

Advantech EtherCAT devices support for acontis EtherCAT OEM software

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/>

acontis technologies is the leading provider for EtherCAT® OEM software and Windows® Real-time solutions. Customers in various markets, like machine builders, medical, industrial automation, semiconductor, 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 acontis EtherCAT master stack as well as the tools are fully compliant to the EtherCAT standard and support all EtherCAT compatible devices.

Advantech's EtherCAT solutions also follow the standard and help customers to successfully implement sophisticated EtherCAT based products.

The acontis EtherCAT OEM software portfolio

The acontis EtherCAT OEM offerings cover all software components and tools that are needed if customers intend to implement an EtherCAT based product.

- The EC-Master EtherCAT master stack is the core product enabling customer's controller application to operate an EtherCAT network
- The EC-Win Windows Real-time master solution which is a one-stop solution for Windows based controller systems including a sophisticated Windows real-time solution and the EC-Master master stack.
- The EC-Engineer, EC-Lyser and EC-Inspector tools are used for EtherCAT network configuration and diagnosis/troubleshooting
- The EC-Simulator helps customers in virtual commissioning scenarios (digital Twin), in product release testing as well as in the software development phase.

Advantech EtherCAT Slice I/O Modules

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

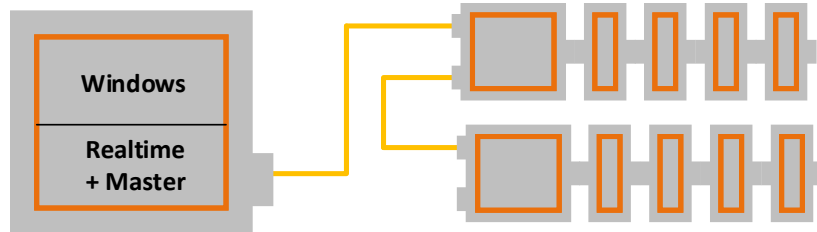
- The AMAX-5000 infrastructure modules construct the power systems of EtherCAT networks, and extend the EtherCAT network to support 3rd party device.
- The AMAX-5000 analog input/output modules offers channel-independent configuration, signal type selection, and sensor wiring burn-out detection.
- The AMAX-5000 digital input/output modules are equipped with 8 or 16 channels isolated digital input / output channels.

Compatibility

For compatibility testing, an Advantech UNO 2743G Industrial PC based controller hardware running Windows 10 and the acontis EC-Win Windows real-time EtherCAT solution had been used. This PC based controller had been connected with several different Advantech EtherCAT I/O modules. The EC-Engineer Windows based configuration and diagnosis tool running on the same PC connects to the EtherCAT master stack for network configuration and diagnosis purpose.

EC ↔ **Win**

Real-time Master Software
for Windows



Extensive tests with the acontis master stack proved all tested Advantech EtherCAT slices had been fully compliant to the EtherCAT standard and could successfully get running with the acontis EC-Master EtherCAT master stack.

Basic functionality as well as synchronization based on Distributed Clocks and Hot Connect configuration using the ID switches had been successfully tested.

Name	Datatype	Master Sync Unit	Offset	Size	Value	Forced
Slave_1001 [WISE-5074].inputs process data mapping.Devic	UINT	Id 0: Default 0	IN:	26.0 2.0 18		<input type="checkbox"/>
Slave_1001 [WISE-5074].inputs process data mapping.Voltag	REAL	Id 0: Default 0	IN:	28.0 4.0 22.82578		<input type="checkbox"/>
Slave_1001 [WISE-5074].inputs process data mapping.Voltag	REAL	Id 0: Default 0	IN:	32.0 4.0 0		<input type="checkbox"/>
Slave_1001 [WISE-5074].inputs process data mapping.Curre	REAL	Id 0: Default 0	IN:	36.0 4.0 0.3483669		<input type="checkbox"/>

Chart: 0.4, 0.35, 0.3, 0.25

Edit Variable: Value: 0.3484 Force Release

Severity	Time	Message
INF	15:40:49	Master state change from 'Safe-Op' to 'Op'
INF	15:40:49	Master state change from 'Pre-Op' to 'Safe-Op'
INF	15:40:48	Master state change from 'Init' to 'Pre-Op'
INF	15:39:02	Master state change from 'Safe-Op' to 'Op'
INF	15:39:02	Master state change from 'Pre-Op' to 'Safe-Op'

Networks: 1 Slaves: 7 State: Mode: DIAGNOSIS EXPERT

The following Advantech EtherCAT slices had been used and positively tested in the above configuration:

- AMAX-5074
- AMAX-5051
- AMAX-5056SO
- AMAX-5017V
- AMAX-5052
- AMAX-5057SO
- AMAX-5024