Welcome to ABB Automation Builder 2.5.2

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:
https://search.abb.com/library/Download.aspx?DocumentID=3ADR010967&Action=Launch

Most important changes of Automation Builder 2.5.2

PLC - AC500 V3 Processor Modules (PM5xyz)
- Support of analog option boards on AC500 eCo V3 PLCs:
  - TA5126-2AO-UI
  - TA5120-2AI-UI
  - TA5123-2AI-RTD

Motion:
- Improved documentation for motion wizard and library
- Solution Wizard:
  - Support for PTO and Encoder axis types
  - Support for third party servo drives
- Cam Editor: Support for Cam tappet feature

Datalogger:
- Datalogger Libraries for AC500 V3 (full release of data logger, multilogger added as technology preview)

Most important changes of Automation Builder 2.5.1

Automation Builder:
- Bug fix: Projects opened in Automation Builder 2.5.1 compatibility profiles can be opened in the original Automation Builder version.
- Improved performance of navigation within Automation Builder when being online
- Python scripting editor is available again (premium edition feature)

Drive Composer
- Integration of latest Drive composer pro version 2.7.1

Servo Drives
- Integration of latest Mint Workbench version 5.8.68.1

Most important changes of Automation Builder 2.5.0

Automation Builder:
- Notification on launch of Automation Builder in case of new releases or recommended updates available, including option to directly install the update
- Installation of new releases: Option for one-click-update by keeping all installed options
- Library web help: Full documentation of all system and product libraries available online

PLC - AC500 V2 Processor Modules (PM5xy)
- Hotswap: If properly configured, missing hotswap terminal units are detected for Profibus DP

PLC - AC500 V3 Processor Modules (PM5xyz)
- System features
  - Multiple performance improvements
  - Improved memory information of AC500 V3 resource usage window
  - Support and usage of signed libraries
  - Improved backup&restore e.g. for PLC replacement
  - Diagnosis history: Access via PLC application
  - Persistent setting of IP address from IEC application
- Communication
  - Profinet: Support of CM589-PNIO(-XC)

- Ethernet/IP
  - Support of Ethernet/IP on the onboard interface of AC500 and AC500-eCo
  - Improved adapter configuration
- Profibus DP
  - Support of Profibus Master (CM592-DP) and Slave (CM582-DP)
- Support of BACnet MS/TP on AC500-eCo serial option boards
- OPC UA server
  - Support of OPC UA methods
  - Support of OPC UA alarms & conditions
- 61850 Server: Optimized task and POU creation for faster GOOSE round trip performance
- Libraries
  - Drives library (PS5650): Additional function blocks for reading and writing of Profinet acyclic data
  - HA MTCP High Availability package:
    - Increased no of high density analog IO modules usable (+calculation tool)
    - Documentation of CPU exchange steps while running
    - Bulk datamanager tool: Usable now with 64bit MS Access installations
- Technology previews
  - OPC UA client
  - Improved PLC based motion support: Integrated motion axis configurator, code creation for virtual and real axis, improved configuration of CAM tables
  - Motion control library (PS5611-MC) extension: Load / torque control according to PLCopen part 6
  - Data logger library (PS5609-Log)

Safety
- New PROFIsafe V2.6 protocol features are added, e.g. support of FLOAT32, INT32, UINT32 data types

Servo Drives
- Integration of latest Mint Workbench version 5.8.66.2
- Availability of latest MotiFlex e180 and MicroFlex e190 devices

IP configuration tool
- Firmware update of CI50x-PNIO and CI51x-ETHCAT devices

General information

- 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 2.5 installation completely replaces installed versions of Automation Builder prior to 2.5.0 / 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 2.5 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 2.5. Previous documentation packages can be found on the ABB website: www.abb.com/plc → Download Documentation, and then select your language.
- Automation Builder 2.5 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
- AC500 V2: After upgrading projects to latest Automation Builder, please check for having the matching firmware installed before doing a download from Codesys.
- 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.
- Dirctely working on folders that are synchronized with cloud storages (e.g. Microsoft OneDrive) might lead to temporarily inconsistent files and corresponding error messages. Therefore it is recommended to no work in synchronized folders.
- Latest cyber security information is always available on the ABB cyber security alerts and notifications website. We strongly recommend to subscribe to e-mail alerts!

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)

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The release includes the following device groups:

Automation Builder

Functional changes / New features	Version
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Installation of new releases: Option for one-click-update by keeping all installed options	2.5.0
Support and usage of signed libraries	2.5.0
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PLC based Motion: Integrated motion axis configurator incl. code creation for virtual and real axis (technology preview)	2.5.0
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Library web help: Full documentation of all system and product libraries available online	2.5.0
Profinet: Support and online diagnosis of CM589-PNIO(-XC)	2.5.0
Ethernet/IP: Improved adapter configuration	2.5.0
Profibus DP: Support and online diagnosis of Profibus Master (CM592-DP) and Slave (CM582-DP)	2.5.0
Profibus DP: If properly configured, missing hotswap terminal units are detected for Profibus DP Note: not yet supported for AC500 V3	2.5.0
Configuration of OPC UA Client (technology preview)	2.5.0
IP configuration tool: Firmware update of CI50x-PNIO and CI51x-ETHCAT devices	2.5.0

Fixed issues	Version
Projects opened with Automation Builder 2.5 in previous version profiles can be opened again in the original Automation Builder version. To fix projects that have already been saved in a previous version profile, they have to be re-opened, modified (e.g. by adding and removing a new top level object in the device tree) and saved again.	AB 2.5.1
When being online with the project, Automation Builder shows very often busy icon during project tree navigation	AB 2.5.1
Installation: issue when using PackageManager with installed compatibility profiles is solved	AB 2.5.1
PNIO: GSDML Importer: Attribute Subordinate is not considered	AB 2.5.1
Messages: Message category "Precompile" is not selected if current category is "Build"	AB 2.5.1
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 2.5.0

Known problems	ID
Profibus DP: Application based slave device diagnosis is not available when adding a third-party slave device to the configuration directly after adding it to the device repository. Workaround: Either restart Automation Builder after adding the device to the device repository or execute "Update objects" for the device after restart of Automation Builder.	AB-20838
The embedded editor for execution and modification of Python scripts is not available. Workaround: Use the context menu commands of the script object for execution, export and import	AB-20941
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	n.a.
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.

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	AB 2.0.3

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 2.5.1:
- 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 Profibus DP (supported for CI54x devices with index F1 and higher)	CI FW 2.11.0

Known problems	ID
IEC60870-5-104: In configurations with a high number of tags and in combination with the general interrogation command, the substation communication might not start. In this case the PLC responds with a negative confirmation of the general interrogation and the process image is also not sent. Workaround: Reduce the initial load to the PLC, e.g. by starting one substation after the other in case of multiple substations.	CPUFW-8955
Profinet: After download of an IEC project containing the POU PNIO_DEV_ALARM sometimes the POU reports the error 0x1005 (4101) which means that the specific driver is not yet ready. The PROFINET communication keeps on running, but the POU permanently reports this error. Workaround: Create a boot project and reboot after the download in case this error appears.	CPUFW-8940
System: SystemTime and TimeDate in CurTimeEx show different values when executed simultanouosly. Workaround: Select only one single way of getting the time and only use that in the whole application.	CPUFW-8591
Bit wise access of LWORDs is 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
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 version embedded into Automation Builder 2.5.2: FW 3.5.0 HF7

Important Notes:
- For AC500 V3 CPUs, the handling of diagnosis is different from the AC500 V2 CPUs.
- Please check the library placeholder resolution in case libraries are not found after project update. Set the placeholders back to default or select a matching available library version, e.g. via Project -> Project Environment.

Functional changes / New features	Version
Support of analog option boards on AC500 eCo V3 PLCs: - TA5126-2AO-UI - TA5120-2AI-UI - TA5123-2AI-RTD Please find more information about the analog option boards and their configuration in the following document: AC500-eCo V3 - Analog Option Boards - Preliminary Manual for Automation Builder 2.6.0	AB 2.5.2
System: New POU WriteBootProject for writing a new boot project to the user disk. After reboot the new boot project will be loaded and executed.	3.5.0
System: New PLC parameter "Reboot after E2 error"	3.5.0
System: Communication modules: Additional property "DeviceInfo" available from the IO drivers to read the FW version of the communication modules (not yet supported by CM579-PNIO and SM560-S).	3.5.0
System: Integration of CODESYScontrol V3.5 SP17	3.5.0
Backup/Restore: Backup and restore via Automation Builder extended by: - FW, boot application and boot parameters - Alarms and trends - Persistent data - Visualization - IP settings - Certificates Note: User management and licenses must be backuped and restored separately.	3.5.0
Diagnosis: Access to diagnosis history from IEC project	3.5.0
Ethernet: New POU EthSetOwnIp to permanently set the IP address	3.5.0
OPC UA Server: - Support of methods - Support of alarms & conditions OPC UA Client: technology preview, licensed per PLC	3.5.0
Profinet: Support of Profinet I/O device via CM589-PNIO including integration into diagnosis system Note: FD-1 and FD-4 not yet supported	3.5.0
Ethernet/IP: Support Ethernet/IP scanner (master) - release, licensed per PLC	3.5.0
Ethernet/IP: Support Ethernet/IP adapter (slave) - release, licensed per PLC	3.5.0
CAN: The priority of CAN onboard is now also configurable via the communication schema. Highest priority is available by using the "Default" communication schema.	3.5.0
Profibus: Support of Profibus master via CM592-DP including integration into diagnosis system	3.5.0
Profibus: Support of Profibus slave via CM582-DP including integration into diagnosis system	3.5.0
BACnet: Support of BACnet MS/TP on AC500-eCo RS485 option boards	3.5.0
SNTP / NTP: New POU PmNtpInfo (same functionality as PmSntpInfo for SNTP)	3.5.0

Fixed issues	ID
System: In rare cases, remanent data can get deleted during power cycle	3.5.0 HF11
Modbus RTU: Sometimes false positive error no. 32770 / 16#8002 ("Internal error I/O layer") is reported by ModRtuMast FB	3.5.0 HF11
Modbus RTU: Too long processing times of ModRtuMast FB for time sensitive applications	3.5.0 HF11
Modbus RTU: Modbus RTU client might on AC500-eCo serial option board might set the PLC to stop in case of 1) using more than one serial option boards 2) missing Modbus RTU server response Furthermore, the buffer of the Modbus RTU client might not be updated in case of high PLC load.	3.5.0 HF8
OPC UA: OPC UA client stops working after 1 hour because of missing license	3.5.0 HF8
Modbus RTU: Modbus RTU communication needs several minutes to re-establish after line has been disconnected and reconnected again.	3.5.0 HF6
Modbus RTU: When using Modbus RTU communication, AC500 V3 PLC might shut down in applications with repeating interruptions or disturbances in serial communication.	3.5.0 HF6
AC500-eCo onboard I/Os: After crash of PLC the onboard outputs are not reset to zero	3.5.0 HF4
Ethernet: When connecting CP600 operator panels by using the "CODESYS V3 ETH" protocol, in rare cases data exchange with other CP600 operator panels or with OPC DA servers can become very slow.	3.5.0 HF2

Ethernet: After login with Automation Builder 2.5, the IP scan returns wrong results and IP address can no longer be changed until reboot of the PLC. Workaround: Reboot PLC for changing IP address	3.5.0 HF2
MQTT: Exception when disabling the publish function block	3.5.0 HF1
PROFINET: Incorrect handling of pull/plug alarms	3.5.0 HF1
EtherCAT: Number of sync units is limited to 72 Workaround: Don't use more than 72 sync units	3.5.0 HF1
MQTT: Exception when disabling publish function block and MQTT publish has always the size of the very first message.	3.5.0 HF1
SVN integration: Projects containing at least one visualization cannot be saved after SVN check out	AB 2.5.1
Visualization: Visualization Style Editor cannot be opened	AB 2.5.1
Diagnosis: AC500 V3 diagnosis example projects show compile errors because of wrong compiler version defined in the projects. Workaround: To resolve those errors, remove the Library Manager and GlobalTextList in POU view; execute "Update project"	AB 2.5.1
CFC: Full structures of variables are not shown in CFC editor (configurable via context menu: "Hide namespaces")	AB 2.5.1
IEC61850: V3 CPU is going in shutdown mode after specific memory utilization	AB 2.5.1
System: 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 HF-5 or do not use any of the corresponding features in the PLC application.	3.5.0
Licensing: Doing online changes on a PLC application with FW version 3.4.0/3.4.1 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 HF-1 or activation of runtime license for remote target visualization (to be obtained from our technical support).	3.5.0
EtherCAT: Online changes on a CPU running with high CPU/PLC load could lead to EtherCAT sync errors Workaround: Avoid Online changes in such configurations.	3.5.0
Diagnosis: AC500 eCo V3: "Interfaces" node is marked with a red exclamation mark in online mode however without any effect on the functionality. Workaround: Ignore the red exclamation mark in online mode	3.5.0
CAN onboard: When using CANopen protocol with node guarding supervision the slaves will re-start. Workaround: Upgrade to FW version 3.4.1 HF-4	3.5.0
Display: When navigating to the PLC ID in the display, the buttons <OK> and <ESC> will not work without changing the value. Workaround: Either change the value or leave the view by pressing <CFG> → <up> → <ESC>	3.5.0
Profinet: Projects with Festo CMMT-AS servo drives do not start due to not supported empty slots in the submodule configuration. Workaround: Edit the GSDML by removing the "2" from PhysicalSubslots in the following line: <ModuleItem ID="IDM_SERVO" ModuleIdentNumber="0x100100B0" PhysicalSubslots="1 2 3 4">	3.5.0
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.	3.5.0

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 2.5.0

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	3.5.0
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.	3.5.0
EtherCAT: EtherCAT ENI files are not deleted, e.g. after changing the slot of a CM579-ETHCAT device Workaround: Delete ENI files manually	3.5.0
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	3.5.0

Known problems	*ID*
Ethernet: When connecting CP600 operator panels by using the "CODESYS V3 ETH" protocol, in rare cases data exchange with other CP600 operator panels or with OPC DA servers can become very slow. Workaround: Please contact our technical support for further assistance.	CPUFW-9312
Backup/Restore: Restore of certificates for encrypted communication does not work. Workaround: Create certificate for encrypted communication again after doing the restore.	CPUFW-8959
Simulation: Simulation mode does not work for AC500-eCo PLCs with plugged option boards Workaround: Remove option boards from project and before switching to simulation mode.	CPUFW-8951
COM port: The function ComGetIdByName does not work for AC500-eCo PLCs, the return value will be always 255 (COM_PORT.COM_ID_INVALID)	CPUFW-8948

System: Unaligned REAL or LREAL access with pointers is leading to an exception and the IEC application is stopped.
 	
Example (for type REAL):
{attribute 'pack_mode' := '1'}
TYPE MyStruct :
STRUCT
  bBool: BOOL;
  rReal: REAL;
END_STRUCT
END_TYPE
 	
PROGRAM PLC_PRG
VAR
  myStruct : MyStruct;
  pVarR: POINTER TO REAL;
  rVar: REAL;
END_VAR
 	
pVarR := ADR(myStruct.rReal);
myStruct.rReal := 123;   (* -> correct handling *)
pVarR^ := 123;   (* -> exception: not 4-byte-aligned *)
 	
Workaround: Access the variables via structure elements as shown in the example above.
	CPUFW-8914

Diagnosis: The following CPU parameters are being ignored: - Diagnosis history (on/off) - Max. diagnosis history entries Diagnosis history is always enabled, entries are limited to 2000.	CPUFW-8860
FW update: CM5xx: The firmware update of communication modules via SD card does not work in one step in case of PLC update firmware version 3.2.1 or earlier. Workaround: Update the communication module firmware in two steps by using the same SD card: step 1: update of the PLC update firmware step 2: update of the communicaiton module firmware	CPUFW-8814

CAN onboard: Calling the POU CL2.DriverOpenH (library CAA CanL2) to open the CAN interface is blocking the task and takes more than 100 ms to complete. Workaround: Option 1: Move the call of POU CL2.DriverOpenH to an event task, tiggered once in main CAN task. Start CAN communication, when the event task is done. Option 2: Adapt the watchdog settings (time and sensitivity) accordingly. The I/O bus task must have a higher priority than the CAN task.	CPUFW-8769
Diagnosis: After an application download the information about a missing battery (if applicable) is not listed in diagnosis history view. After a reboot missing battery information is available from the diagnosis history again. Workaround: Either check active diagnosis entries or do a reboot, which will add that diagnosis information to the diagnosis history.	CPUFW-8830
Profinet: For some hot swap related diagnosis, Automation Builder receives the unknown error id 8 instead of 9736). Workaround: Check for both error ids.	CPUFW-8612
Display: If the POU PmDispSetText is used with TimeOnScreen set to 0 (infinite) there is no way to programmatically change the text or the duration of showing the text. Workaround: Use a TimeOnScreec >0, if text should be changeable or reboot the PLC with unplugged battery to reset the display text.	CPU_FWLIB-595
CAA_File: After closing a file and switching of the PLC by disconnecting from the power supply, the data of the file might be lost. Workaround: Always call File.Flush before closing a file.	CPU_FWLIB-588
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
OPC UA server does currently not support the following data types: • LTIME_OF_DAY • LDATE • LDATE_AND_TIME	AB-20397
Profibus DP: When using a CI54x device with index prior to "F1" the parameter "Diagnosis behavior" is only supported with value "AC500 V2 compatible". For using the setting "AC500 V3 compatible" a newer CI54x firmware is required. Please update then the firmware to the latest version.	AB-20575
Profinet: The "Compare and commit changes" feature based on a Profinet scan result is only working without errors or warnings in the following cases: • No slave is configured below the Profinet Controller in the device tree • Only slaves are configured below the Profinet Controller which are not found during the scan Restriction: all found slaves need to be accepted, to ensure that all required data can be correctly added to the project	AB-20790
Profinet: In the Profinet Controller 'Diagnostics live list' editor the parameter flag "Assign configuration temporarily" has no effect on writing a device name into a Profinet device. The device name is always stored permanently. Workaround: use the IP configuration tool standalone (available via additional tools in Automation Builder setup) if this is required	AB-20609
EtherCAT: The I/O mapping tab might not show recently added PDO entries when kept opened during adding. Workaround: Please close and reopen the I/O mapping tab editor to update the view with latest PDO entries	AB-20783
User Management: Users might be prompted to login twice after creating the user management on a computer where Automation Builder was never used before.	AB-20703
Motion Wizard: Additionally defined PDO mappings are only handled correctly if they are defined above the automatically generated PDOs in the corresponding PDO content table. Workaround: Any additional PDOs (in the view 'Expert Process Data') must be inserted at the topmost position of the input/output PDO list.	AB-20644
Motion Wizard: additional tasks called in the MotionSolution task will be overwritten	AB-20651
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

Input assistant: The programming input assistant might show not matching initialization values for ERROR_ID ENUMs Workaround: Define the initialization of ERROR_ID values directly in the program and not via input assistant	CPUFW-8983
Input assistant: In case the automatically added Ethernet library is removed from the project's library manager the use of the programming input assistant might lead to a crash of the Automation Builder. Workaround: Add the removed Ethernet library again to the project's library manager	AB-20877
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
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
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
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: 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
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 "bAdFlr"). 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
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
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
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	3.5.0

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 AC500-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

New PROFIsafe V2.6 protocol with short and long frames (up to 123 bytes) was added as part of AC500-S safety CPUs (both F-Host and F-Device, respectively). New PROFIsafe F-Host SafetyBase_PROFIsafe_LV210_AC500_V22.lib was added. New features are added in the PROFIsafe, e.g. support of FLOAT32, INT32, UINT32 data types in both PROFIsafe V2.4 and PROFIsafe V.6. Specific functions for user-defined CRC calculation up to SIL3 and PL e were added. Refer to new function blocks in the new safety library version: SafetyExt2_LV110_AC500_V27.lib. New PLC browser command „flashstatus" was added for safety CPUs. It shows the flash programming progress in the safety CPU when downloading boot code, firmware or a bootproject.	2.5.0

Fixed issues	*ID*
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
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

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
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
AC500 V3: Safety output online values of safety IO modules used with an AC500 V3 are not visible in the tab "IO-Mapping". Workaround: Use the tab "IO-mapping list" instead.	AB-20834

Modbus TCP – Communication Interface Modules (CI52x-MODTCP)

Functional changes / New features	Version
No functional changes	

Fixed issues	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

Known problems	ID
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/

Drive composer pro version embedded into Automation Builder 2.5.1: V 2.7.1

Functional changes / New features	Version
Integration of latest Drive composer pro 2.7.1 version with improved security	2.7.1

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

Panel Builder 600 version embedded into Automation Builder 2.5.1: V 4.0.1.462

Functional changes / New features	*Version*
No functional changes	

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*
Integration of latest Mint Workbench version 5.8.68.1 with improved security	5.8.68.1

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 AB2.5.1
- CPU and CM574: Firmware versions FW2.4.2 to FW 2.8.4
- CI590-CS31-HA: Firmware T3.0.15

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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.

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 AB2.5.1
- Firmware versions FW2.5 to FW 2.8.4

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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.

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 AB2.5.1
- PM592-ETH Firmware FW2.4 to FW2.8.4 (Version 2.0.0 requires at least FW2.8.0)
- FM502 V1.0.0

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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
- 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 AB2.5.1
- CPU Firmware FW2.5 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

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 AB2.5.1
- 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

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 AB2.5.1
- CPU FW2.3 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

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 AB2.5.1
- CPU FW2.3 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

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 AB2.5.1
- CPU FW2.4 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

- 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)

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 / 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 AB2.5.1
- 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

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 AB2.5.1
- 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 cannot 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 AB2.5.1
- 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

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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   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
    o   CompactMotionControl_AC500_V12.lib: V3.2.4
    o   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)
  - PTO example docu updated with AB2.5.0 (AB-20253)

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: PS5602 IEC 61850 Server for AC500 V3 (runtime license required)

Welcome to the CODESYS IEC 61850 Server 4.0.7.2

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 AB2.5.1
- V3 CPU FW3.1.4 to FW3.5.0

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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.

Version history

- V4.0.7.2 (June 2022)
  - Updated Logical node definition, which will only take effect after project upgrade and then creating new logical nodes (AB-21319)
  - https://iec61850.tissue-db.com/tissue/219
  - updated SBO for all controllable data object types: SPC / DPC / INC / BSC / ISC
  - GOOSE Subscriber.xErrorTimeAllowedToLive fixed (LIB-2879)
  - GOOSE Subscriber now working on 2nd Ethernet adapter (LIB-2800)
  - GOOSE Subscriber stabilized for high number of GOOSE messages (LIB-2980)
  - GOOSE Publisher: Increased TAL (Time Allowed to Live), when GOOSE value has changed (LIB-2947)
  - GOOSE manager: Improved diagnosis (LIB-2870, LIB-2968)
  - Added dummy IP information to exported cid file (AB-21298)
- V4.0.7.1 (December 2021)
  - GOOSE performance improved (AB-20488), more details in AC500_IEC61850_Example_Description_3ADR010262_6_en_US.pdf, chaper 4.3
  - Configuration of GOOSE publisher min repetition time can now be configured (LIB-2761)
  - Configuration of IEC61850 Server: Properties "IP, Subnetmask, Gateway" removed , since they were never active. AC500 IP settings are (and were always) only configured in Communication settings of the PLC
- V4.0.7.0 (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)

<u>Limitations</u>

- MMS Reporting: max 5 MMS clients
- GOOSE Publish and MMS reporting: Max 20 datasets (AB-21005). Each dataset is limited to 50 entries, which can be data objects or data attributes.
- GOOSE Publish: The GOOSE Ethernet frame length must not exceed 1500 bytes. This can even happen with less than 50 data objects per dataset, if each data object has many data attributes
  Example: The maximum number of large data objects of type AnIn (containing 7 data attributes each) is 35 per dataset only.
  Known issue: Exceeding the GOOSE Ethernet frame length above 1500 bytes leads to an exception (LIB-2996)
- GOOSE Subscribe: Max 50 Ethernet frames per cycle. Workaround: Adapt cycle time
- GOOSE Publish or Subscribe: Max 3000 Byte per cycle. Workaround: Adapt cycle time
- 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)

<u>Known issues</u>

- Exceeding the GOOSE Publish Ethernet frame length above 1500 bytes leads to an exception (LIB-2996)
  This can even happen with less than 50 data objects per dataset, if each data object has many data attributes
  Example: The maximum number of large data objects of type AnIn (containing 7 data attributes each) is 35 per dataset only

<u>Installation, Update and Licensing</u>

- This package is part of the Automation Builder. It can be selected as an Option during installation or any time later using the Automation Builder Installation Manager.
- 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, V1.2.0.0, 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 AB2.5.1
- V3 CPU FW3.2.0 to FW3.5.0

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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 V1.2.0.0 (December 2021)
  - new function blocks: DrvProfinetRead and DrvProfinetWrite (LIB-1905, LIB-1906)
  - updated example and documentation
  - Fixed LIB-2625: DrvModbusTcp and DrvModbusRtu: Wrong detection of Write-Value-Changes in specific situation
  - Fixed LIB-2626: DrvModbusWrite, DrvModbusTcp and DrvModbusRtu: Write values are not stored at rising edge of execute, only the pointer
- 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 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 1.3.0.4
consisting of High Availability libraries for AC500 V2 and V3, AC500 Bulk Data Manager tool and examples.

AC500 V2:
- ABB_CI52x_AC500.lib, V1.3.0.9
- HAModbus_AC500_V26.lib, V1.3.0.11

AC500 V3:
- ABB_CI52x_AC500.compiled-library, V1.4.0.9
- ABB_HaModbus_AC500.compiled-library, V1.4.0.12

The software Libraries in this package have been tested with the following versions:
- Automation Builder AB2.2.3 to AB2.5.1
- V2 CPU: FW2.7.2 to FW2.8.4
- V3 CPU: FW3.2.2 to FW3.5.0
- CI52x-MODTCP F0, Firmware V3.2.3 to 3.2.7
- CM597-ETH (Firmware 1.2.1.20 to 1.2.18.21)
- Bulk Data Manager tool: Bulk_Data_32bit_1.0.8006.37392.zip / Bulk_Data_64bit_1.0.8006.37268.zip

The package contains further documents, examples and tools: Please start by reading the System technology description

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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 from package 1.2.x to new package 1.3.0.x

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 1.3.0.4
- Some IO types not supported in the CI52x clusters: CD522, DA502, AC522 (LIB-2486, LIB-2534, LIB-2664)
- Limitation of CI52x if more than 6 high density Analog I/O OR many fast counters are used, please check with Excel tool "S500 CI52x-IOCalc V1.0x_HA_TCP" in example folder.
- V3 library:

- o When another program than HA is loaded to the CPU the display might still show "ArunP" (LIB-1794). Workaround: right mouse click on CPU -> reset origin device
  - o CM597 cannot be used for V3 CPUs (general limitation)
  - o Module with old FW "B0" does not support Failsafe Status. Therefore Cluster goes in ErrorState while save Parameter to Cluster. Solution: Disable Failsafe Parameter or exchange Module (LIB-2730)
- Bulk Data Tool:
  - o Mapping of fast counters is not fully supported --> User has to manually configure mapping for fast counters in the application (LIB-1626)

Change history

Package V1.3.0.4 (2022-06-20): Release version for AB2.5.1
Improvements / fixed issues

- Fixed wrong calculation of CI52x if more than 6 high density Analog I/O OR many fast counters are used (LIB-2730).
- Fixed fast counters when configured by Automation Builder only (LIB-2469)

Package V1.3.0.3 (2021-12-03): Release version for AB2.50
Improvements / fixed issues

- V2 library from package (HAModbus_AC500_V26.lib, V1.3.0.10) had an issue with less than 28 bytes sync data --> fixed (LIB-2700)
- Warning if too many IO modules (see limitation above) are attached to CI52x (LIB-2730)
- Bulk data manager tool ready for 64bit version of MS Access (LIB-2213)
- Documentation updated (How to exchange CPU in HA system) (LIB-2547)

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

- Fixed issues
  - o Primary bit may flicker for few seconds during startup phase (LIB-1644, LIB-1643, LIB-1642, LIB-1661, LIB-1662)
  - o 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)
  - o Runtime error bit 7 is not triggered when CI Module is powered off for all clusters (LIB-2371)
  - o 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
  - o 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
  - o 120 CI modules possible with V3 library using new priority scheme "Onboard Ethernet" (CPUFW-8029, CPUFW-8343, LIB-2401)
  - o 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
  - o V2 libraries updated to support ETH3/ETH4 of PM595-4ETH PLC (LIB-2219)
  - o 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
  - o 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
  - o If secondary CPU modbus cable is reconnected faster than 2 minutes after disconnect, a signal flicker will occur (LIB-1601, LIB-1610).
  - o 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:
  - o 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
- o 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:
    - o Proper error indication if more than 1024 Sync FB instances (LIB-1646)
    - o Utility blocks optimized, if declared as retain persistent (LIB-1708)
    - o Improved diagnosis: Global variable for number of sent ethernet frames: iNoOfEthFrames (LIB-1647 / LIB-1692)
    - o 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:
    - o Fast counters are not working in HA system (LIB-1624 / LIB-1625)
    - o Overview Visualization: LifeCom over CAN indication is misleading (LIB-1621)
    - o Primary bit disturbance in secondary PLC when MRP switch is powered off (LIB-1601 / LIB-1610)
    - o Run time Error is resetted when there is a configuration error (LIB-1656)
    - o When the CI52x FB is disabled and enabled outputs on the module is not longer frozen (Lib-1638)
    - o 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:
    - o HA_TCP_CONTROL FB outputs are running even when the EN = FALSE (LIB-1407, LIB-1406)
    - o 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)
    - o 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)
    - o Bulk Data Manager Tool does not fit for small screens (LIB-1472) …not all CI clusters visible.
    - o 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 AB2.5.1
- 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 Library Package for AC500 V3 (runtime license required)

Welcome to the PS5607-BACnet-BC Package, V1.6.1.1

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: BACnet, BACnetDefaultImpl, CmpBACnet, BACnetExt
- Examples and documentation

It has been tested with the following versions:
- Automation Builder AB2.3.0 to 2.5.1
- CPU FW3.3.1 to FW3.5.0

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 can not be guaranteed.
This release notes contains important information about the library and it´s installation.

Version history
- V1.6.1.1   Released with AB2.5.1
    - Example updated (AC500_V3_BACnet_B-BC_Example_AB251.project): Write Property Multiple (DS-WPM-B) with AC500 as server is now working (LIB-2794)
- V1.6.1.0   Released with AB2.5.0
    - MSTP also for V3 Eco
    - BACnet certification for MSTP including Eco (see example folder / Datasheets and FAQ)
    - Minor improvements with version 1.6.1.0
- 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
- 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
- After deleting MSTP datalink from COM port and download, the MSTP datalink is still active (AB-19441)

Installation and Update

- This Library Package is part of the Automation Builder. It can be selected as an Option during installation or any time later using the Automation Builder Installation Manager.

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

Welcome to the Motion Control (PS5611) software package which contains the following components and features:

1. Motion Control libraries (V1.2.0.6), based on PLCopen Motion Control standards with documentation and examples
   - listed as package "Motion Library PS5611" - PS5611-MC product license needed for the use
2. Motion Solution wizard (V2.5.2) to configure the motion solution and its axes in an user oriented way, based on PLCopen Motion Control library
   - listed as package "Generic Solution Engineering"
3. CAM Editor (V2.5.2) to visually create CAM tables linked to the PLCopen library. Named as Generic Solution Engineering in Packages.
   - listed as package "Motion Solution"

The components have been tested with Automation Builder 2.5.2 and CPU Firmware 3.5.0
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 can not be guaranteed.

1. Motion Control libraries

Motion Control libraries are an upgrade of V2 PS552-MC (without coordinated and drive based motion) and additionally contain

ABB_MotionControlLoad library (Tech preview *).

The library 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
    - ABB_MotionControlLoad_AC500.compiled-library (Tech Preview *)
- 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
    - AC500 V3 Motion Controller Guide_3ADR011116.pdf

* Disclaimer: Technology Previews are designed to give you a sneak peek 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 removed without further notice. If you use the preview, you could experience things that go wrong, data that gets lost, and things to change. While we don't stop you using these versions in projects, we don't recommend it if you cannot afford data loss and the usual quirks of running preview software. It will not be possible to call ABB Support hotlines for help with Technology Preview features. If you are interested in getting support for a Technology Preview feature this can be done in the context of a piloting. In this case please contact us to set up a piloting agreement.

Version history

- V1.2.0.6   2022-11-24, released with AB2.5.2
    - New function blocks
        - MCA_MoveByExtRefRelative- LIB-2985
        - MCA_MoveBuffer- LIB-3094
        - MCA_DigitalCamSwitch - LIB-2950
    - Improvements
        - All position moves FBs to run only when the position / distance can be achieved - LIB-2919
        - MC_ReadAxisError with new output to provide DriveError (EtherCAT CiA402) - LIB-2925
        - Additional structure in AxisReferece for parameter access (Supported only when motion solution wizard used) - LIB-2969 / LIB-3139
        - Improved MC_Reset FB response time - LIB-2927
        - Modulo maximum position value is set as 16#40000000 - LIB-2921
        - New AC500 V3 Motion Controller Guide_ 3ADR011116.pdf for Motion Solution Wizard and Library
    - Bug fixes

- Wrong behaviour of parameter SWLimit2DecPos, SWLimit2DecNeg, ReverseDirection is fixed - LIB-2836 / LIB-2863
- Wrong behavior of MC_MoveSuperImposed input accel and Decel is fixed - LIB-2874
- Bug fixes for CamIn FB's - LIB-2913/3033/3034/3035/3036/3037
- CamIn FB's EndOfProfile behavior changed when axis is modulo - LIB-3093
- MC_ReadActualVelocity output ActualVelocity value gives wrong value during 32-bit position rollover - LIB-2920
- Bug fixes for MC_MoveSuperImposed and MC_HaltSuperImposed - LIB-2875
- Bug fix for MC_MoveVelocity input accel decel behavior when the value is "0" - LIB-2928
- MC_SetOverride input VelFactor to accept "0" - LIB-3091
- Bug fix for MC_MoveAdditive position calculation - LIB-3092
- Bug fix for MC_SetPosition - LIB-3109 / LIB-3141
- Bug fix for MCA_DriveBasedHome - LIB-3134
- MC_TorqueControl to be compactable with ECAT_CiA402_TouchProbe_App - LIB-2923.

- V1.2.0.1   2022-01-11, released with AB2.5.0
  - Support for Load Control (FEAT-336) (Tech preview)
  - Example and documentation updates.
  - MC_Power improved (LIB-2638)

- 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)
- Libraries from the motion package are not signed, this can be ignored for now (AB-20794)

2. Motion Solution wizard

The Motion Solution wizard helps in efficiently configuring the EtherCAT axis using Automation Builder in a short time.

Detailed documentation explaining how to use the motion solution wizard is available in the Automation Builder example folder

"AC500 V3 Motion Controller Guide_ 3ADR011116.pdf"

Version history

- V2.5.2 2022-11-24, released with AB2.5.2
  - Master Encoder Axis - AB-21414
  - PTO Axis - AB-21528
  - Disable EtherCAT slave device - AB-21524
  - Axis configuration support for all drives with EtherCAT CIA 402 profile - AB-20432
  - Simplified axis code generation - AB-21544
  - Allow update of EtherCAT drive objects - AB-21209
  - Modified default AC500 parameters for the quick start up - AB-21619
- V2.5.0 First version released with AB2.5.0 (Tech preview)

Known limitations or bugs

- Motion Solution Wizard is only tested with ABB Microflex E180/190 drives.
- Motion Solution Wizard currently supported only EtherCAT / PTO based motion applications. For Analog modes user need to make the configuration manually.

- PLC tasks must set a higher watchdog time (~100ms) if the PLC is stopping due to an exception error CPUFW-8453 / CPU_FWLIB-517
    - Workaround – Disable and Enable watchdog using IEC application.
- Motion Solution Wizard can configure the EtherCAT master only in coupler slot 1
- Removing generated code / EtherCAT mappings does not force new code generation - AB-22137
- Axis configuration tab needs to be opened at least once before axis generation - AB-22274
- Duplicate error messages in message window - AB-22281
    - Workaround – Refresh message window once
- Motion wizard project from AB2.5.0 / 2.51 to AB2.5.2 can cause duplicate task calling - AB-21688
    - Workaround – remove the task calling which does not have the comment "Generated by motion solution"

3. CAM Editor

The newly introduced Cam editor can create Cam & tappet table using the graphical window of Cam editor.

Detailed documentation explaining how to use the Cam Editor is available in the Automation Builder example folder "AC500 V3

Motion Controller Guide_ 3ADR011116.pdf"

Version history

- V2.5.2   2022-11-24, released with AB2.5.2
    - Cam tappet function - AB-21528
- V2.5.0 First version released with AB2.5.0 (Tech preview)

Known limitations or bugs

- none

Installation and Update

This Motion Control (PS5611) software package is part of the Automation Builder. It can be selected as an option during installation

or any time later using the Automation Builder Installation Manager.

Appendix 18: PS5609-Log Library Package for AC500 V3 (Runtime license required; Multilogger is without license and technology preview)

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Welcome to the PS5609-Log Library Package, V1.1.0.0,
which is the V3 upgrade of the V2 Datalogger library, which is part of PS563-WATER package

The package is consisting of:
- Datalogger Libraries for AC500 V3
  - ABB_DataLogger_AC500.compiled-library (for midrange CPUs, use PS5609-Log Runtime license)
  - ABB_DataLoggerEco_AC500.compiled-library (for Eco CPU: PM5072-2ETH, use PS5609-Log-e runtime license)
  - ABB_DataLoggerMulti_AC500.compiled-library (for all V3 CPUs)
- Examples and documentation (for midrange CPUs):
  - Example_Generic_DataLoggerV3_ABxxx.project
  - Example_IEC60870_DataLoggerV3_ABxxx.project
  - Example_MultiLoggerV3_ABxxx.project

The software Libraries in this package have been tested with the following versions:
- Automation Builder AB2.5.2
- CPU Firmware 3.5.0

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

Version history
- V1.1.0.0 2022-09: Update package release (to be used with AB2.5.1 or AB2.5.2):
  - DataLogger and DataLoggerEco: Change from Technology preview to product. Separate runtime license for DataLoggerEco
  - DataLoggerEco library namespace is updated to AC500_Datalogger from AC500_DataloggerEco.
  - DataLoggerEco FIFO size is configurable between 0 to 60.
  - DataLoggerMulti: Only mode 2 and 3 as technology preview, no license required
- V1.0.0.0   2022-01: First version with AB2.5.0

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 or any time later using the Automation Builder Installation Manager.