

Release Notes for SigmaLogic™ Software Package

Release Date 08/01/2023

Yaskawa America, Inc.

LogicWorks Configuration Utility 2.5.0.15

1. New Features

Number	Summary	Release Notes
6992	Enable External encoder configuration screen for Sigmalogic7	Support for using the Full-Closed-Loop (FCL) Option card or the Feedback Option Card (FBOC) on a SigmaLogic7 controller to bring in an external encoder signal as a Gearing Master has now been included. This allows the SigmaLogic7 to follow an external signal such as a conveyor or handwheel. During installation, the FCL and FBOC cards require parameters to be set using SigmaWin+ software.
7141	Add Pop-up error notification to Logicworks if Rebooted with Servo On.	Rebooting the SigmaLogic axis while the servo is powered on (enabled) can result in uncontrolled consequences, particularly for vertical applications. In LogicWorks v2.5.0 an additional check was added to monitor the servo-enabled status prior to allowing the user to reboot the axis. In all scenarios, the proper procedure is to stop, disable and secure the SigmaLogic axis prior to rebooting by any means.
7144	In Logicworks add a new setting under options screen to enable/disable controller side VFF (Pm1310).	In LogicWorks v2.5.0 a new checkbox has been added in the Configure->Options->Tuning section to disable the Controller-side Velocity FeedForward. It is enabled by default to match the previous SigmaLogic behavior. In some applications, controller-side VFF can cause undesirable overshoot of the motion profile.
7156	Update LogicWorks internal file for 'Return to Factory Settings'	LogicWorks has been updated to include the most recently released version of the SigmaLogic Embedded Software used for Configure-Update-Return to Factory Defaults. The new version is 2.5.0.
7201	Add 11-bit resolution support for sigmalogic linear motor.	In LogicWorks v2.5.0 support has been added for 11-bit linear encoders.

2. Bug Fixes

Number	Summary	Release Notes
7182	SigmaLogic - Position Error Calculation Issue with Linear Motor in Inches	Linear Motor Position Error calculations were improperly done for units other than [mm]. This has been corrected starting in v2.5.0.

3. Known Issues

Number	Summary	Release Notes	Workaround
595	No project compare on Connection	The offline file contents are not automatically compared to the actual configuration when Connection is made to a SigmaLogic axis. This can result in a difference between what the user sees in the configuration utility screens and what is stored in the axis.	Establish a Best Practice procedure to manually compare the file name to the current configuration name or to always Receive the current configuration immediately after Connection to a SigmaLogic unit.
638	LogicWorks does not display the values for CN13 Analog I/O	Support for monitoring and controlling the CN13 Analog I/O points from the PLC was added in SigmaLogicEmbeddedCode v1.2.0 and SigmaLogic_AOI v1.2.0. However these values are not currently displayed on the LogicWorks Status and I/O monitoring pages.	Use PLC to monitor and control the CN-13 Analog I/O using Tags 'AxisRef'.I.AnalogInput and 'AxisRef'.O.AnalogOutput.
1150	LogicWorks Setup does not support user-defined installation locations.	For LogicWorks v2.0 and earlier, only the default installation location is supported during Setup. This issue will be addressed in a future version of LogicWorks.	Use the default installation location
1163	Saving project during File - Exit process will not add the project name to the Recent Projects List	There are many opportunities provided to save the LogicWorks project to a file on the PC. The last occurs during File->Exit process. If "Save Project" is chosen during the exit process, the project will be saved properly to the specified location, but the Recent Projects listing will not be updated.	Save the project first as a separate procedure before starting the Program Exit process.
1168	LogicWorks v2.0 cannot connect to SigmaLogic units with 3.0.0.173 firmware	LogicWorks v2.0 and above requires firmware version 3.3 or higher. There are several configuration files that have changed format between these firmware versions. Use the SigmaLogic web interface to update firmware. For more assistance, please discuss with your Yaskawa vendor.	None

SigmaLogic Embedded Software v2.5.0.55

1. New Features

Number	Summary	Release Notes
1184	Function Block Error ID 4422 shows up as "Unknown Error".	Support for reporting the description of ErrorID 4422 has been added. Application ErrorID 4422 is a new function block error code most relevant to SigmaLogic7 and Sigma-7Siec based products. ErrorID 4422 means "Position Offset Update Failed" and occurs when not enough time is given to the function for setting motor position. In the Sigma-7Siec-based family of products, the absolute encoder offset is stored in EEPROM memory instead of battery-backed RAM as with other products. Writing the offset to flash takes more time than writing to RAM. If the process is interrupted, ErrorID 4422 will be reported.
3672	Home to Flag with or without C-Channel has different results if ON the switch when started.	The Home to Flag with C-Pulse process has no check of the initial flag status prior to beginning the process. Prior to version 2.5.0, if the process was started while the flag was already ON, then the axis would move the backoff distance from that point and then search for C-Pulse. This could result in a different home position than if the process was started from OFF the flag. Starting in v2.5.0, the axis will search for the flag to be ON, move the backoff distance, and then creep to find the rising edge of the flag. Then it will move the backoff distance again and begin the search for the C-Pulse. This will result in a consistent search relative to the leading edge of the flag. NOTE: The backoff distance must be set large enough to reliably move OFF the flag prior to the search for the edge of the flag. This setting is left up to the user. There is no check to see if the backoff move actually made it off the edge of the flag.
5550	More Status Information for SigmaLogic	In the 2.5.0 release, the SigmaLogic unit will transmit new status bits for motion monitoring. Bits for Accelerating, Decelerating and ConstantVelocity can now be monitored on the PLC side according to the mapping in DCR-6278.
5741	Gearing for SigmaLogic7-Compact and SigmaLogic7-Modbus using SGDV-OFB03A for AB Quad Encoder	Starting in v2.5.0, gearing is now supported on the Sigma-7Siec platforms so long as the encoder option card is used to bring in the external encoder. The option card must be set up using SigmaWin+ software tool. Gearing is executed using the MAG_Yaskawa AOI. LogicWorks v2.5.0 and above must be used to configure the unit.

2. Bug Fixes

Number	Summary	Release Notes
2888	MAH_Yaskawa Type 1 - Home_Hardstop changes torque limits to 800%	In some situations, capture of the initial Torque Limit values prior to homing was not reliable. This led to improper restoration of those value when Homing was stopped prematurely. The Initial Torque/Force limit capture process has been improved in v2.5.0.
5216	MHSI MoveType 0 & 2, Axis starts moving if the trigger flag is already On while enabling.	The HighSpeedIndex embedded code was not properly waiting for the rising edge of the Trigger flag when the HSI_Yaskawa AOI was enabled. Instead an index would immediately occur if the Trigger Flag was already active. This has been corrected in the embedded code v2.5.0.
6594	Sigmalogic axis reverses after MTRQ function reports done.	In prior versions, some anomalies were noticed when exiting Torque Mode under varying conditions. In some cases, the axis was observed to reverse direction. In v2.5.0 this behavior has improved due to both firmware and SigmaLogic Software changes.
6659	Logicworks I/O status will not update until PLC is connected & heart beat is established.	During commissioning it is common to use LogicWorks to make Test Moves and monitor the IO to verify wiring. Starting in v2.5.0, this can be done without the need to have the master PLC connected and programmed.

6760	MAH to EOT Limit does not use Offset Distance properly	When executing MAH_Yaskawa using the method to Home to the End of Travel sensor, the value for BackOff Distance was being used in place of the final move to the Offset Distance. This has been corrected so that the value for Offset Distance is used properly for the final move of the homing sequence.
7055	SigmaLogic: Homing to Overtravel returns an error when using Normally Open parameter settings	For valid Positive and Negative OverTravel settings when Homing to a Limit, the embedded code was only checking for values 0 thru 8 for the servopack parameters Pn50A, nibble 3 (POT) and Pn50B, nibble 1 (NOT). Settings A-F, which denote using Normally Open switches did not register as good settings. In addition, a parameter setting of 7 (always enabled) would have registered as a valid setting even though motion would have been permanently prohibited. With embedded code v2.5.0 and higher, settings 7 and 8 are properly detected as invalid while 0-6 and A-F are detected as valid.
7103	Calculation for Pn305/306 uses motor Rated Speed instead of motor Max Speed	Servopack Pn305/306 is used to set the acceleration rate during Homing to Limit switch or when the C-Pulse is made part of the process. In previous versions, the value of this parameter was incorrectly calculated using the motor's Rated speed, resulting in a smaller acceleration time (faster rate) than expected. In version 2.5.0 the parameter value is now calculated properly using the motor's Maximum speed.
7112	MAH gives ErrorID 4658 when homing to overtravel with 0.0 Offset distance, 0.0 Offset speed	When Homing to Overtravel Limit, the check for valid homing parameters did not properly detect if Offset Distance or Offset Speed were non-zero until further in the homing process. Thus homing could start, but not finish. In v2.5.0, these values are checked properly at the beginning to avoid starting the process.

3. Known Issues

Number	Summary	Release Notes	Workaround
600	HSI does not wait for move to be In Position	For all other moves, move complete status is sent to the PLC when the commanded profile is finished AND when the motor position is within the range specified by the LogicWorks configuration under Configure - Options - Position Completion Window. In v1.1.0, the High Speed Index moves do not wait to be in the position completion window. Move complete is set when the commanded profile is finished.	Add external delay for subsequent processes/actions that depend on the motor being settled into its final position.
650	Sequence Table execution resumes in certain cases where servo is disabled, then re-enabled	In SigmaLogic AOI v1.2.0, MSF_Yaskawa (Motion Servo OFF) is allowed to execute even though another AOI could be active, such as MSQR_Yaskawa (Motion Sequence Run). Disabling the axis during motion will cause an application fault which normally would abort the sequence. However, if the sequence was waiting for a flag either Before or After motion, then no fault would be generated and the sequence table would still be executing even though the servo would not be capable of motion.	The user should issue MAS_Yaskawa (Motion Axis Stop) prior to issuing MSF_Yaskawa (Motion Servo OFF) to properly stop an axis and abort sequence execution. Alternatively, the user could set the Cancel input on MSQR_Yaskawa. Canceling the sequence will also stop motion.
7189	Official SigmaLogic-7 controllers fail to support feedback option cards as a Gearing Master	LogicWorks 2.5.0 now allows the use of an external encoder as a gearing master for the Sigma-7Siec hardware platform. The signal is brought in either through the Full-Closed Loop (FCL) option card or the Encoder Option Card. Although these option cards operate properly when configured to supply FCL feedback or feedback from a 3rd-party motor, firmware v3.7.4 does not allow the official SigmaLogic7 Compact and SigmaLogic7 Modbus models to configure the external encoder option cards for use as a Gearing Master. If gearing functionality is required, the please use the base Sigma-7Siec servopack as an alternative hardware platform. Contact local Yaskawa Sales manager for more information.	Use a base-model Sigma-7Siec product instead, and then use Logicworks v2.5.0 or higher to Return the unit to Factory Settings. It will run the same as a SigmaLogic7 Compact or SigmaLogic7 Modbus unit.

SigmaLogic AOI v2.5.0 for RSLogix 5000

1. New Features

Number	Summary	Release Notes
5214	If no trigger is detected the MHSI function remains enabled even after the EN input is removed	Using AOI v2.4.x, the MHSI_Yaskawa - Motion High Speed Input function would remain enabled until the next trigger input was received. In a sense, one more cycle was required. This has now been corrected in AOI v2.5.0.
5333	Add Registration support to MHSI_Yaskawa AOI	In release v2.5.0, support has been added to the HSI_Yaskawa - High Speed Input AOI to allow move registration to a sensor. The final move target will be adjusted based on an entered Registration Distance. The final stopping position will be the incremental Registration Distance past the latched position from the sensor. The latch will be armed at the start of the move.
6278	More Status Information for SigmaLogic - Map into the AOIs	Additional motion status bits are now reported back to the main PLC and can be found in the Axis variable within the 'Yaskawa_EIP_Servo structured data type. 'AxisRef'.I.Accelerating 'AxisRef'.I.Decelerating 'AxisRef'.I.ConstantVelocity
7153	SigmaLogic AOI: Create and map the tags in Yaskwa_EIP_Servo to enable S-Curve filter	In prior versions, an S-Curve filter could be set in LogicWorks to help smooth motions and remove Jerk from the movements. However, once set, this S-Curve filter applied to ALL commanded moves. In v2.5.0 the user has been given the ability to selectively Disable the S-Curve setting from the PLC application program. In this manner, S-Curve could be enabled for smooth Handwheel (Gearing) operation and disabled for normal moves. The tag can be found at 'AxisRef'.O.DisableSCurve. A corresponding monitoring tag is available at 'AxisRef'.I.SCurveEnabled. Changing the value of the S-Curve filter must still be done from LogicWorks and cannot be changed on-the-fly.
7155	MCFG_Yaskawa:Feedrate Override of 0 does not stop the motor	In previous versions, the feedrate override range was 1-200%. MCFG_Yaskawa v2.5.0 now supports a range of 0-200%. The embedded code will default to 100% and will only begin to track the commanded feedrate when the value from the AOI becomes non-zero. Once the value at MCFG_Yaskawa has become non-zero, then a setting of zero will cause the axis velocity command to be set to zero. The effect is that motion can still be in progress, but at zero speed. Feedrate will update on the fly during MAJ_Yaskawa jog moves and for MAM_Yaskawa Absolute moves. For MAM_Yaskawa Relative moves, the feedrate will only be inspected at the start of the move and will not update on-the-fly.
7174	MAM: Add LockOut distance input for registration moves.	In SigmaLogicAOI v2.5.0 a new input has been added to the MAM_Yaskawa block for Lockout Distance to be used during moves that use Registration. In previous versions, the registration latch was armed immediately at the start of move. Now, the latch will be armed after the axis has traveled the Lockout Distance away from the start of move. If left at 0.0, then the latch will be armed immediately. If in Rotary (infinte) Mode using a Machine Cycle, please avoid using the move type 'Shortest Path'. The direction taken can be ambiguous at times, especially for an exact 180deg move, and unexpected results could occur. Instead choose to make absolute, rotary moves specifically in the Positive or Negative direction.

2. Bug Fixes

Number	Summary	Release Notes
5044	MAJ_Yaskawa AOI fails to report FLT_RDY when executed with Servo disabled	This bug has been corrected in AOI v2.5.0. FLT_RDY should turn ON in the case that a motion AOI is enabled while the servomotor is disabled to indicate that the servo is Not Ready.
5078	Attempted programmatic reboot with servo ON returns errorID -20199	If a programmatic reboot of the SigmaLogic unit is attempted while the servo is Enabled, then the reboot will not occur and MCFG_Yaskawa would show AppErr -20199. This is not a valid error ID. However, executing MRSE_Yaskawa will return the correct alarm text stating that Reboot is Not Possible. Please ensure in the PLC application code that the servo is Disabled prior to attempting a programmatic reboot. In AOI version 2.5.0, the MCFG_Yaskawa block will now display the AppErr properly as 45337.

3. Known Issues

Number	Summary	Release Notes	Workaround
4866	AOI Active bit of the MCFG block does not work properly	Using multiple instances of an AOI type, for example MAM_Yaskawa in a project may result in the AOI_Active bit at MCFG_Yaskawa to behave improperly. This is because the internal "AOItype"_SB bit will be written in all of the instances.	1) Use AOI_Active in combination with MotionIdle output of the MCFG_Yaskawa AOI. 2) Use independent user-written interlocking specific to the AOI instances to perform even more robust interlocking than is currently available from the AOI_Active and MotionIdle outputs of the MCFG_Yaskawa AOI.