

M70 CPM Firmware Changelog v1.06

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Version 1.03

- Initial Firmware Release

Version 1.04

Firmware Improvements:

- Added min/max values for temperature alarms when in Fahrenheit
- Fixed issue where Bacnet login credentials errantly auto-filled.
- Fixed Modbus register 40 (firmware version) – displayed incorrect characters.
- Fixed formatting on help command
- Invalid login messages are now never suppressed.
- \$log,clear command has been updated to return OK or an error code.
- Restricted mode will now be re-entered if admin password is reset to default.
- Fixed Modbus/TCP connection issue where TCP sockets were not terminated properly preventing communication.

Vulnerabilities Addressed:

- CVE-2004-0230: TCP Sequence Number Approximation Based Denial of Service
- CVE-1999-0077 CVE-2000-0328 CVE-2000-0916 CVE-2001-0328: Add ISN calculation based on RFC 1948 and 6528 to defend against TCP sequence number attacks.
- Fixed Ethernet lockup caused by Qualys Scan
- Fixed Modbus/TCP failures caused by Qualys scans

New Features:

- Passwords for SSH, HTTP, and Shell are now stored using a one-way cipher, and can't be retrieved from the unit.

Version 1.05

New Features

- Added LED Identify mode for identification
- Added SSH Exec Mode
- Increased Security
 - Add support for BACnet username and password.
 - BACnet user name and password are now distinct from web/ssh username and password, and a one way cipher is used for the BACnet password.
- Add encryption and decryption of the user certificate. Uploaded certificates are stored in flash encrypted.
- Updated reset handling
 - Implement graceful shutdown of protocols when external reset is requested.
 - Hold off reset requests while meter application is starting up.
- Networking Updates
 - MDNS
 - Add support for MDNS on IPv4 for LAN and WLAN

- Send updated MDNS announcements when entering or exiting restricted state, or whenever Product Serial Number, Device Name, Device Location, Device ID or Catalog number changes.
- Document the steps required for generation of user certificates
- SSL connections now support ECDHE-RSA-AES128-GCM-SHA128, SHA256, and SHA384 cipher suites
- BACnet
 - Added Identify and rebootRequiredFlag to BACnet objects
- Modbus:
 - Added the following new parameters Modbus Map
 - ModelNumber
 - CatalogNumber
 - firmwareVersion
 - productSerialNumber,
 - lcdSlideSpeed
 - Identify
 - rebootRequiredFlag
 - Renamed Existing Parameters to Modbus Map
 - legModelNumber (\$legmodel, Register 0134)
 - legCatalogNumber (\$legtype, Register 0140)
 - legFirmwareVersion (\$FV, Register 0340)
 - Improved \$modbus,map display
- SNMP
 - Added the following objects to the MIB:
 - productSerialNumber
 - hardwareVersion
 - lcdPowerDownTime
 - lcdSlideSpeed
 - Identify
 - rebootRequiredFlag
 - neutralCurrentRating
 - All temperature values for DC
- Miscellaneous
 - Allow LCD scrolling to be paused from shell command
 - Implement Identify feature which will cause unit to flash LEDs yellow/purple
 - Added \$ledcpm,states command to print an explanation of all of the LED blinking patterns
- Increased diagnostics
 - Better return status on many shell commands
 - Add wlanDebugConfig Register
 - Add postmortem data for unexpected exceptions.
 - Removed ringdebug from PCR, moved to standalone config register.
 - Log Meter initiated reset cause

Firmware Improvements

- Refactor DHCP code to address issues:
 - DHCP timer rollover issue

- Updated DHCP lease times, renew and rebind to be more robust.
- Resolve gateway and DNS renewal issue
- Synchronize DHCP parameters when lease changes
- Fix issue with AC and DC display configuration
 - Add OLBRS (AC Outlet breaker status), LUGTMP (AC Lug temperature), and LUGTMPA (AC Lug temperature Alarm) to DCR
 - WLAN display items now controlled by WLAN bit in DCR, not LAN bit.
- BACnet
 - Memory usage significantly improved.
 - Fixed issue with boolean parameters.
- Refactor SSH server
- Refactor Ring Mode code to address issues:
 - Update/add diagnostics message
 - Add RingNumber, RingTimer and RingMaxNodes parameters
- Networking fixes
 - Tuned TCP parameters to allow more concurrent protocols
 - Improve handling of multicast addresses in Wireless driver.
 - Use product serial number in mDNS instead of device serial
 - Improve error messaging in case of duplicate IP address
- Miscellaneous
 - Update LEDs for identify, ring minion and ring disconnected mode
 - Add support for LCD screen update while the screen is paused
 - Update Modbus driver to fix an issue when reconnecting and data left in connection buffer
 - Fix error when printing WLANRSSI help
 - Fixed help for various commands
 - Fixed issue with wildcard help fixed help on AC meter stats shell command
 - Fixed help inconsistencies on various shell commands
 - Fix issue where long log messages were truncating the newline
 - Fixed display of lan/WLAN IPv/IPv6 settings windows selection via the DCR

Version 1.06

New Features

- Diagnostics
 - Added \$wlan command
- Networking
 - Support for SNTP
 - Increased HTTP Rx Window Size
- Logging
 - Logs now timestamped with data and time if available
- WiFi
 - Implement wifi AP scanning for diagnostic purposes
- Adjusted task priorities to achieve better responsiveness

Firmware Improvements

- MDNS
 - Increase TTL on mDNS packets
- Networking
 - IPv6 DHCP6 address updated on change
 - Fixed issue with tail tagging
 - Fixed issue with multicast support with IPv6
- WiFi
 - Fixed potential race conditions in WiFi driver
- MODBUS
 - Added MODBUS RTU lookup table
 - Added a MODBUS Shell Task from M50
 - Added MODBUS Register read/write diagnostics
 - Adjusted MODBUS TCP & RTU task priorities.
 - Fixed MODBUS RTU crash due to MOXA GA2
 - Fixed overflow in MODBUS map
 - Fixed issue in MODBUS register banks when the register has no information.
 - Fixed MODBUS TCP connection timeout
 - Fixed MODBUS Buffer overflow issue
 - Fixed invalid MODBUS register padding.
- Miscellaneous
 - Adjusted task priorities to achieve better responsiveness

Webpage

0.09-WEB

- Initial Release

0.10-WEB

- Fixed Modbus Float Radio button issue where value was reversed.

0.11-WEB

- Fixed webpage issue where after an initial credential update, user is redirected back to login.
- Removed the Google API font loading

0.15-WEB

Enhancements & New Features

- Added new DCR bits for the 4.3" display -bits 12, 24, 25. See manual for details.
- Added MDNS toggle to the admin settings.
- Updated BACnet username and password fields to match M70 firmware changes.
- Ring mode parameters added – (Ring Number, Ring Timer, and Ring Maximum Nodes)
- Introduced new ring-related parameters that extend configuration capabilities.
- Added Ring priority limits and value restrictions

- Password Management: Updated password length validation (adjusted minimum and maximum limits).
- Admin Access: Set the maximum admin password length to 26 characters.
- Login Security: Improved reset login limit alarm functionality.
- Security Alarms: Added new security alarms and enhanced validation logic.
- SNTP Configuration: Implemented SNTP (Simple Network Time Protocol) configuration controls.
- Ring Configuration: Introduced ring priority limits functionality and added minimum/maximum value restrictions for ring configuration inputs.

Webpage Improvements

- Fixed SNMPv3 Webpage Issue.
- Increased character limits for model and type registers.
- Fixed certificate upload behavior.
- Fixed Upload page Issue
- Resolved issue - device info does not display in the Upload page.
- Corrected issues with diagnostic downloads, including request parameters and URL handling.
- Validation: Fixed validateChanges function, corrected unsaved validation handling, and improved credential validation and unsaved changes popup logic.
- UI/UX: Fixed alarm trigger functionality and reworded related text.