p>One controller per battery stack, used with cell sense &amp; passive balancer 6131 – see below. Monitors current loop from 6131, responding to cell voltage out of range. Use with external battery disconnect high current contactor, latching or non-latching. Temperature sensor input, auto-detected, using external NTC resistor or Microchip MCP9700 sensor. Restart automatic or via digital input (switch contact). Dual power sources; battery or external supply (eg charger). Status alarm output. Driver for cooling fan, controlled by temperature sensor &amp; charging voltage. Overall printed board assembly dimensions 60 x 60 x 20mm</p>	1 per stack, any number of cells up to 96 volts	Cell fault set by 6131 hardware.  Controller response is software controlled
6131	<p><b>Cell sense and passive balancer for distributed systems:</b></p> <p>Low cost system, particularly for high voltage stacks. Automatic 5 amp cell balancer with cell voltage monitoring. Detects cell voltage low and cell voltage high, with out of range sent to current loop Cell voltage out-of-range daisy chain cell current loop, for multiple cells up to 96 volts. On-board indicator lamps; green for cell good &amp; amber when balancing. For connection across individual cells; six wires: cell positive, cell negative, power in, power out, &amp; 2 wire current loop. Voltages are set by the hardware. Use with controller 6132 – above. Overall dimensions: TBA</p>	1 per cell, any number of cells up to 96 volts.	All settings are hardware determined.



## Lithium ion battery management systems

Unit type no	Description	No of units	Settings
6150	<p><b>Controller for cell sense and passive balancer:</b></p> <p>Low cost programmable system, particularly for high voltage stacks. One controller per battery stack, used with cell expander &amp; balancer 6153 – see below. Automatic 1 amp cell balancer with cell voltage monitoring. All settings programmable. Monitors cell status from 6153, responding to cell voltage out of range. Use with external battery disconnect high current contactor, latching or non-latching. Temperature sensor input, auto-detected, using external PTC resistor or Microchip MCP9700 sensor. Restart automatic or via digital input (switch contact). Dual power sources; battery or external supply (eg charger). Status alarm output. Driver for cooling fan, controlled by temperature sensor &amp; charging voltage. Overall dimensions 60 x 60 x 20mm</p>	1 per stack, any number of cells up to 96 volts	All settings are programmed
6153	<p><b>Programmable expander &amp; balancer</b></p> <p>Low cost programmable system, particularly for high voltage stacks. Automatic 1 amp cell balancer with cell voltage monitoring. Detects cell voltage low and cell voltage high, with out of range sent to controller via status link. Stackable for multiple cells up to 96 volts; one expander monitors up to 4 cells. On-board indicator lamp; amber when balancing. For connection to banks of four cells. All settings programmable. Use with controller 6150 – above. Overall dimensions 60 x 60 x 20mm</p>	1 for every four cells, any number of cells up to 96 volts	All settings are programmed



## Lithium ion battery management systems

Unit type no	Description	No of units	Settings
6140	<p><b>Micro BMS controller; multi-cell centralised battery monitoring &amp; protection:</b></p> <p>Fully featured, fully protected BMS; One controller per battery stack, used with cell expander &amp; balancer 6143 – see below. Automatic 1 amp cell balancer with cell voltage measurement. All settings programmable. Automatic 1 amp cell balancer with cell voltage measurement. Expandable to up to 32 cells by connecting additional 6143 expansion modules - one per four cells. Two way communication with expander modules via isolated I<sup>2</sup>C serial databus. Use with external battery disconnect high current contactor, latching or non-latching. Differential inputs for voltage monitoring of up to 4 cells; series connected or stand-alone. Temperature sensor input, auto-detected, using external NTC resistors or Microchip MCP9700 sensor. Restart automatic, or via serial interface or via digital input (switch contact). Dual power sources; battery or external supply (eg charger). All parameters programmable: voltages, temperatures &amp; timings. On-board serial interface reporting individual cell voltages, temperatures &amp; faults – for remote control, alarms or display. Driver for cooling fan, controlled by temperature sensor &amp; charging voltage. Overall dimensions 60 x 60 x 20mm</p>	1 per stack, any number of cells up to 96 volts	All settings are programmed
6143	<p><b>Programmable expander &amp; balancer</b></p> <p>Flexible, programmable system, particularly for high voltage stacks. Automatic 1 amp cell balancer with cell voltage measurement. Two way communication with controller via isolated I<sup>2</sup>C serial databus. Stackable for multiple cells up to 96 volts; one expander monitors up to 4 cells. For connection to banks of four cells. All settings programmable. Use with controller 6140 – above. Overall dimensions 60 x 60 x 20mm</p>		



## Lithium ion battery management systems

Unit type no	Description	No of units	Settings
6120-V3	<p><b>BMS controller; multi-cell centralised battery monitoring &amp; protection:</b></p> <p>Fully featured, fully protected BMS; One controller per battery stack, used with cell expander &amp; balancer 6143 – see above. Automatic 1 amp cell balancer with cell voltage measurement. All settings programmable. Automatic 1 amp cell balancer with cell voltage measurement. Expandable to up to 32 cells by connecting additional 6143 expansion modules - one per four cells. Two way communication with expander modules via isolated I<sup>2</sup>C serial databus. Two external high current contactors, latching or non-latching. Differential inputs for voltage monitoring of up to 4 cells; series connected or stand-alone. Four temperature sensor inputs, auto-detected, using external NTC resistors or Microchip MCP9700 sensor. Restart automatic, or via serial interface or via digital input (switch contact). Dual power sources; battery or external supply (eg charger). All parameters programmable: voltages, temperatures &amp; timings. On-board serial interface reporting individual cell voltages, temperatures &amp; faults – for remote control, alarms or display. Driver for cooling fan, controlled by temperature sensor &amp; charging voltage. Overall printed board assembly dimensions 120 x 74 x 25mm. Enclosure dimensions 122 x 78 x 31mm.</p>	1 per stack, any number of cells up to 96 volts	All settings are programmed



## Lithium ion battery management systems

<b>6133</b>	<b>Cell sense and passive balancer for low voltage distributed systems, programmable:</b> <b>In development, not yet available</b> Software controlled distributed system. A stand alone cell balancer with cell voltage measurement. Sends cell voltage data to controller. Automatic balancing, 5 amps. On-board indicator lamps; green for cell good & amber when balancing. For connection to individual cells; four wires: cell positive & cell negative plus two wires for data Voltages are set by controller software. Use with controller 6135 – see below.	1 per cell, expandable to 12 cells	Software
<b>6134</b>	<b>Cell sense and passive balancer for high voltage distributed systems, programmable:</b> <b>In development, not yet available</b> Software controlled distributed system. A stand alone cell balancer with cell voltage measurement. Sends cell voltage data to controller. Automatic balancing, 5 amps. On-board indicator lamps; green for cell good & amber when balancing. For connection to individual cells; four wires: cell positive & cell negative plus two wires for data Voltages are set by controller software. Use with controller 6135 – see below.	1 per cell, expandable to 32 cells	oftware
<b>6135</b>	<b>Controller for cell sense and passive balancer:</b> <b>In development, not yet available</b> One per battery stack, used with cell sense & passive balancer 6133 or 6134 – see above. Reads data from 6133 or 6134, responding to cell voltage out of range. Use with external battery disconnect high current contactor, latching or non-latching. Temperature sensor input, auto-detected, using external NTC resistor or Microchip MCP9700 sensor. Restart automatic or via digital input (switch contact). Dual power sources; battery or external supply (eg charger).	1 per stack, any number of cells up to 96 volts	Software