

Lithium Polymer battery pack chargers

Kokam/USA recommends these chargers for keeping your LiPo battery packs in top condition:

- LiPo-402 Charger charges up to four LiPoly cells connected in series. Six current settings from 0.1A to 1.5A handle a cell and pack capacities. The charger can be powered by a 12V lead acid or gel cell battery, a DC power supply or any source that provides 10 to 15VDC at 3A.



- LiPo-102 Charger charges single LiPo cells, or 3.7V parallel-connected LiPo packs. Output currents range from 5 to 225mA. This model can be powered from any 9 to 12VDC source, including a lead acid or gel cell battery, or a DC power supply capable of 300 mA.



- LiPo-202 Charger charges two LiPo cells in series, or 7.4V series/parallel-connected LiPo packs. Output currents range from 5 to 225mA. This model can be powered from any 11 to 13.5VDC source, including a lead acid or gel cell battery, or a DC power supply capable of 300 mA.



Chargers are available through the Kokam/USA Web site: www.kokamusa.com.

Kokam/USA limited warranty

Kokam/USA warrants this product to be free of manufacturing defects for the term of 90 days from the date of purchase. Should any defects covered by this warranty occur, the charger shall be repaired or replaced with a unit of equal performance by Kokam/USA or an authorized Kokam/USA service station.

Limits and exclusions

This warranty may be enforced only by the original purchaser, who uses this product in its original condition as purchased, in strict accordance with the product's instructions. Units returned for warranty service to a Kokam/USA service center will be accepted for service when shipped postpaid, with a copy of the original sales receipt or warranty registration form, to the service station designated by Kokam/USA.

This warranty does not apply to:

- Consequential or incidental losses resulting from the use of this product.
- Damage resulting from accident, misuse, abuse, neglect, electrical surges, reversed polarity on connectors, lightning or other acts of God.
- Damage from failure to follow instructions supplied with the product.
- Damage occurring during shipment of the product either to the customer or from the customer for service (claims must be presented to the carrier).
- Damage resulting from repair, adjustment, or any alteration of the product by anyone other than an authorized Kokam/USA technician.
- Installation or removal charges, or damage caused by improper installation or removal.

Call (301) 668-7614 for more information about service and warranty repairs.

Kokam/USA Lithium Polymer Battery Pack Connector Modules

1.25mm Series Connector Module

1.25mm Parallel Connector Module

3mm Series Connector Module

3mm Parallel Connector Module

High Current Series Connector Module

High Current Parallel Connector Module



About the modules

Kokam/USA's Connector Modules provide an easy, convenient method for combining stock Lithium Polymer (LiPo) battery packs to achieve higher voltages and currents. Kokam/USA LiPo battery packs are available with single cells (1S), two cells in series (2S) and three cells in series (3S)—with standard output connectors—in a variety of capacities. The Battery Pack Connector Modules enable you to plug stock packs together to configure larger packs for almost any application.

Using one module, you can design and quickly build LiPo power systems combining up to five stock LiPo battery packs (up to 15 cells). Additionally, modules can be soldered to other modules to interconnect many more LiPo battery packs.

Kokam/USA Lithium Polymer cells are the next-generation replacement for NiCd, NiMH and Lithium Ion cells. This unique power technology offers high energy density, low weight, long life, safe operation and environmentally-friendly chemistry. Order Kokam/USA cells and packs through the Kokam/USA Web site, www.kokamusa.com (or www.fmadirect.com). LiPo technical and application information is available in the Support section of the Web site.

Precautions

- Follow all instructions in this manual to assure safe operation.
- All battery packs connected together in series must have the same capacity (mAh).
- All battery packs connected together in parallel must have the same voltage and capacity (mAh).
- Never charge LiPo batteries with a charger designed for NiCd, NiMH or any other type of battery chemistry. LiPo cells require a special charging sequence not provided by chargers made for other battery technologies.
- For best results, use a 1C charge rate* (where C = cell/pack capacity). Charging at a 1C rate takes approximately 1 hour (for a fully discharged cell/pack). Charge rates greater than 1C may reduce cell capacity.* Extreme charge rates **will** damage cells.
- Follow all guidelines for charging, discharging, handling and storing LiPo cells.*

*For details, see the *Kokam/USA Lithium Polymer Cell application manual, AN000001*, available in the Support section of the Web site.

Kokam
USA

FMA
Direct

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Stock LiPo battery packs

The table below summarizes stock battery packs available from Kokam/USA. You will plug one or more of these into a Battery Connector Module.

Type	Cells in pack	Voltage (DC)	Capacities (mAh)	Output connector
Low current	1 (1S)	3.7	45, 145	1.25mm micro power
	2 (2S)	7.4		
Moderate current	2 (2S)	7.4	560, 640HC, 880, 1020	3mm power
	3 (3S)	11.1		
High current	2 (2S)	7.4	1200HC, 2070, 3270	Deans Ultra
	3 (3S)	11.1		

Tip: For help in determining the number of cells needed for your application, use the LiPo Calculator in the support section of the Kokam/USA Web site (www.kokamusa.com).

Battery Connector Modules

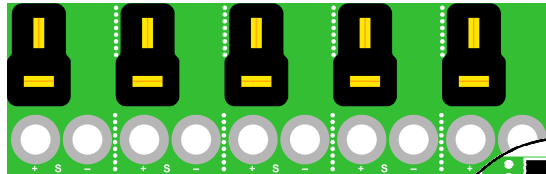
The table below lists Battery Connector Modules available from Kokam/USA. Input connectors on the modules mate with the corresponding stock battery pack output connectors listed above.

Type	Input connectors	Series Module Part No.	Parallel Module Part No.
Low current	1.25mm micro power	CMS-125MM-5	CMP-125MM-5
Moderate current	3mm power	CMS-3MM-5	CMP-3MM-5
High current	Deans Ultra	CMS-HC-5	CMP-HC-5

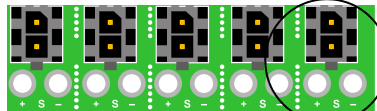
Identifying the modules

Illustrations below, showing the modules from the connector sides, are approximately actual size.

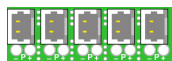
High current



Moderate current



Low current



Perforations for removing section

Positive voltage output
S = Series module
P = Parallel module
Negative (gnd) voltage output

Assembling your custom pack

You will need:

- One or more Kokam/USA LiPo battery packs.
- One or more Battery Connector Modules.
- Wire and optional connector for module output. Wire gauge and connector must be able to handle maximum current for your application.
- Soldering iron and solder.
- Electrical tape.

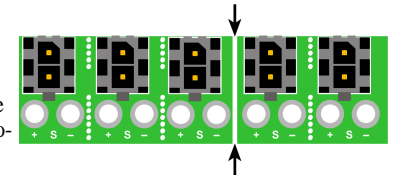
1. Prepare the stock packs:

- For low current draw applications: Stack the stock cells or packs with their flat sides together. Wrap the stack with electrical tape.
- For high current draw applications: Stack the stock cells or packs with 1-2mm separation for cooling air circulation. Use narrow, non-flammable, non-melting spacing material. Wrap the stack with electrical tape, but keep the ends open.



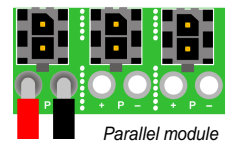
2. OPTIONAL: Remove unneeded sections

from the Connector Module. (For example, if you are using only three stock packs, you can remove two sections from the Module to save space and weight.) Carefully cut or saw through the perforations using a jigsaw, hobby knife or hobby saw.

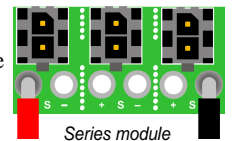


3. Solder output wires to the Connector Module. If your powered device (such as an electronic speed control) has input wires, you can solder those directly to the module output holes. Otherwise, solder output wires to the module; then if desired, attach an output connector to the other ends of the output wires.

- For a **parallel** Connector Module, solder the wires to any pair of + / - holes. ⇨



- For a **series** Connector Module, solder the wires to the outermost holes—use the + hole at one end of the module and the - hole at the other end. ⇨



CAUTION: Double-check polarity of output holes. Your module may have different hole locations than shown here.

4. IMPORTANT: Check to make sure you don't have any short circuits after completing assembly, then cover the bottom of the Connector Module with insulating material to prevent it from shorting.

5. Plug the stock battery pack connectors into the jacks on the Connector Module.

