



## RELEASE INFORMATION

Project name		Project No
Anybus X-gateway Modbus-TCP		7029
Software	Software version	Release date
Application	Version 1.09 B	2015-09-14

### Supported hardware:

Firmware can be downloaded to X-gateway ETNM hardware with PCBs marked 1022-1.1.1.

### Compatibility:

### How to upgrade from previous versions:

It is very important that the following steps are performed in the correct order, otherwise the module may be unusable and must be sent back to HMS for recover.

### Firmware upgrade:

#### HMS Firmware Download Tp:

- Start HMS Firmware Download TP of version 2.14 or later and follow the instructions
- Load \*.fwp file depending on X-gateway fieldbus type

### Known limitations:

- **Factory Reset does not always clear entire Network 1 interface configuration** – If settings has been made from network on Network 1, from CANopen for example, a factory reset from within the X-gateway web configuration pages or via firmware download does not clear those settings. To reset such settings a reset must also be made from network, e.g. CANopen. *Internal ID 0006049.*



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### Updated in version 1.09 A:

- New functionality, General
- New functionality, ABX-ETNM-ECTS
- Improved functionality, General
- Bug fixes, General
- Bug fixes, EtherNet/IP
  - Updated ABCC FW from 1.5.3 to 1.14.1 to solve DLR issue. Internal ID: US2371.

### Updated in version 1.08 B:

- New functionality, General
- New functionality, ABX-ETNM-ECTS
- Improved functionality, General
- Improved functionality, CANopen
  - Gateway name changed to “X-gateway Modbus-TCP”
- Bug fixes, General
- Bug fixes, CANopen
  - Configuration file (.eds) for CANopen has valid default values. Internal ID: DE720.

### Updated in version 1.08:

- New functionality, General
- New functionality, ABX-ETNM-ECTS
- Improved functionality, General
  - Added support for new SPI flash type. In SPI firmware loader and application due to end-of-life on previous component. This software package also works on old hardware. Downgrade to old software will not work on new hardware (shipped with 1.8 or greater SW). Internal ID: US1309.
- Bug fixes, General
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### Updated in version 1.07:

#### - New functionality, General

- **Added LED wink functionality** – There is now the possibility to identify the configured module with a LED sequence through the configuration web pages. *Internal ID: 0006419.*
- **Added icon to web site** – A “favicon.ico” file is now available from the web site and should be visible in the web browser’s tab or favourite/bookmark list for easier identification. *Internal ID: 0006660.*

#### - New functionality, ABX-ETNM-ECTS

- **Possibility to configure Device ID, no possibility to configure Station alias** – The possibility to configure the Station alias has been removed. Instead the Device ID can be configured. Default Device ID for old configurations lacking this information is 0 (unset). *Internal ID: 0007499.*
- **Printable version of Mapping Overview no longer opens new window** – The printer friendly version of the Mapping Overview page now opens in the same tab/window as the rest of the configuration pages. *Internal ID: 0007536.*

#### - Improved functionality, General

- **More readable names of static gateway functions on Network 1 side** – The names of “Trans-status”, “Packd W Bits” and “Packd R Bits” have been changed to “Transaction status”, “Packed Modbus write bits” and “Packed Modbus read bits”. *Internal ID: 0007279.*
- **Limit of 1024 bits in each direction now only applies to mapped transactions** – The previous Global Configuration Limit, limiting the number of bits in all bit transactions to 1024 for each direction now only applies to transactions mapped to cyclic I/O. Unmapped bit transactions can contain as many bits as fits within the global limit of 256 bytes in each direction. Therefore the local limits of 1024 bits for Modbus function 1 and 2 has been lifted and is now 2000 (Modbus-TCP maximum). The limit for Modbus function 15 has been increased to 1968 (Modbus-TCP maximum). *Internal ID: 0007439.*

#### - Bug fixes, General

- **Corrected drop down lists in Network 1 configuration pages for IE8** – The drop down lists in the fieldbus (Network 1) specific configuration pages included some JavaScript if viewed with Internet Explorer 8. This bug was introduced in 1.04. *Internal ID: 0007547.*
- **Corrected behaviour of reset bit in Status word** – The reset bit in the status word could be falsely set to 1 at startup, even though the reset bit in the Control word was not set. *Internal ID: 0006813.*
- **Corrected color of Scan time in Mapping Overview** – In the transaction list in the Mapping Overview, the color of the Scan time values were red, but they are now black. *Internal ID: 0007072.*
- **Corrected status code of unconfigured transactions in Transaction status** – The Transaction status previously signalled code 0 (Running OK) for unconfigured transaction indices. They now have the status code 12 (Unconfigured transaction). *Internal ID: 0007254.*
- **Corrected case where X-gateway could end up with FATAL error** – When restoring a large configuration while running a large configuration, the X-gateway could lock up under some circumstances. This scenario has now been secured. *Internal ID: 0007507.*



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- **Corrected case where X-gateway could end up needing to be Factory reset** – Removed case where the X-gateway could be locked up needing a Factory reset. The case was related to adding reserved bit space in a configuration already full with 64 (non-bit) transactions. *Internal ID: 0007511.*
- **Corrected compatibility with Internet Explorer 8** – An issue making it impossible to use Internet Explorer 8 to configure transactions was corrected. The problem was introduced in 1.06. *Internal ID: 0007535.*
- **Corrected validity of HTML pages** – The validity of the web pages has been checked with W3C validator against HTML 4.01 strict. *Internal ID: 0007536.*

### - Bug fixes, ABX-ETNM-DPV1S

- **Made it impossible to create unmapped transaction of larger size than what could be read** – Previously it was possible to create unmapped transactions of any valid Modbus-TCP size. Since the DP-V1 acyclic service implementation of the X-gateway only allows 68 bytes to be read/written, it is now made impossible to create unmapped transactions with more than 68 data bytes. Mapped transactions with more than 68 data bytes are not shown in the Mapping Overview table describing how to access them using acyclic services. *Internal IDs: 0007488, 0007489, 0007564.*
- **Unified table sizes in the Mapping Overview** – All table widths are now equal on the Mapping Overview web page. Table rows for Control/Status slot now have mixed colors. *Internal ID: 0007558.*

### - Bug fixes, ABX-ETNM-PRT\_2PS

- **Software can now be upgraded using Firmware Download TP** – An error in the firmware package of 1.06 made it unusable in combination with the PC tool Firmware Download TP. Version 1.07 is downloadable. *Internal ID: 0007515.*
- **Removed text referring to DP-V1** – On the Mapping Overview page, text was referring to DP-V1. It no longer is. *Internal ID: 0007537.*
- **Unified table sizes in the Mapping Overview** – All table widths are now equal on the Mapping Overview web page. *Internal ID: 0007558.*

### - Bug fixes, ABX-ETNM-CCLS

- **Unified look of rows in the Mapping Overview** – All rows in the Mapping Overview now starts with a white row, then a grey row. *Internal ID: 0007558.*

### - Bug fixes, ABX-ETNM-COPS

- **Corrected EDS file to include new objects used for unmapped transactions** – All static objects used for unmapped transactions have now been added to the EDS file. *Internal ID: 0007598.*

### - Other changes, General

- **Changed short product name** – The short name for the X-gateway, used where the long name is too long, was changed from “X-gateway ETNM” to “X-gateway Modbus-TCP”. This applies to CANopen, EtherCAT, PROFINET and PROFIBUS. *Internal ID: 0006600.*
- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0007497.*



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- **Live-List is now mapped in default configuration** – The Live-List is now mapped to cyclic I/O per default. This change applies to all types of Network 1 except CANopen (where it was mapped before) and CC-Link (where it is still unmapped per default). The change was made in order to always be able to apply the default configuration without modifications. This also solved an issue where the device needed to be Factory reset after setting some network properties using the Anybus IPconfig tool when the ABX-ETNM-DPV1S was previously unconfigured. *Internal ID: 0007512.*



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### Updated in version 1.06:

#### - New functionality, General

- **Added configurable failure action** – X-gateway can now be configured to either Shutdown (default, as before) or Restart in case of an irrecoverable error. *Internal IDs: 0005669.*
- **Added possibility to see MAC addresses on web** – It is now possible to see the Ethernet MAC addresses for both Network 1 (when applicable) and Network 2 (always) on the configuration web site. *Internal IDs: 0005771.*
- **Added support link on configuration web pages** – In the footer on all configuration web site pages there is now a link to <http://www.anybus.com/support>. *Internal IDs: 0006405.*
- **New Error Action: Stop sending data to Modbus server** – There is now a new configurable Error Action for each write transaction; Stop sending data to Modbus server. In case of unavailable I/O data from Network 1, the configured transaction is not sent at all. *Internal IDs: 0006409, 0007435.*
- **Added possibility to see actual TCP/IP properties on web** – It is now possible to see the actual TCP/IP properties IP Address, Subnet mask and Router IP address of the Network 2 side of the X-gateway if configured for DHCP. *Internal IDs: 0006413.*
- **Added possibility to choose if transaction is to be mapped or not** – It is now possible, on a transaction basis, to choose if a transaction is to be mapped or not to cyclic I/O. Default is mapped (as before). Unmapped transactions can only be accessed through parameter (acyclic) access, and can therefore not be used on CC-Link (where only cyclic I/O is available). *Internal IDs: 0006420, 0007260, 0007261, 0007262, 0007263, 0007264, 0007265, 0007299, 0007300, 0007301, 0007302, 0007303, 0007304, 0007367.*
- **Added possibility to choose when a transaction is to start execute** – It is now possible, on a transaction basis, to choose if a transaction is to start execute immediately (as before), or when valid data has been set to the complete transaction from Network 1 (new default behaviour). The data can be set either through parameter (acyclic) access or through cyclic I/O. Old configurations will continue to work as before until this configuration property is changed in the configuration. *Internal IDs: 0007082.*

#### - New functionality, ABX-ETNM-EIP\_2PS

- **Added interface and media counters attributes to the Ethernet Link object** – The Ethernet Link object now supports the interface counter attribute and the media counter attribute. *Internal ID: 0006948.*

#### - Improved functionality, General

- **Removed possibility to do wrong with Write Single Register** – It was previously possible to select several Elements, or Data type UINT32 for the Modbus function code 6 (“Write single register”). Those fields of the configuration web page are now greyed out. *Internal IDs: 0005794.*
- **Made it impossible to set IP address 127.0.0.1** – Setting the IP address 127.0.0.1 (a.k.a. loop back address or “localhost”) on the Modbus Client web page had the effect that the X-gateway becomes unreachable due to the nature of this address. That is no longer possible. *Internal ID: 0005812.*



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- **Removed possibility to set too many elements** – It was previously possible set an illegal number of elements for a transaction, which was later stopped when trying to apply the configuration. It is now impossible to set too many elements in the first place. *Internal IDs: 0005867.*
  - **Cleared up text when applying a configuration** – The text “The X-gateway needs to be restarted for configuration changes to take effect. Go to X-gateway Management page to restart the X-gateway or cancel changes.” was changed to “The configuration needs to be applied for changes to take effect. Go to X-gateway Management page to apply the configuration or cancel changes.”. *Internal IDs: 0006064.*
  - **Maximum length of names of Servers and Transactions are increased** – The names of Modbus Servers and Transactions were previous limited to 12 characters each. They have now been increased to 32 characters each. *Internal IDs: 0006415.*
  - **Names of Servers and Transactions are now named Name** – The names of Modbus Servers and Transactions were previously named Alias. They are now named Name in the configuration web pages. *Internal IDs: 0006417, 0007340.*
  - **Made overhaul of layout of tables on Mapping Overview page** – The layout of all tables of all networks on the Mapping Overview page are now redesigned. *Internal IDs: 0007369.*
  - **Identical transaction names prohibited** – When creating new transactions and servers, they are now given a unique postfix for easier identification in the Mapping Overview and other places. Uniqueness is checked for names given by user. Server names must be unique, transaction names must be unique within that specific server. *Internal IDs: 0006411.*
- Improved functionality, ABX-ETNM-EIP\_2PS
- **Decreased power consumption** – Power consumption has been reduced by switching off unused electronics. *Internal ID: 0006421.*
- Improved functionality, ABX-ETNM-PRT\_2PS
- **Improve broadcast resistance** – If the X-gateway is loaded with large number of broadcast messages on Network 1 it is possible that it gets so occupied by these messages so that it is not able to keep a PROFINET IO connection alive. A mechanism in the firmware has been implemented so that reception of broadcast messages is disabled when a threshold level on the incoming reception buffers has been reached. After a period of 16ms the broadcast reception is enabled again. *Internal ID: 0006892.*
  - **I&M 1-4 enabled as default** – As of PROFINET test specification 2.3 (which will be in effect as of November 2012) I&M 1-4 support will be mandatory. Therefore, the default value for PROFINET IO Object, Instance 1, attribute 16, I&M Supported has been changed from 0 to 001E (I&M1-4 supported). *Internal ID: 0006750.*





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### - Bug fixes, General

- **Removed possibility to read unencrypted configuration** – Under some circumstances it was possible to read an unencrypted version of the configuration file through the HTTP server. *Internal IDs: 0005726.*
- **Default gateway not 0.0.0.0 anymore** – The default gateway when configuring the network properties of the X-gateway was previously 0.0.0.0. It is now set to 127.0.0.1. *Internal IDs: 0006075.*

### - Bug fixes, ABX-ETNM-DPV1S

- **Corrected Mapping Overview** – Made corrections to the Mapping Overview web page. This problem was introduced in and 1.05: Bad byte offset of Live-List. *Internal ID: 0007323.*

### - Bug fixes, ABX-ETNM-PRT\_2PS

- **IOPS for interface/port sub-modules now set to BAD on mismatch** – If a mismatch is found for interface/slot sub-modules the IOPS of the corresponding sub-module is now set to BAD. *Internal ID: 0006749.*
- **Undefined behaviour for “Open UDP socket”** – If the PROFINET stack request to open a new socket, when there are no free sockets available, is received there will be an out-of-bounds situation. This has been corrected so that the array holding the open sockets will not exceed its boundaries. *Internal ID: 0006789.*
- **Bad TCP checksum** – When receiving TCP packets with header checksum FFFFh the module will discard the package. This has been corrected so that the TCP/IP-stack correctly accepts these packages. *Internal ID 0005853.*
- **Out-of-memory situation when using T+H Link** – When running PROFINET IO data, acyclic requests and running vulnerability programs such as QualysSquard or OpenVAS the X-gateway could run out of memory. The amount of memory has now been increased. *Internal ID: 0007311.*

### - Bug fixes, ABX-ETNM-ECTS

- **Fixed bug that prevented errors to be acknowledged on transitions to Init state when the Requesting ID bit was set in AL Control.** This bug was found by version 1.20.62.0 of the conformance test software and has been corrected. The Error Flag will now be reset correctly on transitions to the Init state also when the Requesting ID bit is set in AL Control. *Internal ID: 0006421.*

### - Bug fixes, ABX-ETNM-DEVS

- **Corrected behaviour of No net power error** – The No net power error will now always cause the NS LED to be turned off. Earlier the NS LED could stay red even when net power was lost if a duplicate MAC error existed. *Internal ID: 0006421.*
- **Fix for conformance testability** – Fixed bug found by version A24 of the conformance test software. Earlier it was not possible to change the Watchdog timeout action for explicit server (UCMM) connections. This attribute is now settable also for this connection type. *Internal ID: 0006421.*





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### - Bug fixes, ABX-ETNM-EIP\_2PS

- **ACD now works correctly when DHCP is enabled** – Address Collision Detection works correctly when DHCP is enabled. *Internal ID: 0006421.*
- **Corrected electronic key in Forward open requests** – Corrected validation of the electronic key in Forward open requests. *Internal ID: 0006421.*
- **Corrected problem with speed/duplex in Ethernet Link object** – Fixed problem with device not responding correctly when setting the interface speed/duplex through the Ethernet Link object. *Internal ID: 0006421.*
- **Corrected minor issues with CIP Port object** – Some minor issues with the CIP Port object have been corrected. *Internal ID: 0006421.*
- **DHCP messages not padded** - The DHCP options field wasn't padded to its minimum size, this caused problems for some DHCP servers that then ignored the DHCP frames. *Internal ID: 0007037.*
- **No class 1 IO data produced if no read transactions are mapped** – If no produce data (read transactions) was mapped by the user the module didn't produce any packets on the network if a class 1 connection was established. *Internal ID: 0007216*
- **QoS attribute values used before restart** – Values written to the attributes in the QoS object were incorrectly used before a restart of the module. *Internal ID: 0005395*
- **HW configurable bit not set in configuration capability attribute in CIP TCP/IP interface object** - When a configuration with static IP address was applied, the "Hardware Configurable" bit was not set in the "Configuration Capability" attribute. It now is. *Internal ID: 0007336.*
- **NS LED behaviour on link lost event with active class 1 connection** – If the link was lost to the module while a class 1 connection was established the network status LED did not start flashing red. *Internal ID: 0007333.*
- **Problem with class 1 multicast connections** – When a class 1 multicast connection was closed it was not closed down correct internally. This could result in transports producing no data if multicast connections were opened and closed in combination with point to point connections. *Internal ID: 0007421.*
- **Made Firmware Package downloadable** – Corrected the 1.05.01 FWP file, which was impossible to download to the X-gateway. *Internal IDs: 0007106.*

### - Other changes, ABX-ETNM-DEVS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0006421.*

### - Other changes, ABX-ETNM-ECTS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0004952.*

### - Other changes, ABX-ETNM-PRT\_2PS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0004738, 0004873, 0004971, 0005050, 0005873, 0006285, 0006558, 0006680.*

### - Other changes, ABX-ETNM-EIP\_2PS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0006421.*



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- **Added possibility to produce data on 4 different transports** – It is now possible to produce data from the same assembly instance on up to 4 different transports (multicast or point-to-point). *Internal ID: 0006421.*
- **Updated Connection manager error responses** – Updated Connection manager error responses to match those added in CIP specification Vol1\_3.10. Also added additional error info to rejected connections with bad RPI. *Internal IDs: 0006421.*
- **Removed incorrect get attribute all response from the QoS object** – The get attribute all service is no longer supported for the QoS on the class level. The response was previously incorrect and has therefore been removed. *Internal ID: 0005387.*
- **ACD defend interval updated** – The ACD defend interval has been changed in version 1.13 of Vol2 of the CIP specification from 10 seconds to 2 seconds. This has been updated accordingly in the module. *Internal ID: 0007437.*
- **Changed EDS file to increase compatibility with Rockwell EDS Addon Profiles** – The “Allow Value Edit” bit is now set for all AssemN entries to allow structuring of the assembly data in RSLogix.



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### Updated in version 1.05:

#### - New functionality, General

- **Added printable mapping overview** – A printer friendly version of the mapping overview is now available on the configuration web site. *Internal IDs: 0006412, 0006836, 0006837, 0006838, 0006839, 0006840, 0006841, 0006842, 0006843, 0006844, 0006845.*
- **Added possibility to reset FATAL log** – Using the hidden debug interface it is possible to reset the FATAL log of the gateway. *Internal ID: 0006418.*
- **Added possibility to see Modbus Exception codes** – If a transaction is refused by the Modbus server with a Modbus Exception code, the code can now be seen both on the web (Transaction Monitor) and on Network 1 (by parameter access). *Internal IDs: 0006452, 0006820, 0006821.*

#### - New functionality, ABX-ETNM-ECTS

- **SM type field added to SII.** This allows TwinCAT and other masters to communicate with the ABX\_ETNM\_ECTS without a ESI file. *Internal ID: 0005165.*
- **Added support for “Explicit Device Identification” functionality.** Station alias is now only used by the master, there is no longer any possibility to set configured station alias from the application. Instead a new parameter called “Device ID” has been introduced. The Device ID can be set in the network configuration object by the application. Note that the Device ID uses instance 3 in the network configuration object. It has replaced configured station alias. The EtherCAT master will request the Device ID when necessary, in for example Hot Connect applications. There is no way for the master to change the Device ID. See “Known limitations” in this document, though. *Internal ID: 0006421.*

#### - Improved functionality, General

- **Anybus IPconfig changes are permanent** – When using the Anybus IPconfig tool on the Network 2 interface of the gateway, the changes are now permanent and stored in the internal configuration file. *Internal ID: 0006416.*
- **“Reset” checkboxes on fieldbus configuration pages removed** – Now all configuration items are considered as valid by the choice of the user when the “Save” button is pressed. The checkboxes are therefore not needed anymore, and have been removed for simplicity. *Internal ID: 0006088.*
- **Cleared up Address/register confusion** – Modbus addresses are used directly in the messages and are numbered 0-65535, while Modbus registers are numbered 1-65536. The gateway named them addresses, but numbered them 1-65536. They are now named properly (register/bit, still using range 1-65536). *Internal ID: 0006410.*
- **Included “Error Action” in tables** – The transaction table shown for each server now includes the Error Action field. *Internal ID: 0006997.*

#### - Improved functionality, ABX-ETNM-ECTS

- **Changed abort code.** When SDO 0x1003.0 is written with a value other than zero, the module responded with abort code 0x6090031 (VALUE\_TOO\_GREAT). This has now been changed to 0x6090030 (VALUE\_EXCEEDED) to comply with DS301 specification, and the latest EtherCAT conformance test tool. *Internal ID: 0006421.*

#### - Improved functionality, ABX-ETNM-EIP\_2PS

- **Revision 2 of TCP/IP Interface object** – The revision 2 of the TCP/IP Interface object (0xF5) is now supported. *Internal ID: 0006421.*



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### - Bug fixes, General

- **Corrected Clear/Freeze from Network 2 to Network 1 for bit transactions** – The action Clear from Network 2 to Network 1 did not function properly using the Modbus function codes 1 or 2. This bug was introduced in 1.04. *Internal ID: 0006963.*

### - Bug fixes, ABX-ETNM-COPS

- **Corrected CANopen configuration page** – Corrected an error which made it impossible to configure the CANopen specific properties. This bug was introduced in 1.04. *Internal ID: 0006991.*

### - Bug fixes, ABX-ETNM-PRTS

- **Corrected Mapping Overview** – Corrected an error, introduced in 1.04, preventing the Mapping Overview to work on ABX-ETNM-PRTS. *Internal ID: 0006858.*

### - Bug fixes, ABX-ETNM-DPV1S

- **Corrected Mapping Overview** – Corrected issues, introduced in 1.04, with the Mapping Overview. Bugs were related to having bit transactions configured with a total of less than 16 bits, and with transactions spanning over several slots. *Internal IDs: 0006867, 0006868.*
- **Error code not returned correctly when I&M Read is issued to not supported record** – The Call service (used to read/write I&M records) did not detect and report errors correctly. Error codes should be returned by the Class1 write call that is the first half of the Call service. When issuing a I&M Read this did not happen. An error was not reported until the Class1 read request. This has been corrected. *Internal ID: 0005517.*
- **Profile\_Specific\_Type is incorrect** – The Profile Specific type was reported as F600h, which is invalid. It has now been changed to 0004h (Communication Module). *Internal ID: 0005402.*
- **Incorrect error code when trying to issue Data Transport command** – The “Resource Unavailable” error code was returned when trying to use Data Transport. This has been changed to the error code “Feature not supported”. *Internal ID: 0003838.*
- **Alarm mode in DP-V1 status byte 3 not always checked** – The alarm mode bits were only checked if DPV1\_Enabled (in DP-V1 status byte 1) was set to 1. This has been changed so that the Alarm mode bits are always checked. *Internal ID: 0006463.*
- **Fixed problem in the PROFIBUS I&M state machine** – It shall be possible to poll out an I&M Record twice, without an additional DP-V1 Write between the two Read requests. This was not possible in ver 1.04, which prevented the module from passing PROFIBUS certification. This is now fixed. *Internal ID: 0006514.*

### - Bug fixes, ABX-ETNM-ECTS

- **Fixed “complete access” problems.** Several objects in the SDO range 0x1000-0x2000 did not support “Complete access” properly. This has now been fixed. This improves interoperability with some masters. *Internal ID: 0005169*

### - Bug fixes, ABX-ETNM-DEVS

- **DupMAC failure is not cleared when in auto-baud** - When the module has been set to auto-baud it does not seem like a DupMAC failure event is cleared when one cycles the network power. When using a fixed baud-rate this does not happen. *Internal ID: 0005169*

### - Bug fixes, ABX-ETNM-PRT\_2PS

- **SNMP MIB-II agent could not handle OIDs longer than 17 elements** – When receiving an SNMP request with an OID that was too long (>17 sub-identifiers) the snmp agent would silently fail. This could cause trouble when receiving a get-next-request for the last PNIO OID which has 18 sub-identifiers. The maximum OID length has been increased to 64 to match the LLDP-MIB implementation. *Internal ID: 0006391*



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- **Online/Offline memory leak** – Each time the gateway transits from I/O exchange – No I/O exchange – I/O exchange a number of memory blocks are lost. Eventually this will cause the module to generate a fatal error, due to no available memory. *Internal ID: 0006547*
- **TCP Connection improperly closed when operating via a DHCP Relay Agent** – The operation when renewing an IP address via a DHCP Relay Agent wasn't correct. The X-gateway tried to send the DHCP renew directly to the DHCP server on Network 1 by putting in an invalid rout in the routing table. Fix has been added to correct this issue. *Internal ID: 0006155*

### - Other changes, General

- **Maintenance changes of code** – Internal code maintenance. *Internal IDs: 0006818, 0006872.*
- **Maintenance changes of common code NVS** – Updated common software component from 1.04.03 to 1.07.03. *Internal IDs: 0005519, 0005663, 0005665, 0006870, 0006962.*
- **Maintenance changes of common code TCP/IP** – Updated common software component from 1.07.01 to 1.08.03. *Internal IDs: 0006871.*
- **Maintenance changes of common code FATFS** – Updated common software component from 1.01.01 to 1.03.02. *Internal IDs: 0006873.*
- **Maintenance changes of common code HMS OS** – Updated common software component from 1.36.01 to 2.03.01. *Internal IDs: 0005494, 0006427, 0006469, 0006546, 0006590, 0006613, 0006614, 0006615, 0006869.*

### - Other changes, ABX-ETNM-ECTS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0004952, 0006050, 0006593.*

### - Other changes, ABX-ETNM-DPV1S

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0006511.*

### - Other changes, ABX-ETNM-EIP\_2PS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0006421.*

### - Other changes, ABX-ETNM-PRT\_2PS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0005432.*

### - Other changes, ABX-ETNM-DEVS

- **Maintenance changes of common code** – Internal code maintenance. *Internal IDs: 0004977.*



## RELEASE INFORMATION

Project name

Anybus X-gateway Modbus-TCP

Project No

7029

Software

Application

Software version

Version 1.09 B

Release date

2015-09-14

### Updated in version 1.04:

#### - New functionality

- **Added functionality for coil transactions** – Functionality has been added for reading and writing coils (bits) on the Modbus-TCP side. Each bit from the fieldbus side is now usable in a COIL transaction. E.g. one byte Profibus data is available for 8 different COIL commands on Modbus-TCP. Internal IDs: 0006404, 0006505, 0006506, 0006507, 0006504, 0006642, 0006520, 0006523, 0006530, 0006527, 0006521, 0006526, 0006529, 0006522, 0006524, 0006528, 0006525, 0006531, 0006674, 0006718, 0006755, 0006730, 0006733, 0006732, 0006672, 0006769 and 0006532.
- **Added functionality for triggering transaction on data change** – Functionality has been added for triggering a transaction on a data change event. Internal IDs: 0006407, 0006663, 0006661, 0006769 and 0006662.
- **Added functionality for using safe values** – Functionality has been added for setting safe value to be used when data from Network 1 is invalid. Individual safe values can be defined for each transaction. Internal IDs: 0006406, 0006794, 0006780, 0006777 and 0006778.
- **Added functionality for viewing absolute byte addressing in mapping overview** – Functionality has been added for viewing the absolute byte addressing on the mapping overview web page. Implemented for the following fieldbuses: ControlNet, DeviceNet, EtherNet/IP, EtherCAT, PROFINET and PROFIBUS. Internal ID: 0006414.
- **Added functionality for viewing transaction name in the mapping overview** – Functionality has been added for viewing the transaction name as a tool tip when the mouse pointer is hovering over the graphical mapping overview. Internal ID: 0006610.

#### - Improved functionality

- **Improved functionality for Network 1 error handling** – Functionality has been added for defining individual error actions for each transaction when data from Network 1 is invalid. Previously, error action was a global setting applied to all transactions. Internal IDs: 0006408, 0006784, 0006795, 0006787, 0006773, 0006774 and 0006794 and 0006731.

#### - Bug fixes

- **Fixed wrong criterion for rebooting via control word** – Reboot of the gateway was triggered by a high value for bit 1 in the control word, whereas the specification states that reboot should be triggered by a 0 → 1 transition of this bit. Internal ID: 0006082.
- **Fixed wrong configuration properties written to ABCC on ABX-ETNM-EITS gateway** – The two configuration properties "Modbus connection timeout" and "Process active timeout" were not correctly written to the ABCC during the apply procedure. The result was that the properties that they control were not working correctly. Internal ID: 0006676.
- **Fixed error in mapping overview for PROFINET** – The mapping overview for PROFINET listed each transaction as occupying one word, regardless of the actual size of the transaction. Internal ID: 0006609.
- **Fixed inconsistent range markings in Mapping Overview for CANopen** – The range markings for the live list “..” differed from that of other ranges “...”. Internal ID: 0006073.
- **Fixed failure to download firmware package for Modbus-TCP** – The fwp file for Modbus-TCP could not be downloaded due to incompatibility with the current version of Firmware Download TP. Internal ID: 0005903.
- **Fixed validation of configuration parameters for EIT** – The “Modbus connection timeout” and “Process active timeout” configuration properties were not properly validated. Internal ID: 0006731.



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### Updated in version 1.03:

#### - Bug fixes

- **Removed “Reset checkboxes” from CANopen** - As CANopen uses NCO instance 1 & 2 for network configuration the values are always set on the ABCC at start up, no need for checkboxes to force values from configuration file on the ABCC. Internal ID: 0006048.





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### Updated in version 1.02:

#### - New functionality

- **Added support for ControlNet** – Functionality has been added for ControlNet as Network 1. Internal ID: 0005828.
- **Added support for PROFINET** – Functionality has been added for PROFINET RT as Network 1. Internal ID: 0005825.
- **Added support for CANopen** – Functionality has been added for CANopen as Network 1. Internal ID: 0005829.
- **Added support for Modbus/TCP** – Functionality has been added for Modbus/TCP as Network 1. Internal ID: 0005831.
- **Added support for Modbus-RTU** – Functionality has been added for Modbus-RTU as Network 1. Internal ID: 0005830.
- **Added support for EtherCAT** – Functionality has been added for EtherCAT as Network 1. Internal ID: 0005827.
- **Added support for CC-Link** – Functionality has been added for CC-Link as Network 1. Internal ID: 0005826.
- **Added Transaction monitor** – Functionality has been added for monitoring of transaction data exchanged with Modbus-TCP slaves on Network 2. The monitor web page can be accessed from the left hand side menu. Internal ID: 0005842.
- **Added support for Easy module replacement** – Functionality has been added for automatic backup/restore using SD card allowing for Easy module replacement. Internal ID: 0005824.

#### - Improved functionality

- **Reference to bit in Live-List added** – In the Transaction Monitor, on the left hand side of the web page, a reference to the Live-List bit is shown for each configured transaction. This makes it easier for the user to determine which transaction that belongs to which bit in the Live-List. Internal ID: 0005514.
- **Confirm dialogs added on web page** – When clicking the Apply, Reboot, Cancel changes and Factory reset buttons on the Management page no confirm dialog was displayed before the action was executed. The same behaviour was observed when clicking the Restore button on the Backup & Restore page. Confirm dialogs have now been added. Internal ID: 0005847.

#### - Bug fixes

- **Fixed issue with too small ARP table** – The ARP table had place for 8 entries which probably would lead to serious problems when running with more than 8 Modbus servers with different IP addresses. The ARP table was increased to 72 'IP-MAC address' entries. Internal ID 0006017.
- **Fixed issue with discarded Modbus messages** – It was observed that Modbus responses sometimes were inadequately discarded by the X-gateway due to bad TCP checksum. Internal ID 0005853.
- **Fixed EtherNet/IP configuration issue** – Third byte of subnet mask is always shown as '255' on the Ethernet/IP configuration web page. This is a compiler related issue that is under investigation. A workaround has been implemented. Internal ID 0005910.
- **Fixed PROFIBUS Mapping overview issue** – When the Modbus configuration contains a transaction that is split across adjacent slots, the detailed slot information in the Mapping overview was not shown correctly. Internal ID 0005858.



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- **Removed unnecessary delay at start-up** – At start-up, when the configuration is checked for validity, there was an unnecessary delay for every verified transaction. With a full configuration the start-up time will be shortened by approximately 320 ms. Internal ID 0005864.
- **Fixed issue with file closing** – The encryption/decryption functions did not look for error when closing files. This can arise in a dangerous situation where a file appears closed even if it is not. Internal ID 0005846.
- **Fixed issue with wrong data size returned for Set Indexed Attribute commands** – The Application data object returns the same amount of data as was sent in the Set Indexed Attribute command. There is no known real world problem related to this bug. Internal ID 0005870.
- **Fixed issue with process data buffers did not get initialized** – The internal buffers holding read-/write process data were not cleared (0) at power-on. Process data could contain rubbish after power-on. Internal ID 0005869.
- **Fixed issue with ABCC message starvation** – If the ABCC module mounted on the X-gateway base board responds too quick on messages sent by the ABCC software driver, the driver will always be busy handling ABCC message responses. This means that the driver might not react on high priority messages like the ABCC reset message. Internal ID 0005861.
- **Fixed issue with wrong default word order for Modbus transactions** – The default value for byte/word order in the Modbus transactions are "Byte Big Endian, Word Big Endian". Since the default word order for ABCC-EIT, which is configurable through NC instance, is Little Endian (byte order is always big endian), and the word order for ABCC-RTU (which is not configurable) is Little Endian, things get complicated.  
Based on this fact the default value for byte/word order is changed to "Byte Big Endian, Word Little Endian". Internal ID 0005837.
- **Fixed issue with web server sends incorrect cache-control header fields** – The web server did not send correct enough cache-control headers for javascript and CSS fiels to be re-validated, instead Internet Explorer interprets the response as cashable , which results in problems for the user after a firmware upgrade that changes javascript or css. The user had to use Ctrl+F5 repeatedly to erase Internet Explorers cache and get correct behaviour on the web pages. Internal ID 0005845.

### - Other changes

- **HICP disabled for Network1 (ABCC) and configuration option removed from web page** – In previous version both Network2 (Modbus-TCP) and Network1 (ABCC) supports HICP. But since HICP worked differently on the two network sides it was decided to disable HICP for Network1. The HICP interface on Network1 worked in a persistent way, while Network2 did not. Internal IDs 0006008 and 0005724.
- **Format of configuration file name** – When doing a backup of the configuration on the web page the default file name was in upper case format (e.g. X-GW0005.CFG). The file name is changed to lower case format (x-gw0005.cfg). Internal ID: 0005866.
- **Internal ADI range rearranged** – This update allows for easier acyclic access of ADIs when using a SIEMENS PROFIBUS PLC. On some PLC's slot 0 is not easy to address when making DPV1 accesses. Note! Acyclic access of ADIs is not officially released and is not described in the user manual. Internal ID: 0005816.
- **Ability to fetch Control word and write transactions acyclically** – It was not possible to read Control word and write transactions (direction fieldbus to X-gateway) using acyclic access. This feature was added since the functionality of the CANopen version of the X-gateway (and possibly other fieldbuses) would greatly benefit from this possibility. Internal ID: 0005871.



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### Updated in version 1.01:

- First official release

*Bugs that are found in this software release should be reported back to HMS support department.  
Report product, software version, configuration, how to reproduce behaviour, and the effects of  
the bug.*