



User Manual for the PowerPanel LCD Display Expander

Document Version 1.2, Model # ETS-LCD

Thank you for your purchase of the PowerPanel - a tiny, lightweight Watt Meter for your model! This instruction manual will guide you through the installation and operation of your PowerPanel LCD Display. ***Please read the entire manual carefully before proceeding.*** If, after you read the manual (including the Troubleshooting sections!) you have further questions or problems, see the Support page on <http://www.eagletreesystems.com> for additional information, or email us at support@eagletreesystems.com.

Key Features

Here are a few of the features of the PowerPanel:

- Ultra-thin LCD display connects to the MicroPower with the included 11" data cable.
- Live Display of Amps, Volts, mAH, Temperatures, and RPM (more coming soon, by simply download our latest Windows program).
- Cumulative mAH display serves as a “gas gauge” for your battery pack. By knowing how much has been used, you can know approximately how much is left!
- Up to 4 parameters can be displayed per “virtual page” on the PowerPanel. Each parameter has a programmable label.
- Multiple “virtual pages” of data are supported, with programmable ways of switching between the pages.
- Supports display of both Live data and Max values, with programmable ways of switching between Live and Max.
- Supports “hot plugging” into the MicroPower after your session.
- So light, it can easily be attached to the side of your model for live/max display all the time!
- System supports both Metric and English units.

Supported Products

The PowerPanel works with the MicroPower eLogger. **To use the PowerPanel with the MicroPower, you must update to Windows Application version 3.64 or higher.** This is described in the “Windows Application and Firmware Update” section below.

Steps to Follow

Installation and use of your PowerPanel will be quite easy and enjoyable if you follow these few steps:

1. Read through the manual to understand the warnings, determine the installation and setup sequence, etc.
2. Upgrade the Windows Application and Firmware for your MicroPower, if you purchased your MicroPower before the PowerPanel was available. This is described in the “Windows Application and Firmware Update” section below.
3. Connect the PowerPanel to the MicroPower. You should now see live data on the PowerPanel!
4. If desired, reconfigure the parameters displayed on the PowerPanel as described in the “Configuring the PowerPanel with the Application” section below.
5. Have fun!

Intended Uses

The PowerPanel is designed for use in Unmanned Radio Controlled models. Using the PowerPanel for other purposes is not supported. Further, using the PowerPanel in situations where its use or failure could result in loss of life, bodily injury or property damage is expressly prohibited.

Packing List

Your package should include the following: the PowerPanel LCD Expander, and a printed version of this manual. Please check the support page of our website for the latest version of this manual, in case changes have been made since it was printed.

Windows Application and Firmware Update

To use the PowerPanel with the MicroPower, you must update to Windows Application version 3.64 or higher. To update, download the latest application from the support page of our website.

After downloading and installing the Application, the firmware of your MicroPower may need to be updated. **Firmware version 4.45 or greater** is required for the PowerPanel to work correctly. To upgrade your MicroPower firmware, choose “Tools, Firmware Control” and click the Update button.

Connecting the PowerPanel to Your MicroPower

Connect the PowerPanel to the MicroPower’s AUX connector, as shown in Figure 1. Note that the top row of pins is the correct row, and note that the red wire of the PowerPanel should face outwardly.

After you have completed this step, the PowerPanel should be preconfigured to show Amps, Volts, mA, and Temperature. No further configuration is required if these are the only parameters you care about!

NOTE: The PowerPanel can be “hot plugged and unplugged” to the MicroPower even when the MicroPower is powered by your battery pack.

Configuring the PowerPanel with the Application

Once the PowerPanel is installed, you can change what is displayed on the PowerPanel, change when the PowerPanel shows Live vs Max data, and change when the PowerPanel switches between multiple display pages.

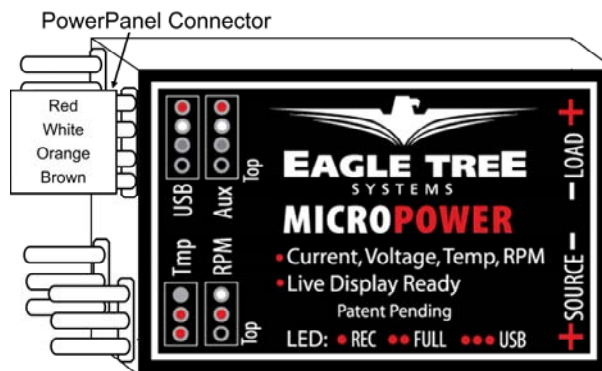


Figure 1

Launching the PowerPanel Display Setup Utility

To configure the PowerPanel, connect the MicroPower to USB, and choose “Tools, Configure PowerPanel Display” in the application. The PowerPanel Setup Utility should then appear.

Using the PowerPanel Display Setup Utility

Figure 2 shows the main page of the Utility. The Utility main page is divided into the following sections:

Select Data Parameter to Configure on the PowerPanel:

This section contains the tools to select what, how and where parameters are displayed on the LCD pages.

To select and configure a parameter, choose the parameter to be configured in the “Choose a Parameter you want to configure...” window. A “o” next to an item indicates that this item is already selected for display, and choosing it will allow you to edit the item. After selecting the parameter, click the “Enable this parameter...” checkbox to enable the parameter to be displayed/configured, or uncheck it to remove it from the list.

Once the parameter is enabled, choose where the parameter will be displayed by choosing the location in the “Select Display Location” window. You can choose both the display page, and the location on that display page, for the parameter.

Up to 4 parameters can be displayed on each page. Normally, page 1 would be filled with 4 parameters of your choice, and if you need to display more than 4 parameters, the remaining parameters would be programmed to display on page 2, etc. Or, you can have one parameter per page, or any other combination!

A “o” next to the location chosen means it is already in use by this or another parameter. Choosing a location that is in use already will cause the parameter using it to be disabled.

The window labeled “Enter the label to display..” indicates the 3 digit label that will be displayed beside this parameter on the LCD. You can change this 3 digit label to be whatever you want. For example, if Temperature Sensor 1 was attached to your ESC, you might label the Temperature Sensor 1 parameter “ESC.”

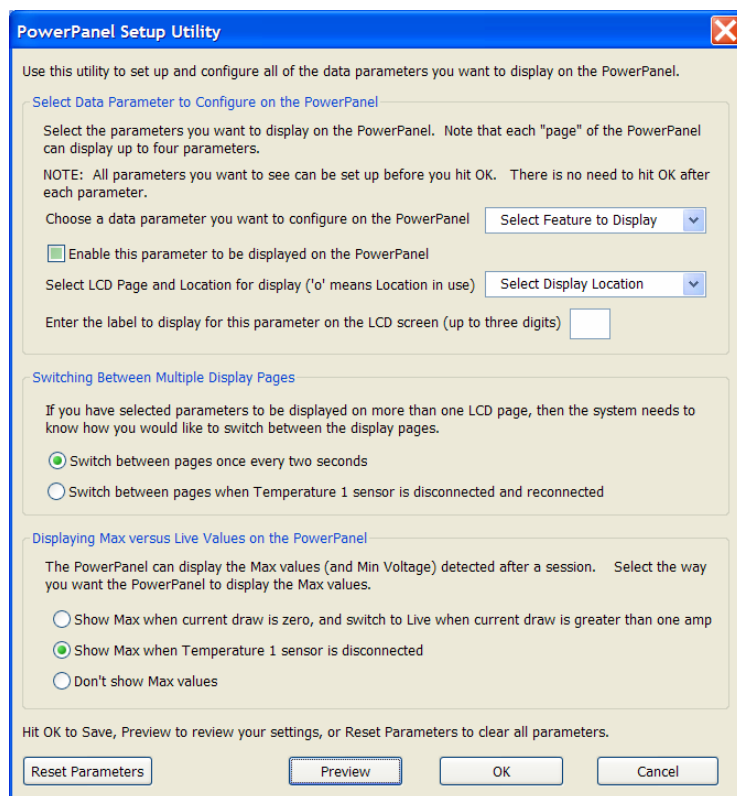


Figure 2

NOTE: If the data for each parameter grows large, such as a large RPM, the middle character in the 3 digit label will be eliminated to show all the numeric digits in the parameter. For example, “RPM 0” would become “RM 40342” in this case.

Switching Between Multiple Display Pages:

This section lets you indicate to the PowerPanel how you want it to switch between multiple display pages, when you have parameters on more than one page (meaning more than 4 parameters total, since each page will hold up to 4 parameters).

If you want the PowerPanel to scroll between the pages automatically, select the “**Switch Between Pages Every Two Seconds**” option. Then, the PowerPanel will automatically switch between page 1, page 2, etc., for each page you have programmed with parameters.

If you want to switch between the pages manually, select the “**Switch Between Pages when Temperature 1 Sensor is disconnected and reconnected**” option. When this option is selected, the PowerPanel will stay on the currently displayed page (starting with Page 1 when power is applied) until the Temperature 1 Sensor is disconnected from the MicroPower, and then reconnected. NOTE: only choose this setting if you are using the optional temperature sensor!

Displaying Max vs Live Values on the PowerPanel:

This section lets you indicate to the PowerPanel how you want it to switch between displaying “live” data (real time data) for each parameter, and the maximum value detected for each parameter (minimum value for pack voltage). Max values are indicated by an “up arrow” triangle next to the parameter (“down arrow” triangle for pack voltage). Live values do not have this arrow.

If you want the PowerPanel to show Max values detected automatically when the motor is not running (current draw is near zero) and show live values when the motor is running, select the “**Show Max when current draw is zero, and switch to Live when current draw is greater than one amp**” option. Then, whenever the motor is not running, max values detected are displayed. But, when the motor is running, the PowerPanel switches to live display mode. This setting is useful for bench testing.

If you want the PowerPanel to be manually switched between showing Max and Live values, select the “**Show Max when Temperature 1 sensor is disconnected**” option. Then, whenever the Temperature 1 Sensor is disconnected, max values detected are displayed. But, when the Temperature 1 Sensor is connected, the PowerPanel switches to live display mode. NOTE: only choose this setting if you are using the optional temperature sensor!

If you want the PowerPanel to never show Max values, and only show Live values, select the “**Don’t Show Max Values**” option.

NOTE: The PowerPanel remembers the Max values only during a single session. Once the MicroPower is disconnected from power, the Max values are cleared. But, disconnecting the PowerPanel from the MicroPower does NOT clear the max values.

Completing the PowerPanel Display Setup

Once all the parameters you wish to display are configured, you can review the parameters by clicking the Preview button as shown in Figure 5. The Preview window is a handy way to see which parameters are configured on which LCD page locations. A “***” in a page location indicates that no parameter is displayed in that location.

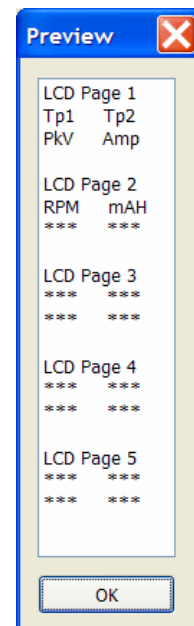
Once the parameters are configured to your satisfaction, click OK, which will download the settings to the PowerPanel. Note that you can change the parameters at any time by following the above steps.

Note: If you wish to clear **all** previously configured parameters, hit the “Reset Parameters” button on the bottom of the utility.

Using the PowerPanel at the Field

Once the parameters are configured to your satisfaction, it’s time to use it! You can either connect the PowerPanel to the MicroPower for bench testing, or for checking your power system’s status before and after flying. You can even permanently mount it on the side of your plane!

NOTE: IF YOU DECIDE TO LEAVE THE POWERPANEL PERMANENTLY MOUNTED ON YOUR PLANE WHEN YOU FLY, DON’T FORGET TO RANGE CHECK YOUR MODEL AFTER INSTALLATION, AS DESCRIBED IN YOUR RADIO MANUAL. Though it is highly unlikely that the PowerPanel would cause any problems with range checking, it’s good practice to do this after changing any equipment on your model!

**Figure 3**

Troubleshooting

Below is a list of problems that may be encountered, and steps to remedy them.

A good first step to troubleshooting, if you are able to connect your MicroPower to your PC, is to download our latest software and update the MicroPower’s Firmware via “Tools, Firmware Control.” Doing this will ensure that you have the latest software and firmware available.

If your particular issue is not addressed by this update, or by the suggestions below, email support@eagletreesystems.com for additional assistance. Include a full description of your problem, your PC configuration, type of model, and Windows application and MicroPower firmware version if possible (from “Help, About” and “Tools, Firmware Control” in the app) and any other relevant details.

Issue: My PowerPanel display is blank

Solutions: Try to eliminate the problem in the following ways:

- Verify that you have the PowerPanel connected to the correct port on the MicroPower.
- Make sure that you have the correct firmware version installed in the MicroPower, as described in the Firmware Update section above.
- Verify that you have configured the PowerPanel to display something, by following the instructions in the “Configuring the PowerPanel with the Application” section above.
- Confirm that the MicroPower LED is blinking. If it is not, power is not being applied to the MicroPower, or something is wrong with the MicroPower. If the MicroPower’s LED starts to blink after the PowerPanel is removed, verify you have plugged it into the right port.
- Check to make sure the PowerPanel cable is not frayed or cut.

Issue: The PowerPanel is displaying data, but some of the parameters do not appear to be correct

Solutions:

- Make sure the sensor for the parameter being displayed is correctly connected and installed on your model. For example, RPM will read zero if the RPM sensor is not connected. See the MicroPower or sensor manuals for specific sensor information.
- Try removing power from and restoring power to the MicroPower.

Issue: I have the MicroPower connected to USB, but do not have a battery pack connected to the MicroPower. The PowerPanel shows a nonzero voltage, however.

Solution: This is normal. Connecting a battery pack to the MicroPower will result in correct display voltage.

PowerPanel Specifications

Display: 16x2 Character LCD

Dimensions: Approximately 2.5” x 1” x 3/16” thick (6.5cm x 2.7cm x 4mm thick)

Weight: Approximately 0.5oz (14 g)

Length of Cable: Approximately 11” (28cm) - extendable with our “PowerPanel Extension Cable” on the MicroPower page of our website.

Limited Warranty

Eagle Tree Systems, LLC, warrants the PowerPanel to be free from defects in materials and workmanship for a period of one (1) year from the date of original purchase. This warranty is nontransferable. If your unit requires warranty service during this period, we will replace or repair it at our option. Shipping cost to us is your responsibility.

To obtain warranty service, contact us by phone, fax or email to request an RMA number. No returns will be accepted without this number.

This limited warranty does not cover:

- The Software included with the MicroPower. See the Software license agreement for more information on Software restrictions.
- Problems that result from:
 - External causes such as accident, abuse, misuse, or problems with electrical power
 - Servicing not authorized by us
 - Usage that is not in accordance with product instructions
 - Failure to follow the product instructions

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