AMAX-PT800 V2

Intel® Core™ Panel Controller



Features

- Optimized BIOS & Embedded OS for real-time control (Windows and Linux)
- Achieve 64-axis motion control with 500 µs EtherCAT cycle time under Linux
- OPC UA and Modbus TCP/RTU as IT connectivity enabled by CODESYS
- EtherCAT, Profinet, Ethernet I/P, CANopen as OT connectivity enabled by CODESYS
- Unlimited I/O points, fieldbus networks, and visualization variables for CODESYS applications
- CODESYS Visualization (Target and Web), SoftMotion and CNC/Robotics support by different package
- Advantech Data Connect (ADC) Library provides flexible and highly efficient data connection with 3rd party application software through symbols (PLC Handler) & shared memory (C++/C#)
- Modular Computing Box designed with 13th Gen. Intel® Core™ i5-1335UE deca-core/ i7-1365URE deca-core processor
- Modular Front Panel modules ranging from 12.1" to 23.8" with P-CAP multi-touch options (12.1", 15", 15.6", 21.5" with high-brightness panel options)
- Supports expansion via three M.2 slots (NVMe, Wifi, 5G), shared with iDoor (M.2 B key)
- Supports 3 displays with clone/extend mode (FPM-D/DP/Type C)
- Onboard TPM 2.0 provides hardware-based security
- RAID 0 and 1 support(NVMe and 2.5" SSD)

Windows 10 Enterprise LTSC | Real-time Ubuntu | iDoor | CE FCC

Introduction

AMAX-PT800 V2, an Intel® Core™ Panel Controller powered by a 13th generation processor, is designed for all IoT control requirement. AMAX-PT800 V2 features a modular box design to provde high flexibility with diffrent-sized front panel combinations.

Each AMAX control platform is system-level optimized (1ms real-time with low jitter) to provide an optimal real-time environment for running CODESYS Softlogic under Windows OS and Linux OS respectively. The AMAX control platform will come with pre-install CODESYS license to enable EtherCAT for OT networks, and supports Modbus, OPC UA and MQTT for IT networks. With optional NVRAM installation, the data retention feature can be reliably executed while running CODESYS. Moreover, Advantech also provides flexible expansion modules, such as EtherCAT I/O from the Slice I/O series & Block I/O series and CODESYS-ready i-Door.

AMAX delivers a diverse array of control systems in various form factors tailored to meet the demands of different application scenarios.

Hardware Specifications

Part Number		AMAX-PT800-100D5A AMAX-PT800-102D5A AMAX-PT800-106D5A AMAX-PT800-108D5A AMAX-PT800-200D5A AMAX-PT800-202D5A AMAX-PT800-206D5A AMAX-PT800-208D5A	AMAX-PT800-100D7A AMAX-PT800-102D7A AMAX-PT800-106D7A AMAX-PT800-108D7A AMAX-PT800-200D7A AMAX-PT800-202D7A AMAX-PT800-206D7A AMAX-PT800-208D7A
System Hardware	Processor	Intel® Core™ i5-1335UE 1.3GHz, 2P8E, 12MB SmartCache	Intel® Core™ i7-1365URE 1.7GHz, 2P8E, 12MB SmartCache
	BIOS	Optimized BIOS for real-time performance	
	Memory	Single DDR5 4800 SO-DIMM, up to 32GB	
	Storage	1 x M.2 M 2280 key NVME optional	
	Retain Memory	N/A	
	Ethernet	Intel® i226-IT GbE (LAN A/B)	
	LED Indicator	Power LED on FPM	
	Expansion	1 x M.2 B Key 3042, 3052, 3080 for iDoor (PCIe x2/USB2.0) 1 x M.2 E key 2230 for WIFI (PCIe/USB2.0) 1 x M.2 B Key 3052 for 5G LTE (PCIe/USB3.2/USB2.0)	
I/O Interface	Local Digital I/O	N/A	
	Seriel Port	2 x RS-232/422/485 (DB9), 50 ~ 115.2kbp	
	LAN Port	2 x 10/100/1000/2500BASE-T Fast Ethernet (RJ45)	
	USB Port	2 x USB 3.2 (Gen1), 2 x USB 2.0	
	Display	1 x FPM Display 1 x Displayport 1.4a (Video output) 1 x Type C (USB 3.2 Gen.2, DP 1.4a, 5V w/ 3A max)	
	Grounding Protection	Chassis grounding	
	Power Connector	1 x 3 pin	

All product specifications are subject to change without notice.

Hardware Specifications (Cont.)

General	OS Support	Win10 2021 LTSC 64 bit / Win11 2024 LTSC 64bits AdvLinuxTU V4 64bit (EdgeLinux 22.04)
	Power Requirements	19 - 24 V_{DC} ± 15%
	Power Consumption	29W (typical), 65W (max.)
	Enclosure	Aluminum alloy housing
	Mounting	VESA Mount, Desktop, Wall or Panel Mount
	Weight (Net)	Approximate 2.65kg
	Dimensions (W x D x H)	269 x 50 x 203 mm
	Certification	CE, FCC Class A, CB/UL, CCC, BSMI
Environment	Operating Temperature	-10~60 °C (14~140 °F) (i5 w/o air flow) -20~60 °C (-4~140 °F) (i7 w/o air flow)
	Storage Temperature	-30~70 °C (-22~158 °F)
	Relative Humidity	10 ~ 95% RH @ 40°C, non-condensing
	Shock Protection	Operating, IEC 60068-2-27, 10G, half sine, 11 ms (SSD)
	Vibration	Operating, IEC 60068-2-6, 1 Grms, random, 5 ~ 500 Hz (SSD)

CODESYS Package for Windows

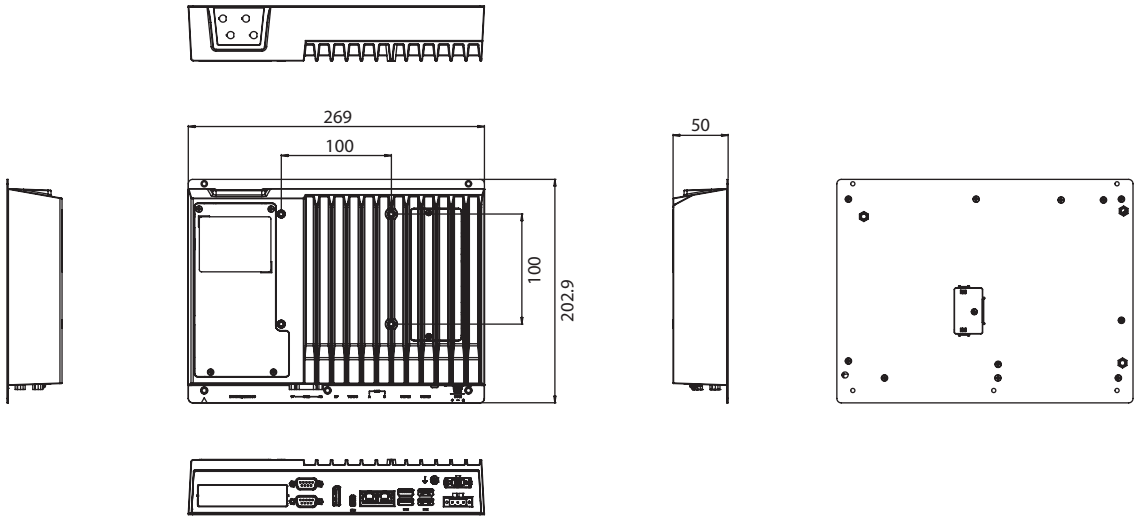
Part Number		AMAX-PT800-100D5A AMAX-PT800-100D7A	AMAX-PT800-102D5A AMAX-PT800-102D7A	AMAX-PT800-106D5A AMAX-PT800-106D7A	AMAX-PT800-108D5A AMAX-PT800-108D7A
CODESYS Basic Run Time	Runtime	CODESYS Control RTE V3.5 SP20			
	OT Network	EtherCAT MainDevice, Profinet Controller CIFX, Ethernet I/P Scanner CIFX, CANopen Manager			
	IT Network	Modbus/TCP Client and Server, Modbus/RTU Client, OPC UA Server			
	EtherCAT I/O Connection	No I/O Points Limitation			
CODESYS HMI	Visualization	N/A	Target Visualization (TV, Local HMI) & Web Visualization (WV, Web Browser).		
	Tags		Unlimited tags		
CODESYS SoftMotion	Motion Control Benchmark	N/A		16 axis with 1ms cycle time Tested under INTEL CPU P-core, Windows CODESYS, EtherCAT CSP mode, PTP (point-to-point) command	
	EtherCAT Servo Connection			No Axes Limitation in EtherCAT Servo Drive connections.	
CODESYS CNC & Robotics	CNC Interpolator	N/A	N/A	N/A	No axes interpolation limitations

CODESYS Package for Linux

Part Number		AMAX-PT800-200D5A AMAX-PT800-200D7A	AMAX-PT800-202D5A AMAX-PT800-202D7A	AMAX-PT800-206D5A AMAX-PT800-206D7A	AMAX-PT800-208D5A AMAX-PT800-208D7A
CODESYS Basic Run Time	Runtime	CODESYS Linux Control V3 SP20			
	OT Network	EtherCAT MainDevice, PROFINET IO-Controller, Ethernet I/P Scanner (Master), CANopen Manager			
	IT Network	Modbus/TCP Client and Server, Modbus/RTU Client/Server, OPC UA Server			
	EtherCAT I/O Connection	No I/O Points Limitation			
CODESYS HMI	Visualization	N/A	Web Visualization (WV, Web Browser)		
	Tags		Unlimited tags		
CODESYS SoftMotion	Motion Control Benchmark	N/A	N/A	64 axis with 500 µs cycle time [Tested under Linux CODESYS, EtherCAT CSP mode, PTP (point-to-point) command]	
	EtherCAT Servo Connection			No Axes Limitation in EtherCAT Servo Drive connections.	
CODESYS CNC & Robotics	CNC Interpolator	N/A	N/A	N/A	No axes interpolation limitations.

Dimensions

Unit: mm



VESA 100 x 100

Ordering Information

Below part number is ONLY controller platform with CODESYS license sticker. All working systems shipment shall **follow BTO process to complete the accessories selection, OS installation and CODESYS activation**.

P/N	Description
AMAX-PT800-100D5A	Intel Panel Controller, Intel Core i5-1335UE, Win CDS Control
AMAX-PT800-102D5A	Intel Panel Controller, Intel Core i5-1335UE, Win CDS Control+Target/WebVisu
AMAX-PT800-106D5A	Intel Panel Controller, Intel Core i5-1335UE, Win CDS Control+Target/WebVisu+SoftMotion
AMAX-PT800-108D5A	Intel Panel Controller, Intel Core i5-1335UE, Win CDS Control+Target/WebVisu+SoftMotion+CNC & Robotics
AMAX-PT800-100D7A	Intel Panel Controller, Intel Core i7-1365URE, Win CDS Control
AMAX-PT800-102D7A	Intel Panel Controller, Intel Core i7-1365URE, Win CDS Control+Target/WebVisu
AMAX-PT800-106D7A	Intel Panel Controller, Intel Core i7-1365URE, Win CDS Control+Target/WebVisu+SoftMotion
AMAX-PT800-108D7A	Intel Panel Controller, Intel Core i7-1365URE, Win CDS Control+Target/WebVisu+SoftMotion+CNC & Robotics

P/N	Description
AMAX-PT800-200D5A	Intel Panel Controller, Intel Core i5-1335UE, linux CDS Control
AMAX-PT800-202D5A	Intel Panel Controller, Intel Core i5-1335UE, linux CDS Control+WebVisu
AMAX-PT800-206D5A	Intel Panel Controller, Intel Core i5-1335UE, linux CDS Control+WebVisu+SoftMotion
AMAX-PT800-208D5A	Intel Panel Controller, Intel Core i5-1335UE, linux CDS Control+WebVisu+SoftMotion+CNC&Robotics
AMAX-PT800-200D7A	Intel Panel Controller, Intel Core i7-1365URE, linux CDS Control
AMAX-PT800-202D7A	Intel Panel Controller, Intel Core i7-1365URE, linux CDS Control+WebVisu
AMAX-PT800-206D7A	Intel Panel Controller, Intel Core i7-1365URE, linux CDS Control+WebVisu+SoftMotion
AMAX-PT800-208D7A	Intel Panel Controller, Intel Core i7-1365URE, linux CDS Control+WebVisu+SoftMotion+CNC&Robotics

Panel Module P/N	Description
FPM-D12T-CE	12.1" XGA TFT LED LCD
FPM-D12T-HE	12.1" XGA TFT LED LCD High Brightness 1000 nits
FPM-D15T-CE	15" XGA TFT LED LCD
FPM-D15T-HE	15" XGA TFT LED LCD High Brightness 1800 nits
FPM-D17T-CE	17" SXGA TFT LED LCD
FPM-D19T-CE	19" SXGA TFT LED LCD
FPM-D15W-FCE	15.6" FHD TFT LED LCD
FPM-D15W-FHE	15.6" FHD TFT LED LCD High Brightness 1200 nits
FPM-D18W-FCE	18.5" HD TFT LED LCD
FPM-D21W-CE	21.5" FHD TFT LED LCD
FPM-D21W-HE	21.5" FHD TFT LED LCD High brightness 1400 nits
FPM-D24W-CE	23.8" FHD TFT LED LCD

Power Consumption with Panel Module

Item	Power Consumption		Screen Size	Resolution	Aspect Ratio
	Typ.	Max.			
AMAX-PT800	29W	65W	N/A	N/A	N/A
w/ FPM-D12T-CE	41W	77W	12.1"	1024x768	04:03
w/ FPM-D12T-HE	43W	79W	12.1"	1024x768	
w/ FPM-D15T-CE	38W	74W	15"	1024x768	
w/ FPM-D15T-HE	53W	89W	15"	1024x768	
w/ FPM-D17T-CE	45W	81W	17"	1280x1024	05:04
w/ FPM-D19T-CE	43W	79W	19"	1280x1024	
w/ FPM-D15W-FCE	45W	81W	15.6"	1920x1080	16:09
w/ FPM-D15W-FHE	54W	90W	15.6"	1920x1080	
w/ FPM-D18W-FCE	46W	82W	18.5"	1920x1080	
w/ FPM-D21W-CE	41W	77W	21.5"	1920x1080	
w/ FPM-D21W-HE	71W	107W	21.5"	1920x1080	
w/ FPM-D24W-CE	50W	86W	23.8"	1920x1080	

AMAX Assembly Accessories

DDR5 Memory for AMAX-PT800

- **SQR-SD5I8G5K6HNGAG** 262pin SODIMM DDR5 5600 8GB 1.1v 1Gx16 (-40-95) Hynix A die
- **SQR-SD5I16G5K6HNAG** 262pin SODIMM DDR5 5600 16GB 1.1v 2Gx8 (-40-95) Hynix A die
- **SQR-SD5I32G5K6HNAG** 262pin SODIMM DDR5 5600 32GB 1.1v 2Gx8 (-40-95) Hynix A die
- **SQR-SD5I8G4K8SNGBB** 262pin SODIMM DDR5 4800 8GB 1.1v 1Gx16 (-40-95) Samsung B die
- **SQR-SD5I16G4K8SNBB** 262pin SODIMM DDR5 4800 16GB 1.1v 2Gx8 (-40-95) Samsung B die
- **SQR-SD5I32G4K8SNBB** 262pin SODIMM DDR5 4800 32GB 1.1v 2Gx8 (-40-95) Samsung B die
- **SQR-SD5U16G4K8MNAB** 262pin SODIMM DDR5 4800 16GB 1.1v 2Gx8 (-40-105), non fixed die Micron
- **SQR-SD5U32G4K8MNAB** 262pin SODIMM DDR5 4800 32GB 1.1v 2Gx8 (-40-105), non fixed die Micron

M.2 Mkey NVMe Storage Module

- **SQF-C8MV2-128GDEDM** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 128G 3D TLC BiCS5 (-20~85°C)
- **SQF-C8MV2-256GDEDM** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 256G 3D TLC BiCS5 (-20~85°C)
- **SQF-C8MV2-512GDEDM** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 512G 3D TLC BiCS5 (-20~85°C)
- **SQF-C8MV4-1TDEDM** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 1T 3D TLC BiCS5 (-20~85°C)
- **SQF-C8MV4-2TDEDM** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 2T 3D TLC BiCS5 (-20~85°C)
- **SQF-C8MV2-128GDEDE** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 128G 3D TLC BiCS5 (-40~85°C)
- **SQF-C8MV2-256GDEDE** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 256G 3D TLC BiCS5 (-40~85°C)
- **SQF-C8MV2-512GDEDE** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 512G 3D TLC BiCS5 (-40~85°C)
- **SQF-C8MV4-1TDEDE** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 1T 3D TLC BiCS5 (-40~85°C)
- **SQF-C8MV4-2TDEDE** SQF PCIe/NVMe Gen.3 M.2 2280 OPAL 720-D 2T 3D TLC BiCS5 (-40~85°C)

Embedded OS

- **20701WX1HS0009** Img WIN10LTSC v6.09 B012 for TPC-B520 High
- **20701WX1VS0009** Img WIN10LTSC v6.09 B012 for TPC-B520 Value
- **20701U22DS0018** Img AdvLinuxTu-IOTG_x64 V4.3.5 ATPC(TWM9) series

Windows Real-Time Control Software (CODESYS RTE)

- **32OTADVWX86004** Software CODESYS WRTE Driver V3.5.2010.2

Linux Real-Time Control Software (CODESYS Control V3 for Linux)

- **32OTADVLX86004** SW CDS x86Linux Driver V3.5.20P4.2098(w/o TV)

Optional Accessories

iDoor Expansion (M.2 B+M) For AMAX-PT800

- **PCM-37D24DI-AE** 24ch Isolation Digital I/O, 16DI/ 8DO, DB37 x1
- **PCM-34D2R2-AE** Isolated RS-232, DB9 x2, M.2 Bkey (2242, USB)
- **PCM-34D2R4-AE** Isolated RS-422/485, DB9 x2, M.2 Bkey (2242, USB)
- **PCM-34R2GL-AE** 2 Port Giga LAN Intel i350, M.2 B+M key

Note: These listed iDoor modules are supported by Advantech CODESYS run time. For other iDoor support, please contact Advantech.

Power Related Accessories

- **96PSA-A120W24T2-4** 120W 24V_{DC} power supply
- **96PSA-A150W24T2-4** 150W 24V_{DC} power supply for FPM-Dxxx-HE and Type-C with Power Delivery
- **98R1B520000** TPC-B520 2.5" SSD Expansion Kit
- **1702002600** Power cable (US) 1.8 M
- **1702002605** Power cable (EU) 1.8 M
- **1702031801** Power cable (UK) 1.8 M
- **1700000596-11** Power cable (China/Australia) 1.8 M