

YASKAWA

Release Notes for MPiec controller firmware

Release 3.5.0.141

June 23, 2018

New Features		
Number	Summary	Release Notes
12059	MC_Move blocks for groups now auto-determine the need to use RotationalScalers for group moves with no linear XYZ movement.	MC_MoveLinear* and MC_MoveCircular* function blocks will automatically detect zero length moves in linear dimensions but non-zero in rotational dimensions. For these cases, new fields have been added to the MoveOptions structure to provide rotational velocity and acceleration limits for these conditions. The application program no longer must detect these motion conditions and switch the Velocity input value to these function blocks.
10885	Added support for PAIF (pre-aligner) option card	Firmware version 3.5.0 adds support for PAIF option card via direct access to card register memory as %M3 mapped variables in the PLC.
11129	Improvements to MC_TrackConveyorBelt	The specification for MC_TrackConveyorBelt was changed slightly. When EngageMode = MasterDistance, the distance the PCS offset shifts during sync-in is now constant, regardless of whether MC_TrackConveyor is called before or after the conveyor axis passes StartDistance. This can result in a PCS position offset which is shifted by the amount [(conveyor position at rising Execute) - StartDistance]. Using EngageMode = WithinRange would not cause this offset, but will cause the TCP to potentially achieve a faster velocity to synchronize.
11207	MC_CircleMode#Center radius tolerance increased to 1%.	The allowable tolerance on the specified center point for MC_MoveCircular when CircleMode = MC_CircleMode#Center has been increased from 0.1% of the radius to 1.0% of the radius. This allows for less precise specification of the center point by user input. The center point will be adjusted if necessary so that the start and end points are equidistant from the center point.
11488	Group Parameter 2112 modified to allow 300% accel limit on blended moves.	When Group Parameter 2112 is set to TRUE, the allowable acceleration limit has been increased from 100% to 300%.
11488	New eCLR PLC runtime firmware	This update fixes an issue which could cause user tasks to watchdog when Download Changes was performed with real time violation allowed.

Bug Fixes		
Number	Identified Issue	Details
10466	Handle circular moves and TMConstantVelocity blends with RxRyRz rotational component	Previously when joining two linear segments with TransitionMode#ConstantVelocity in the MCS or PCS coordinate system, if the Rx/Ry/Rz values of the linear segments were different, the MC_MoveLinear could fail with ErrorID 61713. In version 3.5.0 rotational (Rx/Ry/Rz) components of the move are now scaled to synchronize with the XYZ translational components of the circular move.
10447	4D Gantry with Rz blended motion takes longer to complete when compared to blended moves without Rz.	Blending parameters are now weighted correctly to filter rotational, translational, or all components depending on the setting of MoveOptions.VelocityUnit provided to a MC_MoveLinear function block. Specifying MoveOptions.VelocityUnit = UseNSpaceScalars will leave the behavior unchanged.

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Bug Fixes

Number	Identified Issue	Details
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.	<p>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.</p> <p>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.</p>
10978	Measurable scan time increase between v3.2.0 and v3.4.0 firmware	Firmware v3.5.0 performance is improved and now meets the same benchmarks as v3.2.0
10858	Real time clock on MP2600iec and MP3000iec controllers does not update at millisecond resolution.	The Real Time Clock will now update at 10ms resolution via the RTC_S function block on eCLR based controllers such as MP2600iec, MP3200iec, MP3300iec, and Sigma-7Siec.
11620	MC_SetOverride / MC_GroupSetOverride: Override reverts to 1.0 when motion queue becomes empty.	The override value was invalidated when the relevant axis' or axes group's motion queue became empty. The last value set was still reported when read via MC_GroupReadParameter (2101) or MC_ReadParameter (1302), however it was no longer in effect - the effective speed override was reverted to 100%.
11599	GroupJogTCP does not support PCS jogs.	Jogging in PCS space is now supported.
11481	Cartesian motion jumps to uncommanded position if Rz changes during arc.	This issue affected groups such as nD gantry (3D printers) using MC_Circular moves and Rz (Extruder) motion at the same time.
11434	AuxPoint on MC_MoveCircularRelative requires relative offset to origin.	MC_MoveCircularRelative with MC_CircleMode#Radius method incorrectly required the normal vector input (AuxPos) to be offset by the negated value of the circle start point. Applications which used a workaround must be updated in order to use firmware 3.5.0.
11410	Simulated Mechatrolink-III nodes creating axis count issues	Axes which are marked [Simulated] but are physically connected to the Mechatrolink network no longer count double against the maximum allowed axis count, and will no longer be added as extra axes with different IDs by the startup auto-discovery.
11380	MC_GroupSetOverride reverts back to the original speed at the start of the next circular move.	If MC_GroupSetOverride was used to set an override speed lower than 100%, subsequent calls to MC_MoveCircular would reset the override value to 100% at the end of the move.
11368	CamState (Prm1540) doesn't properly report CamState=4 (Waiting for Disengage)	This condition is now properly reported.
11259	AO-01: EEPROM offset value may be incorrect	The AO-01 4-channel analog output card stores its calibration data in EEPROM on the option card. In controller firmware version 3.4.0 and earlier, in some cases that calibration data was handled incorrectly, which caused the analog output values to be incorrect.
11258	Sending hold position when a servo is disabled is causing warning A.95A.	Firmware version 3.4.0 for Mechatrolink-III controllers (MP3300, MP3200) was incorrectly causing A.95A warnings to be displayed on the front of SGD7 and SGD7 ServoPacks.
11252	Y_WriteDriveMemory: Non-volatile memory table write fails silently if the axis is enabled.	New ErrorID 9018 was added to report this condition.

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Bug Fixes

Number	Identified Issue	Details
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 previously resulted in incorrect MC_GroupReadStatus transitioning from the Moving state to Standby state. This has been fixed.

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Known Issues			
Number	Known Issue	Details	Workaround
11439	Re-initializing PCIe communication during Mechatrolink reset causes RM100 card to stop responding	The RM100 card is not yet supported by MPiec controllers.	Y_ResetMechatrolink cannot be used successfully when an RM100 option card is installed.
11214	Confusing method of adding Auxiliary IP addresses	The process for adding an auxiliary IP address is confusing.	Click the + sign 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.
10690	MotomanSync : Unable to Restart and continue buffered moves after an abort		The application program must track the buffered moves and re-execute them if necessary.
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.

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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.	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