

Kollmorgen Automation Suite

KAS v4.03 R1 Release Notes



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Valid for KAS Software Revision: 4.03 R1

Valid for AKD Firmware Version: 1-24-00-001

Valid for AKD2G Firmware Version: 02-14-00-00

Part Number: 959720



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The OS image and its corresponding sources file is identified by an "OS-Sources" designator, followed by its version number: OS-Sources-x.xx.x.xxxxx.

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1 Introduction

Welcome to Kollmorgen Automation Suite (KAS) v4.03 R1!

This release contains new features and many improvements.

This document is to help existing users understand the differences between this v4.03 R1 release and KAS v4.02.

If you are new to KAS, we recommend you start with other documents, such as the Installation Guide.

This document has these sections:

- "What's New in KAS v4.03 R1" (→ p. 12) - This is an overview of new features.
- "What's Changed in KAS v4.03 R1" (→ p. 7) - This discusses how this release may affect some older projects.
- "What's Fixed in KAS v4.03 R1" (→ p. 9) - This is a list of issues addressed in this release.
- "Known Issues" (→ p. 14) - This contains issues we are aware of and may include methods for avoiding or working around them.
- "Installation" (→ p. 18) - This covers system requirements as well as provides firmware, software, and hardware information.

1.1 Digital Signatures

The KAS-IDE Installer and the executables are digitally signed to protect the integrity of these files and identify the distributor of the software components.

The digital signature appears as part of the file properties.

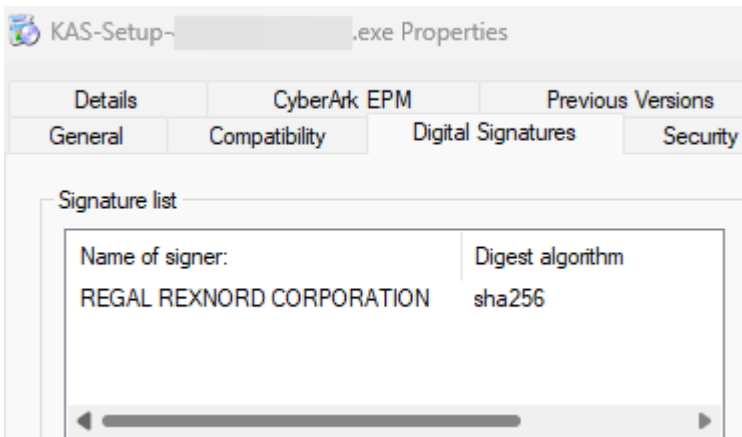


Figure 1-1: Example: KAS Setup Properties Digital Signature

TIP

We recommend you visit [Kollmorgen Developer Network \(KDN\)](#).

KDN is an online resource which includes a knowledge base, provides access to downloads, and has a user community where you can get answers from peers and Kollmorgen employees, and make feature suggestions for KAS.

Beta versions of the help are posted here and are searchable.

NOTE

This PDF contains links to the KAS help system and works best when read from within the KAS-IDE installation directory.

The links to content do not work if the PDF is located somewhere other than `(install directory)\Kollmorgen\Kollmorgen Automation Suite 4.03 R1.x.y\Help`.

2 What's Changed in KAS v4.03 R1

2.1 v4.03 R1 Changes

2.1.1 KAS-IDE

Secure Upload of KAS-IDE Crash Report Files to Kollmorgen Server.

The KAS crash reporting feature automatically generates a crash log when the KAS-IDE crashes.

- This feature has been updated to use a secure protocol (SFTP) when uploading crash report files.
- With user consent, these crash details are uploaded to the Kollmorgenserver to assist in analyzing and resolving those crashes.

2.2 v4.03 Changes

2.2.1 AKD2G

Backup/Restore with AKD2G Safety drives on EtherCAT network.

- The EtherCAT Backup feature now supports backup of drive's firmware and parameters of the EtherCAT network containing both:
 - Non-safe (Functional Safety Option 1) drives with same firmware versions.
 - AKD2G Safety (Functional Safety Option 2 and/or Functional Safety Option 3).
 - See [EtherCAT Devices Backup](#).
- The EtherCAT restore feature restores the data and firmware for any replaced AKD or AKD2G Functional Safety Option 1 drives.
 - For AKD2G Functional Safety Option 2 and 3 drives, only drive's data is restored.
 - See [Restore tab](#).

2.2.2 KAS-IDE

Multiple selection of EtherCAT devices in the KAS-IDE project tree to delete them all at once.

- The KAS-IDE now allows users to select and delete multiple EtherCAT devices in the project tree simultaneously.
- This enhancement improves efficiency in managing and removing large number of unused devices from KAS projects, especially when the EtherCAT network is modified.
- See [Delete EtherCAT Devices or Modules](#).

2.2.3 Oscilloscope Enhancements

Import/Export Channels Configuration.

The Oscilloscope now allows exporting scope channel configurations to a file and import them into another KAS project.

- A channel configuration includes variable name, trace color, trace visibility in the graph, auto-scale mode, channel amplitude and zero offset settings.
- See the [Oscilloscope Control Panel - Import / Export Scope Channel Configuration buttons](#).
- For details, see [Oscilloscope Control Panel - Import/ Export Scope Channels Configuration buttons](#).

Save/Load Channel Groups have improved functionality in the Oscilloscope.

- The KAS Oscilloscope now saves the channel's selections and load these settings later.
- The channel selections are now organized into channel groups.
 - By organizing the channels in groups, users can toggle between different sets of channels.
- There are four channel groups available for users to customizing their channel selections.
- See [Oscilloscope Control Panel](#).

Improved the functionality of the [Oscilloscope Control Panel](#).

- Previously, the user configured channels information was lost when plugging in the trace times, forcing the user to re-enter their channel configurations manually.
- Now, user-configured channels are automatically restored when toggling the Plug Trace Times Channels button.

2.2.4 PLCopen Motion

- PLCopen motion with S-Curve profile now supports different acceleration and deceleration input parameters.
- See [PLCopen Motion](#) for a list of function blocks.

3 What's Fixed in KAS v4.03 R1

These issues have been fixed for this release.

3.1 v4.03 R1 Fixed

Defect	Description
BZ-11306	<p>The axis moved past the rollover position using the coordinated motion engine and causes large velocities in slave axes.</p> <ul style="list-style-type: none"> • Issue: When a PLCOpen axis with rollover is used as a master axis, moving it past its rollover point with coordinated motion function blocks causes slave axes to experience higher than expected velocities. • Resolution: The coordinated motion engine now correctly handles rollover.

3.2 v4.03 Fixed

Defect	Description
BZ-11305	<p>Launching the KAS-IDE takes several minutes on some Windows® machines.</p> <ul style="list-style-type: none"> • Issue: On a small number of windows machines, launching the KAS IDE can take several minutes. <ul style="list-style-type: none"> • Starting the KAS Simulator from within the KAS-IDE also experiences delays. • This problem is linked to the Windows API used by the KAS-IDE to retrieve other instances of the KAS-IDE and KAS Simulator running on the system. • The performance issues may have arisen due to changes in the Windows OS security regarding communications with the Windows processes that are not owned by the logged-in user. • Resolution: The KAS-IDE has been updated to use more resilient Windows functions and to only consider windows processes owned by the same user as the KAS-IDE instance. The KAS-IDE and KAS Simulator startup times have returned to normal on affected machines.
BZ-11301	<p>KAS PDO Limitation of 32 vs 20 Bytes for AKD devices.</p> <ul style="list-style-type: none"> • Issue: The KAS project fails to compile when Rx PDO bytes exceed 20 for AKD devices with firmware version v1.23 are present. <ul style="list-style-type: none"> • The compile error should only occur if RX PDO bytes exceed 32 for firmware versions v1.17 or newer. • For AKD devices, the KAS-IDE compiler restricts the total byte count for the content of all editable Rx PDOs based on the AKD firmware version. • See PDO Restrictions and Compiler Errors. • Resolution: The KAS-IDE compiler now correctly checks the firmware version of the AKD devices in the project and applies the appropriate PDO restrictions.

Defect	Description
BZ-11299	<p>The limit switch used with AKD2G causes position jumps on the axis to re-enable.</p> <ul style="list-style-type: none"> • Issue: When using limit switches on the AKD2G, KAS disables the axis upon activation of the limit switch. <ul style="list-style-type: none"> • If the axis is moving at high-speed when this occurs, clearing the error and re-enabling the axis can cause position jumps, leading to erratic motion or a following error fault. • Resolution: In both the Pipe Network and PLCopen, for axes mapped to either an AKD or AKD2G drive, KAS now tracks the actual feedback position of the axis when the internal limit active (bit #11) is set in the CANopen status word. <ul style="list-style-type: none"> • This ensures that the position demand value from the KAS matches the drive's actual position, preventing position jumps after clearing the internal limit active fault and reenabling the axis. <p>Notes The controller's response to drive status bit #11 is configurable (specifically for third-party drives).</p> <p>Pipe Network</p> <ul style="list-style-type: none"> • In these function blocks: <ul style="list-style-type: none"> • MLAxisReadBoolParam • MLAxisWriteBoolParam • Use these axis parameters: <ul style="list-style-type: none"> • ML_AXIS_PARAM_IGNORE_DRIVE_LIM_STATUS • ML_AXIS_PARAM_DRIVE_OVERRIDE_ON_LIMIT_ACTIVE <p>PLCopen</p> <ul style="list-style-type: none"> • In these function blocks: <ul style="list-style-type: none"> • MC_ReadBoolPar • MC_WriteBoolPar • Use these axis parameters: <ul style="list-style-type: none"> • MC_AXIS_PARAM_IGNORE_DRIVE_LIM_STATUS • MC_AXIS_PARAM_DRIVE_OVERRIDE_ON_LIMIT_ACTIVE
BZ-11297	<p>PCMM2G UDP communications with auto start not working properly.</p> <ul style="list-style-type: none"> • Issue: When manually starting a KAS project on PCMM2G, the UDP send and receive functions in the KAS application are working correctly. <ul style="list-style-type: none"> • However, with the KAS project auto-start feature enabled, PCMM2G sends only one UDP packet and fails to receive messages from the client. • Resolution: The PCMM2G runtime has been updated to properly initialize UDP communications when the KAS project auto-start feature is enabled.
BZ-11296	<p>The AKD2G drive stays enabled if MC_Power enable input is momentarily set to TRUE and then turns FALSE.</p> <ul style="list-style-type: none"> • Issue: The MC_Power function block did not disable the drive if the PLC application enabled the axis momentarily and then disabled it before it was fully powered-on. • Resolution: The MC_Power state machine has been updated to abort the drive power-on sequence and immediately disable the drive when the enable input set to FALSE.
BZ-11295	<p>Digitizing Axis mapped to absolute feedback devices on AKD2G loses multiturn data on KAS startup.</p> <ul style="list-style-type: none"> • Issue: Upon application startup, digitizing axis connected to AKD2G with absolute feedback devices would retain only the single-turn position information, losing all multiturn data. • Resolution: Digitizing axes accurately report the actual position using both single-turn and multi-turn data from the absolute feedback devices.

Defect	Description
BZ-11294	<p>The KAS Oscilloscope export omits data for channels not shown on the graph.</p> <ul style="list-style-type: none"> • Issue: KAS Oscilloscope Data exported to the CSV file only included the data for the traces selected for display in the Oscilloscope Graph Area. • Resolution: The exported file includes data for all the traces present in the Channels List even when they are not shown on the graph. • See Export the Oscilloscope Data.
BZ-11278	<p>Updated the MCFB_StepBlock UDFB for axis actual velocity comparison.</p> <ul style="list-style-type: none"> • Issue: The MCFB_StepBlock UDFB did not use the absolute value of the axis actual velocity when checking if it is below 5% of the demanded velocity. • Resolution: The MCFB_StepBlock UDFB now uses the absolute value of the axis actual velocity when comparing it with the demanded velocity. <ul style="list-style-type: none"> • This change aligns with the existing approach used for comparing torque value against the torque limit.
BZ-11270	The KAS-IDE now supports download the MechaWare® model firmware files to the AKD2G.
BZ-11246	Default digitizing axis settings with AKD2G drive cause CoE init errors.
BZ-10479	<p>The 3-Axes Linear/Circular Coordinated Motion template gets an error when homing the axes.</p> <ul style="list-style-type: none"> • Issue: The 3 Axes Linear/Circular, Raster Scan Motion Path, 2 PLCopen + 1 Pipe Network axis template app encountered an error when homing the axes because of simultaneous moves executed by both the PLCopen (using MC_MoveAbsolute) and Coordinated motion (using MC_MoveDirAbs) engines. • Resolution: The concurrent calls to MC_MoveAbsolute with MC_MoveDirAbs have been removed, resolving error 75 (Cannot simultaneously perform motion from different motion engines) when homing the axes.
BZ-9802	<p>User option to control compiler output tab display on project compile.</p> <ul style="list-style-type: none"> • Issue: By default, the KAS-IDE automatically displays the Compiler Output tab each time a KAS project is compiled. • Resolution: This behavior can now be customized from User Options dialog. • See the Compiler Output Window Settings section in the Tools menu.
BZ-8644	<p>The PLCopen S-Curve move may not reach the target with small Jerk.</p> <ul style="list-style-type: none"> • Issue: The PLCopen S-Curve move could get stuck in the moving state without any actual motion when commanded with a small jerk value. • Resolution: The PLCopen engine now overrides very small user-supplied jerk values with a minimum jerk value to ensure the move completes.
BZ-6452	<ul style="list-style-type: none"> • Issue: Reset Compilation Failed message in the KAS-IDE status bar at start of project compilation. • Resolution: The KAS project compile status in the KAS-IDE status bar now resets at the beginning of the compilation process. This change prevents users from misinterpreting the project compilation status when a previous attempt has failed.

4 What's New in KAS v4.03 R1

4.1 v4.03 R1 New Features

There were no new features for v4.03 R1.

4.2 v4.03 New Features

These new features have been implemented for this release.

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4.2.1 PCMM2G

- PCMM2G now supports secure communication protocol (HTTPS) to its web server.
 - The secure link ensures that all the data transmitted over the network, including user sensitive information such as KAS Web server and Shared Directory login passwords, are encrypted.
 - PCMM2G supports generating a self-signed SSL certificate. SSL certificates help build trust with customers by showing the PCMM2G Web server is secure and protects their sensitive information transmitted over the network.
 - The PCMM2G Web server displays SSL certificate details, including their status and expiration date. To ensure secure and trusted communications with the PCMM2G using HTTPS, users must create a new certificate before the current one expires.
 - See [Security tab](#).
- Disable Remote Access via SSH by default.
 - To enhance the security of the PCMM2G, SSH access is now disabled by default.
 - This measure reduces the attack surfaces, making it more difficult for unauthorized users to gain access.
 - Users can enable SSH access, when necessary, via the PCMM2G Web server and disable it again when it is no longer required.
 - See [Security tab - Enable SSH Connections](#).

4.2.2 AKD Firmware v1-24-00-001

- The KAS-IDE and KAS Runtime have been tested with Production Release v1-24-00-001.
- The ESI files have been updated in the installation package.

4.2.3 AKD2G Firmware

- The KAS-IDE and KAS Runtime have been tested with Production Release v2-14-00-000.
- The ESI files have been updated in the installation package.

4.2.4 KAS-IDE

Digital Signatures for the KAS-IDE Installer and the executables.

- The KAS-IDE installer and executable files are digitally signed to protect the integrity of the files and verify the distributor of the software.
 - These digital signatures appear as part of the file properties.
- Additionally, the KAS-IDE installation wizard now confirms the software is from a verified publisher.
- See [Install KAS-IDE](#).

4.2.5 KAS-IDE-WB (WorkBench)

- The KAS-IDE's embedded WorkBench has been updated to v2.17.0.10849.
 - See the [WorkBench Release Notes](#).

4.2.6 New PLC Functions

- Changed: PROFINET GSDML version has been updated to v2.44.
- Fixed: The FFLD compile error when using constant expression with negative REAL defect has been fixed.

These functions blocks have been added:

- [eipRestartCnx](#) - The EIP I/O connection is restarted when this function is called.
- [DTMake](#) - Builds the date and time stamps according to DT conventions.

5 Known Issues

These are the known issues for this release.

Defect	Description
BZ-11298	Un-mapping the last variable in the oscilloscope does not get saved to memory.
BZ-11271	KAS-IDE crashes when adding 2nd CoE Init-Command.
BZ-11267	KAS-IDE O-Scope window update rate slows down with 7 (or more) traces.
BZ-11265	Intermittent PCMM shared directory connection failure at power-on w/ static IP.
BZ-11258	KAS-IDE Program Cycle view drag-n-drop stops working after moving multiple programs.
BZ-11257	ST Editor no longer auto-fills function block data type.
BZ-11252	Deleting variables with KVB option causes [[MODBUS-S]:(...)] Unknown Symbol compile errors.
BZ-11247	KAS-IDE crash reports are sometimes sent with zero file size crash dump and no user information.
BZ-11241	O-Scope PLCProgExecTime trace displays incorrect value with multi-core controllers if PLC execution time is close to EtherCAT cycle time.
BZ-11169	Multiple MC_MoveLin/Circ calls with velocity blending and short path distance may exceed specified deceleration rate.
BZ-11143	KAS-IDE has long delay when mapping variables to Safety PDOs.
BZ-11139	KAS-IDE PLCopen digitizing axis w/ multi-turn has incorrect user units.
BZ-10458	PLC Variable Creation Wizard don't show the mapping.
BZ-10451	Cannot start application with direct Ethernet connection.
BZ-10419	Drag-n-drop variable from UDFB instance to watch window does not display the value.
BZ-10275	PxMM controller bus time not synchronized with DC master time.
BZ-9928	ESI file list not updated when good and bad ESI files added at the same time.
BZ-9835	Non-ASCII characters in projects not handled properly in the KAS-IDE.
BZ-9834	Import/export from/to non-ASCII file names does not work correctly.
BZ-9359	PDO objects not defined in the object dictionary (or 24-bit size) do not work properly with MLSmpXxxxx(...) functions.
BZ-8659	PLCopen move blending with jerk. If the blending move is commanded with an unreachable velocity, the move may abruptly decelerate to the final position within one sample, exceeding the specified deceleration rate.
BZ-8645	Adding ESI file after scanning results in no selected PDOs.
BZ-8643	EtherCAT scan fails after a AKD drive firmware download failure with a wrong EtherCAT topology.
BZ-8636	Recovered projects don't recover imported libraries (.KAL files).
BZ-8608	KAS-IDE views do not scale if Windows text scaling is > 100%.
BZ-8605	MLInitTrig does not configure the AKD Capture engine correctly for a negative edge trigger.
BZ-8588	EtherCAT network restore fails to recover from drive firmware download failure.
BZ-8508	PDOs need padding to meet byte boundary requirement. <ul style="list-style-type: none"> The KAS-IDE PDO Editor does not automatically pad PDOs on non-byte boundaries. <ul style="list-style-type: none"> The problem can be avoided by manually adding dummy objects to pad the PDO size to line-up on byte boundaries. See this article on KDN: How do I Insert PDO Padding in the KAS PDO Editor? for more information.
BZ-8212	Modified cam file is not downloaded when forcing an Online Change.

Defect	Description
BZ-7985	KAS-IDE disconnects from the controller after several days.
BZ-7728	KAS-IDE animation with non-matching project versions.
BZ-6240	KAS-IDE always reports the project has been modified.

6 Known Limitations

- KAS-IDE drive status bar cannot detect if AKD2G is active or inactive in pre-op mode.
- RGM is not supported.
- The undo action is not possible for all operations.
- Find/Search/Replace function:
 - Search and Replace function is not supported in Pipe Network.
 - Search and Replace for HMI are supported only with local <CTRL+F>.
- In SFC programs, breakpoints can only be set on transitions (i.e., in First Level diagram) and not in steps or conditions.
 - With a breakpoint set on transition, you can debug cycle by cycle.
- SFC programs are limited to 64k byte size due to the bytecode engine.
 - If the SFC program exceeds 64k bytes, the compiler generates a warning message: **Warning: limit is 64KB!**
- Plugging the EtherCAT cable to the OUT port is not detected and is not reported as an error.
- PLC Variable mapping:
 - Each PLC variable can be mapped to an EtherCAT IO and exclusively to either:
 - External driver.
 - Modbus for an HMI.
 - PDMM Onboard IO.
 - Example: A PLC variable cannot be mapped to Modbus and Onboard PDMM IO at the same time.

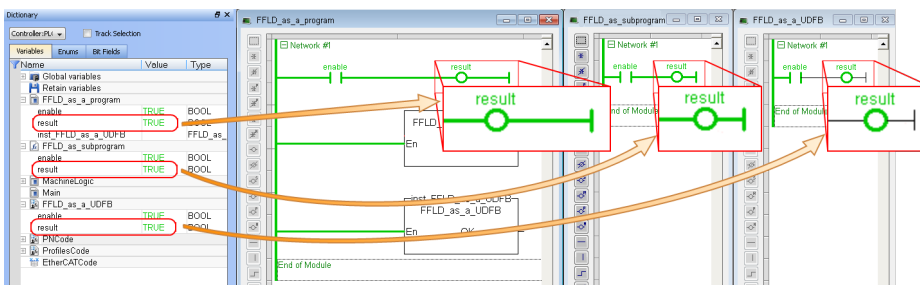
6.1 EtherCAT Limitations

- **Cabling:** Plugging the EtherCAT cable to the OUT port is not detected and is not reported as an error.
- **External EtherCAT Configuration:** If an external EtherCAT XML file needs to be used, the file AKD-for-KAS.xml should be used as the ESI file for AKD.
 - This ensures proper operation with KAS.
 - The file is located here:


```
C:\Users\\AppData\Local\Kollmorgen\KAS\Astrolabe\ESI\.
```

6.2 FFLD Animation Limitation

- The FFLD animation for UDFBs has a limitation, where the ladder rung is not fully animated.
 - Example: In a program and sub-program, the rung is fully animated, where in the UDFB it is not fully animated.



6.3 PCMM2G Limitations

The PCMM2G with EtherCAT configured for a 4kHz (250usec) Cycle Time may experience cycle jitter or a missed receive frame (A38) in +24hrs of operation with:

- 16 (or more) Axes.
- Large memory usage from PLC variables.

Detect Excessive Cycle Jitter

- Use the IDE Oscilloscope to monitor the TraceTimes **CycleJitter** channel.
- Check the controller logs for an EtherCAT Warning message with **Cycle jitter:[xx]us....**

Reduce Cycle Jitter

- Reduce the PLC memory size by:
 - Delete unused programs, functions, and UDFBs.
 - Delete unused variables.
 - See the [Find and Replace tab - Find Unused Variables \(#3\)](#).
 - Size arrays appropriately to meet to their actual maximum usage.

7 Installation

Use this information for KAS installation:

- "System Requirements" (→ p. 18)
- "Firmware and Software Requirements" (→ p. 19)
- "Computer Software" (→ p. 19)
- "Firmware Requirements" (→ p. 19)
- "Mandatory Resident Firmware for AKD" (→ p. 20)
- "Kollmorgen Visualization Builder (KVB)" (→ p. 21)
- "BBH Safety Software" (→ p. 22)
- "KAS Controls" (→ p. 22)
- "Allow Simulator to Use HTTP Communication" (→ p. 23)

7.1 System Requirements

These are the minimum system requirements for the KAS-IDE.

Element	Description
Connectivity	<ul style="list-style-type: none"> • 1 Ethernet port, at either 100MB or 1GB. • See Note #2.
Display	<ul style="list-style-type: none"> • WXGA+ (1440 x 900) or higher-resolution monitor with 24-bit, 16.7M colors. • See Note #1.
Memory	1GB RAM (for 32-bit) or 2GB RAM (for 64-bit) or greater (recommended for complex applications).
.NET Framework	4.8.1
Processor Type	Intel® Pentium® M or equivalent processor at 1.5GHz or greater.
Storage	16GB (for 32-bit) or 20GB (for 64-bit) of free space on hard disk.
Supported Operating Systems	<ul style="list-style-type: none"> • Microsoft® Windows® 10 (32-bit or 64-bit). • Microsoft® Windows® 11 (64-bit). • For optimal performance, verify the operating system is fully updated with the latest patches.
Web Browser	<ul style="list-style-type: none"> • A modern web browser is required to access the web server and online help. • We recommend Microsoft Edge.

NOTE

1. Better results are achieved with OpenGL and 3D cards.
2. A 100MB network is required to allow the KAS-IDE to Runtime communication to work in all conditions. The AKD WorkBench AutoTuner and Scope both require 100MB of bandwidth to function properly.

TIP

See [Connect Remotely](#) about the ports used by the KAS-IDE.
The ports may need to be opened to support connecting from an external network.

7.2 Firmware and Software Requirements

KAS is comprised of several software components integrated together to provide a complete motion system.

We recommend these component software versions for best performance and compatibility.

7.2.1 Computer Software

Software Images	Recommended Version
KAS-IDE	4.03 R1.0

7.2.2 Firmware Requirements

- "Controller Firmware" (→ p. 19)
- "Drive Firmware" (→ p. 20)
- "Firmware Compatibility" (→ p. 20)
 - "F106 Error" (→ p. 20)
 - "FBUS.PARAM05 Bit 5" (→ p. 20)

7.2.2.1 Controller Firmware

This is the controller firmware to use with this KAS release.

Description	Type	Name
PCMM2G 1.5GHz Quad-Core	KAS Runtime	KAS Runtime for PCMM2G (KAS-PCMM2G-Cx-08)
PCMM 800MHz	KAS Runtime	KAS Runtime Firmware for AKC-PCMM (KAS-PCMM-M-MCEC)
AKD PDMM 800MHz	KAS Runtime	KAS Runtime Firmware for AKD-PDMM (KAS-PDMM-M-MCEC, KAS-PDMM-M-KCEC)
PCMM 1.2GHz	KAS Runtime	KAS Runtime Firmware for AKC-PCMM (KAS-PCMM-M-M1EC)
PCMM 1.2GHz Dual-Core	KAS Runtime	KAS Runtime Firmware for AKC-PCMM (KAS-PCMM-M-M2EC)
AKD PDMM 1.2GHz	KAS Runtime	KAS Runtime Firmware for AKD-PDMM (KAS-PDMM-M-M1EC, KAS-PDMM-M-K1EC)

- Supported drives include:
 - AKD-M (AKD PDMM Drive)
 - AKD2G, AKD-P (Motion Tasking Drive or Position Indexer)
 - AKD-C/-N
 - MKD-C
- The recommended firmware version is dependent on the drive's model and revision.
- Controller firmware is available at [KDN](#).

7.2.2.2 Drive Firmware

NOTE

AKD and AKD2G firmware is available at [KDN](#).

This is the drive firmware to use with this KAS release.

Description	Type	Name
Firmware for drive built into AKD PDMM	AKD PDMM 800MHz	AKD PDMM Servo Drive Firmware <ul style="list-style-type: none"> AKD-M-KCEC-01-24-00-001.i00 AKD-M-MCEC-01-24-00-001.i00
Firmware for drive built into AKD PDMM	AKD PDMM 1.2GHz	AKD PDMM Servo Drive Firmware <ul style="list-style-type: none"> AKD-M-K1EC-01-24-00-001.i00 AKD-M-M1EC-01-24-00-001.i00
AKD Drive Firmware	AKD-N	AKD-N-xxEC-V01-24-00-001.i00
AKD Drive Firmware	AKD-P	AKD-P-NBxC-01-24-00-001.i00
AKD Drive Firmware	Resident	R_00-00-71-000.i00
AKD2G Drive Firmware	Non-Safety (FS1)	AKD2G-S-(E)-A-02-12-00-001.i00
AKD2G Drive Firmware	Safety Certified (FS2 and FS3)	AKD2G-S-A-02-05-03-002.i00

7.2.2.3 Firmware Compatibility

7.2.2.3.1 F106 Error

An F106 error may appear after upgrading the AKD firmware.

- This indicates that non-volatile parameters are not compatible between the two firmware versions.
- Resetting the drive to the default memory values using Parameter Load will fix this error.

7.2.2.3.2 FBUS.PARAM05 Bit 5

FBUS.PARAM05 bit 5 should be set to 0 (zero); this is the default value.


- This prevents an error [E33](#) and EtherCAT not starting.
- If it is not set to the 0 (zero), the rotary switch of the drive is used to set the EtherCAT Station Alias.
 - This can conflict with the address that KAS is writing.

7.2.3 Mandatory Resident Firmware for AKD

- The recommended resident firmware for all AKD family drives is v71.
- To reliably support the EtherCAT firmware download, resident firmware must be at least v35.
 - Contact Kollmorgen for any AKD Drive with resident firmware lower than v35. See Support and Services (→ p. 26).

7.2.4 Kollmorgen Visualization Builder (KVB)

7.2.4.1 Software Images

Software Images	Recommended Version	Download
KVB	2.40 [2.43.17.0]	

7.2.4.2 Installers

The installation package contains both the IDE and runtime for TxC panels.

The KVB .ZIP file contains two different installers:

Install Type	File	Notes
New installation	setup.exe	This is the complete package which will install all prerequisite components.
Runtime	RuntimeSetup.exe	This package contains runtime software for TxC panels.

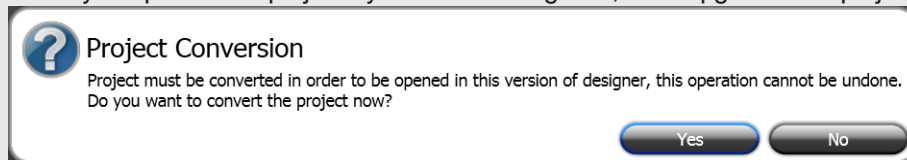
7.2.4.3 Hardware / Software

Hardware / Software	Versions
Operating Systems	Windows® 10, Windows 11
Controllers	AKD PDMM, PCMM, and PCMM2G
HMI	All Kollmorgen AKI panels

NOTE

The KAS-IDE creates projects using KVB 2.0.

When you open a v2.0 project by double-clicking on it, KVB upgrades the project to v2.40 [2.43.17.0].



ⓘ IMPORTANT

KVB 1.2 projects are not compatible with KVB 2.x.

An attempt to open a v1.2 project with v2.x results in an alert message.

If accessing v1.2 projects is important, we recommend keeping both versions installed on your system.

New panels automatically use KVB 2.0.

🔑 TIP

Contact Kollmorgen if you have a KVB 1.2 project that needs to be updated in KVB 2.x.

See "Support and Services" (→ p. 26).

7.2.5 BBH Safety Software

These BBH Safety software and firmware minimum versions are required to operate with these products and KAS-IDE software:

- AKD PDMM
- AKD2G
- AKT2G-IO-SDI-04-000
- AKT2G-IO-SDO-04-000
- PCMM
- PCMM2G

[Contact BBH](#) for the latest software and firmware release information and details.

Description	Type	Minimum Version
SCU-1-EC FSoE Master firmware	Firmware	03.00.00.62
SafePLC2 safety programming software	Software	1.7.1.8219

7.3 KAS Controls

KAS Runtime is verified compatible with these hardware models:

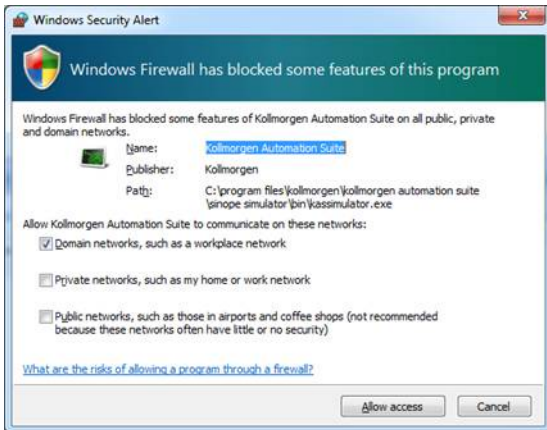
Controller	Description	Model Number	Main Characteristics
PCMM2G	1.5GHz Quad-core	PCMM2G-C2-08-000-00-000	2 nd Generation High Performance Multi-Axis Controller
PCMM	1.2GHz Dual-core	AKC-PCM-M2-120-00N-00-000	High Performance Multi-Axis Controller
PCMM	1.2GHz Single-core	AKC-PCM-M1-120-00N-00-000	High Performance Multi-Axis Controller
PCMM	800MHz Single-core	AKC-PCM-MC-080-00N-00-000	Standard Multi-Axis Controller
AKD PDMM	1.2GHz	AKD-M0xxxx-M1EC-0000 AKD-M0xxxx-K1EC-0000	High Performance Drive Resident Controller
AKD PDMM	800MHz	AKD-M0xxxx-MCEC-0000 AKD-M0xxxx-KCEC-0000	Standard Drive Resident Controller

7.4 Allow Simulator to Use HTTP Communication

The Simulator needs to open HTTP ports to allow communication.

The first time Simulator is run, Windows prompts you to block or unblock the KAS application.

Allow access to all of these requests to ensure correct behavior.



The Simulator uses Port 80 for the web server.

Simulator automatically assigns an available free port to the webserver to listen to the incoming HTTP requests if another service is using Port 80.

See [Start the KAS Simulator](#) for more information.

8 AKD Firmware Notes

- The AKD Firmware v1-16 (and later) supports a new drive parameter, ECAT.LEGACYREV, to enable a backwards compatibility RevisionNo (0x2).
By default, AKD-Series drives ships with the latest production release firmware, with ECAT.LEGACYREV = 1, for backwards compatibility.
- The AKD Firmware v1-16 (and later) supports a 3rd FMMU if the ECAT.LEGACYREV = 0.
The advantage of using a 3rd FMMU is 30% performance improvement with the KAS-IDE embedded Workbench communication.
- EtherCAT RevisionNo: EtherCAT provides an optional field to identify a vendor specific RevisionNo for a device and a field to specify the logic to CheckRevisionNo for device compatibility.
 - The KAS-IDE and Runtime supports multiple RevisionNos for the same Vendor/ProductID.
 - In previous KAS versions, the EtherCAT initialization would generate a device mismatch error, if the device's RevisionNo and the project's RevisionNo did not match.
 - If the device's ESI file does not specify the CheckRevisionNo logic then, by default, the KAS Runtime allows any RevisionNo at EtherCAT initialization.
 - The IDE allows you to map physical devices to project devices with different RevisionNos and keep the project device configurations.
- Limitation: The CheckRevisionNo options **equal or greater than** (EQ_OR_G, LW_EQ_HW_EQ_OR_G, and HW_EQ_LW_EQ_OR_G) are not supported.
They are evaluated as **equal** (EQ).

9 Third Party EtherCAT Device Support

This section summarizes the known capabilities and limitations with KAS support for third-party EtherCAT devices.

See:

- [Add and Configure Third Party Devices](#) in the online help for directions on integration.
- [Set Up FSoE Master and an AKD2G with SafeMotion Monitor](#) if integrating a different third-party FSoE master into a KAS system.

9.1 Requirements

- All third-party devices must have an ESI file containing the device information, features, and settings.
- MDP devices must support automatic module discovery at EtherCAT network scan.

9.2 Limitations

- The KAS-IDE does not support third-party drives.
 - Contact your local Kollmorgen representative for details.
- MDP fieldbus gateway devices that require MDP gateway profiles, implemented to the ETG 5001.3 specification, may not be discovered.
 - This includes gateway protocols: CAN, CANopen, DeviceNet, Interbus, and IO Link.
- PDO upload is not supported.
- Manual slot configuration is not supported with MDP devices.
- 3rd-party drivers for network gateway devices are not included.

Support and Services

About Kollmorgen

When you need motion and automation systems for your most demanding applications and environments, count on Kollmorgen - the innovation leader for more than 100 years. We deliver the industry's highest-performing, most reliable motors, drives, AGV control solutions and automation platforms, with over a million standard and easily modifiable products to meet virtually any motion challenge. We offer manufacturing facilities, distributors and engineering expertise in all major regions around the world, so you can bring a better machine to market faster and keep it profitable for many years to come.

Kollmorgen Developer Network

See the [Kollmorgen Support Network](#) for product support.
Search the knowledge base for answers and get product downloads.



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