Welcome to ABB Automation Builder 2.1.1

This README file contains 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:
http://dg8gvgfk7mhsg.cloudfront.net/AB_ReleaseNotes/Automation_Builder_2.1/ReadMe.pdf

General

System Requirements:

- 1 gigahertz (GHz) or faster 32-bit (x86) or 64-bit (x64) processor
- 3 GB RAM
- 1-18 GB available hard disk space depending on the selected feature set (in addition to Operating System (OS) and other applications)
- SVGA graphics adaptor 256 colors, resolution of 1024x768 pixels
- Supported operating systems:
  - Windows 7 (32/64 Bit) Professional / Enterprise / Ultimate (SP1 required)
  - Windows 10 (32/64 Bit) Professional / Enterprise
  - Windows 8.1 (32/64 Bit) (requires .Net Framework version 4.6.2 installed prior to Automation Builder installation)
  - Windows Server 2012 R2 64 bit (requires enabled .Net Framework 3.5, refer to section below for installation details)

  Note: Windows XP and Windows VISTA are no longer supported.

Attention:

- **Standard and Premium license of Automation Builder 1.x will not be valid for Automation Builder 2.x For Automation Builder 2.X standard and premium features appropriate licenses need to be purchased and activated**. Please check the upgrade licenses possibilities with your ABB sales representative. For details please refer to Automation Builder lifecycle documentation in ABB Library or contact your sales representative.
- The installation of the ABB Automation Builder software requires administrator rights.
- Prior to installation, the Automation Builder, Control Builder Plus, CODESYS software and the CODESYS Gateway Server must be shut down.
- Automation Builder 2.1 installation completely replaces installed versions of Automation Builder prior to 2.1.0 / Control Builder Plus. Side-by-side installation of Automation Builder and Control Builder Plus 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 2.1 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 2.1. Latest documentation packages can be found on the ABB website: www.abb.com/plc → Download Documentation, then select your language.
- Automation Builder 2.1 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.
- In case the Automation Builder installation fails please re-execute the setup to ensure that no temporary file access issues (e.g. through virus scan software) was blocking the installation.
- Windows Server 2012 installation: 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
- If you have projects made with Automation Builder older than 2.0.x that use safety devices other than CI5xx please make a project ARCHIVE (File -> Project Archive -> Save/Send Archive…) BEFORE installation of Automation Builder 2.1.x.

Table of contents

Changes in Automation Builder 2.1.1

The release includes the following device groups:

Automation Builder

Functional changes / New features	*Version*
Migrate already installed third party devices from other Automation Builder versions: Installed third party devices of previous Automation Builder versions can now be migrated automatically in the latest Automation Builder 2.1 device repository. The corresponding menu "Migrate third party devices" below “Tools” opens a dialog which lists the installed third party devices of an installed Automation Builder version and offers a button to migrate them to the current Automation Builder version.	2.1.1
Automation Builder and runtime licenses can be returned to activate them on another PC/ PLC. For runtime license please refer to Automation Builder help for details. Important note: 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! Automation Builder licenses can be returned on the web page: http://lc.codemeter.com/32838/depot-return/index.php Please enter the activation key in the “Ticket” field and follow the workflow	2.1.1
Professional Version Control • Latest version of Professional version control is integrated with stability improvements and security patch (CVE-2017-9800: for vulnerability in Apache Subversion®)	4.1.2.1
ECAD interface • Extension to EtherCAT devices	2.1.0
Python script support Python scripts can be added to the device tree Extension of Python scripting by user defined parameters	2.1.0
Automated project upgrade including 3rd party safety devices • Eased upgrade of Automation Builder projects to version 2.1.0 by automatic installation of 3rd party safety device GSMDL files from project archives in required locations	2.1.0
Windows Server support • Installation of Automation Builder on Windows Server OS (minimum: Windows Server 2012 R2 64 bit) • All devices directly connected to the server • Connection to devices are be possible, even if multiple users are logged in to the server and work in parallel with different devices • Limitation: Windows Server 2012 is only supported for Automation Builder 2.1 profile (previous Automation Builder versions are not supported)	2.1.0
Virtual system testing • Auto-generation of system model for process data exchange with drives • Auto-generation of system model for any fieldbus devices	2.1.0
Web based online help (technology preview) • Technology preview • Default help can be set via options dialog	2.1.0

Fixed issues	*ID*
Improved Automation Builder installer robustness	AB-12497

Known problems	*Version*
Licensing: Number of licenses which 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	2.X
During uninstall all of Automation Builder the Virtual Drives uninstallation might fail Workaround: Please uninstall Virtual Drives via Windows Control Panel -> Programs and Features	2.1.X
PLC runtime licensing: "Return license" does not work for licenses installed via SD Card Return license works properly when Automation Builder is connected to the PLC	2.1.X
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.	2.1.X
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	2.0.3
ABB I/O mapping list view for disconnected modules on PROFINET IO devices with Shared Device functionality like AC500 CM589-PNIO-4 (-XC) or 3rd party PROFINET IO devices (drives, I/O modules, encoders, etc.) is temporarily not supported. As a result, no I/O mapping information is shown for disconnected modules on CM589-PNIO-4 (-XC) or 3rd party PROFINET IO devices with Shared Device functionality in Automation Builder. Workaround: • use standard I/O Mapping for disconnected modules on CM589-PNIO-4 (-XC) or 3rd party PROFINET IO devices with Shared Device functionality	2.0.3

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	2.0.X

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.

PLC - AC500 V2 Processor Modules (PM5xy)

Functional changes / New features	***Version***
Improved PROFINET diagnosis: Diagnosis information about modules below any PROFINET IO device (e.g. CI50x or CM589) can be read in online mode by executing the context menu command “Check modules”. A list of all modules that are different from the current configuration is shown in a popup-window. In case no differences are detected, the window is not shown. However an entry in the message window with the results is made in any case.	2.7.1
New EtherCAT commissioning feature: The new editor page "Master state control" is visible once connected to the PLC. It allows to manually set the bus into the states INIT, PREOP, SAFEOP, OP without starting the PLC project for debugging purpose. It shows the current bus state, the current target state and the activity log. Topology issues for example can be debugged by setting the target state “INIT” and correcting the cabling until the CM579-ETHCAT proceeds to INIT successfully.	2.7.1
System: Support different MIN_FW_VER (current 2.7.2, 2.3.6) Downgrade version V2.3.6 for PM57x/8x/9x Support new Flash types	2.7.2
Embedding of AC500 V2 libraries AC500 V2 user / system libraries can now be embedded with the Automation Builder project to ensure that always the original libraries are taken and log-in is possible without online change after update of Automation Builder. A “Library Manager” object has therefore to be added (using the Add object dialog) below the “App” of V2 PLC and the libraries which shall be embedded to the project have to be added using the corresponding editor.	2.7.1
Virtual AC500 V2 ● Support of SD card operations (FILE_Open, FILE_Read, FILE_Write) ● Support of clock and basic network functions (CLOCK, CLOCK_DT, ETH_OWN_IP, ETH_ICMP_PING)	2.7.0
Support of new Safety PLC SM560-S-FD-1	2.7.0
Support of new Safety PLC SM560-S-FD-4	2.7.0
CM589-PNIO-1: support of safety data	2.7.0
CM589-PNIO-4: support of safety data	2.7.0
Codesys version 2.3.9.55 integrated for non-safety engineering with several improvements and fixes	2.3.9.55
CI52x-MODTCP device configuration ● Support of unbundled CI52x-MODTCP device configuration in device tree (including S500 I/O devices) ● Reading and writing configurations to the CI52x-MODTCP device ● Reduced start-up time for Automation Builder only for CI52x-MODTCP device configuration via dedicated profile	2.7.0

Fixed issues	***ID***
During upgrade of projects containing 3rd party Profinet devices the value for Watchdog might be set to an empty value which is invalid.	AB-13491
Calling a function using structure elements directly within an IF ... THEN statement might lead to wrong condition value and subsequently wrong code execution.	AB-12333
Configuration issue of Profinet IO devices under certain conditions: Configurations for PNIO Shared Device usage might lead to not running Profinet connections when project is saved under different name and changing other project for the usage of shared devices. (The ARUUID remains the same in both projects which leads to connection issues.)	AB-12227
Please create backup during project upgrade and check Codesys safety project after upgrade to ensure that upgrade was successful before saving the AB project.	AB-11881
Projects containing device with modular (e.g. FSO-21 on ACS880) can’t be upgraded to latest AB 2.0.X version	AB-11536
Datatypes REAL and LREAL are not supported in IO configuration of EtherCAT devices	CPUFW-5827
CM598-CN CAN2A/2B: PLC can crash, when frames with a data length CAN less than 8 bytes are received.	CPUFW-5513
Communication error when more than 49 sockets are created on PM591-2ETH via SysLibSockets	CPUFW-5376

Known problems	***ID***

Activating the CANopen sync mode requires to activate the "generic configuration view" (see "Tools->Options->Device editor")	AB-9768
Embedding of AC500 V2 libraries: • When Automation Builder is online with the AC500 PLC it is not possible to embed/update libraries via Library Manager to this PLC. It might lead to an Automation Builder crash. Workaround: make these changes in offline mode. • In case libraries are embedded multiple times via Library Manager the maximum library folder length might be exceeded and Automation Builder could crash. Workaround: in this case clean up project libraries folder definitions in Codesys project via Project -> Options -> Directories	AB-14072
CANopen/CAN: Configuration CM598-CAN: Configuration error when parameter "Heartbeat producer time" (ID: 0x01017000) does not exists Workaround: Use AB 2.1.1	CPUFW-6088
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 show 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_NEW : 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_NEW 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 this modules disconnects and reconnects. S500 modules don't show such effects. Workaround: Don't use this datatypes in webvisu	CPUFW-1833
WEB server: ActiveX-Element display incorrectly Workaround:	CPUFW-1593

Don't use Active-X element in webvisu	
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 webbrowser 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 this 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)

Important Notes:

- For AC500 V3 CPUs, the diagnostic handling is different from the AC500 V2 CPUs.
- For AC500 V3 CPUs, the system diagnostic should be done using function blocks and the user program or with Automation Builder Software using online diagnostic and Device Tree. The CPU ERR Led does not indicate the errors.

Functional changes / New features	***Version***
IEC 61850 support (MMS server, GOOSE) – licensed per PLC (*technology preview)	3.1.3
Modbus TCP client (server) connections per PLC type: PM5630-2ETH with 30 (15) connections PM5650-2ETH with 50 (25) connections PM5670-2ETH with 120 (50) connections PM5675-2ETH with 120 (50) connections	3.1.3
Diagnosis improved for EtherCAT or PROFINET CM579-ETHCAT/CM579-PNIO out of Automation Builder	3.1.0
Support of new PLCs: PM5630-2ETH, PM5670-2ETH, PM5675-2ETH	3.1.0
Security features enabled: FTPS, HTTPS for webserver	3.1.0
Support of Modbus RTU client and server configuration	3.1.0
Support of Ethernet switch on ETH1/ETH2	3.1.0
Onboard Ethernet configuration for SNTP	3.1.0
Remote Target Visualization	3.1.0

Fixed issues	***Version***
Project upgrade: During upgrade of projects containing 3rd party Profinet devices the value for Watchdog might be set to an empty value which is invalid.	AB-13491
Firmware update: For AC500 V3 PLCs the initial firmware detection might take some time (up to a minute) in case only the factory firmware is available on the PLC.	AB-13653
EtherCAT: The bus scan might have incomplete results when using 3rd party devices. The scan delivers proper results only when CI51x are connected as slaves. Third party modules cause a faulty bus-scan result.	AB-12216
Build results in error C0188 after import of Telecontrol information objects into V3 PLC.	AB-13495
CANOpen Device, CANOpen Device SIL 2, CANOpen_Manager_SIL2 and CANOpen_Manager_SoftMotion can be added to CANbus however they are not supported by AC500 V3 PLCs.	AB-13601
SysLib: POU CPU_PROD_READ_ASYNC output 'DONE' never gets in state 'TRUE', but the other outputs contain as expected the read out information.	LIB-1538
FW Update: New PLC out of factory does not show the correct versions of BootFW, UpdateFW and FlashFW. After download of SystemFW the versions are shown correct.	CPUFW-6045
Modbus TCP: the number of servers is limited to 40 for all PLC types.	CPUFW-5927
Modbus TCP: More than 40 server connection lead to assertion in PLC (Stop)	CPUFW-5926
Licensing: Licensing via SD Card: Installation of demo license shows "Failed" on display.	CPUFW-5897
Ethernet: FireFox cannot connect to WEB server via HTTPS.	CPUFW-5783
COM1: Serial communication has communication errors depending on baudrate and data length: - 115200 8N1: >= 60 chars, then only sometimes failures, below frequently transmission errors - 9600: >= 10 chars required to have a more or less stable connection - 19200: >= 15 chars	CPUFW-5834
Modbus TCP server: fast On/Off switching of server can lead zu incomplete log entries (e.g. missing IP address)	CPUFW-5763
CANopen/CAN: Communication with configured but not connected CANopen slaves leads to increased PLC load.	CPUFW-5387
Folder "sdcard" is not deleted, if sdcard is ejected after power off and before power on.	CPUFW-5385
OPC UA Client don't get data from PLC after disconnect/connect cable with a big amount of tags (15000).	CPUFW-5337
CM579-PNIO: Setting of substitute values for PROFINET IO devices doesn't work.	CPUFW-5192
The keys CPUFW, BootFW, UpdateFW and DisplayFW for the group [FirmwareUpdate] and [CPU] are checked. If one of these keys is missing, the result is set to "7; Unknown update mode" with a blinking Err-Led at the end of the update process.	CPUFW-5066 CPU_UPD-23
OPC server: other OPC client could not access the V3 PLC easily when one OPC client is accessing the same V3 PLC via OPC server.	CPUFW-5057
OPC server: three OPC clients could not access one V3 PLC stably via OPC server at the same time.	CPUFW-5056
Command "Restore" in AB use internally the command "Reset origin device". Reset origin device resets the PLC to factory state. After Power on the UpdateFW will start and an FW download via SD card or AB must be performed.	CPUFW-4948 CPUFW-5144
User "system" has restricted permissions on "userdisk". User "system" is not able to Create/Write/Upload delete a file on userdisk. But it is possible on SD Card.	CPUFW-4818
First external slot is mapped to index 0 instead of 1.	CPUFW-4412

Slot number must be set as parameter in configuration. Empty slots are not allowed.	
SysLib: POU CPU_PROD_READ_ASYNC output 'DONE' never gets in state 'TRUE', but the other outputs contain as expected the read out information.	LIB-1538
Wrong comments in CPU_PROD_ENTRY_READ and CPU_PROD_READ_ASYNC	LIB-1188
Using the function block ECAT_BUS_SET_STATE with correct values, the FB always returns error code 4. In addition it seems that the following memory blocks (outside FB) will be overwritten	LIB-1187
Incorrect numbering in comment of in/outputs of POU CPU_PROD_READ_ASYNC and CPU_PROD_READ	LIB-1184

Known problems	***Version***
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
Coexistence of AC500 V3 PLCs and IEC61131 programmable drives within one Automation Builder project is not supported Workaround: Use different Automation Builder projects for the corresponding engineering	AB-10821
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
IO module: When adding IO module to the IO-bus an error is listed: "IO_Bus: can't create parameter; perhaps devdesc is missing". Workaround: Ignore error message	AB-12795
The functionality Remote Target Visio and IEC61850 do not follow the standard demo licensing period. If used without license the functionality stops after 30 minutes. In this case the PLC remains in status running but will stop when the standard demo period is expired. Workaround: None, open	CPUFW-5961
SD-Card: Update with write protected SD-card results in an endless loop for the update process. Workaround: Don't use write protected of SD card for update process.	CPUFW-5917
IEC61850: GOOSE subscribe does not work Workaround: Set Linux in Promiscuous Mode using IEC function SysProcessExecuteCommand()	CPUFW-5902
Ethernet: The PLC doesn't apply the changes in IP tool ("Configured IP Address") and Display before re-boot. Workaround: Check IP settings after re-boot.	CPUFW-5896
Sometimes Online access with 3S block driver TcpIp cannot be established. Workaround: Use 3S block driver UDP for Online access or retry Login some times.	CPUFW-5884
System: SysTaskSuspend blocks for 50ms. Workaround: Don't use SysTaskSuspend, if blocking for 50ms not possible.	CPUFW-5881
System: PLCShell command "date" and "rtc-set" cannot set a date after 2038 Workaround: Open	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 ETH1.	CPUFW-5869
Network Variables (NV): does not work with default Broadcast address 255.255.255.255 Workaround: Use other 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. Workaround:	CPUFW-5765

None, Open	
Modbus TCP server: fast On/Off switching of server can lead zu incomplete log entries (e.g. missing IP address) Workaround: None, Open	CPUFW-5763
CAA-File: After creating and then deleting a big file which filled all available memory space on the disk (sdcard or userdisk), the DISK_STATUS fb always shows that there is no space left. It is also impossible to perform other file/directory actions, e.g.: creating a new directory. Workaround: - Don't fill userdisk/SD card to 100% - (proposed space is 10%). - Login via PLC Shell and remove files from the userdisk/Sd card manually.	CPUFW-5746
CAA-File: If the userdisk is full, the PLC won't create the INI file with production data on the SD card. Workaround: - Don't fill userdisk to 100% (proposed space is 10%). - Login via PLC Shell and remove files from the userdisk manually.	CPUFW-5734
System: In case of time jumps might have undesired behavior in the system. Workaround: SNTP. Start process after synch on SNTP; Configuration that SNTP does not execute time jumps.	CPUFW-5560
Diagnosis: In AC500 V3 CPU, the system diagnostic should be done using function blocks in user program or with Automation Builder using online diagnostic and Device Tree. The CPU ERR Led doesn't indicate the errors. Workaround: - Use Automation Builder or User program for diagnosis. - New POU SetLEDErr in IntUtils library in 3.0.2.	CPUFW-5221 CPUFW-5259
SD-Card: In some cases, If the SD card is removed while in PLC is in RUN mode and SD card is accessed and is put back, the PLC don´t recognize that the SD Card is put back. If you try to write on a File on the SD Card their is Error NOT_EXIST but the file st there. Workaround: - Do not to pull 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. Woprkaround: use only one connection per Modbus TCP server.	CPUFW-5076
FILE.close: exception in case file handle is zero. POU stays forever is state busy. Workaround: Check file handle before call FILE.close.	CPUFW-5060 LIB-1532
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 lengt for FCT=22, 23 leads to access violation Workaround: Check the input parameters for valid values	LIB-1615
Modbus TCP: POU ETHx_MOD_MAST with wrong input parameters leads to exeption: 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
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-1167
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
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	AB-13406

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.	LIB-1176
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
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

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.

Safety PLC - AC500-S

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

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

Functional changes / New features	*Version*
SM560-S-FD-1 (-XC) and SM560-S-FD-4 (-XC) are supported. - New safety library SafetyDeviceExt_LV100_PROFIsafe_AC500_V27.lib is introduced to support PROFIsafe F-Device functionality on SM560-S-FD-1 (-XC) and SM560-S-FD-4 (-XC) safety CPUs. New safety library SafetyExt2_LV100_AC500_V27.lib is introduced to support new functions like reading safety boot project CRC and triggering SAFE STOP from safety application program on all AC500-S safety CPUs with firmware V2.0.0. Updated PROFIsafe F-Host library SafetyBase_PROFIsafe_LV200_AC500_V22.lib is available. It is needed to support supplementary functions on SM560-S-FD-1 (-XC) and SM560-S-FD-4 (-XC). This library shall be used in all new AC500-S safety projects.	2.1.0
A new licensing mechanism common with existing Automation Builder products is used now for AC500-S functional safety engineering. It means that PS501-S license enabling package is replaced by DM220-FSE and DM221-FSE-NW Automation Builder 2.0.2 add-ons. All customers who have already valid PS501-S license keys can upgrade free-of-charge their licenses to new ones (DM220-FSE and/or DM221-FSE-NW). All users of Automation Builder 2.0.2 who start their safety programming in Automation Builder 2.0.2 profile will have to obtain DM220-FSE and/or DM221-FSE-NW Automation Builder add-ons to do AC500-S functional safety engineering.	2.0.2
A new version of GSDML importer is used in Automation Builder 2.0.2. This new version of GSDML importer is not compatible with the previous version due to the change in the data description. This was needed to be able to implement more restrictive style checks according to GSDML style rules. Special steps are now needed to migrate projects with 3rd party safety modules instantiated using GSDML files in old profiles to Automation Builder 2.0. These steps are described in Application Note 3ADR025275M0201 in detail.	2.0.2

Drive Manager

Functional changes / New features	*Version*
• **ACS880** - Dynamically populating encoder group parameters in 92 & 93 groups • **ACS380, ACS580** - Updated min and max values of nominal current and nominal voltage • **User can Lock parameters** from editing by providing the passcode in 96.02 parameter	2.1.0

• **New firmware support** ACS580 – ASCK2 2.02.0.1, ASCK2 2.03.0.1, ASCK2 2.03.0.2 ACS880 – AINFX 2.52.0.0, AINFX 2.62.0.0 ACS380 – AMCK6 2.02.0.1, AMCK6 2.02.0.6

Fixed issues	***ID***
• User unable to install application parameters of ACS880 drive if, drive name in parameter backup is not ACS880	AB-13847
• Changing fieldbus reference from non-zero value to zero crashes the virtual PLC while using virtual PLC and Virtual Drive for Virtual Commissioning	AB-11510
• Automation Builder is crashed when user edit same bit pointer/ value pointer/ binary parameter twice in Drive Manager.	AB-9665
• In Monitoring window now user should be able to do scroll and zoom when monitoring is stopped and pointing on a signal shows the value at that point.	AB-11439

Known problems	***ID***
No synch 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 loose 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 Application Programming

Note 1: In order to program ACS880 drive there shall be Application programming license (+N8010) loaded to drive memory unit. Please contact ABB representative.
Note 2: In order to get ABB Standard and System library visible, please disable *Enable simplified library handling* and *Hide system libraries* options in Library management Tools/Options/Feature.
Note 3: Drive composer pro version 1.9 or newer is recommended.
Note 4: Save the project into the archive before installing the new Automation Builder version. Extract the project from archive when the new AB version is in use at first time.

VERSION INFO	***Version***
ABB Driveware IEC programming package	**3.7.718.228**
Automation Builder	**2.1.1**
Compiler versions	**3.4.4.30, 3.5.7.0, 3.5.11.0**
ABB Standard library in project (AS1LB)	1.0.1.2
ABB System library in project (AY1LB)	1.9.1.0
D2D communication library in project (AY2LB)	1.9.0.2
Target FW	**AINFX 2.72 (recommended*)**
Target device ACS880_AINF_BCU12_M_V3_5	3.7.1.0 (BCU-12/02/22)
Target device ACS880_AINF_ZCU12_14_M_V3_5	3.7.1.0 (ZCU-12 /14)
Target device ACS880_AISF_BCU12_M_V3_5	3.7.1.0 (BCU-12)
Target device ACS880_AISF_ZCU14_M_V3_5	3.7.1.0 (ZCU-14)
Target device ACS880_ATBF_BCU12_M_V3_5	3.7.1.0 (BCU-12/02/22)
Target device ACS880_ATBF_ZCU12_14_M_V3_5	3.7.1.0 (ZCU-12 /14)
Target device ACS880_AMMF_BCU12_M_V3_5	3.7.1.0 (BCU-12/02/22)
Target device ACS880_AMMF_ZCU14_M_V3_5	3.7.1.0 (ZCU-14)
Virtual target device ACS880_AINV_BCU12_M_V3_5	3.7.1.0 (BCU-12)
Virtual target device ACS880_AINV_ZCU12_14_M_V3_5	3.7.1.0 (ZCU-12 /14)

***)** If used with older firmware than 2.62 please check that parameters in Drive Interface are available in target and version 3.4.4.30 of the compiler must be used. Don't update compiler version if a project created with version 3.4.4.30. Default compiler version for new projects is 3.5.7.0.
Firmware 2.40, 2.51, 2.62 or newer one must be used in case of F-series I/O IEC-programming.

Functional changes / New features	***Version***
ABB Drives communication settings of device enable the new way of scanning the drive(s).	2.1
Memory consumption of application parameters, events and mappings are checked during creating boot application. Used memory and memory limit are informed. Error message is displayed and application download is prevented if memory limit is exceeded.	2.1
New functionalities "Source download to drive" and "Source upload from drive" are using the new way of scanning the drive.	2.1.1
Initial support for ACS880 virtual drive Programming.	2.1.1

Bug corrections	***ID***

• Comparison feature of Application parameters and events -object in project compare was not working as expected.	AB-12111, AB-12114, AB-12142, AB-12143, AB-12145, AB-12146, AB-12162, AB-12163, AB-12372, AB-13834
• Comparison feature of Drive interface -object in project compare was not working as expected.	AB-11914, AB-11933, AB-11945, AB-11982, AB-12197, AB-12201, AB-12329
• SVN compare to remote project was not working as expected.	AB-11588, AB-11589
• AB crashed on exporting application parameters to XML from non-lockable SVN project.	AB-9922
• While renaming “Application” under ACS880 project “Refactoring windows” will appear. By default Refactoring is kept enabled but it can be disabled in Tools/Options/Refactoring alternative “on renaming”.	AB-9962
• Drive Composer pro showed invisible parameters of the firmware group after an application parameter was added into the firmware group.	AB-11691
• Drive application RUN status was not displayed after creating boot application over EtherNet communication.	AB-12609
• “Source download” and “Source upload” are not working because of using the old communication editor. New functionalities “Source download to drive” and “Source upload from drive” are available.	AB-13479
• New default values for drive firmware groups 61 and 62 are not supported by parameter system. Groups 61 and 62 were set invisible in Drive interface to prevent permanent application loading fault.	TFS-145989

Known problems	***ID***
• It is possible to write a new value into mapped Read only -parameters of Drive interface. This should be prevented although values are not written into drive.	AB-3298
• Formatted parameters are not working properly with Drive Composer Pro.	AB-3436
• In case selecting Function Type to “Signal” (readonly) and existing variable is Global (GVL) then parameter creation fails. Parameters are not fully available or no parameters are created at all.	AB-11629
• In NewDefault column of DriveInterface it allows user to select a bit of parameter to a value pointer type parameter. This leads to Application Loading fault 64A3 on the drive after create boot application. REMEDY: Only select a parameter in NewDefault column for the value pointer type parameters.	AB-12172
• Renaming application doesn’t update links to mapped IEC variables.	AB-12325
• Monitoring of task execution cycles is not possible with the communication changes done into AB 2.1.	AB-12982
• Compiler related issue. Compilers 3.5.7.0 and 3.5.11.0 may produce code that is not working correctly. Issue is related with global and application parameter variables initialization. This issue may lead for example to not running application. Version 3.4.4.30 must be used as a workaround. Default compiler version for new projects is 3.5.7.0. If a project created with version 3.4.4.30 compiler version should not be updated. Correction available in next release, corrected into AINFX 2.80.	AB-13112
• Par_Scale_CHG function block is generating error code 3 when Base Value of an application parameter is changed. However, Base Value scaling is done properly.	TFS-36761

Drive Composer

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

Functional changes / New features	***Version***
Main new features of Drive composer pro • Localization editor for customizing texts in the drive • Graphical viewer for PSL2 data logger files • Added ACS6080 support	2.1

Fixed issues	***Version***
• Parts of user interface are disabled when the drive parameter system is locked, the drive has file downloads disabled, or the drive is in protected state • Amount of signals in the custom parameter window is not limited to 26 any more • Updated the DCS880 and DCT880 assistants • Quality and stability improvements	2.1

• Support for Windows XP ended as there will be no more security updates or technical support for the XP operating system from Microsoft	

Known problems	*Version*
Parameter conversion tool for ACS550 → ACS560 has the following known issues: • Wizard mode is not supported for ACS550-560 conversion • In ACS550 *.dwp file, all decimal values are converted to integer. Because of this many parameters throw “Value out of Range” exception • ACS550 parameters 36.03, 36.07, 36.11 and 36.15 (Timed function) are not yet included	2.1

Solutions

Condition Monitoring System

Functional changes / New features	*Version*
Only internal changes on platform integration, no functional changes.	2.7.0

SCADA - Zenon

Functional changes / New features	*Version*
Integration in Automation Builder supports latest zenon version 7.60 (installable with separate zenon setup)	7.60
Limitation: Zenon AC500 V3 variable synchronization is currently not yet supported	2.1.0

Panel Builder

Note: CP600pro panels are currently not yet supported but will be with the next Automation Builder version

Functional changes / New features	*Version*
Panel Builder integration • Support of virtual mode	2.1.0

PB610 Panel Builder 600:
• Actions and events
  ○ System variable to check the status of dumped files
  ○ New LoadProject / LastVisitedProject actions (Switch Terminal Emulator / Runtime)
  ○ Extend Launch Application by adding a new optional parameter to free RAM before executing it
• Alarms
  ○ Set and change "Alarm widget" and "Alarm History Widget" background color
• Data transfer
  ○ Allow to tranfer data from Alias (tag indexed) tags with DataTransfer action and DataTransfer feature
• Deployment and run time operation
  ○ Enable attach to... for properties x, y of widgets
  ○ Gestures support for combo box widget navigation
  ○ Add attach tag in all fields of e-mail server configuration
  ○ Provide same behavior of Install Runtime to Update Runtime
  ○ Add project property in order to choose the http connection mode
• JavaScript
  ○ Add append file function to JS fs object
• PB4Web (HTML5 pages for mobile devices)
  ○ Enable\disable javascript of project page for remote clients and add the API project.getClientType()
• PDF Reader
  ○ Enable PDF Reader on CP600-eCo panels (OS: Linux)
• Productivity tools and IDE UI
  ○ Add support to read WiBu hardware key
  ○ Grid Layout
  ○ Remove “Launch VNC” from the Developer Tools on CP600-eCo devices
  ○ Invoke "update runtime" dialog while downloading project to incompatible runtime...
• Protocol
  ○ Extend OPC UA server support to alarms (active and historical) and trends
  ○ Modbus TCP V3 AC500 drivers
  ○ Enable PING protocols
• Protocol Editor
	2.6.0.351

○ Grayout unsupported protocols that require special HW • Recipes ○ Implement recipes in PB4Web (HTML5 pages for mobile devices) • Remote Client / Activex ○ Remove the CGI Tags Read/Write console from the distribution • Security ○ Provide cancel button inside ChangePassword page • Special widgets ○ Generic canvas widget • Standard widgets ○ Table widget • Trends ○ Add Trend widget to PB4Web ○ Add pinch zoom gesture to the PB4Web "Trends" implementation • Widget: RealTimeTrend ○ Consumption Meter: Add values to display • Widget: scatter diagram ○ Use of attach to tag standard dialog for ScatterDiagram widget graph x-tag and y-tag properties.	

Fixed issues	***Version***
• Actions and Events ○ DataTransfer is not possible between "this client user-name" and string Tag ○ SetBit action not working on Negative values in PB4Web (HTML5 pages for mobile devices) ○ StepTag with tag attached to parameters not working in PB4Web ○ Step tag does not respect step over limit for byte data type in Linux (CP600-eCo) • Alarms ○ Live Tag in alarm's description save old value into the buffer ○ Error getting in browser, if alarm widget column have a tag attachment ○ Live tags don't work in history alarm widget on PB4Web ○ PB4Web: Events not listed in one of the history alarm widgets, if there are two alarm widgets in single page ○ PB4Web: Page loading error in alarm page if tag attached to remote enabled ○ Alarms events found missing while duration 'All' is selected in PB4Web ○ Alarm widget: Always Load new alarms with unselected ○ Events not listed in one of the history alarm widget, if there are two alarm widgets in single page ○ Wrong enable alarm status if enable is managed from the PLC ○ Improper warning shown while copy paste alarms, if number of alarms in project is higher than the allowed limit ○ Enable node via alarm not working if binary is enabled • Branding: ○ Favicon branding for web pages not correct • Data entry ○ Mouse pointer becomes permanently visible on UN60 (CP600-eCo) when dragging/moving keypad and dialog • Data logger ○ DB editor malfunction on opening the editor, when it is not enabled • Data transfer ○ Force the data transfer synchronization when a communication node return is active ○ It is not possible to copy a datatype tag on a single element array of the same datatype • Deployment and run time operation ○ PB4Web - tag action not working, if widget value is attached directly ○ jmx file not removed from project folder, if project is downloaded again with binary... ○ DataLink is modified by HMI-Studio when edited ○ LaunchUpdater action doesn't load the new project after reboot ○ Html files not deleted when a PB4Web page is deleted from HMI-Studio ○ Send Email action not working with invalid path in attachment parameter ○ In linux platforms (CP600-eCo) messages are not printed out to console, if logger is active. ○ Change page with vertical/portriat orientation requires much more time than with horizontal/landscape orientation. ○ JS API DB write events is not working... ○ Panel can't display the float field if "NaN" data is detected ○ PB4Web: SVG image is not shown in web page, if used as button icon • Dialogs ○ Dialog pages are not modal for PB4Web in Safari browser. • Installer ○ At least 1,4 MB of free disk space is required • PB4web (HTML5 pages for mobile devices) ○ PB4Web - "eventInfo.newValue" return wrong value in an "alert" javascript ○ Wrong background-color for an alarm, if state is "Triggered Acked" ○ Possibility to show SVG from IP Camera widget in PB4Web	2.6.0.351

○ Missing attach to button to "Fill Color" property of ButtonWgt ○ Remove popup error message if tag action failed ○ Malfunction of blink property attached to a tag ○ Numeric field shown in browser as "NaN", if scaling is applied to array tag ○ Apply to WebPageRequest the same behavior as to PageRequest • Multilanguage ○ Multilanguage string is empty in runtime if default language text is not defined… • Productivity tools and IDE UI ○ HMI-Studio crashes while executing undo command after having deleted a grouped widget... ○ Review of project size calculation algorithm ○ LastVisitedPage action converted to HomePage action during editing ○ Wrong text properties ○ Trend background image not visible on web ○ HMI-Studio crashes, if pressing download button repeatedly ○ Tag attached to alarm's remote enable detected as unused from tag cross reference ○ Keyboard editor unusable with some screen resolutions ○ Storage Device "Preferred" always disabled even if project's target is Runtime PC ○ Last IP address used in download dialog is not saved with dialog if invoked by menu instead of by icon ○ IPs are not removed from the list, if HMI is undiscoverable... ○ Renamed tag is not updated in the list of tags linked to e-mail configuration... ○ Renamed tags are not updated in the data base actions in scheduler and alarms... • Protocol editor ○ HMI-Studio crashes on changing protocols in protocol editor with specific sequences ○ Default offline node management of MODT protocol is 3 s instead of 30 s • Recipes ○ Numeric field attached to recipe elements is not refreshed after setRecipeItem() action via JS ○ Tag actions on recipe tags cause error in browser ○ Runtime crashes while loading project with recipe sets attached to fields with index -1 • Special widgets ○ HMI FTP Client support ○ Image path does not update in multistate image multilayer widget if you drag and drop it from gallery ○ Network adapter widget does not work in dialog and template page ○ RefreshTrend macro does not refresh latest defined color band in consumption meter widget • Standard widgets ○ Widget properties attached to another widget property on itself freezes the simulator • Tag editor ○ UI Issue – Multiple tags get selected in attach to dialog if you select random tags • Trends ○ DumpTrend action on Linux devices (CP600-eCo) report an error message, if network path contains `\´ in string ○ Historical Trend does not draw correctly until the last sample value changes ○ DumpTrendAction does not work correct in PB4Web ○ Trend flickering curve render issue on Safari and Internet Explorer 11 browsers ○ RefreshTrend action does not work on consumption meter widget after execution of DeleteTrend action • Widget: Field ○ PB4Web prevents the possibility to add not supported characters to field widget at design time • Widget: Knob ○ Needle values in PB4Web are not mapped correctly in min-max range ○ PB4Web knob widget allows to select only 4 states even if max value is set to 5 • Widget: Light ○ On PB4Web page light object remains hidden, if tag switched off, during off status in blinking behavior • Widget: Message text ○ PB4Web message widget does not work, if multilanguage is not enabled ○ Messages added are lost while changing 'Continuous index' flag and other UI issues in message widget ○ PB4Web issue: Message shows 'null', if you execute show message action from template and dialog pages. • Widget: Multi state image ○ Error while downloading web project if multistage image widget contains .jpeg files • Widget: Text ○ PB4Web label text is not displayed correctly, if horizontal align is set to right.	

Known issues	***Version***
• Tag actions, PB4Web ○ If the WriteTag action is enabled in web template pages, switching of web pages will be slow.	2.6.0.351
• AC500 V3 PLC tag synchronization between Automation Builder and PanelBuilder is not yet supported	2.1.0

Servo Drives

Functional changes / New features	***Version***

Servo Drives plugin • Include device description files for new MicroFlex e150, MotiFlex e180 and MicroFlex e190 firmware (as EtherCAT slave devices). Builds 5864, 5865 & 5867 now included. **Mint WorkBench** • Allow entry into the Autotune screen when enabled • Add support for motor brake delays in Autotune tests and when entering the Drive Setup and Operating Mode wizards	2.1.0 Build 5852

RobotStudio

Functional changes / New features	*Version*
RobotStudio integration • Support of RobotStudio object in device tree has been discontinued	2.1.0
RobotStudio • The latest version can be downloaded from ABB web site http://new.abb.com/products/robotics	

Appendix

Appendix 1: Release notes HA Library Package 2.4.3

HA Modbus TCP Library Package

Library Package for AC500 V2+V3 CPUs:

- Contained here only as help/documentation.
- The HA Modbus Library Package is currently provided directly via Sales and Support, for this AB2.1.1 release.

HA CS31 Library Package 2.4.3

The software Libraries in HA Library Package V2.4.3 are for V2 CPUs only and have been tested with the following versions:

The software Libraries in HA Library Package V2.4.3 are for V2 CPUs only and have been tested with the following versions:

- Automation Builder V1.1, Firmware V2.4.2 (CPU and CM574), CI590-CS31-HA: Firmware T3.0.15
- Automation Builder V1.2, Firmware V2.5
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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

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)

Known limitations or bugs

- A list of limitations can be found in the online help: High Availability - System Technology - System structure - HA-CS31 Limitations
- CI590 Sync ERR LED is not blinking after switchover (manual). This is fixed with CI590 FW T3.0.15
- CI590 Analogue + Digital output compare is not working. This is fixed with CI590 FW T3.0.15
- Panel example in Example_AC500_HA_CS31_V242.project not working, because tags are not getting updated by node overide ID (PB600-497). Workaround: use Panel Builder V1.91.0
- 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

Installation and Update

The AC500 HA Library Package, Version 2.4.3 is part of the Automation Builder

Whats new in Version V2.4.2 / V2.4.3

- Support of more than one CS31 bus by using CM574 with new function blocks.
- HA_CS31_CALLBACK_STOP updated from program to function.
- New PID function blocks to use dedicatedly with Digivis Faceplates.
- Visulization for Control, Diagnosis and Synchronization function blocks.
- New HA system overview visualization.
- Increased total size of the sync entry array from 256 to 1024.
- Timer & RAMP Utility function block synchronisation gaps are fixed.
- fG_HA_PRIMARY, fG_HA_PM1_PRIMARY Variable status update issues are fixed.

- Adaptation for compatibility with new FW 2.4.0
- Several bugs fixed
- Online help updated with V2.4.3

Appendix 2: Release notes PS553-DRIVES 1.2.5

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:

- ABB Automation Builder V1.1 (FW2.4)
- ABB Automation Builder V1.2 (FW2.5)
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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

Changes in different versions

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 functionlity 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)

Installation and Update

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

Welcome to the AC500 CMS Signal Processing Package, Version 1.1.0

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

- AutomationBuilder V1.2, Type: PM592-ETH (FW2.4 and 2.5) and the FM502 (V1.0.0)
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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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

V1.0.0	2016-01-18	First version
V1.1.0	2016-07-11	New LP and HP filter blocks

Known limitations or bugs

none

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_V24_App.lib
- Signal Processing examples and library help file: \Users\Public\Documents\AutomationBuilder\Examples\PS566-CMS

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 1.0.1

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

- Automation Builder V1.2, Firmware V2.5
- Automation Builder V1.2.3, Firmware V2.5.3
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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

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

Version history

V0.9.0 2016-05-04 First version, technology preview

V1.0.1 2016-08-30 First product version, certified by BTL

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 V1.0.1

Several fixes for BACnet certification

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

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.

Welcome to the AC500 FTP client Library Package, Version 1.7.0

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

- AutomationBuilder V1.0, CBP 2.3.0, CPU-FW V2.4.2, Type: PM583-ETH
- AutomationBuilder V1.1, Type: PM592-ETH (FW 2.2, FW2.3, FW2.4), PM591-2ETH (FW 2.4.1), PM573 and PM564 (FW 2.4.1)
- AutomationBuilder V1.2
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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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
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 lenght 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.

Known limitations or bugs

- When adding the library to blank project the following libraries must be referenced manually: syslibsockets.lib and CAA_File lib [LIB-1329]
- FTPClient accidentally closes command channel after first reset of FTP_DOWNLOAD or FTP_LIST [LIB-1627]

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 V1.0 (CBP 2.3.0), CPU-FW V2.3
- Automation Builder V1.1, Firmware V2.4.2
- Automation Builder V1.2, Firmware V2.5
- Automation Builder V1.2.3, Firmware V2.5.3
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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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

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. If user wants to use PM595, then user needs to do some changes in program e.g. at some places REAL variable is used to store multiplication of two REAL variables. User needs to replace these REAL variables with LREAL variables (Lib 1178).

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.

Whats 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 1.2.1

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

- Automation Builder V1.0 (CBP 2.3.0), CPU-FW V2.3
- Automation Builder V1.1, Firmware V2.4.2
- Automation Builder V1.2, Firmware V2.5
- Automation Builder V1.2.3, Firmware V2.5.3
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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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

PS563 Water Library Package	LogData_AC500_V23.lib	PUMP_AC500_V23.lib	HMI Example
V1.0.0	V1.0.0 (2013-10-24)	V1.0.0 (2013-10-22)	HMI_ACQ_V18_Example.zip
V1.1.0	V1.1.0 (2015-04-17)	V1.0.1 (2014-10-15)	HMI_ACQ_V191_Example.zip
V1.2.0	V1.1.0 (2015-04-17)	V1.1.0 (2015-09-15)	HMI_ACQ_V191_Example.zip
V1.2.1	V1.1.1 (2016-03-17)	V1.1.0 (2015-09-15)	HMI_ACQ_V191_Example.zip

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)

- Only working with with Panel Builder V1.91.0

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

What's new in Version V1.2.1

- LogData_AC500_V23.lib: Bugfix direct communication Mode 2

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 V1.1 (CPU-FW V2.4, Panel Builder V1.9)
- Automation Builder V1.2 (CPU-FW V2.5, Panel Builder V2.0)
- Automation Builder V1.2.3 (CPU-FW V2.5.3 Panel Builder V2.0.1.195)
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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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

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

Known limitations or bugs

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

I**nstallation and Update**

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

This Library needs a valid license for compilation.

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

What’s new in Version V1.1.0 / V1.1.1

- Current monitoring with common or individual sensor, 1 phase or 3 phase
- 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 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.

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 V1.1
- Automation Builder V1.2
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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

Version history

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

Known limitations or bugs

none

Installation and Update

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

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

Disclaimer: Technology Previews are designed to give you a 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.

Welcome to PS571 Pumping Library Package, Version 0.9.0

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

- Automation Builder V1.2.3, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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

Version history

V0.9.0 First version (Oct. 2016)

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 3.2.1

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

- Automation Builder V1.2, Firmware V2.5
  - 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
- Automation Builder V1.2.4, Firmware V2.5.3
- Automation Builder V2.0.0
- Automation Builder V2.0.1
- Automation Builder V2.0.2
- Automation Builder V2.0.3
- Automation Builder V2.1.0

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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

- V1.0 PS551-MC (2010) First version
- V2.0 PS552-MC (2011) PLC based Motion
- V3.0 PS552-MC-E (2014) Coordinated Motion
- V3.1 PS552-MC-E (2016) see below
- V3.2 PS552-MC-E (2016) see below

Known limitations or bugs

- CMC_MOTION_KERNEL_REAL function block ErrorID values can be overwritten by subsequent motion errors - e.g. passing the axis wrap boundary when using a linear axis will initially result in ErrorID 13 [Position Overrun] that may then be quickly overwritten by ErrorID 1 [Following error]. Consider using a circular buffer (array) to log all instances of Kernel errors (LIB-682)
- Initial delta times values for MC_PositionProfile, MC_VelocityProfile and MC_AccelerationProfile must be zero (LIB-550)
- Motion profiles for linear moves using values for Jerk greater than zero can produce small inaccuracies in the resulting acceleration and deceleration times (up to 10%) when compared to the theoretical calculated values (LIB-967)
- 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)
- 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)
- Move FBs should not start a movement with deceleration=0, because it will then never stop again (LIB-1040)
- 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)

Installation and Update

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

When upgrading from Motion Library Package V3.1.0 to V3.2.0 a "Rebuild all" might be necessary, no online update (LIB-1123)

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 V3.1.0

- 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, Ehercat and motion-cycle < 1ms possible
  - 16 bit limits for velocity, acceleration and deceleration removed

What's new in Version V3.2.0 / V3.2.1

- 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
- V3.2.1: Example CompactMotion_EtherCAT_ACSM1.project updated as workaround for AB-10467

Appendix 12: CODESYS IEC 61850 Server 4.0.3.60 (Technology Preview)

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This package allows the AC500 to act as an IED with IEC 61850 Server, Edition 1, providing the following functionality:

- The IEC 61850 Server connects substation automation systems with PLC applications
- AC500 V3 CPU acts as an IED with IEC 61850 Server, Edition 1, allowing communication as MMS Server and GOOSE Publisher and Subscriber
- 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 V2.1.x, Firmware 3.1.x

In no event will ABB or its representatives be liable for loss of data, profits, revenue or consequential, incidental or other damage that may result from the use of other versions of product / software / firmware versions.

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

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

Version history

- V4.0.3 Build 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 Build 18 First version (November 2017)

Know limitation or bugs

- For GOOSE Subscribe the promiscuous mode must be enabled manually in the IEC 61131 code.
  Example: Run the following ST command once in order to enable the promiscuous mode for ETH1:
  SysProcessExecuteCommand('ip link set ETH1 promisc on', ADR(error));
  This requires the libraries SysProcess and SysTypes2Interfaces
- Minor issues with Buffered Reporting (conformance test cases BR20, BR22 and BR25)

Installation, Update and Licensing

- The package is part of AB2.1.1
- Basic documentation can be found in the online help – Add-ons – IEC 61850 Server

- 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