

## New features in PQ-Box 100/200 Software “WinPQ mobil” V2.2.8

10/09/2015

*This document details the main changes made in WinPQ mobil release V2.2.8 compared to V2.2.4. It replaces and corrects some errors in the release notes for V2.2.7. [Version 2.2.7 was quickly replaced with V2.2.8, which corrected the CT/VT ratio display and default firmware upgrade path].*

Software V2.2.8 should be used with PQ-Box 100 firmware:

- Boot 1.202
- DSP 1.271
- MCU 2.009

*To access some new features, the firmware in the PQ-Box 100/200 must also be updated. Refer to Section 6.5 (page 90) of the latest User Manual (10/06/2015) for instructions on how to update firmware.*

**As a precaution, please back-up user recording & data files on your PC & PQ-Box 100/200 before updating WinPQ mobil, and PQ-Box 100/200 firmware.**

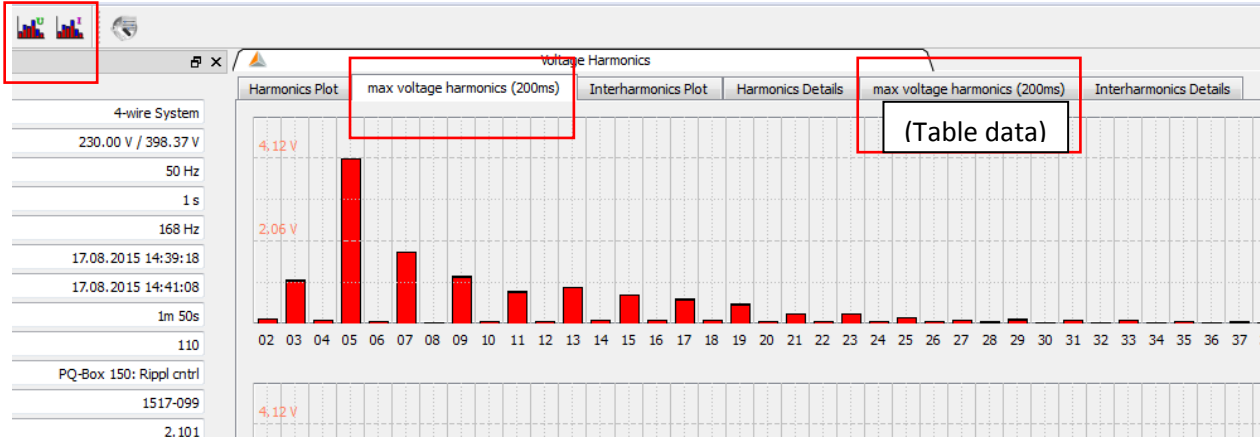
Compatibility:

- This latest version of software is able to open data files downloaded with earlier versions.
- After updating the firmware of the PQ-Box 100/200 to above, you should use WinPQ mobil V2.2.8 (or later) to download data from the PQ-Box 100/200. While earlier version of WinPQ mobil may appear to permit downloading of data and uploading of new settings, the **use of earlier versions of WinPQ mobil will not be supported** as these do not use/set the full parameters of the latest PQ-Box firmware.

### New Features:

**1) 200 ms maximum values for harmonics (PQ-Box 150 and PQ-Box 200 only)**

The PQ-Box 150/200 now records the 200 ms maximum values of harmonics, this data is displayed in the Harmonic views (example below) and is available in the Permanent Recorded Data as ‘U Max (200ms) harmonics’ and ‘I Max (200ms) Harmonics’ selections.



**Figure 1. 200 ms max harmonic values.**

### 2) PQ-Events Matrix enhanced

The PQ-Event Matrix has been enhanced with T>60,000 ms column now added.

Residual voltage U [%]	Duration t [ms]					
	10 ≤ t < 200	200 ≤ t < 500	500 ≤ t < 1000	1000 ≤ t < 5000	5000 ≤ t < 60...	t ≥ 60000
90 > u ≥ 80	0	0	0	0	0	0
80 > u ≥ 70	0	1	1	0	0	0
70 > u ≥ 40	0	2	3	0	0	0
40 > u ≥ 5	0	0	0	0	0	0
5 > u	0	0	0	0	0	0

Swell voltage U [%]	Duration t [ms]			
	10 ≤ t < 500	500 ≤ t < 5000	5000 ≤ t < 60000	t ≥ 60000
u ≥ 120	0	0	0	0
120 > u ≥ 110	0	0	0	0

Figure 2. Matrix display of PQ Events.

### 3) Online Harmonics Direction display includes angle information

The Online Harmonics Direction display now includes the angle of the harmonic (with respect to the relative fundamental voltage). The reporting of the angle is specifically with respect to fundamental voltage – this simplifies the analysis of contribution to be undertaken.

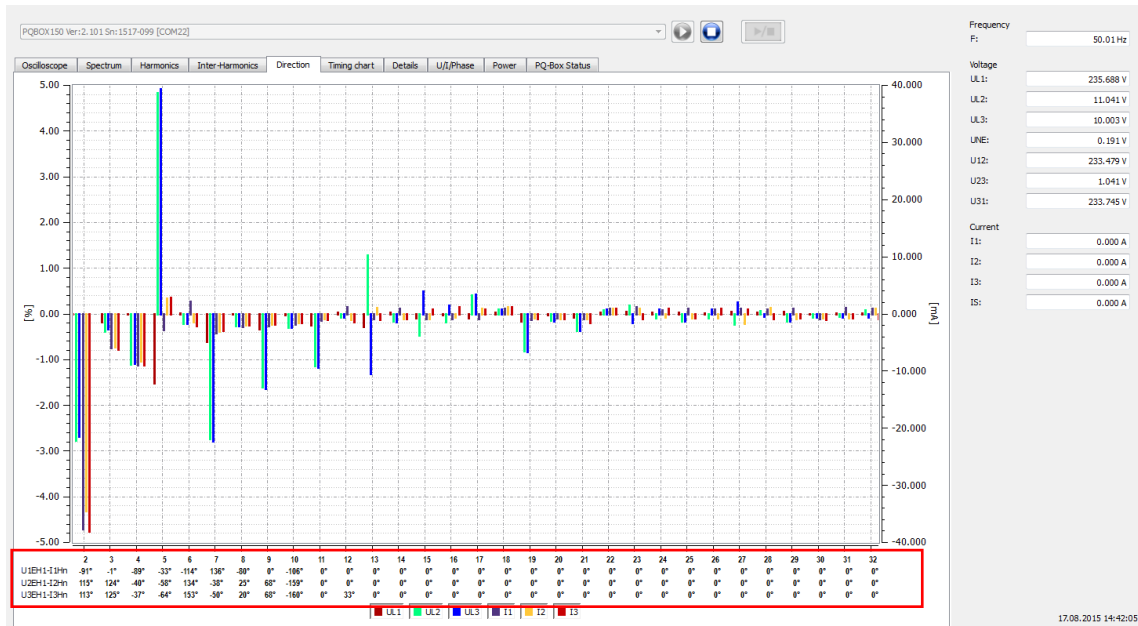


Figure 3. Online Harmonic display.

### 4) Download multiple files

It is now possible to select two or more files from the PQ-Box and download these in one step.

Date	Version	Size	
▲ 17.08.2015 14:41:17	V2.101		2994 KB
▲ 17.08.2015 14:39:17	V2.101		11632 KB

Load data from Box

Figure 4. Selecting multiple files to download.

For PQ-Box 150 & 200 users, an additional feature exists, where PQ-Box memory also appears as a disc drive, allowing very fast data import using “import” rather than “download” .

### 5) CSV Export

The resolution of voltage data is improved for all exports.

A new option “with exact timestamps” is provided. Enabling this outputs any max/min values with their exact time stamp, but in the same (confusing) manner as V2.2.4. Disabling this options, suppresses the individual max/min time stamps and provides an output similar to versions prior to V1.8.16.

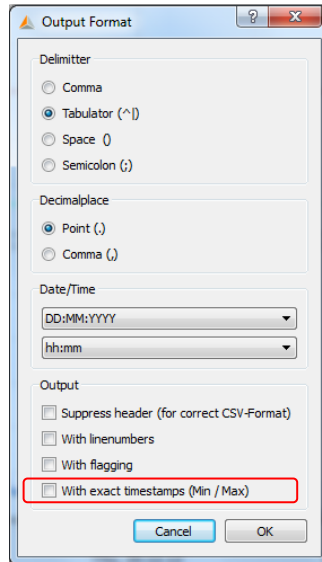


Figure 5. PQ-Box Min/Max CSV control.

Date	Time	'UL1 [V]'	'UL2 [V]'	'UL3 [V]'	'UL1 max [V]'	'UL2 max [V]'	'UL3 max [V]'	'UL1 min [V]'	'UL2 min [V]'	'UL3 min [V]'
12.12.2008	10:21:14									227.031
12.12.2008	10:21:14							227.949		
12.12.2008	10:21:14								227.036	
12.12.2008	10:23:42					229.435				
12.12.2008	10:23:42				230.229		229.368			
12.12.2008	10:24:00	229.041	228.186	228.124						
12.12.2008	10:24:16								228.422	
12.12.2008	10:24:16							229.371		228.469
12.12.2008	10:26:17				231.322					
12.12.2008	10:26:18					230.627				
12.12.2008	10:26:19						230.566			
12.12.2008	10:27:00	230.742	229.994	229.965						

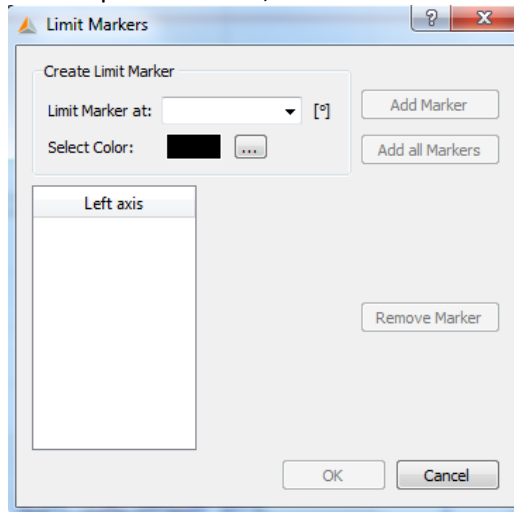
Figure 6. Example export with exact timestamps for Min/Max values (checked)

Date	Time	'UL1 [V]'	'UL2 [V]'	'UL3 [V]'	'UL1 max [V]'	'UL2 max [V]'	'UL3 max [V]'	'UL1 min [V]'	'UL2 min [V]'	'UL3 min [V]'
12.12.2008	10:24:00	229.041	228.186	228.124	230.229	229.435	229.368	227.949	227.036	227.031
12.12.2008	10:27:00	230.742	229.994	229.965	231.322	230.627	230.566	229.371	228.422	228.469

Figure 7. Same export without exact timestamps for Min/Max values (not checked)

### Limit Markers

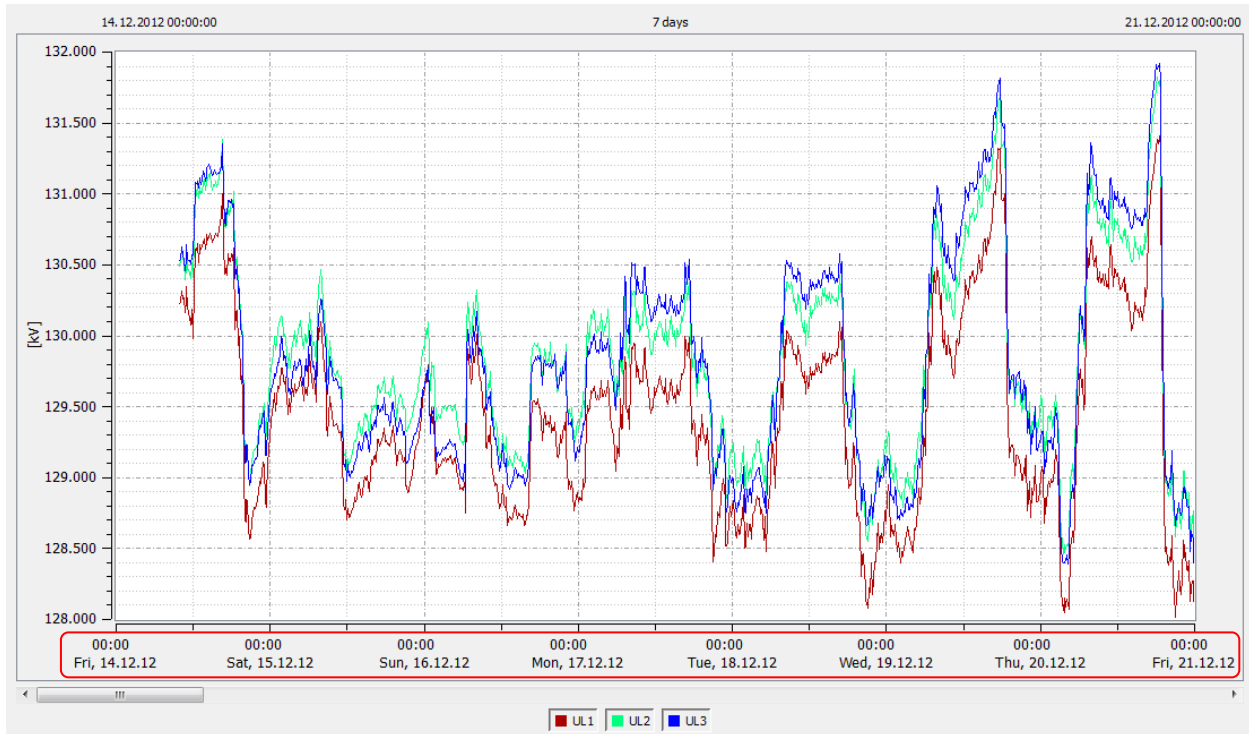
The Limit Marker controls have been updated to better suit the stacked graph. Left/Right axis information remains for the Oscilloscope data views, which are not shown in the stacked view.



**Figure 8. Limit Marker dialog updated specifically for stacked trace view.**

### 6) Permanent Recording – Show Week

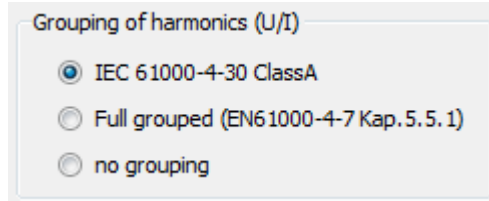
The 'Show week' information layout for the Permanent Recorder been improved with the graph now defaulting to 12 hour increments, starting at 00:00 hours. A 'Show 2 weeks' and 'Show 4 weeks' option appears (with similar improvements) if recoding duration is long enough.



**Figure 9. 'Show week' etc.**

### 7) Harmonics Grouping.

The Harmonics Grouping, explained in 'PQ-Box 100 hints and tips' issue 12, has been expanded to include "no grouping"



**Figure 10. Harmonic Grouping.**

For example, using the 2nd harmonic, the analysis of the harmonics covers the range:

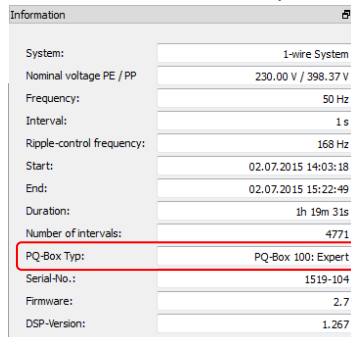
IEC 61000-4-30 Class A method = 95-105 Hz

Full grouped (EN61000-4-7 Kap.5.5.1) method = 75-125 Hz

No grouping = 100 Hz

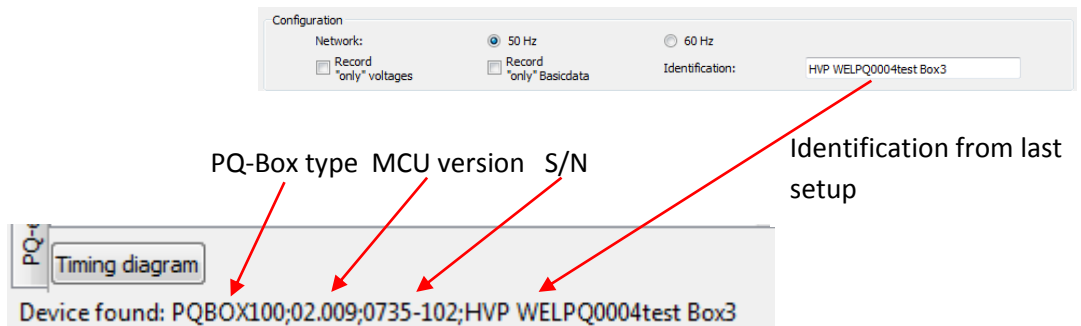
### 8) Other recent enhancements

The Information Screen now provides information on the PQ-Box type (eg Basic, Light, Expert)



**Figure 11. PQ-Box Type expanded.**

When a PB-Box is first discovered, the lower screen text provides basic information:



**Figure 12. PQ-Box connection information.**