Release Notes for MP2000iec controller firmware

Release 1.2.3 Build 12

Yaskawa America, Inc.

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1. New Features

Number	Summary	Release Notes
5269	High resolution cpu load information for MP2300 (SH4)	For MP23xxiec controllers, the current and maximum task execution time measurement is now available with microsecond resolution. To use this feature in existing projects, update the PLCTaskInfoTypes type worksheet. NOTE: These datatypes have not yet been added to the MotionWorks IEC template. Contact Yaskawa Motion Support for a copy of the DataTypes for this feature.
5635	Added multi turn reset feature to Y_ResetAbsoluteEncoder	If Pn205 (multi turn reset) is changed, Y_ResetAbsoluteEncoder can now clear the A.CC alarm.
5812	Added message in web server when sending Archive.Zip	Project archive web page now indicates that installing an archive does not update Servopack parameters.
5868	Provided a mechanism to disable command delay compensation	Added Parameter 1307 (Enable Command Compensation) for enabling/disabling compensating for the slave's command delay. To disable set Parameter 1307 to FALSE. The default value for Parameter 1307 is TRUE. This parameter only has an effect when the master is an external encoder.

2. Bug Fixes

Number	Summary	Release Notes
4597	MC_GearOut holds current velocity even if not gearing.	Details: For example, executing MC_GearOut while a MC_MoveAbsolute function block is active will abort the MC_MoveAbsolute function and hold the current velocity. Impact: MC_GearOut is not typically used in this manner, and this issue has not been reported by any customers.
4830	Alarm descriptions for some Pn digits is backwards from Sigma manuals	Two of the Pn digits referenced in the alarm description files incorrectly described the digits as if they are read left to right (1,2,3,4).
5173	ID_RD "Software Version" does not match Servopack firmware version for SDGS	The Servopack's version number was incorrectly being read as a string, cleaned up, and then re-interpreted as a number.
5369	Pn522 affecting the Done output of MC_Stop	Previously, MC_Stop waited for the Servopack to set the PSET (in position) status bit before completing. Since the PSET behavior is determined by Pn522, this parameter affected the MC_Stop behavior. Now, MC_Stop completes when the trajectory computation completes, i.e, when the command position is constant and command velocity is zero.
5389	Y_ResetMechatrolink should not affect other non Mechatrolink axis types	When resetting Mechatrolink, external and virtual axis were also disconnected, generating an alarm. Now Y_ResetMechatrolink only acts on Mechatrolink nodes.
5409	MC_ReadActualTorque & prm 1004 do not show full resolution	Details: Previously, the torque resolution of MC_ReadActualTorque or MC_ReadParameter with Parameter UINT#1004 was to the nearest percentage. When Pn824 is set to 0x02 (Torque), which is now the default set by the Hardware Configuration software, then the torque resolution is 0.0001%
5447	2 point, one-way period cam tables do not work	Details: For one-way cam tables, the end condition occurs when the master position changes from the last defined interval to the first interval, but if there is only one interval, then this end condition was never detected. (Motor would jump.)
5512	Stopping PLC while MC_Stop is active leaves axis enabled until MC_Stop is Done.	Previously, the CPU Stop behavior stopped the motion with fixed deceleration, waited for the Servopack PSET (in position) status bit, and then disabled the Servopack. However, if the PSET bit never occurred (perhaps because the axis physically could not reach the stop position) then the Servopack would not disable. Now, the CPU Stop behavior aborts motion and disables the axes.
5555	MC_Reset bug on recovering from controller watchdog alarm	Details: MC_Reset behavior is different for clearing controller watchdog alarm for two different cases. 1) Pulling Mechatrolink cable and causing A.E6 alarm on the Servopack requires one MC_Reset. 2) Power cycling the Servopack and then attempting MC_Reset requires multiple MC_Resets. On the first MC_Reset, the Done bit is asserted immediately. On the second MC_Reset the Done bit is asserted after a couple of seconds as expected and controller watchdog alarm is cleared.
5599	INIT switch should re-initialize SRAM (MP2300)	The INIT switch will now re-initialize SRAM when the SRAM area is detected to be corrupted due to power loss.
5610	MC_GearInPos commanded velocity seems to have overshoot	When synchronizing with a master moving at constant velocity, the slave might slightly overshoot its desired position before synchronizing. Now, the slave will not overshoot.
5654	Detect invalid gateway setting	At startup, any error setting the default gateway is now reported as an alarm. Also, at startup any problems initializing the IP settings (or hostname) are also reported as an alarm.
5685	Output inconsistency on blocks with execute input and non-BOOL data output	Non-boolean output data of Y_CamStructSelect, Y_CamFileSelect, Y_ReadDriveParameter, and Y_VerifyParameters function blocks is now correctly set to 0 when both Execute and Done are FALSE.

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5701	MC_GearInPos functionality in rotary mode is incorrect	Previously, MC_GearInPos checked if the non-cyclic position passed the boundary, which is a cyclic value. MC_GearInPos also synchronized to the non-cyclic master position. Now, MC_GearInPos synchronizes to the master's cyclic position.
5702	MP2300Siec: HBB interaction with MC_Power	Because of a race condition between sending SVON and detecting HBB over Mechatrolink, the SVON would "complete" even though the Servopack was actually in the HBB state. MC_Power did not correctly detect this condition. MC_Power now re-issues SVON after HBB is removed if the Servopack is not enabled.
5713	Cams slaved to non external encoders must follow commanded position	Previously, the slave would follow the master's feedback position if the master was in the standstill state. Now, the slave follows the master's command position even in the standstill state.
5717	Error ID 57617 can occur on PLCopenPlus functions blocks after download changes.	This problem has been corrected.
5720	TC 996: Alarm code for CPU overload (MP2600)	Details: The PLC stops as expected and properly disables all axes, but no controller alarms are posted.
5730	Interrupting MC_StepLimitSwitch with MC_Stop	Previously, MC_StepLimitSwitch stopped via a HOLD command, so the deceleration was governed by the Servopack's parameters. Now, MC_StepLimitSwitch decelerates according to MC_Stop.Deceleration and then switches to position mode via a HOLD command.
5737	HBB Aggressive flickering and interaction with MC_Power -	Details: If HBB is turned on and off at a very fast rate, it's possible to get into a state where the controller cannot enable the axis using MC_Power. Once in this state, the controller has to be power cycled to recover. This has been corrected.
5745	Y_CamIn.EndOfProfile does not reset correctly after the first run of a non-periodic cam table	Details: When the first run was finished, End of Profile is asserted TRUE, then resets to FALSE as the execute input is set to FALSE. For every run afterwards, the End of Profile becomes TRUE as the cam table begins, not at the end of the cam table.
5792	Linear motor causes 3301 0018 error at speeds greater than 240mm/sec	Previously, the controller issued an instantaneous jump (3301 0018) alarm if the commanded position differed from the feedback position by more than 1966080 counts for the SGDV Servopack and 983040 counts for SGDH and SGDS Servopack. Now, the controller issues this alarm according to the MTD088.doc from YEC, which for the SGDV specifies the command position's maximum rate of change must be less than 2,097,152,000 counts/sec.
5821	An MC_MoveVelocity with superimposed moves aborted by a MC_MoveAbsolute does not end at the commanded absolute position	MC_MoveSuperImposed will offset the final position of a MC_MoveAbsolute and any subsequent buffered MC_MoveAbsolute. The superimpose distance is automatically cleared once all buffered moves complete. Now, MC_MoveSuperImpose distance is also cleared with any aborting move.
5835	Shipping test Real Time Clock test fails on new MP2600 boards	SRAM data invalid due to loss of battery power was not always being correctly detected. The implementation was changed to provide more robust detection of SRAM power loss during the power off state.
5848	Multiple analog input cards map inputs incorrectly	Previously, when the CNFG switch was on and the controller generated auto-discovered I/O mapping, it sorted the available I/O as follows: wordIndex cpu/slot#/networkIO This result was an awkward mapping which disagreed with the mapping generated by the Hardware Configuration. The new sort ordering is: IO type (analog, digital) module type (cpu, card, network) slot or nodeID word index
5854	Warnings are not being reported correctly on 2600	On the MP2600 controller, the warning was being added to the upper 16 bits of the alarm code instead of the lower 16 bits. For example, if you cause an A.91 warning by moving the motor by hand while servo lock is on just long enough to cause A.910 (but not long enough to cause A.710) the controller reported 4C13 0000.

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5861	SRAM power lost, accidental supervisor mode	Previously, if battery power is lost resulting in corrupted SRAM, the supervisor mode might be accidentally set. Now, the check for supervisor mode confirms that the SRAM is not corrupted.
5862	Phoenix Remote I/O will not reconnect after powered off and on	Asynchronous mode disconnect inadvertently stopped communication before sending the DISCONNECT command.
5872	MP2600 linear: 0 pitch recovery	A linear style servopack with a pitch of 0 caused the MP2600 to fail to connect during the identification phase.
5907	PLC Task intervals not correctly set due to rounding errors.	For certain Mechatrolink scan times (1.5, 3.0, 3.5 ms) resulted in rounding errors, causing the PLC scheduler to run IEC application tasks at shorter scan rates than specified. In each case, the next lower multiple of the Mechatrolink update rate was used. For example, if Mechatrolink was specified @ 3.0 ms, and the application task time was set to 9.0 ms, the application task would actually run at 6.0 ms. This has been corrected.

3. Known Issues

Number	Summary	Release Notes	Workaround
4356	Axis state machine doesn't track superimposed moves	Details: If MC_MoveSuperImposed is executed without executing another motion block, then the axis state will remain in the standstill state.	Executing another motion block restores the axis state.
4528	No support for modbus/tcp function code 15: write multiple coils	Details: Write multiple coils is not supported, so each coil must be written using a separate transaction. As a result, writing multiple coils is not recommended.	
4581	ReadAxisError Alarm may not match the one shown on the ServoPack.	Details: AlarmID may not match alarm shown on Servopack.	The Servopack may have multiple alarms, and one of these is returned by MC_ReadAxisError. Typically, the alarm matches the one shown on the servopack, but this is not guaranteed.
4611	MC_Power.Enable=FALSE should transition to disabled state	Details: No transition from ErrorStop to Disabled when MC_Power.Enable=False. Technically this is not part of the PLCopen specification; the specification does not indicate any transitions to the Disabled state.	
4840	MC_MoveAbsolute cannot abort MC_TorqueControl	Details: MC_TorqueControl cannot be aborted by a 'position mode' motion block such as MC_MoveAbsolute.	The user must first use MC_Stop to change control modes.
4920	MC_StepLimitSwitch only supports one LimitSwitchMode: MC_EdgeOn (Enum 2)	Details: MC_StepLimitSwitch only works on the rising edge of an input. The Servopack supports configuration of the active state of the limit switches via Pn510.	Application can be wired to work within this limitation.
5145	Y_CamIn does not detect if the engage window is too small.	Details: If the window is too small, Y_CamIn will not engage. Ideally, set the window about double the maximum speed of the master per Mechatrolink scan.	If this occurs, increase the window size.

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5239	MC_Power does not transition to ErrorStop when enabling with error	Details: There is no transition from Disabled to ErrorStop when MC_Power.Enable=True and there is an error on the axis. Instead, the axis is not enabled, and MC_Power.Error is set to TRUE	Check the MC_Power.Error output and use MC_ReadAxisError to determine the axis has an error.
5264	Modbus server output variables (%Q) are not retained	Details: Selecting the retain check box within the Global variables grid causes the corresponding variable to be allocated in SRAM. However, for outputs, this feature is not working. Workaround is to use a non-driver specific variable for retain data and copy this value into the %Q value at power up.	Use a non driver global variable that is retained and copy the global variable to the output.
5282	MC_Power shows Status=TRUE even after Mechatrolink is down	Details: When the Mechatrolink cable is disconnected, the controller cannot communicate with the Servopack, and it generates an controller watch dog alarm (0x2301 0001). The Servopack 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 servopack 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.
5331	ErrorID 4371 on MC_Power for Servopack power issue does not go off if enable is low	Details: When MC_Power cannot enable the Servopack because, for example, it's disconnected from the servonetwork, the MC_Power.ErrorID is set to 4371. When MC_Power.Enable is set to false, this error code is not cleared.	This alarm will be cleared when MC_Power does succeed in enabling the Servopack.
5521	CPU utilization is not accurate for MP2600 (eCLR / ARM9) when the task and motion engine cycle are the same	Details: The CPU utilization always reports 0.1% when the user task runs at the same rate as the motion engine. CPU utilization is calculated by looking at which tasks are running each time the PLC scheduler is run. The PLC scheduler 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. Impact: Customers are using the individual task statistics instead.	The individual task statistics MinDuration_us, CurDuration_us, MaxDuration_us stored in PLC_TASK_1 (etc.) are reported in microseconds, which are more useful for determining actual task time requirements.
5618	Web browser edit fields don't work reliably with IE8	Details: Clicking around the grids results in odd highlighting and focus behaviors which hinders editing.	
5686	Modbus server seems to stop communicating	Details: A master can overload the controller and stop getting responses for Modbus/TCP communication.	Set a polling period on the master less often than 10 mSec typically avoids the issue.
5697	Slave cannot synchronize to a master with S curve applied (Consider w/ Interp)	Details: The S-Curve filter is applied after the slave has sampled the master's command position. There is no possibility of overrun or out of control motion. However, if the master has an S-curve filter, but the slave does not, then the slave position will lead the master position. For example, if the master has a 0.01 second filter, the master was travelling at 10 rev/s and the gear ratio was 1:1, then the slave would lead the master by 0.05 rev.	Do not use an S-Curve filter on any master axis unless the slave has an identical S-Curve filter.

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5714	Trouble moving off POT/NOT with very small accelerations.	Details: If on an OT and the initial change in command position is less than the amount the feedback position is dithering, then the move might be aborted. The following example illustrates the issue: 1) Prior to the move, the last feedback position is 0.0000 2) Because of dithering, the current feedback position 0.0010. 3) Because the accelerations are very small, the first command position of a move in the negative direction could be 0.0005 (i.e., -0.0005 relative to the starting position.) 4) The OT limit check, compares the new position (0.0005) to the old position (0.0000) and erroneously rejects the move because it appears to be moving into the POT.	To avoid this situation, adjust the tuning to reduce the encoder dithering and/or increase the acceleration.
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.
5965	If the SGDV is configured to use the Brake output on SO1, then none of SO1, SO2 or SO3 can be controlled over Mechatrolink.	There was a firmware change in the Servopack that prevents the "mix and match" functionality.	A Y-Mod version of the amplifier may be available.
5992	Y_CamIn gets ErrorID 61713	If the cam master cycle starts at some non zero value, ErrorID 67713 will result.	The cam function requires that the master cycle increase from 0 to some positive value.

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