

# KAS IDE

## 30 Minutes to Motion



Valid for Software Revision 2.5

Keep all manuals as a product component during the life span of the product.  
Pass all manuals to future users / owners of the product.

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- Mongoose software (distributed under the MIT License - see terms)
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# 1 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)

## 1.1 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

## 1.2 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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## 2 Installing KAS IDE

### 2.1 System Requirements

KAS IDE minimum system requirements:

Requirement	Description
Operating System	Microsoft Windows XP (32-bit XP pro SP3 or above), Windows 7 (32 and 64-bit)
Processor type	Intel® Pentium® M or equivalent processor 1.5 GHz
Memory	512 MB RAM
Storage	1 GB hard drive or compact flash space
Display	WXGA+ (1440 x 900) or higher-resolution monitor with 24-bit color
Connectivity	1 Ethernet port 100Mbps/s or 1Gbits/s 1 RS-232 serial port is needed for some target devices

#### Warning

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

### 2.2 Download

The latest version of the Kollmorgen Automation Suite is available at [www.kollmorgen.com](http://www.kollmorgen.com).

### 2.3 Installation Procedure

#### How to proceed if you have a CD?

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

#### Note

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.

#### Note

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



Figure 2-1: Launch Setup File

3. While the setup is loading, wait for the setup splash screen to vanish after being displayed

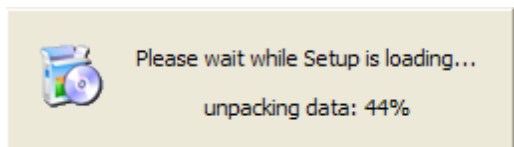
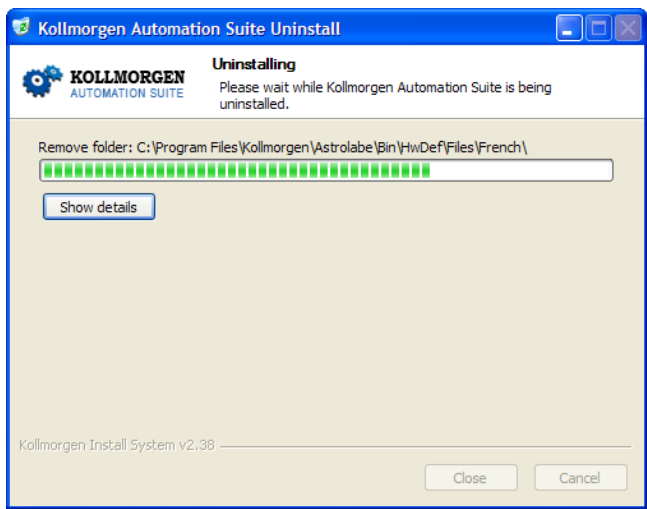


Figure 2-2: Loading Setup Wizard



Figure 2-3: Setup Splash Screen

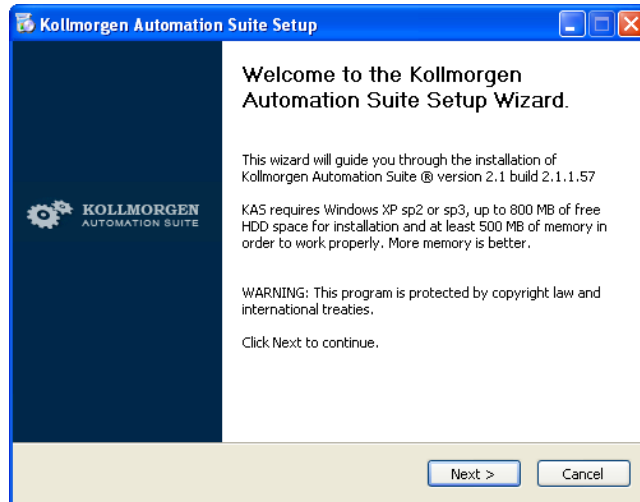
4. Uninstall the previous version of the KAS IDE





**Figure 2-4: Uninstall Old Version**

5. 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
6. The following Welcome Wizard displays with the version and build number of the KAS IDE. Click **Next** to continue

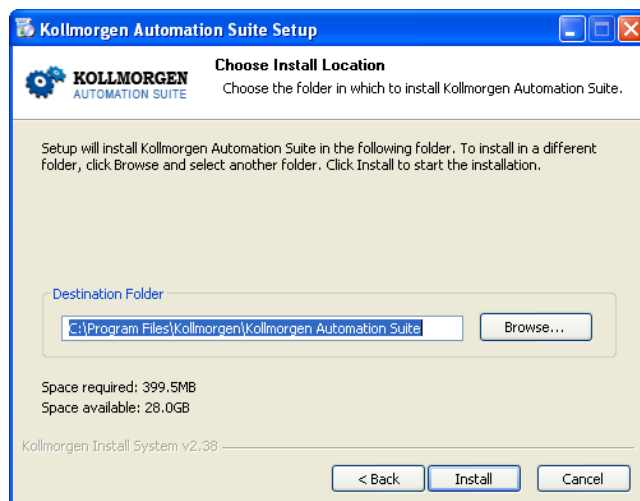


**Figure 2-5: Welcome Setup Wizard**

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

Installation type	Description
<b>Development Environment</b>	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 Run Time Simulator, you can select Development Environment as the type of installation.
<b>Run-time Industrial PC</b>	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 Run Time. Kollmorgen Visualization Builder is specially designed to view and control your application. The KAS Run Time only executes the application.
<b>Custom</b>	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

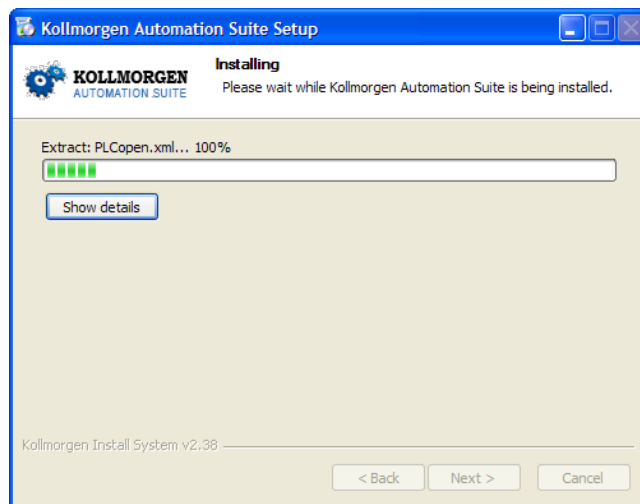


**Figure 2-6:** Destination Folder

**Note**

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



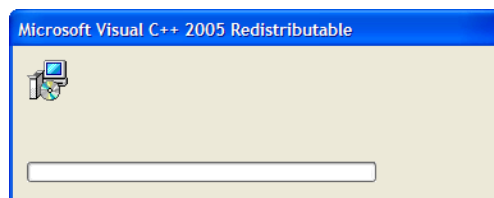
**Figure 2-7:** Installation in Progress

11. Install the Microsoft Visual C++ 2005 Redistributable package if you are prompted to

**Note**

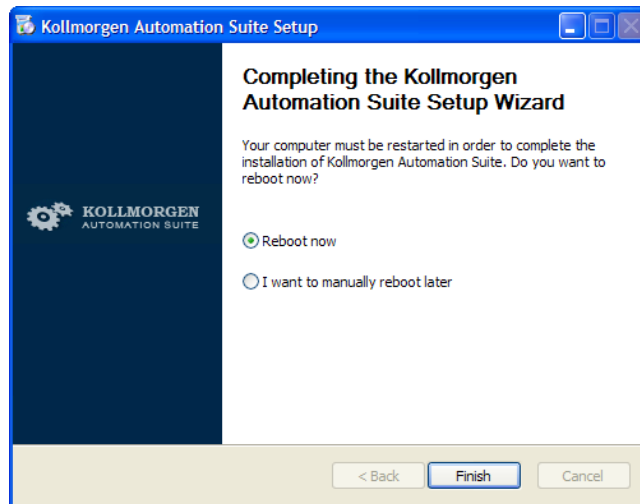
The Kollmorgen Automation Suite requires the Microsoft Visual C++ 2005 Redistribute package for proper operation

12. Wait until the installation is complete



**Figure 2-8:** Microsoft Visual C++ Redistributable Package Installation

13. Select the **Reboot** option and click **Finish**



**Figure 2-9:** Completing Installation

**Tip**

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

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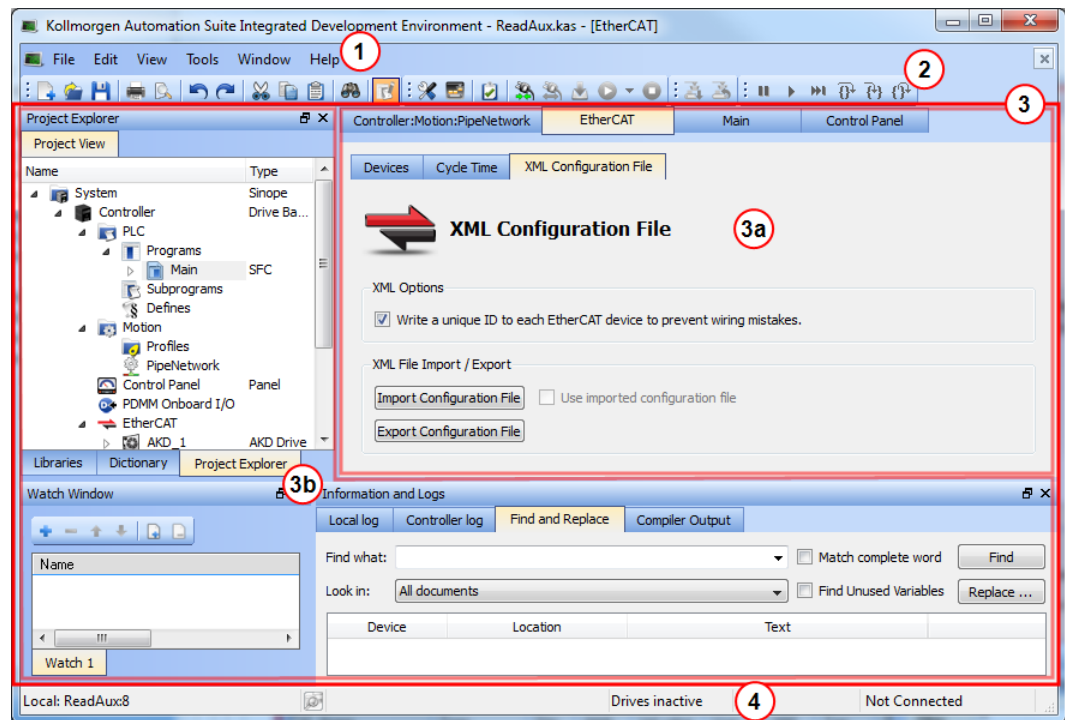
## 3 Exploring KAS Workspace

This chapter intends to make you become familiar with the KAS IDE.

### 3.1 Windows and Panels Overview

#### 3.1.1 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 perform specific tasks.
- Status bar at the bottom 4 displaying the current state of the target

### 3.1.1.1 About toolboxes

The available toolboxes include:

- Project Explorer
- "Libraries" (see page 14)
- "Dictionary" (see page 15)
- "Information and Logs" (see page 19)

#### Tip

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

### 3.1.2 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.

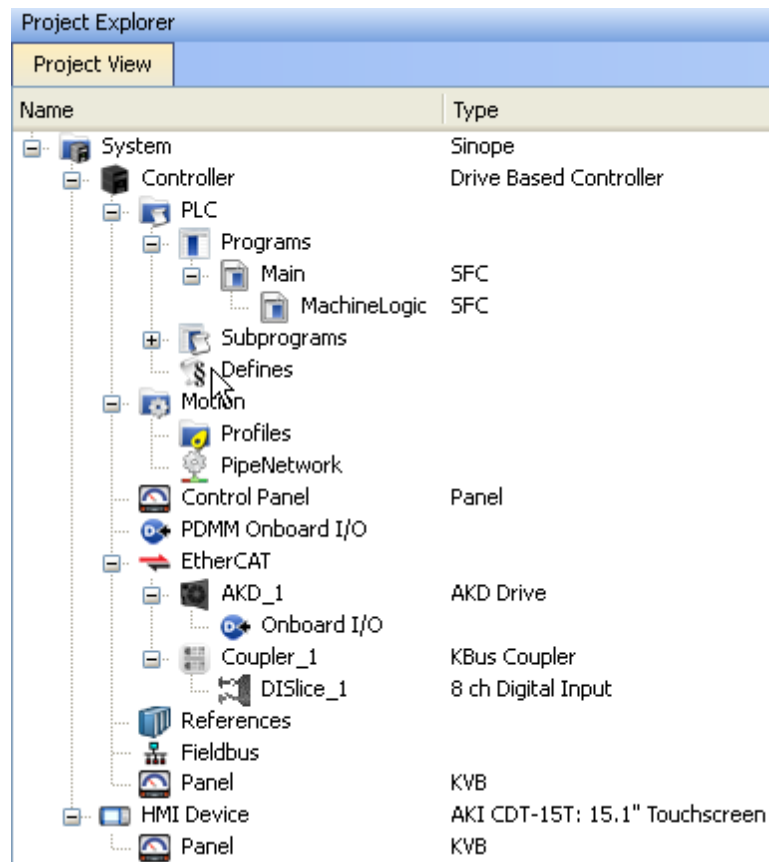
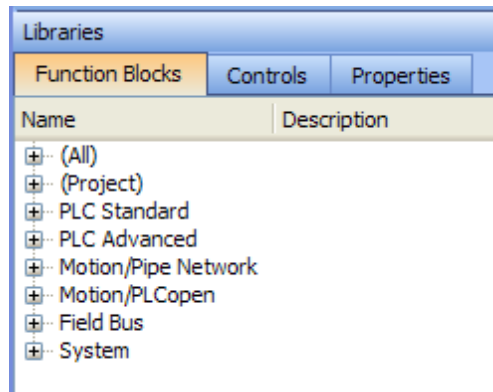


Figure 3-2: Project Explorer

### 3.1.3 Libraries

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



**Figure 3-3:** Libraries Toolbox

### 3.1.3.1 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:

- 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.

### 3.1.3.2 Controls

This tab displays all the controls available for the HMI design.  
For more details, refer to the Graphic Objects description.

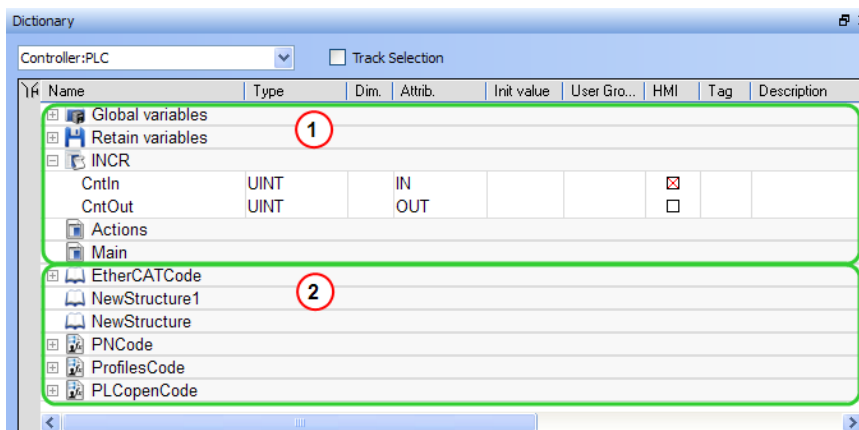
### 3.1.3.3 Properties

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**".

## 3.1.4 Dictionary

The Dictionary toolbox 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"

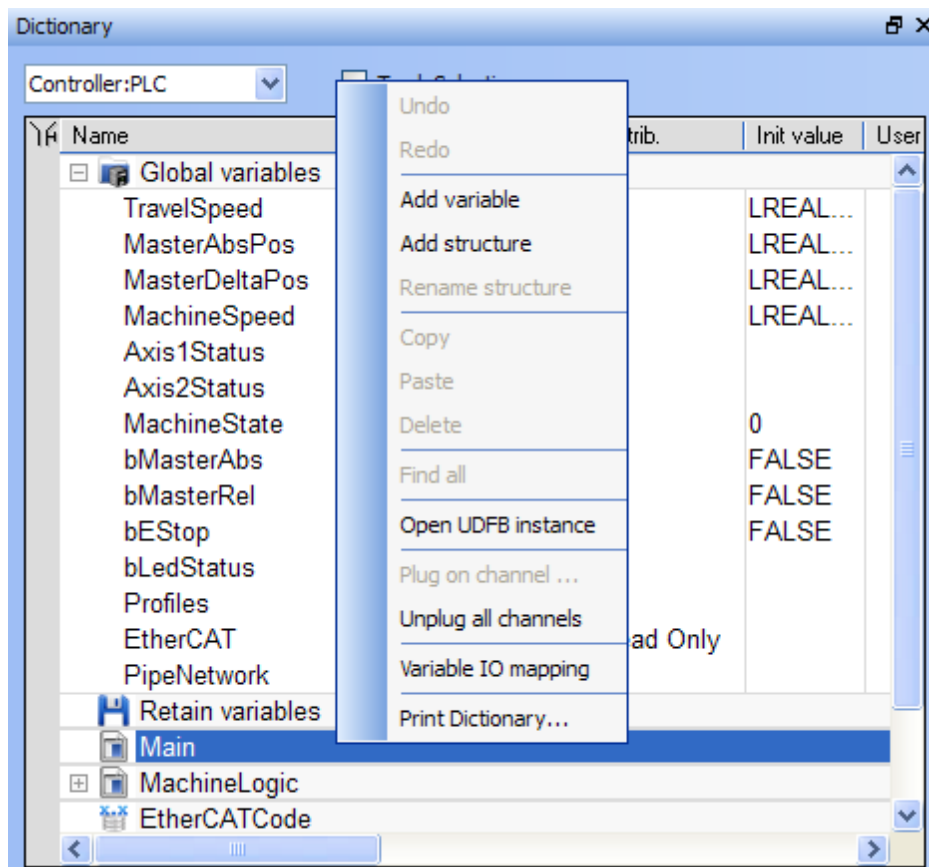
**Tip**

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
<b>Undo</b>	Undo the last action performed on the Dictionary
<b>Redo</b>	Redo the last undone action
<b>Add Variable</b>	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")
<b>Add Structure</b>	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")
<b>Rename Structure</b>	Rename the selected structure
<b>Copy</b>	Copy a variable
<b>Paste</b>	Paste the copied variable to the selected level
<b>Delete</b>	Delete the selected variable. A deletion can also be performed by pressing the Delete key on the keyboard
<b>Open UDFB Instance</b>	Open the selected UDFB instance (for more details, click here...)

Command	Description																																																																																																																																																																																																												
<b>Plug On Channel ...</b>	Plug the selected variable on a channel. This command opens a dialog used to configure the variable plug operation.																																																																																																																																																																																																												
<div style="border: 1px solid black; padding: 5px; margin: 5px 0;"> <p><b>Note</b></p> <p>This command is enable 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)</p> </div>																																																																																																																																																																																																													
<b>Unplug All Channels</b>	Unplug all plugged probes from the softscope																																																																																																																																																																																																												
<b>Variable I/O mapping</b>	Connect a variable to an I/O.																																																																																																																																																																																																												
<b>Print Dictionary ...</b>	Print all the variables displayed in the Dictionary and sorted by programs. The columns display the Name, Type, Dimension, Initial Value, and Attributes																																																																																																																																																																																																												
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**What is the purpose of the Track Selection check box?**

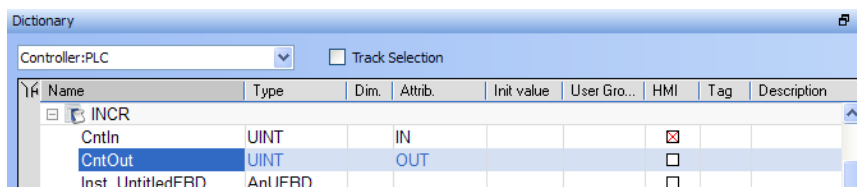
The **Track Selection** filters the displayed items in the dictionary to show only items linked to the current PLC selected program:

- **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.

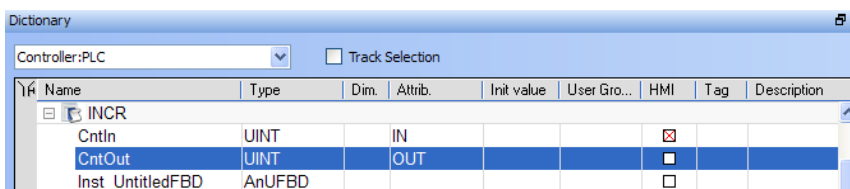
**About the two editing modes for editing a variable.**

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 sorted?

You can sort the list of variables in the table as follows:

- Ensure you are in **cell** edition 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 to modify parameters of a variable?

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

Mode	Description
One Parameter	Assuming you are in the <b>cell</b> edition mode, double-click on the parameter
All the parameters are at the same time	Assuming you are in the <b>row</b> 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.

## 3.1.5 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)
- A system search function
- A list of breakpoints
- A state report on the program compiler

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## 4 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.

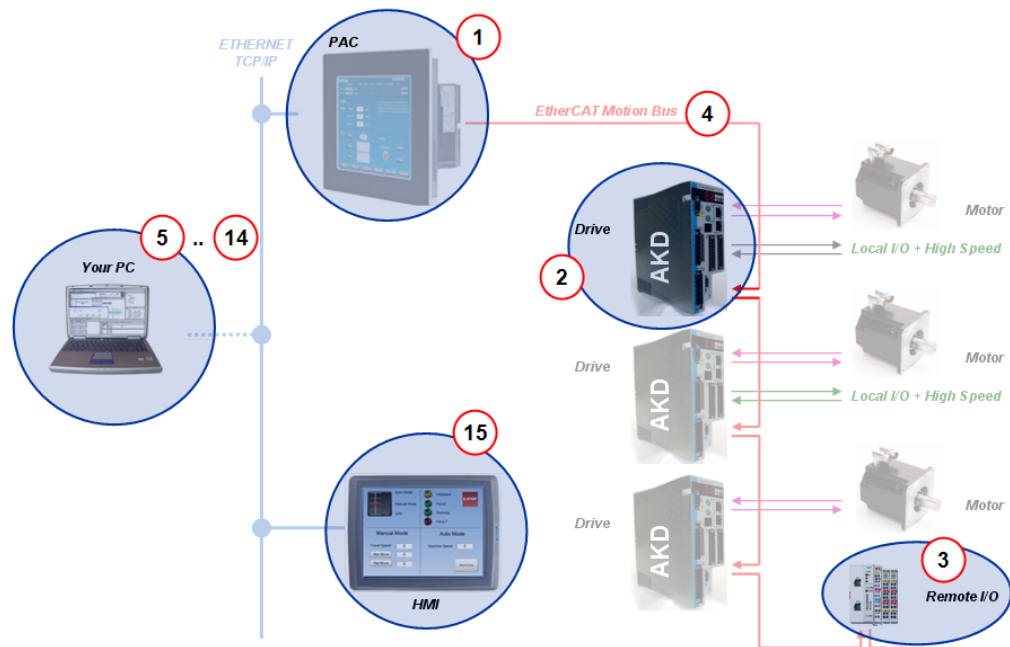
In this exercise, you will perform the following steps:

- 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.

### 4.1 Creating a Project

This chapter explains the main steps to create your project.



Step	Description
1	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
2	Add all AKD drives being part of your EtherCAT network and define all their parameters
3	Add all the IO couplers and slices being part of your EtherCAT network
4	Configure EtherCAT motion bus by mapping all the devices and setting the cycle time
5	Create programs with the five programming languages that comply with the IEC 61131-3 standard
6	Create variables, which can also be arrays or complex structures, and monitor them with the Dictionary, or the variable editor
7	Create functions and function blocks that can be called from your programs
8	Use constant definitions to ease the maintenance of your code
9	Use the functions available in the pre-defined libraries
10	Create your custom libraries containing your PLC code that you can use afterwards in different projects
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

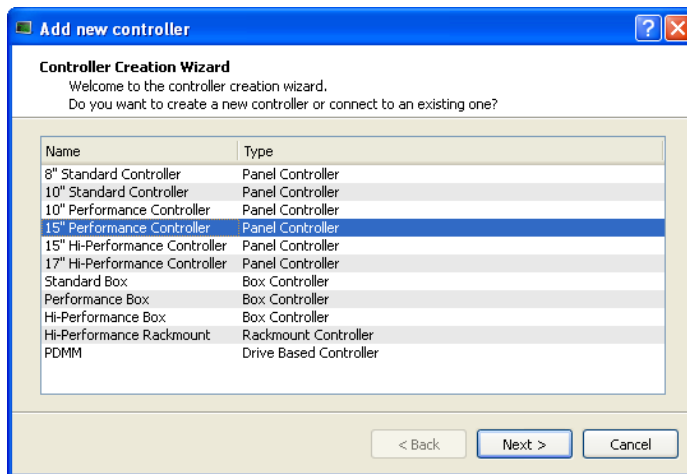
**Warning**

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

**4.1.1 Step 1 of 15 - Add a Controller****4.1.1.1 Add the Controller**

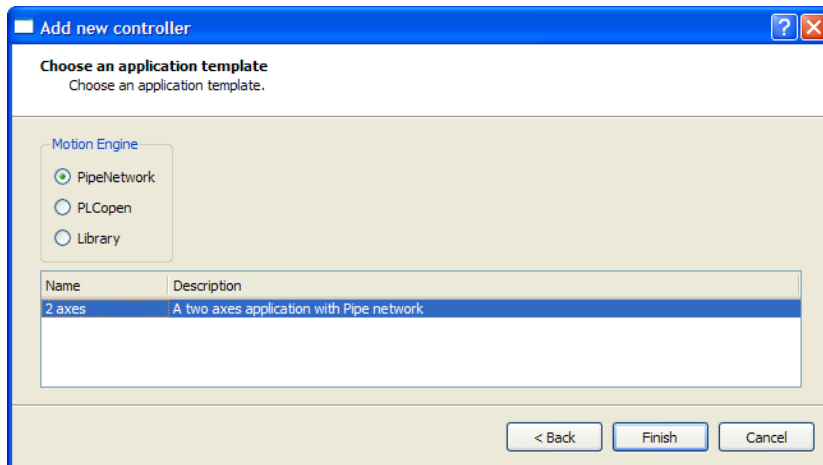
To add a controller to your project:

- 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 name	Type	Description
2 axes	Pipe Network	PLC contains programs and an HMI ready to be used Pipe Network contains 2 axes
2 axes	PLCopen	PLC contains programs and an HMI ready to be used Pipe Network contains 2 axes
Library	KAS Run Time	Allows you to create a custom library (See also "Create and use custom libraries")
KAS Run Time Simplest	KAS Run Time	Contains only the minimal definition

#### 4.1.2 Configure the Controller

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 Run Time 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. (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.

5. 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.

6. Click **OK**

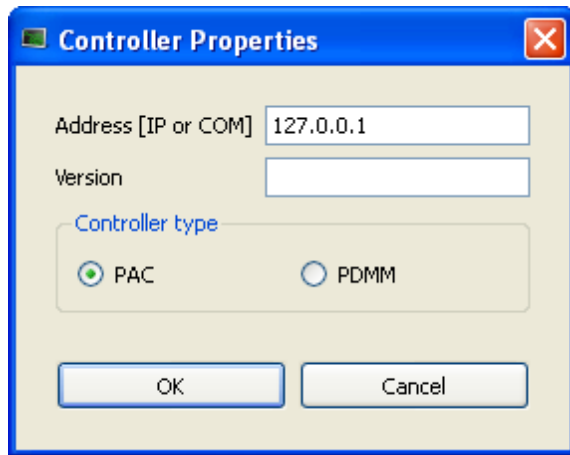
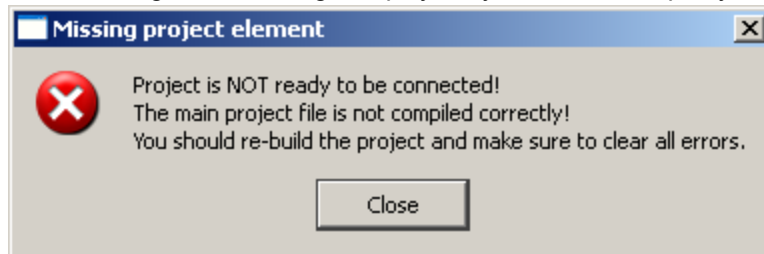


Figure 4-3: Configure the Controller


**Warning**

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



## 4.2 Step 2 of 6 - Compile the Application

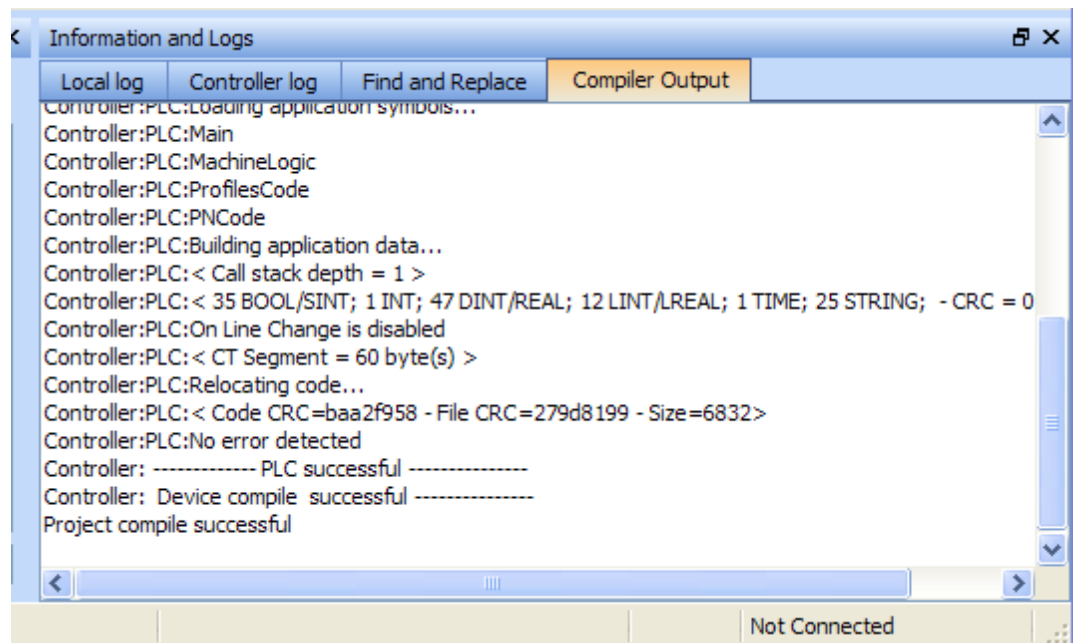
After creating all the elements of your project, you are ready to compile it. The project must be compiled before it is simulated or downloaded to the target.

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.



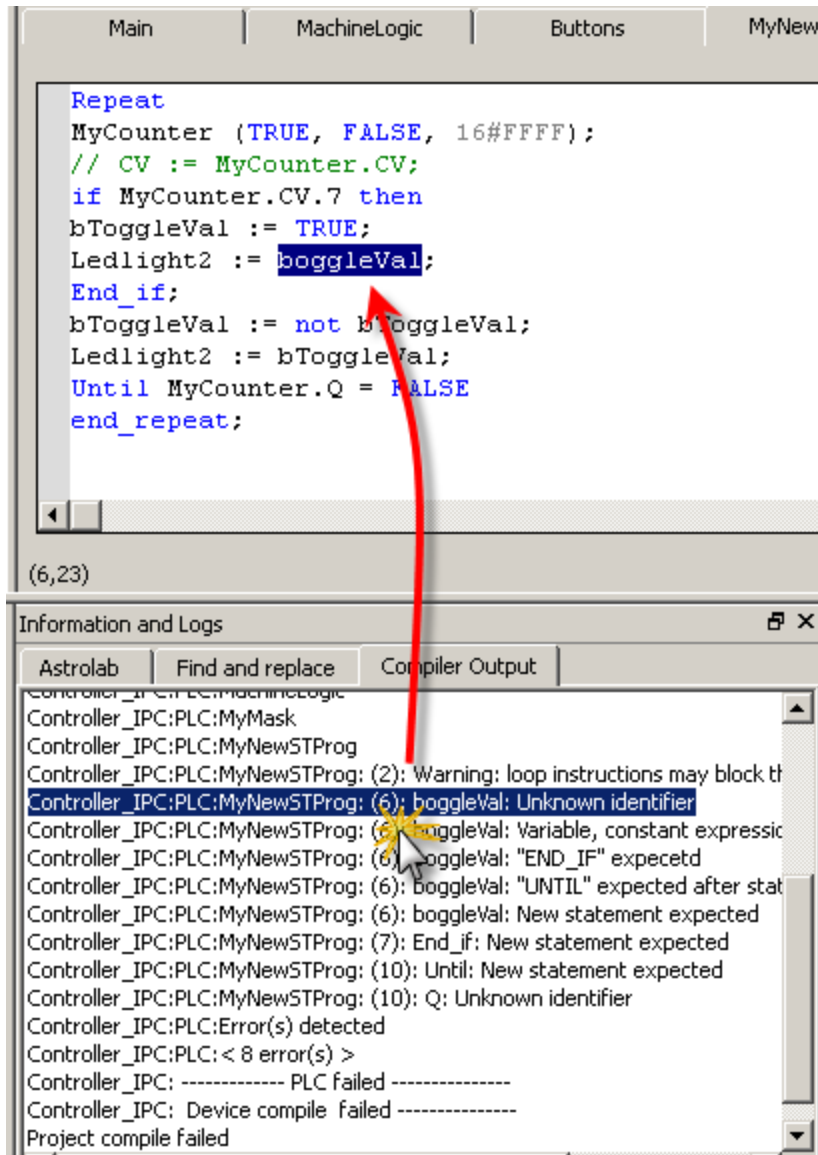


**Figure 4-4:** Compiler Output

**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 paragraph "Information and Logs" on page 19)

**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.

**4.3 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.)

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

### 4.3.1 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 to: <div data-bbox="571 589 1145 1028" style="border: 1px solid blue; padding: 5px; margin: 5px 0;"> <div style="border: 1px solid blue; padding: 2px;"> <p><b>Controller Properties</b> <span style="float: right;">✖</span></p> <p>Address [IP or COM] <input type="text" value="127.0.0.1"/></p> <p>Version <input type="text"/></p> <p>Controller type</p> <p>Controller Simulated</p> <p style="text-align: center;"> <input type="button" value="OK"/> <input type="button" value="Cancel"/> </p> </div> </div>
	Compile project
	Establish connection with the target controller
	Close connection with the target controller
	Download the application to the targeted controller (N.B.: the application must <b>not</b> be running). For more details, refer to "Step 5 of 6 - Download the Application" (see page 28)
	Start the application. It can be either: <b>Warm Start</b> (default mode): retain variables are loaded at the application startup. They are <b>Not</b> re-initialized; whereas other variables are started with their initial values. <b>Cold Start</b> : 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: <div data-bbox="571 1413 1139 1514" style="border: 1px solid blue; padding: 2px; margin: 5px 0;"> <p style="text-align: center;">Cold Start - Use initial values for retain variables</p> </div>
	Stop the application

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" (see page 23))

#### 4.3.1.1 Actions to Prevent Compatibility Issues

The software versions of the KAS IDE and the KAS Run Time 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 Run Time 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.

#### 4.3.1.2 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...

#### 4.3.1.3 Message Window

Every log message has the following information:

- Timestamp
- ID
- Message

#### Note

Once connected to the device, it is no longer possible to edit the PLC programs, unless the Online Change mode is active (see "Step 2 of 6 - Compile the Application" (see page 24))


#### 4.3.2 Step 5 of 6 - Download the Application

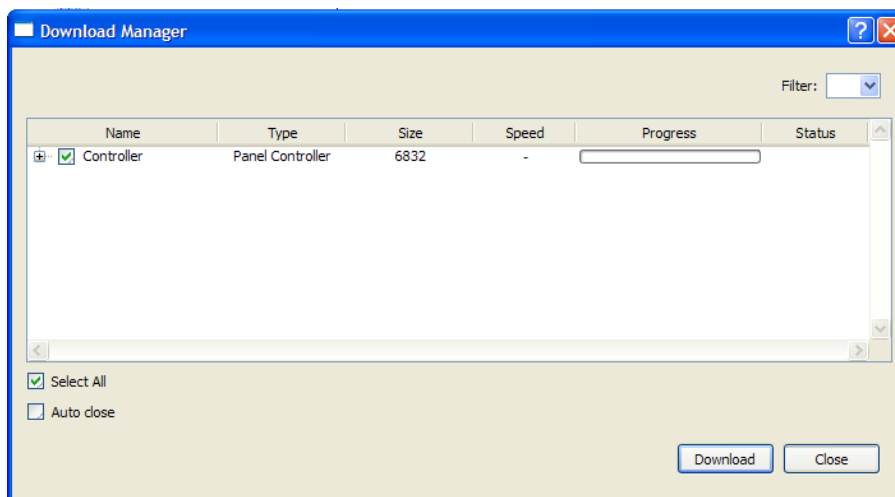
The versions between the KAS IDE and the KAS Run Time must be the same if you want to be able to debug your application (for example to display the animated values in the editors).

#### Warning

After compiling an application, if the IDE version differs from the runtime, 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.

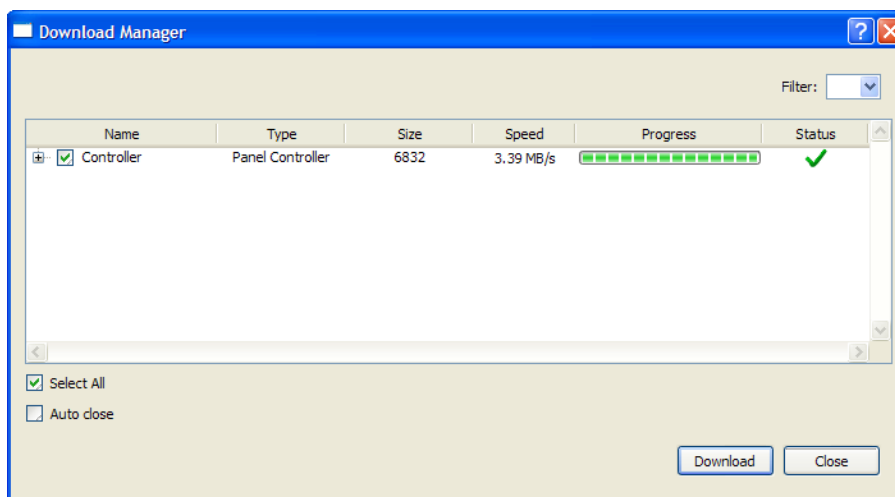
To download the application to the targeted controller:

1. Click  to start the Download Manager
2. Enable the **Select All** and **Auto close** options








**Figure 4-7:** Download Manager

3. Click the **Download** button




**Figure 4-8:** Download Manager Status

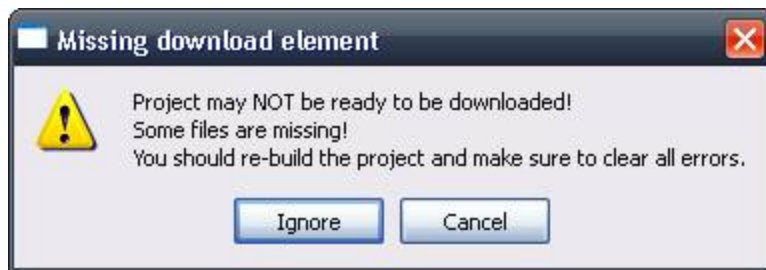
Field	Description
Select All	This check box allows you to select (or deselect) all the PLC and motion files for each device
Auto close	When this check box is enabled, the Download Manager closes automatically if the operation terminates successfully
Filter	Narrows the selection with only the files of a specific type
Name	Based on a tree-structure representation, lists the files for the KAS Run Time RT Engine
Type	Displays the different type of file (e.g. XTI , Cam Profile) that can be downloaded to the KAS Run Time. N.B.: <b>XTI</b> concerns the main file related to the IEC 61131-3 virtual machine.
Size	For the current item, displays the total size in kB (including all the selected children files)
Speed	Transfer rate displayed during the download procedure, depending on your communication bandwidth
Progress	Progress bar displayed for each selected file during the download procedure

Field	Description
Status	<p>For each selected file, one of the following icons represents the download status</p> <ul style="list-style-type: none"> <li> Download passed</li> <li> Download in progress</li> <li> An error occurred during transfer (you have to try again or check if your communication network is down)</li> <li> The current file is not found</li> <li> A CRC issue is identified for the current file (you have to rebuild the project before downloading it again to the device)</li> </ul>

**Table 4-1:** Download Manager Description

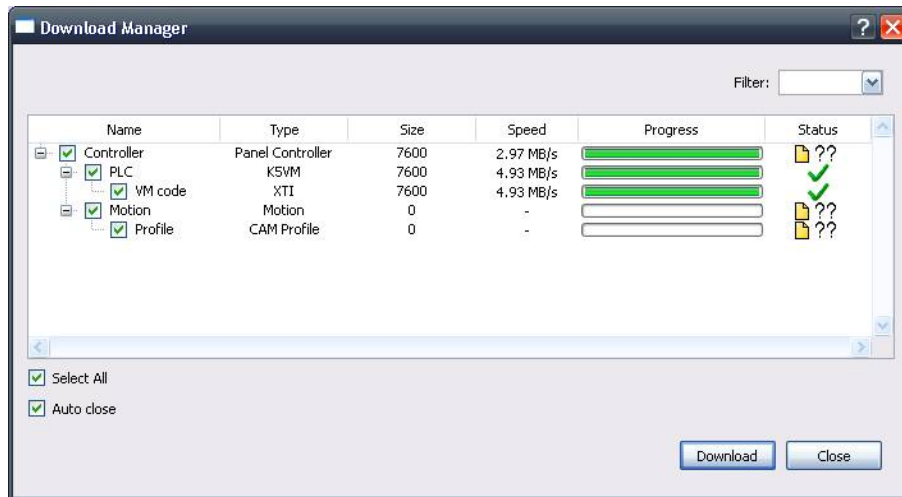
### 4.3.2.1 Download not Complete

If any files are missing (i.e. with status  ) the following warning message is displayed.



**Figure 4-9:** Warning During Download

If you click the **Ignore** button, then only the available files are downloaded.



**Figure 4-10:** Download Partially Done

### 4.3.2.2 Application Status Bar

The tooltip of the application status bar gives more information about the application stored in the target: name of the project, name of the device, version of the application, its build number and date of compilation.

To view the tooltip, hold the mouse over the application status bar and wait for 1 or 2 seconds without moving the mouse.

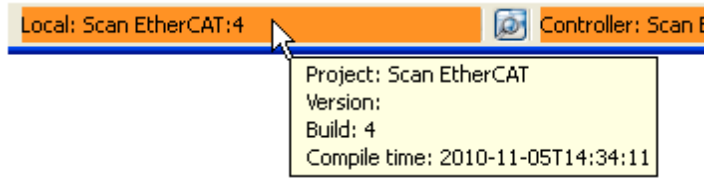



Figure 4-11: Device Tooltip displays Version

### 4.3.3 Step 6 of 6 - Device Control

#### 4.3.3.1 Start/stop the Device

##### With the KAS IDE

You can start / stop the device with the buttons  and .

##### With the KAS Run Time

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

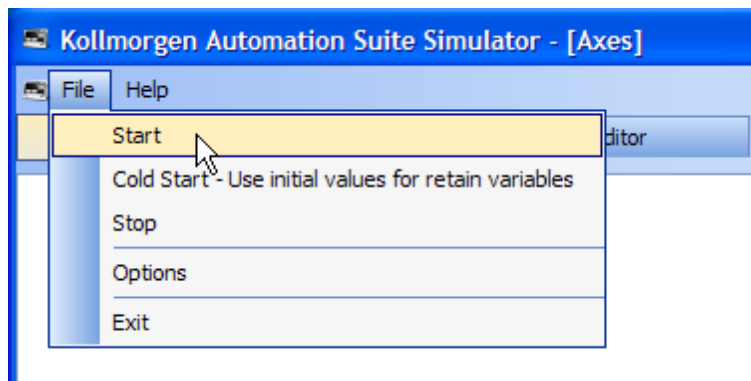


Figure 4-12: Start Device with the KAS Run Time

#### 4.3.3.2 Log Window

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

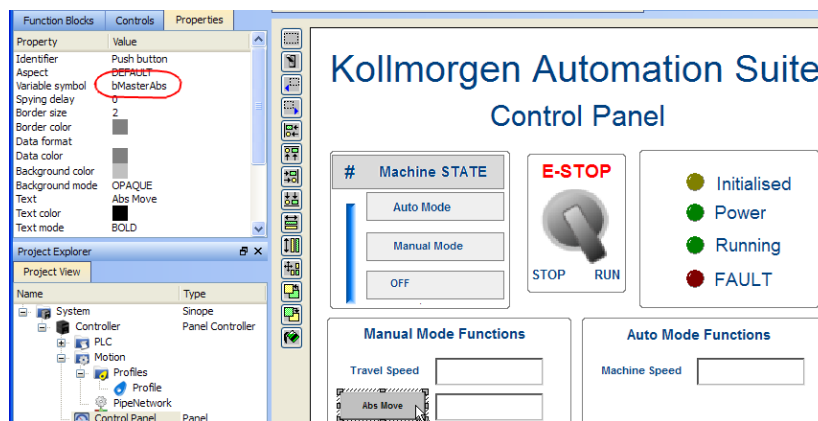
The log area of the KAS IDE and the KAS Run Time Simulator are the same. It contains the log messages as described in "Information and Logs" (see page 19)

## 4.4 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



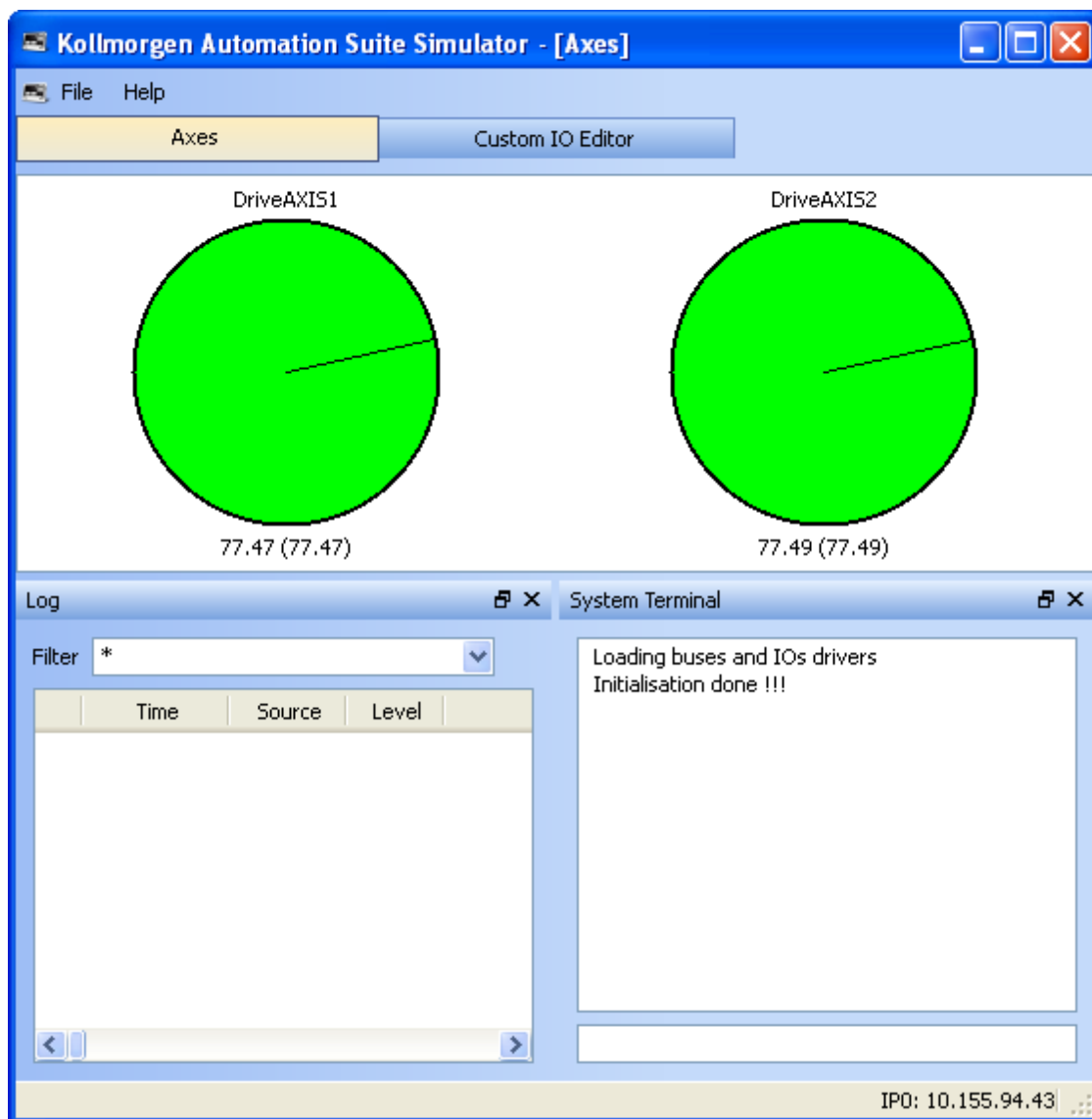
**Figure 4-13:** Control Panel

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

#### 4.4.1 About KAS Simulator Display

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







**Figure 4-14:** 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

#### 4.5 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

# Global Support Contacts

## Danaher Motion Assistance Center

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