

Advantech EtherCAT devices support for Movensys's Motion Controller using EtherCAT based Soft Motion Controller – WMX3

Advantech's industrial IoT edge control solution series combines PLC automation and PC IT technology, and integrates the functions of PLC controllers, PCs, gateways, motion control, I/O data acquisition, fieldbus protocols, machine vision, and equipment networking, all in the same control platform. This control solution is ideal for equipment motion control, machine vision, predictive maintenance, and equipment networking. Data from analysis and optimization control can be directly connected to the industrial cloud platform, and remote coordination on the network edge realizes smart production line control. <https://select.advantech.com/aeu-campaign-amax-5000/>

Movensys is the leading provider for real-time based Motion Controller using EtherCAT® Soft Master and Windows® interface solutions. Customers in various markets, like machine builders, semiconductor, FPD, smart phone, industrial automation, secondary battery, and robotics companies are utilizing these products as a core component of their offering.

EtherCAT

EtherCAT is the fastest industrial Ethernet network protocol supporting 100Mbit up to 10Gbit Ethernet. The EtherCAT Technology Group, responsible for standardization and technology promotion has become the by far biggest industrial communication organization. The key of EtherCAT success, besides its performance, is compatibility between various vendors. The Movensys EtherCAT soft master stack as well as the tools are fully compliant to the EtherCAT standard and support all EtherCAT compatible devices with Class A level of functionalities. Advantech's EtherCAT slaves also follow the standard and help customers to successfully implement sophisticated EtherCAT based products.

The Movensys EtherCAT Soft Master – WMX3

The WMX3 offerings cover all software components and tools that are needed if customers intend to implement an EtherCAT based network with different types of EtherCAT slaves.

- The original EtherCAT master stack is the core product enabling customer's controller application to operate an EtherCAT network
- The motion modules developed by Soft Motion technology allows the customers control the motion with limited understanding of EtherCAT technology
- The Soft Motion and Soft EtherCAT master are running in Real-Time OS to guarantee the real-time performance for cyclic motion control and packet transmission. And the Windows based interfaces allow the users use the familiar Windows based development environment for their own machine sequences
- The WOS(WMX3 Operating Station), EtherCAT Network Configurator, WMX3 Manager tools are used for simple operation, EtherCAT network monitoring/operation/diagnosis, system management

Advantech EtherCAT Slice I/O Modules

Advantech's EtherCAT offering cover various slice I/O modules:

- The AMAX-5000 infrastructure modules construct the power systems of EtherCAT networks, and extend the EtherCAT network to support 3rd party device.
- The AMAX-5000 analog input/output modules offers channel-independent configuration, signal type selection, and sensor wiring burn-out detection.

- The AMAX-5000 digital input/output modules are equipped with 8 or 16 channels isolated digital input / output channels.

Compatibility

For compatibility testing, Advantech UNO 2484G, AIIS 3400P and AMAX 5580 Industrial PC based controllers' hardware running Windows 10 LTSC and the WMX3 had been used. These PC based controllers had been connected with several different Advantech EtherCAT I/O modules. The WMX3 product configured various servo motor vendors' products and Advantech AMAX-5000 series products with same network for realizing the industrial machine configuration to run the motion sequences.



Full tests with the WMX3 proved all tested Advantech EtherCAT slaves had been fully compliant to the WMX3 Class A of EtherCAT functions and could running with the various EtherCAT slave vendors' product in the same network.

Basic functionality as well as synchronization based on Distributed Clocks, SM Event and Hot Connect configuration using the ID switches with line, start, ring topology had been successfully tested.

Advanced functionality like time stamp function that provide by AMAX-5051T and AMAX-5056T had been successfully tested.

The following Advantech EtherCAT slaves had been used and positively tested with WMX3:

- AMAX-5074-A
- AMAX-5018-A
- AMAX-5056-A
- AMAX-5057-A

- AMAX-5079-A
- AMAX-5080-A
- AMAX-5051T
- AMAX-5056T
- AMAX-5052-A
- AMAX-5057SO-A
- AMAX-5017C-A
- AMAX-5017V-A
- AMAX-5024-A