

# 18M LiPo Re-charge and External Power User Guide

The COBRA Power Adapter is an optional accessory that can retrofit to any\* 18M firing modules or be purchased as pre-installed to a new 18M firing module. The power adapter supports an internal rechargeable LIPO battery pack, recharge port, and external power input. This provide support for longer life, greater max with series and parallel firing, and options for extreme cold weather firing.

In order to use the new COBRA power adapter, your systems need to be running firmware version 3.0.3 or greater. See <http://www.cobrafiringsystems.com/release> for more information on upgrading your systems.



## Hardware overview

|          |   |
|----------|---|
| <b>1</b> | 20V charge input port for internal LIPO battery plus charge indicator LED. Indicator blinks when charging, solid when fully charged. 4-6 hours charge time. |
| <b>2</b> | External 12-24V power input w/ overload protection.   |
| <b>3</b> | Internal 14.8V LIPO battery. User can remove LIPO battery and use standard replaceable 9V batteries if desired.   |

## Max firing (series / parallel)

|                        | Series (e-match only) | Parallel (e-match or Talons) |
|------------------------|-----------------------|------------------------------|
| <b>9V</b>              | 10                    | 4                            |
| <b>14.8V LIPO</b>      | 10                    | 8                            |
| <b>12V external*</b>   | 8                     | <b>12</b>                    |
| <b>18.5V external*</b> | 14                    | <b>12</b>                    |
| <b>24V external*</b>   | 20                    | <b>12</b>                    |

\*assumes minimum 15A peak burst current

## Additional features

- The internal 14.8V battery has 900mA and lasts for 8-10 hours in active mode, and 24-30+ hours in sleep mode
- Connect multiple power sources (internal and external) to act as an instant backup. For example, internal 9V batteries can act as a backup to external 1P and 2P (Both) input. The 18M always favors the higher voltage.
- Internal LIPO handles extreme cold weather firing (up to -20 F / C) for a single e-match

- Five bay charge plug available for charging up to five modules at once

\*Does not include original STRYKE18 units. Contact Scott Smith at [ssmith@cobrafiringsystems.com](mailto:ssmith@cobrafiringsystems.com) for trade-in options.

## Internal LIPO Battery and Charge Port / Charger Options

The COBRA Power Adapter comes with an optional 14.8V Lithium Polymer battery pack that fits conveniently in the existing 18M 9V battery compartment.





### Battery Life

The internal LIPO battery offers 900 mAh, which is 60% more operating life than the standard Duracell or Energizer 9v operational battery which offers about 550 mAh. Using the internal LIPO battery pack, the 18M will last for 8-10 hours in active mode, and 24-30 hours in sleep mode.

### Re-charging

COBRA offers two rechargers including a single 18M charger and 5-module charger which supports charging up to five 18M firing modules off a single charger (see below). Charge time is 4-6+ hours. The module charge LED will blink when charging and display solid when fully charged.

| Single Module Charger   | 5-Module Charger   |
|---|--|
|  |  |

### Lithium Battery Disclosure

Lithium Polymer batteries pose a fire risk when charging. This can be due to both over-voltage and under-voltage conditions. To prevent these cases, COBRA has two protection circuits, both on the battery itself (secondary), and the main power adapter PCB board (primary). While we don't expect a failure, the secondary protection acts as a backup to the primary. While the risk of fire is negligible, its recommended to never leave your batteries unattended while charging. See our full [Lithium Battery Disclosure](#) for more information.

## Voltage Mode

The purpose of the voltage mode is to allow your 18M to know the expected voltage in order to correctly sense it's battery level on both start-up, and to determine if the module has a low battery.

The 18M has five voltage modes including 9v, 12v, 14.8v, 18v, and 24v. For each mode, we assume a specific type of battery in order to determine expected battery voltage ranges. To change the voltage mode on the firing module, press **TEST and CH+** to increase the voltage, and press **TEST and CH-** to decrease the voltage. Once set, the voltage mode is maintained on the 18M even if powered off, or the batteries are removed / replaced.

|              |  |
|--------------|--|
| <b>9V</b>    | Standard alkaline 9V batteries. Use only Duracell or Energizer brand-name batteries.   |
| <b>12V*</b>  | Standard 12V SLA (sealed lead acid) battery<br>(i.e. <a href="http://www.batteryspace.com/sealedleadacidbattery12v10ah120whs.aspx">http://www.batteryspace.com/sealedleadacidbattery12v10ah120whs.aspx</a> )       |
| <b>14.8V</b> | Internal COBRA LIPO battery  |
| <b>18V*</b>  | External 18.5V 5S LIPO battery<br>(i.e. <a href="https://hobbyking.com/en_us/zippy-flightmax-3000mah-5s1p-20c.html">https://hobbyking.com/en_us/zippy-flightmax-3000mah-5s1p-20c.html</a> )                        |
| <b>24V*</b>  | Two series-wired SLA (sealed lead acid batteries)<br>(i.e. <a href="http://www.batteryspace.com/sealedleadacidbattery12v10ah120whs.aspx">http://www.batteryspace.com/sealedleadacidbattery12v10ah120whs.aspx</a> ) |

\* In order to fire the maximum 12 e-matches or Talon igniter clips in parallel, a 15A max discharge rate is required

## External Power Input Options

The COBRA Power Adapter supports external 12-24 volt power input.



### Connecting multiple power inputs

You can connect to one or more power inputs (including the internal LIPO and standard 9V batteries) at the same time without damaging the system. The power adapter will always favor the higher voltage independently for the 1P and 2P power sources. Any use of multiple power sources will provide an instant backup without resetting the unit.

For example, if you have an external 12V power supply, but are using the internal 14.8V LIPO battery, the 14.8V LIPO battery will be used until the voltage drops below 12V whereby the 12V external power source will be favored. This also applies for using an external 12V power supply along with the internal 9V batteries. The 2P 18V setup will take priority over the 12V external power supply.

### Recommended external batteries

We highly recommend the use of external LIPO battery packs rated for 18.5V. For example, the [18.5V ZIPPY Flightmax 3000mAh 5S1P 20C](#) battery. Using this battery as an external battery (which has a nominal voltage of about 20V), along with the internal LIPO or standard 9V batteries can provide a high power setup, while having the backup of the internal batteries if connection were to be lost / compromised.

### Max e-match series / parallel using external power setup

Using external power input, you can fire more cues in series or parallel and provide additional options for cold weather firing.

|                        | Series | Parallel  |
|------------------------|--------|-----------|
| <b>9V</b>              | 12     | 4         |
| <b>14.8V LIPO</b>      | 10     | 8         |
| <b>12V external*</b>   | 8      | <b>12</b> |
| <b>18.5V external*</b> | 14     | <b>12</b> |
| <b>24V external*</b>   | 20     | <b>12</b> |

\*assumes minimum 15A peak burst current

## Troubleshooting / FAQ

### **My 18M is showing Er1 or Er2, why is this?**

Your voltage mode is likely incorrect on the 18M. To change the voltage mode on the firing module, press **TEST and CH+** to increase the voltage, and press **TEST and CH-** to decrease the voltage. Once set, the voltage mode is maintained on the 18M even if powered off, or the batteries are removed / replaced.

### **If I remove my internal LiPo and start using 9V, do I need to change the voltage mode?**

Yes, you need to change the voltage mode on the 18M whenever you plan to use a different voltage battery as your main source. To change the voltage mode on the firing module, press **TEST and CH+** to increase the voltage, and press **TEST and CH-** to decrease the voltage. Once set, the voltage mode is maintained on the 18M even if powered off, or the batteries are removed / replaced.