



POWER AUTOMATION TECHNOLOGIES

## HV Power hints and tips: PQ-Box Power Quality Recorder

Issue 2d

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Battery & data section updated 24/3/2009

General update 5/8/2010

General update 15/8/2013

General update 20/5/2016

### Guidelines for use

- 1) When stopping and disconnecting the PQ-Box, if it is critical to save any Oscilloscope or RMS records just captured, check the LCD display and wait till the LCD status display shows all records have been copied to permanent memory (See Release Notes for V2.2.4 of WinPQ mobil)
- 2) It is recommended to stop the recording by front panel button, then wait for the "Closing Measurement" display to disappear before disconnecting power to the PQ-Box.
- 3) Do not delete the file from the PQ-Box, till after the file has been downloaded and then opened using the PQ-Box software.
- 4) During download from PQ-Box, the software shows two percentage bar graphs. PQ-Box data is a group of different file types stored in one folder. One bar graph shows the % of the specific file, the other the status of the total download. Note that this second bar graph is not linear. Always wait till the software reports downloading is completed before exiting dialog box or disconnecting USB/Data cable.
- 5) Due to buffering, USB communications can continue after dialog boxes are closed. Wait a few seconds before disconnecting USB cables.

### "Missing" files

Files that cannot be found using the data import function, may be as a result of:

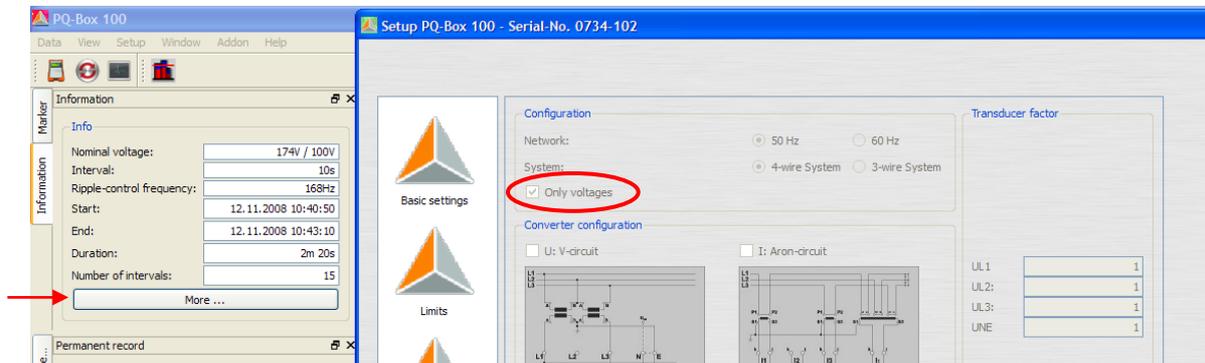
- a) The "File Load Dialog" directory selection pointing to the recording directory (i.e. 20081015\_1315\_000), rather than the directory this directory is located within.
- b) Expecting the most recent downloaded file to be at the top of the "File Load Dialog" list. Files by default are ordered by date/time, where the date/time is that of the start of the recording period, not the downloaded date/time.
- c) If using Windows Explorer (or similar) to search for files, search for "\*.pqf" files with file dates/times corresponding to when the file download was completed.

### "Missing" data

- a) When the file opens, but no data is visible in the permanent recording graphs, check the "Information" window. If the recording duration is less than 2 intervals, insufficient data exists to graph data points. In future make sure the measuring interval/recording duration is such that at least several intervals are recorded during the recording period.

*This sometimes occurs when making a quick recording to check connections prior to leaving the instrument for a long recording period. The "quick" recording duration may not be long enough to capture at least two full intervals. Also note that first interval does not actually start till multiple of recording interval from the hour – refer Hints and Tips issue #1. It is recommended to either use a*

*shorter measuring interval for the “quick” check, or use the PQ-Box manual trigger button and then inspect RMS and Oscilloscope events to determine data validity.*



- b) Check the “More” information screen. If the unit was set for “Only voltages”, the current data and power and other derived measurements will be zero.

#### Other Issues:

- Make sure you are using compatible versions of PQ-Box firmware and PC software, to download data. For example, data may not be able to be downloaded or opened if the PQ-Box firmware is more current than the connected PC software. The latest PC software still supports opening stored PC files from all previous software/firmware versions.
- If the downloaded file will not open in the PQ-Box software, check the file size. If the file is larger than the free PC memory, the PQ-Box software will not be able to open the file. Use a computer with larger memory (or see Hints and Tips V4).

#### Data File & Directory Structure

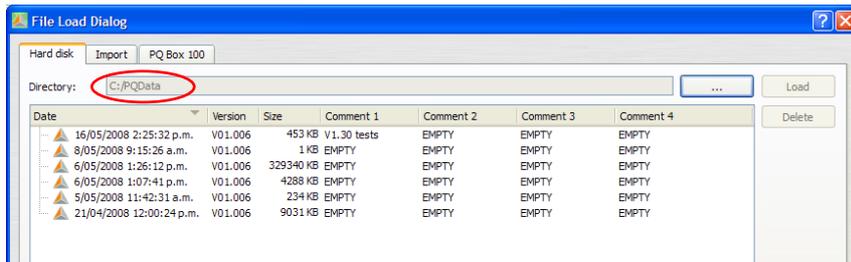
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When data is saved from PQ-Box to computer, a directory is created to contain the various data files. The directory is automatically created and named using a date, time and a sequential number. The date/time is that of the first measuring interval (not the actual time that recording was started). Every download creates a separate directory.

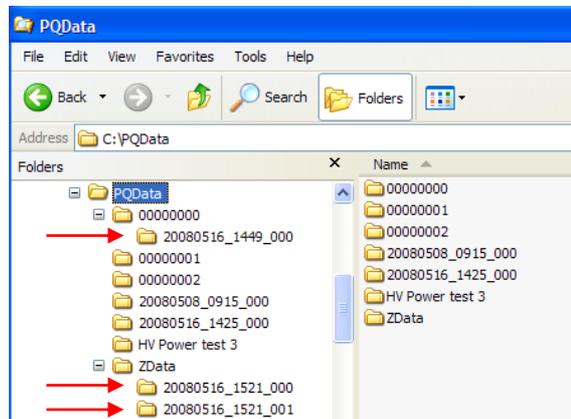
For example directory 20081024\_1315\_000 would be a created where the first complete measuring interval of recorded data occurred on 13:15 hrs of 24/10/2008. The sequential number 0000 indicates that this was the first download to be saved with first measuring interval of this time. Sequential number 001 would indicate that either the same recording was downloaded again, or data from a second PQ-Box was downloaded that also had its first measuring interval occur at 13:15 hrs of 24/10/2008.

The directory name is not used within the PQ-Box software for display purposes, and the software allows the user to freely rename data directories if desired. It is recommend to use the “Comments” facility to record useful information about recording location etc.

Note that PQ-Box software will only display recordings in the File Load Dialog box for recordings that have their directory immediately within the selected directory. Occasionally users “loose” their data, by pointing the File Load Dialog box directly to the directory of the recording, rather than to the directory that the recording directory is within.



Above. File Load dialog box example for Directory “C:/PQData”, 6 recordings found



Windows Explorer view of directory structure. Indicated data recordings will not be “seen” by current PQ-Box directory setting of C:\PQData.

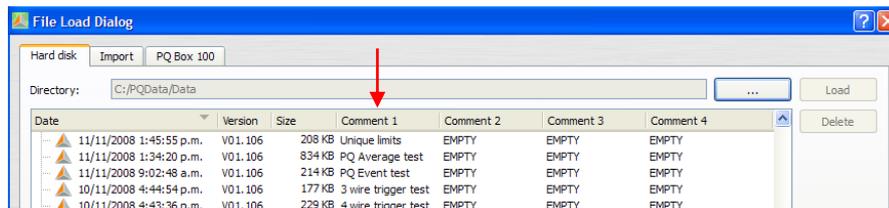
Unlike earlier versions of PQ-Box software, the data directories no longer have to be located as sub-directories of a directory called “data”.

### Deleting Specific Data Types

As the PQ-Box recording data is assembled from multiple data files, it is possible to delete a specific data event type. For example, it is possible to delete the “PQ events” data from the recordings, by deleting the file “event.pqf”. This may be useful to reduce file size of data being sent to another user, or simply where PQ Event data is not required. It is not currently possible to delete a specific event.

File name	File purpose
comments.pqf	Text file holding Comment1,2,3,4 data <sup>(1)</sup>
info.pqf	File containing PQ-Box 100 setup (settings) <sup>(1)(2)</sup>
cyc.pqf	Permanent recording data
cycP.pqf	Power (15 minute interval) permanent recording <sup>(3)</sup>
event.pqf	PQ Events
header.pqf	Test file holding additional comment data
recA.pqf	Oscilloscope recording
recB2.pqf	10ms rms recordings
recS.pqf or recS2	Ripple control recording <sup>(4)</sup>
Notes	
(1) Comments.pqf & info.pqf must remain as a minimum requirement	
(2) Used for “More information” display – cannot be used for uploading to other PQ-Boxes	
(3) Requires cyc.pqf to also be present if cycP.pqf is to be viewed	
(4) Ripple triggered “event” data, not “U eff R” permanent recording data	

## “Comments”



It is recommended to use the Comment 1, Comment 2, Comment 3, Comment 4 sections of the File Load Dialog box to record useful information about recording location etc. This can be done via the File Load Dialog box (at any time), or via text editor on the “Comments.pqf” file in the appropriate data directory.

Note that Comment1 & Comment2 fields appear in the header region of printed template reports /printouts.

Note that the “comments.pqf” file is created by the PQ-Box software at the end of the download and file saving procedure. If downloading the data from the PQ-Box to multiple computers or locations, the comments.pqf file will be freshly created for each download.

Note that the “comment.pqf” file is not created and saved to the data directory till the file dialog box is actually closed. Similarly, if changing comments of an existing recording, the changes are not written to the “comment.pqf” file till the file dialog box is closed. Therefore, if you use Windows explorer (or other software) to copy/move data files before closing the “File Load Dialog” box, the copied/moved data will not have the updated comment information.

## Automatic Start-up, Shut-down and Battery Operation

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The PQ-Box 100 has an internal rechargeable battery that will power the unit for approximately 60 seconds if the unit is recording and power is removed from the Power supply leads. The unit will automatically close the recording file, and when power is returned restart and automatically start recording. However, the PQ-Box 100 requires approximately 20 seconds to reboot before automatically commencing recording, therefore powering the PQ-Box 100 from “secure” supply such as station 110 Vdc supply is recommended if it is critical to avoid any blind spots.

Battery capacity is sufficient to allow for several successive power interruptions. Internal batteries should return to full charge capacity after the unit is powered for approximately 4 hours.

### Note:

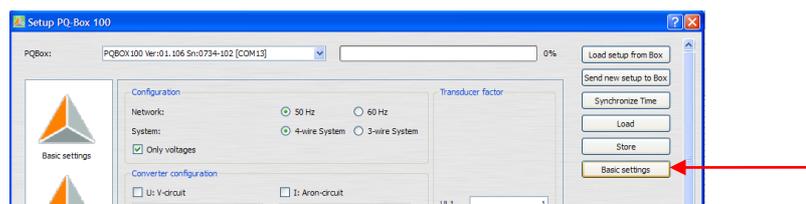
- 1) Internal batteries cannot be recharged by USB connection
- 2) The PQ-Box 100 cannot be powered via the USB to make measurements (only powered via USB to upload/download and change settings)
- 3) If the unit is not recording, and power supply is removed, then the PQ-Box 100 will shut down after approximately 3 seconds

*When graphing permanent recording data, a straight line may be drawn between data points on either side of the PQ-Box 100 power interruption (s/w version dependent).*

The PQ-Box 150/200 have a 6 hour nominal battery capacity.

## Basic Settings

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The “Basic settings” button can be used to restore default instrument settings (limits and triggers) to the software/PQ-Box. By default this includes resetting the unit to 4-wire setting, 230/400 V input and 600 second measuring interval.

However, if this default setup is not to your liking, you can overwrite this with your own setup. There are two default ‘ini’ files, normally located:

C:\Users\Public\Public Document\WinPQ mobil\Config (for Windows 7 users)

- ‘PQBox200\_Param\_default.ini’ – is used if a PQ-Box 150 or 200 is connected
- ‘PQBox100\_Param\_default.ini’ – is used if a PQ-Box 100 is connected



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We recommend you take a backup copy of these first, then simply create your preferred defaults and overwrite these two files. Then the button “Basic Settings” will load your new default settings.

If no PQ-Box is connected, then:

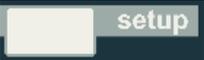
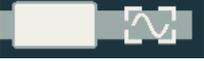
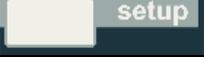
- The file ‘PQBox200\_Param\_default.ini’ provides those setting that are first displayed when the setting screen is displayed.
- The file ‘PQBox100\_Param\_default.ini’ provides those setting that are recalled when the “Basic Settings” button is pressed.

**The PQ-Box 100 LCD display is in German?**

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If the LCD display appears in German, from one of the measured parameters LCD displays, follow the below key sequence to return the LCD display to English.

Note if the unit appears to be in the middle of a setup menu, push the setup button several times till the LCD returns to (voltage/current) measurement display.

Key sequence	Button label	LCD display
1	 (Setup button)	
2	 (Manual trigger key)	<b>Einstellungen</b>
3	 (Browse/scroll button)	<b>blattern</b>
4	 (Start/stop button)	<b>Sprache</b>
5	 (Manual trigger key)	<b>English</b>
6	 (Setup button)	<b>back</b>

This document was originally written referencing features of PQ-Box 100 firmware DSP 1.207/1.208 and PC software 1.40. Features and functionality may differ with other versions.