Kinetix 6000 Multi-axis Servo Drives, Version 17, Firmware Revision 1.116

Catalog Numbers

Kinetix 6000 Multi-axis Servo Drives	Cat. No. (230V)		Cat. No. (460V)	
Integrated Axis Modules	2094-AC05-MP5-S	2094-AC05-MP5	2094-BC01-MP5-S	2094-BC01-MP5
	2094-AC05-M01-S	2094-AC05-M01	2094-BC01-M01-S	2094-BC01-M01
	2094-AC09-M02-S	2094-AC09-M02	2094-BC02-M02-S	2094-BC02-M02
	2094-AC16-M03-S	2094-AC16-M03	2094-BC04-M03-S	2094-BC04-M03
	2094-AC32-M05-S	2094-AC32-M05	2094-BC07-M05-S	2094-BC07-M05
Axis Modules	2094-AMP5-S	2094-AMP5	2094-BMP5-S	2094-BMP5
	2094-AM01-S	2094-AM01	2094-BM01-S	2094-BM01
	2094-AM02-S	2094-AM02	2094-BM02-S	2094-BM02
	2094-AM03-S	2094-AM03	2094-BM03-S	2094-BM03
	2094-AM05-S	2094-AM05	2094-BM05-S	2094-BM05

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About This Publication

This publication contains release notes for Kinetix 6000 drive firmware revision 1.113, 1.114, and 1.116 when used with RSLogix 5000 software, version 17.

The -S in the catalog number indicates Kinetix 6000 multi-axis servo drives with the safe-off feature.

IMPORTANT	When commissioning your Kinetix 6000 drive (IAM or AM modules) with the safe-off feature, firmware revision 1.88 or later is required.
	For Kinetix 6000 safe-off connector, wiring, and troubleshooting information, refer to the Kinetix Safe-off Feature Safety Reference Manual, publication GMC-RM002.

IMPORTANT	Using firmware revision 1.83 or later with Motor Feedback Noise fault-action set to Status Only may result in absolute position offset due to the loss of feedback information. For applications requiring precise absolute positioning or axis synchronization, verify the Motor Feedback Noise Status Only setting.

IMPORTANT	If you currently use a custom RSLogix 5000 motion database in RSLogix 5000 software, versions 12…16, you will need an updated motion database to use RSLogix 5000 software, version 17. To initiate the process of getting the database updated, please email your request to raeptechsupport@ra.rockwell.com. If your current database includes non-Rockwell Automation motors, please include any prior technical support case numbers.

Enhancement with Firmware Revision 1.113

This enhancement corresponds to Kinetix 6000 drive firmware revision 1.113 or later, when used with RSLogix 5000 software, version 17.

Modifications were made to reduce the amount of time the drive takes to reset a fault on an incremental feedback device.

Enhancement with Firmware Revision 1.114

This enhancement corresponds to Kinetix 6000 drive firmware revision 1.114 or later, when used with RSLogix 5000 software, version 17.

When the drive is in the disabled state, the engagement and disengagement of the motor parking brake, if present, can be manually controlled. By setting the Brake Override IDN (16 bit, P00140) to a value of 1, the SERCOS Brake Enable/Disable IDN becomes writable and allows manual control of the motor parking brake. Once the drive is enabled, the Brake Override IDN is reset to 0, the parking brake is again under control of the axis, and the Brake Enable/Disable IDN becomes read-only, reflecting the current state of the parking brake.

Enhancement with Firmware Revision 1.116

These enhancements correspond to Kinetix 6000 drive firmware revision 1.116 or later, when used with RSLogix 5000 software, version 17.

- Support for the 2090-K6CK-KENDAT EnDat to Hiperface feedback module has been added for the 2094-*x*C*xx*-M*xx*-S IAM modules and 2094-*x*M*xx*-S AM modules.

| **IMPORTANT** | Use of the 2090-K6CK-KENDAT feedback module requires motion database version 5.14 or later. |

- The Current Low Pass Filter limits have been modified. By setting the Current Low Pass Filter Override IDN (16 bit, P00065) to a value of 1, the filter value can now be set to any value in the range of 0…8000 radians/second.

Corrected Anomalies

These corrections apply to firmware revision 1.113 or later:

- The home to marker was corrected to work reliably at drive powerup on a motor with an incremental encoder.
- The feedback loss detection was corrected to clear the Logix AxisHomedStatus bit when a feedback loss fault occurs after a feedback noise fault.

Known Anomalies

These anomalies apply to all Kinetix 6000 drives:

- In a system where the rated current of the drive is less than the rated current of the motor, certain torque attributes (torque limits and motor torque feedback) are incorrect. RSLogix 5000 software assumes that 100% current is always motor rated current, but in the case of a drive limiting the rated current, the values are incorrect.
- The Test Command and Feedback Hook-up Test will fail with a missing feedback error when used on dual loop configurations.
- If dual-position servo loop configuration is selected and auxiliary feedback is set to none, an Encoder Feedback Loss fault (E07) is displayed rather than an Auxiliary Feedback fault (E62) following the drive enable command.
- When the axis is operating in one of the position servo-loop configurations (without velocity feed-forward gain), the position error value is being incorrectly reported as negative, when the drive polarity is set negative and positive motion is commanded.
- When using an induction motor, a program should wait approximately 200 ms after a Motion Servo On (MSO) command before commanding an aggressive move profile. Not doing so could result in an Excess Following Error (E19). Also, Autotune may not produce accurate results. Manual tuning may be necessary. This is due to the time it takes to flux the field on the motor producing full torque.
- Home to Torque Level in Forward Bi-directional or Reverse Bi-directional mode should reverse direction and move until Homing Torque Above Threshold status is low. Then the process complete (PC) bit should set. However, when the torque level is reached, the PC bit is set and the motor remains at that torque level. If the Peak Torque/Force Limit value is not reduced, the motor will remain at the dynamic torque limit value.

Restrictions

These restrictions apply when using RSLogix 5000 software in conjunction with a 1756-M*xx*SE (ControlLogix), 1769-M04SE (CompactLogix), or 1784-PM16SE (SoftLogix) SERCOS module, and Kinetix 6000 servo drives:

- When removing an axis association on the Associated Axes tab of the Module Properties dialog box, control power to the drive must be cycled to clear the previous associations. Failing to do so will result in the Kinetix 6000 drive reporting a SERCOS Ring fault (E38).

- When changing from a dual loop configuration (dual position servo, dual command servo, aux dual command servo, and dual command/feedback servo) to a single loop configuration (position servo, aux position servo, velocity servo, and torque servo), control power to the drive must be cycled to clear out the previous loop-configuration setting. Failing to do so will result in the Kinetix 6000 drive reporting an Auxiliary Feedback fault (E62) when the auxiliary feedback device is removed.

- When using a dual loop configuration, the resolution units setting (Rev, Inch, and Millimeter) on the Motor Feedback and Aux Feedback tabs of the Axis Properties dialog box must be the same.

- After issuing a Set System Variable (SSV) on a drive parameter, wait at least 3 ms after the ConfigUpdateComplete bit is set before acting on the result of the setting.

- The auxiliary encoder channel does not generate a marker from any sine/cosine device, including SRS/SRM feedback.

- Setting the low-pass output filter bandwidth to a value greater than 3183 Hz will cause a configuration error when downloaded.

- An E19 or E05 fault may occur if an MSO instruction is executed and the motor shaft is still rotating.

- When using a Kinetix 6000 drive system in Common Bus Follower mode, the IAM module must be included in the RSLogix 5000 motion group and must remain uninhibited.

- Make sure motor and auxiliary position does not change during SERCOS ring phase-up, otherwise absolute position may recover an incorrect axis position.

Additional Resources

These documents contain additional information concerning related Rockwell Automation products.

Resource	Description
Kinetix 6000 Multi-axis Servo Drive Installation Instructions, publication 2094-IN001	Information on installing, setting up with RSLogix 5000 software, applying power, and troubleshooting your Kinetix 6000 drive.
Kinetix 6000 Multi-axis Servo Drive User Manual, publication 2094-UM001	Detailed mounting, wiring, setting up with RSLogix 5000 software, applying power, and troubleshooting information with appendices to support firmware upgrades, common bus applications, and Bulletin 2090 resistive brake module (RBM) applications.
Home to Torque Level Application Note, publication MOTION-AT001	Information on the use and restrictions of the Home to Torque Level feature.
MP-Series Integrated Linear Stages User Manual, publication MP-UM001	Installation instructions for mounting, wiring, maintaining, and troubleshooting your MP-Series integrated linear stage.

You can view or download publications at http://literature.rockwellautomation.com. To order paper copies of technical documentation, contact your local Rockwell Automation distributor or sales representative.

Notes:

Rockwell Automation Support

Rockwell Automation provides technical information on the Web to assist you in using its products. At http://support.rockwellautomation.com, you can find technical manuals, a knowledge base of FAQs, technical and application notes, sample code and links to software service packs, and a MySupport feature that you can customize to make the best use of these tools.

For an additional level of technical phone support for installation, configuration, and troubleshooting, we offer TechConnect support programs. For more information, contact your local distributor or Rockwell Automation representative, or visit http://support.rockwellautomation.com.

Installation Assistance

If you experience a problem within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your product up and running.

United States	1.440.646.3434 Monday – Friday, 8 a.m. – 5 p.m. EST
Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

New Product Satisfaction Return

Rockwell Automation tests all of its products to ensure that they are fully operational when shipped from the manufacturing facility. However, if your product is not functioning and needs to be returned, follow these procedures.

United States	Contact your distributor. You must provide a Customer Support case number (see phone number above to obtain one) to your distributor in order to complete the return process.
Outside United States	Please contact your local Rockwell Automation representative for the return procedure.

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