



ETH-1000 Version Info

▶ **05.31.2019**

Coprocessor firmware

- V4.003 release
- Updated HTTP server to patch potential CVE-2014-9222 and CVE-2014-9223 vulnerabilities (also known as Misfortune Cookie).
- Fixed issue with BACnet Multistate COV not reporting correct values when database is set to little endian.
- Fixed parsing of Database Logic constant for large values.

▶ **11.26.2018**

Main CPU Firmware

- V5.700 Metasys release
- Fixed issue in Metasys N2 slave driver where COS notifications stop being sent to the master.
- Fixed delays in Metasys N2 COS reporting on high traffic networks.

▶ **01.05.2018**

Main CPU Firmware

- V5.600 Metasys, FLN release
- Added ability to release an object's value to Metasys N2 Master.
- Added ability to release a point's value to Siemens FLN Master.

▶ **09.05.2017**

Main CPU Firmware

- V5.500 Modbus, Generic Serial, DMX-512 release
- Improved timeout detection in Modbus RTU Slave, Generic Serial Slave, and DMX-512 slave drivers to account for receive errors and packets not intended for the device.
- Fixed issue with timeout detection in Modbus RTU Sniffer and Generic Serial Slave drivers where a timeout could take twice as long under certain circumstances.

▶ **03.31.2017**

Main CPU Firmware

- V5.400 Modbus, Generic Serial, DMX-512 release
- Added timeout detection capability to Modbus Sniffer driver.



- Fixed issue with Modbus Sniffer detection of packets with strict 3.5 character gap time.
- Improved Generic Serial ASCII decimal data encoding and detection.
- Fixed issue with Generic Serial Slave ASCII decimal leading spaces for fixed length elements.
- Fixed issue in DMX-512 where receive errors on the first byte of the packet were ignored.
- Fixed issue in DMX-512 where characters with receive errors after the configured length caused the packet to not be processed.

▶ **10.28.2016**

Coprocessor firmware

- V4.002 release
- Fixed issue in BACnet/IP Client where simultaneous write requests would not be serviced.

▶ **09.15.2016**

Main CPU firmware

- V5.300 Generic Serial release
- Added support to Generic Serial driver for handling leading '+' characters for ASCII decimal numbers.

▶ **08.15.2016**

Main CPU firmware

- V5.200 release
- Fixed issue where the serial driver would not detect errors on the first byte of a packet.
- Fixed issues with using the USB Virtual COM port with Windows 10.
- Added support for 7 data bits to the USB Pass-Through Mode.

▶ **06.15.2016**

Main CPU firmware

- V5.100 Generic Serial release
- Fixed issue with Generic Serial drivers where transactions with a large amount of variable sized packet data objects could cause the device to hang.
- Added support for the Database Matched Byte packet data object to Generic Serial drivers.
- Fixed issue where the serial driver would not detect errors on the first byte of a packet.



► 03.01.2016

Main CPU firmware

- V5.000 release
- Added Generic Serial Master protocol.
- Added Generic Serial Slave protocol.
- Added support for Internal Float (ADF), Internal Integer (ADI), and Internal Byte (BD) object types to Metasys N2 Slave.
- Modified Siemens FLN Slave driver's interpretation of non-zero intercept values so that the physical value sent on the network matches the database value for LAI and LAO points.
- Fixed USB connection issue where the device is sometimes not detected by the USB host when plugging in the USB cable to an already powered device.

Coprocessor firmware

- V4.001 release
- Added support for a null PROFINET device name.
- Added NAT support to BACnet/IP BBMD driver.
- Added support for Alerton BBMD devices to BACnet/IP Client, Server, and BBMD

BACnet BTL Changes (IP and MS/TP)

- Enabled support for Device Communication Control.
- Added data type checks to Present Value writes so that only the proper data type is allowed.
- Added support for configurable APDU Timeout.
- Added support for configurable Number of APDU Retries.
- Added support for APDU retries for confirmed requests.
- Made the following device properties network writable: APDU Timeout, Number of APDU Retries, and Max Master.
- Fixed issue with APDU Timeout timer where the timer started before the request was transmitted on the network.
- Added support for the Reliability property in all supported object types.
- Added support for configurable Number of States for Multi-state objects.
- Added support for Offset by One option for Multi-state objects for both Client and Server.
- Changed behavior of Multi-state Objects' Present Value property so that it cannot go outside of the range 1 - Number of States. If the database value is out of that range, the FAULT Status Flag is set and the Reliability will be either Under Range or Over Range.
- Added error code when accessing Priority Array and Relinquish Default properties for virtual objects, because these properties are not supported.
- Added feature to BACnet client to detect if a server device is no longer online and begin transmitting Who-Is requests to it instead of continuing to send read or write requests.
- Removed support for 4800 baud rate, since the BACnet specification states the minimum is 9600.
- Updated Revision to 12.
- Updated Object Types Supported Device object property.
- Fixed Number of States datatype for Multi-state objects.
- Improved error handling and error responses for error conditions when handling all packets.
- Fixed issue with the ReadPropertyMultiple ALL properties for the Device object.



- Corrected the properties reported for ReadPropertyMultiple ALL, OPTIONAL, and REQUIRED for all objects.
- Fixed issue when reading a Device object property using the wildcard instance number where the Object ID in the response used the wildcard instance number instead of the device's actual instance number.
- Fixed NPoll token count from 52 to 50.
- Added password to ReinitializeDevice.
- Fixed issue where device would respond to Confirmed Broadcast Request packets.
- Fixed issue where the device would ignore Data Expecting Reply packets targeted to the broadcast address.
- Fixed issue where the device would not properly ignore packets not for us by adding the Skip Data state to the receive state machine.
- Fixed EventCount handling error in MS/TP Master Node State Machine as described in addendum 135-2004d-8.
- Fixed poll for master to self issue in the DONE_WITH_TOKEN and PASS_TOKEN states.
- Added support to SubscribeCOV for the situation where the Lifetime argument is omitted from the request and should be assumed to be 0 (indefinite lifetime).
- Fixed issue where a COV could be issued after the COV has expired.
- Added support to initiate a COV notification after receiving a subscribe COV request.
- Fixed issue with reading the ACTIVE_COV_SUBSCRIPTIONS property of the device object.
- Fixed issue with reading the DEVICE_ADDRESS_BINDINGS property of the device object.
- Fixed issues with configured Relinquish Default value data type conversion.
- Fixed issue with Subscribe COV requests' Lifetime parameter not supporting the full Unsigned range.
- Fixed error code returned when a Subscribe COV request is received for the Device object.
- Fixed issue with DeviceCommunicationControl Time Duration timer not supporting the full Unsigned range.
- Fixed error code returned when a ReinitializeDevice request is received after a DeviceCommunicationControl DISABLE request is received.
- Fixed issue with COV Increment property's internal "unused" signifier value.
- Set maximum limit on Multi-state Number Of States property so that the internal reserved NULL value cannot be used.
- Added error reporting for BACnet Client when a Diagnostics object is used for Multi-state objects that have an invalid value.
- Fixed implementation of Device Instance wildcard value of 4194303 to be interpreted as if the device instance matches.
- Optimized performance for scenarios where the device is connected to a live BACnet network while powered on.
- Relaxed MS/TP timing parameters to ensure the specified times are never violated.

User's manual version

- 10724 January 1, 2016



▶ 04.01.2015

Main CPU firmware

- V4.100 release
- Fixed issue where received bytes could be dropped during critical sections when the receiver is disabled.
- Changed BACnet MS/TP Client static device destination address limit to 254 to support MS/TP slave-only addresses.
- Added Protocol Format setting for the USB Serial Sniffer Settings protocol.
- Added Network Information which includes IP Address, Subnet Mask, and Default Gateway to the device information shown in the ICC Configuration Studio.
- Fixed issue where USB task may not be running if a fatal error occurs during startup.
- Added error code response to USB communications to prevent pipe stalls.
- Fixed packet corruption issue in USB serial sniffer when sniffer buffer overflows occur.
- Fixed issue with USB Serial Pass-Through mode.
- Improved the check device ready functionality with the ICC Configuration Studio.
- Improved compiler optimizations.

Coprocessor firmware

- V3.022 release
- Modified EtherNet/IP to ignore socket address info items to improve the connection establishment
- Add Inverted, Auto Reset, and Bitmask trigger options to database logic enable triggers.
- Added Bit Copy, Indirect Copy, Flag Test & Set, Value Change Detection, Multiplexer, and Byte Reverse database logic operations.
- Ethernet network configuration settings now return the configured values instead of live values when uploaded by the ICC Configuration Studio.
- Added Network Information which includes IP Address, Subnet Mask, and Default Gateway to the device information shown in the ICC Configuration Studio.
- Improved booting time so that it is no longer dependent on the method used to obtain an IP address.
- Changed IP address acquisition behavior.

GSDML file

- GSDML-V2.0-ICC-ETH_1000-20150210.xml
- Limit the lowest I/O cycle update time to 8ms
- Update the maximum input, output, and total sizes to account for overhead data

User's manual version

- 10724 April 1, 2015

▶ 10.02.2014

Main CPU firmware

- V4.000 release
- Added floating point as a native database data type.



- Added USB Virtual COM Port support.
- Added FLN Master protocol.
- Added Toshiba Computer Link Master protocol.
- Added USB Serial Sniffer Settings protocol to use for packet capturing.
- Added Trigonometric Operations to Database Logic.
- Added Random operation to Database Logic.
- Fixed issue where writing to FLN LDO points fails.
- Added ability to relinquish written values in BACnet Client.
- Removed 0xFF byte pad in BACnet MS/TP packets.
- Improved packet handling for DMX-512 Slave driver.
- Fixed issues in M-Bus Master driver when decoding and encoding string values.
- Fixed issue with device info string displaying extra characters.
- Fixed issue with BACnet which could cause a duplicate packet to be sent 40 bit times after the first.
- Fixed issue in BACnet where the first reply to a poll for master was ignored if the last packet received was a partial packet.
- Fixed issue in Modbus when converting negative 32-bit integer values to floating point.
- Optimized startup order of all tasks.
- Fixed BACnet DeviceCommunicationControl service.
- Corrected BACnet Protocol_Services_Supported Device property flags.
- Added check in Modbus Slave to respond with an exception to requests spanning multiple incompatible register remaps.
- Various code optimizations

Coprocessor firmware

- V4.000 release
- Added floating point as a native database data type.
- Added Trigonometric Operations to Database Logic.
- Added ability to relinquish written values in BACnet Client.
- Added write support for COV Increment property for BACnet Analog objects and added a configuration setting.
- Fixed detection of a dead socket due to a broken Ethernet link.
- Fixed internal update of the MELSEC (MC Protocol) Client configuration to be compatible with the new file format.
- Improved handling and recycling of network resources.
- Fixed issue with INCON client connection.

User's manual version

- 10724 October 2, 2014



▶ **11.20.2013**

Main CPU firmware

- No changes

Coprocessor firmware

- V3.012 release
- Internal compatibility fix.
- Fix handling of database logic filtering operations when the operations are disabled.
- Added support to configure BACnet/IP UDP port.

User's manual version

- 10724 November 20, 2013

▶ **09.27.2013**

Main CPU firmware

- V3.300 release
- Added database logic
- Internal bug fixes.

Coprocessor firmware

- V3.010 release
- Added database logic
- Fixed INCON Client response data overflow

User's manual version

- 10724 July 31, 2013

▶ **05.15.2013**

Main CPU firmware

- Modbus-BACnet V3.100 release
- Added check to Modbus Master to compare received data bytes against the expected number of bytes.
- Metasys-Toshiba V3.100 release
- Fixed issue with Metasys Master writes with VMA devices
- V3.000 release
- Fixed issue in Metasys Slave driver which caused gateway to become non-responsive on some noisy networks.
- Added VMA device support for Metasys Master.
- Added Multi-state object support for BACnet Client and Server.
- Added range checking for writes for BACnet Server.
- Added ability to enable and disable the default mapping for Modbus Slave and BACnet Server.



- Added support for the ICC Configuration Studio.

Coprocessor firmware

- V3.004 release
- Modified the handling of modules after the PROFINET connection is terminated. The modification will improve the compatibility with the PROFINET controller on the subsequent connection.
- Added Generic Socket Client driver.
- Added Generic Socket Server driver.
- Added VeriSens Client driver.
- Added Multi-state object support for BACnet/IP Client.
- Added Multi-state object support for and BACnet/IP Server.
- Added range checking for writes for BACnet/IP Server.
- Added ability to enable and disable the default mapping for BACnet/IP Server.
- Added ability to enable and disable the default mapping for Modbus/TCP Server.
- Fixed Modbus/TCP Server handling of remap objects with a multiplier of 0.
- Relaxed EtherNet/IP Client API (actual packet interval) check.
- Relaxed EtherNet/IP Client multicast address check to accept any valid IP multicast address in the T → O direction.
- Added INCON Client driver.
- Added Green Fume Hood (GFH) Client driver.
- Modified the FTP server to improve Windows Explorer FTP compatibility.
- Removed Ethernet protocol configuration from the embedded web server. All Ethernet configuration will be completed via the Configuration Studio.
- Added support for the ICC Configuration Studio.

User's manual version

- 10724 May 15, 2013

▶ **09.13.2012**

Main CPU firmware

- Metasys-Toshiba V2.400 release
- Fixed issue where ETH-1000 took too long to respond, due to COS checking, when many N2 objects were configured.

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- 10724 April 23, 2012

▶ **04.25.2012**

Main CPU firmware

- Modbus, BACnet V2.500 release
- Added default mapping for BACnet MS/TP Server



- Changed Modbus Sniffer Reflect Status to not update Current Status on TX Counter increments
- Fixed Modbus Slave remap scaling issues
- Improved coprocessor communication

Coprocessor firmware

- V2.330 release
- Increased Modbus/TCP Client max number of connection objects to 16
- Added default mapping for BACnet/IP Server

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- 10724 April 23, 2012

▶ **01.17.2012**

Main CPU firmware

- Chillgard V2.400 release
- A.O. Smith V2.300 release
- Added A.O. Smith AIN and PDNP drivers
- Added support for different types of scaling for the concentration values including new % units in Chillgard
- Added support for more gas types in Chillgard

Coprocessor firmware

- V2.320 release
- Added BACnet BBMD support
- Added EtherNet/IP Client slot, element data type, database data type, and multiplier configurability

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- 10724 January 15, 2012

▶ **08.15.2011**

Main CPU firmware

- V2.300 release
- Added DMX-512 Master and Slave drivers
- Added M-Bus Master driver
- Added function code 05 (Force Single Coil) to Modbus RTU Master driver
- Increased Service Object memory usage
- Fixed FLN response timing issues by caching data from coprocessor

Coprocessor firmware

- V2.300 release



- Added CSP Server logical ASCII addressing for both Typed Read and Typed Write commands
- Improved Modbus/TCP Client packet resynchronization
- Improved MELSEC Client packet resynchronization
- Added MELSEC Server driver
- Reduced max MELSEC client device points to 719 words, due to the 3E batch write command payload limitation
- Added Modbus/TCP Client support for function code 5 (Force Single Coil)
- Fixed directed broadcasts when the subnet mask is set to a value other than 255.255.255.0
- Added PROFINET IO support for timeout processing
- Added EtherNet/IP Server class 1 I/O support for point-to-point (unicast) in the T → O direction
- Fixed MELSEC Client auto-detect to correctly detect 3E frames

EtherNet/IP EDS file

- V2.1
- Updated connection description to support point-to-point (unicast) in the T → O direction

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- 10724 August 15, 2011

► 02.01.2011

Main CPU firmware

- V2.200 release
- Added MSA Chillgard driver
- Added Metasys N2 Master driver
- Added Siemens FLN driver
- Added TCS Basys driver
- Fixed Modbus Master bug when Floating Point is checked and multiplier is 1, the value is now correctly converted as a floating point number
- Improved accuracy of Modbus multiplier scaling
- Updated Metasys Slave driver so that it won't reset the object configuration upon receiving the "F" command
- Fixed Modbus Slave remap object issues

Coprocessor firmware

- V2.200 release
- Fixed BACnet/IP Server response with Device Object character strings. The character set is now correctly set to ANSI X3.4.
- Fixed loading of BACnet/IP Server objects to the webpage when BACnet/IP Server is disabled
- Fixed BACnet/IP Server COVs from deadlocking and preventing the BACnet/IP Server driver from responding
- Fixed CSP Server endianness conversion
- Fixed MELSEC Client bypass request to search only the existing MELSEC connections to prevent index out of bounds error



- Added PROFINET IO support for slots 1 to 8

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- 10724 February 1, 2011

▶ **03.01.2010**

Main CPU firmware

- V2.100 release
- Added Sullair master driver
- Added Modbus sniffer driver
- Added Enron/Daniel 32-bit Modbus extension to Modbus master and slave drivers
- In Modbus RTU slave driver, holding registers and input registers can now be remapped independently, and can have multipliers applied
- Decreased object memory usage for BACnet objects in BACnet MS/TP server driver
- BACnet MS/TP client driver now sends "Who-Is" for all configured destination devices on startup, not just statically bound ones
- Improved efficiency of service object handling in BACnet MS/TP client driver
- Fixed "Poll-For-Master to self" bug in BACnet MS/TP drivers
- Fixed "multiply by 1 rounding" issues
- Fixed bug where master/client protocol would not generate a write after changing a value in the monitor tab of the Configuration Utility

Coprocessor firmware

- V2.100 release
- Added EtherNet/IP client produced tag connection configuration
- Increased range of produce, consume, and configuration connection points for EtherNet/IP client Class 1 message type configuration
- Allow a value of 0 for the produced and consumed byte count for EtherNet/IP client Class 1 message type configuration
- Increased max number of BACnet/IP server objects from 100 to 200
- Added EtherNet/IP client explicit messaging scan rate
- Added BACnet/IP client driver
- Added support for BACnet/IP server "SubscribeCOV" service
- Added MELSEC client scan rate
- Added support for Enron/Daniel 32-bit extensions for Modbus/TCP client and server drivers
- Added Modbus/TCP client scan rate
- Added support for Modbus/TCP server remap register types

User's manual version

- 10724 March 1, 2010



▶ **11.10.2009**

Main CPU firmware

- V2.000 release
- Added Metasys N2 slave driver
- Added Toshiba ASD master driver
- Fixed bug whereby an RS-485 master/client would starve if service objects were mapped from an Ethernet master/client but not in any service objects
- Fixed bug where device info would leave remnants of old device information
- Attempts to write to BACnet binary inputs will now return an error
- Improved efficiency of scanning function for master protocols

Coprocessor firmware

- V2.000 release
- Added EtherNet/IP and CSP client driver
- Added PROFINET IO driver
- Added Modbus/TCP client driver
- Added support for MELSEC 1E frame types
- Removed MELSEC service object data type from "other" device code
- Redesigned web server
- Improved efficiency of scanning function for client protocols

User's manual version

- 10724 October 30, 2009

▶ **07.06.2009**

Main CPU firmware

- V1.000 initial release

Coprocessor firmware

- V1.000 initial release

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- 10724 July 1, 2009