

Using the PXG900 to Manage Waveforms from the PXM2280 and PXM2290

This solution provides a way to use the PXG900 to receive and store waveforms from one or more PXM2280 or PXM2290 power quality meters.

Typically, waveforms from PXM2280 or PXM2290 meters are accessed with a web browser by directly accessing the web interface of the PXM2K communication card pre-installed in the meter. This solution provides an alternative for customers wishing to aggregate waveform collection from one or more PXM2280 or PXM2290 meters in a PXG900.

Prerequisites

- The PXG900 must have firmware revision 4.3.0 installed (minimum)
- The PXM2280 or PXM2290 power quality meters must have accessible Modbus RTU ports
- The pre-installed PXM2K communication card must remain installed in the PXM2280/2290 and be configured appropriately for network accessibility
- Each PXM2280 or PXM2290 must be network time-synchronized, using the PXM2K card's network connection and configuration to provide this support
- The default password on the PXM2280 or PXM2290 must not be changed

Background

The PXG900 does support the PXM2280 and PXM2290 being added as devices via Modbus TCP, through an Ethernet connection to Network 2. Due to the way the waveforms need to be acquired directly from the meter itself, a Modbus serial connection to the meter must be used instead for this special application.

Setup

In order for the PXG900 to receive and store waveform files from the PXM2280 and PXM2290, the meters must be wired to the available serial connectivity ports on the PXG900 (e.g., COM1 and/or COM2).

Refer to Section 6-9 of the Power Xpert Meter 2000 Series User & Installation Manual (IM02601001E), for detailed information on configuring the address, baud and protocol (Modbus

RTU) for communications with the PXG900.

Note: This meter communication setup is identical to that which is done on IQ250/260 meters before use with the PXG900.

As mentioned in the prerequisites, any adjustment from the default password on the PXM2280 or PXM2290 prevents the PXG900 from accessing the waveform files. Refer to the Power Xpert Meter 2000 Series User & Installation Manual (IM02601001E), for more information about checking or configuring the meter's internal password.

Because the individual PXM2280 and/or PXM2290 meters must also remain accessible on the network, they cannot also be added as devices on the PXG900's Network 2 port via Modbus TCP.

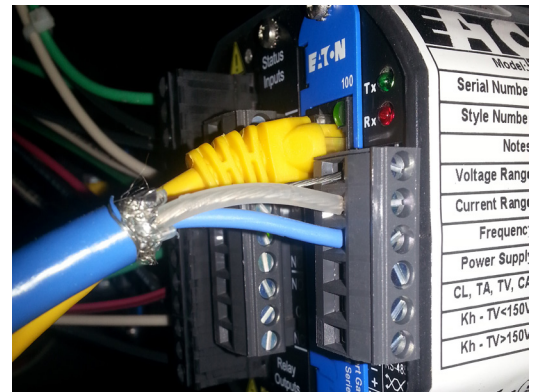


Figure 1. PXM2280/2290 Meter with Modbus Serial and Ethernet connections

From the PXG900's Network tab web UI, enter Edit mode, select Add Device, then from the side bar select the PXM2280 or PXM2290 from the device drop down list for either COM 1 or COM 2.



Powering Business Worldwide

Adding Device...
COM 1

Family

Meters

Model Series

PowerXpert Meter

Model

PXM1000

PXM1000

PXM2280

PXM2290

Serial Address (decimal) 1-247

0

Save

Figure 2. Adding the Meter

Set an appropriate Serial Address for the connection to the meter you are added. Once done, select Save and the meter will be added.

Time Synchronizing the Meter

As mentioned as a prerequisite, it's important that each added PXM2280 or PXM2290 be time synchronized with the PXG900 and other devices on the system. The meter references the date and time when internally storing waveform data that the PXG900 will later reference. Time synchronization is supported through the installed PXM2K communication card. However, the feature needs to be configured. Refer to Section 10-22 of the Power Xpert Meter 2000 Series User & Installation Manual (IM02601001E), for detailed information on configuring the PXM2K card to use an available NTP server on the network. You must select **Synchronize with NTP Server** and enter the IP address or hostname of at least one time server. It's also important to check that NTP is also configured and enabled on the PXG900.

Obtaining Captured Waveforms from the PXG900

The PXM2280 and 2290 are the only two PXM2000-series meters that support a waveform capture feature. Because of that, they are the only meters supported by the PXG900 in this special application. When a waveform is available from the PXM2280 or PXM2290, a waveform icon will be displayed in the device row on the Network tab as shown below.

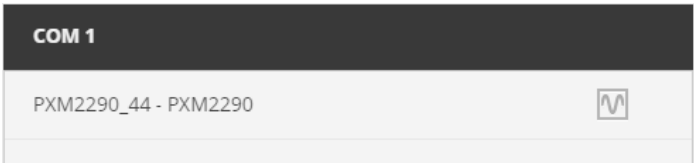


Figure 3. Notification of waveform availability

Double clicking the waveform icon will provide a pop up window showing all currently available waveforms for that device.

PXM2290_44 - PXM2290

Waveforms

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Export

Delete

Sort by Time Captured

Capture

	Time Captured	Time Received	Cause / Filename
<input type="checkbox"/>	01/12/2017 12:03:41 PM	01/12/2017 11:05:31 AM	Manual PXG900-PXM2290-02C-Manual-20170112.170341.00.tgz
<input type="checkbox"/>	01/12/2017 11:04:42 AM	01/12/2017 10:06:32 AM	Voltage Sag PXG900-PXM2290-02C-Voltage-Sag-20170112.160442.00.tgz
<input type="checkbox"/>	01/12/2017 11:02:15 AM	01/12/2017 10:04:05 AM	Manual PXG900-PXM2290-02C-Manual-20170112.160215.00.tgz
<input type="checkbox"/>	01/11/2017 10:52:42 AM	01/12/2017 7:23:08 AM	Voltage Sag PXG900-PXM2290-02C-Voltage-Sag-20170111.155242.00.tgz
<input type="checkbox"/>	01/10/2017 12:02:37 PM	01/12/2017 7:23:00 AM	Manual PXG900-PXM2290-02C-Manual-20170110.170237.00.tgz
<input type="checkbox"/>	01/10/2017 12:01:13 PM	01/12/2017 7:22:51 AM	Manual PXG900-PXM2290-02C-Manual-20170110.170113.00.tgz
<input type="checkbox"/>	01/10/2017 11:59:43 AM	01/12/2017 7:22:43 AM	Manual PXG900-PXM2290-02C-Manual-20170110.165943.00.tgz
<input type="checkbox"/>	01/10/2017 11:28:28 AM	01/12/2017 7:22:34 AM	Manual PXG900-PXM2290-02C-Manual-20170110.162828.00.tgz

Figure 4. Available waveforms listed

From this window the user can export, delete (from the PXG), sort and manually capture a waveform. Exported files will be presented in a zip file in a COMTRADE format, that can be viewed through a COMTRADE viewer.

The COMTRADE waveform data contains only secondary values of voltage and current. The PXG900 can capture waveforms and have samples for only the signals which are connected to the PXM2280 and PXM2290.

Maintenance

Command access supporting Capture Waveform and various log reset commands are also available under the Choose an Action menu in the sidebar for the selected PXM2280 or PXM2290. Note that these affect the PXM2280 or PXM2290 directly, but do not reset or delete data from the PXG900.

Access to these commands on a per-user basis is dependent on the role and specific permissions assigned to each user. As the admin user, you can check the role-based permissions in the Security tab, under Settings, to allow all the commands to be exposed as appropriate for each user.

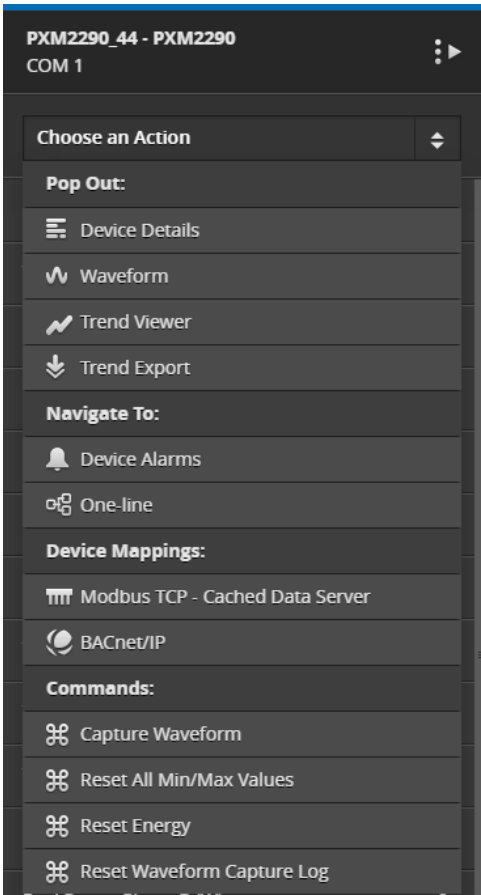


Figure 5. Available Commands

Note: If at any time a wiring change is made to the meter that affects its configuration, use the Reset Waveform Capture Log command to avoid any potential confusion between older waveforms and any new ones captures after the change.