



Product Release Notice

KINGSTAR 4.0

General Availability Release Date

October 26, 2020

Product Overview

KINGSTAR is an all-software, complete “plug-and-play” PC-based Machine Automation platform for IoT and Industry 4.0. Key pre-tested and pre-integrated industrial machine components include software-based motion control, machine vision, programmable logic controller (PLC) and the industry’s only plug-and-play EtherCAT master that auto-discovers any vendor’s EtherCAT drive, IO or device and auto-configures the EtherCAT environment at startup. Built on the EtherCAT standard and supported by a real-time 64-bit Windows operating-system (RTOS) from IntervalZero, KINGSTAR empowers engineers to design, develop and integrate machine control applications or a system of controllers on a single Industrial PC. The KINGSTAR platform can replace all hardware with software-only motion controllers and machine vision positioning systems, quickly and cost effectively.

KINGSTAR version 4.0 has been re-architected to allow developers to select only the functionality they need. KINGSTAR’s flexibility is provided through feature packages allowing you to grow your product at any time by adding functionality to the existing KINGSTAR Fieldbus Runtime.

Available KINGSTAR Fieldbus Runtime feature packages:

- Core packages for: 1, 2, 3 or 7 KINGSTAR cores
- Motion Packages for: Point to Point, Synchronization, and Blending
- Axis Packages for: 8, 16, 32 or unlimited Axis
- High Speed Timer
- Multiple Masters
- Hot Connect
- Programmable Logic Controller (PLC)

New Features

- Adds support for Safety over EtherCAT (FSoE). [KS-1754]
- Adds support for multi-packet EtherCAT data. Large EtherCAT data packets that exceed packet limits are broken down into multiple packets to be sent over separate transmissions. [KS-1755]
- Adds support for multiple EtherCAT master instances, allowing one master per KINGSTAR core. [KS-1831]
- Adds support for Hot Connecting of devices to your EtherCAT network. [KS-1838]
- Adds Modbus TCP server support to the PLC. [KS-1885]
- Adds additional fields to the SlaveStatus structure.
 - A Slot ID used to identify which slot the device is connected when a modular device, such as an IO-Link device, is used. [KS-2323]
 - An Explicit ID used to identify the same model of EtherCAT slaves. [KS-527]
- Displays the POT/NOT and Resolution object in KINGSTAR ESI Import Tool. [KS-529]

Updates

- Updates the usability of the Tuning Console and renamed Configuration Tool. [KS-1384]
- Modifies the way commanded values and position values work to adhere to the PLCopen specifications. [KS-1540] [KS-1709]
- The KINGSTAR APIs have been redesigned for usability. [KS-1839]
- The KINGSTAR ESI Import Tool now contains checkbox options for latched position objects on the PDO tab. [KS-2034]
- The real-time library kse64eoe.rtdll has been renamed KSeoe.rtdll. [KS-2042]
- Adds support for RTX64 4.0.2, which supports Windows 10 feature update 2004. [KS-2472]

Resolved Issues

- Resolves an issue where aborting a motion command could interfere with when the next command's velocity is applied to the axis. [KS-1809]
- Resolves an issue where velocity and acceleration spikes occur when a motion command is almost done. [KS1952]

- Resolves an issue where a discontinuous velocity is detected between two MC_MoveLinearAbsoluteEx commands. MC_MoveLinearAbsoluteEx is renamed MoveLinearAbsolute in KINGSTAR 4.0. [KS-2008]
- Resolves an issue where the axis state is repeatedly set when MC_MoveLinearAbsoluteEx, MC_MoveLinearRelativeEx, or MC_MoveLinearAdditive is almost done. These three functions are renamed MoveLinearAbsolute, MoveLinearRelative, and MoveLinearAdditive in KINGSTAR 4.0. [KS-2011]
- Resolves an issue where the system time of a distributed clock was not stable. [KS-2014]
- Resolves an issue in the Configuration Tool, where the scope log is too short to show a full move of a position test on the Tune page. [KS-2028]
- Resolves an issue where a servo drive's touch probe caused an RTX64 exception to occur. [KS-2248]
- Resolves an issue where the Configuration Tool cannot be started after a file is imported into the KINGSTAR ESI Import Tool. [KS-2351]
- Resolves an issue where all commands at the end of a large queue may not be run. [KS-2408]
- Resolves an issue where Cam functions crash when run at a specific velocity. [KS-2497]
- Resolves an issue where the wrong length was used with segmented SDO. [KS-2526]
- Resolves an issue where modules CoE Init commands are not shown in the ESI import tool or sent by auto-config. [KS-2547]

Hardware Support

KINGSTAR has added out-of-the-box support for the following new hardware. See the *KINGSTAR Supported Hardware* document for a complete list of supported hardware.

Servo drives

- Copley AEV [KS-2176]
- Ingenia Everest XCR 30/80 [KS-2175]
- Inovance SV635N [KS-2239]

Others

- NI CompactRIO modules [KS-1525]
- Sick Flexi Soft FX0-GETC EtherCAT Gateway [KS-2053]
- Sigmatek modules [KS-2527]

Availability

KINGSTAR 4.0 is available beginning October 26, 2020, the [IntervalZero Customer Center](#) or by contacting Sales: sales@intervalzero.com or (781) 996-4481.

We welcome your comments and feedback. If you have any recommendations or wish to suggest product enhancements, please contact [Product Management](#).