



RELEASE INFORMATION

Project name		Project No
Anybus X-gateway CANopen master		7099
Software	Software version	Release date
Application	Version 2.02 Build 01	2013-09-04

This release contains:

- This document
- Firmware packages
 - APP_X_GATEWAY_COPM_CANOPEN_V_2_02_01.fwp
 - Anybus-S CANopen V 4.63 Build 01
 - APP_X_GATEWAY_COPM_CONTROLNET_V_2_02_01.fwp
 - Anybus-S ControlNet V 1.54 Build 01
 - APP_X_GATEWAY_COPM_DEVICENET_V_2_02_01.fwp
 - Anybus-S DeviceNet V 2.06 Build 01
 - APP_X_GATEWAY_COPM_ETHERCAT_V_2_02_01.fwp
 - Anybus-S EtherCAT V 2.03 Build 01
 - APP_X_GATEWAY_COPM_ETHERNET_IP_2PORT_V_2_02_01.fwp
 - Anybus-S EtherNet/IP 2Port V 1.07 Build 02
 - APP_X_GATEWAY_COPM_MODBUS_RTU_V_2_02_01.fwp
 - Anybus-S Modbus RTU V 1.05 Build 01
 - APP_X_GATEWAY_COPM_MODBUS_TCP_2PORT_V_2_02_01.fwp
 - Anybus-S Modbus TCP 2Port V 1.07 Build 02
 - APP_X_GATEWAY_COPM_PROFIBUS_V_2_02_01.fwp
 - Anybus-S PROFIBUS V 4.08 Build 02
 - APP_X_GATEWAY_COPM_PROFINET_IO_V_2_02_01.fwp
 - Anybus-S PROFINET IO V 5.06 Build 01
 - APP_X_GATEWAY_COPM_PROFINET_IRT_V_2_02_01.fwp
 - Anybus-S PROFINET IRT V 3.24 Build 01
- Configuration files
 - General CANopen
 - X_GATEWAY_COPM_V_1_07.eds
 - PROFIBUS
 - HMSB1836.GSD
 - CANopen
 - X_GATEWAY_COPM_CANOPEN_V_1_05.eds
 - DeviceNet
 - 005A000C00310200.eds
 - ControlNet
 - 005A000C00330200.eds
 - EtherNet/IP
 - 005A000C00320200.eds
 - EtherCAT
 - X_GATEWAY_COPM_ETHERCAT_V_2_02.xml
 - PROFINET IO
 - GSDML-V2.2-HMS-X_GATEWAY_COPM_PROFINET_IO-20130904.xml
 - PROFINET IRT
 - GSDML-V2.2-HMS-X_GATEWAY_COPM_PROFINET_IRT-20130904.xml



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Reason for release:

Bug fixes, see update log.

Supported hardware:

Firmware can be downloaded to Anybus CAN CB hardware with PCBs marked 1019-1.X.X.

How to upgrade from previous versions:

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

Firmware upgrade with Firmware Download TP:

1. Connect the carrier board to a PC with a USB cable.
2. Start Firmware Download TP.
3. Choose "Anybus X-gateway CANopen master" as interface.
4. Choose correct COM port as path.
5. Load the firmware package file for the correct fieldbus that is mounted on the carrier board.
6. Press the "start" button.
7. Power cycle the carrier board.
8. Wait until the download has finished.

Updated in version 2.02:

- New functionality

- Improvements

- Bug fixes

- **EtherNet/IP**

- **Type 1 reset** – Now properly resets the EtherNet/IP parameters in the fieldbus interface as well as the CANopen objects to factory default values.
- **Improved value check of Multicast configuration attribute** – The Multicast configuration attribute (attr9) in the TCP/IP Interface object did not accept Alloc control to be set to 0 when Num Mcast and Mcast Start Addr is set to 0. Also it did accept Alloc control to be set to 0 when a valued Num Mcast and Mcast Start Addr which it shouldn't. Internal ID#0009237



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Updated in version 2.01:

- New functionality

- **EtherNet/IP**
 - **Exact I/O match** – A new EtherNet/IP specific CANopen object has been added. This “Enabled/Disabled” -option may restrict the EtherNet/IP interface to only accept I/O connections of the exact same size as configured in the 0x3000 & 0x3001 objects.

- Improvements

- **EtherNet/IP**
 - **Update of ACD in TCP/IP stack** – The ACD functionality in the TCP/IP stack has been updated to support revision 3 of the CIP TCP/IP Interface object. This includes support for semi-probing and updated timing constants. Internal ID: 0005546, 0007457
 - **Revision 3 of CIP DLR object** – The CIP DLR object has been updated to support revision 3 of the DLR object. This includes two new bits defined in attribute 12, capability flags, and an updated response to the Get_Attribute_All service.
 - **Support for new DLR frames** – The module can now handle the new DLR frames introduced in the CIP specification Volume 2 Edition 1.14. This includes handling the Flush_Tables frame, transmitting Learning_Update frames, forwarding Learning_Update frames and Advertise frames from other modules.

- Bug fixes

- **EtherNet/IP**
 - **Disabled hidden IP address DIP switch** – The DIP switch hidden under the ABC housing is now disabled. Also, the configuration capability attribute of the TCP/IP Interface object no longer indicates that IP settings may be obtained from hardware: 0008781.
 - **Quality of Service object attribute 4-8 returns wrong values** – The module did not return values previously set with the Set_Attribute_Single service when a Get_Attribute_Single service was received. The values returned were the currently used ones. Also the values stored in NV memory were read at start up but they were not written to the QoS object. Internal ID: 0008552, 0008556.
 - **Line termination errors when storing ethcfg.cfg** – When storing new values to the configuration file there were missing line terminations after one configuration value and too many line terminations after another configuration value. Internal ID: 0008612.
 - **Failing DLR ring mode when 2 supervisors are present** – The cause of the problem was that the switch did not manage the bi-directional DLR beacon frames that were transmitted by the supervisor. The switch will now be configured to forward packets addressed to the supervisor’s MAC address to both ports. Internal ID: 008961.
 - **QoS and other settings are 0 if Ethernet settings are used** – When Ethernet settings are used in the ABC-CAN configuration, QoS and ACD settings were not read from the NV configuration upon initialization. Internal ID: 0008910.
 - **Uses the sequence id from the last received Announce frame incorrectly** – The module incorrectly used the stored sequence id of the last DLR announce frame



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when transmitting DLR frames. A new sequence id counter has been added to be used when it transmits DLR frames. Internal ID: 0009098.

• PROFINET IRT

- **Configured Station Name not cleared when setting non-permanent Station Name** – When the commissioning tool is setting a temporary Station Name the intention is that the module should clear any previously stored Station Name. This is likely not a problem in real-world applications as there are, as far as is known, no tools setting temporary station names. During conformance testing this is tested though, and there might be tools in the future using this functionality. This has been corrected so that when a temporary station name is used any previously stored station name will be cleared, and at next start-up there will be no station name in use. *Internal ID: 0008009.*
- **Potential certification issue with UDP port number in connect response and End point mapper** – When receiving a request to read the “End point mapper” the Anybus module would respond to this request with incorrect port number (the port number which is specified with PROFINET IO specification 2.2). As of PROFINET IO specification 2.3 the port number should be 0xC000 instead.
There are no practical consequences of this issue to the end user, apart from PROFINET IO conformance test.
This bug has been corrected by an override to change the default dynamic port to 0xC000 when using bind. (*see issue 0007525*)
- **Conformance test issue - Shared Device** – With PROFINET IO it is possible for two (or more) IO Controllers to control different part of a devices’ output data – this is called Shared Device. As of version 3.04 this has been supported in the Anybus module. However, this functionality has not been fully supported internally and the Anybus interface towards the host application cannot handle this kind of situation, thus the number of AR:s has been decreased from 2 to 1.
For existing applications there should be no consequence as this functionality has never been usable. If an IO Controller would open up a Shared Device connection it would now be denied to do so. (*see issue 0007732*)
- **DCP Signal "Flash once" is not implemented according to PROFINET IO spec** – During installation it is possible to use the DCP Signal functionality to identify PROFINET IO devices on the network. When sending this request to the Anybus module it will display incorrect LED-sequence, compared to the PROFINET IO specification. The displayed LED-sequence of the Module Status LED is documented in the manual, thus there should not be a real world problem.
This bug has been corrected by changing the blink frequency to 1 Hz. (*see issue 0007804*)
- **There is a race condition in the time out handling in the SNMP implementation** – When an SNMP request is received and it cannot be handled by the PROFINET IO stack it is forwarded to the VxWorks operating system. When the PROFINET IO stack is waiting for the response from the VxWorks operating system there is a race condition if the response comes very close to a set timeout time. When this happens a fatal error (that is, the Anybus module will stop execution and leave the network, switch will be disabled) is triggered and the execution is stopped. This means that any on-going PLC communication will be interrupted until the Anybus module has been re-started and re-initialized. Modules connected to the Ethernet switch of the Anybus module will lose their link and communication going through the Anybus Ethernet switch.
The race condition has been eliminated and a fatal error will no longer be thrown in cases where the response and the timeout are given triggered in close proximity.
- **Irregularities between the File System’s 8kB Used Sector Field and the 4MB File System Memory** – One error related to this problem causes the file system to loose space after a firmware upgrade (*see issue 0006967*). If this error occurs, simply restart ABS-PIR and CheckDisk will correct this error. Other errors which are corrected by CheckDisk are related to irregularities between the File System’s 8kB Used Sector Field and the 4MB File System Memory. In some cases data was found on the Flash memory while it was supposed



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to have been deleted or the file system was referring to data blocks which were in fact already empty. Such irregularities may occur when turning off the power while data are deleted from the Flash memory or when data are written to the Flash memory, and these errors are corrected by the CheckDisk function.

• PROFINET IO

- **Device sends too many cyclic telegrams** – If the IO controller stops sending cyclic telegrams (for example if the cable is cut) then the module might send too many cyclic telegrams (3-6 cyclical telegrams are allowed) before the watchdog of the PROFINET IO time out. This bug does not cause any actual problem for the device, and the problem is only detected if a pre-conformance test is run. Therefore, upgrading from a previous firmware version isn't necessary unless you want to pass a related pre-conformance test. *Internal ID: 0008578.*
- **Configured Station Name not cleared when setting non-permanent Station Name** – When the commissioning tool is setting a temporary Station Name the intention is that the module should clear any previously stored Station Name. This is likely not a problem in real-world applications as there are, as far as is known, no tools setting temporary station names. During conformance testing this is tested though, and there might be tools in the future using this functionality. This has been corrected so that when a temporary station name is used any previously stored station name will be cleared, and at next start-up there will be no station name in use. Internal ID: 0008007.
- **Potential certification issue with UDP port number in connect response and End point mapper** – For End point mapper “lookup responses”, the UDP Port now uses a value in the range from 0xC000 to 0xFFFF. Internal ID: 0007527.
- **DCP Signal "Flash once" is not implemented according to PROFINET IO spec** – Implemented the DCP Signal "Flash once" according to the PROFINET IO spec (module status LED green 1Hz). Internal ID: 0007814.
- **IOPS for interface/port sub-modules not set to BAD on mismatch** – IOPS for Interface/Ports have been corrected to be set to BAD in case of a mismatch for the configuration. Internal ID: 0006744.
- **Incomplete code to detect 4ms cycle time in controller cut-off detection** – When commissioning the IO Device to be using, for example, 4ms cycle time with a send-clock of 2ms the module would sometimes incorrectly drop the IO connection. Internal ID: 0007298.
- **Bad TCP checksum** – The TCP checksum error was corrected. Internal ID: 0006569.
- **Pad DHCP frames to 312 bytes** – Changed so DHCP options field always is padded to maximum size of 312 bytes in frames sent. This is to be compliant against legacy DHCP server implementations. Internal ID: 0007827.
- **PROFINET interface is not started if Station Type is set to 31 chars** – The maximum station type length was set to 31 chars + null = 32, allowing the PROFINET interface to be started properly. Internal ID: 0005879.
- **Error regarding fault codes reported by conformance test lab** – The “Read response, Error” from Index 0x802a now shows “invalid index” instead of incorrectly “Invalid sub-slot”. Internal ID: 0007857.



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Updated in version 1.03_D:

- Improvements

- **Name of DAP in GSD-files** – With some commissioning tools the different access points of the Device (the so called DAP's, Device Access Point) are not displayed correctly. The consequence of this is that it might be hard, or not possible, to choose the correct access point. To improve the situation the name of the different DAP's have been renamed to have unique names so that it is easier to choose the correct one.

- Bug fixes



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Updated in version 1.03_C:

- Improvements
 - **ACM CanOpen** – Improved compatibility with ACM CanOpen.
- Bug fixes

*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.*