



PQMII Power Quality Meter

Revision 2.22 release notes

GE Publication Number: GER-4028C

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Overview

Summary

- Affected products: PQMII Power Quality Meter
- Date of release: June 19, 2006
- Firmware revision: 2.22
- Hardware revision: D
- Manual revision: GEK-106435F

Release summary

This release note covers the 2.22 revision of the PQMII Power Quality Meter. This release includes modifications to values provided via DNP communications as well as enhancements to ensure proper setpoint configuration when loading a setting file with order code options differing from the current PQMII options. Changes were also made to increase accuracy of event recorder values stored during overfrequency or underfrequency trips, and to simplify meter power-up with improved default setpoints for the "Clock Not Set" alarm.

Release details

Modified features

Alarms: Clock Not Set alarm modified

The internal clock will remain running for approximately 30 days after power has been removed from the PQMII. After this 30-day period, if the **CLOCK NOT SET ALARM** setpoint is set to "On/Enabled", a "Clock Not Set" alarm will occur at power-up.

The “Clock Not Set” alarm functionality (disabled after the introduction of the real-time clock in PQMII version 2.00), has been re-enabled with version 2.22 firmware.

In addition, the factory default value for the **CLOCK NOT SET ALARM** setpoint has been changed to “Off/Disabled”. This change was based on customer feedback on simplifying setup by preventing nuisance alarms on PQMII units which may have been powered down for more than 30 days or first setup from the factory box.

DNP communications: modification of binary input/output change points

To prevent integration issues when adding PQMII units to existing DNP installations, the 2.22 release has added an additional “Reserved” point at index 4 to make the binary input/output change points list conform to the documentation and to prevent any integration issues when adding new PQMII units to existing DNP installations.

DNP communications: improvements to calculated values in analog input/output change points list

The PQMII 2.22 release improves the following analog input/output change points:

- Point 12 (neutral current). The value read at this point will now be correct in all instances. The previous release required **PHASE CT PRIMARY** and **NEUTRAL CT PRIMARY** setpoints to be equal.
- Points 8 (phase A current), 9 (phase B current), 10 (phase C current), 11 (average current), 39 (phase A current demand), 40 (phase B current demand), 41 (phase C current demand). These setting values now read properly when the value for **PHASE CT PRIMARY** is larger than 495 A.
- Points 14 (Van voltage), 15 (Vbn voltage), and 16 (Vcn voltage). The setting values will now read properly when the value for **VT NOMINAL SECONDARY** is larger than 495 V.
- Points 18 (Vab voltage) and 19 (Vbc voltage). These values will now change according to the **VT WIRING TYPE** setting. In earlier revisions, these values were calculated as if the **VT WIRING TYPE** setting was set to “4 Wire Wye”, regardless of the actual setting.

DNP communications: modification to setting of date and time through DNP

The 2.22 release now allows the clock time setting to be saved via DNP. Earlier revisions would initially update the setting then revert back to the original time within a few seconds.

DNP communications: default variation for binary counters (object 20) changed from 6 (16-bit) to 5 (32-bit)

The default variation for binary counters was changed to 5 (32-bit) so that DNP masters with only generic-type interrogation capabilities are able to read the full counter value.

Object	Description	Default Variation
20	32-bit binary counter without flag	5

DNP communications: modifications to analog input/output change points list (table 7-9 in manual)

The following points have been changed to “Reserved”.

Point	Modbus register	Description	Unit/value	Deadband	Format	Event class assigned to
63	0x0481	Voltage Vca THD	0.1 × %	5.00%	F1	3
140	0x048A	Voltage Vca THD - maximum	0.1 × %	1 unit	F1	3

- THD is based on measured values but Vca is a calculated value, so no such THD value exists. The Modbus registers noted have also been changed to “Reserved”.

DNP communications: modifications to binary input change points list (table 7-7 in manual)

The following points have been changed to “Reserved” for the 2.22 release, as they had no functionality present

Index	Description	Event class assigned to
4	Internal error: HC705 processor not responding	Class 1
27	Auxiliary 1 relay LED solid (not flashing)	Class 1
28	Auxiliary 2 relay LED solid (not flashing)	Class 1
29	Auxiliary 3 relay LED solid (not flashing)	Class 1
30	Alarm LED solid (not flashing)	Class 1
31	Program LED solid (not flashing)	Class 1
32	Simulation LED solid (not flashing)	Class 1
33	Alarm relay LED solid (not flashing)	Class 1
34	Self-test relay LED solid (not flashing)	Class 1

- The HC705 processor was only present in PQMII hardware prior to the version 2.0 release. The design improvements made at that time removed this processor and added a real-time clock in its place.
- The LED states can be read correctly using index values 19 through 26.

DNP communications: unsupported DNP objects removed from manual

The frozen counters (object 21), counter change events (object 22), and frozen counter events (object 23) are not supported by the PQMII and have been removed from the manual.

Event recorder: improvements to overfrequency and underfrequency values recorded in event recorder

The accuracy of logged event recorder values has been improved. In previous revisions, the frequency value logged in the event recorder at pickup for the overfrequency and underfrequency elements could have been as much as 1 second old. If the frequency was increasing and an overfrequency event occurred, the recorder frequency value would be below the pickup setting. Likewise, if the frequency was decreasing and an underfrequency event occurred, the recorder value would be above the pickup level setting.

Event recorder: time required to clear the event recorder reduced

With the 2.22 release, the time required to clear the event recorder has been reduced from 6 seconds to 2 seconds.

Programmable message: underscore character removed when changing programmable message

When changing the programmable message via the PQMII keypad, the LCD display will no longer show an underscore on the character currently being edited.

Software: factory default setpoints loaded after storing settings file

In cases where a value of zero was written to a Modbus register belonging to a feature not installed in the PQMII, the factory default setpoint values would be loaded upon cycling of control power. The 2.22 release has been modified to prevent this from occurring and the EnerVista PQMII Setup software was updated to prevent this from happening with earlier firmware revisions.

Voltage metering: voltage angle display modified for “2 VT Delta” VT wiring type

A modification was made to ensure proper voltage angle display for Vb. Previously, when the **VT WIRING TYPE** setpoint was set to “2 VT Delta” and no voltage was present on the VT inputs, an angle of 180° was incorrectly displayed.

Software updates

The EnerVista PQMII Setup software version 2.31 has been updated to support PQMII version 2.22 firmware. The following changes have been made to coincide with firmware modifications:

- The default setpoint value for the “Clock Not Set” alarm has been changed to OFF.
- In revisions prior to 2.22, storing a value of zero to the Modbus address of a feature that is not presently installed in the PQMII could cause the settings to default upon cycling of control power. This has been corrected in firmware, and the EnerVista PQMII Setup software has also been updated to prevent this from happening when storing settings files to PQMII units with firmware versions prior to 2.22.

Manual updates

The following have been added or changed in the PQMII Power Quality Meter instruction manual for revision 2.22 (GE Publication number GEK-106435F)

- Updated software version display menu information to “2.22 May 09, 2006”.
- Changed factory default setpoint value for “Clock Not Set” alarm to OFF.
- Changed various unused items in the DNP binary and analog points lists to “Reserved”.
- Added examples for calculating current and voltage from DNP analog points.
- Table 7-8: *Binary Output / Control Relay Output Points* index 18, 19, and 21 updated to show correct key names.
- Table 7-5: *Default Variations* updated to reflect change to default variation for binary counters (object 20) from 6 (16-bit) to 5 (32-bit).
- Correction to Modbus address for **UNDERFREQUENCY LEVEL** from 0x1059 to 0x1159.
- Tables 7-4, 7-5, and 7-10 updated to remove references to frozen counters (object 21), counter change events (object 22), and frozen counter events (object 23).

Software and firmware update information

Filenames and locations

- Firmware file location: <http://www.GEmultilin.com>
- Firmware filename: 73D222C4.000

PC software upgrade procedure

Download and install the latest EnerVista PQMII Setup software installation file from <http://www.GEmultilin.com>.

GE Multilin technical support

GE Multilin contact information and call center for product support is shown below:

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