Field Upgrading Bulletin 1404 Power Monitor Version 4.2x base and 4.1x Ethernet Communications Firmware

Introduction

Please read this document before upgrading a Powermonitor 3000 to version 4.2x base firmware and 4.1x Ethernet communications firmware. Keep this document with your other power monitor publications. This document contains:

- Description of enhancements and issue resolutions
- Instructions for upgrading existing Powermonitor 3000 units

New features and enhancements

Ethernet communications

Version 4.1x of the Ethernet Series B firmware has been released. Enhancements include:

- Added support to the EtherNet/IP stack required to talk to the MicroLogix processor.
- Fully supports CSP and Modbus TCP protocols.
- Resolves EtherNet/IP communication dropout issues when used in conjunction with base firmware 4.2x.

Base module

The following versions of base firmware have been released:
- Version 4.24: Model 1404-M4
- Version 4.25: Model 1404-M5
- Version 4.26: Model 1404-M6
- Version 4.28: Model 1404-M8

Version 4.2x base module firmware corrects the following issues found in version 3.4x:
- Single instance parameters are now supported for 23 of the most used parameters. They can be viewed directly in RSNetworx for DeviceNet.
- A selection has been added to the Ethernet configuration. On the display module optional communications menu and the optional communications table configuration for Ethernet a Protocol Selection now can be configured for CSP protocol compatibility.
- A selection has been added to the DeviceNet configuration. On the display module optional communications menu and the optional communications table configuration for DeviceNet for swapping the float return format. PLC or CIP compliance is now supported.
- Support has been added for messaging over Ethernet between the PanelView Component, Micrologix 1500, Micrologix 1400 products and the PM3000 Powermonitor.

- A new communication table allows writing the password to the product so that single configuration items can be configured from Panel View Products and HMI applications.
- Serial port upgrade time was reduced by fifty percent.

Anomaly Fixes:

- The firmware serial download tool has been rebuilt to provide more robust communications.
- A problem with Sag setpoint detection was discovered and repaired for M8 models. Sometimes only one setpoint for sag occurred even after clearing the waveforms.
- The averaging function for Displacement PF was improved to allow a mixture of negative and positive input values.
- An issue with losing serial communications because of controller power loss has been fixed.
- The configuration for data type of instance 1 was being lost when power cycling occurred. Now the configuration is still valid after power cycle.
- Updated the manual to reflect the usage of instance 254 instead of instance 99 when connecting to an already owned IO connection over CIP.
- Work was performed on the read back capability of the user configurable table configuration. Now the instance 1 configuration or other instance configurations can be requested and read back.

Upgrading firmware

Your Powermonitor 3000 firmware may be field upgraded. Upgrading is a two-step process.

1. The base firmware is upgraded using the native RS-485 port, using a cable and RS-232 to RS-485 converter that you provide, and a firmware installation tool.
2. The Ethernet communications firmware is upgraded using the Ethernet port, using ControlFlash.

You may upgrade base firmware, Ethernet firmware, or both. For best results, please upgrade both. Once you have upgraded the Ethernet firmware, you may take the optional step of upgrading the power monitor web page so that it includes energy results.

Upgrading base firmware

Please note the following important information before upgrading base firmware.

IMPORTANT: If you wish to upgrade a power monitor from a model M5 to a model M6 or M8, please purchase an upgrade kit from your Rockwell Automation representative and follow the instructions provided with the kit.

IMPORTANT: If your Powermonitor 3000 has base firmware earlier than version 2.0, please upgrade first to version 2.6x, and then upgrade to 4.2x. Upgrading 1.0x or 1.1x directly to 4.2x will overwrite the unit configuration, including PT, CT, communications, demand, data logging, setpoints, etc., and restore the default configuration. Please refer to Rockwell Automation Knowledgebase article 25840, "1404 Power Monitor Firmware," for additional information and version 2.6x firmware kits.

CAUTION: Upgrading base firmware requires access to the power monitor hardware. High voltages, shock and arc flash hazards may be present. Only qualified personnel equipped with appropriate personal protective equipment should access the power monitor and connect communications cables.

Equipment required:

- Notebook PC running Windows 2000 or XP operating system. PC must have serial and Ethernet ports
- RS-232 to RS-485 converter such as an Allen-Bradley 1761-NET-AIC or B&B Electronics 485SD9TB
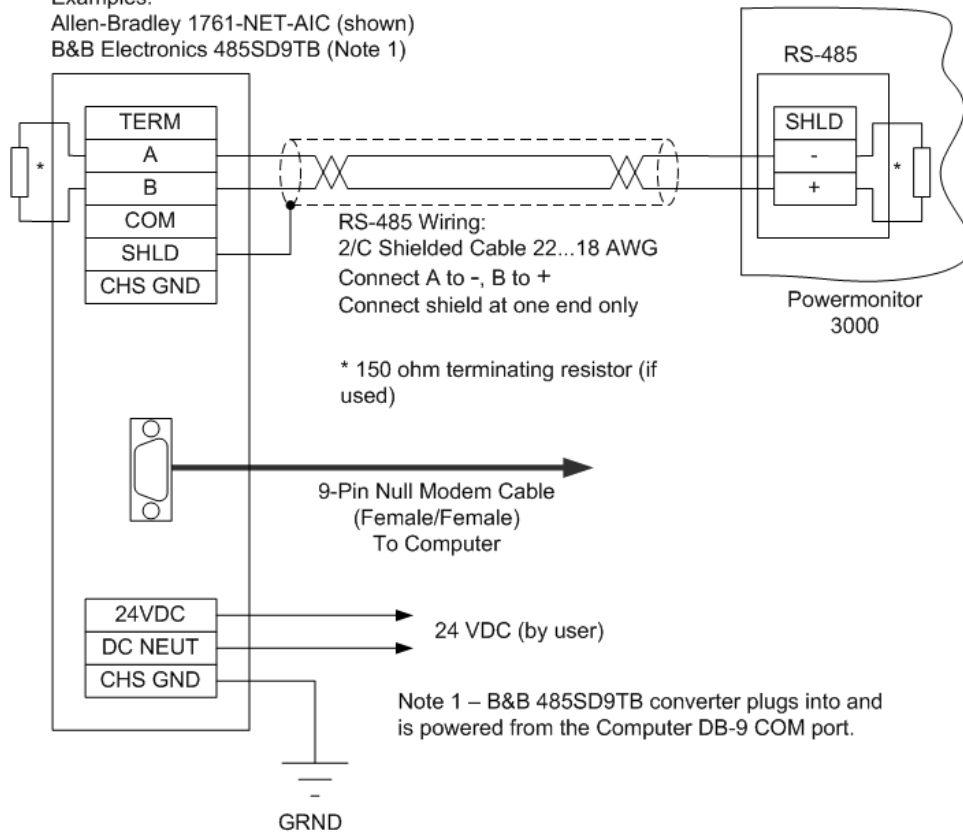
Procedure:

1. Download the attached file 1404_v34x.zip. This archive contains 4 modelspecific firmware files along with the download utility files "PMWindl.exe" and "PMWindl.hlp". After downloading, extract the files from the zip archive into a convenient folder. The PMWindl.hlp file must be in the same folder as PMWindl.exe. You may wish to create a desktop shortcut to the PMWindl.exe program.

2. Connect the notebook PC through the selected converter according to the following wiring diagram (standard serial DF-1 point-to-point wiring).
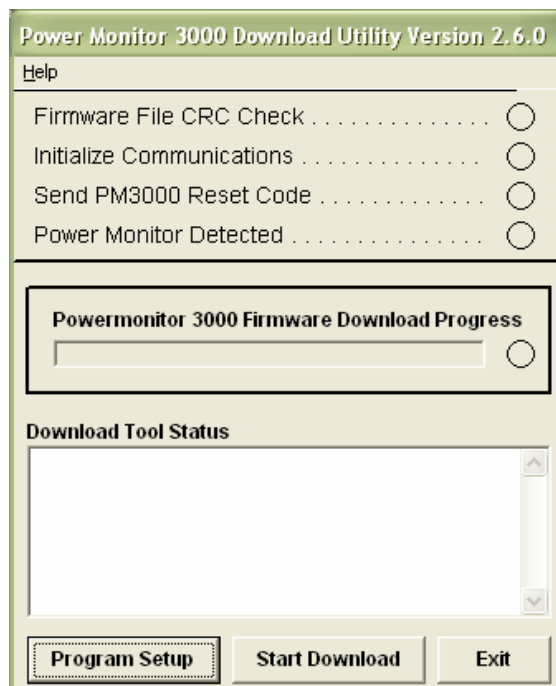
RS-485 to RS-232 Converter
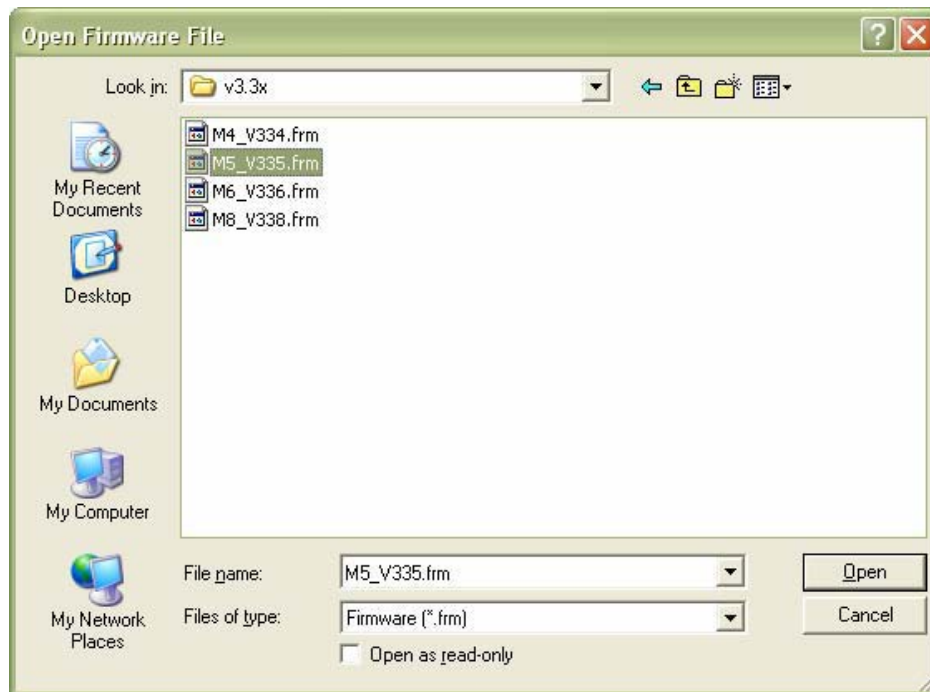
Examples:
Allen-Bradley 1761-NET-AIC (shown)
B&B Electronics 485SD9TB (Note 1)

| TERM |
| A |
| B |
| COM |
| SHLD |
| CHS GND |

RS-485

SHLD
+

Powermonitor
3000

RS-485 Wiring:
2/C Shielded Cable 22...18 AWG
Connect A to -, B to +
Connect shield at one end only

* 150 ohm terminating resistor (if used)

9-Pin Null Modem Cable
(Female/Female)
To Computer

| 24VDC |
| DC NEUT |
| CHS GND |

24 VDC (by user)

Note 1 – B&B 485SD9TB converter plugs into and is powered from the Computer DB-9 COM port.

GRND

3.   Run the Powermonitor 3000 Download Utility program PMWindl.exe.

Power Monitor 3000 Download Utility Version 2.6.0

Help

Firmware File CRC Check . . . . ○
Initialize Communications . . . . ○
Send PM3000 Reset Code . . . . ○
Power Monitor Detected . . . . ○

Powermonitor 3000 Firmware Download Progress
○

Download Tool Status

| Program Setup | Start Download | Exit |

4. Click *Program Setup*. Browse to and select the firmware file for your power monitor model (M4, M5, M6 or M8). Click *Open* and then *Accept*.

5. Click *Start Download* to install the updated firmware. The utility indicates the progress of connecting, detecting and downloading to the power monitor. If an error message is displayed, correct the error condition and start the download again. Common errors are:
   - Power monitor not detected. The communications cable is not connected properly or power is not applied to the converter
   - Power monitor native port configured with Modbus RTU protocol. Protocol must be DF-1 or auto-sense
   - Port in use. Another application (such as RSLinx) is using the serial port

6. When the download is finished, the power monitor will reset. After a self test, the power monitor status LED will glow solid green. The status indicator on the utility will also turn green. Click *Exit* to close the utility.

Do not interrupt the download once it has begun. The download may take up to 5 minutes to complete.

If the power monitor status indicator glows red after the download, verify that the firmware file selected is the correct file for the model. Try repeating the download.

Occasionally you may need to reset control power to the power monitor as the utility is trying to detect the power monitor.

Upgrading Ethernet communications firmware

Please note the following important information before upgrading Ethernet communications firmware. If your power monitor already has version 4.1 Ethernet firmware installed, you do not need to upgrade again. Version 4.1 is the latest available as of the Version 4.2x base firmware release.

IMPORTANT: Version 4.1 Ethernet communications firmware is not compatible with Series A Ethernet Powermonitor 3000 units. Series A units are labeled on the unit nameplate, may be identified by a 9-pin DIN connector located just above the Ethernet port, and typically have version 2.01 or 2.02 Ethernet firmware.

Equipment required:

- Notebook or desktop PC running Windows 2000 or XP operating system. PC must have an Ethernet port and be connected to the power monitor through a local area network or directly using a crossover cable.
- RSLinx software installed on the PC

Procedure:

1.   Download the PM3000 4.2 Ethernet Control Flash kit to the PC and save to a convenient folder. Open the Zip archive and run the program setup.exe to install ControlFlash and the firmware files.

2.   If not already done, open RSLinx software and establish communications to the power monitor using the Ethernet Devices driver. Verify communications using RSWho.

3.   Open ControlFlash and then click *Next* from the welcome screen. Select "PM-3000 Ethernet I/P DC" from the list of catalog numbers. Click *Next*.

4.   Browse to and select the power monitor to be updated in the RSWho window. Click *OK*.

5.   Select the 4.1 revision. If 4.1 does not appear, click *Select All* then select 4.1. Click *Next*.

6.   Click *Finish* and confirm to begin installing the updated Ethernet communications firmware. When the Ethernet port has reset ControlFlash will indicate that the update is complete. Close ControlFlash.