Software Installation Instructions for Labjack/Phidget

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Instructions to install the LEGO Watt Balance Labjack/Phidget Software for Microsoft Windows

1. Download the Phidget driver from
   (for 32 bit Windows) http://www.phidgets.com/downloads/libraries/Phidget-x86.exe
   (for 64 bit Windows) http://www.phidgets.com/downloads/libraries/Phidget-x64.exe
2. Install the Phidget driver and accept all the default settings
3. Download the Labjack U6 driver from
   http://labjack.com/sites/default/files/2015/06/LabJack-2015-06-03.exe
4. Install the Labjack U6 driver and accept all the default settings
5. Download the Labview Run-Time Engine 2014 from
   (for 32 bit Windows) http://www.ni.com/download/labview-run-time-engine-2014/4887/en/
   (for 64 bit Windows) http://www.ni.com/download/labview-run-time-engine-2014/4889/en/
6. Install the Labview Runtime Environment with its default settings
7. Unzip the file LWB-FOR-LABJACKPHIDGET.zip
8. Create a directory for your LEGO Watt Balance software. We suggest C:\Legowattbalance
9. Copy the files in LWB-FOR-LABJACKPHIDGET into this directory. You may have to uncheck "Hide extensions for known file types" in folder options. Google: "show extensions windows 7" for more details. The files are:
   - configfile.ini
   - meta.ini
   - MeasuredPlancks
   - lvblas.dll
   - lvanlys.dll
   - LEGO_balance.ini
   - LEGO_balance.exe
   - LEGO_balance.aliases
10. Open the file meta.ini. Ensure that the vipath and configpath are set to the file location specified in step 8. As you can see in the meta.ini, vipath=C:\\Legowattbalance and configpath=C:\\Legowattbalance are set by default. If you chose a different file location in step 8, please change accordingly.
11. Start the software by double clicking the LEGO_balance.exe file. Since each LEGO Watt Balance is unique, special conditions will need to be set for each respective balance, such as the PID parameters and the balance offset. Wiggle the beam and check the peak-to-peak amplitude of the displacement reading. Then try to servo the balance to the center of the range or where the balance beam is horizontal. You can set the servo position in Settings → Zeroposition. Once you have found your desired null position, click "set-zero" and it will use the new position as the balance zero. In Settings → PID you can adjust the PID settings. If you cannot stabilize the PID loop, it may be the polarity of the magnet is flipped. This can be changed in Settings→ Polarity, R, and g.

Good luck,

The NIST Watt Balance Team