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Release Notes for MPiec controller firmware

Release 3.7.1

November 30, 2020

New Features		
Number	**Summary**	**Release Notes**
12103	Implement GetAlarmHistory function block.	The new function block Y_GetAlarmHistory is available in the YMotion firmware library.
12581	Remove address range limiting in Y_ReadDriveMemory and Y_WriteDriveMemory	The ServoPack model number is no longer checked to restrict the address range of Y_ReadDriveMemory or Y_WriteDriveMemory. The ServoPack internal address validation is used instead. However, because of the error reporting method from the ServoPack, if the address is invalid, no function block error will result. User programs should readback written values and validate non-zero read values.
13419	Improve performance of MC_ReadAxisError	Runtime performance of MC_ReadAxisError is substantially improved, which is most beneficial for systems that have many axes and an instance of this function block is executed in a fast cyclic task for each axis.
13449	Inhibit some blending errors from being propagated to the PLCopen Part 4 function block level	When Prm 2112 = TRUE (default) the MPiec certain types of blending errors are suppressed. In these conditions, motion will not be blended, and will come to a stop at the corner point at the specified deceleration rate. Overshoot may occur if necessary. When Prm 2112 = FALSE all blending errors are reported as an error on the function block.

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Bug Fixes		
Number	**Identified Issue**	**Details**
11683	"Collinear" segments do not perform instantaneous changes in direction	Improvements were made to the trajectory generator to better handle larger colinearity threshold setting values (Group parameter 2111). When treating non-colinear segments as linear, the cornering speed will no suddenly drop to a lower value just after the "corner" is passed.
13455	Y_RemoveIPAddress reported Done instead of Error when trying to remove primary IP address	Attempting to remove the primary IP address with Y_RemoveIPAddress incorrectly reported Done instead of reporting ErrorID 8733, however, this was a reporting issue only: the requested action was not performed. This bug was introduced to Y_RemoveIPAddress in 3.7.0, and fixed in 3.7.1.
13475	TCP velocity spikes when actual velocity of colinear segments does not reach specified slew velocity.	This problem manifested itself during collinear lookbehind segment joins when the slew velocity was less than the start and end velocities. This occurred because joins only modify starting and ending velocities, not slew velocities.
13492	FT62 ServoPack identification not looking at the right characters in part number for Y_ReadDriveMemory/Y_WriteDriveMemory address validation	In firmware v3.7.0 and earlier, identification of FT62 type ServoPacks incorrectly parsed the model string (requiring '022xxx' rather than 'xxxF62') when constructing the allowedaddress list for Y_ReadDriveMemory and Y_WriteDriveMemory. The address validation was removed in a separate item in v3.7.1, making this incorrect behavior obsolete and should not occur with 3.7.1
13506	Y_ProbeContinuous missed capturing the latch data when a ServoPack warning is active.	When a ServoPack warning was active, fetching the warning value interfered with Y_ProbeContinuous latch detection. To mitigate this, ServoPack warnings can be optionally ignored while Y_ProbeContinuous is active. Use new MC_WriteParameter ParameterNumber = 1034. The default setting is to not ignore warnings (same as previous behavior.
13517	Memory leak with Y_CamIn, Y_CamOut, Y_GearInPos, and Y_SyncTangentAxisToGroup.	Due to a bug introduced in v3.7.0, the following function blocks leaked memory in the following situations: Y_CamIn.Execute rising edge while already Busy The cam table data memory can be leaked on next Execute rising edge and the cam table data memory was not released with Y_ReleaseCamTable Y_CamOut - If Done never becomes true after Execute rising edge. The cam table data memory can be leaked on next Execute rising edge and the cam table data memory was not recovered with Y_ReleaseCamTable. Y_GearInPos - If Active never became true after Execute rising edge. Some internal data can be leaked on next Execute rising edge In addition, Y_SyncTangentAxisToGroup leaked memory on each Execute rising edge in all prior versions of firmware: These memory leaks are corrected in MPiec firmware v3.7.1
13527	Y_GetAlarmDesc could cause out-of-memory or task resource starvation	If Y_GetAlarmDesc.Execute rising edge occurred while the function block was already Busy, it incorrectly queued another operation. Repeating this procedure many times overloaded the background queue and starved the CPU of resources.

Known Issues

Number	Known Issue	Details	Workaround
13461	FT82 Sigma-7 only supports 2ms update rate	ServoPack firmware ver 0x24 for the Sigma-7Siec FT-82 model only supports 2 ms for the Communication Cycle setting. Now an alarm will occur at MPiec startup and the project cannot be run if a different Communication Cycle is selected. Power cycle is required to recover after changing the Communication Cycle back to 2ms.	
12730	Mechatrolink-III IO Nodes are discovered at startup even if CNFG switch is off.	Mechatrolink-III IO Nodes are discovered at startup even if CNFG switch is off.	Use the CNFG switch at the ON position.
12340	MP3300iec firmware update puts the RM100 into a bad state.	Upgrading the firmware on an MP3300iec that is in the same MBU-322 chassis as an RM1100, will put the RM100 into a bad state.	When an MP3300iec firmware update is done, and there is an RM100 in the same MBU-322 chassis, then a power cycle is required afterwards to put the system into a functional state.
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.
11036	MC_SetOverride has no effect on velocity of MC_StepRefPulse.	MC_StepRefPulse does not support concurrent use of MC_SetOverride.	
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.

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9927	Y_CamIn with Y_EngageMethod#AtAbsolutePosition doesn't run multiple times without MC_Stop.	When using Y_EngageMethod#AtAbsolutePosition, the cam shift must be unwound to zero between executions of Y_CamIn. This can be done with either MC_Stop or Y_CamShift.	Use an MC_Stop between successive Y_CamIn blocks (use EndOfProfile to trigger) OR Execute Y_CamShift with the previously used CamEngage Position after every cycle (use EndOfProfile to trigger).
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.
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.

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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.
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 `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.
5460	`Y_CamOut.DisenageData.EndMode=Immediate` 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 `user/config/startup/io.xml`. 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.

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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 *MC_SetPosition* or *MC_StepRefPulse* or change the position scale so that the full position can be seen.
4356	Axis state machine doesn't track superimposed moves	Executing MC_MoveSuperImposed without executing another motion block afterwards causes the axis to remain in the standstill state.	Executing another motion block after MC_MoveSuperImposed fixes the axis state.

Limitations

Unsupported Card Modules
JAPMC-PL2300-E   Counter Module
JAPMC-PL2310-E   Pulse Output Module
218IF-Y1   Serial Communicaiton card not supported on MP3200iec

Unsupported Mechatrolink Devices
JEPMC-PL2900   Counter Device
JEPMC-PL2910   Pulse Output Device