

Kollmorgen Automation Suite

30 Minutes to Motion



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Keep all manuals as a product component during the life span of the product.
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2 Key Features

Kollmorgen Automation Suite is Kollmorgen an all-in-one solution for designing, developing and maintaining automation systems. It integrates the three main functionalities of a machine:

- Interface with machine operators (HMI)
- Logic handling of the machine (IEC 61131-3 Soft PLC)
- Precise control of all moving parts (Motion control)

2.1 KAS IDE

KAS comes with a powerful Integrated Development Environment (IDE) which allows you to:

- Create new application project using KAS predefined or custom application **templates**
- Define the machine hardware architecture as well as the machine program
- Develop PLC programs using the five **IEC 61131-3** programming languages (ST, IL, FFLD, FBD and SFC) and KAS function block libraries dedicated to motion
- Centrally manage all IEC 61131-3 variables with KAS **variable dictionary** and map logical variables to physical **inputs and outputs**
- Easily set up **HMI panels** and map graphical object to IEC 61131-3 variables

2.2 Main Tools

Tool	Description
Pipe Network Editor	Graphical tool describing the mechanical System into the logical world based on an one to one translation
Cam profile Editor	Allows you to create or modify a profile definition that describes the position evolution of the cam in a 2D graphical format
Softscope	Allows to view in a two-dimensional graph one or more variables' evolution (vertical axis) across the time (horizontal axis)
Simulator	Allows you to develop your application without any hardware available

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3 Installing KAS IDE

3.1 System Requirements

KAS IDE minimum system requirements:

Element	Description
Operating System	Microsoft® Windows® 7 SP1 (32 or 64-bit). For optimal performance, please be sure your operating system is fully updated with the latest patches.
Processor type	Intel® Pentium® M or equivalent processor at 1.5 GHz or greater.
Memory	1 GB RAM or greater (which is recommended for complex applications)
Storage	1 GB hard drive or compact flash space
Display	WXGA+ (1440 x 900) or higher-resolution monitor with 24-bit color. See Note #1 below.
Connectivity	1 Ethernet port, at either 100Mbps/s or 1Gbits/s. See Note #2 below.
WebServer	A modern web browser is required to access the web server. We recommend Internet Explorer 9 (or later)  , Mozilla FireFox  , or Google Chrome  .

NOTE

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

⚠ IMPORTANT

KAS IDE and KAS Simulator should not be installed on a Kollmorgen Industrial PC (PAC). The IDE and Simulator are for use on PCs only.

3.2 Download

The latest version of the Kollmorgen Automation Suite is available at www.kollmorgen.com.

3.3 Installation Procedure

[How to proceed if you have a CD?](#)

After inserting the installation CD, a web browser automatically displays the installation start page.

✎ TIP

If the installation start page does not automatically display, double-click on the file **Index.html** file.

To start the installation of Kollmorgen Automation Suite, click the corresponding link and confirm that you want to execute **KAS-Setup.exe**.

Follow the procedure below to proceed with the KAS IDE software installation.

⚠ IMPORTANT

Installation of the KAS IDE can require you to change your firewall setting. If you do not have sufficient privileges to configure your firewall, you must stop the relevant Windows Service.

Once KAS has finished downloading, complete the following installation steps:

1. Double-click the **KAS-Setup.exe** file to run the installation Wizard.

NOTE
A Security Warning dialog displays as a result of security certification. Do not be alarmed.

2. Click **Run** to start the installation Wizard.
3. While the setup is loading, wait for the setup splash screen to vanish after being displayed.



4. If a previous version of the KAS IDE is installed then an uninstall notice is displayed. The previous version must be uninstalled before the installation can continue. All content of the previous repository is deleted during the uninstall.
5. The following Welcome Wizard displays with the version and build number of the KAS IDE. Click **Next** to continue.
6. Review the License Agreement and click "I Agree" to continue the installation.

NOTE
You must accept the agreement to install Kollmorgen Automation Suite.

7. Select the **Development Environment** installation type from the drop-down menu.

Installation type	Description
Development Environment	This kind of installation is typically used for creating and developing a new application. When you need to install the KAS IDE and the KAS Runtime Simulator, you can select Development Environment as the type of installation.
Run-time Industrial PC	This installation is typically used when you have an industrial PC (IPC). You are able to view and run your application. You need to install Kollmorgen Visualization Builder and the KAS Runtime. Kollmorgen Visualization Builder is specially designed to view and control your application. The KAS Runtime only executes the application.
Custom	You can manually select the specific KAS components to install.

8. Click **Next** to access the destination folder.
9. Click **Browse** to specify a custom install directory or accept the recommended default location. When finished, click **Install** to continue.

TIP
Kollmorgen strongly recommends accepting the default destination folder under C:\Program Files\Kollmorgen\Kollmorgen Automation Suite\Kollmorgen Automation Suite.

10. The software installation begins. Wait until the installation process is complete.
11. You are done; click **Finish**.

TIP
Adding the **KAS IDE** application as an exception in your firewall settings is recommended to avoid security issues

3.3.1 User Data

User-generated data such as log files, project sources, field bus configurations, function blocks, etc. are stored in the Windows User directory and are maintained between installations. This applies to files on PACs, AKD PDMs, as well as Simulator files.

4 Exploring KAS Workspace

This chapter will help you become familiar with the KAS IDE.

4.1 Windows and Panels Overview

4.1.1 Main Window

The KAS IDE interface provides an all-in-one-window integrated workspace.

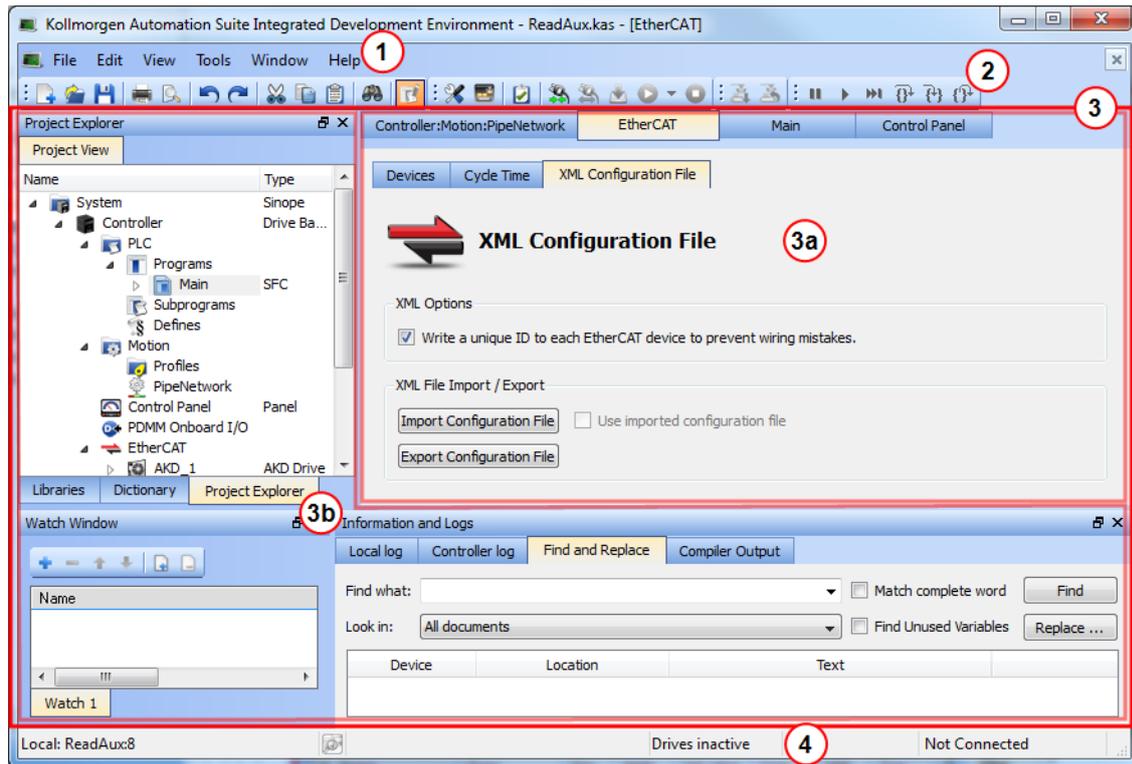


Figure 3-1: KAS IDE Main Window

The main view in the Integrated Development Environment (IDE) is a Multiple Document Interface (MDI) environment. This provides an easy-to-use and customizable view; including the capability to hide, enlarge or overlap windows in order to optimize visibility.

The main view is saved when you exit the application. This ensures that your workspace remains the same each time you open and use the KAS IDE.

The KAS IDE main window contains the following items:

- Menu bar (see call out 1)
- Toolbar 2 A toolbar is a little bar with icons which is usually located under the menu bar of a window.
- Workspace 3 which contains:
 - A specific area dedicated to displaying the workspace children windows 3a
 - Several toolboxes 3b A toolbox is a child window that provides you with some functions to per-

form specific tasks.

- Status bar at the bottom 4 displaying the current state of the target

4.1.1.1 About toolboxes

The available toolboxes include:

- Project Explorer
- "Libraries" (→ p. 10)
- Dictionary
- "Information and Logs" (→ p. 15)

TIP

You can hide/show each toolbox and toolbar directly from the contextual menus in any title bar (i.e. menu, toolbar or toolboxes).

4.1.2 Project Explorer

The Project Explorer toolbox is a window that displays machine application information in a tree-structure representation. This window contains all the following items used to design, implement, test, and document the application.

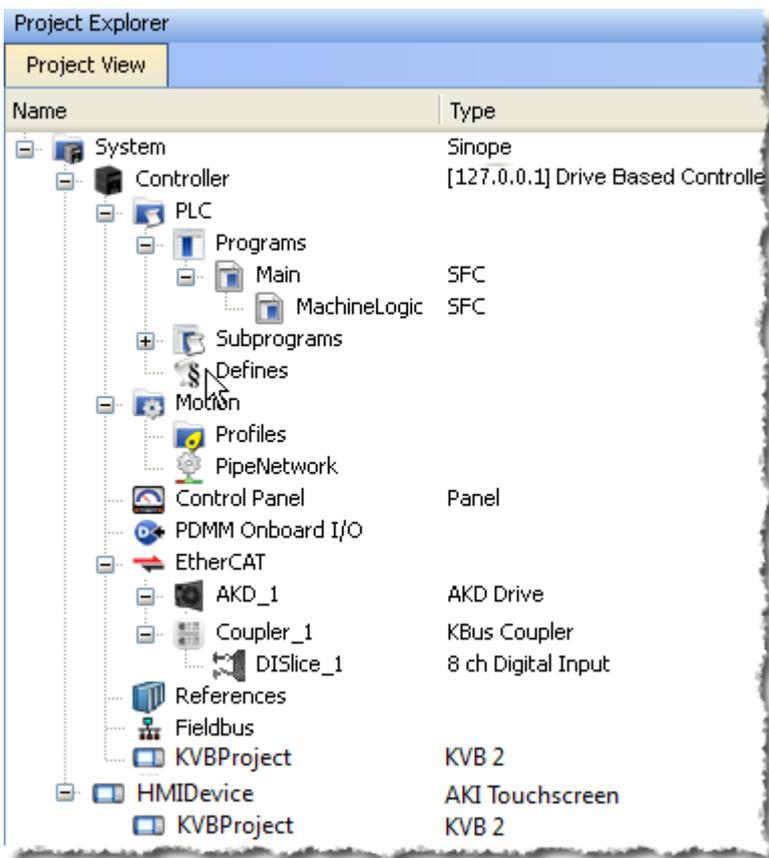


Figure 3-2: Project Explorer

4.1.3 Libraries

This toolbox contains several tabs to access all the functions of the available libraries.

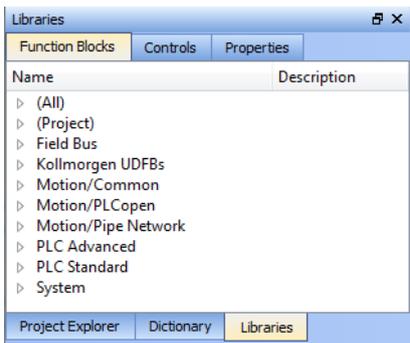


Figure 3-3: Libraries Toolbox

4.1.3.1 Function Blocks

This tab displays all the available libraries shown in a tree-structure representation and gathered by categories. You can expand a library to access all its functions. A short description of each function is also available.

The **(All)** category at the top enables you to see the full list of available functions sorted in alphabetical order. The **(Project)** node contains all the UDFB and subprograms associated to the current project.

For more details about these libraries, refer to the following libraries description:

- [\(Project\)](#)
- PLC Standard
- PLC Advanced
- Motion/Pipe Network
- Motion/PLCopen
- Field Bus
- System
- Kollmorgen UDFBs

TIP

It is possible to use the functions, UDFB or subprograms in PLC editors with a simple drag-and-drop operation.

NOTE

Dragging and dropping a Kollmorgen UDFB into the "Defines" editor has no effect. However, if the Kollmorgen UDFB is already imported to the project, then its prototype will be seen in the editor.

4.1.3.2 Controls

This tab displays all the controls available for the HMI design.

For more details, refer to the [Graphic Objects](#) description.

4.1.3.3 Properties

This tab displays all the properties of an HMI control currently selected in the HMI editor.

More information about setting the properties of an HMI widget can be found in paragraph "**Graphic Objects Properties**".

4.1.4 Variables tab

The Variables tab is used to show all the variables defined within the project. All the variable details are displayed in order to show the variable types, dimensions, attributes, etc.

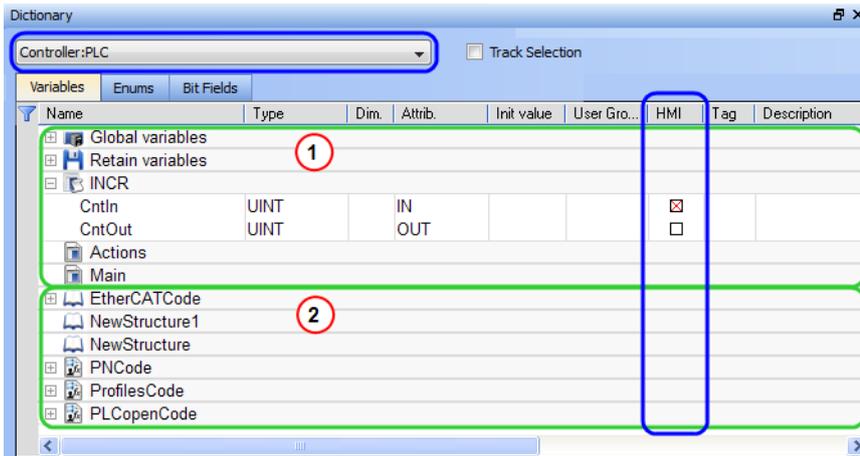


Figure 3-4: Dictionary Toolbox

The list of variables is split into two parts:

- All the Variables at the top 1
- All the Structures at the bottom 2

NOTE

For more information about the procedure to create an instance of a structure, see "Call Functions or Function Blocks"

TIP

To show all the variables of all programs, select 'PLC' in the project tree.

About the Dictionary's contextual menu.

Right-click in the Dictionary window to open the menu as follows:

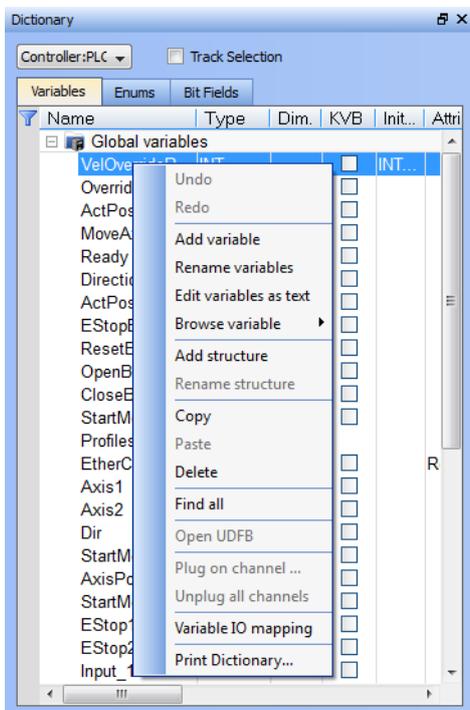


Figure 3-5: Dictionary Contextual Menu

This menu allows you to perform the following actions:

Command	Description
Undo	Undo the last action performed on the Dictionary
Redo	Redo the last undone action
Add Variable	Add a new variable in the selected level (Global, Retain , program). This automatically creates a new variable called NewVar with type BOOL For a Function or UDFB, you can specify input and output parameters (for more details, see "Define Parameters and Private Variables")
Rename variables	This function can either replace a section of matching variables or append text to the variables' names. See Rename Variables
Edit variables as text	This function will open a text editing dialog, allowing you to edit the variables found in the group as text using IEC 61131-3 syntax. See Editing Variables as Text for more information.
Browse variable	This function allows you to browse all instances of a variable. See Browse Variable Tab for more information.
Add Structure	Used to have a new complex type. A structure named NewStructure is created and variables can be dragged into it (for more details, see "Complex Structures")
Rename Structure	Rename the selected structure
Copy	Copy a variable
Paste	Paste the copied variable to the selected level
Delete	Delete the selected variable. A deletion can also be performed by pressing the Delete key on the keyboard
Find all	This function will find all instances of the specified variable and open the results in the Find and Replace tab.
Open UDFB	Open the selected UDFB instance (for more details, see "Monitoring UDFBs")
Plug On Channel ...	Plug the selected variable on a channel. This command opens a dialog used to configure the variable plug operation. This command is enabled when your application is connected and running, and if the type of variable is eligible for the softscope (i.e. BOOL, INT, SINT, DINT, LINT, UINT, USINT, UDINT, ULINT, BYTE, WORD, DWORD, LWORD, TIME and LREAL, as long as they are not in a UDFB instance).
Unplug All Channels	Unplug all plugged probes from the softscope
Variable I/O mapping	Connect a variable to an I/O. For more details about this procedure, have a look at §E.1.9

Command	Description
Print Dictionary ...	Print all the variables displayed in the Dictionary and sorted by programs. The columns display the Name, Type, Dimension, Initial Value, and Attributes

Name	Type	Dim	InitVal	R	E
(Global)					
TravelSpeed	LREAL	0	LREAL#0		
MasterAbsPos	LREAL	0	LREAL#0		
MasterDeltaPos	LREAL	0	LREAL#90		
MachineSpeed	LREAL	0	LREAL#0		
Axis1Status	DINT	0			
Axis2Status	DINT	0			
MachineState	DINT	0	0		
bMasterAbs	BOOL	0	FALSE		
bMasterRel	BOOL	0	FALSE		
bEStop	BOOL	0	FALSE		
bLedStatus	BOOL	4			
Profiles	ProfilesCode	0			
EtherCAT	EtherCATCode	0			R
PipeNetwork	PNCode	0			
(Retain)					
LastAxisPos	LREAL	0			
MachineLogic					
lastTravelSpeed	LREAL	0	LREAL#0		
lastMachineSpeed	LREAL	0	LREAL#0		
ProfilesCode					
cmdID	DINT	0			
PNCode					
cmdID	DINT	0			
MASTER	DINT	0			
GEAR1	DINT	0			
CNV1	DINT	0			
AXIS1	DINT	0			
GEAR2	DINT	0			
CNV2	DINT	0			
AXIS2	DINT	0			
PipeAXIS1	DINT	0			
PipeAXIS2	DINT	0			

What is the purpose of the Track Selection check box?

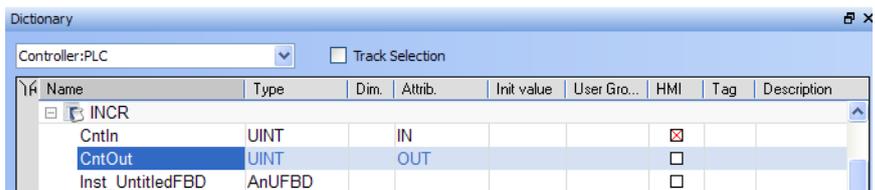
The **Track Selection** filters the displayed items in the dictionary to show only items linked to the current PLC selected program:

- **Unchecked:** All your project variables will be displayed. This is the default setting.
- **Selected:** The variables in the Dictionary are filtered to display only those that are relevant to the PLC item currently selected in the project tree. Along with the Global, retains and variables related to the selected program or UDFB, structure definitions will be displayed. The dictionary content will change accordingly if another PLC program is selected in the project tree.

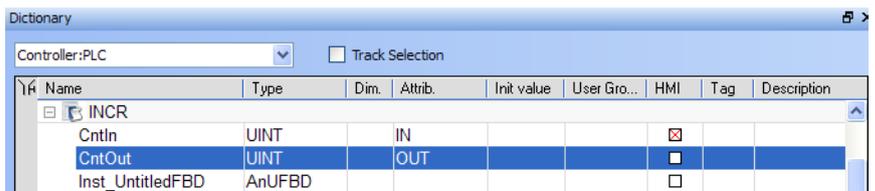
About the two editing modes for editing a variable.

There are two available modes when editing a variable in the Dictionary:

- **Cell:** only the selected cell is active



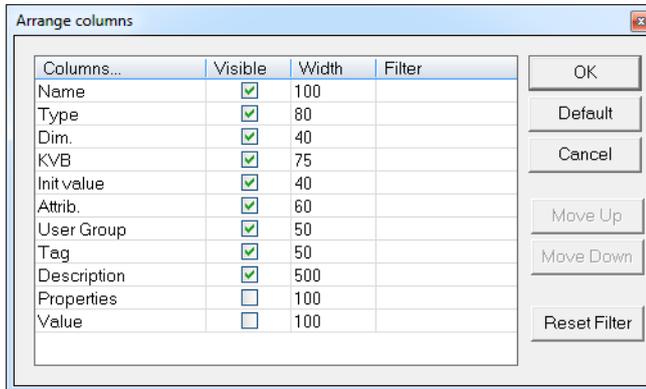
- **Row:** all the row is active



Press **Spacebar** to toggle the selection mode from cell to row (See also "Table Shortcuts").

How can variables be arranged and/or sorted?

- The columns in the Variables tab can be reordered, resized, and hidden by double clicking on the filter icon in top left corner of the table. This opens a dialog box which allows you to modify the table's appearance. These settings will persist until you change them. Please note that the Visible box for the Value field cannot be changed as the Value column is automatically shown in debug and online modes but hidden in edit mode.



- You can sort the list of variables in the table as follows:
 - Ensure you are in **cell** editing mode (press the **Spacebar** to toggle from one mode to the other)
 - Click the header of the column you want to use as the key sort order

How do I modify parameters of a variable?

(Press **Spacebar** to toggle to the relevant edition mode).

Mode	Description
One Parameter	Assuming you are in the cell edition mode, double-click on the parameter
All the parameters are at the same time	Assuming you are in the row edition mode, double-click in any parameter to open the dialog box for variable configuration as shown below. For more details on parameters, see "Variables".

NOTE

It is not possible to modify a variable when the KAS IDE is connected to the controller.

4.1.5 Information and Logs

The Information and Log window is used to identify current state status and can be used to identify operational errors, compilation errors, and also to quickly assist you in finding areas of the workspace or program variables.

This window contains different tabs that provide:

- Log messages (Local or Controller) including Log Messages Settings
- A system search function
- A list of [breakpoints](#)
- A state report on the program compiler

5 Creating Application

This exercise helps you become familiar with KAS application environment. The Control Panel is used to create a simulated motion on two axes.

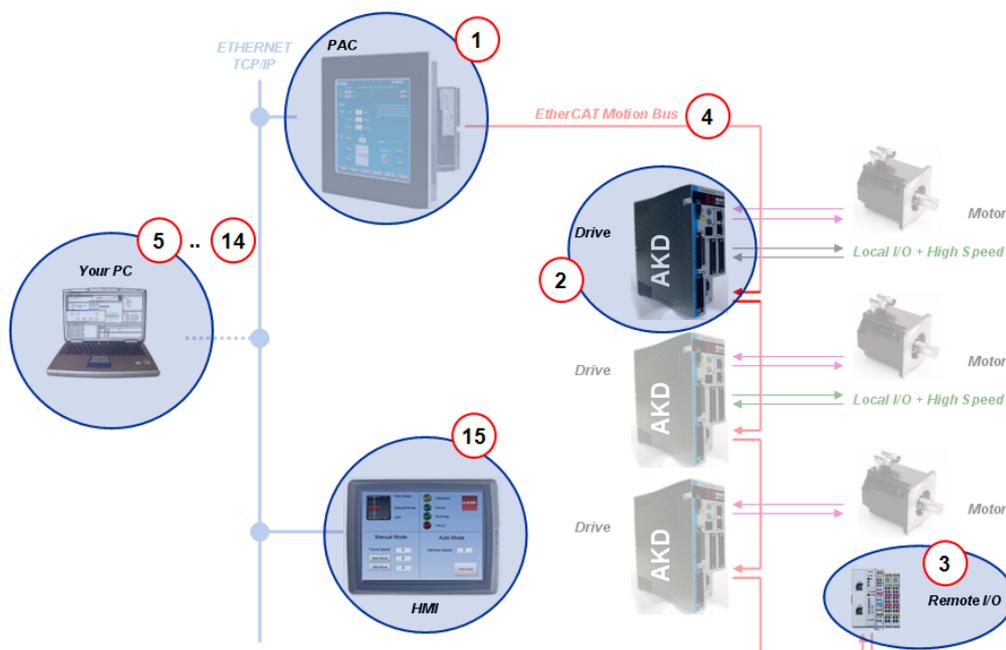
In this exercise, you will perform the following steps:

- Create a new KAS project
- Compile the project
- Start the KAS Simulator and download the project to it
- Start the application via the Control Panels and observe the functions in the KAS Simulator

To create the simulated motion, follow this chapter step by step.

5.1 Creating a Project

This chapter explains the main steps to create your project.



Step	Description
<u>1</u>	To start your project, you have to add a controller, choose which motion engine your application is based on (Pipe Network or PLCopen), and set the properties of the controller
<u>2</u>	Add all AKD drives being part of your EtherCAT network and define all their parameters
<u>3</u>	Add all the IO couplers and slices being part of your EtherCAT network
<u>4</u>	Configure EtherCAT motion bus by mapping all the devices and setting the cycle time
<u>5</u>	Create programs with the five programming languages that comply with the IEC 61131-3 standard
<u>6</u>	Create variables, which can also be arrays or complex structures, and monitor them with the Dictionary, or the variable editor
<u>7</u>	Create functions and function blocks that can be called from your programs
<u>8</u>	Use constant definitions to ease the maintenance of your code
<u>9</u>	Use the functions available in the pre-defined libraries
<u>10</u>	Create your custom libraries containing your PLC code that you can use afterwards in different projects

Step	Description
11	Map digital or analog inputs and outputs, that are on the EtherCAT motion bus, to PLC variables
12	Design motion with pipe blocks in the pipe network or with PLCopen axis
13	Create Cam Profiles that you can associate to a cam pipe block
14	Define the number of cycles between successive executions of the PLC programs, and configure the programs priority
15	Add an HMI Device, design the KVB Panel, and map the variables

! IMPORTANT

Each time you modify your project, you have to recompile and download the new version to save your modifications on the target.

5.1.1 Add the Controller

To add a controller to your project:

- Click the **New** command in the **File** menu to start the Controller Creation Wizard
- Select the controller name within the list and click the **Next** button

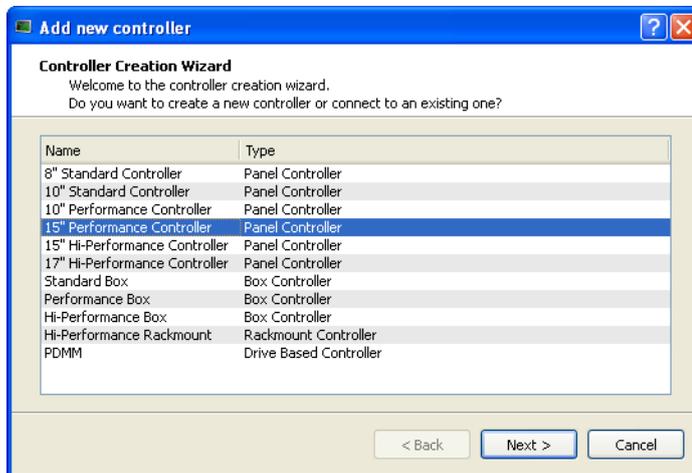


Figure 4-1: Select a Controller

- Choose the motion engine option (Pipe Network or PLCopen) and select the application template (see [list](#) below)

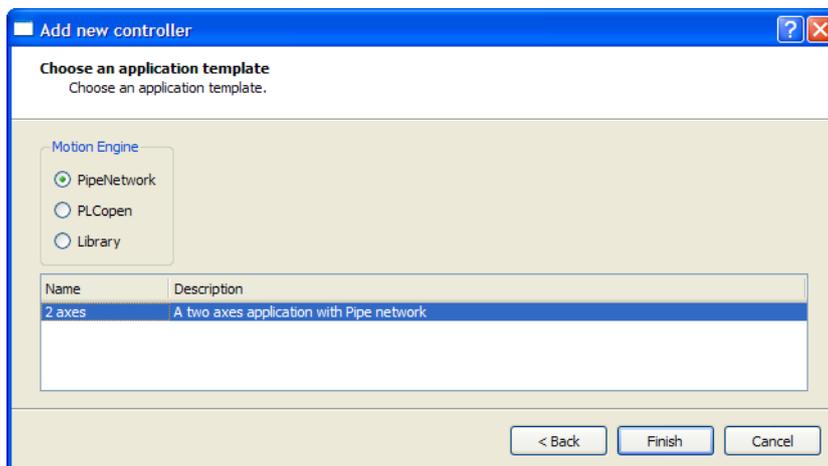


Figure 4-2: Select an Application Template

- Click the **Finish** button

- Click the **Save As** command in the **File** menu
- Define the Project Name and its Location
- Click **OK**

List of available application templates

Template Type	Template name	Description
Pipe Network	2 Axes FFLD	Simple Gearing, 2 PipeNetwork axes (FFLD only)
	2 Axes ST	Simple Gearing, 2 PipeNetwork axes (ST only)
	2 Axes SFC	Simple Gearing with optimized performance, 2 PipeNetwork axes (SFC, ST, FFLD, and FBD)
PLCopen	2 Axes FFLD	Simple Gearing, 2 PLCopen axes (FFLD only)
	2 Axes ST	Simple Gearing, 2 PLCopen axes (ST only)
	2 Axes SFC	Simple Gearing with optimized performance, 2 PLCopen axes (SFC and FFLD)
Coordinated Motion	2 Axes - Linear / Circular	Raster Scan Motion Path, 2 PLCopen axes
	3 Axes - Linear / Circular	Raster Scan Motion Path, 2 PLCopen axes and 1 PipeNetwork axis
	3 Axes - Linear (3D)	Diamond/Square Motion Path, 3 PLCopen axes
KAS Runtime	Library	Allows you to create a custom library (See also "Create and use custom libraries")

5.1.2 Configure the Controller

The controller is configured using the Controller Properties dialog box.

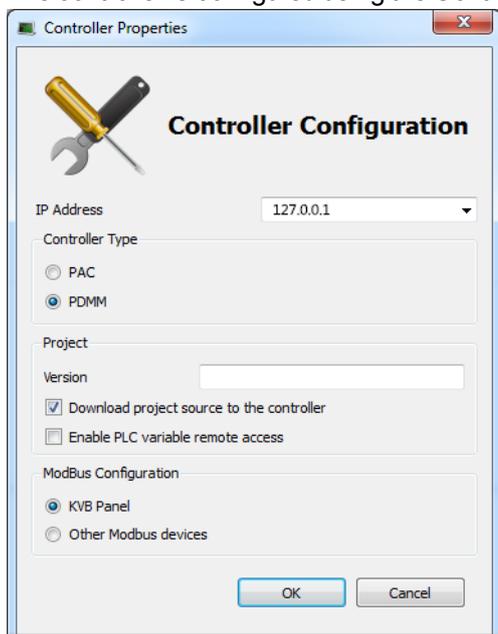


Figure 4-3: Configure the Controller Properties

To set-up the controller:

1. In the Project Explorer, right-click on the new controller to open the contextual menu
2. Select the **Properties** command
3. Define the IP Address

A note about addressing

- For the KAS Runtime Simulator, enter the localhost IP address: 127.0.0.1
- For runtime system on PAC or AKD PDMM, enter the IP address of the controller (e.g. 10.155.100.150)

NOTE

You must ensure that controller is accessible by the KAS IDE machine (see [FAQ section](#) for IT issues)

4. Choose the controller type

NOTE

You must select the correct Controller type before compiling your application (the PLC code generated for PAC and AKD PDMM have different [endianness](#)). A warning is displayed if you try to start your application with an incompatible Controller type.

5. (Optional) Specify a version number (the string can be composed of any character)

TIP

Versioning can be useful when you make improvements to your application and need a version control system (See also "Use a version control system"). The version is saved in your project file. When you make a build for a PAC, it is also saved in the **versinfo.xml** file saved under the Application folder.

6. (Optional) Choose whether the project's source code should be downloaded to the controller. This is enabled by default and your preference is saved with the project. Disabling this option means a comparison of source on the controller and in the IDE will not be available.

7. (Optional) Choose whether PLC variables may be read/written via an HTTP connection. this requires that the source be downloaded to the controller. By default this option is disabled so unauthorized changes may not be made.

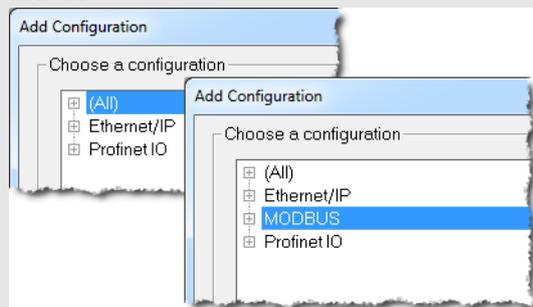
TIP

Be sure to recompile the application before downloading it to the controller.

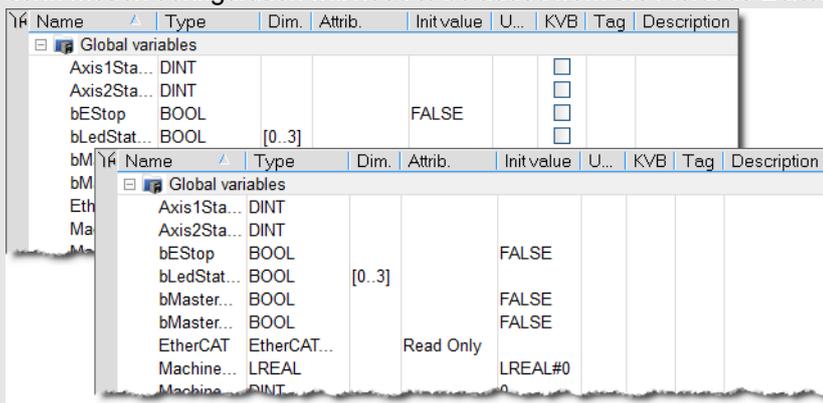
8. Select whether Modbus will go to a KVB Panel or be handled by another Modbus device.

NOTE

- If KVB Panel is selected there will be no node to add a Modbus configuration in the Fieldbus Editor.



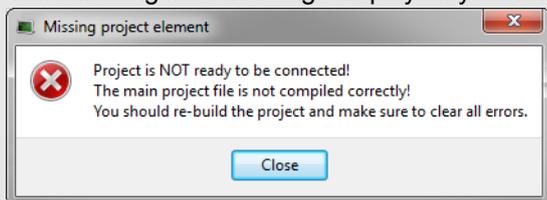
- If Other Modbus devices is selected then the KVB checkbox for Dictionary items will be hidden.. Motion configuration will need to be added from the Fieldbus Editor.



9. Click **OK**

! IMPORTANT

You must compile your project before trying to connect to a Controller!
 The following error message displays if you do not compile your project!



5.2 Step 2 of 6 - Compile the Application

After creating all the elements of your project, you are ready to compile it. The project must be compiled before it is simulated or downloaded to the target.

! IMPORTANT

You can compile your project with the compile icon  in the toolbar (**Ctrl+B** shortcut).

The compiler reports messages in the Information and Logs toolbox (see Compiler Output tab).

No other actions are possible when the compilation is in progress.

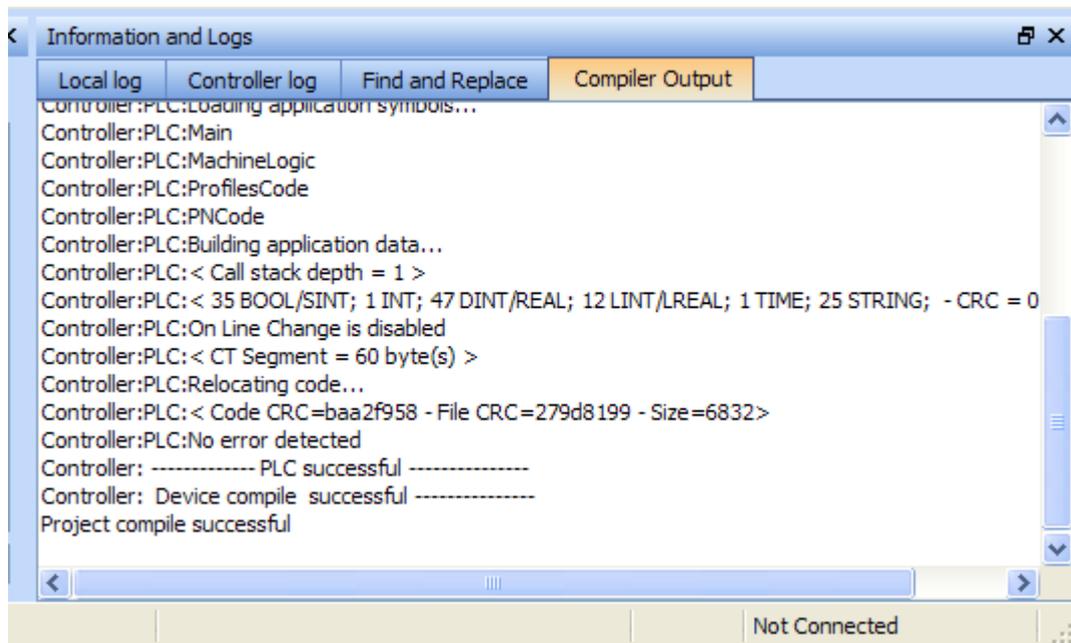


Figure 4-4: Compiler Output

TIP

Errors are easily located using the information and logs window as shown below.

Double-click on an error in the list to open the program and jump directly to the relevant location in the editor.

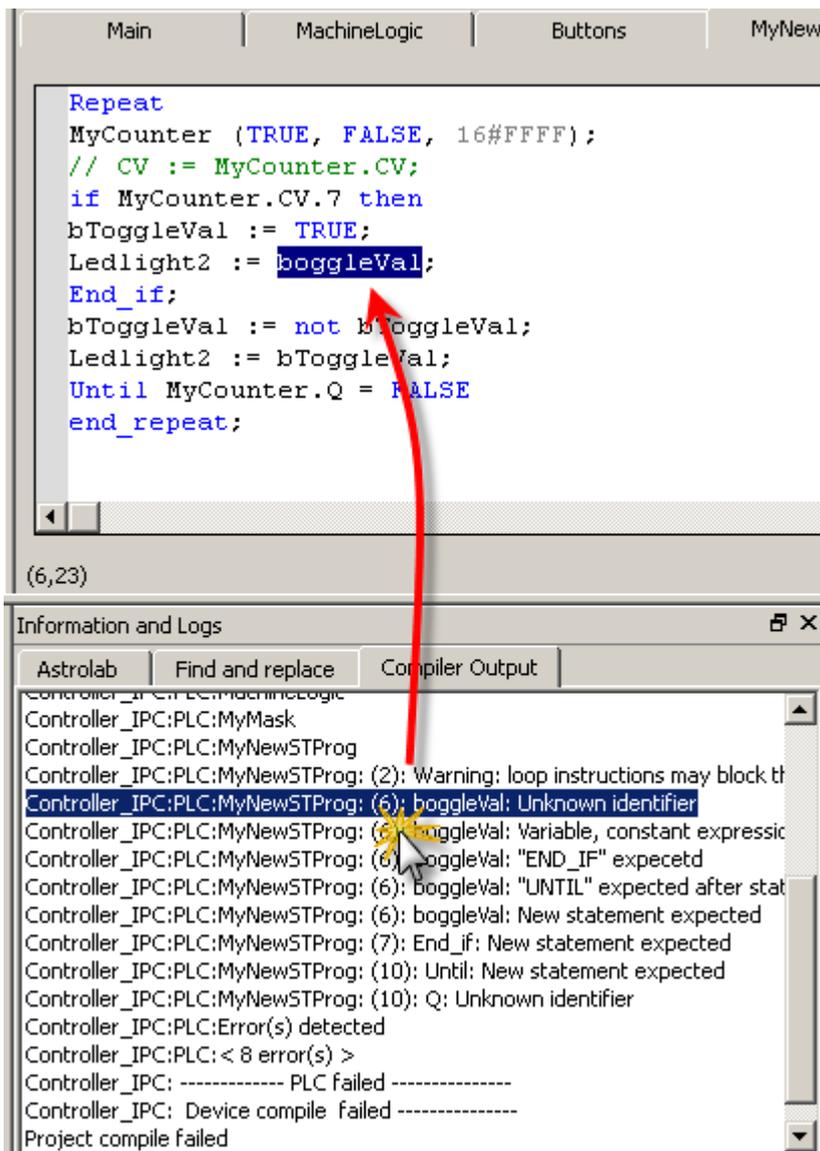


Figure 4-5: Error Location when Compiling

To locate source code, you can also use the **Find and replace** feature (for more information, refer to Find and Replace)

NOTE

In FFLD, when a function, function block or UDFB is not connected on the left, then it is ignored (removed at compiling time).

This case only applies for functions - **not** for function blocks.

5.3 Step 3 of 6 - Launch KAS Simulator

If you want to simulate your application, open **All Programs** on your computer and start the KAS Simulator application located under the **Kollmorgen** folder and the **Kollmorgen Automation Suite** subfolder.

Once the program opens, adjust your desktop preferences (position, size, etc.)

See also "Using the "

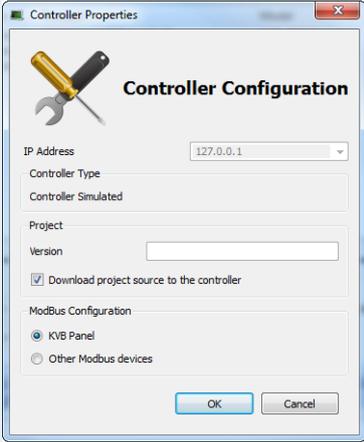
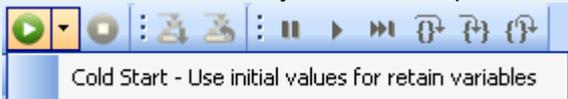
If you want to run your project on a physical device, start the KAS Runtime on the target controller.

5.4 Step 4 of 6 - Connect to the Controller

KAS provides all the commands for controlling the target in the **Device** toolbar:



Figure 4-6: The Device Toolbar

Icon	Description
	Show the controller communication properties dialog (PLC options) (see details below)
	Change the controller IP address to connect with KAS Simulator. In this simulated mode, the controller properties change as shown below and the Controller Type includes the IP address 127.0.0.1. 
	For more details, refer to Using the
	Compile project
	Compile and download the project. This downloads the application and Project Source files.
	Establish connection with the target controller (see possible statuses here)
	Close connection with the target controller
	Download the application to the targeted controller (note that the application must not be running). For more details, refer to "Step 5 of 6 - Download the Application" (→ p. 25)
	Start the application. It can be either: Warm Start (default mode): retain variables are loaded at the application startup. They are Not re-initialized; whereas other variables are started with their initial values. Cold Start: use retain variables with their default values. Such starts occurs from time to time but are few. To choose a Cold Start, you have to drop-down the Start button as follows:  HOT Start: this mode is not supported by KAS at the moment, and would consist in not only loading the PLC variables but as well in recovering exactly the same state as in the previous execution.
	Stop the application

NOTE

If the previous download failed (due to events such as the Ethernet being disconnected or the controller being turned off), you will not be able start your application. Additionally:

- no version information is shown in the web server or status bar
- the Start, Cold Start and Download buttons are not available on the web server
- if the AKD PDMM tries to auto-start, an E24 error is flashed on the 7-segment display.

Review the Controller logs for more information.

Ensure the Simulated device mode is active (the icon  must be selected)

To establish the connection with the target controller, click the Connect Device icon .

NOTE

You need to configure the device before connecting (see "Configure the Controller" (→ p. 18))

5.4.1 Actions to Prevent Compatibility Issues

The software versions of the KAS IDE and the KAS Runtime have to match to avoid compatibility problems. The version consists of a series of four numbers (e.g. 2.1.1.87).

See KAS IDE to Runtime Compatibility for more information.

TIP

The software versions of the KAS IDE and the KAS Runtime are also available in the local [log](#) messages (the level for this message is INFO).

When another KAS IDE is already connected to the controller, a warning is displayed and the connection is discarded to prevent any conflict.

5.4.2 Application Status Bar

The status bar provides global information about the target and the name of the running application currently stored in the device.

Text displayed with **orange** background means that the version of the application is different between the KAS IDE and the target.

For more details, click here...

5.4.3 Message Window

Every log message has the following information:

- Timestamp
- ID
- Message

To have the full list of message numbers, refer to §O.2

NOTE

Once connected to the device, it is no longer possible to edit the PLC programs, unless Online Change is active (see "Step 2 of 6 - Compile the Application" (→ p. 20))

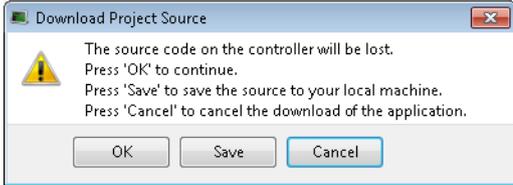
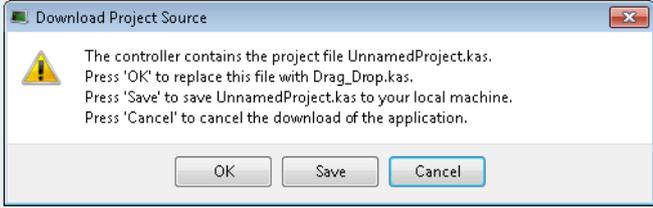
IMPORTANT

Depending on the number of AKD drives physically present in the EtherCAT network, the KAS IDE might slow down when getting data.

The KAS Runtime is **not concerned** with this limitation.

5.5 Step 5 of 6 - Download the Application

- Click the *Compile and Download*  or the *Download*  button.
The application is compiled and downloaded or just downloaded to the controller.
 - If you enabled the "Download Project Source in the controller" option in the Controller Properties dialog box (see "Configure the Controller" (→ p. 18)) then the source code is also copied to the controller.
 - If you disabled the "Download Project Source in the controller" option and the controller has project source loaded you will be prompted with a message. The message presented will vary, based on whether your current project and the project on the controller have the same name or not.

Project Names	Message	Actions
Same name		<p>OK: Source on controller is deleted.</p> <p>Save: Source on controller is overwritten and is also saved to "My Documents". If that source file already exists in My Documents you will be prompted to rename the source file, overwrite that file or not. If you do not rename or overwrite the file then the download to the controller will be canceled.</p> <p>Cancel: Download is stopped.</p>
Different name		<p>OK: Source on the controller will be replaced.</p> <p>Save: Source on the controller will be saved to "My Documents" as above.</p> <p>Cancel: Download is stopped.</p>

- You will be prompted with an alert if there is not sufficient space on the AKD PDMM for the application. Clearing the User Data is one method to create more space on an AKD PDMM.

TIP

The versions between the KAS IDE and the KAS Runtime must be the same if you want to be able to debug your application (for example to display the animated values in the editors).

IMPORTANT

If the IDE version differs from the runtime after compiling an application, the function blocks defined in the IDE and those implemented in the virtual machine of the runtime can possibly be different. To prevent this potential mismatch, you must compile and download your application again.

NOTE

In addition to downloading the application to the controller's flash memory, you can download the project's source code, allowing you to store the project. See File Menu for information on retrieving saved projects.

5.6 Step 6 of 6 - Device Control

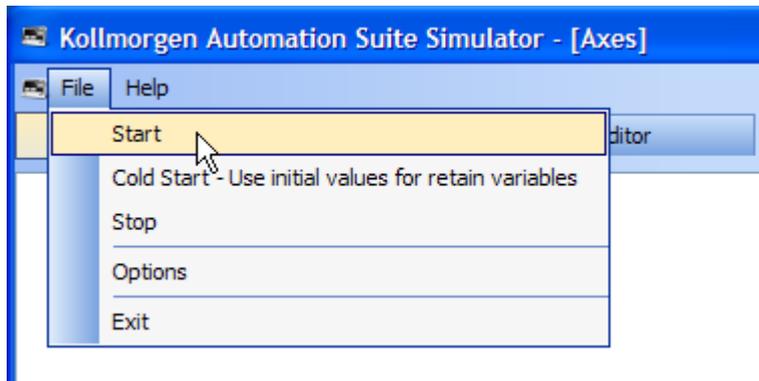
5.6.1 Start/stop the Device

With the KAS IDE

You can start / stop the device with the buttons  and 

With the KAS Runtime

In the KAS Runtime menu you can click the **start / stop** command.



" />

Figure 4-7: Start Device with the KAS Runtime

5.6.2 Log Window

The Log window displays all run-time messages issued by the device or by the KAS Simulator when testing the application.

The log area of the KAS IDE and the KAS Runtime Simulator are the same. It contains the log messages as described in "Information and Logs" (→ p. 15)

5.7 Operate the Control Panel

The Example program has a default control panel built-in to make it easy to start an application.

Perform the following steps to operate the control panel:

1. Double-click on **Control Panel** in the Project Explorer to open the form



Figure 4-8: Control Panel

2. Start by moving the vertical slider bar to select the Machine STATE as **Manual Mode**

3. In the Manual Mode Functions area, double-click the text box for the Travel Speed
4. Enter the numeric value for the Travel Speed and press Enter

5.7.1 About KAS Simulator Display

The KAS Simulator displays the status and position of the axes. It also displays the log messages.

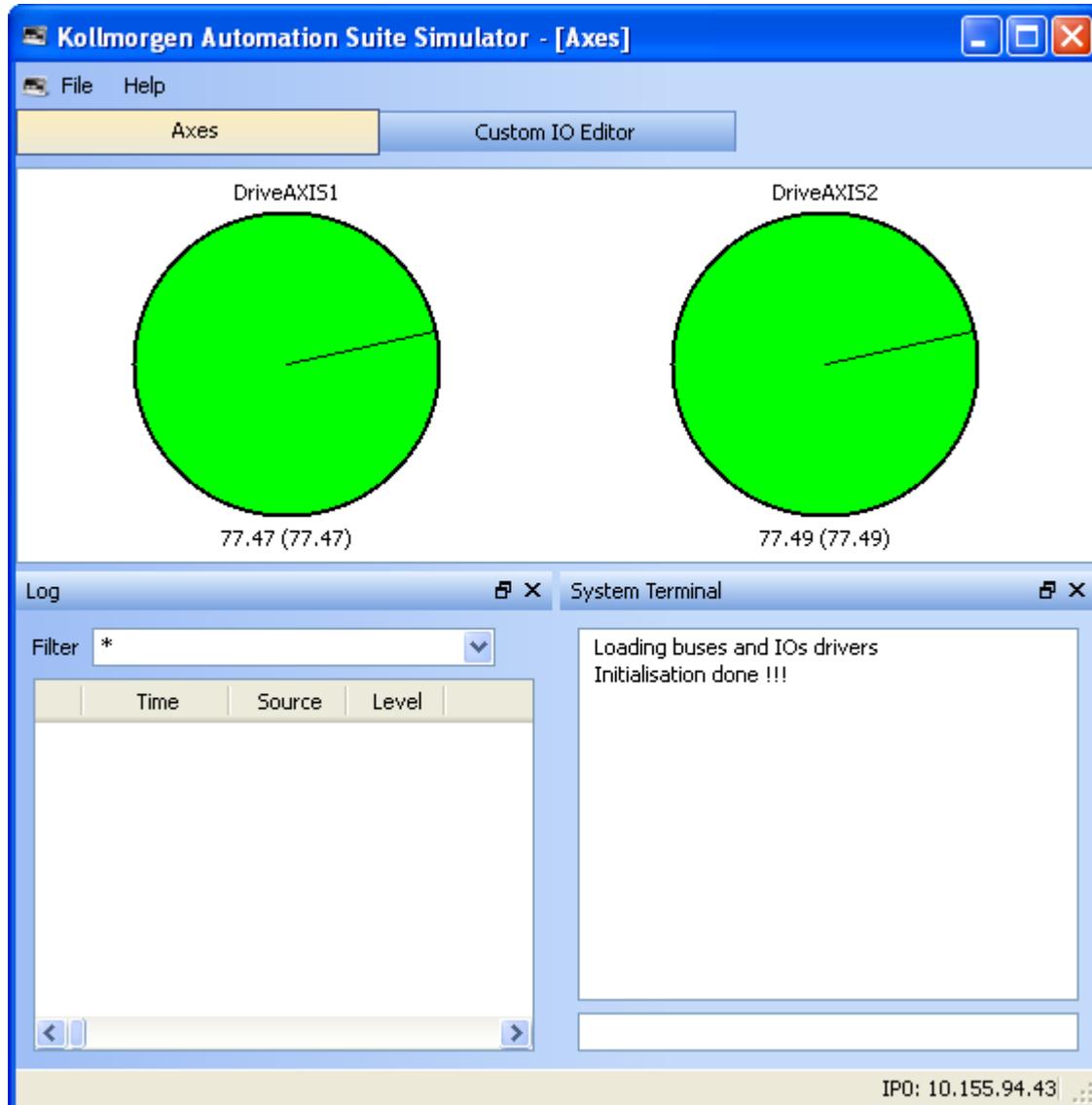


Figure 4-9: Display of KAS Simulator

You can continue to use the Control Panel to:

- Experiment with the controls and observe the simulated output
- Perform an absolute move by entering a position in the text box
- Perform a relative move

5.8 Exiting Simulation Mode

To exit Simulation mode, do as follows:

1. Click the Stop Device button 
2. Click the Disconnect Device button 

This concludes the 30 minutes to motion tutorial.

NOTE

For additional information about Kollmorgen Automation Suite, see the following documentation:

- Getting Started
- User Manual
- Technical Reference - PLC Library
- Technical Reference - Motion Library
- Online Help

About KOLLMORGEN

Kollmorgen is a leading provider of motion systems and components for machine builders. Through world-class knowledge in motion, industry-leading quality and deep expertise in linking and integrating standard and custom products, Kollmorgen delivers breakthrough solutions that are unmatched in performance, reliability and ease-of-use, giving machine builders an irrefutable marketplace advantage.



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