

ControlByWeb 400 Series Firmware v3.13.6.1 Patch Notes

Overall Improvements

- Control Page refresh speed is more responsive following any user interaction.
- Allow a conditional trigger on register change, not just =, < or >
- Increased number of Registers from 32 to 64 on the X-400, X-404, X-406, X-410, X-412, and to 61 on X-432. Every other device stays at 32 registers.
- SYSLOG creates entries when bootup completes and when new firmware is validated.
- The ControlByWeb Integration Manual is now online at https://controlbyweb.com/firmware/Integration_Manual_v1.0.pdf

MQTT

- The Publish on Change setting now allows Analog inputs (including ones configured as Digital Inputs) to trigger a change.
- The standard publish body increased from 200 to 500 characters.
- Added the following MQTT keywords:
 - Epoch Time Stamp can be sent as
 - seconds `${dateTime}` or milliseconds `${dateTimems}`
 - RSSI (cellular) `${rssi}`
 - Sequence Number (autoincrementing) `${seq}`
 - Latitude `${latitude}`
 - Longitude `${longitude}`
- Subscribed topics can be either SparkPlugB using protocol buffers for the data, or sent as JSON or plain text. (Ex. Subscribed JSON packet: `{"relay1":1}`. If plain text, this can be any IO command you send with STATE.JSON or STATE.XML)
- The Keep-Alive interval will set the ping time to the minimum possible if there has been no other communication with the Broker.
- MQTT Heartbeat default payload is fixed to show correct JSON code.
- Increased from 10 to 100 outgoing MQTT buffers. Used for QOS=1 or 2 to store messages waiting for acknowledgments.
- Log entries can now be sent using MQTT. There is a separate publish section for MQTT Log entries, which can be up to 1000 characters. When cloud entries are sent, they are sent once per minute.
- The Log EventID and Logged time are parameters for MQTT publish.
- MQTT Broker now has a setting for how long to wait between messages. This is for brokers that can't handle fast messages. Time is listed in ms.
- Several SparkPlugB improvements for integration with Ignition and ThingsBoard dashboards.

BASIC

- BASIC Script increased to 12K in size.
- Fixed issue with Disabling and then reenabling scripts.
- BASIC CALL, FOR, IF and DO loops can be nested 10 deep.
- Added cell.rssi as a BASIC variable to get the current cell RSSI.
- Added REBOOT command to reboot the device in 4 seconds.
- Changed SELECT and SELECTC to SWITCH and SWITCHC calls. This allows one of many subroutines to be called based on the variable's value passed to the SWITCH/SWITCHC statement. SWITCH will continue after executing; before, it used to continuously loop in the SWITCH statement.

Cellular

- If the device fails to make a cellular connection, it will not reboot if it is in Registration (searching) or airplane mode, or if the device is powered off. It will continue to reboot the modem and restart the modem code.
- Added user setting to cellular mode to specify the number of modem power cycles will be performed before the device reboots. A value of 0 will prevent the device from rebooting.
- The state.json and state.xml commands, and cloud device polling now report the device uptime and the cellular RSSI.
- Changed cell so if cellular is turned off, it will get the ICCID and IMEI before turning the cell radio off.
- If an external modem command is queued up, it will be executed before a cell reset.
- Cell modem autosets baud rate if the cell modem is set to 115K, 230K, 460K or 912K baud. You can set the cell modem baudrate to 912K with *cellOptions=0100*.
- The setting *cellOptions=0200* will set the Ethernet port to use 20 seconds for DNS retry.

Other

- Added the Remote Cloud service state to the end of the debug lines along with the Ethernet/WiFi/Cell network connection state. *Value shown from 0 to 15.*
- **X-404 Modbus Master** - All Endian and byte orientations are fixed and supported correctly.
- Loading device configuration files allowed data strings increased from 160 to 650 characters.
- Fixed issue with connecting to X-600M to again allow user to login without a username and only a password.
- Added support for Elliptic Curve Cryptography (ECC) TLS1.2.
- **X-400** - The X-400, when connected to expansion modules, would occasionally reset to Factory Defaults when powered on. This occurred if the expansion card had the interrupt signal asserted at power up, causing the unit to think the RESET button is held down and perform a factory reset. The new firmware prevents this from happening. X-400C now detects if the TCA95X5 expansion port IC is installed to control the modem. The modem won't come up if it isn't installed or working. In this condition, the new firmware prevents the device from waiting for the modem to respond.

- Added the DeviceInfo command /setcfg?deviceInfo=?. This gives a display like:

```
Device Info: 2:0:2:0
Model: X-400CW-I 2:0:2:0
FirmwareRevision: 3.13.3.1b 2:0:2:0
SerialNumber: 000CC8000154 2:0:2:0
Device Uptime: 00h 01m 14s 2:0:2:0
VSupply: 23.9 Volts 2:0:2:0
Option Flags: 0x0 2:0:2:0
Has IO Port Expander = 1 2:0:2:0
Cell Modem: ME310G1 2:0:2:0
Cell IMEI: 354513593737087 2:0:2:0
SIM ICCID: 89011704324143778011 2:0:2:0
Cell APN: nptesim1.net 2:0:2:0
Cell Carrier: AT&T 2:0:2:0
Cell Modem Firmware: M0C.200005 2:0:2:0
CellSignal: -65 dBm 2:0:2:0
Cell Registration Status: Registered. (1) 2:0:2:0
```

- Added /setcfg/factoryReset=Y (exact case) to allow resetting to factory defaults without needing to reboot with reset button held down.
- **X-432** - SPI driver commands all run from a single thread now. This prevents a condition where Relay commands are not executed correctly.
- Graph Log File page now displays if there are no log entries, instead of showing an error.
- Added a 30 second timer after a firmware update. The system must run for 30 seconds before the new firmware is marked as valid. If the system reboots before this, then the update is ignored.
- Set DNS timeout to 10 seconds for direct connected devices (Ethernet, WiFi) and to 20 seconds for cell retry on DNS.
- syslogip=0 will disable logging to the SYSLOG port
- Fixed missing return in email string to SMTP server. Error was ""Message contains bare LF and is violating 822.bis section 2.3"