

WattNode for LonWorks - FRAM Firmware Update

Overview

Field reports and internal testing revealed that WattNode® for LonWorks® models (all versions except Option B and Option BI) may lose the accumulated energy when power is cycled or the processor is reset. This occurs approximately every 200 to 300 power cycles.

The more WattNode meters at a site, the greater the risk that one or more will lose their energy on any given power failure. For example, if you have one hundred meters, then you would expect one of the meters to lose energy every two to three power cycles.

CCS has updated the firmware to fix this problem and include additional enhancements.

Detailed Firmware Changes

These firmware updates do not change the interface, so the list of network variables is not affected and the LonWorks program IDs will not change.

- Energy values are written to non-volatile FRAM memory every five seconds. There are two banks to store these values to provide redundancy. Due to a bug in the old version, the firmware could only recover from the first bank. If this first bank of FRAM memory was being written when power failed, the energy would be lost on the next power-up. This has been fixed so that the firmware can recover from either bank and will not lose energy if the AC power fails while the FRAM is being written.
- Added commands to lock and unlock the reset energy feature to prevent unintentional energy resets. The LNS Plug-in has been updated with menu commands to lock and unlock the energy reset, and to indicate if the energy reset feature is locked.
 - Writing 200 to **nviResetEnergy** locks the reset energy feature, preventing resets. When locked, **nviResetEnergy** will read back as 200.
 - Writing 300 to **nviResetEnergy** unlocks the reset energy feature, allowing resets. When unlocked, **nviResetEnergy** will read back as 0.
- Added factory commands to lock the **nciCtAmps** and **nciPtRatio** (if present) for the upcoming WattNode Revenue models.
- Updated the error reporting logic so that attempts to write invalid configurations values, such as invalid **nciCtAmps**, **nciPtRatio** (if present), **nciDemSubints**, or **nciDemPerMins** will not be logged as an “internal error” (Logger models only).
- Added more detailed error reporting for FRAM recovery issues.
- Added logic to detect the transition from **Soft-Offline** to **Online** so that the “online” event can be logged in the flash memory log in this case (Logger models only).
- Firmware version number updates:
 - **WattNode Plus:** 3.38
 - **WattNode Plus Opt PT:** 3.41
 - **WattNode Logger:** 3.68
 - **WattNode Logger Opt PT:** 3.71

Notes

There have been other firmware updates to the WattNode for LonWorks. This version includes all previous fixes and updates. For a full list of firmware revisions, see http://www.ccontrols.com/w/WattNode_for_LonWorks_Firmware_Versions.

Upgrade and Configuration

See the appropriate web pages for firmware images files and directions:

- http://www.ccontrolsys.com/w/LonWorks_Firmware_Upgrade
- <http://www.ccontrolsys.com/w/WattNode-FT10-FW-3.38> - Plus
- <http://www.ccontrolsys.com/w/WattNode-FT10-FW-3.68> - Logger
- <http://www.ccontrolsys.com/w/WattNode-FT10-FW-3.41> - Plus Option PT
- <http://www.ccontrolsys.com/w/WattNode-FT10-FW-3.71> - Logger Option PT

WattNode LNS Plug-In

If you are using the WattNode LNS Plug-In, you may want to upgrade to the latest version (version 1.12 or later). If you install the plug-in, it will automatically update your resource files and install the new XIF files.

- http://www.ccontrolsys.com/w/LNS_Plug-in

Resource Files

The resource files are not changed as part of this release. For more information, see:

- **Resource Files Webpage:** http://www.ccontrolsys.com/w/LonWorks_Resource_Files

External Interface (XIF) Files

The external interface (XIF) files are not functionally changed as part of this release. New versions have been released with the latest firmware version numbers, but they are functionally identical to the previous versions.

WattNode Meter Firmware Upgrade

It is possible to update WattNode meter firmware in the field for affected models. After a field upgrade, the energy, settings, and log (Logger models only) will be preserved. Depending on how it was configured, there is a chance the **nciCtAmps** might revert to the factory value after a field upgrade, so be sure to record the **nciCtAmps** before the firmware upgrade and verify that **nciCtAmps** is correct after the upgrade.

After completing an upgrade, verify that the voltages, currents, power, energy, and power factor values are reasonable.

Factory Upgrades

CCS will upgrade and recalibrate meters affected by these updates at no charge. The factory upgrade will restore all settings to default values, reset all energy values to zero, and erase the log on Logger models.

Additional Information

See the full manuals for information not in this supplement:

- **WattNode Plus for LonWorks - Installation and Operation Manual**
- **WattNode Logger for LonWorks - Installation and Operation Manual**