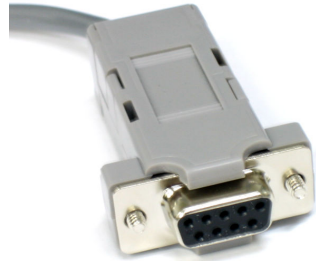


# ***PakTrakr* ES1**

## **Serial Interface**

### **Installation Guide**



- 1) If a current sensor is attached to the PakTrakr Display, remove its 4-pin plug (left side) from the back of the Display.
- 2) Connect the 4-pin plug on the ES1 cable to the 4-pin (left-most) connector on the back of the PakTrakr Display.
- 3) If a current sensor is to be used, connect its 4-pin plug to the 4-pin connector inside the back (cable) end of the ES1.
- 4) Connect the PC's 9-pin male plug to the ES1's 9-pin female connector.
- 5) Reset the PakTrakr system by disconnecting the Remote's black lead from the battery 1 negative post, and then re-connect it. This will reset the PakTrakr and enable it to recognize the current sensor if attached.
- 6) Use a terminal program (such as HyperTerminal) on the PC to begin monitoring and/or capturing data from the PakTrakr. Once captured, the CSV text file may be easily imported into a spreadsheet such as Excel for analysis. See the Quick Reference section for information about the data format.

Note: The ES1 Serial Interface has been tested and works best with USB serial interfaces.

# ***PakTrakr ES1***

## **Quick Reference**

### **Serial Format:**

Baud Rate: 19200  
Data Bits: 8  
Parity: None  
Stop Bits: 1  
Flow Control: None

Frequency: 1 packet per second  
Format: CSV (comma separated values)

### **Packet Data**

Each Remote sends its own packet of data, starting with a "B" character, as follows:

**B**,*b1v, b2v, ... b8v*,**H**,*b1h, b2h, ... b8h*,**E**,*e1, e2, e3, e4, e5, e6, e7*,**P**,*pack, SOC, temp, series*

where *b1v* = battery 1 voltage x 10 (e.g. 125 = 12.5V) (only batteries detected included)

*b1h* = reserved data

*e1* = Low water likely (each bit represents a battery: batt 1=lsb, batt 8=msb)

*e2* = Pack Imbalance (bits represent batteries needing individual charge)

*e3* = Failing battery

*e4* = Maintenance required

*e5* = Damaged battery

*e6* = Overcharging

*e7* = Excessive discharge

*pack* = Pack Voltage x 10 (e.g. 775 = 77.5V)

*SOC* = Pack State of Charge (0-100%)

*temp* = Remote temperature in degrees F

*series* = 1 if pack is connected in series, 0 if pack is connected in parallel

If there are multiple Remotes attached, each will append its packet to the previous Remote's, creating a single long packet, where data from each Remote begins with a "B" character.

After the Remote(s) data, the PakTrakr Display appends a time-stamp, amps reading (if a current sensor is attached), and a carriage return/line feed to the end of the packet, as follows:

**T**,*second, hour, minute, day, amps(x10)*, CR LF

**Dimensions:** 1.5" x 2.0" x 0.6" (not including cables)

**Weight:** 0.5 ozs

**Warranty:** One year from date of purchase.

For more information or technical support, please visit our web site at

[www.paktrakr.com](http://www.paktrakr.com).