Release Notes for MP2300Siec

Release 1.0.4 Build 5

Cumulative for changes from 1.0.0 Build 1

Yaskawa Electric America, Inc.

Document #		
Revision	Date	Comment
1	8/25/2008	Initial revision
2	8/26/2008	Added MC_StepLimitSwitch comments
3	8/29/2008	Corrected spelling/wording errors
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1 Supported Function Blocks

The following list contains the function blocks supported in this release:

- MC_AbortTrigger
- MC_FinishHoming
- MC_GearIn*
- MC_GearInPos*
- MC_MoveAbsolute
- MC_MoveRelative
- MC_MoveSuperimposed
- MC_MoveVelocity
- MC_Power*
- MC_ReadActualPosition
- MC_ReadActualTorque
- MC_ReadActualVelocity
- MC_ReadAxisError*, ###
- MC_ReadParameter*
- MC_ReadBoolParameter
- MC_ReadStatus*
- MC_Reset*
- MC_SetPosition
- MC_StepLimitSwitch*
- MC_Stop
- MC_TorqueControl
- MC_TouchProbe
- MC_WriteBoolParameter
- MC_WriteParameter
- Y_ClearAlarms
- Y_HoldPosition**
- Y_ReadAlarm
- Y_ReadDriveParameter***
- Y_WriteDriveParameter***
- Y_ResetMechatrolink***

* Indicates that this function block has an issue or usage note documented below.
** Indicates that the function block has been deprecated and will be removed in a future release.
*** Function block added in this release.
Function block specification change in this release.

1.1 Unsupported Function Block Inputs and Outputs

The following function block inputs and outputs are not supported and are reserved for future use:

- MC_MoveAbsolute.Jerk
- MC_MoveRelative.Jerk
- MC_MoveAdditive.Jerk
- MC_MoveSuperImposed.Jerk
- MC_MoveVelocity.Jerk
- MC_Stop.Jerk
- MC_Stop.BufferMode (assumed BufferMode is *aborting*)
- MC_Power.BufferMode
- MC_ReadStatus.Busy (always FALSE)
- MC_ReadAxisError.Busy (always FALSE)
- MC_Read[Bool]Parameter.Busy (always FALSE)
- MC_TorqueControl.TorqueRamp
- MC_TorqueControl.Acceleration
- MC_TorqueControl.Deceleration
- MC_TorqueControl.Jerk
- MC_Write[Bool]Parameter.Busy (always FALSE)
- MC_ReadActualPosition (always FALSE)
- MC_GearIn.Jerk
- MC_TouchProbe.WindowOnly
- MC_TouchProbe.FirstPosition
- MC_TouchProbe.LastPosition
- MC_SetPosition.Busy (always FALSE)
- MC_ReadActualVelocity.Busy (always FALSE)
- MC_ReadActualTorque.Busy (always FALSE)
- MC_GearInPos.Jerk

2 Important changes from 1.0.0 Release

2.1 Function Blocks

2.1.1 Interface changes

- MC_ReadAxisError**:**
  - New output MC_ReadAxisError.ErrorClass (SCR 2642)
    Details: To differentiate between different classes of axis errors an additional output has been added. ***Very Important: Projects containing any MC_ReadAxisError blocks created with MotionWorksIEC version 1.0.0 must be opened with MotionWorksIEC 1.0.5 or later and all MC_ReadAxisError blocks must be deleted and added again.***
- Y_HoldPosition
  - **Deprecated:** Y_HoldPosition has been deprecated (SCR 2958, 2944). This block is no longer required as its functionality has been included in MC_Stop. Applications should not use this function block, as it will no longer be supported in future releases.

2.1.2 Bug fixes

- MC_GearIn and MC_GearInPos
  - Instantaneous velocity changes with MC_GearIn no longer occur. (SCR 2993)
  - Position lag with MC_GearIn and MC_GearInPos no longer occurs as long as the master axis has a lower ID than the slave axis. If the slave axis ID is lower than the master then a position lag may still occur. (SCR 3048).
- MC_GearOut
  - MC_GearOut followed by MC_Stop while the axis is not moving no longer causes an instantaneous position change. (SCR 2995)
- MC_MoveAbsolute
  - MC_MoveAbsolute no longer shows aborted after done in certain circumstances. (SCR 3079)
- MC_ReadAxisError
  - MC_ReadAxisError now shows the axis disabled unexpected alarm. (SCR 3098)
- MC_Reset**:**
  - MC_Reset no longer causes watchdog alarms with large scan times or when axes do not have power. (SCR 3031, 3087)
  - MC_Reset can re-establish Mechatrolink communication after a drive power cycle (SCR 3068) . If drive is power cycled while the controller running, the axis will report an invalid watchdog alarm (2301 0001). Clearing this alarm via MC_Reset will reestablish Mechatrolink communication. Communication will not be established with drives that were not detected on startup.
  - MC_Reset can now clear axis disabled unexpectedly alarms (SCR 3092)
- MC_SetPosition
  - MC_SetPosition no longer requires a small time delay after a move. (SCR 2865)
- MC_StepRefPulse
  - MC_StepRefPulse no longer incorrectly sets Error and ErrorID on the second execution after the torque limit is exceeded. (SCR 2896)
  - MC_StepRefPulse now correctly moves back to the C-pulse position after a commanded velocity move. (SCR 3042)

- MC_Stop
  - MC_MoveStop / MC_MoveVelocity no longer cause drifting with certain speeds and accels (SCR 3064)
- MC_TouchProbe
  - MC_TouchProbe now works multiple times for Sigma-V drives. (SCR 2824)
- MC_TorqueControl
  - MC_TorqueControl now checks for valid acceleration and deceleration inputs. (SCR 3047)
  - MC_TorqueControl now checks the TorqueRamp input correctly for Sigma-3 Linear motors (SCR 3062)
- Y_ClearAlarms
  - Y_ClearAlarms no longer stops working with error 45332 (SCR 3097).

2.1.3 New function blocks

- Y_ReadDriveParameter and Y_WriteDriveParameter can be used to read and write servo drive parameters. (SCR 3017)
- Y_ResetMechatrolink can be used to reset the Mechatrolink network (SCR 3094)

2.2 Ethernet/IP

2.2.1 Bug fixes

- Controller no longer becomes unresponsive with RPI=10ms and multiple connections (SCR 2961)
- Controller no longer becomes unresponsive if sending and receiving 256 bytes (SCR 2973)
- Controller now can connect to a Yaskawa VFD if the VFD was not powered on at controller power up. (SCR 3082)

2.3 Mechatrolink

2.3.1 Bug fixes

- The PLC program will now start with missing Mechatrolink nodes (SCR 2988)

2.4 System

2.4.1 Bug fixes

- PLC no longer posts a PLC critical error alarm when booting with the STOP switch ON (SCR 3026)
- String variable assignments no longer cause a PLC exception. (SCR 3057)

2.5 Web Interface

2.5.1 Bug fixes

- The Axis Grid page now correctly displays inertia and torque for SIGMA-V drives. (SCR 2888)

2.5.2 Enhancements

- There is a new web page for uploading and downloading a program archive. This facilitates copying an application from one controller to another. After downloading a program and all attendant files, the user can create an archive (zip file) of all the user files on the controller and save it to their computer via a new web page. Additionally, the user can load an archive onto the controller.

3 Known issues

3.1 Function Blocks

3.1.1 Bugs

- MC_ReadStatus (Axis State Machine):
  - Incorrect axis state with MC_MoveSuperimposed. (SCR 2567)
    Mitigating factor: Executing another motion block fixes the axis state.
- MC_GearOut
  - MC_GearOut holds current velocity even if not gearing. (SCR 2808)
    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.
    Mitigating Factor: Only call MC_GearOut when disabling gearing.
- MC_ReadParameter
  - MC_ReadParameter "Commanded Position" not modularized in Rotary Mode (SCR 2857)

3.1.2 Usage Notes

- MC_ReadAxisError
  - Alarm does not match alarm shown on drive (SCR 2792)
    Mitigating factor: The drive may have multiple alarms, and only one of these is returned by MC_ReadAxisError
- MC_ReadStatus (Axis State Machine):
  - No transition from ErrorStop to Disabled when MC_Power.Enable=False. (SCR 2822)
    Mitigating factor: Technically this is not part of the PLCopen specification; the specification does not indicate any transitions to Disabled state.
  - No transition from Disabled to ErrorStop when MC_Power.Enable=True while encoder cable unplugged. (SCR 2822)
    Mitigating factor: In this situation, MC_Power.Error=True and MC_Power.ErrorID=4371 because the drive could not be enabled.
- MC_GearIn and MC_GearInPos
  - MC_GearInPos.CommandAborted=TRUE when MC_GearInPos.SlaveSynchPosition not attached. (SCR 2845)
    Mitigating factor: The problem does not occur when SlaveSynchPosition is specified.
  - MC_GearIn and MC_GearInPos require correct axis order. (SCR 3053)
    Details: If the slave has a lower axis ID than the master axis, then slave will use the old command position of the master causing a position lag equal to the master speed multiplied by the Mechatrolink update rate.
    Mitigating factor: Ensure that the master axis has a lower axis ID than the slave axis.
- MC_StepRefPulse & MC_StepLimitSwitch
  - MC_StepRefPulse behaves incorrectly at high command velocity (SCR 2879)
    Details: When the velocity is set at 50 rev/s the motor spins for several seconds before the Done output is TRUE.
    Mitigating factor: This issue does not occur with slower velocities (less than 1 rev/s) which are more typical.

- MC_StepLimitSwitch Active still TRUE after 1 scan (SCR 3141)
  Details: The Active output on MC_StepLimitSwitch is still true after 1 scan when the function block is aborted.
  Mitigating factor: Ignore active output on MC_StepLimitSwitch when followed by MC_Stop. It remains on for several scans.

- MC_Power
  - An A 95 alarm is being issued when MC_Power is disabled (SCR 2810)
    Mitigating Factor: User programs can clear this alarm.
- MC_Reset
  - MC_Reset does not clear A.ED on Sigma II (SCR 2729)
    Details: A.ED alarm requires the servo network to be reset.

3.2 Modbus/TCP

- Function code 15: write multiple coils is not supported (SCR 2739)
  Details: Write multiple coils is not supported, so each coil has to be written using a separate transaction. As a result, writing multiple coils is not recommended. Use registers instead.

3.3 Ethernet/IP

- MP2300Siec EIP gets ownership conflict error (SCR 3118)
  Details: If two MP2300Siec controllers are connected via EtherNetIP, an ownership conflict error may occur after a long period of communication.
- MP2300Siec EIP Slave disconnects from AB ControlLogix EIP Master. (SCR 3074)
  Details: When attempting to connect to an Allen Bradley ControlLogix EIP Master with the MP2300Siec controller as an EIP Slave, a timeout occurs. It appears as if the EIP task is being starved.
  Mitigating factor: By changing the Mechatrolink scan rate or the PLC scan rate, this issue is avoided.

3.4 MECHATROLINK

- Controller reboots if gearing 16 axes with a 2ms Mechatrolink update rate (SCR 2919)
  Details: MC_GearIn.Execute=TRUE for all axes, the controller reboots.
  Mitigating factor: Increase the Mechatrolink update rate. See Section **Error! Reference source not found.** (**Error! Reference source not found.**) for suggested Mechatrolink update rates.

3.5 Web Interface

- Microsoft Internet Explorer Version 6 crashes if closed when applet is showing (SCR 2929)
  Details: If the applet is showing and Microsoft Internet Explorer Version 6 is closed, then a dialog box pops up asking if the crash information should be sent to Microsoft.
  Mitigating factor: This issue does not occur with Microsoft Internet Explorer Version 7.

3.6 SGDV Servo Drive

- A94B alarm generated after Relative, Absolute, or Geared move. (SCR 3083)
  Details: With SGDV drives previously tuned with Sigma Win +, executing MC_MoveRelative, MC_MoveAbsolute or MC_GearIn(Pos) at roughly half the rated speed causes an A94B warning. This is caused by “model following control” being enable in Pn140.
  Mitigating Factor: Set SGDV drive Pn140 to the default value of 0x0100.