



# Release Notes for MPiec controller firmware

Release 2.1.0 Build 229

Yaskawa America, Inc.

January 23, 2012

## 1. New Features

Number	Summary	Release Notes
5434	MC_Reset should work on axes not discovered at startup.	MC_Reset now works for axes that were not initially discovered at startup. This is useful for machines that employ configurable or optional axes that may be turned off or missing when the controller is powered on.
5482	Support reading MP2XXXiec firmware version in IEC application environment	A New DataType file has been added to the New Project Templates which defines a structure of information which can be placed at %MD3.66560. This data structure includes the firmware version.
6030	Provide high resolution FMK (Motion Engine) timing for MP2600iec	A new data structure was added to the New Project template for MP2600iec which allows the IEC application to monitor the Motion Engine (ISR) timing . Refer to the PLCTaskInfoTypes file in a new MP2600iec project for details.
6255	Expose Controller's Ethernet settings to the IEC application	A New DataType file has been added to the New Project Templates which defines a structure of information which can be placed at %MD3.66560. This data structure includes details such as IP Address, subnet mask, default gateway, and MAC address.
6403	Support reading servopack monitor parameters (Un parameters such as RMS torque, regen load) on the MP2600iec (pn825)	It is now possible to read the ServoPack Un monitor parameters on the MP2600iec. Refer to the PLCopen help for MC_ReadParameter 1312 (Option Monitor)
6450	Increase controller memory available for IEC Application RAM (Global variables)	The amount of controller RAM allocated for IEC application global variables (non retained) was increased from 1.6 MB to 3.2 MB. See new toolbar icon on MotionWorks IEC 2.1 in Hardware Configuration toolbar.
6476	New firmware library: YDeviceComm	A new firmware library called Y_DeviceComm is available which includes functions to support reading and writing data via TCP socket connections. UDP is also supported. See new help manual included with the new firmware library in MotionWorks IEC 2.1.0

### Additional information related to new features:

Together, firmware release 2.1.0.229 and software release 2.1.0.152 include support for a new firmware library called YDeviceComm, which contains several functions for building customized communications between the controller and other devices. With the addition of these features, the build settings now includes a new item in the list called 2.1.0. The following message will only appear if using the new 2.1.0.152 software release with an controller which has older firmware than 2.1.0.229.

An FAQ [MTN-8PANT7](#) was added to [www.yaskawa.com](http://www.yaskawa.com) and is summarized here:



What causes the MotionWorks IEC error message "The project cannot be downloaded because it was compiled for a different device or a different version of the connected device. Please select the device version in the Resource Settings Dialog that matches the connected device."

The above message indicates that the Build Settings for a Configuration> Resource> is higher than the corresponding build setting of the firmware on the MPiec controller. For example, if a project compiled in MotionWorks IEC 2.1.0 *which uses build setting MPXXXIec 2.1.0 by default*, is downloaded into a controller with firmware version 2.0.0, the message will be displayed. MPiec Build Settings change from time to time, and provide synchronization of major feature differences between the compiler and firmware.

Remedy:

To proceed with the download, change the Build Settings in the project (under configuration> Resources> Settings) to MPXXXIec 1.2.1. Once the software build setting is changed to a value equal to or lower than the firmware version on the controller, and the project is re-compiled, the project should be ready for download.

## 2. Bug Fixes

The following issues were identified and fixed for this release.

Number	Summary	Details and workarounds prior to this version
5445	MC_StepRefPulse: Problem when C pulse detected in the Overtravel area	The MC_StepRefPulse function now ignores C channel pulses until the axis is out of an overtravel region.
6413	Controller could only process absolute position at power up if absolute motor revs < 4096.	<p>Prior to firmware version 2.1, only 32 bits of the absolute encoder data was being converted into LREAL position for the IEC application, although the motor reports a 36 bit position value.</p> <p>For a rotary axis configuration, the power up position for a 20 bit absolute encoder motor more than 4096 revolutions from absolute zero was calculated incorrectly.</p> <p>For a linear axis configuration, a motor more than +/- 2048 revolutions from absolute was calculated incorrectly.</p> <p>Now all 36 bits are reported for absolute revs up to 65535.</p>
5764	Removing non-existent devices resulted in "Initializing I/O driver failed!"	Prior to firmware version 2.1, adding a non-existent device offline, saving offline, and then attempting to run the program put the controller in a state that did not allow IEC programs to start until after the controller was rebooted.
6094	If a variable value for an LREAL was greater than 3.4e+150, attempting to display the value with the IEEE format box unchecked causes MotionWorks IEC to crash. This occurs for MP2300 and MP2310, but not for MP2600.	<p>As a workaround in version 2.0, do not uncheck the "IEEE format" box. The challenge is to open the dialog to change the setting you must be in debug mode, and if the LREAL variable is set to a large value, then MotionWorks IEC crashes</p> <p>Step 1. Make the global variables window small with no LREALs showing and close all other POU windows.  Step 2. Enter debug mode.  Step 3. Open the debug dialog by right clicking on a variable with a live value in the global variables table.  Step 4. Verify that the "IEEE format" box is checked.  Step 5. Close the debug dialog.</p>
6206	MC_GearOut occasionally did not report Done if GearOut.Execute is held high for one scan only	A workaround if using previous versions of firmware would be to hold MC_GearOut.Execute high until function block completes.
6312	Setting a breakpoint in a MP2600iec project causes a watchdog	Single step debug was improved but is not fully functional on the MP2600iec. It may cause a watchdog error in very fast tasks, however temporarily disabling the watchdog while debugging will allow single step breakpoint to succeed.
6350	MPiec Modbus master failed to connect to slaves if not present after about one minute after startup	Prior to firmware version 2.1, after initial boot-up of an MPiec controller, a Modbus slave application must have been started within 1 minute for the MPiec controller to make successful connection (status=4096: connected.) If the slave application did not respond for 2 minutes, then the MPiec would never connect (status=2 : attempting re-connect) even if the slave became available later.
6381	Y_CamShift ErrorID 4398 never cleared after execute dropped	Prior to firmware version 2.1, a Y_CamShift function block with ErrorID 4398 would never clear the Error even after the Execute input went low.
6383	MC_StepRefPulse: If triggered multiple times while at c pulse position with a valid distance limit input gives invalid distance ErrorID or 61713	Prior to firmware version 2.1, if the axis was at the c pulse location when MC_StepRefPulse was executed, it may give the ErrorID 2 (Distance Exceeded). The error was incorrect even if the distance limit parameter is valid (for example: > 1 rev of the axis).
6398	MC_StepRefPulse does not find the c pulse location if fired multiple times from the c pulse location	Prior to firmware version 2.1, if the axis was at its c pulse location, and the MC_StepRefpulse function block was executed, there was a chance that the axis would miss the c pulse within one revolution of the motor. When this occurred, motion would continue until the time limit input of the MC_StepRefPulse block was reached.

Number	Summary	Details and workarounds prior to this version
6500	MC_MoveAbsolute should not cause an axis alarm if it does not have enough deceleration distance after aborting another motion block	In firmware 2.0.0 only, controller alarm 3202 0052 occurred if a MC_MoveAbsolute aborted another motion in progress and the motion engine tried to create a profile which would overshoot it's end position given the Deceleration input value. In firmware 2.0.0, motion was aborted. In firmware 2.1, the previous 1.x behavior has been restored, which forces an abbreviated deceleration when insufficient deceleration distance is available.
6527	Y_ReadDriveParameter did not work with axes that were not found at startup.	Prior to firmware version 2.1, Y_ReadDriveParameter did not work for axes that were not found at startup which were powered on later and later connected via MC_Reset.
6582	MP2600iec showed "low memory" and "memory exhausted" alarms if running MODBUS client drivers to servers on a different subnet that are not connected	On the MP2600iec only, the memory exhausted alarm could occur if Modbus slaves are configured with an address consistent with port B's IP address, but not connected. This problem occurred in firmware version 2.0.0 only.

### 3. Known Issues

Number	Summary	Release Notes	Workaround
4395	Large positions will not be displayed to full precision in the Web Server Java applet or the Hardware Configuration.	Positions greater than 2147483648.0 are written in scientific notation and will lose some precision when displayed in the applet or the Hardware Configuration. The position stored in the controller is not affected.	If possible, change the origin using MC_SetPosition or MC_StepRefPulse or change the position scale so that the full position can be seen.
4641	starting in supervisor mode shows extra web menu options	When controller is started in supervisor mode, the web menu shows all of the supervisor options immediately. Some options will require login before they can be used.	Login with the Admin password in supervisor mode.
5227	XML Config files are cached via web server	Deleting a project archive and uploading a new project appears to show user/config/startup/io.xml not updated to the new version. Actually it is updated, however the web browser has cached the old version.	Disable caching of XML config files in Internet Explorer.
5241	ProConOS communication task can use all available CPU with large OPC transfers	With large OPC transfers, the ProConOS communication task can starve lower priority tasks, making communication with MotionWorks IEC difficult. We have also noticed a 32KB limitation on OPC transfers.	Use smaller buffers and slower update rates.

Number	Summary	Release Notes	Workaround
5282	MC_Power.Status shows High (Enabled) even after Mechatrolink is down	When the Mechatrolink cable is disconnected or the drive is powered off, the controller cannot communicate with the drive, and it generates an controller watch dog alarm (0x23010001). The drives response to this same event it to generate an A.E50 alarm and disable. Since communication has been lost, the controller does not detect that the drive has disabled, so MC_Power.Status is still high.	The axis is in the ErrorStop state as it should be, so motion is prohibited, and MC_ReadAxisError shows the communication error. If the communication cable is inserted again, the MC_Power.Status will be FALSE.
5373	Controller hangs at startup with two Sigma II drives at the same physical node address	The ERR and MTX light will come on. This problem does not occur with Sigma V drives.	Ensure each Sigma II drive has a unique physical node address.
5521	CPU utilization is not accurate for MP2600iec when the IEC task and motion engine cycle are the same.	The CPU utilization always reports 0.1% when an IEC task runs at the same rate as the motion engine. To get more accurate utilization data, the scheduler must run more often than the user task and the user task must continue to execute over multiple scheduler cycles.	The individual task statistics MinDuration_us, CurDuration_us, MaxDuration_us stored in PLC_TASK_1 (etc.) are reported in microseconds, which is more useful for determining watchdog timers for tasks running at the same rate as the motion kernel.
5697	Slave cannot synchronize to a master with S curve applied	Cam and Gear applications will not follow another servo axis that has the S curve filter enabled.	Do not use an S-Curve filter on any master axis unless the slave has an identical S-Curve filter.
5724	PLC will enter the RUN state after a test move finishes in the Hardware Configuration	When attempting to start a program using the Project Control dialog while running a test move through the Hardware Configuration, the controller correctly prevents the PLC from entering the RUN state. In this case the resource dialog still shows the PLC in the RUN state as the request to enter RUN mode is pending. When the move finishes the PLC will enter the "RUN" state.	Do not RUN the PLC when the Hardware Configuration is performing a test move.
5915	Trying to enable the same axis with two MC_Power blocks at the same time results in internal motion kernel error.	Trying to enable the same axis with two MC_Power blocks at the same time results in internal motion kernel error.	Do not enable multiple MC_Power blocks on the same axis at the same time.
5965	If the SGD V is configured to use the Brake output on SO1, then none of SO1, SO2 or SO3 can be controlled over Mechatrolink.	SGDV firmware was changed	No workaround exists.
5977	Modbus/TCP does not respond to messages for unit 0	The controller fails to respond to messages with the Modbus/TCP unit ID of 0.	Do not use unit ID 0. Use unit ID 1.
6036	Y_CamShift.Error remains high after Execute goes low	Y_CamShift Error and ErrorID remain outut after Execute goes low.	
6174	Motion FBs get error 4370 if run immediately after MC_FinishHoming.Done	Calling MC_MoveRelative immediately after MC_FinishHoming by connecting the Done output to Execute causes a 4370 (motion prohibited) error. The axis state is StandStill.	Adding a one-scan delay after MC_FinishHoming.Done=TRUE avoids this issue.

Number	Summary	Release Notes	Workaround
6343	EIP Multicast only works correctly on Port A (CN11A) of the MP2600iec.	Multicast Ethernet I/P data will only be broadcast over Port A (CN-11A). Consequently, Port B (CN-11B) should not be used for Ethernet I/P communication.	Use Port A (CN-11A) for Ethernet I/P communication.
6473	Repeated archiving operations eventually breaks archiving	Typically, the controller is rebooted immediately after sending the project archive, but if an archive project is sent to the controller more than 20 times in a row, then the controller starts failing semi-silently. There is no alarm or warning, but the Debugging Output starts to print the following error: [2011-07-07 15:39:39.210] error invoking web post request. FilteredZip Could not open specified archive	Reboot the controller.
6481	Different deceleration is used for MC_TorqueControl than for MC_Move... when a software limit has been exceeded.		If the axis does not decelerate quickly enough after exceeding a soft limit with MC_TorqueControl, then modify parameters Pn80D, Pn80E, Pn80F and Pn827.

## 4. Limitations

### Unsupported Card Modules

JAPMC-PL2300-E Counter Module  
 JAPMC-PL2310-E Pulse Output Module

### Unsupported Mechatrolink Devices

SGDH & NS115 with Linear Motor  
 JEPMC-PL2900 Counter Device  
 JEPMC-PL2910 Pulse Output Device  
 JEPMC-AN2900 Analog Input Device  
 JEPMC-AN2910 Analog Output Device