Welcome to ABB Automation Builder 2.4.1 HF1

These release notes contain important information about the Automation Builder software.
Please read this file carefully and completely. It contains the latest information and relevant documentation.
The latest version of this document is available at:
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Most important changes of Automation Builder 2.4.1 HF1

PLC - AC500 V3 Processor Modules (PM5xyz)

- Improved version of AC500 V3 firmware, fixing the issue that in some rare case the AC500 V3 PLC might go into stop after doing online changes.

Most important changes of Automation Builder 2.4.1

PLC - AC500 V2 Processor Modules (PM5xy)

- Hotswap: If properly configured, missing hotswap terminal units are detected for Modbus TCP and Profinet

PLC - AC500 V3 Processor Modules (PM5xyz)

- Availability of AC500 V3-eCo
  - CPUs: PM5012, PM5032, PM5052 and PM5072
  - Option boards
    - Digital inputs and outputs: TA5101-4DI, TA5105-4DOT, TA5110-2DI2DOT
    - Serial interfaces: TA5141-RS232I, TA5142-RS485, TA5142-RS485I
    - Realtime clock (Basic only): TA5131-RTC
    - KNX button: TA5130-KNXPB
  - Target change across all V3 CPUs
- Selectable priority schemas for optimizing runtime performance
- Extended communication
  - BACnet-MS/TP (PS5607-BACnet-BC)
  - Support of network time protocol (NTP)
  - Ethernet/IP onboard: Adapter and scanner (PS5613-ETHIPa and PS5613-ETHIPs, technology preview)
- Availability of motion library (PS5611-MC)
- Availability of I/O device AC522
- Information about AC500 V3 resource usage
- Diagnosis system: Access to diagnosis history
- Hotswap: If properly configured, missing hotswap terminal units are detected for Modbus TCP and Profinet

Panel Builder

- Integration of Panel Builder V4.0.1 with improved features

Drives

- Integration of Drive composer pro V2.6.0

Most important changes of Automation Builder 2.4.0

Automation Builder:

- Installer: Installation of selected previous version profiles without need for installing intermediate version profiles
- End-of-service-life for Pluto integration and Modbus open device
  - Features are still available
  - No maintenance, no guaranteed functionality
  - Features will be removed with Automation Builder 2.6
  - Features will still be available in previous version profiles
- Project import with project compare (premium feature)
  - Additional option for project import showing a difference view of the import result compared to the original project
- Improved Python script support (premium feature)
  - Re-work of Python editor
  - Including state-of-the-art editing with syntax highlighting, intellisense, etc.

PLC - AC500 V3 Processor Modules (PM5xyz)

- Full availability of all AC500 V3 CPUs
  - Including PM5630 and PM5650
  - Improved performance and feature scaling
- Diagnosis system
  - Complete handling of Profinet diagnosis via the AC500 V3 diagnosis system
- Configurable automated reboot behavior after short voltage dip
- SD Card for creating a boot application
  - Including all required files for web visualization

General information

- **Standard and Premium license of Automation Builder 1.x will not be valid for Automation Builder 2.x For Automation Builder 2.x standard and premium features appropriate licenses need to be purchased and activated**. Please check the upgrade licenses possibilities with your ABB sales representative. For details please refer to Automation Builder lifecycle documentation in ABB Library or contact your sales representative.
- The installation of the ABB Automation Builder software requires administrator rights.
- Prior to installation, the Automation Builder, Control Builder Plus, CODESYS software and the CODESYS Gateway Server must be shut down.
- Automation Builder 2.4 installation completely replaces installed versions of Automation Builder prior to 2.4.0 / Control Builder Plus. Side-by-side installation of Automation Builder and Control Builder Plus is not supported, but also not required. Projects created with previous versions can be upgraded to the latest version easily. If upgrading is not desired, projects can be opened in one of the integrated version profiles.
- Automation Builder 2.4 creates a new device repository. Devices which had been installed additionally in previous versions of Automation Builder/Control Builder Plus can be migrated via menu “Tools” → “Migrate third party devices”.
- The English documentation contains the latest changes for Automation Builder 2.4. Latest documentation packages can be found on the ABB website: www.abb.com/plc → Download Documentation, and then select your language.
- Automation Builder 2.4 includes CODESYS version 3.5 and 2.3. Side-by-side installations of other CODESYS version 2.3 based engineering tools like AC1131 may cause issues or disturb the use of one or both tools. If side-by-side installation cannot be avoided, please install all other tools BEFORE installing Automation Builder.
- Windows Server installations: CoDeSys V2.3 Gateway Service Wrapper or server restart required after installation. For concurrent Gateway access a specific configuration is required, please refer to Automation Builder help for details
- When installing CP600 control panel option including previous version profiles, the Panel Builder installer asks for replacing the last installed version of Panel Builder. This question has to be answered with “no”. In case of accidently choosing “yes”, the installer has to be executed again, although it has been finished successfully.
- Please create project archives (File -> Project Archive -> Save/Send Archive…) to support smooth project upgrade to latest Automation Builder version before installing latest version
- After upgrading projects to latest Automation Builder, please check for having the matching firmware installed before doing a download.
- Availability of online activation of licenses might be affected by local IT security settings. In case the online activation of licenses is failing please use the offline activation.

System Requirements

- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor
- 8 GB RAM
- 5-18 GB free available hard disk space depending on the selected feature set
- Supported operating systems:
  - Windows 10 (32/64 Bit) Professional / Enterprise
  - Windows Server 2012 R2 64 bit (all devices have to be directly accessible by the server; requires enabled .Net Framework 3.5)
  - Windows Server 2019 (all devices have to be directly accessible by the server; requires enabled .Net Framework 3.5)

  Note: Windows 7 is no longer supported.

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Changes in Automation Builder 2.4.1

The release includes the following device groups:

Automation Builder

Functional changes / New features	***Version***
Performance improvements on the message window	2.4.1
Installer: Installation of selected previous version profiles without need for installing intermediate version profiles	2.4.0
End-of-service-life for Pluto integration and Modbus open device: • Features are still available • No maintenance, no guaranteed functionality • Features will be removed with Automation Builder 2.6 but still be available in previous version profiles	2.4.0
Project import with project compare (premium feature): Additional option for project import showing a difference view of the import result compared to the original project	2.4.0
Improved Python script support (premium feature) • Re-work of Python editor • Including state-of-the-art editing with syntax highlighting, intellisense, etc.	2.4.0

Known problems	***ID***
Licensing: Number of standard or premium licenses that are purchased 2018 and earlier that can be activated in one license container is limited to 4 Workaround: use license dongle if more licenses are required or contact Automation Builder support to update the licenses (refer to new features)	n.a.
The Python script editor does not support multiple user on Windows Server at the same time Workaround: not available	AB-19210
In case the Python script editor remains blank and can't be edited please check for parallel running Node.js processes in Task Manager which are not supported. Workaround: Please close all running Node.js processes and reopen the Python script editor	AB-18720
Installation issue on Windows 10: During installation there might be issues with automatically deleted files by Windows in temporary folders which are required for installation. This automatic temporary file deletion is introduced with Windows 10 feature update (build 17720 and later). Workaround: if you run into installation issues on Windows 10 please try to disable "Storage Sense": Windows -> Open Settings -> Click on System -> Click on Storage -> Turn off the Storage sense toggle switch	AB-15979
Automation Builder installation: In case a PC reboot is required/executed during Automation Builder installation the setup might have to be restarted manually after PC restart. Workaround: Please start the setup after restart and select the desired options to install. The setup will then continue the installation where it has been interrupted for reboot	n.a.
GSDML: The character "/" used inside a module name of a GSDML file is not supported by Automation Builder. An error message is shown during installation to Device Repository. Workaround: Remove corresponding characters in module name of GSDML file.	AB-13924
Projects created in Control Builder Plus software versions cannot be upgraded automatically to Automation Builder version 2.1.X. Workaround: • open project with profile "Automation Builder 1.2", perform upgrade, save project • open project with latest profile "Automation Builder 2.0", perform upgrade, use project	n.a.
ABB I/O mapping list view for disconnected modules on PROFINET IO devices with Shared Device functionality like AC500 CM589-PNIO-4 (-XC) or 3rd party PROFINET IO devices (drives, I/O modules, encoders, etc.) is temporarily not supported. As a result, no I/O mapping information is shown for disconnected modules on CM589-PNIO-4 (-XC) or 3rd party PROFINET IO devices with Shared Device functionality in Automation Builder. Workaround: • use standard I/O Mapping for disconnected modules on CM589-PNIO-4 (-XC) or 3rd party PROFINET IO devices with Shared Device functionality	2.0.3
During uninstall all of Automation Builder the Virtual Drives uninstallation might fail Workaround: Please uninstall Virtual Drives via Windows Control Panel -> Programs and Features	n.a.

Disclaimer: Technology Previews are designed to give you a preview at upcoming technologies. They are non-final versions of our product and should NOT be taken as a measure of the fit, finish, capability, and overall quality of the final release (including user documentation). Technology Preview features can be changed or removed in newer versions of Automation Builder as communicated via the release notes. If technology previews are subject to licensing, please contact your ABB sales representative.

PLC - AC500 V2 Processor Modules (PM5xy)

Firmware versions embedded into Automation Builder 2.4.1 HF1:

- For AC500 CPUs PM57x and PM58x (also for XC versions, excluding PM585): FW 2.8.5
- For all other AC500 V2 CPUs: FW 2.8.4

Functional changes / New features	***Version***
Hotswap: If properly configured, missing hotswap terminal units are detected for Modbus TCP and Profinet	2.4.1

Fixed issues	***ID***
PM57x and PM58x: During startup the PLC is sensitive for power dips, which might destroy the PLC flash. Workaround: Update with newer FW or ensure stable power supply	CPUFW-8178
PLCs set to DHCP will show the configured IP address instead of the one assigned by the DHCP server in Automation Builder communication settings using the scan. Workaround: use the IPConfig scan to find out the assigned IP address, then set communication settings manually	AB-18277

Known problems	***ID***
Bit wise access of LWORDs are subject to different byte order than other data types. Workaround: Do not use bit wise access (via ".bit").	CPUFW-8464
Webserver: Parallel access of the webserver cannot be limited. The corresponding parameter only limits the number of available sockets for webserver connections.	CPUFW-8348
Web Visualization: Java Applet might be blocked by your web browser The Java Applet that provides the AC500 web visualization, created in Automation Builder V2.0.4 or lower includes an intermediate certificate that expired on Saturday April 13th, 2019. After this date the validation procedure for the certificate might fail as it cannot be validated via the “OCSD” procedure. Depending on your browser and whether your computer is connected to the Internet, the Applet will be blocked after that date. Workaround: The workaround steps are described in detail in the following application note: http://search.abb.com/library/Download.aspx?DocumentID=3ADR010388&LanguageCode=en&DocumentPartId=&Action=Launch	AB-16179
After target change from any PLC to PM595, logins to the PM595 PLC via Automation Builder might be disturbed Workaround: avoid doing target change to PM595. Create new PLC object in project and copy/paste or export/import the corresponding data to new PLC	AB-16004
Automation Builder might crash when going online with node "Positioning_with_use_of_MC_MoveAbsolute" in example project "PLC_PTO_PLCopen_example" from the motion library (PS552).	AB-14638
Buffered Data: PM595-4ETH-F: Set IP address without plugged battery leads to loss of RETAIN and PERSISTENT data. Workaround: Use RETAIN, PERSISTENT and/or RETAIN PERSISTENT data only with plugged battery.	CPUFW-7032
Online access: Additional Visu Files at PLC without Onboard Ethernet leads to error during download Workaround: Don't use Additional Visu files in PLCs without Onboard Ethernet	CPUFW-6929
C-Code: PLC crashes on download program running C-Code-lib build with newer revision of FWAPI, e.g. BACnet library created with AB 2.2.0 (FWAPI 2.8.x) used with PLC firmware V2.7.2. Workaround: Update PLC firmware to same version as FWAPI in C-code lib, e.g. PLC firmware V2.8.1	CPUFW-6916
Online access: Connecting a CP600 Panel via CODESYS protocol serial avoid creating a boot project Workaround: Disconnect panel during creating of boot project	CPUFW-6885
Working on CoDeSys 2.3 projects with administrator and non-administrator users might lead to inconsistent data Workaround: avoid working in this setup with administrator and non-administrator users	n.a.
Activating the CANopen sync mode requires to activate the "generic configuration view" (see "Tools->Options->Device editor")	AB-9768
CM574-RS: If the parameter "Enable debug" is set to "Off" and when the PLC stops the CM574-RS continues to run causing an E2 failure. Workaround: Set the parameter "Enable debug" to "On".	CPUFW-5538

When PM5xx-ETH with 4 x CM597-ETH connected on the switch, the IP-Configuration tool shows a wrong "Configured IP Address" for PM5xx-ETH. When unplugging the cable from all CM597-ETH, the "Configured IP address" shows the right value." Workaround: Unplug the CM597-ETH from the switch to check the IP address from PM5xx-ETH.	CPUFW-5537
System: DC541: Error message after firmware update also in case of correct update Workaround: Check FW version of DC541 after update	CPUFW-4659

System: DWORD_TO_LREAL and UDINT_TO_LREAL: DWORD/UDINT value cannot be proper converted to LREAL if DWORD/UDINT >16#80000000. For PM595-4ETH CODESYS compiler generates warning.
 	
Workaround: Add new function:
FUNCTION DWORD_TO_LREAL_ABB : LREAL
VAR_INPUT x: DWORD; END_VAR
VAR b: LREAL; END_VAR
b := DWORD_TO_LREAL(x);
IF b < 0.0 THEN b := 4294967296.0 + b; END_IF;
DWORD_TO_LREAL_ABB := b;
call function DWORD_TO_LREAL_ABB instead of DWORD_TO_LREAL in user program:
PROGRAM PLC_PRG
VAR a: DWORD; b: LREAL; END_VAR
b := DWORD_TO_LREAL_ABB(a);
	CPUFW-3741

POU: PM595-4ETH, LED_SET is without function in Mode=0. The POU is intended to control the additional LED's. Workaround: Use POU LED_SET to control the additional LED's.	CPUFW-3721
System: Firmware download to CM574-RS can lead to watchdog error of CM574-RS in case of using freewheeling task in CM574-RS Workaround: Don't use freewheeling task in CM574-RS	CPUFW-3675
Some Online Services lead to log out on PM595-4ETH Workaround: None	CPUFW-3465
Socket opened by IEC application via SysLibSock is not closed on PLC Reset Workaround: None	CPUFW-3443
"Run time of FB DEL_APPL is increased for about 6s. This is caused by increasing the time for delete flash." Workaround: None	CPUFW-3087
SysLibFile library: As of V2.3.x, dtLastAccess.time is always 00:00 on call of SysFileGetTime() Workaround: None	CPUFW-2833
CS31-Bus: In case of connection of AC31 modules like 07AC91, 07AI91, DC91 to CS31-Bus of COM1 and/or COM2 of CM574-RS, PM5xx-eCo, PM57x or PM58x a lot of bus errors occurs. Sometime these modules disconnect and reconnects. S500 modules don't show such effects. Workaround: Don't use these datatypes in webvisu	CPUFW-1833
WEB server: ActiveX-Element display incorrectly Workaround: Don't use Active-X element in webvisu	CPUFW-1593
WEB server: Alarm tables do not work on webvisu, if "All alarm groups" is selected. Messages are not displayed properly. Workaround: Don't select "All alarm groups"	CPUFW-1506
Telecontrol: (IEC60870-5-104) connection does not function properly after a long cable break Workaround: Restart PLC after long cable break	CPUFW-1433
WEB server: In WMF-file integrated text isn't displayed in visualization Workaround: Don't use WMF-file with integrated text	CPUFW-1310

WEB server: The following datatypes are wrongly displayed in the web browser with the mentioned formatting strings: byte with %i and %u, in both cases only the format letter (i or u) is displayed without the % sint with %s shows the two's complement when negative values should be displayed udint with %d shows a -1 if the maximum possible value of this datatype should be displayed udint with %i and %u, in both cases only the format letter (i or u) is displayed without the % dint with %i,only the format letter (i) is displayed without the % lreal with %2.9f shows the infinity sign if the maximum/minimum value of this datatype should be displayed udint with %s shows a -1 if the maximum possible value of this datatype should be displayed real and lreal with %s shows 0.0 if the minimum possible value of this datatype should be displayed lreal with %s shows the word infinity if the maximum possible value of this datatype should be displayed char with %c, only the format letter (c) is displayed without the % instead of a single letter Workaround: Don't use these datatypes in webvisu	CPUFW-1304
Online: Display of the task priority shown not the correct value for interrupt task -> It is not the shown value of the boot project! Workaround: No workaround. Interrupt task: Shown priority is the internal operating system priority	CPUFW-1072
WEB server: option "Best fit in online mode" doesn't work properly Workaround: WEB server: Option "Best fit in only mode" is not recommended for web visualization.	CPUFW-921
SD card write protection function is not available for AC500-eCo CPUs Workaround: SD-card write protection is not evaluated by AC500 CPUs. Write protected cards can be overwritten. Protect the SD card by yourself.	CPUFW-748 ECOHW-11

PLC - AC500 V3 Processor Modules (PM5xyz)

Firmware versions embedded into Automation Builder 2.4.1 HF1: FW 3.4.1 HF1

Important Notes:

- For AC500 V3 CPUs, the handling of diagnosis is different from the AC500 V2 CPUs.

Functional changes / New features	*Version*
CAN: CM598-CN: New parameter "Run on config fault"	3.4.1
EtherCAT: Library ABB_EtherCAT_AC500: Additional POU for reading the lost frame count from the master (EcatMasterGetFrameLossCnt)	3.4.1
Display: New parameter "PLC ID" available from the menu "CFG" of the display for read and write, including read access from the application (ReadPLCId).	3.4.1
BACnet: Support of BACnet MS/TP on COM1 of PM5630, PM5650, PM5670 and PM5675	3.4.1
PROFINET: CM579-PNIO: New parameter "Run on config fault"	3.4.1
PROFINET: CM579-PNIO: New parameter "Inhibit error signaling on LED STA2"	3.4.1
System: Increased performance especially for CM579-ETHCAT.	3.4.1
System: "PLC Boot-parameter ""Communication Schema"" with the values: - Default - Communication modules - Onboard Ethernet - Realtime onboard Ethernet"	3.4.1
Devices: "Support of new Option Boards for eCo-V3 PLCs: - TA5101-4DI - TA5105-4DOT - TA5110-2DI2DOT - TA5130-KNXPB - TA5131-RTC - TA5141-RS232I - TA5142-RS485I - TA5142-RS485"	3.4.1
Devices: "Support of new eCo-V3 PLCs: - PM5012-T-ETH, PM5012-R-ETH - PM5032-T-ETH, PM5032-R-ETH - PM5052-T-ETH, PM5052-R-ETH - PM5072-T-2ETH, PM5072-T-2ETHW"	3.4.1
Diagnosis: Availability of diagnosis history	3.4.1
Diagnosis: "Unified representation of timestamp: YYYY-MM-DD; HH:mm:ss.fff"	3.4.1
Ethernet/IP: Support Ethernet/IP scanner (master) as technology preview	3.4.1
Ethernet/IP: Support Ethernet/IP adapter (slave) as technology preview	3.4.1
Hotswap: If properly configured, missing hotswap terminal units are detected for Modbus TCP and Profinet	3.4.1
OPC UA server: Support of complex data types (structures)	3.4.0
Configurable automated reboot behavior after short voltage dip.	3.4.0
New boot parameter "Missed cycle behavior" to change the scheduling behavior when a task is not able to keep its schedule. There are to options to choose, when the cycle time has been exceeded: - "Next" (default): Wait until the next scheduled start time is reached - "Asap": Run the task again as soon as possible	3.4.0
Improved jitter calculation Note: for event tasks (e.g. EtherCAT) the parameter "Interval" in the task configuration must have the same value as the bus cycle time	3.4.0
Diagnosis: Complete handling of Profinet diagnosis via the AC500 V3 diagnosis system	3.4.0
SD Card for creating a boot application: - Including all required files for web visualization	3.4.0

Fixed issues	*ID*
Doing online changes on a PLC application with FW version 3.4.1 might set the PLC into stop after some minutes because of missing runtime license “remote target visualization”, although this license is not required by the PLC application. Workaround: Either upgrading to FW version 3.4.1 HF1 or activation of runtime license for remote target visualization (to be obtained from our technical support).	CPUFW-8621
System: Generating certificates fails for PLCs which have never used certificates before system firmware version 3.4.0. Workaround: "Update to system firmware 3.4.1 or newer	CPUFW-8450

EtherCAT: Numeric representation of state outputs (CurState, TargetState) are different from the documentation for these EtherCAT-FBs: EcatBusDiag, EcatSlvGetState, EcatSlvDiag Workaround: "Update to system firmware 3.4.1 or newer Always use enum teEcatDevState for processing the EtherCAT state."	CPUFW-8339
System: Changing the CPU boot parameter "missed cycle behavior" requires a PLC reboot after download. This is currently not indicated by Automation Builder. Workaround: Please reboot PLC after change of parameter "missed cycle behavior".	CPUFW-8261
Modbus TCP: High number (>60) of parallel calls for Modbus device synchronization (FB EthModMast or FB EthModMast2) might lead to unstable ethernet communication in PM5670-2ETH and PM5675-2ETH. Fixed by introducing a new parameter "Communication Schema" that has to be set to "Ethernet". Workaround: Distribute the calls of EthModMast or EthModMast2 to different batches that are called with short breaks in between. Example for 120 parallel connections: Step 0: Time 0 Call EthModMast for connections 1-30 Step 1: Time 0 + 30ms Call EthModMast for connections 31-60 Step 2: Time 0 + 60ms Call EthModMast for connections 61-90 Step 3: Time 0 + 90ms Call EthModMast for connections 91-120 In case of updating from FW 3.1.4 or earlier, carefully monitor the Modbus behavior.	CPUFW-8029
CP600: When using "CODESYS V3 ETH" protocol, the AC500 V3 tags are not accessible. Workarounds: • Use OPC UA or Modbus TCP instead of "CODESYS V3 ETH" • Install patch with fix for Panel Builder PB610 software available from the ABB Library: https://search.abb.com/library/Download.aspx?DocumentID=3ADR010716&Action=Launch	CPUFW-8101
EtherCAT Sync-Task does not keep cycle time if another PLC real time task is used in project with >250 byte process image	CPUFW-8023
BACnet: Mandatory / missing runtime license for BACnet not always shown correctly in the runtime licensing view. Workaround: Always check that the BACnet runtime license is listed as available license in the runtime licensing view.	CPUFW-7992
PLCs set to DHCP will show the configured IP address instead of the one assigned by the DHCP server in Automation Builder communication settings using the scan. Workaround: use the IPConfig scan to find out the assigned IP address, then set communication settings manually	AB-18277
The Download Manager does not support firmware update of V3-PLCs. The V3-PLCs will be added to the Download Manager view and information about a required update can be read. But the firmware update will not be executed successfully. Workaround: For V3-PLCs please use the firmware update via PLC editor page 'Version Information' instead.	AB-18851
Download Manager might report a successful firmware update of AC500 V3 PLCs, but the version information screen still shows the previous firmware version on the PLC. Workaround: In this case please run the PLC firmware update in 'Version information' screen (single update).	AB-18113
Download Manager can't be used for downgrades (target system firmware version lower than current version)	AB-17621
In case limitations are not correctly reflected in the message window, e.g. number of OPC UA tags exceeded, please re-execute "Generate Code" manually.	AB-18005

Known problems	***ID***
When using the following functions, AC500 V3 PLC does not properly manage its resources, which might lead to unexpected behavior during long-term use without reboot: Connect via MQTT, set the real time clock, read FW versions, read production data, use sysprocessexecutecommand2, use SetRtoMinAsync Workaround: Either upgrade to FW version 3.4.1 HF5 or do not use any of the corresponding features in the PLC application.	CPUFW-8922
AC500 eCo V3: "ETH1" node is marked with a red exclamation mark in online mode for PM5012, PM5032 and PM5052 in case no Interface is defined. However without any effect on the functionality. Workaround: Add "ETH1" as Interface on the "General" tab of the IP settings node	AB-19703
AC500 eCo V3: "Interfaces" node is marked with a red exclamation mark in online mode however without any effect on the functionality. Workaround: not available and also not required	CPUFW-8586

For downgrading the firmware from version 3.4.1 to version 3.4.0 the downgrade process has to be done twice. Downgrade via Automation Builder: The initial downgrade terminates with a success message, although the version information editor shows 3.0.0 as FW version. The second downgrade then finally results in FW 3.4.0 Downgrade via SD card: The initial downgrade results in the PLC showing “update” in the display. A second power cycle completes the downgrade and installs FW 3.4.0.	AB-19738
Ethernet: Network variables: cyclic transmission of network variables can cause an "omitted cycle watchdog" exception. Workaround: Change properties of used Network Variable List (Sender) from "Cyclic transmission" to "Transmit on change".	CPUFW-8468
PROFINET: CM579-PNIO: The node state of Profinet I/O devices might be false negative in case of consecutive errors. Workaround: Check number of nodes with error state on I/O controller level	CPUFW-8456
CANopen / CAN: CM598-CN errors in PLC log after change from Stop to Run. System works fine, couplers are sending/receiving CAN 2A/2B telegrams correctly. Workaround: Ignore the corresponding log entries. If the CAN communication dos not start, a reboot of the PLC is required. This issue is fixed by FW 3.4.1 HF2, which is available on demand.	CPUFW-8313 CPUFW-8321
SysLibs: The FB PmProdReadAsync returns the ProductID for PLCs with one Ethernet interface (PM5012, PM5032, PM5052) in output "Mac1" instead of "ProductId". Workaround: Use value from output "Mac1" as "ProductId" for PM5012, PM5032 and PM5052.	CPU_FWLIB-521
Profinet: Configured but missing I/O devices connected to a CI501-PNIO or CI502-PNIO module are not properly represented in the diagnosis system. The I/O device itself has no diagnosis message and therefore is shown as OK (both in the Automation Builder and in the IEC application). Workaround: Check the ModuleDiffBlock of the CI50x-PNIO module for any missing I/O devices.	CPUFW-8272 CPUFW-8268
Firmware update: Unable to update the system or display firmware, if update firmware (updateFW) versions 3.1.2.32 or 3.1.4.82 are installed. Workaround: First update the update firmware (minimum version: 3.3.2.113) before updating the system or display firmware in a second step.	CPUFW-8252
Diagnosis: The diagnosis system is limited to 1000 active diagnosis messages in parallel. Any additional diagnosis messages will lead to error code ERR_NOMEMORY. Workaround: Decrease the number of active diagnosis messages.	CPUFW-8251
PLC cannot switch to run after project update via SD card when project contains changed boot parameters: - WEB server off/on - COMx: RS232/RS485 selection - OPC UA server off/on - ETH1/ETH2 switch off/on - Missed cycle behavior - Communication Schema Workaround: Additional power cycle required for starting the PLC application.	CPUFW-8230
EtherCAT: The first breakpoint in the EtherCAT sync task is not processed properly. It is always being ignored if there is at least a second breakpoint. Workaround: Always use at least two breakpoints in the EtherCAT sync task considering that the first one will be ignored.	CPUFW-8227
EtherCAT: POU EcatSync outputs ErrInCnt and ErrOutCnt never start at 0 Workaround: Do not use the first output values of EcatSync function block after setting EtherCAT to operation.	CPUFW-7983

Attribute initialize_on_call not working
 	
Workaround: The attribute must be set on the FB additionally to the parameters. This hint is missing in the online help. If you define the FB like this, everything works as expected:
 	
{attribute 'initialize_on_call'}
FUNCTION_BLOCK fb
VAR_INPUT
  {attribute 'initialize_on_call'}
  pInt : POINTER TO INT := 0;
  {attribute 'initialize_on_call'}
  iVal : INT := 0;
END_VAR
	AB-18849

Ethernet: The function block EthSetRtoMin (part of AC500_Ethernet library) might cause an exception with FW V3.3.1. This also affects the AC500 High Availability - HA-ModbusTCP V3 Library Example, as it is using this function block. Workaround: If using this function block is mandatory, a dedicated hotfix version of the firmware has to be used (available on request from ABB technical support).	CPU_FWLIB-401
BACnet: If server objects of type "BACNet.BacnetSchedule" or "BACNet.BACnetSchedule" are instantiated in the PLC application, the PLC will crash when the project is deleted from the device. Workaround: Only use the BACnet Schedule by adding it below the BACnet Server in the device tree instead of adding it from the PLC application.	CPUFW-7854
Diagnosis: The PLC node might show a diagnosis indicator "!" in the Automation Builder device tree even if no diagnosis exists. In this case the root cause is that the device diagnosis is disabled. Workaround: Activate the device diagnosis in Automation Builder	CPUFW-7519
CM579-PNIO: Sporadic error that diagnosis information of third-party devices are not available. Workaround: Check the device status for third party devices also from status icon in the Automation Builder device tree	CPUFW-7499
CM579-PNIO: Missing error text on disconnected ethernet cable (error code 2) Workaround: Ignore missing error text in case of error number 2 on CM579-PNIO	CPUFW-7498
Ethernet/IP Adapter cannot handle more than one connected scanner (Exclusive Owner). When connecting a 2nd (Listen Only) Ethernet/IP scanner a connection failure occurs Workaround: not available	AB-19326
The names of SNTP Server and SNTP Client have been changed to NTP Server and NTP Client as the solution supports both NTP and SNTP. However, the corresponding function blocks still use "SNTP" in their names.	AB-19328
Persistent memory: Please note that 44 bytes of the persistent memory is reserved by the system for internal data. If the persistent memory is used, the usable area is reduced by this amount.. Workaround: not available	AB-18919
Diagnosis text lists are only downloaded to the PLC if a visualization is added to the application	AB-16465
In case the flag “Enable Diagnosis for devices” (PLC node editor → PLC Settings) is not set the diagnosis indication on the device tree object might not be correct Workaround: either activate the flag “Enable device diagnosis” or open the diagnosis editor of the corresponding device object	AB-17250
Diagnosis text lists are not updated after new GSDML installation/device object update if the text list was already present in the project. Workaround: Delete the diagnosis text lists, save project, restart Automation Builder, and rebuild the project. The updated text lists are now generated into the project	AB-16737
Diagnosis text lists are not transferred to the AC500 V3 PLC if download/login is done without rebuild. Workaround: Please check that a visualization is added to the project, the setting 'enable diagnosis for devices is set and project is rebuilt (clean all → rebuild)	AB-18007
Online values of program code are not correctly refreshed in editor if exception handling is included in code	AB-18215
Firmware update might fail via Automation Builder Workaround: Please check if ETH1 and ETH2 are in different subnets	AB-18004
BACnet EDE file import is not allowing to select an exported file. Workaround: Please rename the exported file to *_EDE.csv and retry the import	AB-18210
Cyclic non-safe data exchange: An initialization of arrays and structures in the non-safe program is not supported by the safety program in CoDeSys v2.3 and creates corresponding errors "Erroneous initial value".	AB-17989
Cyclic non-safe data exchange: Build error "address is already used" occurs if STRING mapping is defined at the end Workaround: In this case add any non-string variable at the end of the mapping or change mapping order	AB-17782
Compile error will occur after renaming "CAN bus" on AC500 V3 PLCs Workaround: Please keep default name	AB-17541
Sync-SDOs parameters are not generated when 'Enable Sync Producing' is disabled: For both communication modules CM578-CAN and CM598-CAN, when the parameter CANopen Master parameter 'Enable Sync Producing' is disable, parameter 'set communication cycle period' and 'Set synchronous windows length' are not generated. When CANopen Master parameter 'window Length' is set to 0, the parameter 'Set synchronous windows length' is also not generated.	AB-14071
Fast counter of DA501/502 does not work if used at a Communication Interface (CI) module on PROFINET, EtherCAT or CAN	AB-16614

IO mapping: use only mappings available in the IO mapping editor, avoid manual variable declarations using AT % operations	AB-16521
FW 3.2.0: Downgrade of AC500 PLCs from firmware 3.2.x version to previous versions via Automation Builder 2.1.X is not supported. Workaround: Please prepare SD-card with desired firmware versions and execute firmware version update via SD-card	n.a.
Sometimes the display firmware is not updated within the first “Update Firmware” process (display shows “bAdFIr”). Please start the “Update Firmware” process a second time.	AB-17204
PM5630: There might be not sufficient memory for boot projects when visualizations are used or had been used and downloaded before. Workaround: In case you are running into memory issues please check that visu files which are no longer required are deleted using the "Files" tab in the editor of the main CPU node (delete the files in 'PlcLogic/visu/').	AB-15729
The "Scan for devices" functionality does not work when the "Log" Editor of the V3 PLC is opened, After the call of "Scan for devices" it is also no longer possible to add any object in the device tree (as long as the "Log" Editor is active). Workaround: select another editor tab and call "Scan for devices" again	AB-15749
CM589-PNIO: not supported with FW 3.2.4 or later Workaround: Use FW 3.2.3, if CM589-PNIO is required. Support of CM589-PNIO will be available in future version again.	CPUFW-7462
Division by zero for REAL and LREAL variables does not raise exceptions in IEC user program. Workaround: Check results of division in IEC program for "FIN".	CPUFW-7429
EtherCAT: EtherCAT ENI files are not deleted, e.g. after changing the slot of a CM579-ETHCAT device Workaround: Delete ENI files manually	CPUFW-7183
Counter: Fast counter word order is wrong for devices on PROFINET and EtherCAT. Workaround: Swap in- and outputs accordingly.	CPU_FWLIB-279
CAA_File: POU FILE_MOVE is missing Workaround: Use File copy + File delete	CPU_FWLIB-242
CommFB: The library CommFB is not supported for CM579-PNIO Workaround: Use library ABB_PnioCntrl_AC500.library	CPU_FWLIB-140
Trend: Storage size limitation does not work properly. Limitation by file size does not work, as limitation by maximum number of records works. Otherwise PLC can run out of memory. Workaround: Use limitation by maximum number of records	CPUFW-7172 CPUFW-7173
PROFINET and CM589-PNIO: After second download the CM589-PNIO does not work, first download and starting via boot project works. Workaround: Start project as boot project. Note: CM589-PNIO with Codesys driver not supported with FW 3.2.4 or later	CPUFW-6641
System: IEC task watchdog followed by Online -> Reset warm leads to crash of PLC.	CPUFW-6142
CM579-ETHCAT: In some configurations, the state of the last EtherCAT slave is shown as red circle in AB device tree, even if slave works fine. Workaround: Ignore wrong state and/or check state with POU.	CPUFW-6134
Deleting of an AC500 V3 PLC in the tree might fail if there is an invalid AlarmConfiguration task configured. An error message "Invalid object guid..." might be displayed and the PLC cannot be removed. Workaround: Delete AlarmManagerTask below task configuration and delete then the PLC node.	AB-15554
Runtime licensing: Return license feature of runtime license is working on AC500 firmware versions 3.1.3 and higher. Please update AC500 firmware first to this version and then return licenses. Otherwise runtime licensing on this PLC will become unusable!	FW 3.1.0

Projects created with AC500 V3 PLCs in Automation Builder 2.0 require to manually exchange the following libraries: AC500_ExtUtils -> AC500_PM AC500_IntUtils -> AC500_Io, AC500_PM AC500_EthernetUtils -> AC500_Ethernet The V3.1 library "AC500_Ethernet" contains all Function blocks from the V3.0 library "AC500_EthernetUtils" The V3.1 library "AC500_Io" contains Function blocks from the V3.0 library "AC500_IntUtils" The V3.1 library "AC500_Pm" contains Function blocks from the V3.0 library "AC500_IntUtils" and "AC500_ExtUtils"	LIB-1424 LIB-1421 LIB-1419
Projects for AC500 V3 PLCs created with Automation Builder 2.0 need manual update if CM modules had been used as slot numbering is changed now in Automation Builder 2.1. If POUs with a "slot" parameter are used, the slot needs to be adapted to the physical CM position (from 1 to 6) on the terminal base. If EtherCAT is used in "synchronous mode", the event tasks need to be changed (e.g. "EventTask1" for the first slot, "EventTask3" for the third slot).	AB-12531
System: PLCShell command "date" and "rtc-set" cannot set a date after 2038	CPUFW-5870
Ethernet: FTP server: FTP server: If FTP server is configured on booth Ethernet interfaces ETH1 and ETH2, FTP server will be activated on ETH1 with configuration of ETH1. The FTP server configuration of ETH2 will be ignored. Workaround: Configure FTP server only on one Ethernet interface ETH1 OR ETH2.	CPUFW-5869
Network Variables (NV): does not work with default Broadcast address 255.255.255.255 Workaround: Use another Broadcast address as 255.255.255.255, e.g. 192.168.0.0	CPUFW-5803
TLS/SSL self-signed certificates can't have an End-date after 2038.	CPUFW-5765
Modbus TCP server: fast On/Off switching of server can lead to incomplete log entries (e.g. missing IP address)	CPUFW-5763
CAA-File: If the user disk is full; the PLC won't create the INI file with production data on the SD card. Workaround: - Don't fill user disk to 100% (proposed space is 10%). - Login via PLC Shell and remove files from the user disk manually.	CPUFW-5734
Diagnosis: In AC500 V3 CPU, the system diagnostic should be done using function blocks in user program or with Automation Builder using online diagnostic and Device Tree. The CPU ERR Led doesn't indicate the errors. Workaround: - Use Automation Builder or User program for diagnosis. - New POU SetLEDErr in IntUtils library in 3.0.2.	CPUFW-5221 CPUFW-5259
SD-Card: In some cases, If the SD card is removed while in PLC is in RUN mode and SD card is accessed and is put back, the PLC don´t recognize that the SD Card is put back. If you try to write on a File on the SD Card there is Error NOT_EXIST but the file is there. Workaround: Do not to remove the SD card while actively accessing it. Note: On display activity of SD card is shown as long as a file is open on it.	CPUFW-5099
Modbus TCP: It's not possible to use multiple connections to one server with Modbus TCP. Workaround: Use only one connection per Modbus TCP server.	CPUFW-5076
LIB: CommFB POUs: GETIO_PART/SETIO_PART do not work. Status code 16#40820000 will be returned. As of V3.1.0 error code "NOT_IMPLEMENTED" will be returned. Workaround: Do not use the POUs	CPUFW-4927
If the SD card is removed during a read / write process, the SD card won't remounted from the PLC after replug. POU FileClose does not output a Done or Error and remains in Busy status. Workaround: Do not remove the SD card during read/write process.	CPUFW-4684
Modbus TCP: POU ETHx_MOD_MAST and EthxModMast with wrong input data length for FCT=22, 23 leads to access violation Workaround: Check the input parameters for valid values	LIB-1615 CPU_FWLIB-104
Modbus TCP: POU ETHx_MOD_MAST with wrong input parameters leads to exception: ADDR := 16#FFFF, NB := 0 Workaround: Check the input parameters for valid values	LIB-1559 CPUFW-6154
CAA_File: FILE.close: exception in case file handle is zero. POU stays forever is state busy. Workaround: Check file handle before call FILE.close. (Must be >0)	LIB-1532 CPUFW-5060
Function Code 7 for Modbus TCP not working. Workaround: FCT=7 cannot be used until issue is fixed.	LIB-1192 CPU_FWLIB-118

Function code 23 for ETHx_MOD_TCP has different max data length (write 121, read 125) then V2 (write 125, read 125). The values in V3 are according to Modbus specification. Workaround: Use data length according to Modbus specification.	LIB-1167LIB-1167 CPU_FWLIB-125
CAA-File: The maximum number of files opened at the same time is limited to 1024. The runtime system already opened some files. So, the limit for the CAA file applications is less 1024, e.g. 1007. Workaround: Consider this limitation for CAA file application.	AB-13406 LIB-1183 CPU_FWLIB-94
CAA-File: "The files to be accessed from IEC (user) applications go to directories that are not visible for the user (e.g. /mytemp). The PLC takes the filename specified by the user and appends it to this IecFilePath, and this complete name has a length <= 255. So, the maximum length of a file name for the CAAFile user is 255 minus the length of the Iec Path." Workaround: Consider the Iec Path in the IecFilePath.	AB-13406 LIB-1176 CPU_FWLIB-9
Modbus TCP: Function code 23 for ETHx_MOD_TCP has different max data length (write 121, read 125) then V2 (write 125, read 125). The values in V3 are according to Modbus specification. Workaround: Use NOT_EXIST for both use cases	LIB-1167 CPU_FWLIB-125
CAA-File: POU FileOpen doesn't distinguish if the SD card is write-protected or if there is no SD card inserted (in both cases the error message is NOT_EXIST). Workaround: Use NOT_EXIST for both use cases	LIB-1140 CPU_FWLIB-19
OPC UA server: Property MaxMonitordItemsPerCall has been reduced to 100. If this property is read by OPC UA clients, it returns no value (null)	n.a.

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KNX

Functional changes / New features	*Version*
Minor stability improvements	3.4.0

Fixed issues	*ID*
The usage of mapped output variables from the KNX node in the application without previous download of the corresponding KNX application from the ETS tool causes an exception. Workaround for new projects: First the PLC application (incl. the KNX node) must be downloaded. It must be ensured that the KNX output variables are not used by the PLC application. After that the PLC must be set to run and the KNX application must be downloaded from the ETS tool to the PLC. Now the mapped variables can be used without exception. Workaround for modified or updated projects: Please ensure that in the case of changes of the KNX configuration (added or deleted KNX objects) the corresponding KNX application is always downloaded from the ETS tool before downloading the PLC application from Automation Builder.	CPU_FWLIB-459

Safety PLC - AC500-S

Note: Before using the functional safety configuration and programming tools contained in Automation Builder, you must have read and understood the AC500-S Safety PLC User Manual (see http://www.abb.com/PLC). Only qualified personnel are allowed to work with AC500-S safety PLCs.

Compiling and executing functional safety projects on SM560-S Safety CPUs require the purchase of a license.

Functional changes / New features	*Automation Builder Version*
A separate letter of confirmation is available for AC500-S safety engineering as part of Automation Builder. The version of AC500-S safety engineering and its components can be seen using “About…” option from “Help” menu in Automation Builder. SM560-S (-XC) safety CPUs are supported by AC500 V3 CPUs. SM560-S-FD-1 (-XC) and SM560-S-FD-4 (-XC) are not supported by AC500 V3 CPUs yet. New cyclic non-safe data exchange editor and related functionality is introduced for SM560-S (-XC) safety CPUs with AC500 V3 CPU. Safety Verification Tool (SVT) is added to Automation Builder to verify safety project configuration integrity when safety CPUs are used with V2 or V3 CPUs. BYTE data type is used instead of WORD for all variables of DI581-S safety I/O module when used with V3 CPUs. If data types like Unsigned16, Unsigned32, Integer16, Integer32 or Float32, which require more than one byte, are used in PROFIsafe data, note the following. The byte order in such data types depends on the used PROFIsafe device endianness and selected AC500 CPU type. V2 CPU supports big-endian and V3 CPU supports little-endian. Make sure that the symbolic variables are mapped properly, and the delivered safety data is correctly represented in your safety application. SD card handling with V3 CPUs: • “sdappl” and “sdcoupler” commands are not supported on V3 CPUs. Contact ABB technical support when the Automation Builder project shall be migrated from V2 CPU with AC500-S to V3 CPU with AC500-S. If non-safety V3 CPU is stopped, the safety CPU will go to DEBUG STOP (non-safety) state and safety I/O modules will immediately switch to RUN (module passivation with a command) state. Later, if the safety CPU changes to DEBUG RUN (non-safety) state, e.g., after switching non-safety CPU back to RUN state, the safety I/O modules will immediately change to RUN (ok) state and deliver valid process values to the safety CPU without the need for reintegration. Error acknowledgement on safety CPUs is not directly synchronized with error acknowledgement on V3 CPU. All error acknowledgement for safety CPUs shall be done on V3 CPUs directly. The active user login connection to the safety CPU can be interrupted if the new non-safety configuration is loaded to the V3 CPU in parallel. Safety CPU firmware V2.1.0 is introduced as part of Automation Builder for SM560-S (-XC), SM560-S-FD-1 (-XC) and SM560-S-FD-4 (-XC). Firmware V2.1.0 is compatible with previous safety CPU firmware versions V1.0.0, V2.0.0 and, thus, previously obtained functional safety certifications for machines or processes remain valid, because the boot project CRC (Cyclic Redundancy Check) does not change. As an example, SM560-S (-XC) modules with firmware V2.1.0 can be used to replace SM560-S (-XC) modules with firmware V1.0.0 or V2.0.0. Note: Firmware V2.1.0 on SM560-S (-XC) safety CPUs can be downgraded to V1.0.0 or V2.0.0 only if the hardware index for these safety CPUs is below C0, for example, hardware indices A3, B1, etc. In safety CPU modules with the hardware index C0 and above, the new flash memory is used which is not compatible with safety CPU firmware versions V1.0.0 and V2.0.0. Only firmware V2.1.0 or above can be used on such safety CPUs. Usage of SF_RTS_INFO function in SM560-S (-XC) boot project allows controlling which firmware version(s) will be accepted by the SM560-S application program and which is not, if tighter control over firmware version is required from the customer application. • Firmware V1.0.0 does not run on SM560-S-FD-1 (-XC) and SM560-S-FD-4 (-XC). • Firmware V1.0.0 and V2.0.0 do not run on safety CPUs with hardware index C0 and above.	2.3.0

Fixed issues	*ID*
The Safety Verification Tool (SVT) V1.1.0.592 does not support BYTE data in IO-mappings on DI581-S safety modules used with AC500 V3 CPUs. To avoid this issue, it is recommended not to use symbolic names for BYTE data in IO-mappings of DI581-S safety modules with AC500 V3 CPUs. The valid AC500-S safety PLC project can still be created if BYTE data in IO-mappings is used on DI581-S, however, the errors in the SVT checklist will be present for BYTE data in IO-mappings on DI581-S safety modules used with AC500 V3 CPUs. An updated SVT version will be provided, which will support the BYTE IO-Mappings during safety verification of project integrity. Contact ABB technical support for further details.	AB-18404

Known problems	*ID*
Relevance: Non-safety AC500 V3 CPU with AC500-S safety PLC only. If UINT data type, which requires two bytes (e.g., as it is the case in ABB ACS880 drives with FSO-12 or FSO-21 safety modules, etc.), with individual displayed bits is used in PROFIsafe data in Automation Builder project, note the following. The values for such PROFIsafe safety variables might be not correct. Thus, these variables shall not be used in the non-safety V3 CPU program. The correct variable value is only available in the safety CPU project and AC500-S programming tool. Workaround: Use individual bit variables in the safety CPU project and map them using “Cyclic non-safety data exchange” functionality supported on the non-safety V3 CPU. These variables can be then used in the non-safety V3 CPU project, e.g., for diagnostic purposes, visualization on operator panels, etc.	AB-19238
When “SD clone” command is used for big Automation Builder projects while the user is logged in, the user may be logged out unintentionally. Note that even if the user is logged out, the “sdclone” operation will successfully complete independently on this event.	CPUFW-7268
If safety CPU is set to DEBUG STOP mode when used with V3 CPU, then the safety CPU will not follow state changes, like, “Run” and “Stop” of V3 CPU anymore.	CPUFW-7743
„Initializations of arrays, structures and enumerations used for cyclic non-safe data exchange within the AC500 V3 variable declaration are currently not supported in AC500-S safety application and create corresponding compile errors "Erroneous initial value". Workaround: Please initialize the values of the concerned arrays, structures and enumerations within the non-safety and safety PLC programs during runtime.”	AB-17989
When the option "Underline Errors in the Editor" is active (Default setting), the safety CPU, e.g., SM560-S, SM560-S-FD-1 or SM560-S-FD-4, configured below an AC500 V2 non-safety CPU is marked in the Automation Builder device tree with an underline error. No pre-compile errors are raised in the Automation Builder message window but the tool tip shows "No (or invalid) application defined for I/O handling". This is not affecting the overall safety CPU and non-safety V2 CPU project functionality. In case of the project with V2 non-safety CPUs and AC500-S safety CPU, this can be ignored as the related functionality is applicable to AC500 V3 non-safety CPU projects with AC500-S safety CPU only. Workaround: Deactivate the option "Underline Errors in the Editor" via Tools -> Options -> SmartCoding in the Automation Builder.	AB-19706

Modbus TCP – Communication Interface Modules (CI52x-MODTCP)

Functional changes / New features	*Version*
No functional changes	

Known problems	*ID*
Hotswap: eCo modules are not supported in a hotswap configuration, that enables the detection of missing hotswap terminal units on Modbus TCP Workaround: if an eCo module shall be used on a CI52x, keep the parameter “Hot-swap terminal unit required” with “No” for all modules on this CI52x	AB-19567
Diagnosis only works with CI52x-MODTCP firmware version 3.2.7 and higher.	n.a.

Drive Manager

Functional changes / New features	*Version*
No functional changes	

Known problems	ID
No synchronization between Process data tab and Drive Manager's FBA data in & data out parameter group with 32-bit parameters. Workaround: While configuring offline data in FBA data in & data out in drive manager if 32-bit parameter is selected then leave next parameter as empty	AB-7586
Drive manager loses connection to drive if, user is using Profinet / Profibus DPV1 read/write function blocks in PLC program to read/write parameters of the drive.	AB-8376
Drive Manager is not connecting over Y-link in Profibus connection	104203
Messages are not displaying after exporting the .dsp and .dcparambak file from Drive & Project in online/Offline mode	247760
German language support for ACS530, ACS560 and DCS880 drive parameters are missing.	

Drive Application Programming

Drive application programming is only supported until Automation Builder 2.1. Please install the corresponding previous version profiles, if you want to continue using Automation Builder for drive application programming.

The current tool for drive application programming is Drive Application Builder. It is available for downloaded from the ABB website: https://new.abb.com/drives/software-tools/drive-application-programming

Drive Composer

Drive composer pro is compatible with all new common architecture drives such as ACS880. The complete compatibility table is available in Software Tools web page http://new.abb.com/drives/software-tools/

Functional changes / New features	Version
• Drive Firmware Loader is now included to Drive Composer pro. It is used to update (upgrade or downgrade) the firmware of the common architecture drives. o Feature also allows downloading other compatible loading packages (such as applications) to the drives. o It is recommended to download a new firmware to a drive only when the process is stopped, i.e. during the commissioning of the drive or during planned maintenance. o Only USB connectivity is supported for firmware downloads. o Drive FW Loading packages will not be distributed with Drive Composer. Users who wish to use the feature need to either have the loading package already available on their computer or need to source the loading package from e.g. IHMM. o Panel or Fieldbus firmware downloads are not yet possible. Safety module firmware update is possible via separate menu item in Drive Composer pro. o Release of Drive Firmware Loader means that DriveLoader2.X should not be used when possible. • Improvements to the Safety configuration UI. Safety configuration is now more intuitive to use. • ACS180 support. • Small bug fixes and improvements.	2.6.0
Note: since the release of Drive Composer 2.5 the .net libraries included in the release was updated to version .net4.8 due to cybersecurity reasons. Therefore, Drive Composer can only be installed on the latest versions of Windows. Essentially, only Windows 10 is supported. Currently recommended Windows 10 versions are: 1809 (LTSC version preferable as it has support until 2029), 1909 and 2004. Some older versions work, but not all. Further information about .net compatibility is available on Microsoft website.	

Known problems	ID
If a computer has a newer Drive Composer pro and Drive Application Builder installed, installing old version of Drive Composer pro will fail. Workaround for this problem is to uninstall DriveDAOPCServer from control panel/Programs and Features. Then install Drive Composer pro. However, there is a small probability that this might cause problem to Drive Application Builder when communicating with drives	
USB connection is occasionally not resumed when unplugging and plugging in USB cable from the drive.	
Occasionally, Drive Composer pro does not close properly and will cause No Drive Found failure. The solution to this problem is to kill Drive Composer and DriveDA processes manually from the Task Manager	

Condition Monitoring System

Functional changes / New features	Version
No functional changes	

Known problems	*Version*
Triggering measurement start from external signal (e.g. DI or DC) should be prevented. The file could be corrupted. Workaround: Please use the “Instantly” or “Delayed” trigger mode for starting a measurement.	2.6.3

SCADA - Zenon

Functional changes / New features	*Version*
No functional changes	
Limitation: Zenon AC500 V3 variable synchronization is currently not supported	

Panel Builder 600

Functional changes / New features	*Version*
– Actions and events o Add "Dynamic" path for all macros related with Dump or Restore o Array Tag index support for actions – Alarms o Refactor of Alarm editor and sorting / filtering option o Array Tag index support for Alarms o Alarm Export - Include multilanguage support for Custom Fields o Add possibility to avoid first historic alarm log in not triggered state o Float Tag data into alarm description, visualization management – Audit trail o Avoid to report "IDALMaster" login in the audit trail – Documentation o Modification in Doc is required for 4.0.1 (MQTT not support in WCE, what’s new) – Deployment and run time operation o Improved behavior when PB is installed and run for first time – Edge Service o MQTT gateway for standard cloud services (Amazon, Azure, others) – Fonts o Convert Tahoma to Roboto in all templates, gallery, keypads, user management – Gallery o Add empty Application-specific category for gallery o Added color support for Major and Minor ticks o PB4Web: Improved behavior for Ticks and Labels widget o Improved behavior for Ticks and Labels widget o Add Mirror transformation to widgets o Improved handling for round corner on shapes – JavaScript o New JS API to move/copy files o New JS APIs for add a user, edit a user and delete a user o New JS API for reading Wireless Modem Status (PLCM09) – MQTT o Allow MQTT to put many tag values into payload o MQTT Address and port attachable to tags – Multilanguage o Add Japanese language o Add support to show Multi language license file under studio o Add Roboto-Light.ttf and Roboto-Medium.ttf to default font list (/gallery/fonts) o Improved Japanese font management o Add Korean and Traditional Chinese language o Add support to translate strings pf custom widgets properties o Network Adapter Parameters translation – PB4Web o PB4Web: action widget ShowWidget o PB4Web: support for table widget o PB4Web: support for audit tables o PB4Web: improved Alarm Widget borders visualization o PB4Web: false positive in project validator error – Print o Support for audit table format in print reports o Support of graphs trends in print reports o Trends table support in print reports o XY Graph support in print reports o Support for new Active Alarms table format in print reports o Support for new History Alarms table format in print reports	4.0.1.462

- Support for generic tables in print reports
- Support for Grid Layout in Print reports

- Productivity tools and IDE UI
  - Regional settings as project properties
  - Delete dynamic files option for Update Package & FRAM cleanup
  - Live Tag for labels, message, alarm description
  - TargetZoomFactor with an option to work as Fit to screen size
  - Project View Refactor
  - Unified project design
  - Table group widget sorting
  - Unified design: Project Validator
- Protocols
  - [BACN] JS API for discovery of Devices and Objects
  - [OPCU] Allow support to namespace index resolution at runtime
  - [OPCU] allow casting in client and in general provide better type handling
  - [BACN] BACnet server
  - [OPCU] Added manual browsing to importer to avoid browsing on not interested nodes
  - [CDS3] Enhance protocol data exchange performance
  - [ETIP] Add Omron NX series to EtherNet/IP PLC models
  - [ETIP][S7ET] Enlarge maximum length of write operations for EtherNet/IP CIP protocol
  - [CDS3] Add Schneider model in protocol configuration
  - [MODT] Add Epson Robot model
  - [OPCU] Tags not read using OPCUA with security
  - [CDS3] Add TCP connection type
  - [CDS3] Remove "full node address" option
  - [CDS3] make "Protocol" comb box selection Default "TCP"
  - [ETIP] Ethernet IP as PB standard protocol
- Recipes
  - Possibility to dump and restore a single recipe data set
- Run time operation
  - Add quick IP check in context menu
  - Add support for write into a specific index of an array Tag, without reading the whole array
  - Add ARCSIN, ARCCOS, ARCTAN among default functions available for Formula feature
  - Increase Project size limit to 240MB for Win32 runtime
- Security
  - Request to "clone" Authorizations from an existing User Group to generate a newer
  - Password Parameter should contain the option to have Lower and upper case
  - Option to make users inactive
  - Protection of Tags in R/W based on user management configuration
  - Support for PDF Signed in print reports /CFR 21 Part 11
  - Increase number of active users from 50 to 200/500
- System Variables
  - Add the system variable to control the RGB LED
  - CurLangId and CurLangName as system variable
- Tables
  - Grid layout 'strokes item' filters some events
  - Improved Studio behavior when Drag & Drop TableGroup widget
  - Improved table widget sorting on double values
  - Expose Vertical relative position to table widget, to allow usage of custom scrollbar
  - Add Case Insensitive comparison for Table Filter
- Tag Editor
  - Filtering of data in table widget & Tag expressions for Attach to...
  - Tags find and rename: search Tags inside the JavaScript code
  - Add scaling parameters in Tag importer, from dictionary
  - Redesign "Tag Scaling" dialog
  - Refactor Tag Editor & filtering option & Change multiple properties of Tags in Tag editor in one STEP
- Tags
  - Automatic Tag rename data entry when adding tags manually
  - Improve performance issues in tag import and dictionary selection
- Trends
  - Increase sampling rate up to 0.1s for trends and datalogs
  - Array Tag index support for Trends / Data log
  - Extend Trends to support Alphanumeric Tags up to 8 as length
  - Introduce Title field for trends/datalog
  - Introduce Title field for trends/datalog dump action
  - Increase trend's limits (on Win32)
  - Added Table Period and End time selection
- User Interface
  - Formula returns false if tag involved belongs to Node disabled
- Widgets

o Porting of Scheduler Widget to new table format o Import/Export of items / texts in message widget o Add a description field into keyboards o Add support for Min/Max parameters in Scatter Diagram curves o Extend number format property to Scale labels o Array Tag index support for Scheduler o Array Tag index support for Actions o Add $Ceil and $Floor as native formula functions o Custom wgt disable: show internal properties if is selected a sub widget o Option for non-continuous index for MultiState Image o Custom format for Date&Time o Provide an option to play video from USB Memory or SD Card	

Fixed issues	***Version***
– Actions and Events o Keyboard buttons long pressure execute action configured into onRelease event o Action "CloseDialog" executed in ScreenSaver onStart restart the ScreenSaver timer – Alarms o Alarm/Event Archive save a copy in .csv file when buffer is full o Live tag description with vertical bar in tag name show nan in runtime o Alarm Editor Index of Array Tag disappear when project is converted o Enabling AckBlink flag in alarm editor affecting Alarm description column o [CDS3] HMIs based on WCE return a "read datagram failed" on Alarms o Alarm Custom fields not exported o PB4Web: Alarm JS API not working o FTP Actions configuration lost converting project from old version o Recipe action configure in alarm is missing o Client does not Show changing on alarms after switch user o PB4Web: Alarm History does not show record of AlarmBuffer o [BAC2] Is not possible to edit bacnet alarm with BAC2 protocol o PB4Web: improved performances on actions selectAll and ack for Alarm widget o Improved Runtime behavior when attaching dump event archive action in Alarm Editor – Audit Trail: o AuditTrail widget filled with maximum events will list latest events only after 5 min o Manage target actions logged in Audit Trail contains wrong or unclear information o In Audit trails table some Recipe records are wrong or misses information o PB4Web: Recipe Element Change name not showing in Audit view operation column – Behavior o Corrected behavior when clicking two buttons simultaneously with specific project o Timer.xml in client is not updated when redownloading the project with delete dynamic files o Prevent Studio to accept character / inside file name o OnDataUpdate event triggered twice if leading digits are used o Hitting Esc key in Tag editor close the view o Update package via Manage Target is not working when runtime version does not change o Corrected Studio behavior after double tag import when Tag is filtered by Group o Corrected behavior when a null datalink is inside a custom widget o Improved consecutive project downloads handling o Improve Studio usability with dpi=150% in Windows o Corrected behavior when EventArchive storage is different from local o Improved ImageDB management and scheduler handling o Corrected behavior when downloading project o Corrected behavior when dumping Audit Trail to usb memory o Corrected behavior with login sequence in case of dynamic datalinks o PB4Web: corrected behavior in visualizing trend page for long time o Corrected runtime behavior when Send mail action executed in from Scheduler o Improved Studio behavior when renaming tag in indexed Tag set o The Settings window size on small size HMI makes difficult to save the settings - o Corrected behavior while reading from unsaved events o Corrected behavior on an Audit trail project – CFR21 o "SaveEventArchive" does not generate certificate file in simulator – Client o Panel Builder Client does not activate Tags when connecting from remote via VPN – Data entry o Unicode characters entered on string tag showing wrongly in HMIClient – Documentation o [IR5L] German translation for IR5L protocol – Fonts o Font missing error shows even though the fonts are available in the system folder – Installer	4.0.1.462

- [ETIP] The installation procedure using the installer does not add the corresponding driver to the protocol list
- Invalid error getting in studio after install runtime with 240MB project from manage target

- JavaScript
  - Doc for ftpPUT JS action has swapped local and remote name parameters
  - Improved JavaScript behavior when calling empty functions periodically
  - Fatal error using a for cycle in JS execute on touch button
  - Via browser the GET request fails to transmit strings longer than 3000 characters
  - PB4Web: setInterval() with callback in string format, is not handled correctly
  - PB4Web: Button's Fill Color Property is not changed dynamically using JS
  - PB4Web: getWidget function to get an internal widget of Custom Widget does not work
  - Copy/paste does not copy JavaScript action
- MQTT
  - MQTT Message aggregation function does not work as described in manual
  - Corrected behavior when a Tag is attached to Hubname in Azure MQTT
  - MQTT with Message aggregation selected, there is a different behavior if Tag value is positive or negative
  - Improved Studio behavior when renaming tag and attach to tag in MQTT editor
  - MQTT when Client ID is attached to a Tag, it is not assigned to the corresponding keyword
  - MQTT Azure attaching DeviceID with dynamic tag is not working
  - [MQTT] When we receive a message with payload with comma "," it is not managed
  - [MQTT] runtime crashes when the payload of Data (sub) is empty
- Multilanguage
  - Disable default and imported fonts from import font list
  - Fonts from HKEY_CURRENT_USER not found correctly by XFont
  - Writing system not settable if font is not available in Gallery/fonts
  - Font list combo in studio tab showing empty if different font with same font family is imported
  - Tag export import not working correctly for Chinese and German language
  - Complete translation for customize dialog
  - Toolbar and docking windows customize dialog is not translated
  - [S7ET][S7OP] Illegal characters quotations is allowed from importer
  - Multilanguages imported csv file does not work for Custom Widget Full
- OPC UA
  - [OPCU] Corrected behavior on project load when OPC UA certificates are used
  - [OPCU] OPC UA server identity information is not correctly exposed
- Pages
  - Corrected behavior on Non-Modal Dialog opened behind another Non-modal
  - Corrected behavior performing a user change that reloads page request value
  - Corrected project validation when opening uploaded project
  - Wrong dialogs position on show dialog action
- PB4Web
  - PB4Web: Only when Boolean Tag is modified by JS page browser, the value is not update on PC Runtime
  - Issue on "Shape Button": if the property "Up Color" is set to value "none" the button animation does not work fine
  - PB4Web: Add support for Min/Max parameters in Scatter Diagram curves
  - PB4Web: Upscaling problem in PB4Web page
  - PB4Web: base color in message text does not automatically adapt on text color
  - PB4Web: Base color in message text in PB4Web does not automatically adapt on text color
  - PB4Web: MultiState Image widget not working with svg image file
  - PB4Web: JSFuncBlock widget execute code twice when a dialog page is opened
  - PB4Web: "Mask" function does not work in numeric field linked to String Tag
  - PB4Web: IP Camera widget not working if camera requires credentials
  - PB4Web: Dynamic selection of Tag for curve not working on History Trend widget
  - PB4Web: Multistate Image widget does not animate on web pages
  - PB4Web: Use of Scaling and Color Palette generate an Error Message
  - PB4Web: corrected behavior of text color property for Light Widget
  - PB4Web: Use of Color palette in Scale widget generate an error message
  - PB4Web: Wrong writing of Indexed Tags in a Table
  - PB4Web: Widgets get truncated in browser if they placed closed
  - PB4Web: Corrected behavior when external margins of Grid Layout are set to 0
  - PB4Web: Images not displayed in web responsive design page
  - PB4Web: Multistate Image are not displayed with PB4Web
  - PB4Web: Improved handling of raster and svg images
  - Improved behavior when executing quick page change (Next/Prev/Load Page)
  - PB4Web: Improved behavior when executing quick page change (Next/Prev/Load Page)
  - PB4Web: dynamic fonts are not correctly added in project folder during its download on a panel
  - PB4Web: missing SVG images in Template page
  - PB4Web: Button not clickable with svg image in template
  - PB4Web: project not loading when bargraph has data link in max value
  - PB4Web: project.getGroup() not working
  - PB4Web: improved behavior on double writeTag

- PB4Web: Icon images of buttons are not visible in web pages
- PB4Web: Stroke and fill color of numeric widget frame shown even if frame is disabled
- PB4Web: Button with gauge does not working properly
- PB4Web: Resolution of X axis in History Trend widget is less accurate then in native page
- PB4Web: wrong behavior if Parameter of custom widget is set as index of array
- PB4Web: Improved performances using file compression
- PB4Web missing 1 leading digit if value is only 0
- PB4Web: web pages are not created when special svg are used
- PB4Web: project.lastvisitedpage not working
- PB4Web: button with associated tag changes UP / DOWN image if clicked
- PB4Web: Add property Background color option for Web project
- PB4Web: studio validator doesn't show all warning related to grid group layout unsupported properties on web
- PB4Web: Cursor Value of curves associated to a Formula does not work
- PB4Web: Wrong images displayed on web pages
- PB4Web: white stroke color not working in shape widget
- PB4Web: Frames of password fields in change password template is missing
- PB4Web: Web page request does not work properly
- Corrected Simulator behavior when starting web project that contains a trend table
- PB4Web: Improved Real Time Trend behavior
- PB4Web: corrected behavior when using TextTable
- PB4Web: improved Trend Table behavior when duration is set to "All"
- PB4Web: Improved behavior when jmx files are wrongly copied in "usermgmttemplates" folder
- PB4Web: Error 403 and web project not created if User Management Page is modified
- PB4Web: Multistate images used in custom widgets are not displayed
- PB4Web: QRcode reader stop printing canvas after page change
- PB4Web: issues with button properties
- PB4Web: Alias Index tags are not displaying if Indexed ref not in page
- PB4Web: fields inside tables without connection to data source cannot be edited
- PB4Web: When enabling "Change Initial password" in Web Change password, page opens in Read only mode and cannot be edited
- PB4Web: in object groups, handling the visible and disable property from tags generates a communication error
- PB4Web: Active Alarm does not show records properly
- PB4Web: Parameter tag on visible property inside custom widget shows question mark
- Tag with "[" inside name does not works inside data source on web pages
- PB4Web: web pages are not created with specific projects and multilanguage conditions
- PB4Web: Line widget is inclined
- PB4Web: Numeric Fields appears with a different font
- Adding images to web pages cause other web pages to not work properly
- Curves on trend widget delete some points after update
- PB4Web: corrected behavior causing empty web folder
- If browser loses focus hold events continues to be triggered
- PB4Web: corrected behavior for converted projects, for which web pages cannot be created
- PB4Web: Refresh trend action does not work
- PB4Web: Images in template are not shown if Static Optimization is normal
- PB4Web: Corrected behavior when executing JavaScript from onDeactivate page event
- Message text wrong behavior on web page using scaling and formula
- PB4Web: SVG image not working with Multistate image widget
- PB4Web: corrected behavior in auto update trends
- PB4Web: trend widget shows old data after delete Trend action
- PB4Web: when enabling "Change Initial password", page opens in read only mode
- PB4Web: Corrected behavior when security is applied on actions
- PB4Web: Alarm details inside alarm table widget is not showing sometimes
- PB4Web: improved behavior of Message widget inside custom widgets
- PB4Web: Index Tag with String not working
- PB4Web: improved behavior when writing in Alias with array Tag
- PB4Web: improved behavior when recipe name set is left blank
- PB4Web: Use of formula on Value property of Light widget is not working in web pages
- PB4Web: the needle in the slider widget gets truncated while rotating the widget
- PB4Web: Button Color does not change dynamically using Color Palette

- Performance
  - Corrected memory management with datatime widget used with trend widget
- Productivity tools and IDE UI
  - Tag deletion leads to impossibility to select any studio part when properties pane is floating
- Protocol
  - [ABDF][ABDH][ABEN] Wrong Tag creation after to have defined some Timer or Counter Tags
  - [CDS3] Writing an array of 1000 elements cause runtime crash
  - [MIQE] Issue when imports input/output Tags; import as OCT format, however Q series uses Hex format for addressing. - CaseID: 201904441
  - [MRTU] Fix detection of exception in case of ASCII mode

- [CANH][LENZ][J193][NM2K][NM20][B193][CAND] Revert socket to blocking mode for CanEngine based protocols
- [MODT] Ip address 0.0.0.0 recognized as disabled node
- [ETIP] No reconnection after ethernet cable unplug/plug with Omron NX PLC
- [BACN] powering on an IP device on same network causes panel crash
- [MODS] Protocol does not respond to request after receiving many other messages
- [S7ET] Error importing Tag with from Step7 file
- [ETIP] HMI runtime hangs with customer project
- [ETIP] UDT data type not imported
- [ETIP] Enhance communication with Micro800 PLC
- [PING] Multiple instance configuration is not working on Linux Platforms
- [ETIP] Reading and Writing Boolean array error with PLC Micro800
- [CDS3] Corrected behavior when loading many data from PLC
- [HISE] [HIET] Replace dot with underscore in Tag import
- [S7OP][S7ET][MPOB][S7DP] TIA Portal project importer returns GetSystemType and GetType error with specific project
- [ETIP] NAK error when trying to write Boolean array element
- [S7ET] connection with PLC with latest Firmware version is not working
- [OPCU] Impossible to write string Tag
- [S7OP][S7ET][S7DP][MPOB] Wrong reading when a Tag is referenced to instance DB
- [ETIP] NAK on writing Boolean array in case of Omron NX/NJ PLC
- [ETIP] Time data type is not working
- [MIQE] Increment registers range for QnU CUP model
- [MODR] Server should never answer to client when ModbusID is 0
- [CDS3] Corrected behavior in writing null value to string
- [BACN] Alarms are not shown properly with different notification class
- [IR5L] Boolean tags not correctly read and write
- [CDS3] Runtime crash when disconnecting ethernet cable
- [MODR] allow clients in UDP and TCP mode at the same time
- [ETIP] Error accessing Boolean array tag
- [ETIP] Download Recipe does not work with Model Micro800
- [MODR] allow clients in UDP and TCP mode at the same time - Merge to 4.0.1
- [CDS3] Change login procedure for both model type; Schneider and CODESYS model in protocol configuration
- [CDS3] Error: Timeout on answer in WCE platform
- [BACN] Communication error after 3 days
- [CDS3] linear importer does not import tags defined as "LWORD" Data type in plc program
- [MRTU] [MODT] Wrong address calculation for %MD and %MF tag register with imported "Schneider SoMachine Basic csv v1.0"
- [BACN] Client answer abort(0) to a controller request
- [CDS3] LREAL in a Complex struct returns an Error Message
- [S7ET] Importer wrongly replaces "/" with "_"
- [ETIP] Modify Sysmac importer to accept data type in lower case
- [ABBS] reduce optimization for commands 01/02/16 to 192bit for ABB AC31 Series 90 model
- [MODT] Alignment adding "Swap" format missing in all data format Tag definition
- [ABBE] [ABBS] Tag import trunks tag names when importing from CODESYS V3 PLC

- Recipes
  - Recipe showing incorrect values with currentselectedset in Runtime and web browser
  - Import of txt file Recipe does not update Recipe
- Remote Client
  - Added DB actions support on HMI Client
- Rendering
  - SVG Stroke color not applied correctly if the image is rotated
- Run time operation
  - Disable "Use Last Visited Page" if "Home Page" is set for the user group
  - Runtime crash after some time using BACnet application
  - Panel Builder crashes if we ungroup scatter diagram and add curve
  - Runtime crashes when loading customer with many pages in precache
  - Runtime crashes after navigation in many pages with customer project
  - Runtime crashes with formula attached to visibility that check values of two aliases
  - Opening dialog inside dialog focus remain on first one
  - Send multiple mail with empty text causes bad chars displayed in HMI
  - LoadPage dialog is not invoked in center and is too little
  - Datatransfer does not works with fastbootabe
  - Tag not activated after many page changes
  - Crash of the panel caused by dialogs
  - Runtime crash with when broken context in the formula
  - Keypad do not appear when is smaller than dialog
  - Language to use inside the .csv file generate from the DumpEventArchive macro
- Scheduler
  - Entering in weekly scheduler configuration cause deleting days
  - Corrected Studio behavior when scheduler name contains dot char

- Schedule Table widget stops the simulator when we Edit a scheduler
- Security
  - Security settings are not applied for OnDataUpdate programmed actions
  - Corrected behavior when executing add user action without permission to edit other users
  - Accessing a remote folder using a password with uppercase is not working.
  - Security on table of internal custom widget does not work
  - PB4Web: corrected wrong displaying for login when multiple web client connect
- Tables
  - Wrong writing of Indexed Tags in a Table
  - Alarm tables (active and history) filter does not work if applied on alDescription
  - Table Widget: single column sorting not ensure the original index position for the same strings
- Tag Editor
  - Incorrect Tag refresh rate and Tag freeze in specific scenario
- Tags
  - Tag 'find and rename' does not rename tags in Trend editor
  - Improved Studio behavior when opening project with more dictionaries
  - Tag is not removing correctly in Table Data source widget if Tag is removed
  - [OMRE] Wrong address increase of tags
  - Improved Studio behavior when attach to dialog is opened with Dictionary
  - Improved behavior when using Tag replace consequent actions
  - Opening web dialog after modifying tag index cause wrong read of aliased tag
  - Tag cross reference shows bad icon after save project
  - By range scaling values in Tag editor are modified at project re-opening
  - Step Tag with Limit does not work with unsignedByte Tag
- Trends
  - Trendcursor does not display any value when Tag is equal to value "-1"
  - Make acceptable the value "ZERO" (auto refresh stopped) on the historical trend widget
  - Scatter "Y" Scale not working properly with Float value
  - Generic Failure when download a project
  - Trend dump values are interchanging their positions when we have high resolution trends
  - With quick page change actions (LoadPage), curves switch in history trend
  - When the Sampling Time of a Trend is 0 sometimes the related curve is shown in History Trend
  - Color bands in history trend are shifted by 1 hour
  - Introduced issue causes history trend widget in web page to delete data
  - Corrected behavior in displaying curves in History Trend widget
  - Cannot retrieve data from Trend tables through javascript
  - In Trend editor, selected curve is missing with backup archive after close and reopen the project
- User Interface
  - Max Limit displayed with wrong value in Keypad editing a HEXadecimal numeric field
  - Wrong tooltips in Database Links and Audit trail
  - "Failed to load image" error reported in Studio when many copies of big image are created
  - Studio _filter_fonts.xml file is missing for ko-KR and zh-TW languages
  - List of available fonts changes if UI language is changed with project opened
  - Random values are shown in the Offline Retry Timeout
  - Translation missing and properties order mismatch in Tag Editor
- Validator
  - Set and get property for variable widgets does not work on web pages
  - Validator shows error with widget recipe
  - Project Validator error on blink property
- Video
  - Media Player widget with looped video causes high usage of CPU and slower response of buttons actions
  - Improved handling of long running Media Player widget
  - "No Signal" appears on top of DVI video input widget after some hours connected to a source with DVI module
  - Improved Video playback fluidity
- Widget
  - Security not supported by inner objects of table widget
  - Custom field with automatic scale and number format based on data type
  - Panel Builder crash on duplicate ID widget delete
  - Widget Catalog window "breaks" Id of param
  - Bacnet Scheduler widget day names are wrongly written
  - Special chars not correctly display into History Alarm widget in description with live Tags
  - Changing color Background dynamically of an Image widget, sometime the border/stroke black line is displayed on screen erroneously - CaseID: 201904059
  - Advanced multistate image precache (imageDB) for animation
  - Consumption meter doesn't scale value in graph
  - SetProperty on IP camera widget does not work properly
  - Custom widget wrong ML text management on label if copied and pasted inside custom widget
  - OnDataUpdate of a field belong to a Table is triggered multiple times
  - Wrong dump file name after enabling scheduler from widget

o Live data in Message widget shows NaN in particular scenarios if the tag is not subscribed in page o Corrected behavior of Scrolling with Live Tag o Setting Min properties minor than 0 in bargraph, a rectangle appears behind the widget o Combo-box event "OnDataUpdate" is triggered twice o Corrected shape widget stroke color property behavior o In Custom Widgets Parameters attach to a Tag doesn't work for Lights and Buttons o Corrected behavior in array index for parameters of Custom widget o Studio Behaviors on Drag and drop video widget when page view zoom is minor than 100% o PB4Web: WriteTag on project variable does not work for web category o Bargraph widget improvement o PB4Web: ComboBox is not scrollable o When "Alarm Min" / "Alarm Max" property is set in Slider-Vertical Alarm bar disappears o Stroke width property value has no effect on Multistate image o Slider data type and data format wrong behavior o PB4Web: Some Dynamic shapes are not visible o "None" cannot be assigned to widgets Color properties o Improved stroke color property to Multistate Image o PB4Web: meter scale tick color not changed o Remove Fixed Edges property from Flag buttons o Message text does not work properly inside custom widgets o Crash of the Studio after editing name of Custom Widget o WV-54550L IP Camera model not working with IP Camera widget MJPEG in native pages o Rotate Image are shown blurred in the studio and in runtime (introduced issue) o Pen Style is not working in Scatter Diagram o Segmented bargraph not updated when entering page if Min property differs from 0	

Known problems	***ID***
When installing CP600 control panel option including previous version profiles, the Panel Builder installer asks for replacing the last installed version of Panel Builder. This question has to be answered with “no”. In case of accidently choosing “yes”, the installer has to be executed again, although it has been finished successfully.	PB600-632

Servo Drives

Functional changes / New features	***Version***
No functional changes	Build 5852

Appendix

Appendix 1: Release notes CS31 Library Package 2.4.5

The software Libraries in HA Library Package are for V2 CPUs only and have been tested with the following versions:

- Automation Builder versions AB1.1 to AB2.4.1
- CPU and CM574: Firmware versions FW2.4.2 to FW 2.8.4
- CI590-CS31-HA: Firmware T3.0.15

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Changes in different package versions

V1.0.0 HA_CS31_AC500_V13.lib
V2.0.0 HA_CS31_AC500_V20.lib
V2.3.0 HA_CS31_AC500_V23.lib (2013-12-11, library version V2.3.0) HA_CS31_CALLBACK_STOP updated from program to function
V2.4.0 HA_CS31_AC500_V23.lib (2014-04-29, library version V2.4.0) Support of more than one CS31 bus by using CM574, Bug fixes.
V2.4.1 HA_CS31_AC500_V23.lib (2014-10-24, library version V2.4.1) Adaptation for compatibility with new FW 2.4.0 (LIB-391, LIB-394)
V2.4.2 HA_CS31_AC500_V23.lib (2015-03-27, library version V2.4.2) bugs fixes (LIB-347, LIB-419, LIB-347, LIB-418)
V2.4.3 HA_CS31_AC500_V23.lib (2015-03-27, library version V2.4.2) no changes in library, only online help CAA-Merger-9.chm updated (2016-05-02)
V2.4.4 HA_CS31_AC500_V23.lib (2015-03-27, library version V2.4.2) no changes in library, only example and documentation updated for CM597 (2018-06-08)
V2.4.5 HA_CS31_AC500_V23.lib (2015-03-27, library version V2.4.2) no changes in library, only example and documentation upgraded to valid CP600 HMI (LIB-1970)

Known limitations or bugs
- A list of limitations can be found in the online help: AC500 High Availability System> AC500 HA-CS31 > AC500 High Availability CS31 System Technology > System Structure > HA-CS31 Limitations
- The Replacement of CI590 is possible with a normal HA-CS31 system, which otherwise has no error : PLC A has to be (made) Primary. For replacement of CI590 when PLC B is Primary, the following pins of TU522-CS31 must be bridged before: 2.2 to 2.5, 2.3 to 2.6, 2.4 to 2.7
- CI590 modules connected on CM574-RS - SYNC led is blinking if user restart those modules. User need to user ACK_CHG_OVER input from HA_CS31_CONTROL FB to remove the same (LIB-745)
- CI590 FW T3.0.0: CI590 Analogue + Digital output compare is not working. This is fixed with CI590 FW T3.0.15
- CI590 FW T3.0.15: Manual switch over is causing SYNC led to blink on CI590 modules. User need to use ACK_CHG_OVER input from HA_CS1_CONTROL function block to reset SYNC led blink (LIB-743)
- PLC settings, PMxxx-ETH Parameters, Parameter "Behaviour of outputs in stop": If this parameter is changed from default value to "Actual state in hardware and online" the HA system gets unstable when the primary CPU is stopped (LIB-2137)

Installation and Update
The AC500 HA CS31 Library Package is part of the Automation Builder

Appendix 2: Release notes PS553-DRIVES 1.2.8

AC500 libraries for control and communication to ABB ACS and DCS Drives using ABB Drives Profile.

The software Libraries of this package have been tested with the following versions:

- Automation Builder versions AB1.1 to AB2.4.1
- Firmware versions FW2.5 to FW 2.8.4

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Changes in different versions

V1.2.8: (4.3.2020)
- Examples and documentation updated: set the EN input of Ctrl-block to constant TRUE (LIB-2271, LIB-2273)

V1.2.7: (20.06.2019)
Several improvements and bugfixes in the existing libraries
- ACSDrivesBase_AC500_V20.lib (V1.1.3)
- ACSDrivesComModRTU_AC500_V20.lib (V1.1.4)
- ACSDrivesComModTCP_AC500_V22.lib (V1.0.2)
- ACSDrivesComModTCP_Ext_AC500_V24.lib (V1.0.1)
- ACSDrivesComPB_AC500_V24.lib (V1.0.2)
- ACSDrivesComPN_AC500_V24.lib (V1.0.2)
- DCSDrives_AC500_V24.lib (V1.0.1)

JIRA tickets:
LIB-479: ACS_COM_MOD_RTU_ENHANCED - Output "ONLINE" is not reset after correction of wrong drive settings - PLC must be reset
LIB-495: Skip Modbus RTU communication to drives that are not online and retry only after e.g. each 20sec
LIB-1128: Comment for DRIVE_DATA input is wrong (this is visible as tooltip)
LIB-1129: Visu ACS_COM_MOD_RTU_GEN_VISU_PH to be added four values
LIB-1269: ACS_DRIVES_CTRL_ENG_VISU_PH color of RESET input should be green instead of yellow if TRUE
LIB-1729: Code related to "DRIVE_DATA.ctrlBlockUsed" is not introduced in "ACS_COM_MOD_TCP" in line with other communication blocks
LIB-1732: ACS_COM_MOD_TCPx_ENHANCED and interlock missing if not used with control block
LIB-1736: Difference in DCS & ACS drive control behavior: When CW = 0, DCS drive does not go to stop while ACS drive goes to stop
LIB-1812: Improve the error description for the outputs SPEED_REF and TORQUE_REFLIB-1971: Docu for DRIVES-Lib V2 - Hint for ACS380 not to use ACS3XX blocks
LIB-1972: add new DRIVE_TYPE for ACS380, ACS480, ACQ580

V1.2.6: (08.06.2018)
- Updated Examples for Modbus TCP with CM597)

V1.2.5: (29.05.2017)
- Updated Examples for Modbus RTU and TCP (workaround for AB-12166)

V1.2.4: (15.03.2017)
- Updated Example documentation: Quickstart Guide B 3ADR025232M0201.pdf (LIB-1247)
- Online help: Added chapter about "ACS / DCS Drives Communication via Modbus TCP EXT" library (AB-11069)

V1.2.3: (22.09.2016)
Added broadcast message functionality to ACS_COM_MOD_RTU_GEN Function block (V1.1.3).
- ACSDrivesComModRTU_AC500_V20

V1.2.2: (24.06.2016)
Improved generation time of DONE output for Profibus and Profinet DPV1 function blocks (V1.0.1)
- ACSDrivesComPB_AC500_V24
- ACSDrivesComPN_AC500_V24

V1.2.1: (17.03.2016)
Update of online help

V1.2.0: (27.10.2015)
Added following new libraries (V1.0.0)
- DCSDrives_AC500_V24.lib
- ACSDrivesComPB_AC500_V24
- ACSDrivesComPN_AC500_V24
- ACSDrivesComModTCP_Ext_AC500_V24

Several improvements in the existing libraries
- ACSDrivesBase_AC500_V20.lib (V1.1.2)
- ACSDrivesComModRTU_AC500_V20.lib (V1.1.2)
- ACSDrivesComModTCP_AC500_V22.lib (V1.0.1)

Update of online help and examples

V1.1.7: (17.07.2013)
Corrections in PB / PNIO Example documentations - now version E
Added Presentation "PS553 Library Introduction and Exercises V34.pdf" and
ACS Drives - AC500 overview fieldbus connectivity.xls in folder "Examples\PS553-DRIVES"

V1.1.6: (17.05.2013)
Update of folder structure, documents and projects in Examples

V1.1.5: (03.05.2013)
Update of AC500 online help (CAA-Merger11.chm) - Version delivered with Control Builder Plus V2.3.0

V1.1.4: (12.04.2013):
Update of AC500 online help (CAA-Merger11.chm) including German translation.

V1.1.3: (03.04.2013):
Update of example documentations and AC500 online help (CAA-Merger11.chm).

V1.1.1: (16.01.2013):
ACSDrivesBase_AC500_V20.lib:
Bug fixes in existing visualizations for webserver use
ACSDrivesComModRTU_AC500_V20.lib:
Bug fixes in existing visualizations for webserver use
installshield:
Bug fix to install (setup) documentation without libraries

V1.1.0: (14.12.2012):
ACSDrivesComModTCP_AC500_V22.lib:
new library for Modbus TCP communication to all ACSxxx drives
ACSDrivesBase_AC500_V20.lib:
New function blocks for fieldbus independent control and scaling
Bug fixes in existing function blocks and visualizations
ACSDrivesComModRTU_AC500_V20.lib:
New function blocks for Modbus RTU communication to all ACSxxx drives
New function blocks for communication to generic slave devices used on same RTU line.
Bug fixes in existing function blocks and visualizations
Documentation:
Update of chm docu in CAA-Merger11.chm
Examples:
New examples for connection with Profibus, ProfiNet

V1.0 (10.12.2010):
Release for AC500-eCo and ACS3XX

Known issues

- Drive manager may be disconnected if user is using Profinet / Profibus DPV1 read write function block in PLC. (AB-8376)
- Currently user cannot use enumeration from ACS_PB_PN_PRM_TYPE_ENUM. Instead user need to use numerical values from ACS_PB_PN_PRM_TYPE_ENUM only. (LIB-940)
- Modbus reconnection not possible in special cases (LIB-2245):In the following case it might be possible that the connection to the drive is not reestablished after a connection loss, e.g. due to cable being unplugged or power off of the drive:
  If the “EN” input of the control blocks (ACS_DRIVES_CTRL_STANDARD, ACS_DRIVES_CTRL_ENG) is connected from the output “ONLINE” of the communication block (e.g. ACS_COM_MOD_RTU, ACS_COM_MOD_RTU_ENHANCED, ACS_COM_MOD_TCP, ACS_COM_MOD_TCP_ENHANCED, ACS_COM_MOD_TCPx, ACS_COM_MOD_TCPx_ENHANCED) it is necessary to switch off/on the PLC.
  Workaround: We strongly recommend to set the EN input of the control blocks fix to TRUE.

Installation and Update

This Library Package is part of the Automation Builder. It is installed by default.
Examples can be found in C:\Users\Public\Documents\AutomationBuilder\Examples\PS553-DRIVES

Appendix 3: PS566 CMS Signal Processing Package (Technology Preview)

Disclaimer: Technology Previews are designed to give you a preview at upcoming technologies. They are non-final versions of our product and should NOT be taken as a measure of the fit, finish, capability, and overall quality of the final release (including user documentation). Technology Preview features can be changed or removed in newer versions of Automation Builder as communicated via the release notes. If technology previews are subject to licensing, please contact your ABB sales representative.

Welcome to the AC500 CMS Signal Processing Package, Version 2.1.0, consisting of

- SP_AC500_V28_App.lib (and .obj files, since the library contains C-Code)
- Example folder with examples, example documentation and library documentation

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.2 to AB2.4.1
- PM592-ETH Firmware FW2.4 to FW2.8.4 (Version 2.0.0 requires at least FW2.8.0)
- FM502 V1.0.0

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

- V2.1.0 (AB2.4.1, 2020-05-04)
  - New function blocks (Prototype folder)
    - SP_MAGFFT_OVERLAP_AVG_App (LIB-2563)
    - SP_FFT_CMPL_POLAR_App, SP_PHASE_OFFSET_FREQ_App, SP_PAHSE_OFFSET_TIME_App, SP_SPEED_KEYPHASOR_App (LIB-2286)
  - Fixed function blocks:
    - SP_FFT_RMS_App improved (LIB-2560)
    - SP_STATISTICS_App, MEDIAN now fully working (LIB-2550)
  - Example updated: AC500_V2_CMS_SP_Expert_AB240.project , Bug fix for overwrite encoder settings (LIB-2493, LIB-2391)
  - Updated library documentation in example folder ...PS566-CMS\Signal Processing V2\LibraryDocumentation (LIB-2567)
- V2.0.0 (AB 2.2.5, 2020-03-04)
  - Library optimized: SP_AC500_V28_App.lib (LIB-2146, LIB-2100, LIB-2235), SP_ENVELOPE_App corrected (LIB-2199). Upgrade path is described in chapter 4.1 of AC500 V2 CMS SP Library V200 description 3ADR025244M0208.pdf.
  - New examples for first steps, gearbox and pumping (LIB-2230, LIB-2168, LIB-1999)
- V1.3.0 (AB 2.2.3, 2019-06-03)
  - New function block added: SP_READ_WAV_HEAP_App which doesn't needs the program memory but works in the heap (LIB-2029)
- V1.2.3 (AB 2.2.1, 2019-03-01)
  - Examples improved (LIB-1965), updated FIR Block: First samples according to filter order number are deleted (LIB-1953)
- V1.2.2 (AB 2.2.0, 2018-10-09)
  - Fixed calculation mistake / issue in the SP_FIR_FILTER_APP Function Block (LIB-1733), library enabled for PM595 (LIB-1721)
- V1.2.1 (AB 2.1.2, 2018-06-05)
  - New function blocks: SP_FFT_RMS_APP, SP_FIR_FILTER_APP, SP_HARMONICS_APP, SP_MAGFFT_ENERGY_APP, SP_MATH_APP

- V1.1.0 (AB 1.2.3, 2016-07-11)
  - New LP and HP filter blocks: SP_HIGH_PASS_FILTER_APP, SP_LOW_PASS_FILTER_APP
- V1.0.0 (AB 1.0.0, 2016-01-18)
  - First version: SP_AC500_V24_App.lib

Known limitations or bugs

- only supported by PM585 or higher due to need of co-processor

Installation and Update

Basic CMS libraries and examples are part of the Automation Builder:

- Basic Libraries: \Program Files\Common Files\CAA-Targets\ABB_AC500\AC500_V12\library\CMS_IO_AC500_V24.lib and WAV_FILE_AC500_V24.lib
- Basic Examples: \Users\Public\Documents\AutomationBuilder\Examples\PS566-CMS\Measurements

This package contains additional libraries, examples and documentation for the Condition Monitoring System:

- Signal Processing library: \Program Files\Common Files\CAA-Targets\ABB_AC500\AC500_V12\library\ApplicationLibraries\SP_AC500_V28_App.lib
- Signal Processing examples and library help file: \Users\Public\Documents\AutomationBuilder\Examples\PS566-CMS\Signal Processing V2

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

Appendix 4: PS565 BACnet-ASC Library Package (license required)

Welcome to PS565 BACnet-ASC Library Package, Version 1.0.2

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.2 to AB2.4.1
- CPU Firmware FW2.5 to FW2.8.4

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

V0.9.0 2016-05-04 First version, technology preview
V1.0.1 2016-08-30 First product version, certified by BTL
V1.0.2 2019-03-14 Performance improved with library BACnet_BASC_AC500_V28.lib (V1.0.2), This library version requires FW version 2.8 or higher (LIB-1390 / LIB-2016)

Known limitations or bugs

- eCo (PM554 etc.): Very little applications possible only
  - BASC_SERVER + BASC_DEVICE + 1 ANALOG_IN is working
  - May be one to two more FBs will work in addition
- Runtime error #81 after program change and download -> Solution: Perform "Project - Clean all" and download again [LIB-1074]

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

This Library needs a valid license for compilation.

- License is obtained via an authorization code as a product, which has to be bought via the normal AC500 sales channels.

What’s new in Version V1.0.2

- LIB-1390: Performance improved with library BACnet_BASC_AC500_V28.lib (V1.0.2)**,** for even faster versions please contact support

What’s new in Version V1.0.1

- Several fixes for BACnet certification

Appendix 5: PS554 FTP Client Library Package (Technology Preview)

Disclaimer: Technology Previews are designed to give you a preview at upcoming technologies. They are non-final versions of our product and should NOT be taken as a measure of the fit, finish, capability, and overall quality of the final release (including user documentation). Technology Preview features can be changed or removed in newer versions of Automation Builder as communicated via the release notes. If technology previews are subject to licensing, please contact your ABB sales representative.

Welcome to the AC500 FTP client Library Package, Version 1.8.1

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.0 to AB2.4.1
- CPU FW2.4.2 to FW2.8.4

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

2013-02-06 V 1.0 - released
2013-03-06 V 1.2 - few bug fixes
2013-03-27 V 1.3 - added corrections from final review
2013-06-24 V 1.4 - Fixed reply code evaluation when opening a data channel to Microsoft FTP Server / - Free socket descriptor even if socket could not be opened
2013-07-23 V 1.5 - changed FTP_MAX_PATH length from 30 characters to 60 characters
2014-11-04 V 1.6 - Fixed error in the offset calculation of the internal receive / - Fixed reply code evaluation in the FTP_OPEN on slow connections
2014-11-28 V 1.7 - Fixed error when the server sends "download complete" message before all data packages have been acknowledged by the client.
2018-05-28 V 1.8 - Fixed: FTPClient keeps command channel open after first reset of FTP_DOWNLOAD or FTP_LIST [LIB-1627] / syslibsockets.lib and CAA_File lib are referenced automatically [LIB-1329]
2018-10-04 V1.8.1 - All examples updated to AB2.1 or higher (LIB-1768)

Known limitations or bugs

- Download of big files fails if longer than 3 seconds (LIB-2604)

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

Appendix 6: PS562 Solar Library Package (license required)

Welcome to PS562 Solar Library Package, Version 1.0.3

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.0 to AB2.4.1
- CPU FW2.3 to FW2.8.4

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

PS562 Solar Library Package	Solar_AC500_V22.lib	SolarNREL_AC500_V22.lib
V1.0.0	V1.0.0 (2012-12-19)	V1.0.0 (2012-12-19)
V1.0.2 / V1.0.3	V1.0.2 (2016-02-16)	V1.0.1 (2016-02-16)

Known limitations or bugs

SolarNREL_AC500_V22.lib

- Not running on Eco

Solar_AC500_V22.lib

- (no known limitations)

Solar example does not work with PM595 (LIB-1722).

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

This Library needs a valid license for compilation.

- License is obtained via an authorization code as a product, which has to be bought via the normal AC500 sales channels.
- If you had an authorization code for this major library version already, please contact support for an update license/code.

What’s new in Version V1.0.2 / V1.0.3

- Solar_AC500_V22.lib compatible with new CPU type PM595
- SolarNREL_AC500_V22.lib compatible with new CPU type PM595
- Example updated with V1.0.3

Appendix 7: PS563 Water Library Package (license required)

Welcome to PS563 Water Library Package, Version 1.2.2

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.0 to AB2.4.1
- CPU FW2.3 to FW2.8.4

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

PS563 Water Library Package	LogData_AC500_V23.lib	PUMP_AC500_V23.lib	HMI Example	PSCT Pump Station Configuration Tool (Technology Preview)
V1.0.0	V1.0.0 (2013-10-24)	V1.0.0 (2013-10-22)	HMI_ACQ_V18_Example.zip	n/a
V1.1.0	V1.1.0 (2015-04-17)	V1.0.1 (2014-10-15)	HMI_ACQ_V191_Example.zip	n/a
V1.2.0	V1.1.0 (2015-04-17)	V1.1.0 (2015-09-15)	HMI_ACQ_V191_Example.zip	V1.2.0
V1.2.1	V1.1.1 (2016-03-17)	V1.1.0 (2015-09-15)	HMI_ACQ_V191_Example.zip	V1.2.2 / V2.0.0
V1.2.2	V1.1.1 (2016-03-17)	V1.1.1 (2018-03-21)	HMI_ACQ_V191_Example.zip	n/a (discontinued)

Known limitations or bugs

LogData_AC500_V23.lib

- Not running on Eco
- CPU firmware must be V2.3.3. or higher
- Use SD card from ABB
- Maximum number of files (input of FB LOG_HANDLING) is limited to 500, if SD card is formatted with FAT16

PUMP_AC500_V23.lib

- (no known limitations)

HMI example for ACQ Drive (project for pumping functions in ACQ810)

- (no known limitations)

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

This Library needs a valid license for compilation.

- License is obtained via an authorization code as a product, which has to be bought via the normal AC500 sales channels.
- If you had an authorization code for this major library version already, please contact support for an update license/code.

What’s new in Version V1.1.0

- PUMP_AC500_V23.lib compatible with new CPU type PM595
- LogData_AC500_V23.lib: Bugs fixed (details in LOG_VERSION_INFORMATION)
- HMI example compatible with Panel Builder V1.91.0

What’s new in Version V1.2.0

- PUMP_AC500_V23.lib with new simulation blocks
- Pump Station Configuration Tool as Technology Preview

What’s new in Version V1.2.1

- Pump Station Configuration Tool as Technology Preview: Boost Control Mode added
- LogData_AC500_V23.lib: Bugfix direct communication Mode 2

What’s new in Version V1.2.2

- PUMP_AC500_V23.lib - Fixed: Autochange style 3 not working for level control with two pumps [LIB-1637]
- Pump Station Configuration Tool removed (discontinued)

Appendix 8: PS564 Temperature Control Library Package (license required)

Welcome to the PS564 Temperature Control Library Package, Version 1.1.1

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.1 to AB2.4.1
- CPU FW2.4 to FW2.8.4

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The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

- V1.0.0 2015-12-10 First version
- V1.1.0 2016-05-04 Online documentation corrected, improved logger, current monitoring
- V1.1.1 2016-07-29 Update of online documentation

Known limitations or bugs

- Cooling not possible if Heat is disabled (LIB- 918)
- If TECT_WrongLimits error is generated, then Reset warm is required to reset the Error. (LIB- 939)
- Autotune will still be started when Actual Temperature is greater than Tune Setpoint (LIB-912)

I**nstallation and Update**

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

This Library needs a valid license for compilation.

- License is obtained via an authorization code as a product, which has to be bought via the normal AC500 sales channels.
- If you had an authorization code for this major library version already, please contact support for an update license/code.

What’s new in Version V1.1.0 / V1.1.1

- Current monitoring with common or individual sensor, 1 phase or 3 phases
- Data logging modified in order to reduce number of data log lost
- Online help updated with V1.1.1 (AB-8489)

Appendix 9: AC500 HVAC Library Package (Technology Preview)

Disclaimer: Technology Previews are designed to give you a preview at upcoming technologies. They are non-final versions of our product and should NOT be taken as a measure of the fit, finish, capability, and overall quality of the final release (including user documentation). Technology Preview features can be changed or removed in newer versions of Automation Builder as communicated via the release notes. If technology previews are subject to licensing, please contact your ABB sales representative.

Welcome to the AC500 HVAC Application Library Package, Version 1.0.3

It contains the following components:

- AC500 Library HVAC_AC500_App_V22.lib (V1.0.2) containing basic Function Blocks, structures and visualizations for Heating, Ventilation and Air Condition
- AC500 Library CTRL_AC500_App_V22.lib (V1.0.1) containing HVAC specific control or signal processing blocks
- CTRL_test_example_PM583.project example for the CTRL library, function block CTRL_PI_PULSE_APP
- HVAC AC500 Application Library Package Documentation V103.pdf (V1.0.3) documentation for HVAC libraries including example description

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.1 to AB2.4.1
- CPU FW2.4.2 to FW2.8.4

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The error-free operation of this library package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

V1.0.0 2013-11-07 First release of package, consisting of HVAC_AC500_App_V22.lib (V1.0.0) and CTRL_AC500_App_V22.lib (V1.0.0)
V1.0.1 2014-05-15 HVAC_AC500_App_V22.lib (V1.0.1): Update of air density and enthalpy FB
V1.0.2 2015-01-19 HVAC_AC500_App_V22.lib (V1.0.2): Add conversion function LREAL_TO_REAL, CTRL_AC500_App_V22.lib (V1.0.1): CTRL_FILTER_CONTINUOUS_APP optimized
V1.0.3 2015-12-10 Example CTRL_test_example_PM583.project updated for upgrade to PM595

Known limitations or bugs

none

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

Appendix 10: PS571 Pumping Library Package (Technology Preview, license required)

Disclaimer: Technology Previews are designed to give you a preview at upcoming technologies. They are non-final versions of our product and should NOT be taken as a measure of the fit, finish, capability, and overall quality of the final release (including user documentation). Technology Preview features can be changed or removed in newer versions of Automation Builder as communicated via the release notes. If technology previews are subject to licensing, please contact your ABB sales representative.

Welcome to PS571 Pumping Library Package, Version 0.9.1

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.2.3 to AB2.4.1
- CPU FW2.5.3 to FW2.8.4

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The error-free operation of this library package with other products / software / firmware versions can not be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

V0.9.0 2016-10: First version, library V0.9.0
V0.9.1 2019-10: No changes in library (V0.9.0), example and documentation updated, function block description moved to AB help (LIB-2149)

Known limitations or bugs

External mode of sleep function is not yet implemented

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

Appendix 11: PS552-MC-E Motion Control Library Package (license required)

Welcome to PS552-MC-E Motion Library Package, Version 3.2.4

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB1.2 to AB2.4.1
- CPU Firmware FW2.5. to FW2.8.4
- CM579-ETH EtherCAT coupler FW 4.3.0
- Bosch Indra Drive Cs FW MPB-16V20-D5-1-NNN-NN
- ACSM1 FW 1510 + FECA-01 FW 109
- E150 FW 58.09

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions can not be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

- V1.0.0 PS551-MC (2010) First version
- V2.0.0 PS552-MC (2011) PLC based Motion added
- V3.0.1 PS552-MC-E (2014) Coordinated Motion added
- V3.1.0 PS552-MC-E (2016) see below
- V3.2.0 PS552-MC-E (2016) see below
- V3.2.1 PS552-MC-E (2017) see below
- V3.2.2 PS552-MC-E (2018) see below
- V3.2.3 PS552-MC-E (2020) see below
- V3.2.4 PS552-MC-E (2021) see below

Known limitations or bugs

- Initial delta times values for MC_PositionProfile, MC_VelocityProfile and MC_AccelerationProfile must be zero (LIB-550)
- ACS355_Drive-based_MotionControl_ProfibusDP.project and ACSM1_Drive-based_MotionControl_ProfibusDP.project: Compilation error due to new Profibus library. Work around is user should manually delete PROFIBUS_AC500_V10.lib. (LIB-1311)
- Automation Builder crashes when PLC_PTO_PLCopen_example.project is used with MC MoveAbsolute (AB-14638) Workaround: Login and download the project to the PLC via CoDeSys from 3S (instead of Automation Builder)
- MC_SetPosition function block throws error 7 (timeout) as long as Execute=TRUE when used with FM562 PTO module. (LIB-1139)
- When FM562 PTO module is used, Stepper motor will not stop when MC_Power function block is disabled. (LIB 1560)
- MC_ReadStatus function block is reads wrong status when the Axis Enable DI0 is powered off on FM562 module (LIB1561)

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

This Library needs a valid license for compilation.

- License is obtained via an authorization code as a product, which has to be bought via the normal AC500 sales channels.
- If you had an authorization code for this major library version already, please contact support for an update license/code.

What's new in Version V3.2.4

- Updated libraries
  - CompactMotionControl_AC500_V12.lib: V3.2.4
  - MathFunctions_AC500_V23.lib: V3.1.0

  - MC_Base_AC500_V11.lib: V3.2.4
  - MC_Blocks_AC500_V11.lib: V3.2.4
  - MC_CoBlocks_AC500_V23.lib: V3.2.0
- New function blocks
  - MCA_CAMINFO
  - MCA_PhasingbyMaster (LIB-1032)
- Bug fixing
  - Using MC_COMBINEAXES results in increasing EtherCAT processing time when used with Modulo axes (LIB-1219)
  - MC_SetPositon reports error 7 (timeout) as long as Execute=TRUE used with PTO (LIB-1139)
  - Stepper motor running with MC_Power function block does not stop even if the MC_Power function block is disabled while running. (LIB-1560)
  - MC_ReadStatus function block is reading wrong status when the Axis Enable DI0 is powered off on FM562 module (LIB-1561)
  - Move FBs should not start a movement with deceleration=0, because it will then never stop again (LIB-1040)
- Examples updated
  - ACS355_Drive-based_MotionControl_ProfibusDP_AB240.project
  - ACSM1_Drive-based_MotionControl_ProfibusDP_AB240.project
  - Ethercat Application Library_Description V03 3ADR023047M0202.pdf (example documentation)

What's new in Version V3.2.3

- EtherCAT examples updated for AB2.3.0 (LIB-2380)

What's new in Version V3.2.2

- All examples updated to AB2.1.0 or higher (LIB-1767)

What's new in Version V3.2.1

- Example CompactMotion_EtherCAT_ACSM1.project updated as workaround for AB-10467

What's new in Version V3.2.0

- New function blocks
  - ECAT_AC500_APPL_V21
    New block ECAT_402_ParameterHoming_APP to send homing related parameters per SDO
    support for drive-based homing and input parameter for drive-operation mode with ECAT_CiA402_CONTROL_APP
  - MC_BLOCKS_AC500_V11
    New block MCA_DriveBasedHome to execute a drive based homing method for 402-profile drives on EtherCAT
    New block MCA_GearInDirect, a modified MC_GearInPos which does not need the master to move for starting synchronization
    New block MCA_CamInDirect, a modified MC_CamIn which does not need the master to move for starting synchronization
    New block MCA_SetOperatingMode, allows to set the axis in a state to work just velocity based, switch of position control loop, ignore position jumps and following error
  - MC_CoBlocks_AC500_V23
    New block MCA_SyncInfeedToPath
    New block MCA_SyncCamToPath
- New behavior
  - Axis will go to an ERRORSTOP when 32-Bit position overrun occurs with an axis in positioning mode, in velocity mode, position overrun is allowed (related to MCA_SetOperatingMode)
- Bug fixing
  - CMC_Sinterpolation, had wrong deceleration when velocity changed to smaller values during movement
  - SPLINE interpolation for profiled movement had not used the last data point, problem since 3.1.0
  - V_CHECK_TIME was not used anymore, problem since 3.1.0
  - modified the velocity calculation for CAM with MasterStartDistance,had before wrong result with non-linear velocity transition
  - changed the functionality for MCA_SetPositionCOntinuous with SUPER=FALSE, did create a small movement
  - improvement for jerk calculation
  - MCA_JogAxis had wrong behavior when moving backward with MinJogDistance > 0
  - MCA_MoveBuffered, output ActiveEvent ok, problem since 3.1.0

What's new in Version V3.1.0

- New function blocks
  - MCA_MoveRelativeOpti
  - CMC_Sinterpolation
  - Buffered and blending movement for coordinated motion
- Direct parameter access through AXIS_REF structure
  - Position control loop parameters directly available
- Additional actual values from AXIS_REF structure
  - Improvement for software limit switches
  - U_PER_REV_NOMINATOR/U_PER_REF_DENOMINATOR as DINT (from WORD)
- Bug fixing
  - Improved accuracy of acceleration/deceleration times when using Jerk
  - Allow access to new axis run-time parameters to adjust gains, following error limits and other axis related settings
  - Additional error codes added to Kernel ErrorID
  - Inclusion of new software limit functions including ramp to limit
  - Fixed issue with modulo master axis when using MC_PhasingRelative
  - Fixed issue with MC_CamIn when using data that is relative to start point
  - Improved operation of MC_ReadStatus function block
  - Scaling parameters for axis now defined as DINT instead of WORD
  - Fixed issue with MC_MoveContinuousAbsolute caused by constantly changing Velocity parameter
  - Increased range of various axis parameters (e.g. MaxVelocityApplication changed from WORD to LREAL)
  - Added new generic ECAT_CiA402_CONTROL_APP function block to replace previous block that referenced e150 servo drive
  - In combination with PM595, EtherCAT and motion-cycle < 1ms possible
  - 16 bit limits for velocity, acceleration and deceleration removed

Appendix 12: CODESYS IEC 61850 Server 4.0.7 (runtime license required)

Welcome to the CODESYS IEC 61850 Server 4.0.7

This package allows the AC500 to act as interface to substation automation systems via IEC 61850:

- AC500 V3 CPU acts as an IED with IEC 61850 Server, Edition 1, allowing communication as MMS Server and GOOSE Publisher and Subscriber
- A wide set of Logical Nodes is pre-defined and can be extended.
- The implementation of Logical Nodes can be freely programmed in ST code.
- Automation Builder is used as IED configuration tool for modelling the IEC 61850 data structures and connecting them to the PLC applications
- Support of SCL – Substation Configuration Language to transfers detailed configuration information between different IEDs

Basic functionality has been tested with the following versions:

- Automation Builder AB2.1.2 to AB2.4.1
- V3 CPU FW3.1.4 to FW3.4.1

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this package with other products / software / firmware versions cannot be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

- V4.0.7 (December 2020)
  - MAC address for GOOSE publisher/subscriber can be entered offline (FEAT-286)
  - GOOSE Master can be disabled (LIB-2412)
  - Updated and new examples (D and E)
- V4.0.6 (June 2019)
  - library AC500_IEC61850Server 4.0.5.5. updated for changed references in AB2.3.0 (LIB-2370)

- V4.0.5 (March 2019)
  - library placeholder renamed to AC500_IEC61850Server (4.0.5.4), package updated (AB-15610)
  - no functional changes

- V4.0.4.0 (Release, October 2018)
  - Sequence of Coded Enum bits corrected (PUA-206)
  - SCL Import error corrected (PUA 204)
  - Number of signals increased from 250 to 1000 (PUA-209)

- V4.0.3.75 (Technology Preview, Mai 2018)
  - Final fixes for certification by TÜV Süd

- V4.0.3.60 Update (March 2018) with following improvements
  - No “clean all” after update of IEC 61850 server needed any more (PUA-170)
  - Optimization of GOOSE (PUA-161, PUA-168, PUA-174)
  - Change of MAC address of GOOSE publisher and subscriber is properly updated (PUA-184)
  - GOOSE ID may contain special character like slash or dot (PUA-194)
  - SCL import improved (PUA-193, PUA-160)

- V4.0.3.18 First version (November 2017)

Limitations

- Starting with Automation Builder 2.4.0 the memory for program and data is split from general V3 memory and therefore limited. It is also calculated now very differently to not include system generated parts - which took up significant memory before. It is now typically also smaller than V2 - indicatively up to 50% e.g. for program code).
  For the system generated IEC61850 objects this reduction is not working and therefore the number of usable 61850 objects in Automation Builder 2.4.0 is significantly reduced, so that typical projects do not generate error free code anymore. This issue will be fixed with next Automation Builder 2.4.1. (AB-19073)

  Workaround: Do not upgrade 61850 projects to AB2.4.0 - If the new functionality from IEC61850 package 4.0.7 (enter MAC address for GOOSE offline / Disable GOOSE master) is required before AB2.4.1, a hotfix at PLC support is available for AB2.2.x

- Online help for IEC61850 Server is missing. Please contact our technical support in order to get a pdf version
- MMS Reporting: Max 20 datasets with max 50 entries each, max 5 MMS clients
- GOOSE Publish: Max 20 datasets with max 50 entries each
- GOOSE Subscribe:Number of X datasets with max Y entries each. X and Y are not limited by engineering, only by performance
- Not possible to have 2 or more IEC61850 server in one AB project. Workaround: Create 2 or more projects (PUA-172)
- Only one Logical Device per IEC61850 Server
- Only one Report per DataSet (PUA-167)
- Operation speed: Max 3000 Byte per cycle. Example: With an IEC61850-cycle time of 2ms it takes at least 10 ms to send 5 reports à 3000 Bytes

Installation, Update and Licensing

- The package is an installation option of Automation Builder
- Basic documentation can be found in the online help – Automation Builder - PLC Integration - Configuration in Automation Builder for AC500 Products - Protocols and Special Servers - IEC 61850 Server
- AC500 specific documentation is part of the examples' documentation. This also contains certificates, MICS, PICS, PIXIT and TICS
  typical folder: C:\Users\Public\Documents\AutomationBuilder\Examples\PS5602-IEC61850
- For operation a runtime license is required. Right-click on the PLC – Runtime Licensing – PLC runtime licensing.
- Please contact your local sales support to get a runtime license

For Update projects from previous AB versions:

- Open project
- Go to Menu: Project- Update Project
- Go to IEC_61850_Server (below Ethernet) and Update objects

Appendix 13: PS5605-Drives Library Package for AC500 V3

Welcome to the PS5605-Drives Library Package, V1.1.0.3, consisting of

- V3 library ABB_Drives_AC500.compiled-library
- Examples and documentation
- Library documentation (online help)

The package includes the function blocks to control and communicate with the ABB drives using different Industrial protocols like Modbus TCP, Modbus RTU, Profinet, EtherCAT, CANOpen.

Basic functionality has been tested with the following versions:

- Automation Builder AB2.2.0 to AB2.4.1
- V3 CPU FW3.2.0 to FW3.4.1

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The error-free operation of this package with other products / software / firmware versions cannot be guaranteed.

This release notes contains important information about the library and it´s installation.

Change history

- Package V1.1.0.3 (May 2021), containing ABB_Drives_AC500.compiled-library, V1.1.0.17
  - Support for V3 eco: COM ports > 1 supported (LIB-2594)
  - DrvModbusWrite improved: read values at rising edge of Execute (LIB-2270), except write values (LIB-2626, see know issues)
  - DrvModbusTcp improved (LIB-2275)
- Package V1.1.0.2 (March 2020), containing ABB_Drives_AC500.compiled-library, V1.1.0.11
  - updated Quickstart guidePackage V1.1.0.1 (November 2019), containing ABB_Drives_AC500.compiled-library, V1.1.0.11
  - function block documentation updated (LIB-2128)
  - code styleguide improvements (LIB-2140, LIB-2098)
- Package V1.1.0.0 (First product version, June 2019), containing ABB_Drives_AC500.compiled-library, V1.1.0.9
  - New function blocks: DrvControlCANCiA402, DrvControlModbusEng, DrvModbusReadWrite23, DrvModbusRtuBroadcast
  - Improvements and Enhancements
  - Bug fixes
  - Example documents and project for all protocols supported.
  - Generic modbus blocks (starting with ModRtu...) were moved to generic Modbus RTU library: AC500_ModbusRtu
- Package V1.0.0.2 (Technology Preview, March 2019), containing ABB_Drives_AC500.compiled-library, V1.0.0.19
  - New examples for EtherCAT, Profinet and ModbusRTU
  - New function block ModRtuReadWrite23 (LIB-1904)
  - New function block DrvModbusReadWrite23 (LIB-1945)
  - New function block DrvControlModbusEng (LIB-1678)
  - New function block DrvControlCANCiA402 (LIB-1907)
  - LIB-1895 - ModRtuToken improved
  - LIB-1929 - NoConToDrive output in the DrvControlModbusEng added
  - LIB-1840 - DrvModbusRtu improved
  - LIB-1820 - DrvModbusTcp input validation for 'IpAdrServer'
  - LIB-1841 - DrvControlModbusACS and DrvControlModbusDCS improved
  - LIB-1819 - Visualization updated
  - LIB-1838 - ModRtuRead improved
  - LIB-1804 - bug fix for line token halt
  - LIB-1928 - bug fix, update in function block description related to Online output in DrvModbusTcp
  - LIB-1966 - HA specific functionality inputs
- Package V1.0.0.1 (Technology Preview, October 2018) containing ABB_Drives_AC500.compiled-library, V1.0.0.9
  - First version

Known limitations or bugs

- DrvModbusTcp and DrvModbusRtu: Wrong detection of Write-Value-Changes in specific situation (LIB-2625):
  Only valid for following specific situation: The values are changed in the cylce that the write job is executed. This can normally only occur, if the values are changed twice in a very quick sequence. This will be fixed in the next release of Automation Builder.
- DrvModbusWrite, DrvModbusTcp and DrvModbusRtu: Write values are not stored at rising edge of execute, only the pointer (LIB-2626)
  Workaround: User should take care, that this data is stable until the “JobDone” output of the function block indicates that the write job was terminated.

- DrvModbusTCP function blocks: If the drive is not online with the PLC and Enable input is disabled, outputs reset will be delayed (LIB-2107)
- Modbus reconnection not possible in special cases (LIB-2245):
  In the following case it might be possible that the connection to the drive is not reestablished after a connection loss, e.g. due to cable being unplugged or power off of the drive:
  If the “Enable” input of the control blocks (DrvControlModbusEng, DrvControlModbusACS, DrvControlModbusACS) is connected from the output “Online” of the communication block (e.g. DrvModbusTcp, DrvModbusRtu) it is necessary to switch off/on the PLC.
  Workaround: We strongly recommend to set the Enable input of the control blocks fix to TRUE.

Installation, Update and Licensing

- The package is installed as part of the V3 option per default

Appendix 14: PS5601 HA ModbusTCP Library Package for AC500 V2+V3 (PS5601 runtime license required)

Welcome to HA Modbus Library Package, Version 1.3.0.2
consisting of High Availability libraries for AC500 V2 and V3, AC500 Bulk Data Manager tool and examples.

AC500 V2:

- ABB_CI52x_AC500.lib, V1.3.0.7
- HAModbus_AC500_V26.lib, V1.3.0.10

AC500 V3:

- ABB_CI52x_AC500.compiled-library, V1.4.0.4
- ABB_HaModbus_AC500.compiled-library, V1.4.0.6

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB2.2.3 to AB2.4.1
- V2 CPU: FW2.7.2 to FW2.8.4
- V3 CPU: FW3.2.2 to FW3.4.1
- CI52x-MODTCP F0, Firmware V3.2.3 to 3.2.7
- CM597-ETH (Firmware 1.2.1.20 to 1.2.5.21)
- Network configuration:
    - 2 Switches (Hirschmann RED25) and up to 29 CI52x modules in an MRP ring
    - 4 MRP switches in a ring and several CI modules per MRP in daisy-chain
- Bulk Data Manager tool: Bulk_Data_1.0.7429.22821.zip

The package contains further documents, examples and tools: Please start by reading the System technology description …3ADR025285M0203.pdf, which can be found in the Automation Builder example folder:
C:\Users\Public\Documents\AutomationBuilder\Examples\PS5601-HA-MTCP\LibraryDocumentation

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The error-free operation of this library package with other products / software / firmware versions can not be guaranteed.
This release notes contains important information about the library and it´s installation.

Installation, Update and Licensing

The package is an installation option of Automation Builder and contains the following parts:

- V2 libraries are copied to …\Common Files\CAA-Targets\ABB_AC500\AC500_V12\library\PS5601-HA-MTCP
- V3 libraries are installed into Library repository

- Bulk Data Manager Tool, Library documentation, Example projects and documentation are copied to C:\Users\Public\Documents\AutomationBuilder\Examples\PS5601-HA-MTCP

The use of the Library package requires a PS5601 runtime license. Otherwise, the CPU cannot go to Run mode but will report a notification “PLC License missing”.

License can be acquired through local sales. Installation is described in the system technology, chapter 1.2.2.5

Notes for customer upgrading current running HA system to new package 1.3.0.2 / AB2.4.1

For AC500 V2

1. timHaModSyncTimeOut: Added into the library to check lifecom1 sync timeout based on HA task. This timeout should be set equal to HA Task time. Earlier Sync timeout was internally using timCi52xTimeout (this timeout is related to Modbus field communication to CI52x. To make the lifecom1/sync timeout independently settable, timHaModSyncTimeOut is added. If timeouts are not adapted as recommended to the application size, then default values are used which can lead to runtime errors for sync indicating e.g. unstable system with e.g. frequent exchange of primary status.

For AC500 V3

1. timHaModSyncTimeOut: Added into the library to check lifecom1 sync timeout based on HA task. This timeout should be set equal to HA Task time. Earlier Sync timeout was internally using timCi52xTimeout (this timeout is related to Modbus field communication to CI52x. To make the lifecom1sync timeout independently settable, timHaModSyncTimeOut is added. If timeouts are not adapted as recommended to the application size, then default values are used which can lead to runtime errors for sync indicating e.g. unstable system with e.g. frequent exchange of primary status.
2. timResponseTimeout: Added into the library to allow CI module timeout to be aligned with system size = number of CI modules. This timeout should be at least 2 * Modbus cycle time or minimum 50ms (present default value is 32ms and has to be changed).
3. V3 CPU parameter Communication Schema has to be set as “Onboard Ethernet” (new CPU parameter since AB2.4.1 see online help).

   This setting is mandatory and will increase the PLC and CPU load: Therefore recheck your loads before and after upgrade and adjust the HA tasks (HA, Modbus, application) settings to slightly higher values if deemed necessary (follow the task calculation guidelines in HA system technology: pdf in AB/Examples/ directory).

Limitations / known problems in Package Version 1.3.0.2

- CD522 IO module is not supported in the CI52x clusters (LIB-2486)
- V3 library:
  - When another program than HA is loaded to the CPU the display might still show "ArunP". Workaround: right mouse click on CPU -> reset origin device (LIB-1794)
  - CM597 cannot be used for V3 CPUs (general limitation)
- Bulk Data Tool:

- Fast counters are not fully supported --> User has to manually configure fast counters in the application (LIB-1626)
- It is recommended to install MS Access or Access Database(DB) engine (2010 or 2013) English version. If other than this version or language is installed, BDM might not run. Workaround: Run the 'Abb.BulkData.Setup.msi' file in the setup folder to install the BDM (LIB-1882)
- Bulk Data Tool installation fails in some Windows 10 machines (LIB-2213)

Change history

Package V1.3.0.2 (2021-05-10): Release version for AB2.4.1

- Fixed issues
  - Primary bit may flicker for few seconds during startup phase (LIB-1644, LIB-1643, LIB-1642, LIB-1661, LIB-1662)
  - When an IO module is removed or reconnected during operation an error is shown (RuntimeError.2), but during the next 60 seconds it comes back after acknowledgement by input ACK (LIB-1752, 1762)
  - Runtime error bit 7 is not triggered when CI Module is powered off for all clusters (LIB-2371)
  - Network reconfiguration: may lead to signal freeze in CI52x module (duration of 500 ms for V2 CPU, if onboard Ethernet is used) (LIB-1628, LIB-1690) --> workaround: Use CM597 coupler
  - V3
    - LifeCom2 (on modbus) Error bit is blinking in normal operation when Sync cable is removed from PLC (LIB-1641)
    - LifeCom2 (CAN only) cable disconnection sometimes causing PLC switchover (LIB-1645)
    - Runtime error gets generated in running system after some hours for certain duration (LIB-2490)
- Improvements
  - 120 CI modules possible with V3 library using new priority scheme "Onboard Ethernet" (CPUFW-8029, CPUFW-8343, LIB-2401)
  - New diagnostic function blocks HaModDiag and CIModDiag (LIB-1880, LIB-2191, LIB-2032, LIB-2189, LIB-2190)
- Examples updated, new examples for HA without CI module
- Documentation updated

Package V1.2.0.3 (2020-03-04): Release version for AB2.2.5

- Improvements
  - V2 libraries updated to support ETH3/ETH4 of PM595-4ETH PLC (LIB-2219)
  - DC562 and DO562 are supported for V2 library (LIB-1606)

Package V1.2.0.2 (2019-11-08): Release version for AB2.2.4

- Improvements

- HA system can be used without any CI module connected as field devices, to use the feature Global variable xNoCiBus in HA_GLOBAL_VARIABLES must be made TRUE (LIB-2173, LIB-2174)

Package V1.2.0.1 (2019-06-21): Release version for AB2.2.3

- Fixed issues
  - If secondary CPU modbus cable is reconnected faster than 2 minutes after disconnect, a signal flicker will occur (LIB-1601, LIB-1610).
  - Network reconfiguration: may lead to signal freeze in CI52x module (duration of 200ms for V3 CPU or V2 coupler CM597 / duration of 500 ms for V2 CPU) (LIB-1628, LIB-1690)
- Prerequisites for these fixes:
  - AC500 V2
    - Ensure that CM597 firmware version is 1.2.5 or above
    - CM597-ETH configuration: Set Send timeout of Modbus_TCP_IP_Server to 600 ms, more details in chapter 5.1.1 of AC500 High Availability - HA-ModbusTCP V2 Library Example Description 3ADR025288M0205.pdf
    - Call new function block CM597ETH_SET_TCP_RTO from CM597_ETH_AC500_V28.lib, more details in chapter 5.2.4 of AC500 High Availability - HA-ModbusTCP V2 Library Example Description 3ADR025288M0205.pdf
  - AC500 V3
    - Ensure that CPU firmware is V3.2.2 or above
    - Call new function block EthSetRtoMin from AC500_Ethernet library version 1.1.3.4 or higher, more details in chapter 5.2.3 in AC500 High Availability - HA-ModbusTCP V3 Library Example Description 3ADR025289M0206.pdf
- Improvement: Up to 3000 instances of sync function block "HaModDataSync" possible (LIB-1753 / LIB-2050)

Package V1.2.0.0 (2018-08-24): Release version for AB2.1.2 / 2.2.0

- Library and examples updated to AB2.1.2 and FW3.1.4
- Fixed issues:
  - Proper error indication if more than 1024 Sync FB instances (LIB-1646)
  - Utility blocks optimized, if declared as retain persistent (LIB-1708)
  - Improved diagnosis: Global variable for number of sent ethernet frames: iNoOfEthFrames (LIB-1647 / LIB-1692)
  - No Signal flicker when CI52x Ethernet cable is removed (LIB-1657)

Package V1.1.0.1 (2018-04-24): RC1 version for AB2.1.1

- Library and examples updated to AB2.1.1 and FW3.1.3
- Fixed issues:
  - Fast counters are not working in HA system (LIB-1624 / LIB-1625)
  - Overview Visualization: LifeCom over CAN indication is misleading (LIB-1621)
  - Primary bit disturbance in secondary PLC when MRP switch is powered off (LIB-1601 / LIB-1610)

- Run time Error is reset when there is a configuration error (LIB-1656)
- When the CI52x FB is disabled and enabled outputs on the module is no longer frozen (Lib-1638)
- Integrated help file contains wrong table of content (LIB-1483)

Package V1.1.0.0 (2018-02-02): Beta version for AB2.1.0

- Library and examples updated to AB2.1.0 and FW3.1.x
- Naming of function blocks, inputs and outputs updated according to PLC Open Style
- Fixed issues:
  - HA_TCP_CONTROL FB outputs are running even when the EN = FALSE (LIB-1407, LIB-1406)
  - If CAN is used for second LifeCom (only possible with V3 library):
    - CAN communication is not getting reestablished after cable reconnection, Workaround: Restart system (LIB-1352)
    - On long run CAN error is appearing automatically without any disturbance to the CAN cable. LifeCom2 signal is lost (LIB-1457)
  - Error handling
    - Lifecom2 error is not getting reset, if PLC A is missing while restarting the system (LIB-1436, LIB-1416)
    - Configuration error bit0 (CI module configuration mismatch) observed when one of the PLC is powered off (LIB-1474)
    - Runtime error “CI52x module lost” is not cleared automatically after inserting the CI52x module again. Workaround: Manually acknowledge with CI function block
    - Sync error observed when Ethernet switch (MRP) power off (Connected to PLC B Primary), very rare
    - HA_TCP_CONTROL: No proper configuration error, when IP_A2 and IP_B2 are equal (LIB-1398)
    - Remote IO Modules error indication not working as expected
    - PLC stop is not causing for LifeCom2 Error if the same is configured over Modbus (LIB-1478 /LIB-1477)
    - Primary bit is not set to FALSE when PLC is in STOP mode (LIB-1451)
  - Bulk Data Manager Tool does not fit for small screens (LIB-1472) …not all CI clusters visible.
  - Slow update of cluster signal if one PLC is powered off (LIB-1434)

Package V1.0.0.1 (2017-08-15): Examples enhanced

- V2 Example enhanced: V2_HA_MODBUS_Example_Visu_02.project
- V3 Example enhanced: V3_HA_MODBUSTCP_Example_Visu_02.project

Package V1.0.0.0 (2017-08-11): First version (Application Library) for AB2.0.x

- first package

Appendix 15: PS573 PCO Library (Technology Preview)

Disclaimer: Technology Previews are designed to give you a preview at upcoming technologies. They are non-final versions of our product and should NOT be taken as a measure of the fit, finish, capability, and overall quality of the final release (including user documentation). Technology Preview features can be changed or removed in newer versions of Automation Builder as communicated via the release notes. If technology previews are subject to licensing, please contact your ABB sales representative.

Welcome to PCO Library Package, Version 0.9.3.1, consisting of:

- PCO library: Pco_AC500_V28.lib, Version 0.9.1
- Simple example: PCO_Motor_Demo_AB223.project / PCO_MotorDemo_800xA6.0.3.2.afw
- Example documentation PCO_MotorDemo_Documentation_AB223.pdf
- Library documentation: part of online help

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB2.2.3 to AB2.4.1
- AC500 V2 CPU: FW2.8.1 to FW2.8.4
- 800xA 6.0.3.2
  - 800xA Base
  - SoftPoint Server
  - PLCConnect
- AC500 Connect 6.0.4 as an Add on Package

Please start by reading the System technology description, which can be found in the Automation Builder online help.
A simple example can be found in the example folder: C:\Users\Public\Documents\AutomationBuilder\Examples\PS573-PCO

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The error-free operation of this library package with other products / software / firmware versions can not be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

- Package V0.9.3.1 (2021-04-29): Updated version (Technology Preview) for AB2.4.1
  - Formal changes (LIB-2535)
- Package V0.9.3.0 (2020-12-01): Updated version (Technology Preview) for AB2.4.0
  - Library prepared for 800xA intelligent uploader (LIB-2201) new Version 0.9.1:
    - upgrade procedure from 0.9.0 to 0.9.1 is given in AC500_PCO Library Example Documentation AB223 3ADR010401_r4.pdf
  - example docu updated (LIB-2207)
  - online help updated (AB-17542)
- Package V0.9.2.0 (2019-11-08): Updated version (Technology Preview) for AB2.2.4
  - Documentation improved and PCO_MOTCON details added to example folder (LIB-2153, LIB-2169)
- Package V0.9.1.0 (2019-06-26): First version (Technology Preview) for AB2.2.3
  - library documentation (system technology and function block description) moved from example folder (pdf) to online help
- Package V0.9.0.0 (2019-05-27): First version (Technology Preview for Pilot customers) for AB2.2.x
  - First version

Known limitations or bugs

- none

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

The package contains the following parts:

- V2 libraries are copied to …\Common Files\CAA-Targets\ABB_AC500\AC500_V12\library\Application
- Example projects and documentation are copied to C:\Users\Public\Documents\AutomationBuilder\Examples\PS573-PCO

Appendix 16: PS5607 BACnet-BC (runtime license required)

Welcome to the PS5607-BACnet-BC Package, V1.6.0.0

BACnet is a standardized data communication protocol for Building Automation and Control networks as defined in the ANSI/ASHRAE Standard 135 and ISO 16484-5. This package enables AC500 to act as a BACnet Building Controller (B-BC profile) as server and/or client. Supported protocol are BACnet IP and MS/TP.

The PS5607-BACnet-BC Package consists of:

- BACnet plug-in component
- Device descriptions for BACnet servers, BACnet objects, and BACnet clients
- Libraries: CmpBACnet, BACnet, and BACnetDefaultImpl
- Examples and documentation

It has been tested with the following versions:

- Automation Builder AB2.3.0 to 2.4.1
- CPU FW3.3.1 to FW3.4.1

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The error-free operation of this library package with other products / software / firmware versions can not be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

- V1.6.0.0 Released with AB2.4.1
  - Support of MS/TP
  - Support for V3 Eco (IP only)
  - Example improved
  - Documentation updated
    - System technology in online help
    - FAQ and certificates for IP in example folder
- V1.5.2.1 Released with AB2.4.0, improved version
- V1.5.2.0 Released with AB2.3.0

Known limitations or bugs

- MS/TP not yet working for V3 Eco
- BACnet EDE file import is not working (AB-18210)
- If server objects of type "BACNet.BacnetSchedule" is initiated in the PLC application, the PLC will crash when the project is deleted from the device.

  Workaround: Only use the BACnet Schedule by adding it below the BACnet Server in the device tree instead of adding it from the PLC application. (CPUFW-7854)
- AC500 holds UTC time only (LIB-2340). A workaround is described in online help - BACnet system technology

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.

Appendix 17: PS5611-Motion Library Package for AC500 V3 (runtime license required)

Welcome to the PS5611-Motion Library Package, V1.1.0.0,
which is an upgrade of PS552-MC without coordinated and drive based motion.

The package is consisting of

- Motion libraries for AC500 V3
  - ABB_MotionControl_AC500.compiled-library
  - ABB_MathFunctions_AC500.compiled-library
  - ABB_Ecat_CiA402_AC500.compiled-library
  - ABB_MotionControlEco_AC500.compiled-library
- Examples and documentation
  - AC500_V3_MotionControl_EtherCat_MFE190_Examples_ABxxx.project
  - AC500_V3_MotionControl_Simulation_Examples_ABxxx.project
  - AC500_V3_MotionControl_CD522_Example_ABxxx.project
  - AC500eCo_V3_MotionControl_Examples_ABxxx.project
  - ABB_Ecat_CiA402_AC500.library (editable version) is available in the example folder

The software Libraries in this package have been tested with the following versions:

- Automation Builder AB2.4.0 to AB2.4.1
- CPU FW 3.4.0 - FW3.4.1
- Microflex e190 Drive, FW5900.4

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.
The error-free operation of this library package with other products / software / firmware versions can not be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history

- V1.1.0.0 2021-05: First product version with AB2.4.1
  - Support for V3 Eco
  - Bug fixes of former prototype blocks (LIB-2512)
  - Kernel block improved (LIB-2501)
  - CD522 tested
  - Documentation updated
  - Examples for V3 Eco and CD522 module included
- V1.0.0.0 2020-12: First version with AB2.4.0 (Technology Preview)

Known limitations or bugs

- Device input of FB visualization for EtherCAT read/write is empty (LIB-2554)

Installation and Update

This Library Package is part of the Automation Builder. It can be selected as an Option during installation.