AMAX Studio

IEC 61131 Integrated Development Environment

Features

- Advantech IEC 61131-3 PC-based PLC integrated engineering environment for EtherCAT network eco-systems
- Provides access to all five standard programming languages (FBD, LD, ST, SFC) plus variants, ensuring flexibility and adherence to the international standard.
- Includes integrated compilers optimized for a wide range of CPU hardware platforms to maximize the execution efficiency and performance of the controller application code.
- Intuitive I/O interface for AMAX-5000 Slice I/O and AMAX-4800 Block I/O, easy to proceed configuration, testing and monitoring.
- Add-on EtherCAT networking topology and diagnostics toolkit
- Complimentary data log library to save structured and time-stamped information.
- Agent & Data Connect (ADC) service provides flexibility and efficiency in data exchange between edge controller and supervisory gateway.
- Value-added provision of modular, application-oriented building blocks to accelerate project development.

Introduction

AMAX Studio is Advantech's premier Integrated Engineering Environment for developing high-performance, PC-based PLC solutions within the EtherCAT Network Ecosystem. It offers maximum flexibility with full support for all five IEC 61131-3 programming languages, powered by optimized compilers for various CPU platforms. The platform features an intuitive I/O interface for AMAX-5000/4800 configuration and includes essential EtherCAT networking and diagnostics tools. Development is accelerated through the value-added provision of modular building blocks and a complimentary data log library. Crucially, the Agent & Data Connect (ADC) service ensures flexible and efficient data exchange between the edge controller and supervisory gateways, making AMAX Studio the ideal choice for modern industrial IoT applications.

System Installation Requirements

- Operating System: Windows 10 / 11 (The versions maintained by Microsoft are supported.)
- Recommended System Properties
  - 2.5 GHz Processor
  - 8 GB RAM
  - 12 GB available HD space
  - 64 bit version of the operating system

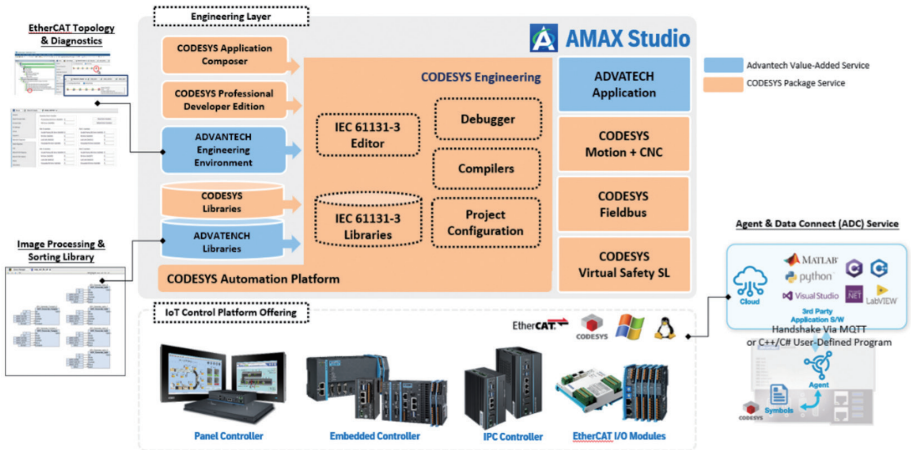
AMAX Studio Software Structure

Advantech AMAX Studio is a integrated development environment based on CODESYS, featuring software value-added functionalities tailored to the real-time characteristics, EtherCAT I/O, and application development needs of Advantech's IoT Control Platform. For example:

For data exchange: The Agent & Data Connect (ADC) service ensures flexible and efficient data exchange between the edge controller and supervisory gateways.

For engineering environment development: It provides a visualized interface for EtherCAT Topology, allowing information to be clearly understood at a glance. It also includes detailed Diagnostics pages and Watch Register pages for verifying comprehensive network information.

For applications like machine vision image acquisition or object sorting: Advantech offers value-added libraries that allow users to accelerate relevant project development based on these pre-built resources.



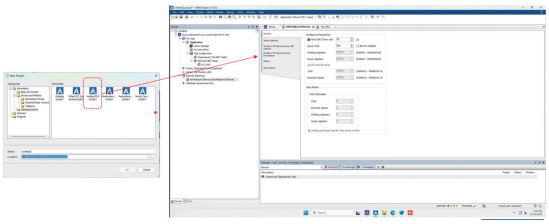
All product specifications are subject to change without notice.

Last updated: 12-Jan-2026

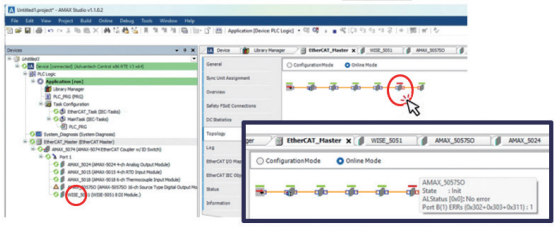
Key Feature Highlights

Value-Added Toolkits

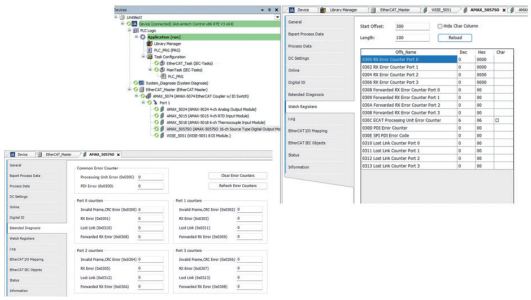
Advantech offers various toolkits to enable engineers (project developers) to carry out their work within a more user-friendly development environment. For instance, engineers can leverage project templates (such as the ModbusTCP project template illustrated below) to significantly reduce the learning curve and accelerate initial setup.



Furthermore, the EtherCAT Topology and Diagnostics toolkit allows users to quickly recognize disconnected nodes and their state machines when network disruptions occur.



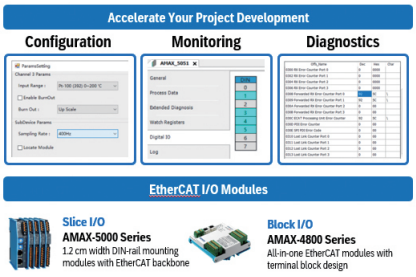
For a detailed analysis, users can enter the “Extended Diagnostics” and “Watch Register” pages to examine the error counter and specific register values in detail.

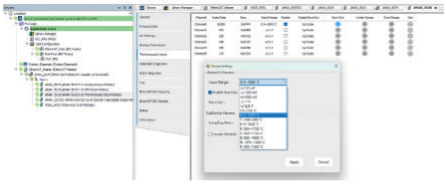


Intuitive I/O Access

Comprehensive Configuration Pages to Accelerate EtherCAT I/O Development

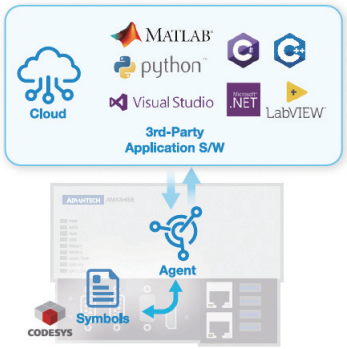
- Support AMAX-5000 Slice I/O and AMAX-4800 Block I/O
- Use Page, Table and Dialog Design to Give Intuitive User Experience as Below Illustration
- No Need to Access by PDO and SDO Way





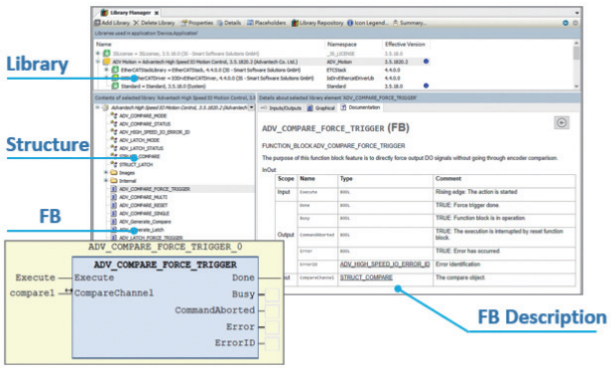
Data Processing

Take Agent & Data Connect (ADC) as example. The ADC service significantly accelerates data exchange between the IoT controller and supervisory gateways, facilitating rapid IT/OT integration. Users can program the application running on the external devices. (e.g., supervisory gateways) with the ADC API library. It allows external devices to directly access a dedicated, high-speed data exchange area on the controller, thus maximizing the efficiency of control program parameter access.



Application Building Block

Take image processing or object sorting as example. This application requires PSO (Position Synchronous Output) capability to trigger camera capturing based on one- or two-dimensional coordinated movement and distance traveled. This mechanism effectively mitigates trigger errors caused by velocity instability during acceleration and deceleration. The ready-to-use application-oriented function block shortens the engineering implementation time.



Ordering Information

- **AMAX Studio** Free to download