Release Notes

PPLib800xA

Version 6.1
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Introduction
This document represents the release notes for Pulp & Paper Library, PPLib800xA 6.1. This document lists the changes that have been incorporated into this release. It also describes the upgrade procedure for upgrading an existing library to this version.

Version Designation
PPLib800xA 6.1 consist of the following

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Revision History

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Compatibility
This release is compatible with previous versions.

Restriction
PPLib800xA 6.1 requires 800xA System Version 6.0. The following system extension must be loaded:
- ABB SFC Viewer
- ABB Central Licensing System Extension
- AC800M Connect
### Related Documentation

The following documents are included in the distribution media of PPLib800xA 6.0.

<table>
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Section 2 - New Features/Improvements

This section describes the new features or improvements in this release and previous releases.

**PPLib800xA 6.1**

**Internal Code Optimization**

Internal code inside the function blocks in the library are improved and optimized. It requires lesser memory and also reduce the CPU load. Upgrading from PPLib800xA 5.2 will see a reduction in CPU between 20-30% depending on the number of objects used and controller’s cycle time. Upgrading from PPLib800xA 6.1 rollup 1 will see smaller reduction in CPU.

Number of instance (NOI) is also reduced, which means more objects can be added into the same application.

**Interlock Navigation**

Interlock Display is used for configuration of the interlocking information. It is used to configure the interlock text, operator blockable, interlock override, start interlock and block event of each interlock.

It is now possible to call up the interlocking object’s faceplate from the faceplate or Interlock Display. No additional configuration is required.

When the configured interlock text contains object name in the first word (separated by space), its faceplate can be called up. Example:

- PM12MP001.1 not running → will open PM12MP001.1 faceplate
- PM1LI02 low → will open PM1LI02 faceplate

By default, it will call Reduced Faceplate. But it’s also possible to change the default to Faceplate or Extended Faceplate by changing the configuration value in PPLib800xA Customization NLS.

From faceplate, the active interlock text will be shown as usual. If the interlock text contain object that can be found in the Control Structure, the text will be indicated as button. Left click will open the interlocking object’s faceplate, and right click will show the context menu of the interlocking object. If the text doesn’t contain any object, no button style will be indicated.

Similarly, the same feature is also implemented in the Interlock Display. As left click is now used to call up the interlocking object’s faceplate, to enter the text will now require Shift + left click. Interlock text color is also now changed from green to black color to improve visibility.

**Diagnostics Display**

Diagnostics Display is used for presenting the diagnostics information from data set mapping for communication of smart devices object types.
Diagnostics Display of ACS550, ACS600, ACS800, ACS850 and ACS880, UMC22 and UMC100 are improved with NLS support. Bit number of each bit can be set as visible or hidden.

For customized smart devices, it’s also possible to implement the same similar style if required. A set of generic elements in the toolbox is available for use.

### Reporting

Reporting function consist of ReportConfig and ReportData01 function blocks.

ReportConfig is non aspect object function block, used to generate shift treatment. Shift configuration is done at the project constant. Max number of shift supported is 4. It has `ReportsPar` parameter which need to be connected to ReportData01. An application requires only one ReportConfig. It can be connected to multiple ReportData01.

ReportData01 is an aspect object function block, used to present the reporting summary. The function block supports up to 10 inputs. Four reporting types are supported (totalizer, counter, timer (in minutes) and ratio/utilization) for each input. Each data will be stored for the last 3 days (today, yesterday and previous day). Input name can be customized accordingly. Operator can see the report summary of each day by selection the corresponding date.

![Report Summary](image)

### GenCon

GenCon can be used to build and present user defined control function. It consist of GenConO and and GenCon01.

GenConO is used to read operator action through GenConPar and decode it as output parameter. These parameters can be used in application to define the custom control function.

GenCon01 will read the values from the custom control function and present these information on faceplate. Internally, GenCon01 is also built with MV, Dev and ActDev alarm limit, I/O status monitoring and some alarm and event handling.
Section 2 - New Features/Improvements

Bitwise Operation

Some new function block for bitwise operation are added in PP_ElementLib.

- **B16ToDInt**: Convert Boolean16 to dint
- **B16ToDword**: Convert Boolean16 to dword
- **B16SimpleEvent**: Generate event when each value in Boolean16 is true
- **B32ToDInt**: Convert Boolean32 to dint
- **B32ToDword**: Convert Boolean32 to dword
- **B32SimpleEvent**: Generate event when each value in Boolean32 is true
- **DIntToB16**: Convert dint to Boolean16
- **DIntToB32**: Convert dint to Boolean32
- **DIntSimpleEvent**: Generate event when each decoded bit value in dint is true
- **DwordToB16**: Convert dint to Boolean16
- **DwordToB32**: Convert dint to Boolean32
- **DwordSimpleEvent**: Generate event when each decoded bit value in dint is true
- **GetBitDInt**: Get value of certain bit number from dint input
- **GetBitDword**: Get value of certain bit number from dword input
- **SetBitDInt**: Set value of certain bit number from dint input, then update input
- **SetBitDword**: Set value of certain bit number from dword input, then update input

GetBit and SetBit are extensible parameters.

Object KPI

Object KPI are added for some motors and control object types:

- **Normal Mode Ratio**
  The percentage value show the proportion of the object operated under normal mode. It is important to define which mode is the normal mode for each loop. More than 1 mode can be configured as normal mode. Higher ratio means the object is operated in mode as it should be.

- **Alarm Ratio**
  The percentage value show the proportion of the object in alarm state, whether acknowledged or unacknowledged. Higher ratio means the object is operated in alarm state most of the time.

- **Root Means Square Error**
  This KPI is implemented on PID only. It indicates the performance of PID loop. Lower value indicates better performance. Value is accumulated for an hour before stored as previous data and start to count again.

By default, KPIs are not enabled. User can enable it on selective object as required. KPIs value can be reset when necessary.

Alarm and Event

The following improvements are related to alarm and event:

- Alarm and event handling is improved for better execution.
- Multiple event which come at the same time will be recorded separately.
- AE Translator aspect is consolidated into a common place in Library Structure.
- Alarm message for MV, Dev, ActDev and Current will included the actual limit value.
- Alarm message for MCErr, PosErr, etc are improved with better information.
- I/O Error in DIS01 and DOS01 will generate alarm instead of indication only.
- New **Low Current alarm** for all motors.
- New **Stop Interlock alarm** for all motors and valve.
  By default, this is not enabled. If enabled, alarm will be generated when motor is
  stopped by interlock.
- Interlock text can be added into alarm event message by using **PPLib800xA AE Uploader** tool.

**Sootblower Library**

  SBSeq01 is expanded to support up to 75 pairs of sootblowers.
  SBMotor01 is updated with some improvement:
  - Local control mode
  - Input parameter **Bypass** to omit sootblower from sequence control.
  - Sootblower mode can be individually controlled from input parameters.

**PPLib800xA Customization**

  A new NLS Resource Manager is added in the Library structure to store the
  customization required by project:
  - **NLSID_FaceplateViewInterlockLink**: to configure the default faceplate of
    interlocking object.
  - **NLSID_HideModeInNormalMode**: to hide the mode in graphic element when object
    is in normal mode.
  - **NLSID_ShiftxName**: to define name of the shift
  - **NLSID_ShowDiagnosticsBitNumber**: to show or hide bit number in Diagnostics

**PPSupport**

  PPSupport is now added with scheduling function to read the parameters based on
  certain project setting. It will be automatically run in the background on the selected
  interval time. Output files will be stored in the defined folder.

**Others**

  - **TrackIB**, implemented in Man01, is now expanded to PID01, PID01A and Ratio01.
    **TrackIB** can be used to set the output in Manual mode to remain or return to the
    previous value when interlock is released.
  - Indication of actual time of Valve01 for opening or closing is added in Object Display.
  - Online help file is included in the library installation.

**PPLib800xA AE Uploader**

  For interlock related alarm and event, it is possible for the Message Description to display
  the actual interlock text which configured in Text Configuration aspect.

  A unique AE Translator for PPLib aspect can be automatically populated in each instance
  and contain the information of interlock text by using **PPLib800xA AE Uploader** tool.

**HwStatus Display Generator**

  HwStatus Display Generator is a simple tool to generate graphic displays which can be
  used to monitor the status of all hardware which connected to AC800M controllers. The
  tool will automatically scan AC800M controllers of all control projects available in Control
  Structure.
Section 2 - New Features/Improvements

PPLib800xA 6.0 Rollup 1

The graphics will be placed automatically under [Functional Structure]/Hardware Status Displays. Each controller is presented as one graphic display. Controllers are grouped together per control project.

Number inside the indication shows the hardware address. Mouse rollover on the indication will show tooltip. It presents the hardware name (if configured in Control Builder) and hardware type in the bracket.

PPLib800xA 6.0 Rollup 1

Language Packs

PPLib800xA 6.0 rollup 1 now comes with Finnish language pack. This is on top of the existing supported language: English, Chinese, Swedish and German.

Library Structure

New graphic extension library is added. The example below is for PP_FunctionLib. Previously, all the graphical presentations are stored in PP_FunctionLibGraphExt.

Now, PP_FunctionLibGraphExt will contain only AC800 Alarm and Lock Control, AE Translator, Graphic Element, Graphic Display and Faceplate Element.

New extension library PP_FunctionLibGraphExtCustom will contain aspect which can be modified by user, such as Faceplate Documentation, Object Trend Display, Trend Signal Properties and Faceplate.

The same structure is applied to PP_PaperExpLib, PP_PowerExpLib, PP_UMC100Lib and PP_UMCLib.

Dricon_S02

New function block for variable speed drive connecting to ABB ACS drives is added. Dricon_S02 has the same profibus mapping as Dricon_S. The main difference is that Dricon_S02 is to be used only for 2 direction speed. In this case, separate start forward and reverse button is available in the faceplate with positive speed setpoint, although it will remain sending negative speed to ACS drive. Dricon_S02 also has separate interlocks for different direction.
AIC01 Signal Error

A new parameter `Err` is added on AIC01 with configurable alarm and event from interaction window. If `Err` is `True` and `AEConfigAIErr` is set to `1`, then an alarm will be generated. Numeric indication in faceplate, graphic element and object display will show `???`.

AIS01 Balance Control

A new parameter `Bal` and `BalRef` is added on AIS01. Balance control can be used to override the IOSignal value based on certain process condition. When `Bal` is activated, `BalRef` value will replace `IOSignal.Value`.

Seq01 Interlock

Interlock configuration for Seq01 is now replaced with IBInParType4 which can configured to reset or hold the sequence if interlock is active.

![Seq01 Interlock Configuration](image)

If `SeqStatus` is set to `1`, interlock will hold the sequence. Sequence will be resumed once the interlock is cleared. By default, `SeqStatus` is set to `0` which will reset the sequence.

Sootblower Sequence Recipe

SBSeq is now added with more recipes storage. It can now stores up to `5` recipes (`3` sequences for normal operation and `2` sequences for wash sequence).

Selection of the recipes is done from faceplate only and when sequence is not running.

![Sootblower Sequence Recipe](image)

The sequences can be configured for each recipes from the sequence recipes table. It’s possible to have different number of steps between sequences.
Dricon_S added with M2-M5
Dricon_S is previously only has M1. It’s now added with M2-M5. M1-M5 fault handling in this function block has the same fault handling priority order as the other motors.

Bool02 button indication
Bool02 has input parameter Color which can be used to manipulate color indication for the text in graphic element Bool02Text. But this is not used for the button.
For button indication, a new parameter ButtonStyle is added in the graphic element Bool02PD01 - Bool02PD04. User can select the default NormalButton or PPButton.

Motval status indication
Status indication of motval opening or closing is now extended to the arrow indication. Arrow indication will blink when motval is opening (up arrow) or closing (down arrow).
Status of limit switches and torque switches is added in Object Display for on-off valve and motval. It’s already added before in Signal faceplate element.

Motor graphic elements
Graphic elements MotPD00 and MotPD01 is added with new parameter MotorType and FillExtendedArea. MotorType can be used to select the indication of Motcon (default), PumpFlow or FanFlow. FillExtendedArea is False by default.
There’s no changes to the existing MotPD03 and MotPD07.
Nominal Speed for VSD

New configuration to indicate the nominal speed is added in interaction window. All graphic element which contain numerical speed is added with new parameter SpeedPresentation. It has option to present the speed as Unit (default) or Percentage. If Unit is selected, it will show the speed as it is in MV with unit as defined interaction window. If Percentage is selected, it will convert the MV into percentage based on the nominal speed defined.

By default, nominal speed is 0. Nominal Speed indication in Object Display is only visible when it is not 0.

Others

- Regulatory valve faceplate improvement (Man01, PID01, PID01A and Ratio01)
  - Faceplate buttons are dimmed when BallIn or Clamp is activated.
  - Input ManOut is disabled if ManEnbl is False.
  - Input AutoSP is disabled if AutoEnbl is False.

- Add ActuatorVisibility for Valve01 graphic elements Valve01PD00-02. Default is False.

- The column width in Alarm and Event ConfigurationTemplate is updated.

- The column width in Trend Template is updated. Extrapolate column for each trace is set to Value instead of None.

- PP_Simulation is improved. It’s not added as part of the system installation, but can manually imported from the installation path folder.
Section 3 - Changed Features

This section describes the changed features in this release and previous releases.

**PPLib800xA 6.1**

**MCAlarm**

With the additional Low Current alarm, MCAlarm data type is changed from `AlarmParCurr` to `Alarm2LimitCurr`. If input parameter MCAlarm is connected to a variable, connection must be updated accordingly.

**Alarm and event handling**

With the improvement on the alarm and event handling, the following has been affected:

- Changes in **Class** and **Severity** requires warm download to take effect.
- Input parameter **EventName** is removed. Interlock text can be incorporated into alarm and event automatically using PPLib800xA AE Uploader tool.
- Project constant has been restructured. Unused project constant is removed. All removed project constant is kept in `PP_ProjConstOld 1.0-0.afw` under `Old afw` folder in the installation media.
- AE translator has been consolidated into Library Structure. AE Translator aspect in each object type is removed. All removed AE translator aspects are kept in `Old afw` folder in the installation media.
- Changes in parameters of B16SimpleEvent and B32SimpleEvent. **Description**, **EventName** and **EventType** are removed. A new parameter **Prefix** is added. Changes are done to improved the execution and to support multiple event when several bits become active at the same time.
- Compiler switches to exclude warning of multiple calls to the same function block must be set to **Allowed** for all Pulp and Paper Library in every project. Refers to installation/upgrade procedure to set it up.

**PID01A Tuning Parameter**

PID01A always has warning of Parameter with direction 'in by_ref' may be modified through parameter PID01A_In1.InPar. PID01A stores the tuning parameter in InPar which is accesible from interaction window or faceplate. This is where user normally enter the values. However, there is a function for Apply and Undo which come from PidCC used internally in PID01A to confirm the changes in tuning parameter. This means the InPar will be also written from the control module. As such, the above warning is generated.

To eliminate the above warning, these tuning parameters are removed from InPar and now are stored directly inside the function block. If tuning parameters are written by logic, use the **ExtCtrl** instead.
PID01 BalRef limitation

Among all control loops available, only PID01 which has BalRef limited by output limitation. This is now changed to reflect similar behaviour across control loops. When PID01 in Balance mode, the output will take the value of BalRef without being limited by output High or Low Limit. However, it’s still limited by the output range.

PPLib800xA 6.0 Rollup 1

Torque Error in Motval

Torque Close Error and Torque Open Error are no longer treated as fault. Both are treated as alarm only. When torq error occurs, it’s still possible to operate the motval to opposite direction.

When Torque Close Error occurs, it’s still possible to send Open command from faceplate or program. Faceplate button Close is dimmed and Close command from program is also not valid. When Torque Open Error occurs, it’s still possible to send Close command from faceplate or program. Faceplate button Open is dimmed and Open command from program is also not valid.

Position Error in Motval

Position Error is no longer treated as fault. It is treated as alarm only. When travelling time is exceeding the limit defined, it’s still possible to operate the motval. Alarm will be generated.

Jog SP in Variable Speed Motor

In previous releases, when motor in Jog mode, there’s no specific speed setting. Motor will send the speed setpoint based on the selected setpoint mode.

A new parameter named JogRef is added in MotFreq, Dricon_S and SmartVSD. When motor is in Jog Mode, the speed setpoint mode will automatically goes to Jog SP Mode. It will take the speed reference from JogRef. When motor leaving Jog Mode, the speed SP will resume to previously selected mode.
Section 4 - Correction

This section describes the correction in this release and previous releases.

PPLib800xA 6.1

**Filt_1P**

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filt_1P</td>
<td>Output is not updated to high limit if the input value multiplied by the scale is greater than high limit</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

**Fung_1V**

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fung_1V</td>
<td>When XTab is configured in decreasing order or YTab in decreasing order with Bal, it may cause the connected task being aborted</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

PPLib800xA 6.0 Rollup 1

**Library Licensing**

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>When PP_PaperExpLib, PP_UmCLib, PP_PowerExpLib or PP_FunctionExpLib are used together, additional library license quanta required is multiple than it should be.</td>
<td>This problem has been corrected. Refer to 3BTG811792-3060-1 PPLib800xA Incorrect Calculation of Library License Quanta</td>
</tr>
</tbody>
</table>

**Aspect customization**

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>It's not possible to modify the Trend Signal Properties aspect and AE Translator aspect in PPLib800xA 6.0</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

**Limit wind-up**

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filt_1P, INTegrator</td>
<td>Although, the output is limited to the correct OLL and OHL, internally the calculation is still continuing</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>
### Integrator

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>INTegrator</td>
<td>When <strong>Bal</strong> is released, the output doesn't take <strong>BalRef</strong> as base value, but revert back to previous value.</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

### Enable Permission

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>All object types</td>
<td>No permission is assigned to the <strong>Enable</strong> parameters. It prevents the security definition to work properly</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

### Filter time

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>AIC01, AIS01, Flow01</td>
<td>Changing filter time from 0 to large value causes the output value to drop</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

### Totalizer

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Totalizer01</td>
<td>Input parameter <strong>Reset</strong> doesn't reset the totalizer value</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

### Valve01

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Valve01</td>
<td>If local open or close remains active, it's not possible to open or close valve in other modes. Damper symbol doesn't show correct information when there is OFF alarm (Ellipse and Line indication can't be seen)</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>

### Smart Device 2 direction

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Issues</th>
<th>Correction</th>
</tr>
</thead>
<tbody>
<tr>
<td>UMC22, SmartMCC</td>
<td>If <strong>Reversing</strong> is not enabled, it's still possible to run motor in reverse in Panel Mode or using <strong>JogRev</strong> in Jog Mode.</td>
<td>This problem has been corrected</td>
</tr>
</tbody>
</table>
This section describes the installation and upgrading procedure for installing this release.

New Installation

Installation

To install Pulp and Paper Library on aspect server nodes:
1. Insert PPLib800xA Installation CD into CD/DVD drive.
2. Double click on the Pulp and Paper Library.exe in the Installation directory to begin installation.
3. Click on Automated Installation
   a. Select Aspect Server if installing on aspect server nodes. This will install PPLib800xA only.
   b. Select Engineering Station if installing on engineering nodes. This will install PPLib800xA, PPLib800xA CBM Help, PPSupport, PPLib800xA AE Uploader and HwStatus Display Generator.
4. Follow the Installation Wizard to complete the installation.

Post Installation

Post installation covers the procedure to load PPLib800xA system extension into 800xA system. This can be performed using System Extension Load or System Extension Maintenance.

System Extension Load is used if the system has no Pulp and Paper Library system extension.

System Extension Maintenance is used if the system has Pulp and Paper Library system extension which was introduced starting from PPLib800xA 5.3.

To load/update system extension from primary aspect server:
1. Start the Configuration Wizard from the primary Aspect Server node.
2. Open System Extension Load or System Extension Maintenance.
   To open the System Extension Load dialog box by going to:
   System Administration > Select System > System Extension Load
   To open the System Extension Maintenance dialog box by going to:
   System Administration > Select System > System Extension Maintenance
3. Select ABB Pulp and Paper Library from the list in the left pane and move it to the list in the right pane by clicking >.
4. If Function Designer support is required, add ABB Pulp and Paper Library for Function Designer to the right pane.
5. If all system extension in the right pane are marked with green check mark, then click **Next** and the **Apply Settings** dialog box appears.

6. Click **Finish** to load the system extensions.

Compiler Switches Setting

Once project is created and Pulp and Paper Library connected to project, follow the steps below to configure the compiler switches setting:

1. Open Control Builder project.

2. Right click on the project name, select **Settings > Compiler Switches**.

3. Select **Multiple calls to the same Function Block**. Then click on **Option >>** button.

   ![Image of Compiler Switches](image1.png)

4. Exclude libraries which belongs to Pulp and Paper Libraries.

   ![Image of Compiler Switches](image2.png)

5. Click **OK** button to continue.

   The above setting will only hide warning of **multiple calls to the same function block** inside the selected library.

   It’s not recommended to switch off this warning completely to prevent error in application. If an application calls the same function block, warning will still be generated.
Upgrading PPLib800xA on an existing 800xA system

The procedure for upgrading to the latest PPLib800xA is as follow:

Backup existing parameter values

Note: Ensure that projects are downloaded to the controllers and verify that live data can be observed in the 800xA system before attempting the following steps.

1. Use Windows Explorer to locate a number of Microsoft Excel documents (*.xlsm) in the Upgrade Tools / ColdRetain directory.

Note: Use only Microsoft Excel 2003 (32-bit) or later. Install FileFormatConverters (download from Microsoft website) if the installed Excel does not support xlsm.

2. Open the Excel document that corresponds to your existing version of PPLib800xA.

Upgrade from PP Library <Existing version> to PP Library 6.1.xlsm
For example: Upgrade from PP Library 4.0-1 to PP Library 6.1.xlsm

Note: Always use the provided Excel file for the upgrade as some parameters may be automatically mapped internally when you restore.

3. Beginning with the first control project or application, retrieve all the PPLib800xA objects from the project / application by performing the following:
   a. Click on Retrieve Objects button to open the Retrieve Objects dialog box.
   b. Click on Browse Object button and browse for the desired project / application in the Control Structure. Click Ok to confirm. (The selected path can be seen in the Retrieve Objects dialog box)
   c. Select Append Existing Data if new data is to be added to the next available row. Otherwise, select Clear Existing Data to remove any existing data.
   d. Click on Read Parameters button to open the Read Parameters dialog box.
   e. Specify the connectivity server by selecting the appropriate options.
   f. Click on Read Parameters button to start retrieving the values of the parameters from the system.
   g. Visually verify that all parameters have been retrieved successful.
   h. Save and assign a unique name to this Excel document.
   i. Repeat step (a) to (h) for all other projects or applications.

Note: Resolve all errors before proceeding with the next steps.

4. Release any reservation in the system and close any opened workplaces and Control Builder.

5. If upgrading from PPLib800xA 5.1-0 or later, modification on resources such as Logical Color Definition and NLS Resource Manager aspect category which belongs to PP Library can be backed up.
   a. Double click ResourcesBackupApp.exe in the Upgrade Tools / Resources directory to launch the Resource Backup application.
   b. Leave everything as default and click on Backup button.
   c. Click on OK button when backup is completed.
Backup existing 800xA system

Follow the instructions described in the maintenance documents of the installed 800xA system to back up the existing system. It is highly recommended to take a backup of the Functional Structure, Control Project and all used libraries.

System Upgrade (if applicable)

The existing system must be upgraded to System 800xA 6.0. All VB graphics must be migrated to PG2 either in SV5.0 or SV5.1. Follow the table below for upgrading from different system version: SV4.1 or older, SV5.0 and SV5.1.

<table>
<thead>
<tr>
<th>No</th>
<th>Procedure</th>
<th>Upgrade from</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>SV4.1/</td>
</tr>
<tr>
<td>1</td>
<td>Upgrade the existing 800xA system to System 800xA 5.0 SP2</td>
<td>√</td>
</tr>
<tr>
<td>2</td>
<td>Double click on the <strong>LoadPPLib800xA505.bat</strong> in the Upgrade Tools / Special Upgrade to import the temporary library</td>
<td>√</td>
</tr>
<tr>
<td>3</td>
<td>Launch a Plant Explorer Workplace and browse to the Control Structure. Remove all Text Properties aspects associated with PP_FunctionLib, PP_UMCLib and PP_PaperExpLib from the Control Structure. <em>Hint: use the Find Tool to search for all Text Properties aspects in Control Structure.</em></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Update all the projects and applications by launching the Control Builder. Insert and connect the temporary libraries (5.0-5) to projects and applications.</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Update all the projects and applications by launching the Control Builder. The temporary libraries (5.0-5) will be automatically updated in the projects.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>If Function Designer is used:</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>a. Double click on the <strong>LoadPPLib800xA505FD.bat</strong> in the Upgrade Tools / Special Upgrade to import the FD aspect.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Generate the code for all diagrams.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Reload any customized aspects that may have been removed during the import.</td>
<td>√</td>
</tr>
<tr>
<td>7</td>
<td>Migrate all existing VB graphics to PG2 graphics:</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>a. Deploy all VB Graphics using the <strong>Display Tool.</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b. Run <strong>VB Graphics Migration Tool</strong> from 800xA to migrate any existing VB graphics to PG2 graphics</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Remove VBPG aspect from the system. Any VBPG aspect must be migrated to PG2. Use <strong>System 800xA VBPG Search Tool</strong> to find VBPG aspect</td>
<td>√</td>
</tr>
<tr>
<td>9</td>
<td>Remove VB graphic extension library from PP_FunctionLib, PP_UMCLib and PP_PaperExpLib from Library Structure</td>
<td>√</td>
</tr>
<tr>
<td>10</td>
<td>Follow the system upgrade procedure as described in 2PAA111695-600 System 800xA 5.0 SP2 to 6.0 Upgrade</td>
<td>√</td>
</tr>
<tr>
<td></td>
<td>Follow the system upgrade procedure as described in 2PAA111694-600 System 800xA 5.1 to 6.0 Upgrade</td>
<td></td>
</tr>
</tbody>
</table>
Library Upgrade

The following library upgrade procedure is performed in System 800xA 6.0 environment.

1. Follow the instructions as described in New Installation to install the new library into 800xA System.

2. Update all the projects and applications by launching the Control Builder. The new libraries will be automatically updated.

3. Configure the compiler setting as described in Compiler Switches Setting.

4. For each project or application, update any control logic changes if necessary.
   Refer to Appendix A - Special Note depending on the original library version installed.

5. If Function Designer is used, generate the code for all diagrams.

6. Perform a warm download of the project to the controller.

7. Restore the parameter values that were archived earlier especially if upgrading from non SV5.1 system.
   a. Open the Excel document containing the parameter values for this project / application.
   b. Click on Write Parameters button to open the Write Parameters dialog box.
   c. Select the appropriate Connectivity Server node.
   d. Click Write Parameters to start the restore process.
   e. Once completed, click Check Parameters to verify that all parameters have been restored in the controller.

8. Retune PID01 parameters if affected based on the condition described in Appendix A - Special Note.

9. Repeat step 2 to 8 for all the projects / applications.

10. Reload any customized aspects that may have been removed during the import.

11. (Optional, only for upgrade from PPLib800xA 5.1 or later) Restore modification on resources such as Pulp & Paper Library Colors and NLS Resource Manager for PP Library.
   a. Double click ResourcesBackupApp.exe in the Upgrade Tools / Resources directory to launch the Resource Backup application.
   b. Leave everything as default and click on Restore button.
   c. For NLS, the default language set is English. Select other supported language if required. Any difference between the backup and the new installation will be displayed. Select the items to be restored and click on Proceed button.
   d. Click on OK button when backup is completed.
License Installation

The use of PPLib800xA requires license key to be incorporated into the 800xA system. To install the PPLibrary sla file, launch the License Entry program from the license server.

1. Select Start > All Programs > ABB Industrial IT 800xA > System > Licensing > License Entry
2. Select File > Add Extension… in the License Entry program
3. The Open dialog box appears. Find the license file (.sla) which contain the PPLib800xA license key and click Open.
4. PPLib800xA license is defined under 800xA Control and IO group and PPLib_QUANTA feature.
5. Select File > Exit to exit the License Entry program when finished.
Section 6 - Technical Support

Reporting Error

Please send mail to PulpAndPaperCSSupport@sg.abb.com for reporting errors or technical support.

In all communication regarding questions or complaints about the function in PPLib800xA, please include version number of relevant library as well as the system version installed.
# Appendix A - Special Note for Library Upgrade

Special Note contains the information need to be addressed during library upgrade. It list the changes of feature that may or may not affect the project applications.

<table>
<thead>
<tr>
<th>Object Types</th>
<th>Special Notes</th>
<th>Existing PPLib version</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mot01, Mot02</td>
<td>MCAalarm datatype is changed from AlarmParCurr to Alarm2LimitCurr. If MCAalarm is connected to variable, adjust the connection accordingly.</td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>MotFreq</td>
<td></td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>Motval01</td>
<td></td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>Motval02</td>
<td></td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>All object types</td>
<td>EventName is removed.</td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>B16SimpleEvent</td>
<td>Description, EventName and EventType is replaced with Prefix. Update accordingly.</td>
<td>³</td>
</tr>
<tr>
<td>B32SimpleEvent</td>
<td></td>
<td>³</td>
</tr>
<tr>
<td>Dricon_S</td>
<td>Speed setpoint for JogMode is assigned to dedicated parameter JogRef. It can be set with fixed speed or logic. The parameters OrdBlk and OprOrder have been removed. Replace the connection with InPar and Opr accordingly.</td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>MotFreq</td>
<td></td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>Comp_R</td>
<td>Hysteresis is used when calculating output I_LT_H1 and I_GT_L1. If no Hysteresis is required, use GT or LT function block instead.</td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>Time01</td>
<td>You can choose from three different formats representation in RelativeTime01 aspect. They are HourMinSecMilliSec, HourMin and HourMinSec (Default)</td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>MotVal01</td>
<td>If JogFunc is used, you may issue a stop order by releasing JogFunc instead of the Stop parameter. Mode changes will retain the last status except entering and leaving Jog Mode. Stop order should be added if you want MotVal to stop during mode changes.</td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>MotVal02</td>
<td></td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
<tr>
<td>UMC22_Act</td>
<td>The parameters OrdBlk and OprOrder have been removed. Replace the connection with InPar and Opr accordingly.</td>
<td>³ ³ ³ ³ ³ ³ ³ ³</td>
</tr>
</tbody>
</table>
## Object Types

### Mot01, Mot02, UMC22, Valve01

- The parameters OrdBlk and OprOrder have been removed. Replace the connection with InPar and Opr accordingly.

### Object Trends

- Any new objects instantiated after the upgrade will use the new Trend templates. Modify the Object Trend Display aspects in the Object Type structure to point to an existing template if required.
- Any existing objects with no Trend templates configured will use the new Trend template. On the other hand, if a template exists, all existing objects will utilize the existing.
- It is recommended to use function block parameters for trending as the number of HSI variables has been reduced as of PPLib800xA 5.1

### AIC01, AIS01, Flow01, GainSched

- The attribute of ExtCtrl has been changed from retain to by_ref. To access these parameters’ properties, connection must be done using a variable, instead of directly using function block. Otherwise, errors will be prompted in Control Builder.
- The attribute of ExtCtrl and ExtParOut has been changed from retain to by_ref. To access these parameters’ properties, connection must be done using a variable, instead of directly using function block. Otherwise, errors will be prompted in Control Builder.

### PID01A

- Tuning parameter is removed from InPar. Use ExtCtrl if tuning parameter need to be controlled by application.
- HotInit parameter has been removed
- The attribute of ExtCtrl and ExtParOut has been changed from retain to by_ref. To access these parameters’ properties, connection must be done using a variable, instead of directly using function block. Otherwise, errors will be prompted in Control Builder.

### PID01

- BalRef value will passed to Output and limited only by the output range, not by Output Limit. Review the value.
- If derivative control D is used, you will need to modify the existing TD value to the following:
  \[ \text{New TD} = \frac{\text{Old TD}}{\text{Gain}} \]
- HotInit parameter has been removed
- The attribute of ExtCtrl and ExtParOut has been changed from retain to by_ref. To access these parameters’ properties, connection must be done using a variable, instead of directly using function block. Otherwise, errors will be prompted in Control Builder.

### Existing PPLib version

<table>
<thead>
<tr>
<th></th>
<th>1.x-x</th>
<th>3.x-x</th>
<th>4.0-x</th>
<th>5.0-0</th>
<th>5.0-1</th>
<th>5.0-2</th>
<th>5.0-3</th>
<th>5.1</th>
<th>5.2</th>
<th>5.2h1</th>
<th>5.2r2</th>
<th>5.3</th>
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PID01

Tuning parameter may need to be updated depending on the PID01 output range and its limitation. **PO range** refers to the range of output defined in the Interaction Window as **PO Min** and **PO Max**. **Out LL** and **Out HL** refer to the output limitation defined in the Interaction Window or **EOLL** and **EOHL** in the function block if **EOLIM** is used.

### Upgrading from 5.0-1

<table>
<thead>
<tr>
<th>PO range</th>
<th>Out L</th>
<th>Out H</th>
<th>New Gain</th>
<th>New TI</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-100</td>
<td>= 0</td>
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<td>no change</td>
</tr>
<tr>
<td>0-100</td>
<td>&gt; 0</td>
<td>&lt; 100</td>
<td>Old Gain ( \times ) (Out HL - Out LL)</td>
<td>100</td>
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<tr>
<td>≠ 0-100</td>
<td>PO Min= PO Max</td>
<td>no change</td>
<td>Old TI ( \times ) (PO Max - PO Min)</td>
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### Upgrading from 5.0-1 rollup 1

<table>
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<tr>
<th>PO range</th>
<th>Out L</th>
<th>Out H</th>
<th>New Gain</th>
<th>New TI</th>
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</thead>
<tbody>
<tr>
<td>0-100</td>
<td>= 0</td>
<td>= 100</td>
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<td>no change</td>
</tr>
<tr>
<td>0-100</td>
<td>&gt; 0</td>
<td>&lt; 100</td>
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<td>no change</td>
</tr>
<tr>
<td>≠ 0-100</td>
<td>PO Min= PO Max</td>
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<td>Old TI ( \times ) (PO Max - PO Min)</td>
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### Upgrading from 5.0-0 or older

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<td>no change</td>
</tr>
<tr>
<td>0-100</td>
<td>&gt; 0</td>
<td>&lt; 100</td>
<td>Old Gain ( \times ) (Out HL - Out LL)</td>
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<tr>
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**Existing PPLib version**

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<th>5.2r2</th>
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