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## General

### Release Information

The information should be considered as last minutes information and most up-to-date. For more information please visit Robot Release Information (RRI) Homepage:

<http://roboticsportal.se.abb.com/prod!/display?action=page&id=351>

### Introduction

This file contains release notes for FlexPendant SDK 5.14.02.

FlexPendant SDK 5.14.02 can be used for free by anyone who wants to develop a customized FlexPendant operator interface, for the IRC5 controller.

No license is required to develop applications using FlexPendant SDK. However to run a FlexPendant application on a IRC5 robot system the option "FlexPendant Interface" is required.

Previously PC SDK and FlexPendant SDK were distributed as the product Robot Application Builder (RAB). Starting with RobotWare 5.13, PC SDK and FlexPendant SDK are distributed together with RobotStudio. The SDKs are not affected by this change.

FlexPendant SDK 5.14.02 is included in the RobotStudio installer, which can be downloaded for free, from the RobotStudio Community.

For download, updates and information, visit the RobotStudio Community:

<http://www.robotstudio.com/community>.

Here you will also find the User Forum, where developers discuss software problems and solutions online.

The installation includes the following:

#### Software

FlexPendant SDK (5.14.02)

Visual Studio project templates (5.14.02)

#### Documentation

Application manual – FlexPendant SDK (5.14.02), Rev - (Html Help and Pdf).

FlexPendant SDK Reference Documentation (5.14.01), documentation of class libraries with method signatures in C# and Visual Basic (Html Help).

FlexPendant Style Guide (Html Help)

#### Tools

ABB Compliance Tool – this is automatically run when compiling a FlexPendant SDK application, creating the \*.gtpu.dll.

After installation the documentation can be launched from Windows Start Menu; "Programs\ABB Industrial IT\Robotics IT\Robot Studio 5.14\SDK".

In no event shall ABB be liable for incidental or consequential damages arising from use of this product, of the software and hardware described in relating product documentation.

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## *Installation*

Before you start the installation you are recommended to read chapter 2, Installation and development environment, in the FlexPendant SDK Application Manual which is available on the Documentation DVD in PDF format.

Microsoft Visual Studio 2008 Professional development environment is used to develop FlexPendant SDK applications.

Visual Studio project templates and control templates, will be installed and made available to Visual Studio, by the FlexPendant installation.

For the project templates to be installed you need to install Visual Studio 2008 Professional on the computer before you install FlexPendant SDK.

You need administrator permissions on the computer that you are using.

To install FlexPendant SDK click RobotStudio on the RobotWare & RobotStudio DVD. If you select the default installation option **Full**, FlexPendant SDK will be installed. If you want to install only FlexPendant SDK and not RobotStudio select the installation option **Custom**.

FlexPendant SDK 5.xx will be installed side by side with any previous major version of FlexPendant SDK 5.xx, while minor versions within a release will update to the latest one.

The default installation path is C:\Program Files\ABB Industrial IT\Robotics IT\SDK\FlexPendant SDK 5.14.

## *Hardware and Software requirements*

### **PC software requirements**

#### Operating Systems

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Microsoft Windows XP SP3 – 32bit edition  
Microsoft Windows 7 – 32bit edition  
Microsoft Windows 7 – 64bit edition

### RobotStudio

RobotStudio 5.14.02 is needed for building a test system and for debugging and testing in the virtual environment.

### Visual Studio

Microsoft Visual Studio 2008 Professional is required to develop applications for the FlexPendant.

**Note!** FlexPendant SDK is developed and tested for the English version of Visual Studio.

**Note!** Microsoft Visual Studio 2010 does not support FlexPendant application development.

Please see <http://robotstudio.com/forum>.

### **FlexPendant hardware requirements**

The following FlexPendant device versions are supported :

- SxTPU-1 (executes with .NET CF 2.0 and WinCE 4.2) Limited support*
- SxTPU-2 (executes with .NET CF 2.0 and WinCE 5.0)*
- SxTPU-3 (executes with .NET CF 3.5 and WinCE6.0)*

### **IRC5 controller software requirements**

- RobotWare option "FlexPendant Interface" for communication with a real IRC5 controller.
- RobotWare version 5.14.

**Note!** Applications developed with FlexPendant SDK 5.14 require RobotWare version 5.07 or higher on the IRC5 controller.

*It is recommended that FlexPendant SDK 5.14.02 applications should be used with RobotWare 5.14.02.*

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## Compatibility

The APIs in the FlexPendant SDK 5.14.xx are backwards compatible with the APIs in FlexPendant SDK 5.13. There are no breaking changes.

FlexPendant SDK compatibility between RobotWare releases cannot be absolutely guaranteed. The goal is to be 100% compatible and the development team tries hard to achieve this. Due to necessary upgrades in the Microsoft platforms or new demands breaking changes sometimes cannot be avoided. There is more specific information on compatibility issues further down in this document.

**Note!** No guarantee is given for backward compatibility between a specific version of FlexPendant SDK and earlier versions of RobotWare. Compatibility between RobotWare revisions is however guaranteed (FP SDK 5.14 will be compatible with RW 5.14.02 etc).

### Compatibility

#### Compatibility FlexPendant SDK 5.09 vs. 5.08:

- FlexPendant SDK 5.09 is compatible with FP SDK 5.08.

#### Compatibility FlexPendant SDK 5.10 vs. 5.09:

- FlexPendant SDK 5.10 is compatible with FP SDK 5.09.

#### Compatibility FlexPendant SDK 5.11 vs. 5.10:

- FlexPendant SDK 5.11 is compatible with FP SDK 5.10.

#### Compatibility FlexPendant SDK 5.12 vs. 5.11:

- FlexPendant SDK 5.12 is compatible with FP SDK 5.11.

#### Compatibility FlexPendant SDK 5.13 vs. 5.12:

- FlexPendant SDK 5.13 is compatible with FP SDK 5.12.

#### Compatibility FlexPendant SDK 5.14 vs. 5.13:

- FlexPendant SDK 5.14 is compatible with FP SDK 5.13.

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## FlexPendant SDK

### Debugging the FlexPendant device

The requirements and procedure for for setting up and using the Visual Studio debugger on the FlexPendant device, differs depending on the OS, Visual Studio version and FlexPendant version you are using.

Please refer to the User Forum, for the latest information.

<http://robotstudio.com/forum/>

### Updates in FP SDK 5.14.02 vs. 5.14.01

The FlexPendant user interface now supports the Romanian language.

### Updates in FP SDK 5.14.01 vs. 5.14

No updates.

### Updates in FP SDK 5.14 vs. 5.13

#### FP SDK: ListView.ColumnClick event

The event ColumnClick was added to the ListView control of the FlexPendant SDK. This event is raised when a clickable column header is clicked. The column header is clickable if the ListView.View property is set to View.Details, the ListView.Sorting property is set to either SortOrder.Ascending or SortOrder.Descending and the property ColumnHeader.HeaderSorter of the column is set..

### Updates in FP SDK 5.13 vs. 5.12

No updates.

### Information 5.14.02

No information.

### Information 5.14

#### FP SDK: GetEventLogCategory(CategoryType) obsolete

The number of event log categories are not fixed. RobotWare applications may install their own categories. This functionality was introduced in an earlier version of RobotWare. This is now reflected in FlexPendant SDK.

As a result the method EventLogDomain.GetEventLogCategory(CategoryType type) is obsolete. The method GetEventLogCategory(int id) shall be used instead.

The identities of the available event log categories can be found using the method EventLogDomain.EventLogCategory[] GetCategories() and the EventLogCategory.Id property.

#### FP SDK: ControllerFileSystemInfo.Attributes

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The new property `ControllerFileSystemInfo.Attributes` lets you retrieve the .NET `FileAttributes` information.

### FP SDK: Module.GetText

The method `ABB.Robotics.Controllers.RapidDomain.Module.GetText(TextRange range)` makes it possible to get a portion of the module text.

### FP SDK: Retrieve text range for RAPID language elements

The following properties make it possible to retrieve the text range for various RAPID language elements.

#### Module

- `DataDeclarationList`
- `RoutineDeclarationList`
- `TextRange`
- `TypeDeclarationList`

#### Routine

- `DataDeclarationList`
- `StatementList`

#### RapidData

- `DeclarationRange`

### FP SDK: ListView column sorting is incorrect

The sorting of the `ABB.Robotics.Tps.Windows.Forms.ListView` control has been updated. The property `ColumnHeader.HeaderSorter` can be used to enable sorting on any column in the list view. Previously, if the `ColumnHeader.HeaderSorter` property was set for a column other than the first one (the left-most column), the sorting was always decided by the content of the first column. This has been corrected. The property `ListView.SelectedIndex` is updated when the list is sorted by clicking a column header.

### FP SDK: ListView.ColumnClick event

The event `ColumnClick` was added to the `ListView` control of the FlexPendant SDK. This event is raised when a clickable column header is clicked. The column header is clickable if the `ListView.View` property is set to `View.Details`, the `ListView.Sorting` property is set to either `SortOrder.Ascending` or `SortOrder.Descending` and the property `ColumnHeader.HeaderSorter` of the column is set.

### FP SDK: TextBox scroll buttons

`TextBox` control of the FlexPendant SDK was not rendered correctly, when the scroll buttons were visible and the text was cleared. The scroll buttons remained visible until the text was set. This has been corrected.

### FP SDK: ForeColor when disabled

The FP SDK controls; `CheckBox`, `Led`, `Switch`, `RadioButton` and `Button` now uses `System.Colors.GrayText` (the same as `Color.Gray`) as `ForeColor` when disabled. This is consistent with other FP SDK controls that are grayed out when disabled. Previously a lighter color, sometimes unreadable, was used.

### FP: Tasks listed in alphabetical (DSE7963)

The RAPID tasks shown on the FlexPendant are presented in this order: normal (motion)

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tasks in alphabetical order followed by background (non-motion) tasks in alphabetical order.

This applies to, e.g.:

- The task selection panel of QuickSet
- The scope selector in Program Data
- Production Window
- Program Editor

### **FP SDK: TpsCtrlTitlePanel (DSE9846)**

The following corrections have been made to the ABB.Robotics.Tps.Windows.Forms.TpsCtrlTitlePanel control of the FlexPendant SDK. This control is used within e.g. TpsForm and GTPUMasterDialog. The text of the control was truncated inaccurately if an image wider than 16 pixels was used as its icon. An icon image larger than 16 x 16 pixels is scaled down to 16 x 16 pixels. A memory leak that occurred when the Text or Title property of the control was set, has been removed.

## Information 5.13

### **FP SDK: PictureBox multiple states**

The design time behaviour of property AllowMultipleStates of type ABB.Robotics.Tps.Windows.Forms.PictureBox has been corrected. A dialog that lists its options, is now presented when the property is changed.

### **FP SDK: Rapid.GetRapidData**

The method Rapid.GetRapidData now returns null if the requested data does not exist. This agrees with the documentation. Previously, the method incorrectly threw a NullReferenceException if the data did not exist.

### **FP SDK: SetProgramPointer(Module,row)**

The method in FP SDK SetProgramPointer(Module,row) is now working according to description.

### **GTPUMessageBox could disable view**

This information applies to the ABB.Robotics.Tps.Windows.Forms.GTPUMessageBox class of the FlexPendant SDK.

If a view modal message box was shown while a system modal dialog was active, e.g. when changing to auto mode or using a system modal message box, the view would be disabled after the message box was closed. The only way to correct this was to close the view and open it again.

This has now been corrected.

Note:

GTPUMessageBox.Show(null, ....) shows a system modal message box

GTPUMessageBox.Show(view, ....) shows a view modal message box

### **Conversion of VS 2005 solution to VS 2008**

The post build step must be manually modified if a VS 2005 project is converted to a VS 2008 project.

Below are examples of the post build commands for a VS 2008 project. Note that the VS 2008 installation path as well as the FP SDK install location is used in the command.

5.12:

# ABB AB Robotics

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call "c:\Program Files\Microsoft Visual Studio 9.0\VC\vcvarsall.bat" x86 "C:\Program Files\ABB Industrial IT\Robotics IT\Robot Application Builder 5.12\FlexPendant SDK\abbct.exe " "\$(TargetDir)\\$(TargetName).dll" 5.13:

call "C:\Program Files\Microsoft Visual Studio 9.0\VC\vcvarsall.bat" x86 "C:\Program Files\ABB Industrial IT\Robotics IT\SDK\FlexPendant SDK 5.13\abbct.exe " "\$(TargetDir)\\$(TargetName).dll"

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**Corrected "Product Defect Document" 5.14.01 PDD**

RobotStudio installation removes 5.13 SDK files DSE10707

**Corrected "Product Defect Document" 5.14 PDD**

FP: Tasks listed in alphabetical order DSE7963

FP SDK: TpsCtrlTitlePanel DSE9846

**Corrected "Product Defect Document" 5.13 PDD**

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## Known Limitations

- There may be trouble debugging the first generation of FlexPendant device (SXTPU1) with VS 2008.
- When creating an FPSDK project for VB using an empty form (the default) as the startup view, an error message may be displayed in the designer the first time the viewer is opened. The problem does not occur when the startup type is *Form*, or in C#. Work around: Close and re-open the designer
- Due to a Microsoft bug the ImageList.Dispose method does not work, causing a memory leak. Microsoft's advice is to set the ImageList to null instead of calling Dispose. This way the memory will correctly be reclaimed by the garbage collector.

### avoid:

```
imageList.Dispose();
```

### use:

```
imageList = null;
```

- In FlexPendant SDK the property IsLocal on the class RapidData, returns true for shared data, even though such data is visible from all modules.

The declarations of default zonedata and speeddata has been moved from module BASE.SYS in each task, and are now installed as shared data.

If an application used to create a RapidData object representing for example "v1000", the IsLocal property returned false in RobotWare 5.12, but will return true in RobotWare 5.13."

The GUI controls introduced in FlexPendant SDK 5.12 are not documented in FlexPendant SDK Application Manual.

## Product Support

For technical support please turn to your local ABB office.

<http://www.abb.com/contacts>

For help, advice and the latest updates please visit the User Forum.

<http://www.robotstudio.com/forum>