



6400-13 Thermocouple Adapter

Installation Instructions for the LI-6400 Portable Photosynthesis System

Configuring the LI-6400

(Note: if you are using the LI-6400's Soil Respiration configuration, you can skip all of this - it's already been done for you.)

If you have OPEN 3.0

1. Run the Option Installer, in the Config Menu.
2. Select "6400-13 Thermocouple Adapter", and follow the instructions.

For earlier versions of OPEN

There are four main parts to modifying an LI-6400 configuration to incorporate a temperature measured with the 6400-13 Thermocouple adapter:

- I. (ComputeList) Define a new temperature variable, based on this formula

$$T = v / -10$$

where T is in degrees C, and v is the signal from the thermocouple adapter (channel 21) in mV.

- II. (Display Editor) Modify the display so you can see this new variable.
- III. (Log List Editor) Add the new variable to the list of items stored during logging.
- IV. (User Config List)
 - a. Turn on channel 2, and reference it to ground channel 6.
 - b. Store the configuration.

Below are step-by-step instructions to accomplish these tasks:

1. Power on, select the configuration you wish to modify.
2. Run the Compute List Editor (in the Config Menu). Define a new variable using this model:

```
##444F2 "Tx_C" "Temp from 6400-13 adapter"  
" AOSET(-3600, 18)  
chan21_mv / -10.0 "
```

The variable number and name (444 and Tx_C in this example) can be adjusted to suit your taste (see LI-6400 Technical Note #2). The AOSET command in the first line of the equation portion sets D/A converter channel 18 to -3.6 volts, a necessary condition to make the adapter work correctly.

3. Store this modified compute list by pressing <esc>, then **S** (store compute list with new name). Then **Q** to quit. When asked if you wish to implement this new compute list now, press **Y** for Yes.
4. Exit the Config Menu, and enter New Measurements mode.
5. Run the display editor (press 6 then f4). Add the variable "Tx_C" (or whatever you've named it) to the display map. Press **OK** to exit. When asked if you wish to store, say **Y**, and store the display map under a new name.
6. Run the LogList Editor (press 5 then f5). Add "Tx_C" to the list of items stored. Press **OK** to exit. When asked if you wish to store, say **Y**, and store the log list under a new name.
7. Exit New Measurements mode, go to the Config Menu, and run the Config Editor. Add the line UserChan= to the list, and edit it. Press 1 6 L in response to the questions, leaving the line

```
UserChan= 21 6 0
```

8. Press the Labels key, then StoreAs (f5), and name the Configuration.
9. Press Labels, then **OK** to exit.

You are now configured for the using the thermocouple. You can switch to or from this configuration simply by selecting “Reset to User Configuration” from the Config Menu, and selecting the desired configuration from the resulting list. This same list is presented when OPEN first runs, as well.

Note about Recomputing Data Files (OPEN 2.5.2 or below). The problem is that when you recompute the thermocouple variable, the system uses the latest value for “chan21_mV”.

If you have OPEN 2.5.2, then you should be careful to set your temperature variable (Tx_C in the above example) to “No Change” (Use the CUSTOM function key - press labels then f1). Or, you can avoid having to remember this simply by adding the system variable “chan21_mV” (number -61) to your loglist using the LogEditor.

If you have OPEN 2.5 or less, you should avoid recomputing data files that have the 6400-13 thermocouple variable in them, unless you’ve added the channel 21 mV value to the list of items logged. In OPEN 2.5 and less, it must be added to the part of the log list that you can’t edit in the LogList editor, so you must do it “by hand”:

1. Access the Filer
2. Press **D**, and select the directory “/User/Configs/LogFormats”
3. Highlight the log list file you wish to modify, and press **E**
4. Position the cursor on the bottom line of the file. It starts out “-33 -34 -32...”
5. Press <shift> <end> to jump to the end of the file
6. Type the following
-61
and press return. (That’s <space>, then -61)
7. Press <escape> then **U**, then **Q**.



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