

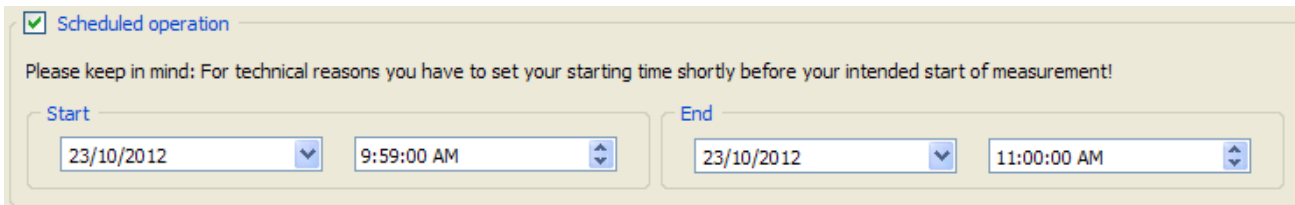
HV Power hints and tips: PQ-Box 100 Power Quality Recorder

Issue 10

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Scheduled Operation

When setting up Scheduled Operation, it is recommended to set the “start” time to be slightly prior to the desired first measurement interval (a few seconds prior is sufficient, but any duration just less than the measurement interval setting is acceptable). We recommend 1 minute for simplicity with most settings.



Scheduled operation

Please keep in mind: For technical reasons you have to set your starting time shortly before your intended start of measurement!

Start: 23/10/2012 9:59:00 AM

End: 23/10/2012 11:00:00 AM

Figure 1. Scheduled operation example.

The PQ-Box 100 measurement method is based on IEC 61000-4-30, where with regard to “permanent recorded” data, only that obtained over a full measuring interval is utilized. If the start time is set to occur exactly at a measurement interval increment, due to processing priority the “start” operation actually occurs after the beginning of the interval, thus this interval is not “complete” and permanent recorded data will only be recorded for the next interval.

Please refer to HV Power hints and tips Issue 6b, item “Start of measuring interval” for a detailed explanation of how permanent recorded data and events are handled during incomplete intervals. (Available from www.hvpower.co.nz technical library)

For example

Example A) Settings:

PQ-Box Measuring Interval: 600 seconds (10 minutes)
Scheduled Start 10:00:00 (am)
Scheduled Stop 11:00:00 (am)

Results:

The PQ-Box 100 will “start” measurement at 10:00:00, but this setting just misses the beginning of the 10:00:00 interval. This first interval will be considered incomplete and permanent recorded data from this period will not be retained. The first full measuring interval will occur between 10:10:00 and 10:20:00.

When data is graphed from this recording the first data point will be labelled 10:20:00.

*Note that any Oscilloscope or other “event” occurring during this first “incomplete” measuring interval (10:00:00 to 10:10:00) **will be** recorded and time stamped.*

The PQ-Box 100 will “stop” measurement at 11:00:00, with the last data point being labelled 11:00:00.

There are small differences in how this information is reported within the software. The “Evaluation Period” window that opens when files are loaded is based on measurement intervals and will report the Measurement Period as 10:20:00 to 11:00:00 (with duration of 40m 0s 0ms [it’s one interval short]). However, the main information window reports on the total recording as Start = 10:00:03, End = 11:00:00, Duration = 59m 57s, (as “events” may occur during any incomplete start/end interval period). The Number of intervals (= 5), is also reported.

Example B) Settings:

PQ-Box Measuring Interval: 600 seconds (10 minutes)
Scheduled Start 09:59:00 (am)
Scheduled Stop 11:00:00 (am)

Results:

The PQ-Box 100 will “start” measurement at 09:59:00. This first interval (09:59:00 to 10:00:00) is “incomplete” and permanent recorded data from this period will not be recorded. The first full measuring interval occurs between 10:00:00 and 10:10:00.

When data is graphed from this recording the first data point will be labelled 10:10:00.

What if I change my mind?

The manual front panel (and software) Start/Stop controls work in parallel with the “Scheduled Operation” controls. Thus if the unit has been programmed with a future start/stop time, it is possible to start the unit recording prior to the set time by using the manual start key. The unit will still shut down recording at the predetermined time.

It is also possible to manually stop recording prior to the Scheduled Operation stop time, by using the stop key.

What if I am late?

The unit must be powered and booted up at least a few seconds prior to the Scheduled Operation start time for automatic timed recording to start. If not, the “start recording” will not be initiated automatically. The unit can be started by manual key press, and the unit will automatically stop recording at the programmed stop time.

Note:

The PQ-Box 100 keeps a copy of the settings with each data file. However, programmed Schedule Operation information is not retained (i.e, the set times are not stored). The Schedule Operation “time” settings are not stored in PQ-Box 100 “setting ini” files.

PQ-Box 100 CT input range (5 mA CT Clamp)

For measurement on lightly loaded feeders, especially with 1 A CT secondary's, the minimum sensitivity of the standard 20/200 A CT Clamps may be insufficient (100 mA on 20A range).

The 5 mA "111.7021" clamp is available. This is a single clamp, with banana sockets in clamp body. This requires the 111.7004 "Free Adapter Set" to connect the clamps to the PQ-Box 100. The 111.7004 supports up to 4 clamps.

For PQ-Box 100's manufactured after 1/2011, the current input range is 700 mV, thus 111.7021 5 mA clamps will read up to 5 A. For PQ-Box 100's manufactured prior, the input range is 330 mV, thus upper range of the 11.7021 5 mA clamp will be 2 A.



Phase Rotation

The online phasor diagram assumes a counter clockwise phase rotation.