

YASKAWA

Release Notes for MPiec controller firmware

Release 3.4.0.299

December 12, 2017

New Features		
Number	Summary	Release Notes
8684	Support for 1.2GHz MP3300iec with IMI and RJ45 connectors	
9228	Support RJ45 connector for MP3300 CPU board variants	MP3300iec firmware supports CPU boards with IMI and RJ45 connectors.
9321	Implement MC_TrackConveyorBelt for Mechatrolink Groups	Conveyor tracking is now supported for local (Mechatrolink) as well as remote hosted groups.
9333	Implement MC_GroupInterrupt / MC_GroupContinue function blocks	Pausing/resuming a motion profile is now supported for local (Mechatrolink) as well as remote hosted groups.
9912	Increase depth of cascaded master/slave relationships	In version 3.3.0 and earlier firmware, Cam and Gear axes could be nested to a maximum depth of 2. In version 3.4.0 and later, the allowable depth is configurable via Hardware Configuration up to maximum depth of 4.
10012	Reconcile location of part/tool/base offsets in AXES_GROUP_REF structure	Controller firmware version 3.3.0 does not correctly populate the AXES_GROUP_REF.Tool and .Limits fields. These fields should not be used with prior firmware versions.
10057	Adjustable DPM cycle time for Sigma-7Siec	Beginning with firmware v3.4.0, Sigma-7Siec controllers support an adjustable cycle time. In previous versions, only 2ms was supported. SGD7S-#### firmware v24 or later is also required.
10122	Implement Y_GroupSetFrameOffset function block	This function sets a static offset between the MCS and PCS or WCS frames.
10521	Default ServoPack parameter files for Sigma-7S FT19 and 400V Sigma-7S/W	Controller now supports parameter sets for SGD7S-F19 models as well as 400V SGD7S and SGD7W.
10589	Convert HBot/TBot configuration to proper kinematics ACS/MCS	H-bot/T-bot configurations will properly operate motor positions M1/M2 in the ACS frame and the X/Y components in the MCS frame. Previously, these configurations supported only X/Y in both ACS and MCS. Existing projects, as well as any projects created with MotionWorks IEC v3.3 or earlier, which use X/Y ACS will not be affected.
10591	Implement Y_WriteServoPackMemory / Y_ReadServoPackMemory function blocks	These function blocks are designed to be used only with specific ServoPack types such as FT62 or FT64 which provide enhanced functionality. It is not likely that a user will need to use these function blocks, as there are toolbox functions available to support the features of these ServoPacks without the need to directly read and write ServoPack memory.
10596	MoveOptions.PathMode supports multi segment lookahead	Multi segment paths are possible by setting MC_MoveLinear* MoveOptions.Pathmode. This allows the motion engine to calculate an optimal acceleration profile by looking ahead over the next several motion segments.
10665	WebUI home page identification for the MP2600iec with Sigma-7 as the host ServoPack	The ServoPack model number will now be correctly recognized on the WebUI.

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New Features

Number	Summary	Release Notes
10748	Add MC_GroupSetOverride / MC_SetOverride function blocks	Beginning in this release, it is now possible to override the velocity of a move in progress.

Bug Fixes

Number	Identified Issue	Details
8581	MC_Stop can get stuck Busy & Active when interrupting Y_SlaveOffset	
8658	Firmware upload fails if using the WebUI over a slow connection	The webUI now handles large file uploads (such as a firmware update) over slow connections (such as remote VPN) correctly. Previously such file transfers could result in failed upload or corrupted data.
9907	Downloading a renamed project forces a cold start on MP2600, Sigma-7Siec, MP3300, and MP3200	Performing a full download after renaming a project no longer requires a cold start, thereby preserving variables with the RETAIN attribute set.
10021	WebUI: Java applet cannot connect through VPN/NAT	The Machine Operations Java Web Start applet is accessible when connecting to the controller through a VPN or router which uses Network Address Translation (NAT).
10331	MP3300iec CPU-301/311 100M LED does not report connection	The Ethernet 100M LED correctly turns ON to indicate a 100Mbit connection.
10426	URL redirection doesn't work well for Safari in private browsing mode	The firmware web interface now displays correctly when using the Safari browser in Private Browsing Mode.
10441	Download Changes does not work if datatypes are changed	In version 3.3.0 and earlier for eCLR architectures (MP2600, Sigma-7Siec, MP3300, MP3200) if datatypes were changed in a project, download changes appeared to complete, however when entering Debug mode, an error dialog is shown saying there is a project mismatch. Download changes did not actually complete correctly and no error message was displayed. This is corrected in v3.4.0 to either correctly download changes or produce an error indicating that download changes failed.
10508	MC_MoveSuperImposed creates position error when called with VelocityFeedforward enabled in applications with cascaded masters	The output command velocity is correct when re-executing multiple MC_MoveSuperimposed function blocks.
10525	WebUI Ethernet Config 'Save' button only saves the current tab	The 'Save' button now saves all data from all tabs.
10557	Transition mode "none" results in no joining of segments	In firmware v3.3.0 and earlier, when using multi-axis move functions MC_MoveLinear (etc), if TransitionMode was set to 'none' then the blending algorithm would incorrectly behave as though BufferMode was also set to Buffered.
10588	Application task configured as 1.5ms runs at 3.0ms, when Mechatrolink is set at 1.5ms	In MP3300 v3.3.0 and earlier, when running the Mechatrolink network at 1.5 or 3.5ms, user tasks would not execute at a multiple of 1x the Mechatrolink rate. They would instead run at 2x the Mechatrolink rate.

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Bug Fixes

Number	Identified Issue	Details
10616	Setting MC_Power.Enable = FALSE while executing MC_TorqueControl or Y_DirectControl in Torque Mode causes run-away when re-enabling the axis	In version 3.3.0 and earlier firmware for Mechatrolink-III controllers (MP3200iec and MP3300iec), if velocity-control mode or torque-control mode is used on a M-III ServoPack via either Y_DirectControl or MC_TorqueControl, and MC_Power.Enable is dropped low without first calling MC_Stop, when the ServoPack is re-enabled it will briefly attempt to output the previous control velocity/torque. This can lead to a potential run-away situation. In version 3.4 in this situation, after re-enable, the ServoPack will re enable in torque/velocity mode but with a zero torque/velocity command reference.
10626	MP2600/Sigma-7S Axis is enabled unexpectedly when Main Power is applied after MC_Power ErrorID 4399	Prior to firmware release 3.4.0, MP2600iec and Sigma-7Siec controllers exhibited different behavior from Mechatrolink controllers when servo main bus power was lost and then later restored. All ServoPacks automatically servo off when main bus power is lost, however MP2600iec and Sigma-7Siec were incorrectly commanding servo on when main bus power was restored.
10708	MC_Power sometimes briefly reports error 4421 when enabled	In firmware versions 3.3.0 and earlier to support Y_BrakeRelease, MC_Power will in some cases incorrectly report error code 4421 "Cannot servo on while brake released" for a brief period between when Execute is brought HIGH, and servo on occurs.
10736	MC_TouchProbe.RecordedPosition sometimes reports previous latch position for an external axis	Due to a race condition in the LIO card driver, in some scenarios MC_TouchPosition.RecordedPosition would report a stale latch position. This could happen when the MC_TouchProbe was triggered very shortly before the next latch signal was received.
10839	GroupJog blocks in PLCopenPart4 library show Valid output as TRUE even after the Enable is set FALSE	GroupJog function blocks will now correctly reset Valid when Enable is set FALSE.
11138	Y_ClearAlarms does not clear battery monitor alarm 3103 0100	Y_ClearAlarms function block now correctly clears battery monitor alarm 3103 0100.

Known Issues

Number	Known Issue	Details	Workaround
11214	Confusing method of adding Auxiliary IP addresses	The process for adding an auxiliary IP address is confusing.	Click the + sign (turns into x) in line with Auxiliary IP to begin the process. The + symbol will turn into a x. Fill out the fields for Address and Subnet Mask and press the + symbol in line with the Address field. Finish by pressing Save to save the results.
11157	Deactivating MC_Power takes about twice as long in firmware v3.4 as in v3.3	On the falling edge of Enable, MC_Power takes about twice as long to remove power from the servos in v3.4 than it did in v3.3. This only applies to Sigma-7Siec and MP2600iec controllers.	If it is required that MC_Power can deactivate quickly, revert to v3.3 firmware.
11089	MC_GroupReadStatus shows Standby/Moving states toggle when used with blending segments	Calling MC_MoveLinearAbsolute or MC_MoveLinearRelative with any combination of inputs to BufferMode and TransitionMode which cause corner blends to be produced will incorrectly result in MC_GroupReadStatus transitioning from the Moving state to Standby state, until the next motion function block becomes active.	No workaround exists.

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10978	Measurable scan time increase between v3.2.0 and v3.4.0 firmware	Between v3.2 and v3.4, the scan time has increased between 4% to 20% depending on the specific application and function blocks used.	If performance is critical to the application, use firmware v3.2.0 or upgrade to a higher performance controller.
10681*	Exceeding controller side velocity limit while using Y_DirectControl in Torque Mode may cause the axis to move a small distance due to incorrect initial velocity setpoint on re-enable.	When using Sigma-7 drives in torque-control or velocity-control mode (via Y_DirectControl), if the drive experiences an alarm or is commanded servo off via MC_Power without first calling MC_Stop, in some situations when re-enabled it may have an initial non-zero velocity. This appears to be specific to Sigma-7 drive types.	For applications which need velocity-limited torque control (e.g. winding applications), controller-side velocity limits should not be used because they generate alarms. Instead, the user program should monitor the velocity and perform a controlled stop behavior if limits are exceeded. Additionally, set the drive torque limit to zero when powering the servo until torque mode is activated via Y_DirectControl.
10670	Some axis alarms (A.D00) on Sigma-7 ServoPacks cannot be cleared from controller	On Sigma-7, ServoPack alarm A.d00 may not be clearable at speeds around 6000rpm.	If you believe you have this problem, please contact Yaskawa support for details on how to work around this problem.
10662*	When using MC_TorqueControl function block, an unexpected initial velocity or torque value maybe be caused when TorqueRamp input values are small.	When using MC_TorqueControl with a small value applied to the TorqueRamp input, the servopack may first briefly apply torque in the reverse direction before continuing with torque in the correct direction.	Increasing the TorqueRamp input value can reduce or eliminate this behavior.
10351	Slowdown in STRING_TO_XXX functions when stack check is enabled	Stack check verifies that memory is allocated correctly on the controller. However, it will reduce performance, especially for the string conversion functions. String conversion functions operate 2 to 3 times slower when stack check is enabled. It is recommended to use the stack check during development, but not when the system is deployed.	Deactivate stack check before final project deployment.
9703	MPiec on Sigma-7 does not have battery backed RAM and is dependent on SRAM	For the Sigma-7Siec platform there are the following differences in the hardware platform: 1) Position offset for absolute encoders is stored in the flash file system. If the customer uses an absolute encoder and sets the offset continuously, then the flash could wear out. Do not continuously reset the offset if absolute encoders are used. 2) PLC retain memory is not supported. 3) RTC clock is not backed up. The clock will reset to January 1, 2000 on reboot. 4) Modbus variables cannot be retained. 5) Alarm history is not stored across power cycles.	No workaround exists.
7606	MC_GroupEnable / Disable should not be used concurrently with Y_ResetMechatrolink		Use interlocks to prevent these function blocks from running at the same time.

* updated February 22, 2018 in v1.4 document

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Known Issues			
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7576	After Mechatrolink-III communication errors, the MTD2310 remote I/O module does not reconnect	Upon removing and reconnecting the Mechatrolink-III network connection, the MTD2310 remote I/O module shows a flashing red 'F'. Once in this state the controller cannot read inputs or set outputs.	To clear this state, the MTD2310 must be powered cycled.
7234	BOOL value from comparison stays on for two scans	BOOL result from some function blocks (AND, for example) can stay on for an extra scan.	If EN/ENO connections are used somewhere in the LD network then this bug will not occur as the compiler will take another path. If you don't connect EN/ENO then the compiler will take the path with the bug. If at least one EN/ENO is connected in each network then the good path will be taken by the compiler.
6712	MP3200iec and MP3300iec CPU architectures are not reporting maximal floats as NAN (Not a Number) or INF (Infinite)	MP3200iec and MP3300iec do not support IEEE 754. As a result, adding two floating point numbers, which would normally cause an INF or NAN error, will report the maximum floating point value instead. Additionally, ENO will remain TRUE instead of becoming FALSE which is expected when an overflow is detected.	User applications should check for overflow conditions.
6343	Ethernet/IP Multicast only works correctly on Port A (CN11A) of the MP2600iec	Multicast Ethernet/IP data will only be broadcast over Port A (CN-11A). Consequently, Port B (CN-11B) should not be used for Ethernet/IP communication.	Use Port A (CN-11A) for Ethernet/IP communication.
5965	Configuring a SERVOPACK to use a pre-configured output prevents IEC control of any SERVOPACK outputs	If a ServoPack function such as /BK brake control is assigned to any of the ServoPack outputs (SO1, SO2, SO3), The MPiec controller is prevented from controlling any of the outputs.	No workaround exists.
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 use multiple MC_Power blocks on the same axis at the same time. Yaskawa recommends that each axis have only one MC_Power block.
5724	PLC will enter the RUN state after finishing a test move in 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, but still indicates that the controller is in the RUN state with the request to enter RUN mode pending. When the move finishes the PLC will enter the RUN state.	Do not RUN the PLC when Hardware Configuration is performing a test move.
5703	MP2600iec can get watchdog alarm and bad CRC on restart	To reboot, the controller sends a software reset command to the ServoPack. Since the ServoPack is rebooting, it does not acknowledge the command.	Ignore these alarms in the alarm history.
5697	Slave axis cannot synchronize to a master axis that has S-curve filtering	Applications using camming and gearing will not follow a master 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.

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5686	MPiec Modbus server seems to stop communicating	If a Modbus Master polls for data from the MPiec too often, the controller can be overloaded and slow Modbus TCP/IP communication slowed.	On the Modbus Master, add a 5ms (or longer) timer between read and write queries.
5521	CPU utilization is not displayed accurately for MP2600iec when the IEC task time and motion engine cycle time 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 <code>MinDuration_us</code> , <code>CurDuration_us</code> , <code>MaxDuration_us</code> stored in <code>PLC_TASK_1</code> (etc.) are reported in microseconds, which is more useful for determining watchdog timers for tasks running at the same rate as the motion kernel.
5460	<code>Y_CamOut.DisengageData.EndMode=Immediate</code> is not supported	Disengage mode is not supported and will result in error 4400 – unsupported disengage mode.	Implement the same behavior by using the current master position as disengage position.
5227	XML configuration files are cached via classic web server	When a project archive is deleted and a new one installed, the classic web interface appears to show the old version of <code>user/config/startup/io.xml</code> . The file has actually been updated, but the web browser has cached the old version.	Disable caching of XML configuration files in Internet Explorer.
4641	With classic web server, booting up in supervisor mode shows extra menu options	When controller is started in supervisor mode, the web menu shows all menu options immediately even if the Admin user is not logged in. Some options will require login before they can be used.	Login with the Admin password in supervisor mode.
4395	Large positions will not be displayed to full precision in the web interface Java applet or Hardware Configuration	Positions greater than 2147483648.0 are written in scientific notation and will lose some precision when displayed in the applet or Hardware Configuration. The position stored in the controller is not affected.	If possible, change the origin using <code>MC_SetPosition</code> or <code>MC_StepRefPulse</code> or change the position scale so that the full position can be seen.
4356	Axis state machine doesn't track superimposed moves	Executing <code>MC_MoveSuperImposed</code> without executing another motion block afterwards causes the axis to remain in the standstill state.	Executing another motion block after <code>MC_MoveSuperImposed</code> fixes the axis state.

Limitations

Unsupported Card Modules

JAPMC-PL2300-E Counter Module
 JAPMC-PL2310-E Pulse Output Module
 218IF-Y1 Serial Communication card not supported on MP3200iec

Unsupported Mechatrolink Devices

JEPMC-PL2900 Counter Device
 JEPMC-PL2910 Pulse Output Device