New features in PQ-Box 100/150/200 Software "WinPQ mobil" V3.0.0

20/5/2016

This document details the main changes made in WinPQ mobil release V3.0.0 compared to V2.3.1.

Software V2.3.1 should be used with PQ-Box firmware:

File	PQ-Box 100	PQ-Box 150	PQ-Box 200
Boot	1.202	0.197	0.197
DSP	1.296	3.036	2.087
MCU	2.012	2.112	2.112
FPGA	N/A	N/A	0.012

To access some new features, the firmware in the PQ-Box must also be updated. Refer to the latest User Manual for instructions on how to update firmware.

As a precaution, please back-up user recording & data files on your PC & PQ-Box before updating WinPQ mobil, and PQ-Box 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 to above, you should only use WinPQ mobil V3.0.0 (or later) to download data from the PQ-Box. 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)   Windows 10 supported
WinPQ mobil V3.0.0 is compatible with Windows 10 operating system. A new manufacturer's certificate has been produced for Windows 10.

2)   Automatic Trigger Power calculation methods
The algorithms used in the 'Auto-trigger' function have been improved to further reduce Oscilloscope/RMS event recording to better support long term permanent recording needs.

3)   Graph Limit Markers (Lines)
The normal operation of the Limit Marker lines has been restored.

4) Power calculation methods now include 'Modulation reactive power'
Expanded options have been provide to allow 'Modulation reactive power' to be considered.
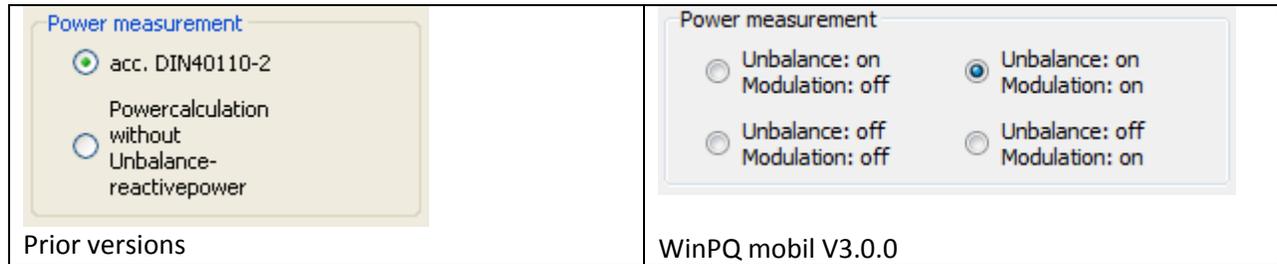

Figure 1. Old and new 'Power measurement' selection (recommended default selections shown).
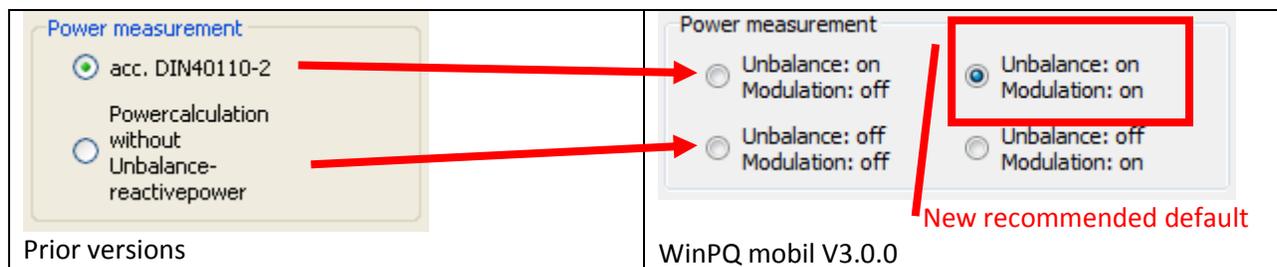

Figure 2. Relationship between old and new selections.

To support this, additional new permanent recorder values are provided ('Unbalanced reactive power' & 'Modulation reactive power') in the user defined measurement interval and the 10/15/30 minute data class).

Note that the permanent recorder values of Unbalanced reactive power, modulation reactive power and distortion power are calculated separately and independently to the selected Power measurement choice.
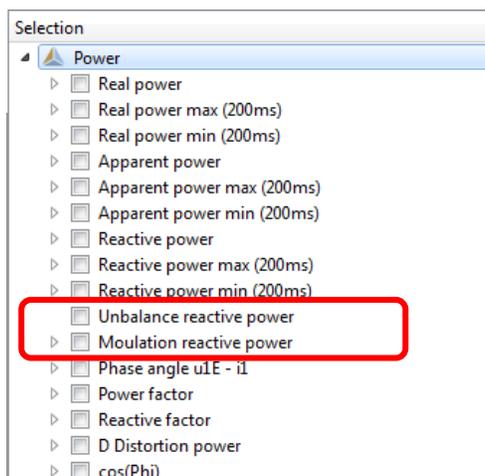

Figure 3. New permanent recording values (15 min data class versions not shown).
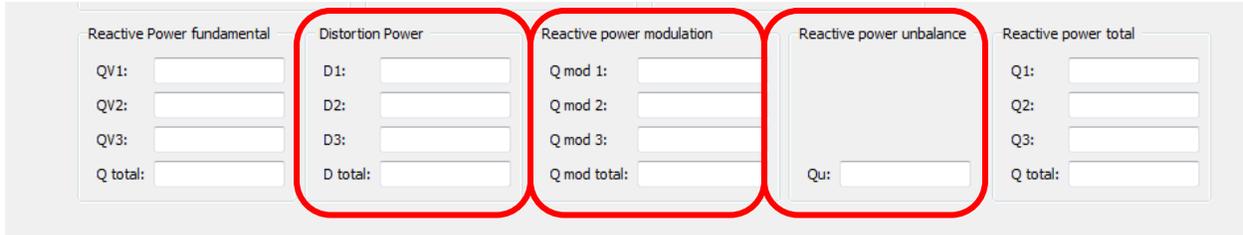
Figure 4. Online 'Details' updated to add new values

The online 'Details' screen has been updated to include:
- Distortion Power [D](was only provide on the Power Triangle display and as a permanently recorded value)
- Reactive power modulation [Q mod]
- Reactive power unbalance [Qu]

Reminder – Reactive Power Direction (which value to use if you are looking for a +/- ve sign)?
As reactive power calculations use a root mean square, no sign indication of direction of the reactive power flow is possible (all values are shown as +ve values).

Where reactive power flow direction is required, it is recommend to use the Fundamental [QV] value, which does indicate reactive power direction with +ve & -ve signs as appropriate.

From WinPQ Mobil 1.8.9 (DSP 1.255 and MCU 1.151) the PQ-Box 100 LCD reactive power values were changed from Q to QV to show the fundamental values and thus also the +ve, -ve directional sign of this (50Hz) reactive power.
- Q = Reactive Power kVAr [not signed]
- QV = Reactive Power fundamental (50 Hz reactive power component only) [signed]

5) PQ-Box 150/200 Memory Limitation
The PQ-Box 150 and 200 have a front panel accessible setup option "Memory Limitation". The maximum file size has been increased.

Memory limitation = off
A single data file can get up to the maximum size of the built-in memory card (E.g. up to 32 GB).

Note: The maximum size of the sum of the triggered recorders (Oscilloscope, RMS recorder, Ripple Control & Transient recorder) is 1 GB (was 500 MB). Triggered recorders will be stopped if the sum exceeds 1 GB, but permanent recorder remains operational till memory is filled. With large files, you may need the 64bit version of WinPQ mobile software, and matching free contiguous available memory to work with the file.

Memory limitation = On (680 MB)
This option is to support users of Windows 32bit systems. If a measurement file gets to 680 MB, that file is closed and another automatically started. This is repeated until the maximum size of the microSD memory card is reached. Note that the data converter tool provides the opportunity to join several sequential measurement files back into one measurement file if desired.