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General

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Contact local ABB for further information.

How to Migrate from RW5.6x to RW 6.x

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Contact local ABB for further information.

How to Migrate from RW6.x to RW 6.07

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- Technote: IRC5 New Main Computer

Contact local ABB for further information.

Release Information

Release Name

The release name is RobotWare 6.07

The release contains following:

- RobotWare 6.07
- RobotStudio 6.07

Release Date

2018-04-27

Controller Hardware Support

- **Main computer unit:**
 - DSQC1000
 - DSQC1018
- **Flexpendant unit:**
 - SxTPU3
- **Drivesystem:**
 - DriveSystem 09
- **Industrial Networks, PCI-express boards**
 - DSQC1006, DeviceNet Master/Slave – 1 channel Option 709-1
 - DSQC1005, ProfiBus Controller – 1 channel Option 969-1
- **Fieldbus adapters (HMS-module)**
 - DSQC669, EtherNet/IP Adapter Option 840-1
 - DSQC667, ProfiBus Device Option 840-2
 - DSQC688, ProfiNet Device Option 840-3
 - DSQC1004, DeviceNet Slave Option 840-4
- **Industrial Networks, SoftWare solution**
 - EtherNet/IP Scanner/Adapter Option 841-1
 - Profinet Controller/Device Option 888-2
 - Profinet Device Option 888-3
 - ProfiSafe F-Device Option 997-1 (requires 996-1 + 888-2 or 888-3)
 - ProfiSafe F-Host&Device Option 997-2 (requires 996-1 + 888-2)
 - CIP Safety Adapter Option 997-3 (requires 996-1 + 841-1)
 - Prepared for ABB CI502 Option 1241-1 (requires 996-1 + 888-2)
- **Serial ports (RS232)**
 - DSQC1003, RS232 – 1 (2) channel Option 970-1 (COM1 free / COM2 is console output.)
- **SafeMove 2nd Generation:**
 - DSQC1015 Option 996-1
- **Local IO System**
 - DSQC1030 Base unit 16Input, 16Output
 - DSQC1031 Add-on 16Input, 16Output
 - DSQC1032 Add-on 4Analog Inputs, 4Analog Outputs
 - DSQC1033 Add-on Relay 8 Input, 8 Output
- **CTM, Conveyor Tracking Module**
 - DSQC2000 Option 1552-1 Tracking Unit Interface

Language Support

The following languages are supported in RobotWare.

- English
- French
- German
- Spanish
- Italian
- Chinese (simplified Chinese, mainland Chinese) ^{1) 2)}
- Portuguese (Brazilian Portuguese) ¹⁾
- Dutch ¹⁾
- Swedish ¹⁾
- Danish ¹⁾
- Czech ¹⁾
- Hungarian ¹⁾
- Finnish ¹⁾
- Korean ^{1) 2)}
- Japanese ^{1) 2)}
- Russian ^{1) 2)}
- Turkish ¹⁾
- Slovenian ¹⁾

Notes:

1) The language is only supported in the controller and Flex Pendant

2) The language support for Asian languages (Chinese, Korean, Japanese) and Russian has some specific limitations:

- TPWrite, TPRead, and TPPrint do not work – use English text.
- Printing error text from RAPID (instruction ErrWrite) does not work - use English text.

Incompatibility

RW6.07:

Old YuMi arm angle definition no longer supported

The old arm angle definition for YuMi will no longer be supported from RW 6.07 and forward.
Any RAPID programs using the old arm angle definition must be converted to be used on newer RW.

EGM - Inconsistent data type and units (PDD10176)

In RobotWare 6.06 and earlier EGM has inconsistencies regarding units when it comes to clients connected through Google protobuf / UdpUc.

The EGM streaming output of Cartesian data are in millimeters and quaternions, the joint values in radians, whereas the input to EGM position guidance for Cartesian data is in millimeters and degrees, the joint values in degrees for rotating axis and mm for linear axis.

EGM outbound data units are as they should:

- Cartesian positions in mm and corresponding orientation (Euler angles) in degrees
- robot joint values are in degrees
- rotating external axis joint values are in degrees
- linear external axis joint values are in mm

EGM inbound data are converted from mm to m and degrees to rad twice(!):

- angles are converted with the factor $(\pi/180)^2$ instead of $(\pi/180)$
- distances are converted with the factor 10^{-6} instead of 10^{-3}

New Functionality

RW6.07:

Reorient Max Speed (deg/s) is now part of vmax in RAPID TCP

The speeddata vmax is now updated with TCP Reorient Max Speed (deg/s) for each robot. IRB 120, IRB 360 and IRB 910SC with other values than default will have changed performance when using vmax. This value can also be change in system parameter topic Motion, type Motion Planner for other robots to get changed and faster motion execution.

New function CrossProd

New function CrossProd has been added. CrossProd (Cross Product) is used to calculate the cross product (or vector product) of two pos vectors.

Syntax:

```
CrossProd '('  
[Vector1 ':=' ]','  
[Vector2 ':=' ]  
)'
```

A function with a return value of the data type pos.

New function Min

New function Min added. It get the smallest of two values.

Syntax

```
Min '('  
[A ':=' ] < expression (IN) of num >','  
[B ':=' ] < expression (IN) of num >')'
```

A function with a return value of the data type num.

New function Max

New function Max added. It get the largest of two values.

Syntax

```
Max '('  
[A ':=' ] < expression (IN) of num >','  
[B ':=' ] < expression (IN) of num >')'
```

A function with a return value of the data type num.

New robot variants

SoftWare support for new robot types:

IRB 6790-235/2.65

IRB 6790-205/2.80

LockAxis4

The functionality SingArea \LockAxis4 is now available for P-rod robots.

New parameter for Spot Welding of collapsing material

For spot welding processes of material that collapse during process, such as mild steel wire-to-wire weld, a new parameter *Speed limit factor in force mode* has been added.

By setting *Speed limit factor in force mode* to a higher value than 1, it is possible to disable or reduce the speed limitation if material is collapsing at the end of the squeeze process.

This will reduce the risk of releasing the force unintendedly.

Default value of new parameter is 1 and recommended value used for collapsing material is 2-3.

New tracking method via Protobuf

Starting with RW 6.07 it is possible to use the protocol Google protobuf for communication with optical sensors together with the options CAP, RW Arc and Sensor Interface.

The file with the definition of the sensor protocol, LtProtobuf.proto, is found under "utility/Template/Cap" of the installed RobotWare.

The description of how to proceed is found in "Operating manual - Tracking and searching with optical sensors".

New tool to remove user data on the SD card

In RW 6.07, a new function Clean Disk has been integrated in RobotStudio.

This function is created to permanently erase user data on the SD-card. After the data has been cleaned, the BootApplication that is installed together with RobotStudio will be created on the SD-card. If any license shall be saved, please save a backup of the system on your PC before using this function.

Steps to perform cleaning disk:

- 1) Insert the SD-card in a PC with RobotStudio installed.
- 2) Start RobotStudio and Installation Manager.
- 3) Start Recovery Disk, choose Clean Disk and follow the instruction.

The cleaning may take a few minutes (a progress bar shows the progress). When it is finished the SD-card can be removed from the PC and used in a robot controller. A new RobotWare system can now be installed on it.

Help to use this function is included in RobotStudio manual.

Operator Acknowledge through system input

A new system input "ProfiSafeOpAck" has been added for handling Operator Acknowledge when using PROFIsafe F-Host.

The System Input will not be described in the System Parameter manual in 6.07. It will be documented in 6.08.

The cfg-file must be edited manually

Options needed: FHost

Add new System parameter in domain IO

Type System Input

Signal:<a digital signal> Action: ProfiSafeOpAck

// EXAMPLE:

EIO:CFG_1.0:6:1::

....

SYSSIG_IN:

-Signal "di_1" -Action "ProfiSafeOpAck"

SFTP Server

Beginning with 6.07 the Robot controller supports file transfers via SFTP protocol.

(FTP and NFS option contain support for SFTP servers)

Information and limitations are documented in Integrators Guide.

New Conveyor Tracking unit DSQC2000

A new software option 1552-1 Tracking Unit Interface enables conveyor tracking with a new conveyor tracking device, DSQC2000.

DSQC2000 is a replacement to the DSQC377 tracking board.

But DSQC2000 is not compatible with DSQC377. Communication with DSQC2000 is based on Ethernet, while the DSQC377 uses a communication interface based on Devicenet.

DSQC2000 is not compatible with system parameters used with DSQC377.

However, DSQC2000 is compatible with Rapid instructions and process signal names used with DSQC377. Still some of the signals that used to be DSQC377 input signals is now simulated output signals.

DSQC2000 supports applications where DSQC377 is used today. E.g. DSQC2000 is compatible with options 606-1 Conveyor Tracking, 642-1 PickMaster 3 and 607-1 Sensor Sync. It is also compatible with existing versions of PickMaster 3 (the PC software).

DSQC2000 provides an electrical interface to 4 encoders and 8 sensors (e.g. cameras or photo sensors). It provides an Ethernet interface to robot controllers. When setup in a robot network, one single board can enable a conveyor tracking for up to 40 robots simultaneously.

Another improvement compared to DSQC377 is that DSQC2000 provides 8 camera trigger output signals. Functionality is added in RobotStudio 6.07 to simplify the setup of DSQC2000.

Fronius TPSi

A new ABB interface to the Fronius TPSi welder is developed.

The interface contains a RobotWare Add-in, a RobotStudio Add-in and documentation.

In the RobotStudio Add-in, it is possible to connect to the TPSi via the Fronius WebInterface and edit weldparameters. The welder information is then transferred to the Robot Controller, and is used to drive a Welder dedicated editor on the ABB FlexPendant.

This package is compatible with RobotWare 6.05 and higher, and RobotStudio 6.06 and higher.

There is also a TPSi option available in RobotWare. This option will be phased out in upcoming versions of RobotWare, to be replaced with this new version.

This interface is packaged as a RW Add-in, and can be found at RobotApps in RobotStudio Add-ins tab.

The version is Fronius TPSi 1.00.

Force calibration improvement

In this release the force calibration sequence has been improved.

When saving the max gun force in the setup of ManualForceCalibration, the minimum allowed gun force supervision parameter will also be recalculated and saved, the value will be set to 20% of the entered max gun force.

An optional choice to save the calibration forces is also added. If the operator selects 'Yes' the calibration forces will also be recalculated based on the specified max force and saved, the values will be set to 80% and 35% of max gun force with a sanity min. level of calibration force low.

New optional argument for TriggSpeed instruction

A new optional argument \Next has been added to instruction TriggSpeed.

With this optional argument it is possible to tune the change of the analog output value around the ToPoint, and have it after the ToPoint of the movement. It shall be used when the distance for the argument Distance is forward towards the next programmed point.

Dispense: Possibility to set a trigg offset (with the D parameter) in both directions.

DispL and DispC now supports offsetting all events a negative distance ("D" parameter) on the programmed path, in addition to the previously supported positive distance.

Negative values will offset the events to happen at a later time, rather than earlier as when a positive value is used.

New System Output "Robot Not On Path"

A new System Output Signal "Robot Not On Path" is available in 6.07.

The digital output is set when the configured task has robot program that has executed and stopped but the robot is too far from the programmed path.

The parameter is configured with a mechanical unit, the maximum allowed TCP distance it can diverge from the programmed path and the maximum allowed TCP rotation.

The value *Robot Not On Path* is set if the current movement is interrupted and then:

- The robot is jogged too far from the programmed path.
- The robot has slid too far away from its programmed path e.g. after an emergency stopped.

The I/O signal is reset by one of the following actions:

- The program is started
- The program pointer is moved.
- The robot is jogged. You must stop jogging to see if the robot is close enough to the path.

After modifying the position or any other editing of the program that makes the program pointer to be lost.

A new System Output Signal "PP Moved"

A new System Output Signal "PP Moved" is available in 6.07.

The digital output is set and reset (one pulse) when the program pointer is moved to main, to a routine or within a routine.

The parameter is configured with a RAPID task.

LTC: New instruction to calculate sensor tool data for EGM

Laser Tracking Calibration (LTC), a part of the option Sensor Interface, can be used to calibrate optical sensors.

As a result of such a sensor calibration one gets a sensor tool, a calibration pose and a calibration pos. This result fits direct use with Optical Tracking CAP and Optical Tracking Arc, but it does not fit EGM Path Correction.

To get a sensor tool, that is directly usable with EGM Path Correction, LTC has been expanded with the RAPID function LTCGetEGMTool.

This function takes the name of a sensor, as it is defined in LTC, and a calibration identity as arguments and returns tooldata that can be used directly with EGM Path Correction.

A description of the RAPID function LTCGetEGMTool can be found in the Application manual "*Laser Tracker Calibration Interface*".

Use reachable targets with option 642-1 PickMaster 3

UseReachableTargets activates a functional mode where the robot only receives reachable targets for object handling. When activated, non-reachable targets will be filtered out for target requests with GetItrmTgt.

Configurable force unit

In this release it is possible to configure a "gun force unit" type when setting up a spot system.

A new configuration data will be added in the **Spot System** domain, this data will have 3 configuration options via a drop down list:

- Newton's (N)
- Decanewtons (daN)
- Pounds Force (lbf)

Default value is Newton's, and the configured value is only used as a string to present the actual gun force values shown on the FlexPendant and in the operator dialogs in misc. service routines.

Note that no automatic recalculations of any force values will be done if this parameter is changed, it is up to the user to specify correct force unit type and corresponding force values. Force calibration is required if configuration is changed.

Firmware upgrade from RobotWare

It is now possible to upgrade firmware for the ABB Local IO from RobotStudio or FlexPendant.

FlexPendant configuration of controller settings

The following property can be added to "FPSystem.xml" in order to include controller settings as default when a "Restore System..." is performed on the FlexPendant (from Backup and Restore).

```
<DATA id="Restore Advanced">  
<PROP name="ControllerSettings" value="true" />  
</DATA>
```

New Tracking interfaces for Cap

A new interface has been added to Cap where a user can control the TCP correction via external inputs like AO/AI signals of rapid variables.

EGM "nowait" and streaming (RRI replacement)

EGM has been extended with two new features:

1. Position streaming is started with the new RAPID instruction EGMStreamStart and stopped with EGMStreamStop.
2. Possibility to start position guidance and execute non-motion instructions during the time it takes to perform the EGM movement. This is done by use of the new optional argument \NoWait. Synchronization with RAPID execution is possible by use of the new RAPID instruction EGMWaitCond.

More information can be found in the Application Manual - Controller software IRC5, chapter for Externally Guided Motion.

Improvements

RW6.07:

F-Host configuration with I/O Configurator

From 6.07 it is possible to use I/O Configurator to configure safe external I/O devices, using the option 997-2 PROFISafe F-Host and Device, 1241-1 Prepared for ABB CI502.

GSDML files

IOC can now use GSDML files of version 2.34

Optical tracking - new track modes: 13, 14 and 15

RW Arc and CAP offer different tracking modes for optical tracking as to avoid known problems when tracking difficult seams.

The modes 1-3, pretending that the sensor sends correction 0 for y, z or both, have the disadvantage that they become effective when the robot TCP arrives at the position where the sensor was, when the robot TCP entered a new ArcC/L or CapC/L instruction. I.e. the effect was delayed for the look-ahead distance of the sensor.

The new track modes 13-15 Take effect directly at the robot TCP position, i.e. at the beginning of a new ArcC/L or CapC/L instruction.

Increased logging in CBC and BC

A new column has been added in the CBC_REPORT.log for CyclicBrakeCheck (BC_REPORT.log for BrakeCheck).

The new column shows the value of the BrakeMaintenance configuration parameter. TRUE if it will do maintenance of the mechanical brakes if needed, FALSE otherwise.

The header has also been modified with the text **BM config**.

This text is not translated.

The configuration parameter can be found in:

System Parameter

Topic Controller

Type General Rapid Action Value: BrakeMaintenance cfg name: BrakeMaintenance

Allowed Values:

0 - function is disabled

1 - function is enabled

Additional information: Changes are activated after a normal restart

IRB910SC LoadID

RobotWare 6.07 release will support the LoadID extension to IRB910SC.

Improve loading of ProductionScreen widgets

An improvement to Production Screen startup times has been implemented.

The initialization of widgets is deferred until first use. This means that only the widgets on the active widget page are initialized at startup, when another page is activated the first time its widgets are initialized at that time.

This functionality is enabled by default but can be disabled in the ProductionSetup.xml file by adding the attribute 'DeferInstall="false"' to the ProjectSettings element.

Individual widgets can also override this functionality by adding the attribute 'OverrideDefer="true"' to its configuration.

Example:

```
<ProjectSettings DeferInstall="false" >
```

```
<Widgets>
```

```
<Widget OverrideDefer="true">
```

```
.
```

```
.
```

```
.
```

```
</Widget>
```

```
</Widgets>
```

Improved Conveyor Tracking performance - High speed conveyors

Ability to track up to double the conveyor speeds, compared to earlier Robotware releases, makes it possible to use IRB360 in new applications.

Example:

Conveyor speed: 2000mm/s

Robot type: IRB 360 1kg 1.13m

Load: 0.2 kg

Pick/place cycle: 30mm/300mm/30mm

Water ok signal functionality needs better description

In this release the documentation has been improved regarding the built-in water supervision in Spot.

In order to get correct water supervision functionality if one of the flow sensor signals are removed from the process configuration (e.g. flow sensor 1 or 2), the corresponding cross connection needs to be modified accordingly, that is, one of the actor signals (flow1 or 2) **has** to be removed from the cross connection also.

For more info see the Spot Options manual.

New helpfile for TuneMaster

A new user manual with improved information and new pictures have been added to the TuneMaster installation and also the standard documentation package.

Axis Calibration log file updated

Axis Calibration log file is reworked, now contains more information and entries for all actions in Axis Calibration routine.

Rev Counter update with Axis Calibration without all axes in 0 position

Axis Calibration routine now allows user to update revolution counters with less limitation on other axes.

Specifically axes 1, 2 and 3, for normal elbow and p-rod robots, can now update revolution counters without requirement for any of the other axes to be in zero-position

Info about active tool given before actual calibration

Dialog showing details about active tool when creating a reference in Axis Calibration is now moved to the beginning of the reference creation process

Calibration References stored with Date and Time

Axis Calibration reference files are now saved containing both date and time (previously only date).

Base frame teaching seems not accurate

The 4 points XZ calibration for calibrating the base frame of the robot includes a possibility to provide a reference point.

The reference point coordinates are given in meters (not millimeters) and this is now described in the manual as well as in the user interface.

Trap limitation

If an interrupt number is Deleted and later used the instruction using this interrupt will get an error, so that it knows that the interrupt is no longer active.

However this interrupt number might get reused from another instruction in an event or trap routine, and therefore this interrupt number will now be accepted by the instruction, but will not interrupt on the intended event.

In 6.07 several instructions have improved so that it does not accept interrupts from other sources than intended ones.

Laser Tracker Calibration

The maximum length for a physical sensor name is 10.

Improved SafeMove Visualizer for handling four drive modules

When using SafeMove2 in a MultiMove system with four drive modules, the numbering of the drive modules was not visible in the SafeMove visualizer, the text string became too long.

Now the drive module names from the safety configuration is used instead

New system parameter Max Path Correction

The maximum allowed path correction is now available for edit as the system parameter Max Path Correction under topic Motion type Motion Planner.
See the system parameters manual for more info.

Configuration of small tools in SafeMove2

The minimum allowed radius used for configuration of tools in SafeMove2 has been changed from 50mm to 5mm, allowing use of smaller tools.

Note:

This change is only available when using safety configurations in the format used for RW6.07
Either create a new configuration or "Update" any existing configuration.

Protected checksum now presented on the FlexPendant

The checksum of the protected parts of the safety configuration is now presented on the FlexPendant.

Production Screen Optimization

1. Internal refactoring has been done in Production Screen. With this there will be improvement in initialization of production screen itself. All users will get this as it is in RW
2. Main root cause was the slow data binding of ScreenMaker. The SM projects can be converted to VisualStudio and manually improved. IDC converted a few sample projects - and the results are good. These are customer projects - hence they have to be replaced manually (or used with their packaging mechanism such as Add-ins, patches etc.)

Moved safety properties to IOC (F-parameters)

Configuration of Safety parameters on a Profinet device is done from IOC.

Enable & Disable tools

The controller will now discard all "Output to RAPID data" for a part, if the tool that is linked with the part is disabled.

A user can link a "Pattern Tool" with a "Part" by mapping the result field, "Value1", with the "Tool_Enabled_Status". By doing this, a user can now expect that CamGetResult will not generate any new (with old data) results after disabling it from RAPID.

Example on enable/disable from RAPID: `CamSetParameter(camera, "toolName", boolValue);`

Information

RW6.07:

I/O Configurator released with RobotStudio

With 6.07 I/O Configurator (IOC) is released together with RobotStudio as an integrated component. It can be used to configure regular and safe IO devices for PROFINET using only RobotStudio as a tool. A new application manual is available (together with 6.07) that describes how to work with the tool.

File used for BrakeMaintenance not properly unloaded

If stopping CyclicBrakeCheck or BrakeCheck when a BrakeMaintenance was running, and then moving the Program Pointer or cancelling the service routine, the RAPID module used for BrakeMaintenance was not properly unloaded.

If starting the CyclicBrakeCheck or BrakeCheck routine again, without moving the Program Pointer to main, an error was reported and program execution stopped.

This has been fixed in this release.

Missing last characters in the safety configuration checksum

The RAPID calls used for retrieving the safety configuration checksum, "SafetyControllerGetChecksum" and "SafetyControllerGetUserChecksum" have only been giving 62 characters, the last two characters have been missing.

This has been corrected in the 6.07 release, now all 64 characters are returned.

Signals cannot be named testdi or testdo

Signals cannot be named testdi or testdo, this will cause a conflict with base Rapid functions.

RCS Module and WIN10

The RCS server is compatible with operating system Windows 10, but please note the following information:

When the ABB IRC5 RCS Server is starting up, it will make a check out/check in test to verify the license handling. If no license is found then a window will appear requesting for information. Select **Specify the License File** and then enter the path to the license file.

For Windows 10, the window does not work, the license server must be manually entered into the registry.

New event log if thickness is negative

In this release a new event message will be raised if no gun init calibration has been done after a system reset.

Note that this feature requires that the plate thickness supervision is activated and used.

Limitations in the F-Host implementation

The PROFIsafe F-Host implementation only supports CRC-length of 3 bytes and SIL levels up to SIL2.

Changes made to the camera emulator support

The camera emulator doesn't allow to "acquire an image" so we added an Elog message to warn users when they try to run "CamReqlmage" against a camera emulator.

On a real controller the warning is a stopping error and on a virtual controller it's a warning without stopping RAPID.

Implications; a user cannot run a full RAPID program against a vision guided camera emulator but it will still be possible to verify the vision program by using the related tools inside RobotStudio and it will still be possible to verify the Integrated Vision-based RAPID code by manually creating a Part with constant values in "Output to RAPID".

SFTP servers

Option: FTP SFTP and NFS Client [614-1]

The remote mount functionality for SFTP has been verified using the following SFTP servers:

Rebex version 1.0.3

CompleteFTP version 11.0.0

Cerberus version 9.0.4.0

EGM - Data format error not properly handled by controller

This error exists if you use EGM with UdpUc.

The reason is that EGM does not check that the input data are valid numbers.

If you send a non-numerical character (NaN) to the robot controller as input to EGM, you get different error states, depending on the actual data sent:

You may get various errors such as:

50065 "Kinematics error"

10014 "System failure state"

50430 "Underrun in the Axis computer"

39520 "Communication lost with Drive Module"

50438 "Motor off sequence has timed out".

You might also get a spontaneous reboot of the controller, followed by a system failure state.

The only solution in this situation is a power-off - power-on sequence.

Firmware upgrade Local IO

It is not possible to do a firmware upgrade from RobotStudio in Local IO if it's running.

It must first be deactivated from the TPU and after that it is possible to upgrade the device from RobotStudio.

It is not possible to do a firmware upgrade on not yet configured local io devices.

The firmware upgrade dialog is blank and this occur when there is no device configured at all and a not yet configured local io is upgraded.

Configure the device first and restart, than upgrade fw.

Improved implementation in the interaction of the Vendor Tool

IOC supports Vendor Tools from:

ABB

MURR

Phoenix

Siemens

Turck

F-Destination address with new GSDML file

The maximum value for the F-Destination address in the GSD file has been changed from 1022 to 65534

Corrections

RW6.07:

Rapid slow down after long time	PDD4468
Configurable force unit	PDD5111
Siemens S7 plc	PDD7249
FlexPendant configuration of controller settings	PDD7770
New optional argument for TriggSpeed instruction	PDD7968
New System Outputs	PDD8143
Water ok signal functionality needs better description	PDD8151
Incorrect time returned by GetTime and CTime instructions in VC	PDD8195
New helpfile for TuneMaster	PDD8437
Uninstalled changes will be lost dialog	PDD8614
Getting amount of points from StoredPath File	PDD8767
Robot with 2 external axis gives error "50381, Speed too low" when trying to jog, but only axis M7	PDD8768
Coordinated not fluent moves	PDD8794
Backup missing in system diagnostics file made by Robot Studio 6.05	PDD8798
IOC crashes when defining an analog signal	PDD9013
Visual SafeMove doesn't stop the robot at a zone violation....	PDD9045
Sysfail suddenly appears	PDD9050
Axis Calibration log file updated	PDD9057
Rev Counter update with Axis Calibration without all axes in 0 position	PDD9058
Info about active tool given before actual calibration	PDD9059
Calibration References stored with Date and Time	PDD9060
Load Identify - loaddata. Final calculation of part load is not working	PDD9111
Base frame teaching seems not accurate	PDD9122
SafeMove1 SyncCheck timeout event log updated	PDD9134
LOCAL record definition behavior incorrect	PDD9137
Trap limitation	PDD9187
Configure records for a PROFINET device	PDD9189
Laser Tracker Calibration - Identifier to long	PDD9266
SoftMove simulation in VC	PDD9271
Alias IO OR IOEnable Issue	PDD9273
CBC is no longer requested after a system restore	PDD9275
Sporadic loss of communication on profinet	PDD9290
Data inconsistency between IOC and VSM	PDD9295
Calling SetLeadThrough\On during execution makes SetLeadThrough\On\NoStopMove stop working	PDD9299
SetLeadThrough\On\NoStopMove deactivates motion supervision	PDD9300
CFG errors still being reported after cfg file corrected	PDD9309
New GSD files for the Phoenix Contact PROFINET device	PDD9326
Sporadic System.InvalidOperationException	PDD9336
Improved SafeMove Visualizer for handling four drive modules	PDD9338
Not possible to create backup on NFS share due to file and/or directory name length or size	PDD9340
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