

MN02601003E

Waveform Viewer: Power Xpert Software 2.2



Powering Business Worldwide

Waveform Viewer User's Guide

Waveform Viewer User's Guide

Publication date 7/2011

Copyright © 2010 by Eaton Corporation. All rights reserved.

Specifications contained herein are subject to change without notice.

Power Xpert is a registered trademark of Eaton Corporation.

EATON CORPORATION - CONFIDENTIAL AND PROPRIETARY NOTICE TO PERSONS RECEIVING THIS DOCUMENT AND/OR TECHNICAL INFORMATION THIS DOCUMENT, INCLUDING THE DRAWING AND INFORMATION CONTAINED THEREON, IS CONFIDENTIAL AND IS THE EXCLUSIVE PROPERTY OF EATON CORPORATION, AND IS MERELY ON LOAN AND SUBJECT TO RECALL BY EATON AT ANY TIME. BY TAKING POSSESSION OF THIS DOCUMENT, THE RECIPIENT ACKNOWLEDGES AND AGREES THAT THIS DOCUMENT CANNOT BE USED IN ANY MANNER ADVERSE TO THE INTERESTS OF EATON, AND THAT NO PORTION OF THIS DOCUMENT MAY BE COPIED OR OTHERWISE REPRODUCED WITHOUT THE PRIOR WRITTEN CONSENT OF EATON. IN THE CASE OF CONFLICTING CONTRACTUAL PROVISIONS, THIS NOTICE SHALL GOVERN THE STATUS OF THIS DOCUMENT.

DISCLAIMER OF WARRANTIES AND LIMITATION OF LIABILITY

The information, recommendations, descriptions and safety notations in this document are based on Eaton Corporation's ("Eaton") experience and judgment and may not cover all contingencies. If further information is required, an Eaton sales office should be consulted. Sale of the product shown in this literature is subject to the terms and conditions outlined in appropriate Eaton selling policies or other contractual agreement between Eaton and the purchaser. THERE ARE NO UNDERSTANDINGS, AGREEMENTS, WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING WARRANTIES OF FITNESS FOR A PARTICULAR PURPOSE OR MERCHANTABILITY, OTHER THAN THOSE SPECIFICALLY SET OUT IN ANY EXISTING CONTRACT BETWEEN THE PARTIES. ANY SUCH CONTRACT STATES THE ENTIRE OBLIGATION OF EATON. THE CONTENTS OF THIS DOCUMENT SHALL NOT BECOME PART OF OR MODIFY ANY CONTRACT BETWEEN THE PARTIES.

In no event will Eaton be responsible to the purchaser or user in contract, in tort (including negligence), strict liability or otherwise for any special, indirect, incidental or consequential damage or loss whatsoever, including but not limited to damage or loss of use of equipment, plant or power system, cost of capital, loss of power, additional expenses in the use of existing power facilities, or claims against the purchaser or user by its customers resulting from the use of the information, recommendations and descriptions contained herein.

Table of Contents

Introduction	1
Installation	1
Using the Waveform Viewer	3
Using the Waveform Viewer in the Power Xpert Web Application	3
Quick Tour of the Waveform Viewer	4
Tabs	5
Harmonics Viewers	6
Toolbar	7
Working With Waveform Files	8

Introduction

Power Xpert Software's Waveform Viewer is a powerful tool for analyzing power quality. The tool captures and displays AC waveforms in a color-coded graphical format making viewing and analysis fast and easy.

Waveform Viewer gives you the tools to:

- View and analyze waveforms from events in a web browser.
- View trends for historical data, including data captured by Powernet devices or uploaded from Power Xpert Meters.
- Use zoom, pan, and scroll controls to traverse and magnify complex waveforms.
- Spot trends.
- Monitor voltage disturbances, voltage variances, etc.

Installation

Waveform Viewer is shipped on the Power Xpert Software CD. There are two ways to install the Waveform Viewer:

1. If you purchased Waveform Viewer at the same time as Server Core software, it will be automatically installed along with the Server Core. Refer to the Server Core Administration Guide for installation details.
 2. If you purchased Waveform Viewer after you've installed the Server Core software. When you receive a new license key you can install the Waveform Viewer by modifying the existing Server Core software. Refer to the Server Core Administration Guide for installation details and follow the optional step to modify an existing installation.
-

Using the Waveform Viewer

Using the Waveform Viewer in the Power Xpert Web Application

Within the Power Xpert Web Application you can use the Waveform Viewer to view waveforms from events. To launch the Waveform Viewer from the Alarms/Events page, either:

- Click the **Alarms/Events** bar on the left side of the screen
- Select **Waveform Viewer** by using the **Navigation** menu (on the toolbar).



Description	Device	Attribute	Time Logged	Cleared	Ack	Close	Priority	Detail	Not
06 Mar 07 14:05:52.521 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 02:05:56.113 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 13:10:40.502 Sub-Cycle Disturb	Power Xpert Meter		03/06/2007 01:10:40.502 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 13:10:40.520 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 01:09:24.020 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 13:09:24.013 Sub-Cycle Disturb	Power Xpert Meter		03/06/2007 01:09:24.013 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 13:07:32.475 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 01:07:32.475 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 13:03:08.810 Sub-Cycle Disturb	Power Xpert Meter		03/06/2007 01:03:08.810 PM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:49:04.040 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 11:49:04.040 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:49:04.040 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 11:49:02.124 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:41:21.828 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 11:41:19.612 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:41:14.292 Sub-Cycle Disturb	Power Xpert Meter		03/06/2007 11:41:14.292 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:41:14.295 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 11:41:11.945 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:40:59.636 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 11:40:57.098 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:40:43.726 ITIC Ven L2 Sag	Power Xpert Meter		03/06/2007 11:40:42.435 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:37:40.517 Sub-Cycle Disturb	Power Xpert Meter		03/06/2007 11:37:40.517 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:37:40.521 ITIC Ven L8 Sag	Power Xpert Meter		03/06/2007 11:37:19.121 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		
06 Mar 07 11:35:31.254 Sub-Cycle Disturb	Power Xpert Meter		03/06/2007 11:35:31.254 AM	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Highest		

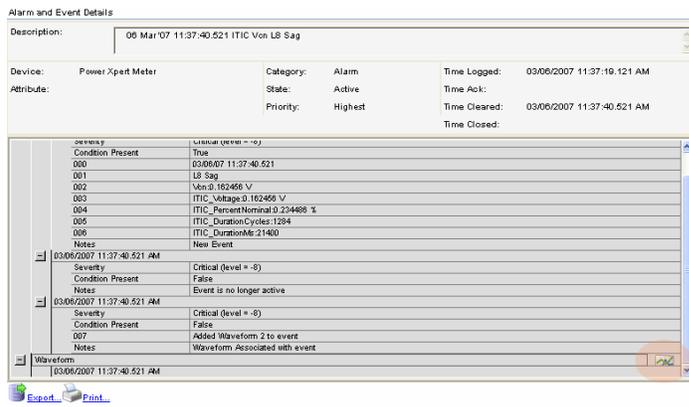
An example of the Events page from Power Xpert Software, showing the detail icons

To see if a waveform is available for a particular event, click the detail icon for that event.

Note

It can take 10 minutes for a waveform to be available after an event occurs.

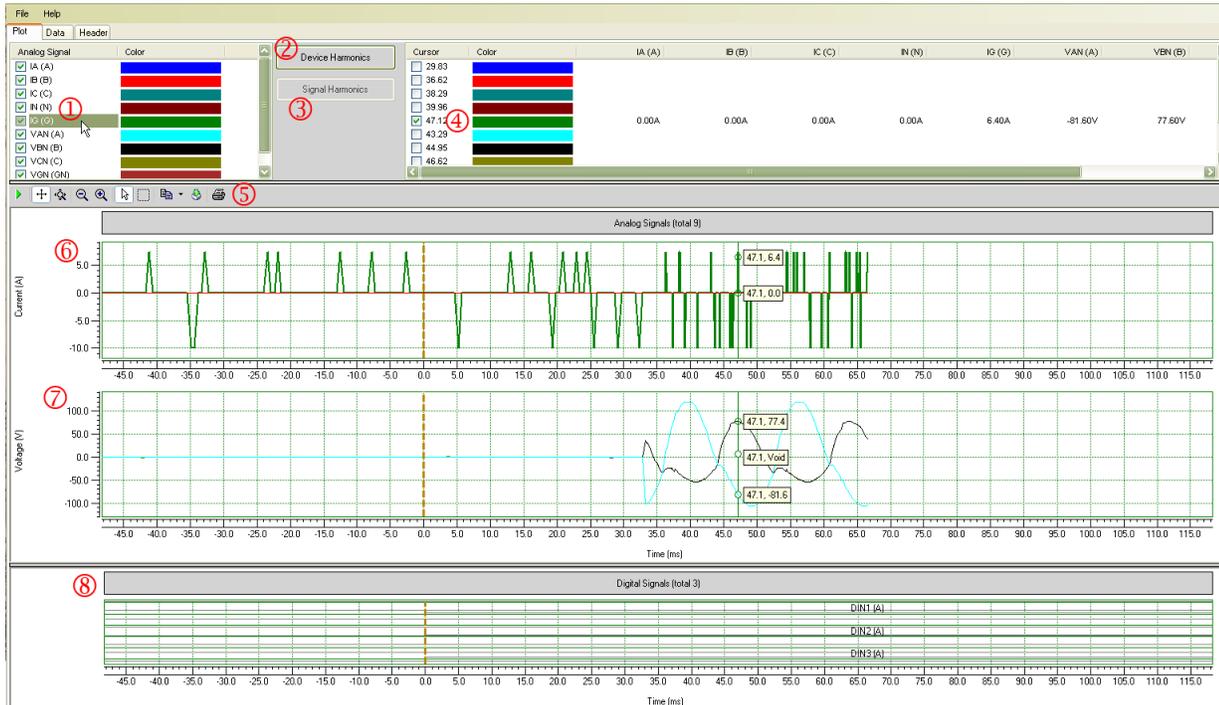
If an event comes from a device via PowerNet, a waveform icon will be on the bottom right of the screen. Click the icon to launch the Waveform Viewer's Waveform Viewer.



The waveform icon on the Details Page

Quick Tour of the Waveform Viewer

Refer to the following illustration and legend for a description of the various controls.



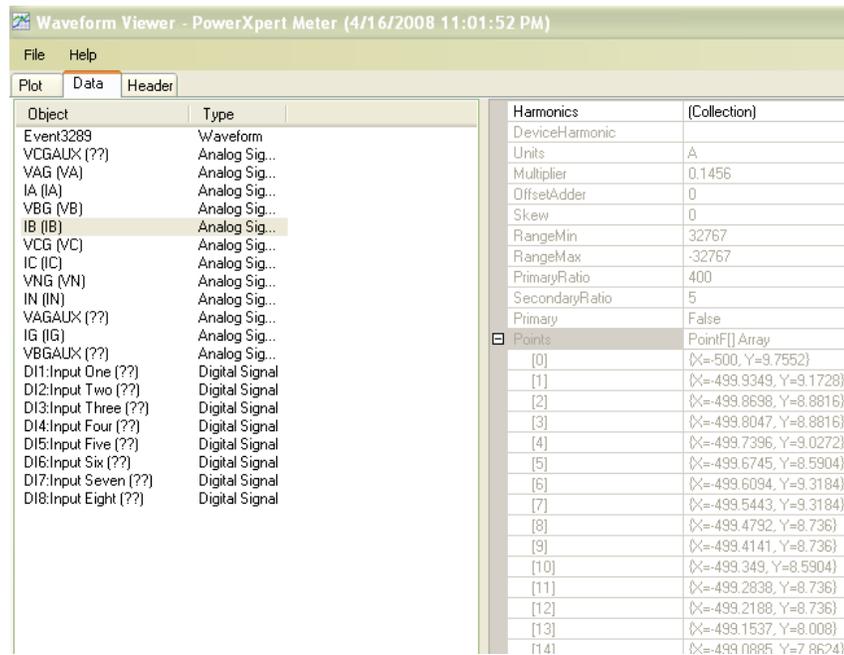
The Waveform Viewer

- (1) Attribute selector. This is the set of available attributes in waveform data. Each channel selected appears in the plots. Select the check box to plot the waveform for that attribute. Click next to the label (as shown in preceding figure) to select a single attribute in the plots. This highlights the associated line in the plots and activates one of the harmonics controls for the applicable harmonics.

- (2) The Device Harmonics viewer button. If an attribute is currently selected from an IQ Analyzer or MPCV Relay, this button becomes active. Click the button to view the harmonics data for the selected attribute. See the section on the Harmonics Viewers for more information.
- (3) The Signal Harmonics button. For waveform data originating from most devices, if an attribute is selected this button becomes active. Click the button to view the harmonics data for the selected attribute. See the section on the Harmonics Viewers for more information.
- (4) The cursor selector window. Selecting an attribute places a color-coded cursor in the plots. You can click-and-drag the cursor to view the values along the timeline.
- (5) The toolbar. See the Toolbar section for a description of each tool.
- (6) The Current plot.
- (7) The Voltage plot.
- (8) The digital I/O plot. If the device has digital inputs, their states will be plotted against time in this graph. (If you don't see this graph, extend the window downward.)

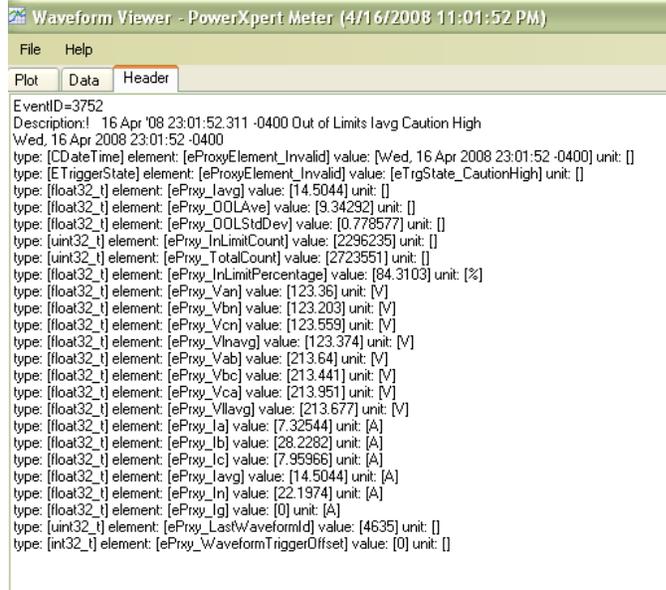
Tabs

The Waveform Viewer has three tabs: Plot (which was shown in the previous section), Data, and Header. The Data tab provides detailed information about the waveform data, including the event number and information about each attribute. Clicking an attribute loads the right pane of the window with that attribute's detailed information. Expand the Points item to see the individual data points that make up the waveform.



The Data Tab

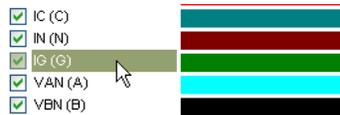
The Header tab displays the file header information for the waveform file currently loaded. Files from Powernet (.osw files) don't have headers.



The Header Tab

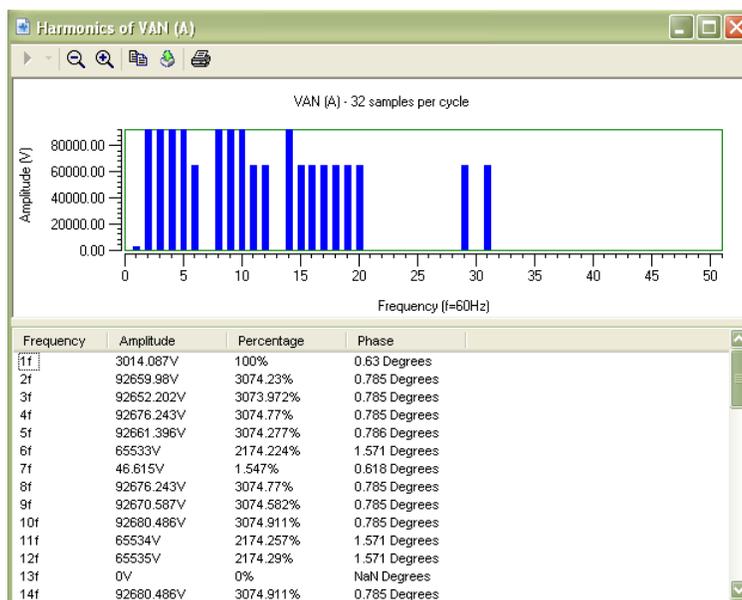
Harmonics Viewers

Waveforms from the IQ Analyzer or MPCV Relay contain attributes that provide device harmonics information and attributes from other devices may provide signal harmonics information. In both cases, you must first select the attribute by clicking its label before the appropriate button will become active.



Selecting an Attribute

Clicking the Harmonics button launches the Harmonics Viewer, which provides both a bar chart and a table of datapoints. The Export button on the toolbar writes a file of the current plot in one of several graphics formats or the Frequency and Amplitude data to a tab delimited ASCII file with a .dat extension.



Device Harmonics

The **Signal Harmonics** button launches the Harmonics Viewer and displays signal harmonics data for the selected channel. The viewer controls are the same as for Device Harmonics.

Toolbar

The toolbar provides controls for adjusting the plot access, zooming in on areas of interest, exporting data, or printing plots. An abridged version of the toolbar exists in the Harmonics viewers. Refer to the following for the function of each of the tools:

Tool Function

-  Resume...Click to restore zoom level to default.
-  Axes Scroll...Click the X or Y axis of the current or voltage plot and drag to scroll.
-  Axes Zoom...Click the X or Y axis of the current or voltage plot and drag to increase or decrease the resolution.
-  Zoom-Out...Click the tool to zoom out on both the current and voltage plots.
-  Zoom-In... Click the tool to zoom in on both the current and voltage plots.
-  Select...Click the voltage or current plot to zoom in on the selected point.
-  Zoom Box...Click and drag a selection box on either the current or voltage plots to zoom in on that area.
-  Copy to Clipboard...Click to copy waveform data to the Windows clipboard. Use the drop-down list next to the tool to select to copy either the plot picture or tab-delimited attribute data.
-  Export...Click to export the plot as a graphics file (you can select the format) or, if the .dat file extension is select, export the data as a tab-separated ASCII file.

Tool Function



Print...Print the selected plot.

Working With Waveform Files

The Waveform Viewer can load waveform files either in the industry standard Comtrade format or the Powernet waveform format (.osw) files. You can load waveform files from either your local computer's file system (including mapped network resources) or directly from the Power Xpert Software server. Files loaded from the Power Xpert Software server are actually waveform data stored in the Power Xpert Software database, and are either in .osw format if the waveform originated on a Powernet device or Comtrade format if the waveform came from a PowerXpert meter.

The File menu provides access to the file load commands. To use the Open Waveform from Server command, you'll need to know the web address of the Power Xpert Server.

After loading a file from the server, you can save it to your file system via the File > Save as command. The default file name is the event ID. You can only save the file in its original format.