

AMAX-658 AMAX-637

Integrated PC-Based SoftPLC & SoftMotion CODESYS-Ready Edge Controller



Features

- CODESYS Control Real Time Engine (RTE) & Visualization (Target & Web)
- Embedded OS with optimized BIOS adjustment for control process
- SoftPLC support a 50 μ s processing cycle time
- Supports IEC-61131-3 PLCopen languages (FBD, LD, IL, ST, and SFC)
- Achieve 64-axis motion control with 1 ms cycle time
- Upstream connectivity facilitates IT/OT integration (MQTT, OPC UA, and ODBC)
- Supports EtherCAT, ProfiNet, Ethernet/IP, and Modbus TCP/RTU protocols
- Optional CANopen and ProfiBus support via iDoor expansion module
- Remote upgrade of SoftMotion and CNC Robotics modules from Advantech WISE-Marketplace or CODESYS store
- Advantech Data Connect (ADC) enables high-speed data transmissions with third-party software via symbols (PLC Handler) and shared memory (C/C++/C#)

Introduction

AMAX-658 and AMAX-637 are PC-Based edge controllers powered by CODESYS, control kernel Soft-PLC equipped with Industrial Ethernet and Fieldbus for OT applications. Support for IEC-61131-3 PLCopen languages enables engineers to easily program PLCs and SoftMotion and CNC Robotics modules for various motion control applications. To provide comprehensive control solutions, Advantech also offers flexible expansion options, including industrial Ethernet I/O, peripheral I/O, slice I/O, and distributed I/O modules.

Moreover, to ensure easy data access with IT-OT integration, uplink connectivity with MQTT, OPC UA and ODBC (database) protocol support is provided.

The platform portal utility's self-diagnosis function enhances controller reliability. Furthermore, Advantech's WISE-PaaS platform can be leveraged for field-side management to enhance productivity and equipment flexibility.

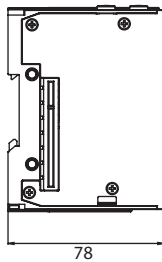
Specifications

| Category | Modular Controller | | | Cabinet Controller | |
|-----------------------|--|-------------------|-------------------|---|---|
| Model | AMAX-658 | | | AMAX-637 | AMAX-637S |
| Part Number | AMAX-658-6CCW00A | AMAX-658-65CW00A | AMAX-658-67CW00A | AMAX-637-E1CW00A | AMAX-637S-E1CW00A |
| SoftLogic Runtime | CODESYS V3.5 Control RTE SL + Visualization (Target & Web) SoftMotion & CNC Robotic (Optional-Upgrade from Advantech Marketplace) | | | | |
| Industry Ethernet | EtherCAT Master, PROFINET Master, EtherNet/IP Scanner (IEC/CIFX) MODBUS/TCP Server (Slave) and Client (Master) | | | | |
| Fieldbus Support | MODBUS/RTU Client (Master) PROFIBUS Master & CANopen Master (optional by iDoor module) | | | | |
| Uplink | OPC UA Server, MQTT (Sparkplug), ODBC for Database | | | | |
| Motion Cycle Time | 64-axis with 1ms | 128-axis with 1ms | 256-axis with 1ms | 32-axis with 1ms | 32-axis with 1ms |
| Operating System | Microsoft® Windows 10 IoT Enterprise LTSC 64bits | | | | |
| Processor | Intel® Celeron® | Intel® Core™ i5 | Intel® Core™ i7 | Intel® ATOM™ | |
| Memory | 4 GB DDR4 | 8 GB DDR4 | | 8 GB DDR3L | |
| Display | 1 x VGA, support up to 1920 x 1200 @60Hz 1 x HDMI, support up to 4096 x 2160 @24Hz | | | 2 x DP 1.2, support up to 4096 x 2306 @60 Hz | |
| Storage | 128 GB SSD | | | 128 GB SSD | |
| Input Power | 24 V _{DC} \pm 20% | | | 10 ~ 36 V _{DC} | |
| Local I/Os | 2 x RS-232/422/485 (D-Sub) | | | 8 Digital Input (Wet/Dry), 8 Digital Output (Sink) 2 x RS-232/422/485 (TB) | |
| LAN | 2 x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T | | | 3x RJ45, 10/100/1000 Mbps IEEE 802.3u 1000BASE-T | |
| Expansion | AMAX-5400 PCIe expansion modules, optional for left side (max.4) AMAX-5000 EtherCAT Slice IO modules, optional for right side | | | 1 x Full-size mPCIe (iDoor) 1 x 2.5" SSD/HDD slot | 2 x Slice I/O slot 1 x 2.5" SSD/HDD slot |
| Operating Temperature | -10 ~ 60 °C (-4 ~ 140 °F) | | | -40 ~ 60 °C (-40 ~ 140 °F) | |

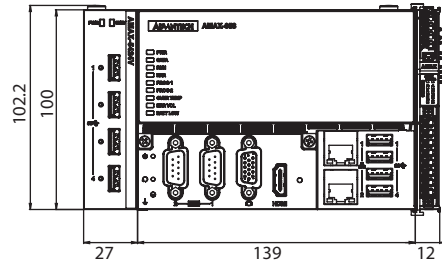
Dimensions

Unit: mm

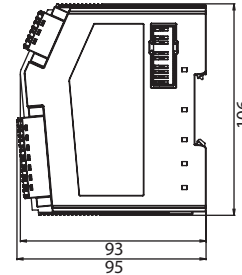
AMAX-658



AMAX-5400 Expansion Module

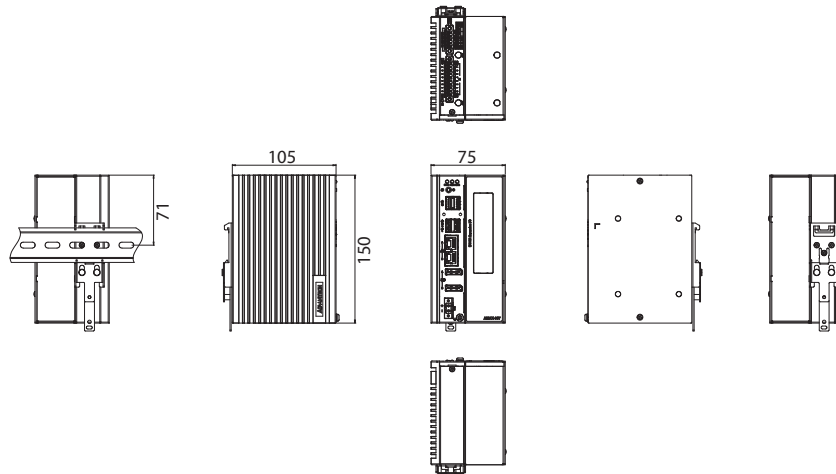


AMAX-658 Controller with Expansion



AMAX-5000 EtherCAT Slice I/O Module

AMAX-637



Ordering Information

- **AMAX-658-6CCW00A** Intel® Celeron, 128G, Win10, CODESYS Ready
- **AMAX-658-65CW00A** Intel® Core™ i5, 128G, Win10, CODESYS Ready
- **AMAX-658-67CW00A** Intel® Core™ i7, 128G, Win10, CODESYS Ready
- **AMAX-637-E1CW00A** Intel® ATOM, 128G, Win10, iDoorExp, CODESYS Ready
- **AMAX-637S-E1CW00A** Intel® ATOM, 128G, Win10, SlicesExp, CODESYS Ready

- **AMAX-5080** 2-channel counter/encoder, 32 bit
- **AMAX-5051T** 2-channel timestamp, 6-channel w/o timestamp DI
- **AMAX-5056T** 2-channel timestamp DO
- **AMAX-5017H** 4-channel high-speed (10 KHz) AI
- **AMAX-5081** Single-channel TTL/RS-422 encoder/counter

EtherCAT I/O Modules

AMAX-5000 EtherCAT Coupler

- **AMAX-5074** EtherCAT coupler module
- **AMAX-5079** EtherCAT extension module

AMAX-5000 EtherCAT Module

- **AMAX-5001** Smart power input module with 4-channel DI
- **AMAX-5015** 4-channel RTD (2/3 wire)
- **AMAX-5017V** 6-channel voltage AI, multi-gain, 16 bit
- **AMAX-5017C** 6-channel current AI, 0-20/4-20mA, 16 bit
- **AMAX-5018** 6-channel T/C, J, K, T, E, R, S, B, mV, open detection
- **AMAX-5024** 4-channel AO multi-gain, 16 bit
- **AMAX-5051** 8-channel isolated DI
- **AMAX-5052** 16-channel isolated DI
- **AMAX-5056** 8-channel isolated DO (sink type)
- **AMAX-5056SO** 8-channel isolated DO (source type)
- **AMAX-5057** 16-channel isolated DO (sink type)
- **AMAX-5057SO** 16-channel isolated DO (source type)

PCIe Expansion Modules (for AMAX-658)

AMAX-5400 Series Expansion Module

- **AMAX-5400E** PCIe-mini card with SIM card slot
- **AMAX-5410** 2 x GigE expansion module
- **AMAX-5410P** 2 x PoE expansion module
- **AMAX-5424V** 4 x USB 3.0 with full bandwidth
- **AMAX-5490** 2 x isolated RS-232/422/485
- **AMAX-5495** 2 x CAN module

Accessories

DIN-Rail Type AC-to-DC Power Supply

- **96PSD-A60W24-MM** A/D 100 ~ 240V, 60W, 24V, MDR, DIN-Rail
- **96PSD-A120W24-MN** A/D 100 ~ 240V, 120W, 24V, NDR, DIN-Rail
- **96PSD-A240W24-MN** A/D 100 ~ 240V, 240W, 24V, NDR, DIN-Rail