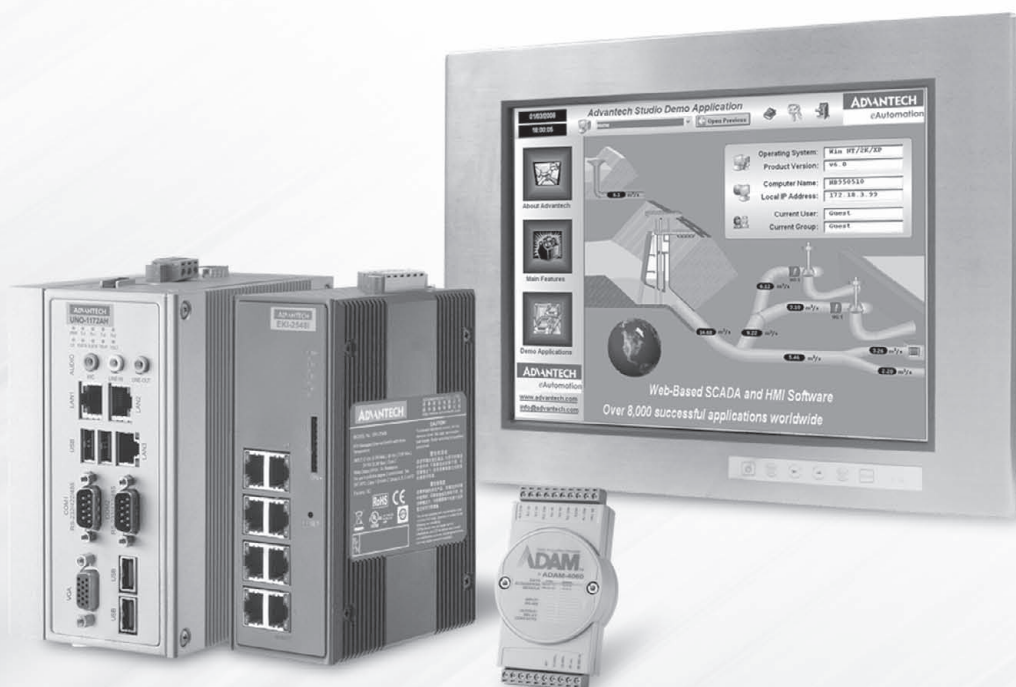


Hazardous Location Solutions

Class I, Division 2 Certification Overview	2-2
Class I, Division 2 Certified Product Selection Guide	2-3
ADAM-4011	1-ch Thermocouple Input Module
ADAM-4012	1-ch Analog Input Module
ADAM-4013	1-ch RTD Input Module
ADAM-4016	1-ch Analog Input/Output Module
ADAM-4017	8-ch Analog Input Module
ADAM-4018	8-ch Thermocouple Input Module
ADAM-4021	1-ch Analog Output Module
ADAM-4050	15-ch Digital I/O Module
ADAM-4052	8-ch Isolated Digital Input Module
ADAM-4053	16-ch Digital Input Module
ADAM-4060	4-ch Relay Output Module
ADAM-4080	2-ch Counter/Frequency Module
ADAM-4510	RS-422/485 Repeater
ADAM-4520	Isolated RS-232 to RS-422/485 Converter
ADAM-4521	Addressable RS-422/485 to RS-232 Converter
ADAM-4541	Multi-mode Fiber Optic to RS-232/422/485 Converter
ADAM-3011	Isolated Thermocouple Input Module
ADAM-3014	Isolated DC Input/Output Module
FPM-8151H	15" XGA Industrial Monitor with Resistive Touchscreen
UNO-1140FH	Class I, Division 2 Certified 486SX-grade SoC DIN-rail PC with 1 x LAN, 8 x Isolated COM
UNO-1150GH/GHE	Class I, Division 2 Certified AMD Geode LX800 DIN-rail PCs with 2 x LAN, 3 x COM, PCI-104
UNO-1172AH	Class I, Division 2 Certified Intel Atom D510 DIN-rail PC with 3 x LAN, 2 x COM, VGA, Mini PCIe

Note: Advantech also offers Class I, Division 2 certified industrial communication solutions. Please refer to Chapter 10 & 11 for more information.

To view all of Advantech's Class I, Division 2 certified products, please visit www.advantech.com/products.



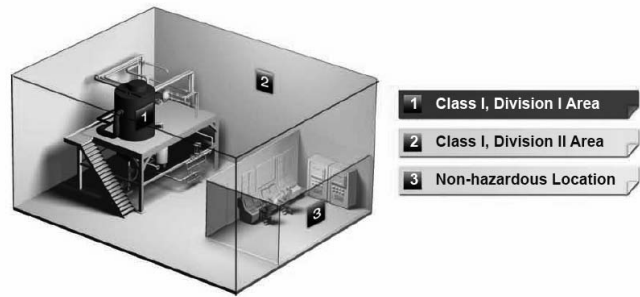
Class I, Division 2 Certification Overview

Introduction

Advantech has designed a series of products which have passed Class I, Division 2 (CID2), Groups A, B, C, D certification. These products include: Human Machine Interface, Industrial Communication, Embedded Automation Computers, and Data Acquisition modules. Furthermore, Advantech's CID2 certified product solutions have been engineered to meet the demanding requirements of various hazardous applications such as oil field drilling, pump station monitoring, chemical plants, pharmaceutical factories, oil pipeline monitoring, tank storage monitoring, and fuel station management.

Certification Definition - Class I, Division 1 & 2

Hazardous locations are areas where potential hazards (e.g. fires, explosions, etc.) may exist under normal or abnormal conditions because of the presence of flammable gases or vapors, flammable liquids, combustible dusts or ignitable fibers. According to the NEC (National Electrical Code), there are three types of hazardous locations categorized by Class I (gases, vapors, and liquids), Class II (dusts), and Class III (fibers and flyings). Division 1 means normally explosive and hazardous and Division 2 means not normally present in an explosive concentration but may accidentally exist.



Class I is directly related to the oil and gas market applications, such as petroleum refineries, gasoline storage, dispensing areas and utility gas plants. According to the ignition temperature of the substance, its explosion pressure, and other flammable characteristics, the gases and vapors of Class I locations are broken into four groups by the Codes: A, B, C, and D. Temperature classes also exist to designate the permissible surface temperature of electrical equipment which allows them to operate normally in the surrounding atmosphere.

CLASSES	GROUPS	DIVISIONS	
		1	2
Class I : Gases, vapors, and liquids	A: Acetylene B: Hydrogen, gases or vapors of equivalent hazard C: Ethyl-ether vapors, ethylene, or cyclo-propane D: Gasoline, hexane, naptha, benzene, butane, propane, alcohol, etc.	Normally explosive and hazardous	Not normally present in an explosive concentration (but may accidentally exist)
TEMPERATURE CLASSES			
<ul style="list-style-type: none">T6 Under 85°C (Under 185°F)T5 85 ~ 100°C (185 ~ 212°F)T4A 100 ~ 120°C (212 ~ 248°F)T4 120 ~ 135°C (248 ~ 275°F)		<ul style="list-style-type: none">T3A 165 ~ 180°C (329 ~ 356°F)T3 180 ~ 200°C (356 ~ 392°F)T2 280 ~ 300°C (536 ~ 572°F)T1 300 ~ 450°C (572 ~ 842°F)	

CID2 Certified Data Acquisition Module Features

Flexible Networking

ADAM-4000 series modules need just two wires to communicate with their controlling host computer over a multidrop RS-485 network. Their ASCII-based command/response protocol ensures compatibility with virtually any computer system.

Dual Watchdog Timer

All ADAM-4000 robust family modules provide two watchdog timers. The system watchdog will reboot the system when the module hangs, and the communication watchdog will re-initialize the RS-485 network if there is no communication for a specific time.

Multiple Mounting Methods

For easy installation using a versatile range of methods, most ADAM modules support a variety of mounting methods, such as DIN-rail mounting, wall mounting and piggybacking. All necessary mounting kits are included with the devices.

CID2 Certified Industrial Monitor and Controller Features

Stainless Steel Enclosure

The FPM-8151H is designed with a robust anodized aluminum front bezel and 316L stainless steel rear cover.

Designed for Control Cabinets

The UNO-1100H series feature a compact size, DIN-rail mounting, and front-accessible I/O that make installation within a control cabinet very easy.

Battery-backup SRAM

The onboard battery-backup SRAM saves runtime process data in the even of a power failure. In addition, the SRAM can act as a data buffer that helps to reduce CF access time and extend product lifetime.

Flexible Expansion

With Mini PCI, PCI-104 and PC/104+, the UNO-1100H series enable users to easily integrate wireless connections and Fieldbus I/O modules in a single package.

Class I, Division 2 Certified Product Selection Guide

Analog Input



Model		ADAM-4011	ADAM-4012	ADAM-4013	ADAM-4016	ADAM-4017	ADAM-4018	ADAM-4021
Resolution		16 bit						12 bit
Analog Input	Channels	1 differential	1 differential	1 differential	1 differential	6 differential 2 single-ended	6 differential 2 single-ended	-
	Sampling Rate	10 Hz						-
	Voltage Input	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	±150 mV ±500 mV ±1 V ±5 V ±10 V	-	±15 mV ±50 mV ±100 mV ±500 mV	±150 mV ±500 mV ±1 V ±5 V ±10 V	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	-
	Current Input	±20 mA	±20 mA	-	±20 mA	±20 mA	±20 mA	-
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	-	RTD	-	-	J, K, T, E, R, S, B Thermocouple	-
	Burn-out Detection	Yes	-	-	-	-	Yes	-
	Channel Independent Configuration	-	-	-	-	-	-	-
Analog Output	Channels	-	-	-	1	-	-	1
	Voltage Output	-	-	-	0 ~ 10 V	-	-	0 ~ 10 V
	Current Output	-	-	-	-	-	-	0 ~ 20 mA 4 ~ 20 mA
Digital Input and Output	Input Channels	1	1	-	-	-	-	-
	Output Channels	2	2	-	4	-	-	-
	Alarm Settings	Yes	Yes	-	-	-	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-	-
Isolation Voltage		3,000 V _{DC}						
Watchdog Timer		Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)
Safety Setting		-	-	-	-	-	-	-
Modbus Support *		-	-	-	-	-	-	-
Page		2-6	2-6	2-6	2-7	2-7	2-8	2-8

*: All ADAM-4000 I/O Modules support ASCII Commands

- 1 Motion Control
- 2 Hazardous Location
- 3 Energy Automation
- 4 Building Automation Systems
- 5 Automation Software
- 6 Operator Panels
- 7 Automation Panel PCs
- 8 Industrial Monitors
- 9 Industrial Ethernet
- 10 Device Servers & Gateways
- 11 Serial Communication Cards
- 12 Embedded Auto. Computers
- 13 PACs
- 14 M2M I/O
- 15 Distributed Nano Controllers
- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

Class I, Division 2 Certified Product Selection Guide

Digital Input/Output, Relay Output and Counter



Model		ADAM-4050	ADAM-4052	ADAM-4053	ADAM-4060	ADAM-4080
Digital Input and Output	Input Channels	7	8	16	-	-
	Output Channels	8	-	-	4-ch relay	2
Counter (32-bit)	Channels	-	-	-	-	2
	Input Frequency	-	-	-	-	50 kHz
Isolation Voltage		-	5,000 V _{RMS}	-	-	2,500 V _{RMS}
Digital LED Indicator		-	-	-	-	-
Watchdog Timer		Yes (System)	Yes (System)	Yes (System)	Yes (System)	Yes (System)
Safety Setting		-	-	-	Yes	-
Modbus Support *		-	-	-	-	-
Power Requirement		10 ~ 30 V _{DC}			10 ~ 30 V _{DC}	10 ~ 30 V _{DC}
Operating Temperature		-10 ~ 70°C (14 ~ 158°F)			-10 ~ 70°C (14 ~ 158°F)	-10 ~ 70°C (14 ~ 158°F)
Humidity		5 ~ 95% RH				
Power Consumption		0.4 W @ 24 V _{DC}	0.4 W @ 24 V _{DC}	1 W @ 24 V _{DC}	0.8 W @ 24 V _{DC}	2 W @ 24 V _{DC}
Page		2-9	2-9	2-9	2-10	2-10

*: All ADAM-4000 I/O Modules support ASCII Commands



Model		ADAM-4510	ADAM-4520	ADAM-4521	ADAM-4541
Network		RS-422/485	RS-232 to RS-422/485	RS-232 to RS-422/485	Fiber Optic to RS-232/422/485
Communication Speed (bps)		Serial: From 1,200 to 115.2 k			
Communication Distance		Serial: 1.2 km			2.5 km
Interface Connectors		RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal	RS-232/422/485: plug-in screw terminal Fiber: ST connector
Digital LED Indicators		Communication & Power			
Data Flow Control		Yes		Yes	
Isolation Voltage		-	3,000 V _{DC}	1,000 V _{DC}	-
Power Requirement		10 ~ 30 V _{DC}			
Operating Temperature		-10 ~ 70°C (14 ~ 158°F)			
Humidity		5 ~ 95% RH			
Power Consumption		1.4 W @ 24 V _{DC}	1.2 W @ 24 V _{DC}	1 W @ 24 V _{DC}	1.5 W @ 24 V _{DC}
Page		2-11	2-11	2-12	2-12

Industrial Monitor



Model Name		FPM-8151H
CPU		-
Memory		-
Display	Display Type	XGA LED LCD
	Display Size	15"
	Max. Resolution	1024 x 768
	Max. Colors	16.2M (RGB 8-bits) or 262k colors (RGB 6-bits)
	Luminance cd/m2	350
	Viewing Angle (H/V°)	160/140
	Backlight MTBF(hrs)	50000hrs
Video Port		VGA & DVI-D
Touchscreen		Resistive
Network(LAN)		-
I/O ports		-
HDD(Optional)		-
OSD(onscreen display)		Yes
CompactFlash Slots		-
Expansion Slots		-
Power Input Voltage		100 ~ 240 V _{AC}
DC Power Input (voltage)		24 V _{DC}
Ingress Protection (Front Panel)		NEMA4X/IP65
Enclosure		Front panel: Stainless steel Rear cover: Stainless steel Ground Isolation Protection
Mounting		Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
Operating temperature		-20 ~ 60°C (-4 ~ 140°F)
Storage Temperature		-30 ~ 80°C (-22 ~ 176°F)
Dimension		422 x 338 x 68 mm (16.61" x 13.31" x 2.68")
Weight		7.73 kg (17.04 lbs)
Certification		CE, FCC, UL, CB, BSMI, CCC
Operating System		-
Page		2-14

Embedded Automation Computers



Model Name	UNO-1140FH	UNO-1150GH/GHE	UNO-1172AH
CPU	EVA-X4150 SoC 486SX grade, 150 MHz	AMD Geode LX800, 500 MHz	Intel Atom D510, 1.66 GHz
Onboard RAM	64 MB SDRAM	256 MB DDR SDRAM	2 GB DDR2 SDRAM
Battery-Backup SRAM	-	-	1MB
Display	VGA	VGA	VGA
Audio	-	Yes	5.1 channel HD Audio
Serial Ports	4 x isolated RS-232/485 4 x isolated RS-485	2 x RS-232 (one pin header reserved) 2 x RS-232/422/485	2 x RS-232/422/485 2 x RS-232 (pin header)
Ethernet Ports	1 x 10/100Base-T	2 x 10/100Base-T	3 x 10/100/1000Base-T
USB Ports	2	2	4
PC Card Slots	-	-	-
Printer Ports	-	1 x LPT (pin header reserved for project)	-
PC/104 Expansion	(Project reserved PC/104)	2 x PCI-104 (UNO-1150GHE)	-
PCIe/PCI Expansion	-	1 x Mini PCI (UNO-1150GHE)	1 x Mini PCIe
Onboard I/O	-	-	2-ch DI; 6-ch DO
Watchdog Timer	Yes	Yes	Yes
CompactFlash Slots	One internal	One internal	One internal
2.5" HDD Expansion	-	1 x SATA (UNO-1150GHE)	1 x SATA
Operating Systems	WinCE 5.0 & 6.0, Linux	Windows XP Embedded, Windows CE 5.0 & 6.0, Windows XP, Linux, QNX	Windows XP Embedded, Windows CE 5.0 & 6.0, Windows XP, Windows 7, Linux, QNX
Mounting	DIN-rail/Wall	DIN-rail/Wall	DIN-rail/Wall
Anti-Vibration	5 G w/CF	2 G w/CF 1 G w/HDD	2 G w/CF 1 G w/HDD
Anti-Shock	50 G w/CF	50 G w/CF 20 G w/HDD	50 G w/CF 20 G w/HDD
Power Input Range*	10 ~ 30 V _{DC}	10 ~ 36 V _{DC}	10 ~ 36 V _{DC}
Operating Temperature	-10 ~ 60°C (14 ~ 140°F)	-10 ~ 60°C (14 ~ 140°F)	-10 ~ 60°C (14 ~ 140°F)
Power Consumption Typical	10 W	15 W	24 W
Power Requirement	24 W, +24 V @ 1 A power input	24 W, +24 V @ 1 A power input	48 W, +24 V @ 1 A power input
Dimensions (W x D x H)	71 x 139 x 152 mm (2.8" x 5.5" x 6")	71 x 139 x 152 mm (2.8" x 5.5" x 6") 96.5 x 139 x 152 mm (3.8" x 5.5" x 6")	85.5 x 139 x 152 mm (3.4" x 5.5" x 6")
CID2 Temp. Code	T4A	T3A	T5
Weight	1.0 kg	1.6 kg / 2.0 kg	1.6 kg
Page	2-16	2-17	2-18

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Distributed Nano Controllers

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RS-485 I/O

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Ethernet I/O

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DAQ Boards

ADAM-4011 ADAM-4012 ADAM-4013

1-ch Thermocouple Input Module

1-ch Analog Input Module

1-ch RTD Input Module



ADAM-4011



ADAM-4012



ADAM-4013



Specifications

General

- Power Consumption 1.4 W @ 24 V_{DC}
- Supported Protocols ASCII command

Analog Input

- Channels 1
- Input Impedance Voltage: 2 M Ω
Current: 125 Ω (Added by users)
- Input Type T/C, mV, V or mA
- Input Range ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 1 V, ± 2.5 V, ± 20 mA
- Accuracy Voltage mode: $\pm 0.1\%$ or better
Current mode: $\pm 0.2\%$ or better

T/C Type and Temperature Range

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

- Span Drift ± 25 ppm/°C
- Zero Drift ± 6 μ V/°C

Digital Input

- Channels 1
Logic level 0: 1 V max.
Logic level 1: 3.5 ~ 30 V
Pull up current: 0.5 mA,
10 k Ω resistor to 5 V
- Event Counter Max. input freq: 50 Hz

Digital Output

- Channels 2, open collector to 30 V, 30 mA max. load
- Power Dissipation 300 mW

Specifications

General

- Power Consumption 1.2 W @ 24 V_{DC}
- Supported Protocols ASCII command

Analog Input

- Channels 1
- Input Impedance Voltage: 20 M Ω
Current: 125 Ω (Added by users)
- Input Type mV, V or mA
- Input Range ± 150 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V and ± 20 mA
- Accuracy Voltage mode: $\pm 0.1\%$ or better
Current mode: $\pm 0.2\%$ or better

- Span Drift ± 25 ppm/°C
- Zero Drift ± 6 μ V/°C

Digital Input

- Channels 1
Logic level 0: 1 V max.
Logic level 1: 3.5 ~ 30 V
pull up current: 0.5 mA,
10 k Ω resistor to 5 V
- Event Counter Max. input freq.: 50 Hz
Min. input pulse width: 1 msec.

Digital Output

- Channels 2, open collector to 30 V, 30 mA max. load
- Power Dissipation 300 mW

Specifications

General

- Power Consumption 0.7 W @ 24 V_{DC}
- Supported Protocols ASCII command

Analog Input

- Channels 1
 - Input Connections 2 or 3-wire
 - Input Impedance 2 M Ω
 - Input Type Pt or Ni RTD
 - RTD Types and Temperature Ranges
- | IEC RTD 100 ohms | | | |
|------------------|--------|----|---------------------|
| Pt | -100°C | to | +100°C a = 0.00385 |
| Pt | 0°C | to | +100°C a = 0.00385 |
| Pt | 0°C | to | +200°C a = 0.00385 |
| Pt | 0°C | to | +600°C a = 0.00385 |
| JIS RTD 100 ohms | | | |
| Pt | -100°C | to | +100°C a = 0.003916 |
| Pt | 0°C | to | +100°C a = 0.003916 |
| Pt | 0°C | to | +200°C a = 0.003916 |
| Pt | 0°C | to | +600°C a = 0.003916 |
| Ni RTD | | | |
| Ni | -80°C | to | +100°C |
| Ni | 0°C | to | +100°C |
- Accuracy $\pm 0.1\%$ or better
 - Span Drift ± 25 ppm/°C
 - Zero Drift ± 3 μ V/°C

Common Specifications

General

- Power Input Unregulated 10 ~ 30 V_{DC}
- Connectors 1 x plug-in terminal block (#14 ~ 22 AWG)
- Watchdog Timer System (1.6 second)

Analog Input

- Resolution 16-bit
- Sampling Rate 10 sample/second

- CMR @ 50/60 Hz 150 dB
- NMR @ 50/60 Hz 100 dB
- Isolation Voltage 3,000 V_{DC}

Environment

- Humidity 5 ~ 95% RH
- Operating Temp. -10 ~ 70°C (14 ~ 158°F)
- Storage Temp. -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- ADAM-4011 1-ch Thermocouple Input Module
- ADAM-4012 1-ch Analog Input Module
- ADAM-4013 1-ch RTD Input Module

ADAM-4016

ADAM-4017

1-ch Analog Input/Output Module

8-ch Analog Input Module



ADAM-4016



Specifications

General

- Connectors 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- Power Consumption 2.2 W @ 24 V_{DC}
- Watchdog Timer System (1.6 s)
- Supported Protocols ASCII command

Analog Input

- Channels 1 differential
- Input Impedance Voltage: 2 M Ω
Current: 125 Ω (Added by users)
- Input Type mV, mA
- Input Range ± 15 mV, ± 50 mV, ± 100 mV, ± 500 mV, ± 20 mA

Analog Output

- Channels 1
- Accuracy 0.05% of FSR
- Output Type V
- Output Range 0 ~ 10 V
- Drift ± 50 ppm/ $^{\circ}$ C
- Drive Current 30 mA
- Isolation Voltage 3,000 V_{DC}

Digital Output

- Channels 4, open collector to 30 V, 30 mA max. load
- Power Dissipation 300 mW

Common Specifications

General

- Power Input Unregulated 10 ~ 30 V_{DC}
- Connectors 2 x plug-in terminal block (#14 ~ 22 AWG)

Analog Input

- Accuracy Voltage mode: $\pm 0.1\%$ or better
Current mode: $\pm 0.2\%$ or better
- Resolution 16-bit

- Sampling Rate 10 sample/second (total)
- Isolation Voltage 3,000 V_{DC}
- CMR @ 50/60 Hz 120 dB
- NMR @ 50/60 Hz 100 dB
- Span Drift ± 25 ppm/ $^{\circ}$ C
- Zero Drift ± 6 μ V/ $^{\circ}$ C

Environment

- Humidity 5 ~ 95% RH
- Operating Temp. -10 ~ 70 $^{\circ}$ C (14 ~ 158 $^{\circ}$ F)
- Storage Temp. -25 ~ 85 $^{\circ}$ C (-13 ~ 185 $^{\circ}$ F)



ADAM-4017



Specifications

General

- Power Consumption 1.2 W @ 24 V_{DC}
- Watchdog Timer System (1.6 second)
- Supported Protocols ASCII command

Analog Input

- Channels 6 differential and 2 single-ended
- Input Type mV, V, mA
- Input Range ± 150 mV, ± 500 mV, ± 1 V, ± 5 V, ± 10 V, ± 20 mA

Ordering Information

- ADAM-4016 1-ch Analog Input/Output Module
- ADAM-4017 8-ch Analog Input Module

- 1 Motion Control
- 2 Hazardous Location
- 3 Energy Automation
- 4 Building Automation Systems
- 5 Automation Software
- 6 Operator Panels
- 7 Automation Panel PCs
- 8 Industrial Monitors
- 9 Industrial Ethernet
- 10 Device Servers & Gateways
- 11 Serial Communication Cards
- 12 Embedded Auto. Computers
- 13 PACs
- 14 M2M I/O
- 15 Distributed Nano Controllers
- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

ADAM-4018

ADAM-4021

8-ch Thermocouple Input Module

1-ch Analog Output Module



ADAM-4018



ADAM-4021



Specifications

General

- Power Consumption 0.8 W @ 24 V_{DC}
- Watchdog Timer System (1.6 second)
- Supported Protocols ASCII command

Analog Input

- Channels 6 differential and 2 single-ended
- Input Type Thermocouple, mV, V, mA
- Input Range ± 50 mV, ± 100 mV, ± 500 mV V, ± 1 V, ± 2.5 V, ± 20 mA
- T/C Types and Temperature Ranges

J	0 ~ 760°C	R	500 ~ 1,750°C
K	0 ~ 1,370°C	S	500 ~ 1,750°C
T	-100 ~ 400°C	B	500 ~ 1,800°C
E	0 ~ 1,000°C		

Specifications

General

- Connectors 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- Power Consumption 1.4 W @ 24 V_{DC}
- Watchdog Timer System (1.6 second)
- Supported Protocols ASCII command

Analog Output

- Channels 1
- Output Impedance 0.5 Ω
- Output Range 0 ~ 20 mA, 4 ~ 20 mA, 0 ~ 10 V
- Output Type mA, V
- Accuracy $\pm 0.1\%$
 $\pm 0.2\%$
- Current Load Resistor 0 to 500 Ω (source)
- Resolution 12-bit
- Isolation Voltage 3,000 V_{DC}
- Programmable Output Slope 0.125 ~ 128 mA/sec.
0.0625 ~ 64.0 V/sec.
- Readback Accuracy $\pm 1\%$
- Span Temperature Coefficient ± 25 ppm/°C
- Zero Drift
Voltage output: ± 30 μ V/°C
Current output: ± 0.2 μ A/°C

Common Specifications

General

- Power Input Unregulated 10 ~ 30 V_{DC}
- Connector 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- Isolation Voltage 3,000 V_{DC}
- Supported Protocols ASCII Command and Modbus/RTU

Environment

- Humidity 5 ~ 95% RH
- Operating Temp. -40 ~ 85°C (-40 ~ 185°F)
- Storage Temp. -40 ~ 85°C (-40 ~ 185°F)

Ordering Information

- ADAM-4018 8-ch Thermocouple Input Module
- ADAM-4021 1-ch Analog Output Module

ADAM-4050 ADAM-4052 ADAM-4053

15-ch Digital I/O Module

8-ch Isolated Digital Input Module

16-ch Digital Input Module



ADAM-4050



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.4 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

Digital Input

- **Channels** 7
- **Input Level** Logic level 0: 1 V max.
Logic level 1: 3.5 ~ 30 V
Pull up current: 0.5 mA,
10 kΩ resistor to 5 V

Digital Output

- **Channels** 8
open collector to 30 V,
30 mA max. load
- **Power Dissipation** 300 mW



ADAM-4052



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.4 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

Digital Input

- **Channels** 8
(6 fully independent isolated channels, 2 isolated channels with common ground)
- **Input Level** Logic level 0: 1 V max.
Logic level 1: 3 ~ 30 V
- **Isolation Voltage** 5,000 V_{RMS}
- **Input Resistance** 3 kΩ



ADAM-4053



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 1 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

Digital Input

- **Channels** 16
- **Input Level** Dry contact: Logic level 0: close to GND
Logic level 1: open
Wet contact: Logic level 0: 2 V max.
Logic level 1: 4 ~ 30 V
- **Effective Distance** 500 m max.
(dry contact only)

- 1 Motion Control
- 2 Hazardous Location
- 3 Energy Automation
- 4 Building Automation Systems
- 5 Automation Software
- 6 Operator Panels
- 7 Automation Panel PCs
- 8 Industrial Monitors
- 9 Industrial Ethernet
- 10 Device Servers & Gateways
- 11 Serial Communication Cards
- 12 Embedded Auto. Computers
- 13 PACs
- 14 M2M I/O
- 15 Distributed Nano Controllers
- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC}

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temp.** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temp.** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4050** 15-ch Digital I/O Module
- **ADAM-4052** 8-ch Isolated Digital Input Module
- **ADAM-4053** 16-ch Digital Input Module

ADAM-4060 ADAM-4080

4-ch Relay Output Module

2-ch Counter/Frequency Module



ADAM-4060



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 0.8 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command

Relay Output

- **Breakdown Voltage** 500 V_{AC} (50/60 Hz)
- **Channels** 2 x Form A
2 x Form C
- **Contact Rating (Resistive)** 0.6 A @ 125 V_{AC}
0.3 A @ 250 V_{AC}
2 A @ 30 V_{DC}
0.6 A @ 110 V_{DC}
- **Initial Insulation Resistance** 1 G Ω min. at 500 V_{DC}
- **Relay off Time (Typical)** 2 ms
- **Relay on Time (Typical)** 3 ms
- **Max. Operating Speed** 20 operations/min (at related load)



ADAM-4080



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 2.0 W @ 24 V_{DC}
- **Watchdog Timer** System (1.6 second)
- **Supported Protocols** ASCII command
- **LED Indicators** 5-digit readout, Ch 0 or Ch 1 (programmable)

Counter Input

- **Channels** 2 independent counters (32-bit + 1-bit overflow)
- **Input Frequency** 50 kHz max.
- **Input Pulse Width** >10 μs.
- **Input Mode** Isolated or non-isolated
- **Isolated Input Level** Logic level 0: 1 V max.
Logic level 1: 3.5~30 V
- **Isolation Voltage** 2,500 V_{RMS}
- **Non-isolated Input Level** Programmable threshold:
Logic level 0: 0.8 V_{max}.
Logic level 1: 2.4 ~ 5.0 V
- **Maximum Count** 4,294,967,295 (32 bits)
- **Preset Type** Absolute or relative
- **Programmable Digital Noise Filter** 2 μs ~ 65 ms
- **Alarm** Alarm comparators on each counter
- **Frequency Measurement Range** 5 Hz ~ 50 kHz
- **Programmable Built-in Gate Time** 1 or 0.1 second

Digital Output

- **Channels** 2, open collector to 30 V, 30 mA max. load
- **Power Dissipation** 300 mW for each channel

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC}

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temp.** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temp.** -25 ~ 85°C (-13 ~ 185°F)

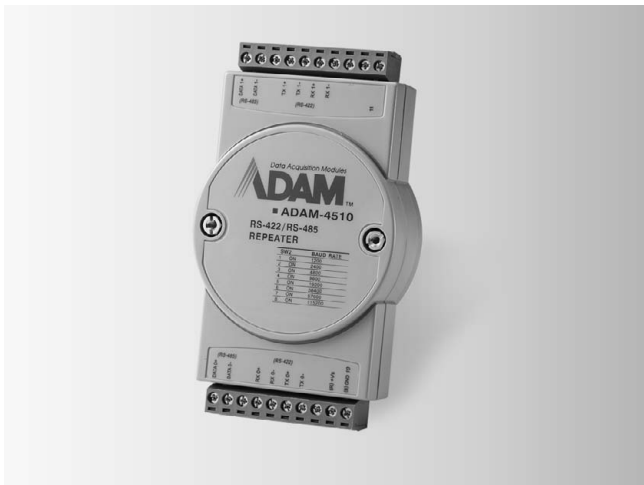
Ordering Information

- **ADAM-4060** 4-ch Relay Output Module
- **ADAM-4080** 2-ch Counter/Frequency Modules

ADAM-4510 ADAM-4520

Robust RS-422/485 Repeater

Robust RS-232 to RS-422/485 Converter



ADAM-4510



Specifications

General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG) (RS-422/485)
- **Power Consumption** 1.4 W @ 24 V_{DC}

Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)
- **Supports Auto Baud-Rate**
- **Provide RS-485 to RS-422 Conversion Ability**



ADAM-4520



Specifications

General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)
1 x DB9-F (RS-232)
- **Power Consumption** 1.2 W @ 24 V_{DC}

Communications

- **Input** RS-232 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)
- **Supports Auto Baud-Rate**

- 1 Motion Control
- 2 Hazardous Location
- 3 Energy Automation
- 4 Building Automation Systems
- 5 Automation Software
- 6 Operator Panels
- 7 Automation Panel PCs
- 8 Industrial Monitors
- 9 Industrial Ethernet
- 10 Device Servers & Gateways
- 11 Serial Communication Cards
- 12 Embedded Auto. Computers
- 13 PACs
- 14 M2M I/O
- 15 Distributed Nano Controllers
- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC} w/power reversal protection

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temp.** - 10 ~ 70°C (14 ~ 158°F)
- **Storage Temp.** - 25 ~ 85°C (-13 ~ 185°F)
- **Supports Noise Rejection**

Ordering Information

- **ADAM-4510** Robust RS-422/485 Repeater
- **ADAM-4520** Robust RS-232 to RS-422/485 Converter

ADAM-4521

ADAM-4541

Addressable RS-422/485 to RS-232 Converter

Multi-mode Fiber Optic to RS-232/422/485 Converter



ADAM-4521



Specifications

General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG)
(RS-422/485)
1 x DB9-F (RS-232)
- **Isolation Voltage** 1,000 V_{DC}
- **Power Consumption** 1.0 W @ 24 V_{DC}
- **Built-in microprocessor and watchdog timer**

Serial Communications

- **Input** RS-485 (2-wire) or
RS-422 (4-wire)
- **Output** RS-232 (4-wire)
- **Speed Modes (bps)** 300, 600, 1,200, 2,400, 4,800, 9,600, 19.2 k,
38.4 k, 57.6 k, 115.2 k (software configurable)
- **RS-232 and 485 can be set to different baudrates**
- **RS-485 surge protection and automatic RS-485 data flow control**
- **Software configurable to either addressable or non-addressable mode**



ADAM-4541



Specifications

General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG)
(RS-232/422/485)
2 x ST fiber connector
- **Power Consumption** 1.5 W @ 24 V_{DC}

Serial Communications

- **Communication Mode** Asynchronous
- **Speed Modes (bps)** 1,200, 2,400, 4,800,
9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k and
RS-232/422 mode (switchable)
- **Transmission Mode** Full/half duplex, bidirectional

Fiber Optic Communications

- **Optical Power Budget (Attenuation)** 12.5 dB (measured with
62.5/125 µm)
- **Transmission Distance** 2.5 km
- **Transmission Mode** Multi mode
(Send and Receive)
- **Wavelength** 820 nm

Common Specifications

General

- **Power Input** Unregulated 10 ~ 30 V_{DC} (ADAM-4521 with power reversal protection)

Environment

- **Humidity** 5 ~ 95% RH
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Storage Temperature** -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- **ADAM-4521** Addressable
RS-422/485 to RS-232
Converter
- **ADAM-4541** Multi-mode Fiber
to RS-232/422/485
Converter

ADAM-3011

ADAM-3014

Isolated Thermocouple Input Module

Isolated DC Input/Output Module



ADAM-3011



Specifications

Thermocouple Input

- Common Mode Rejection 115 dB min
- Input Type

T/C type	Temperature Range (°C)	Accuracy at 25°C (°C)
J	-40 ~ 760	±2
K	0 ~ 1,000	±2
T	-100 ~ 400	±2
E	0 ~ 1,000	±2
S	500 ~ 1,750	±4
R	500 ~ 1,750	±4
B	500 ~ 1,800	±4

- Isolation (Three-way) 1,000 V_{DC}
- Output Impedance 0.5 Ω
- Stability (Temperature Drift) ±2°C
- Voltage Output 0 ~ 10 V

General

- Connectors Screw terminal
- Enclosure ABS
- Indicators Power LED indicator
- Isolation 1,000 V_{DC}
- Power Consumption 1.4 W
- Power Input 24 V_{DC} ± 10%
- Operating Temperature 0 ~ 50°C (32 ~ 122°F)
- Storage Temperature -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- ADAM-3011 Isolated Thermocouple Input Module



ADAM-3014



Specifications

I/O

- Accuracy ±0.1% of full range (typical)
- Common Mode Rejection > 100 dB @ 50 Hz/60 Hz
- Current Input
 - Bipolar: ±20 mA
 - Unipolar: 0 ~ 20 mA
 - Input impedance: 250 Ω
- Current Output 0 ~ 20 mA
- Stability (Temperature Drift) 150 ppm (typical)
- Voltage Input
 - Bipolar input: ±10 mV, ±50 mV, ±100 mV, ±0.5 V, ±1.0 V, ±5 V, ±10 V
 - Unipolar input: 0 ~ 10 mV, 0 ~ 50 mV, 0 ~ 100 mV, 0 ~ 0.5 V, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V
 - Input impedance: 2 MΩ
 - Input bandwidth: 2.4 kHz (typical)
- Voltage Output
 - Bipolar: ±5 V, ±10 V
 - Unipolar: 0 ~ 10 V
 - Impedance: < 50 Ω
 - Drive: 10 mA max.

General

- Connectors Screw terminal
- Enclosure ABS
- Indicators Power LED indicator
- Isolation (Three-way) 1,000 V_{DC}
- Power Consumption 0.85 W (voltage output)
- Power Input 1.2 W (current output)
- Power Input 24 V_{DC} ± 10%
- Operating Temperature -10 ~ 70°C (14 ~ 158°F)
- Storage Temperature -25 ~ 85°C (-13 ~ 185°F)

Ordering Information

- ADAM-3014 Isolated DC Input/Output Module

- 1 Motion Control
- 2 Hazardous Location
- 3 Energy Automation
- 4 Building Automation Systems
- 5 Automation Software
- 6 Operator Panels
- 7 Automation Panel PCs
- 8 Industrial Monitors
- 9 Industrial Ethernet
- 10 Device Servers & Gateways
- 11 Serial Communication Cards
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- 15 Distributed Nano Controllers
- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

FPM-8151H

15" XGA Industrial Monitor with Resistive Touchscreen



Features

- 15" XGA TFT LCD with LED backlight
- Stainless steel 316L front panel
- NEMA4X/IP65 compliant front panel
- -20 ~ 60°C wide operating temperature
- Enhanced 5-wire resistive touch panel
- Direct VGA & DVI-D video input interface
- Combo RS-232 & USB interface for touchscreen function
- Supports 24 V_{DC} input and 100 ~ 240 V_{AC} input (optional AC adapter)
- OSD control pad with lockable function on front panel
- Meets hazardous requirements with CID2 certification

Introduction

FPM-8151H is a particularly rugged and reliable 15" XGA wide temperature industrial monitor for a variety of industry applications. Equipped with a wide operating temperature -20 ~ 60°C (-4 ~ 140°F), it can satisfy demands in a wide range of harsh industrial applications. This model also features enhanced 5-wire resistive touch and system isolation to enhance the reliability. Moreover, the FPM-8151H is designed to be safely operated in these locations and is undergoing certification to be UL listed for Hazardous Locations with Class I, Division 2.

Specifications

General

- **Button Controls** OSD control pad on front panel with lockable function
2 user-defined contrast/brightness settings
- **Certification** CE, FCC Class A, UL, CB, BSMI, CCC
- **Dimension (W x H x D)** 422 x 338 x 68 mm (16.61" x 13.31" x 2.68")
- **Enclosure** Front panel: Stainless steel
Rear cover : Stainless steel
Ground Isolation Protection
- **Mounting** Panel, wall, desktop, VESA arm, or 19" rackmount with optional mounting kit
- **Power Input** Phoenix Jack: 24 V_{DC} input
DC Jack: external 57 W power adapter, with 100 ~ 240 V_{AC} input and 12 V_{DC} @ 4.75 A output (Optional)
- **Power Consumption** 12W
- **Video Port** VGA & DVI-D Port
- **Weight (Net)** 7.73 kg (17.04 lbs)

LCD Display

- **Display Type** XGA TFT LCD
- **Backlight Type** LED
- **Display Size** 15"
- **Max. Resolution** 1024 x 768
- **Max. Color** 16.2M (RGB 8-bits) or 262k colors (RGB 6-bits)
- **Viewing Angle (H/V°)** 160/140
- **Luminance (cd/m²)** 350
- **Backlight Life (hrs)** 50,000
- **Contrast Ratio** 700:1

Touchscreen

- **Sensor** AMT
- **Driver** Penmount 6000
- **Type** 5-wire resistive with enhanced ITO film
- **Interface** USB & RS-232 (Combo)
- **Lifespan** 36 million with a silicone rubber R8 finger, writing rate is by 250g at 2 times/s
- **Light Transmission** > 80%
- **OS Support** Windows 2000, XP, Vista, 7, XPe, CE and Linux
- **Power Consumption** +5 V @ 100 mA
- **Touch Resolution** Linearity

Environment

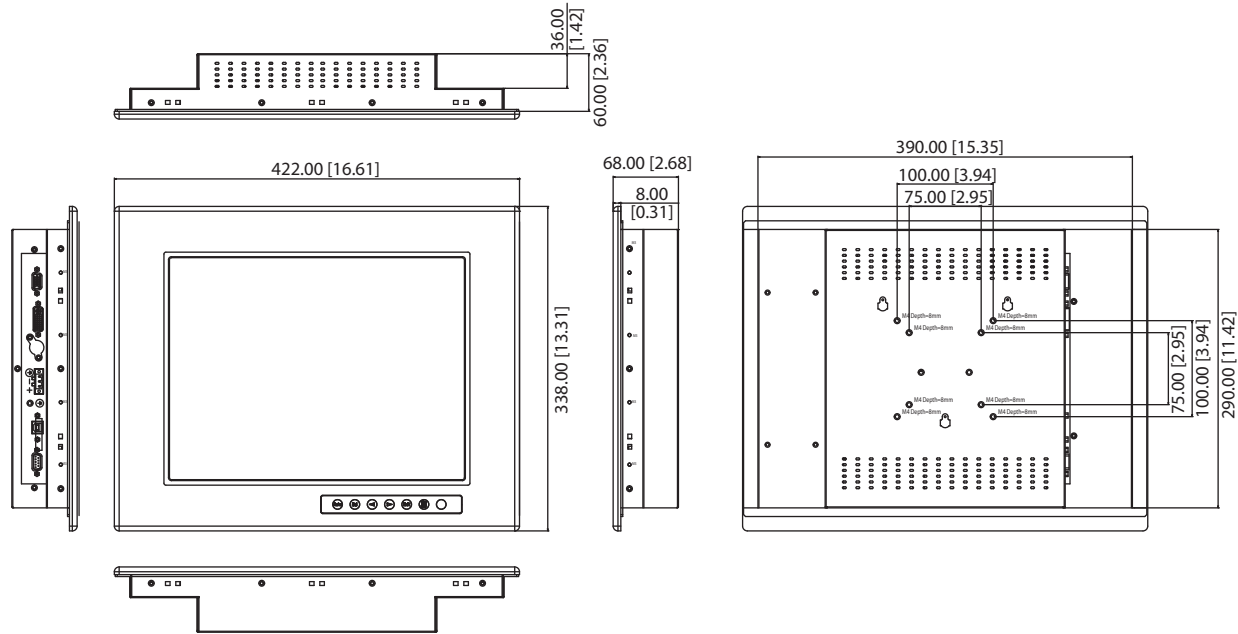
- **Operation Temperature** -20 ~ 60°C (-4 ~ 140°F)
- **Storage Temperature** -30 ~ 80°C (-22 ~ 176°F)
- **Humidity (Storage)** 10 ~ 95% non-condensing
- **Waterproof** Front panel is NEMA4/IP65 compliant
- **Shock** 11ms, 10G (Non Operating, Half Sine Wave)
- **Vibration** 5 ~ 500 Hz, 1 Grms (Operating, Random)

Ordering Information

- **FPM-8151H-R3AE** 15" XGA Ind. Monitor VGA, DVI, Wide Temp

Dimensions

Unit: mm

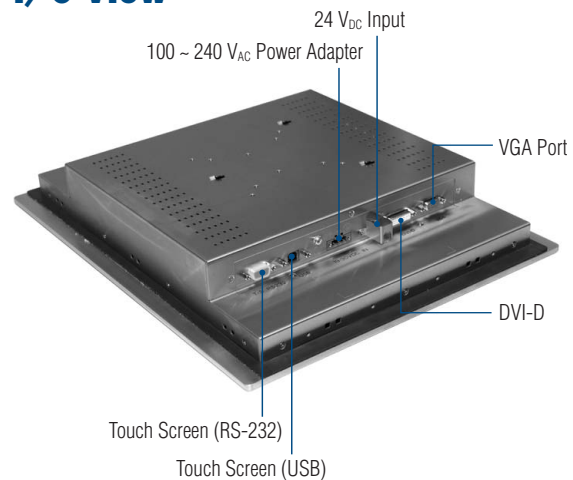


Panel Cut-out Dimensions: 396 x 296 mm (15.59" x 11.65")

Accessories

- **1702002600** Power Cable US Plug 1.8 M
- **1702002605** Power Cable EU Plug 1.8 M
- **1702031801** Power Cable UK Plug 1.8 M
- **1702031836** Power Cable China/Australia Plug 1.8 M
- **1757002742** Adapter AC 90-264V, 57W, SPU63-105

I/O View



- 1 Motion Control
- 2 Hazardous Location
- 3 Energy Automation
- 4 Building Automation Systems
- 5 Automation Software
- 6 Operator Panels
- 7 Automation Panel PCs
- 8 Industrial Monitors
- 9 Industrial Ethernet
- 10 Device Servers & Gateways
- 11 Serial Communication Cards
- 12 Embedded Auto. Computers
- 13 PACs
- 14 M2M I/O
- 15 Distributed Nano Controllers
- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAQ Boards

UNO-1140FH

**Class I, Division 2 Certified
486SX-grade SoC DIN-rail PC
with 1 x LAN, 8 x Isolated COM**



Features

- UL listed for Hazardous Locations: Class I, Division 2
- Onboard Advantech EVA-X4150 486SX SoC
- 4 x isolated RS-232/485 and 4 x isolated RS-485 ports with automatic flow control
- Industrial-grade serial port design without data loss
- 1 x 10/100Base-T RJ-45, 2 x USB 2.0, and 1 x internal CompactFlash®
- Compact size, small footprint, saves space
- Front-accessible I/O and DIN-rail design for easy installation in control cabinet
- Wide operating temperature range up to 60°C
- Windows® CE 5.0, DOS, and Linux ready solution
- Fanless design with no internal cabling
- Grounding isolation between chassis and system
- IP40 ingress protection

Introduction

In hazardous locations, devices are under potential danger from flammable gases, combustible dust, or ignitable fibers, creating the potential for fire and explosions. UNO-1140FH is designed to be safely operated in these locations and is UL listed for Hazardous Locations with Class I, Division 2, group A, B, C, D & T4A certification. The UNO-1140FH is also DIN-rail mountable, providing several serial communication ports and Ethernet interfaces. With a compact size, small footprint and front accessible I/Os, the UNO-1140FH is convenient for the control cabinet. The wide operation temperature and industrial serial port design makes the UNO-1140FH a perfect communication gateway. With OS and driver support on WinCE, Linux, users can integrate applications easily with an application ready platform that can provide a versatile function to fulfill diverse requirements.

Specifications

General

- **Certification** CE, FCC Class A, UL, CCC
- **Hazardous Locations** US: ANSI/ISA 12.12.01-2007 cUL: CSA 22.2 No. 213 M1987, Class I, Division 2, Groups A,B,C,D, Hazardous Location, Temperature code: T4A, Ambient Temperature Range: $-10^{\circ}\text{C} \leq T_{\text{amb}} \leq 60^{\circ}\text{C}$
- **Dimension (W x H x D)** 71 x 152 x 139 mm (2.8" x 6" x 5")
- **Enclosure** Aluminum + SECC
- **Mounting** DIN-rail, Wallmount
- **Industrial Grounding** Isolation between chassis and power ground
- **Power Consumption** 10 W (Typical)
- **Power Requirement** 10 ~ 30 V_{DC} (e.g. +24 V @ 1 A) (Min. 24 W), AT
- **Weight** 1.0 kg
- **OS Support** DOS, Windows CE 5.0/6.0, Linux
- **System Design** Fanless design with no internal cabling
- **Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE

System Hardware

- **CPU** Advantech EVA-X4150 SoC, 486SX grade, 150MHz
- **Memory** Onboard 64 MB Industrial grade SDRAM
- **Indicators** LEDs for Power, CF, LAN (Active, Status) and Serial (Tx, Rx)
- **Keyboard/Mouse** 1 x PS/2
- **Storage** CF: 1 x internal type I/II CompactFlash® slot
- **Display** DB15 VGA connector, supports up to 1024 x 768 @ 60 Hz
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec

Environment

- **Ingress Protection** IP40
- **Operating Temperature** IEC 60068 - 2-2 (with 100% CPU/ I/O loading) $-10 \sim 60^{\circ}\text{C}$ ($14 \sim 140^{\circ}\text{F}$)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Shock Protection** IEC 60068 - 2-27
CompactFlash®: 50 G @ wall mount, half sine, 11 ms
- **Vibration Protection** IEC 60068 - 2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash®: 5 Grms @ 5 ~ 500 Hz

I/O Interface

- **Serial Ports** 4 x isolated RS-232/485 with DB9 connectors, 4 x isolated RS-485 with screw terminal, Automatic RS-485 data flow control
- **Serial Port Speed**
COM1 ~ COM4 RS-232: 50 ~ 115.2 kbps
RS-485: 50 ~ 115.2 kbps
COM5 ~ COM 8 RS-485: 300 ~ 921.6 kbps (max)
- **Serial Port Protection** 500V_{DC} Isolation Protection
2000V_{DC} EFT Protection
- **LAN** 1 x 10/100Base-T RJ-45 port
- **USB** 2 x USB, USB 2.0 compliant

Ordering Information

- **UNO-1140FH-V10E** CID2 EVA SoC DIN-rail PC w/ 64 MB RAM and 8 x iso. COM

Accessories

- **UNO-FPM11-BE** UNO-1100 series VESA mount kit
- **PCLS-DIAGAW10** Advantech Remote Monitoring & Diagnosis Utility

UNO-1150GH UNO-1150GHE

**Class I, Division 2 Certified AMD Geode™ LX
DIN-rail PC with 2 x LAN, 3 x COM**

**Class I, Division 2 Certified AMD Geode™ LX
DIN-rail PC with 2 x LAN, 3 x COM, PCI-104**



UNO-1150GH

UNO-1150GHE



Introduction

In hazardous locations, devices are under potential danger from flammable gases, combustible dust, or ignitable fibers, creating the potential for fire and explosions. UNO-1150GH and UNO-1150GHE are designed to be safely operated in these locations and are UL listed for Hazardous Locations with Class I, Division 2, groups A, B, C, D & T3A certification. The UNO-1150GH and UNO-1150GHE are DIN-rail mounted and provide several serial communication ports and Ethernet interfaces with a compact size to save space. They are also front accessible for easy installation in field cabinets.

Specifications

General

- Certification** CE, FCC Class A, UL, CCC
- Hazardous Locations** US: ANSI/ISA 12.12.01-2007 cUL: CSA 22.2 No. 213 M1987, Class I, Division 2, Groups A,B,C,D, Hazardous Location, Temperature code: T3A, Ambient Temperature Range: $-10^{\circ}\text{C} \leq T_{\text{amb}} \leq 60^{\circ}\text{C}$
- Dimension (W x H x D)** UNO-1150GH: 71 x 152 x 139 mm (2.8" x 6" x 5.5")
UNO-1150GHE: 96.5 x 152 x 139 mm (3.8" x 6" x 5.5")
- Enclosure** Aluminum + SECC
- Mounting** DIN-rail, Wallmount
- Power Consumption** 15 W (Typical)
- Power Requirement** 10 ~ 36 V_{DC} (e.g. +24 V @ 1 A) (Min. 24 W), AT
- Weight** UNO-1150GH: 1.6 kg
UNO-1150GHE: 2.0 kg
- OS Support** WES Windows XP Embedded, Windows 2000 & XP, Windows CE 5.0/6.0, Linux QNX
- System Design** Fanless with no internal cabling
- Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE / XPe

System Hardware

- CPU** AMD Geode LX800, 500 MHz
- Memory** Onboard 256 MB DDR SDRAM
- Indicators** LEDs for Power, IDE, LAN (Active, Status) and Serial (Tx, Rx)
Buzzer for Diagnosis (programmable)
- Keyboard/Mouse** 1 x PS/2
- Storage** SSD: 1 x internal type I/II CompactFlash® slot
HDD: 2.5" SATA HDD bracket (UNO-1150GHE)
- PC/104 Slot** 2 x PCI-104 slots, supports 3.3 V & +5 V (Only UNO-1150GHE, one PCI-104 while using HDD)
- Mini PCI** 1 x Mini PCI (UNO-1150GHE only)
- Display** DB15 VGA connector, supports up to 1024 x 768 @ 60 Hz
- Audio** Line in, Line out
- Watchdog Timer** Programmable 256 level timer interval, 1 to 255 sec

Features

- UL listed for Hazardous Locations: Class 1, Division 2
- Onboard AMD Geode LX800 500 MHz CPU
- 2 x RS-232 (one pin header reserved) and 2 x RS-232/422/485 ports with automatic flow control
- 2 x 10/100Base-T RJ-45 ports
- 2 x USB, audio and internal CompactFlash®
- Compact size, small foot print, saves space and front accessible for easy wiring
- DIN-rail design for easy installation in field cabinet
- Wide operating temperature range
- Windows® CE 5.0/6.0, Windows XP Embedded, and Linux ready solution
- Fanless design with no internal cabling
- Isolation between chassis and power ground

I/O Interface

- Serial Ports** 2 x RS-232 (one pin header reserved), 2 x RS-232/422/485 with DB9 connectors, Automatic RS-485 data flow control RS-232/422/485 ports support hardware 128 byte FIFO
RS-232 port: 50 ~ 115.2 kbps
RS-232/422/485 port: RS-232, 300 ~ 115.2 kbps
RS-232/422/485 port: RS-422/485, 300 ~ 921.6 kbps (Max)
- LAN** 2 x 10/100Base-T RJ-45 ports
- USB** 2 x USB, OpenHCI, Rev. 1.1 compliant
- Printer Port*** 1 x Printer Port pin head

*Note: This function is optional for project request

Environment

- Ingress Protection** IP40
- Operating Temperature** (IEC 60068-2-2, 100% CPU/ I/O loading)
-10 ~ 60°C (14 ~ 140°F)
-20 ~ 80°C (-4 ~ 176°F)
- Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- Operating Humidity** 20 ~ 95% (non-condensing)
- Storage Humidity** 0 ~ 95% (non-condensing)
- Shock Protection** IEC 60068-2-27
CompactFlash®: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms (Only for UNO-1150GHE)
- Vibration Protection** IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash®: 2 Grms @ 5 ~ 500 Hz
HDD: 1Grms @ 5 ~ 500 Hz (UNO-1150GHE)

Ordering Information

- UNO-1150GH-G30E** CID2 AMD Geode LX800 500 MHz, 256 MB DIN-rail PC
- UNO-1150GHE-G30E** CID2 AMD Geode LX800 500 MHz, 256 MB DIN-rail PC w/PCI-104

Accessories

- UNO-FPM11-BE** UNO-1100 Series VESA Mount kit
- PCLS-DIAGAW10** Advantech Remote Monitoring & Diagnosis Utility

- 1 Motion Control
- 2 Hazardous Location
- 3 Energy Automation
- 4 Building Automation Systems
- 5 Automation Software
- 6 Operator Panels
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- 16 RS-485 I/O
- 17 Ethernet I/O
- 18 DAO Boards

UNO-1172AH

Class I, Division 2 Certified Intel® Atom™ D510 DIN-rail PC with 3 x LAN, 2 x COM, VGA, Mini PCIe



Features

- UL listed for Hazardous Locations: Class I, Division 2
- Onboard Intel Atom D510 1.66 GHz
- Onboard 1 MB battery-backup SRAM
- System diagnosis through led and digital output, remote power control through digital input
- 2 x RS-232/422/485 ports with automatic flow control
- 3 x 10/100/1000Base-T RJ-45 ports with teaming function support
- 4 x external USB
- PC/104+ expansion slots option
- 1 x Mini PCIe slot for WLAN card and Fieldbus card
- Windows 7, Windows CE, XP Embedded and Linux support
- Fanless design with no internal cabling
- Isolation between chassis and power ground

Introduction

In hazardous locations, devices are under potential danger from flammable gases, combustible dust, or ignitable fibers, creating the potential for fire and explosions. UNO-1172AH are designed to be safely operated in these locations and are UL listed for Hazardous Locations with Class I, Division 2, groups A, B, C, D & T5 certification. The UNO-1172AH is an Intel Atom DIN-rail PC which features an innovative system diagnosis feature for automation applications. It provides alarms for over temperature, over voltage, battery power fail, power status on both system onboard LED and Digital output. It also includes remote power control through digital input. These system diagnosis features enable control and monitoring of system status remotely. Three Gigabit Ethernet interfaces with teaming function support allow users to uplink two ports with data transmission fault tolerance and downlink one port to field device.

Specifications

General

- **Certification** CE, FCC Class A, UL, CCC
- **Hazardous Locations** US: ANSI/ISA 12.12.01-2007 cUL: CSA 22.2 No. 213 M1987, Class I, Division 2, Groups A,B,C,D, Hazardous Location, Temperature code: T5, Ambient Temperature Range: -10°C ≤ T_{amb} ≤ 60°C
- **Dimension (W x H x D)** UNO-1172AH: 85 x 152 x 139 mm (3.4" x 6" x 5.5")
- **Enclosure** Aluminum + SECC
- **Mounting** DIN-rail, Wallmount
- **Power Consumption** 24 W (Typical)
- **Power Requirement** 10 ~ 36 V_{DC} (e.g. +24 V @ 2 A) (Min. 48 W), AT/ATX power mode by Jumper selection and BIOS AT simulation (support system reboot automatically after power recovery)
- **Weight** 1.6 kg
- **OS Support** WES Windows XP Embedded, Windows XP & Windows 7, Windows CE 5.0/6.0, Linux, QNX
- **System Design** Fanless design with no internal cabling
- **Remote Management** Built-in Advantech DiagAnywhere agent on Windows CE / XPe

System Hardware

- **CPU** Intel Atom D510 1.66 GHz
- **Memory** 2 GB DDR2 SDRAM built-in
- **Battery Backup SRAM** 1 MB
- **Indicators** System: LEDs for Power, CF, LAN (Active, Status), Serial (Tx, Rx), Diagnosis /Alarm: over system temperature, over voltage, alarm for battery backup SRAM, alarm for RTC battery, Programmable (while disable Serial Tx&Rx), Buzzer for Diagnosis (programmable)
- **Keyboard/Mouse** 1 x PS/2
- **Storage** SSD: 1 x internal type I/II CompactFlash slot
HDD: one 2.5" SATA HDD bracket
- **Display** DB15 VGA connector, 1600 x 1200 @ 85 Hz
- **Audio** 5.1 channel HD Audio, Mic in, Line in, Line out
- **Watchdog Timer** Programmable 256 levels timer interval, from 1 to 255 sec
- **Mini PCIe** 1 x PCI express mini card slot

I/O Interface

- **Serial Ports** 2 x RS-232/422/485 with DB9 connectors, automatic RS-485 data flow control
2 x RS-232 (Optional, pin header)
- **Serial Port Speed** RS-232: 50 ~ 115.2 kbps
RS-422/485: 50 ~ 115.2 kbps (Max)
- **LAN** 3 x 10/100/1000Base-T RJ-45 ports (supports Wake on LAN and built-in boot ROM)
- **USB** 4 x USB, EHCI, Rev. 2.0 compliant
- **Digital Input** 2-ch. wet/dry contact, 70 V_{DC} over-voltage protection, 0 ~ 50 V_{DC} input range and Interrupt handling
- **Digital Output** 6-ch DO
- 200 mA max/channel sink current
- Keep output status after system hot reset
- 5 ~ 40 V_{DC} output range and 10 kHz speed
- **System Diagnoses** Remote monitoring: over system temperature, over voltage, battery power fail, power status
Remote control: Power On/Off, Reset

Environment

- **Ingress Protection** IP40
- **Operating Temperature** (IEC 60068-2-2, 100% CPU/ I/O loading)
-10 ~ 60°C (14 ~ 140°F)
-20 ~ 80°C (-4 ~ 176°F)
- **Storage Temperature** 20 ~ 95% (non-condensing)
- **Operating Humidity** 0 ~ 95% (non-condensing)
- **Storage Humidity** IEC 60068-2-27
- **Shock Protection** CompactFlash: 50 G @ wall mount, half sine, 11 ms
HDD: 20 G @ wall mount, half sine, 11 ms
IEC 60068-2-64 (Random 1 Oct./min, 1hr/axis.)
CompactFlash: 2 Grms @ 5 ~ 500 Hz,
HDD: 1 Grms @ 5 ~ 500 Hz
- **Vibration Protection**

Ordering Information

- **UNO-1172AH-A33E** CID2 Intel Atom D510 1.66 GHz, 2 GB RAM DIN-rail PC
- **Accessories**
- **UNO-FPM11-BE** UNO-1100 Series VESA Mount Kit
- **PCLS-DIAGAW10** Advantech Remote Monitoring & Diagnosis Utility