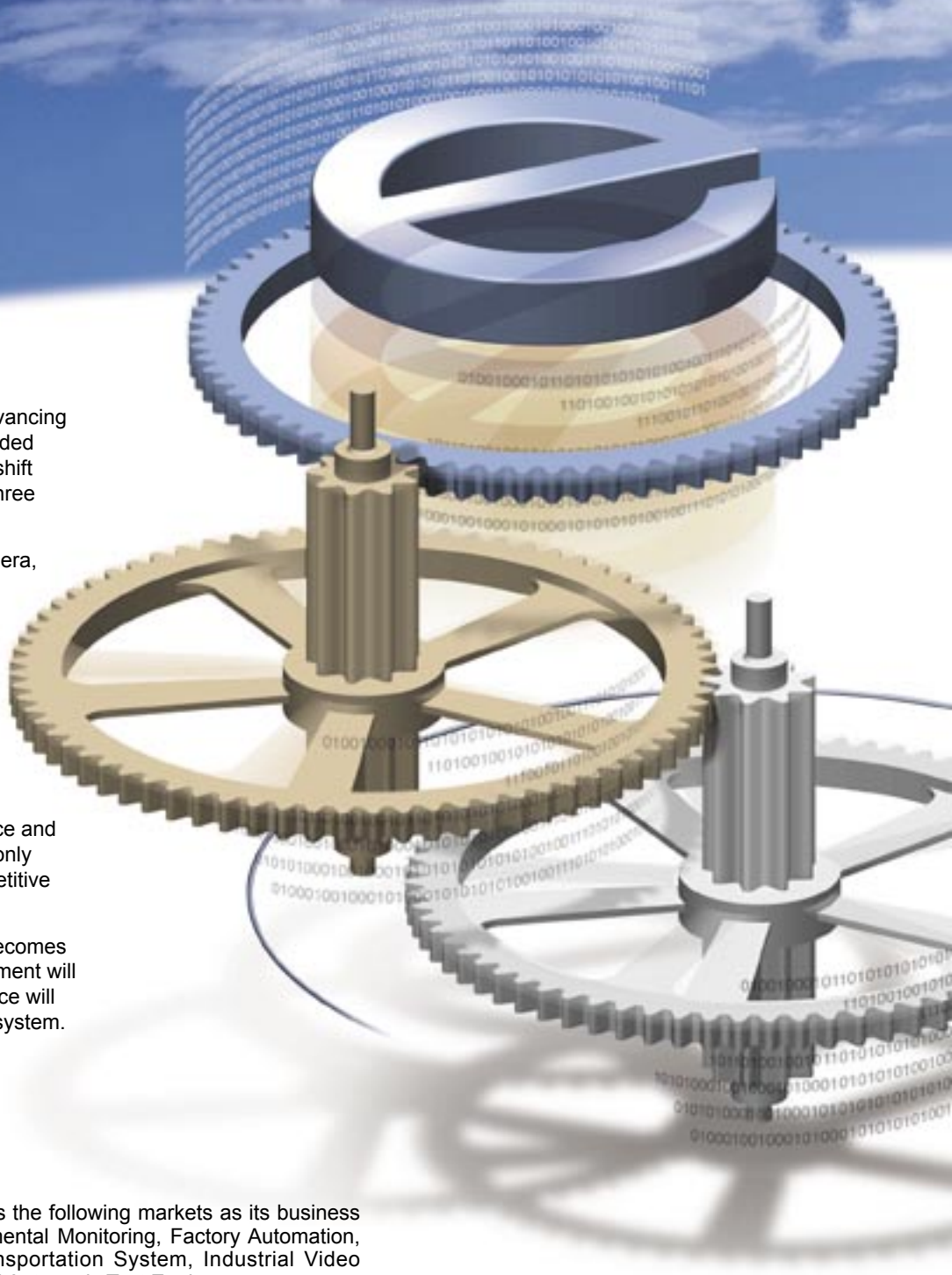
eAutomation

Evolving from relay, PLC, and PC technology, the automation industry has reached a new generation. In the past years, Advantech has built up leadership in the PC-based automation market. In this Internet age, Advantech leads the wave of revolution by sharing the value of Ethernet, Web, and embedded technologies with automation partners. These technologies provide users the benefits of an easy-to-integrate system architecture, an economical solution, and a practical lifestyle. This new automation trend is called - "eAutomation."



Advancing eAutomation

Advantech continuously devotes in advancing eAutomation with Ethernet and embedded technologies. The following paradigm shift shows the evolution of automation in three phases:

Phase I: In the "embedded Ethernet" era, every automation device is connected by Ethernet. Almost every new automation product is built with Ethernet communication port.

Phase II: Based on Ethernet connectivity, the "HTML, XML, .NET" web technology brings more value-added benefits to the automation system. These value-added services include remote monitoring, maintenance and diagnostics anytime, anywhere. It not only reduces cost, but also creates a competitive edge for enterprise systems.

Phase III: In the future, when SOC becomes more popular, every automation equipment will be an intelligent device, and each device will seamlessly interact in the automation system.

Application

Advantech eAutomation clearly defines the following markets as its business focus: Facility Management, Environmental Monitoring, Factory Automation, Building Automation, Intelligent Transportation System, Industrial Video Surveillance, Machine Automation, and Automatic Test Equipment.

Join the eAutomation Solution Partner (eASP) Program

Phase III
Fully eAutomated

Intelligent automation devices functioning interactively on a distributed industrial Ethernet network

- System on Chip

Phase II
Value-added Products & Services

- Open, embedded platforms
- Programmable Automation Controller
- Integrated Softlogic & HMI/SCADA solution
- Vertical Market I/O solution

Phase I
Ethernet Connectivity

- Industrial Ethernet Hub/Switch
- Serial to Ethernet Data Gateway
- Ethernet I/O
- Wireless Communication

Benefit from the eASP Program

Advantech
Build a business platform that aligns partners' value-added products with vertical industry segments

eASP
Increase sales opportunities and brand awareness through Advantech's real-time e-Business network (web, brochures, marketing events...)

Customer
Aquire field-proven solutions with minimal enigneering effort.

http://www.advantech.com.tw/solutions/eASP

Enjoy quick access to automation solutions that cover a broad range of products and industry segments by viewing some of Advantech's eAutomation Solution Partner Program members listed in our eASP website

eAutomation Town

Hop onto the eAutomation bus and travel through the Ethernet Network. Explore the eAutomation Town and visit our six stops.

In Intelligent Transportation System, the ADAM-5000 serves as a VD terminal controller to accurately calculate traffic flow parameters.

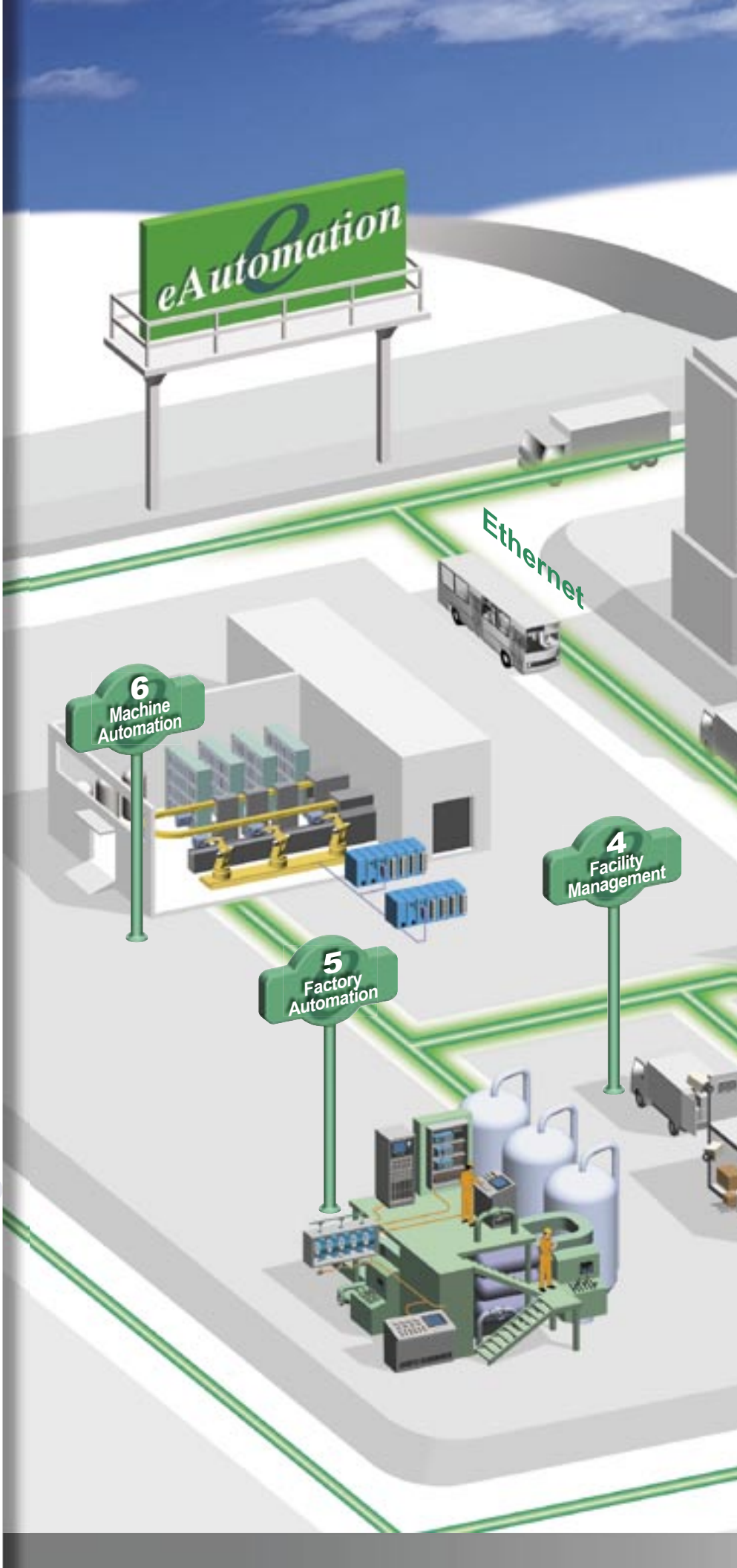
In Environmental Monitoring System, the ADAM-4000 and ADAM-5000 I/O and communication modules meet high-volume SCADA requirements in environmental monitoring applications such as air/water quality measurement & control services,warning systems for landscapes.

In Building Automation, the UNO series open embedded platform and and ADAM-4000 Remote Data Acquisition I/O Modules have been widely deployed as an access controller in Building Automation security applications.

In Facility Management System, the ADAM-6000 series provides built-in standard and customizable web pages to enable remote monitoring. The UNO Universal Network Controller serves as an ideal facility manager for unmanned security management systems.

In Factory Automation, the ADAM-5000 and ADAM-8000 bring eAutomation to factory floors and help users realize the eManufacturing concept through Ethernet-enabled technology.

In Machine Automation, the ADAM-8000 monitors and controls the machines through various fieldbus integration..




2
Environmental Monitoring
3
Building Automation
1
Intelligent Transportation
Ethernet
Ethernet

Distributed Control I/O Solution in eFactory Automation

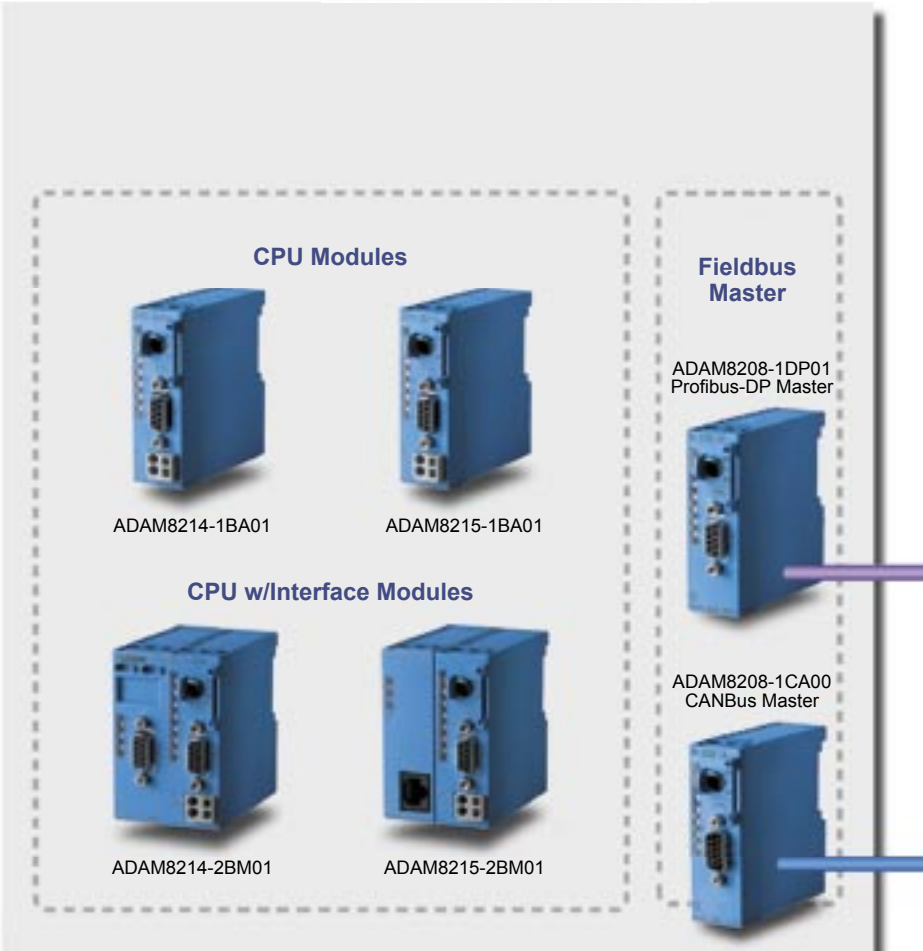
Companies are under pressure to meet the demands of customers to stay competitive in the Internet age. eManufacturing, a key element of the e-business concept, integrates factory floors with enterprise applications by leveraging Ethernet-enabled technologies. Advantech brings eAutomation to factory floors and helps users realize the eManufacturing concept.

The ADAM-8000 fulfills today's PLC requirements and helps customers get into the highly growing PC-based control and Web-based Automation market.

Features:

- Full-range fieldbus interfaces for various industrial applications
- Configurable modular design for easy expansion
- High-performance CPU spectrum
- Web-based technology integrated into automation

Decentralized Control



The ADAM-8000 is a typical PLC control system. Users can configure the ADAM-8000 CPU and I/O modules together as a standalone controller for distributed control applications. Each ADAM-8000 PLC controller can control up to 1024 I/Os. The different controllers are linked with MP2I bus or point-to-point communication. The ADAM-8000 can also expand through ADAM-8000 remote I/O systems based on Profibus DP network.

The ADAM-8000 I/O modules connect sensors and actuators in the field. The individual modules are directly mounted on a 35mm DIN head rail and are coupled via backplane bus connectors that have been clipped to the rail. These ADAM-8000 I/O modules constitute a flexible, modular automation system for centralized or decentralized applications.

ADAM8232 Series
AO Module

PAC Control

HMI SCADA S/W

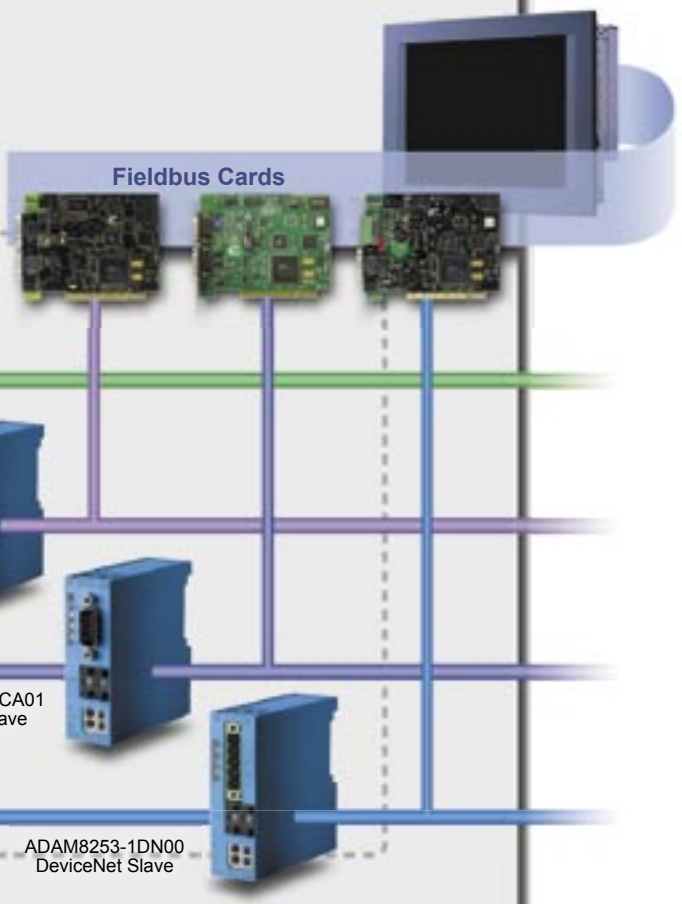
SoftLogic Engine

Windows CE.net

OPC FOUNDATION MEMBER

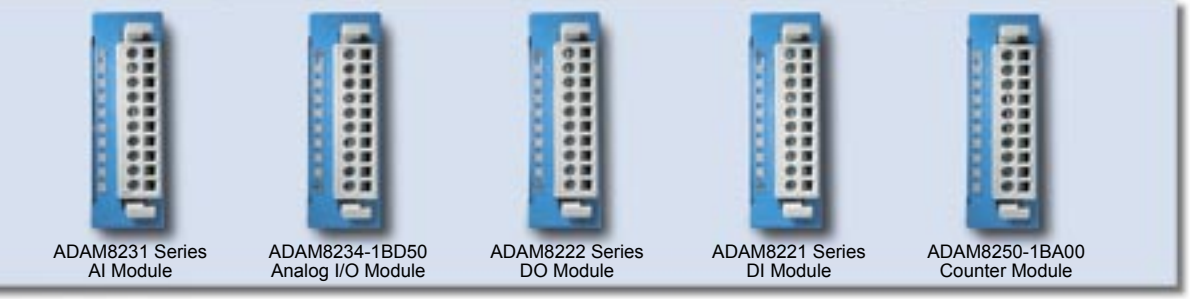
The ADAM-8289 is an integrated Application Ready Platform CPU solution for your Automation Control needs. ADAM-8289 features an Intel Xscale® embedded CPU, serial and Ethernet communications, and software support for web-enabled HMI/SCADA with IEC-61131 compatible logic controller functions.

Centralized Control



ADAM-8000 can be deployed in a centralized PC-based control architecture with the concept of DCS (Distributed Control System). In the PC-based architecture, as long as the industrial PC is bundled with IEC61131-3 SoftLogic software, the ADAM-8000 remote I/O system can be installed in distributed field sites through Profibus, DeviceNet, CANopen, Modbus or the Ethernet network.

I/O Modules



ADAM8231 Series
AI Module

ADAM8234-1BD50
Analog I/O Module

ADAM8222 Series
DO Module

ADAM8221 Series
DI Module

ADAM8250-1BA00
Counter Module

ADAM-8000 System Configuration

Configuration/ Programming Software

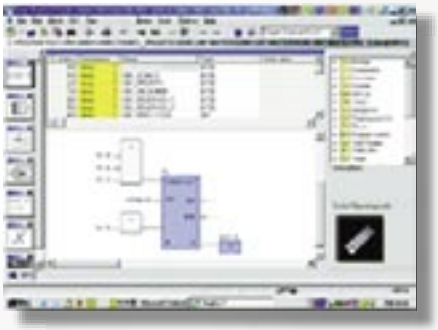
WinNCS

Networking Configuration Tool

ADAM WinNCS was developed for parameterization and handling of ADAM-8000 system components. ADAM WinNCS supports the parameterization of TCP/IP and Profibus master/slave interface modules.

WinPLC7

Programming Tool



The ADAM WinPLC7 is a programming, diagnostics and simulation tool for the ADAM-8000 system. It supports program input as a standard STL statement list format for control configuration. The integrated S7 simulator enables programs to be tested without the ADAM-8000 hardware.

ADAM-8000 OPC Server

In order to provide an open system architecture, Advantech also provides an ADAM-8000 OPC Server for a variety of system integrations. Since OPC is the standard communication interface, the ADAM-8000 can easily integrate with any human machine interface or users' applications.

PC Interface

Ethernet Networking

INDUSTRIAL ETHERNET

Ethernet Industrial Protocol (Ethernet/IP) is an open industrial networking standard that supports both real-time I/O messaging and message exchange. It emerged due to the high demand for control applications that used the Ethernet network. Ethernet/IP uses off-the-shelf Ethernet communication chips and physical media.

Profibus Networking

PROFI BUS PROCESS FIELD BUS

Profibus is an international standard applicable to an open fieldbus for building, manufacturing and process automation. Profibus defines the technical and functional characteristics of a serial fieldbus system that can be used to create a low (sensor/actuator level) or medium (process level) performance network of programmable logic controllers.

DeviceNet Networking

DeviceNet™

The DeviceNet network is a low-level network that provides connections between simple industrial devices (such as sensors and actuators) and higher-level devices (such as PLC controllers and computers). The DeviceNet network is a flexible, open network that works with devices from multiple vendors.

CANOpen Networking

CANopen

CANopen is a network technology optimized for the usage in industrial control environments, in machine internal networks and in embedded systems (any control unit deeply “embedded” in a device with electronics). The lower-layer implementation of CANopen is based upon CAN (Controller Area Network) which is implemented on microcontrollers of more than 22 chip manufacturers.

Communication Modules

I/O Modules

ADAM8253-1NE00
Ethernet Slave Interface Module

I/O

ADAM8208-1DP01
Profibus Master
Interface Module

ADAM8253-1DP00
Profibus Slave
Interface Module

I/O

ADAM8232 Series
AO Module

ADAM8222 Series
DO Module

ADAM8253-1DN00
DeviceNet Slave Interface Module

I/O

ADAM8231 Series
AI Module

ADAM8221 Series
DI Module

ADAM8208-1CA00
CANopen Master
Interface Module

ADAM8253-1CA01
CANopen Slave
Interface Module

I/O

ADAM8234-1BD50
Analog I/O Module

ADAM8250-1BA00
Counter Module

ADAM-8000 Selection Table

CPU Modules

CPU	ADAM-8214 CPU Module			ADAM-8215 CPU Module		
Model	-1BA01	-2BM01	-2BT01	-1BA01	-2BM01	-2BT01
Work Memory	32 KB	32 KB	32KB	64KB	64KB	64KB
Load Memory	40 KB	40 KB	40 KB	80 KB	80 KB	80 KB
Timer/Counter	128/256	128/256	128/256	128/256	128/256	128/256
Maker	2048	2048	2048	2048	2048	2048
Bit/Word Cycle Time	0.18μs/0.78μs	0.18μs/0.78μs	0.18μs/0.78μs	0.18μs/0.78μs	0.18μs/0.78μs	0.18μs/0.78μs
Total Address Range I/O	1 KB/1 KB	1 KB/1 KB	1 KB/1 KB	1 KB/1 KB	1 KB/1 KB	1 KB/1 KB
Process Image I/O	128 Byte/ 128 Byte	128 Byte/ 128 Byte	128 Byte/ 128 Byte	128 Byte/ 128 Byte	128 Byte/ 128 Byte	128 Byte/1 28 Byte
Local Bus I/O Expansion	32	32	32	32	32	32
Network Interface	MPI	MPI/ Profibus	MPI/ Ethernet	MPI	MPI/ Profibus	MPI/ Ethernet
Supply Voltage	24 V_{DC}	24 V_{DC}	24 V_{DC}	24 V_{DC}	24 V_{DC}	24 V_{DC}
Current Consumption	Max. 1.5 A	Max. 1.5 A	Max. 1.5 A	Max. 1.5 A	Max. 1.5 A	Max. 1.5 A

Communication Modules

Communication	ADAM-8208 Master Module		ADAM-8253 Slave Module				ADAM-8240 Modbus Module
Model	-1DP01	-1CA00	-1DP00	-1CA01	-1DN00	-1NE00	-1CA10
Network	Profibus	CANopen	Profibus	CANopen	DeviceNet	Modbus/TCP	Modbus ASCII/RTU
Interface	RS-485/9 pin SubD	9 pin SubD	RS-485/9 pin SubD	9 pin SubD	DeviceNet Open Style	10-baseT	RS-232/485
Baudrate	9.6K up to 12 Mbps	10K up to 1 Mbps	9.6K up to 12 Mbps	10K up to 1 Mbps	125K, 250K, 500Kbps	10 Mbps	150 up to 38.4 Kbps
Connectable Slave	122	126	32	32	32	256	256
Max. Input	1024 Byte	256 Byte	152 Byte	80 Byte	256 Byte	256 Byte	16 Byte
Max. Output	1024 Byte	256 Byte	152 Byte	80 Byte	256 Byte	256 Byte	16 Byte
Supply Voltage Int. Bus	5 V_{DC}	5 V_{DC}	24 V_{DC}	24 V_{DC}	24 V_{DC}	24 V_{DC}	5 V_{DC}
Current Consumption	380 mA	380 mA	800 mA	700 mA	800 mA	800 mA	200 mA

I/O Modules

Digital Input Module ADAM-8221								
Model	**1FD00**	**1BF00**	**1BF50**	**1FF20**	**1FF30**	**1BH10**	**1BH20**	**2BL10**
Channel	4	8	8	8	8	16	14	32
Counter							2	
Input Voltage	AC/DC 90~230V	DC 24V	DC 24V	AC/DC 60~230V	AC/DC 24~48V	DC 24V	DC 24V	DC 24V
Active Mode	Active High	Active Hight	Active Low	Active High	Active High	Active High	Active High	Active High
Delay Time	25 ms	3 ms	3 ms	25 ms	25 ms	3 ms	3 ms	3 ms
Optical Isolation	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$
Input Data	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	2 Byte	4 Byte
Current Consumption Int. Bus	80 mA	20 mA	20 mA	80 mA	80 mA	20 mA	20 mA	50 mA

Counter Module ADAM-8250	
Model	**1BA00**
Channel	2 or 4
Counter Frequency	1 MHz
Input Voltage	DC 24V
DO Channel	2
Operating Model	7 models
Optical Isolation	500VDC
Input/Output Data	10 Byte
Current Consumption Int. Bus	80 mA

Digital Output Module ADAM-8222									
Model	**1HD10**	**1HD20**	**1BF00**	**1BF10**	**1BF20**	**1HF00**	**1BH10**	**1BH20**	**2BL10**
Channel			8	8	8		16	16	32
Relay	4	4				8			
Load Voltage	AC 230V/DC 30V	AC 230V/DC 30V	DC 24V	DC 24V	DC 24V	AC 230V/DC 30V	DC 24V	DC 24V	DC 24V
Output Current per Channel			1A	2A	2A		1A	2A	1A
Operating Frequency						100Hz			
Optical Isolation	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$	$500V_{DC}$
Output Data	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	1 Byte	4 Bytes
Current Consumption Int. Bus	125 mA	125 mA	125 mA	125 mA	50 mA	250 mA	100 mA	100 mA	175 mA

Analog Input Module ADAM-8231			
Model	**1BD52**	**1BD60**	**1BF00**
Input Channel	2 or 4	4	8
Input Range	+-4V, +-10V, +-400mV, +-20mA, 0~20mA, 4~20mA	0~20 mA 4~20 mA	0~60mV
	T/C: J, K, N, R, S, T type		T/C: J/K/T type
	RTD: Pt100, Pt1000, Ni		RTD: Pt100
Resolution	16 or 12 Bits	12 Bits	16 Bits
Input Resistance	Volt.: 100KΩ, Curr.: 50Ω	50Ω	>1MΩ
Integration Time	5~70 ms	8.6 ms	80 ms
Input Data	8 Bytes	8 Bytes	16 Byte
Current Consumption Int. Bus	240 mA	280 mA	300 mA

Analog Output Module ADAM-8232	
Model	**1BD50**
Output Channel	4
Output Range	+-10V, 0~10V, 1~5V, +-20mA, 0~20mA, 4~20mA
Resolution	12 Bits
Actuator Resistance	Volt.: 1KΩ, Curr.: 500Ω
Supply Volatge	$24V_{DC}$
Input Data	8 Bytes
Current Consumption Int. Bus	30 mA

Analog I/O Module ADAM-8234	
Model	**1BD50**
I/O Channel	2 In / 2 Out
Input / Output Range	+-10V, 0~10V, 1~5V, +-20mA, 0~20mA, 4~20mA
Resolution	12 Bits
Actuator Resistance	Volt.: 100KΩ, Curr.: 50Ω
Supply Volatge	$24V_{DC}$
Input/Output Data	4 Bytes
Current Consumption Int. Bus	110 mA

SCADA I/O Solution in Environmental Monitoring System

Advantech's ADAM series distinguishes itself by featuring a wide variety of I/O and communication modules to meet high-volume SCADA requirements in environmental monitoring applications such as air/water quality measurement & control services, warning systems for landscapes, dams, bridges, and traffic monitoring, and unmanned station monitoring.

The new ADAM-4000 series integrates Modbus and BACnet network support to increase the speed and integrate with mainstream control systems such as DCS or PLC. The ADAM-5000 series has been widely installed in many SCADA and Plant Automation projects. The ADAM-5000 series incorporates higher memory capacity and communication ability, as well as a multi-tasking OS to execute critical control strategies in the field.

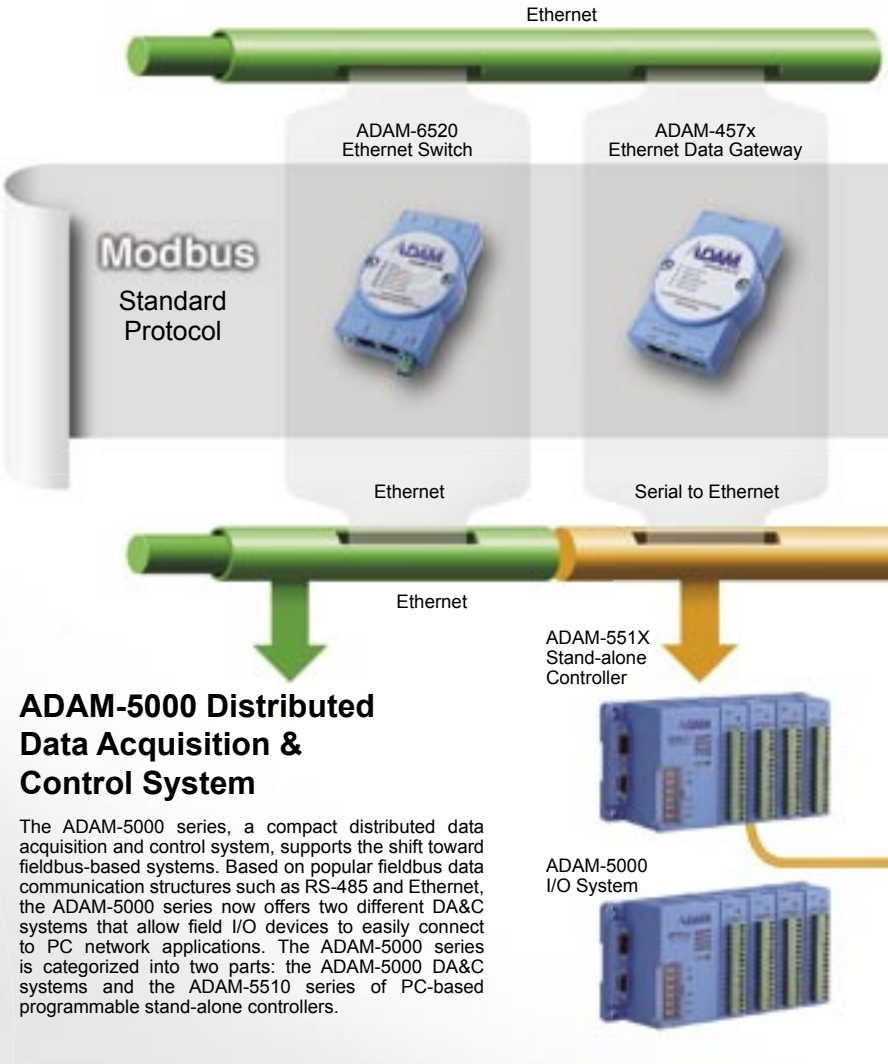
Features:

- Diverse SCADA networking solutions
- Web-based HMI/SCADA-software
- High capacity in serial device handling
- Scalable system architecture

IEC-61131 Programming Package

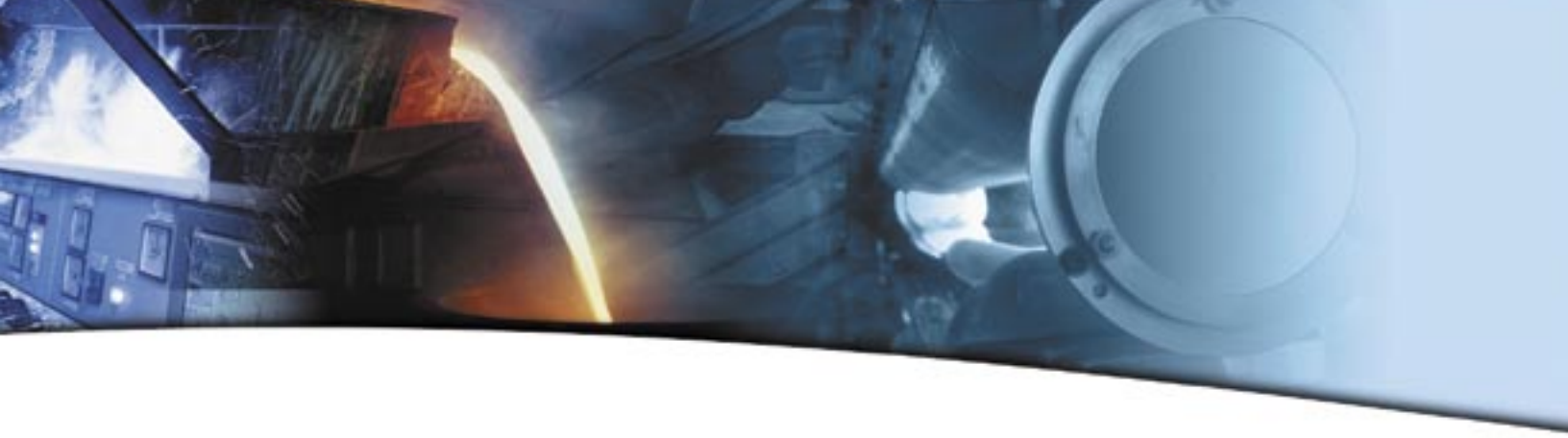
KW MULTIPROG

- Ladder Diagram
- Functional Block Diagram
- Sequential Function Chart
- Structure Text
- Instruction List



ADAM-5000 Distributed Data Acquisition & Control System

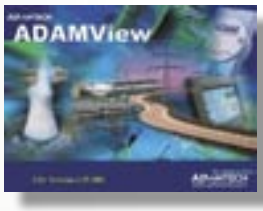
The ADAM-5000 series, a compact distributed data acquisition and control system, supports the shift toward fieldbus-based systems. Based on popular fieldbus data communication structures such as RS-485 and Ethernet, the ADAM-5000 series now offers two different DA&C systems that allow field I/O devices to easily connect to PC network applications. The ADAM-5000 series is categorized into two parts: the ADAM-5000 DA&C systems and the ADAM-5510 series of PC-based programmable stand-alone controllers.



HMI SCADA Software

A-Studio

Web-based Human Machine Interface Software



ADAMView

ADAM Data Acquisition & Control Software

RS-232

ADAM-4520
Serial Converter

ADAM-454x
Fiber Optic Converter

Serial

Fiber Optic

GSM/GPRS

Modem

RS-232/422/485

Stand-alone Controller

The ADAM-551X Series are compact, stand-alone controllers with Intel x86-based CPU. Programmers can use C or IEC-61131 SoftLogic software to write and download applications to the ADAM-551X Controller.

I/O System

Controlled by a Network Master (PC or Controller), the ADAM-5000 I/O systems can acquire, monitor and control data through multi-channel I/O modules. Advantech provides various models in 8/16 I/O module slots and RS-485/Ethernet interfaces.

RS-485

Up to 32 nodes

ADAM-4000 Remote Data Acquisition & Control Modules

The ADAM-4000 series modules are compact, versatile sensor-to-computer interface units designed specifically for reliable operations in harsh environments. Their built-in microprocessors, encased in rugged industrial grade plastic, independently provide intelligent signal conditioning, analog I/O, digital I/O, data display and RS-485 communication.

ADAM-5000 System Configuration

Programming Tool

SoftLogic Control

Ethernet

RS-485

PC-Based Control

KW MULTIPROG

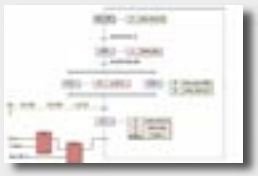
MULTIPROG IEC 61131 programming software supports all IEC 61131-3 programming languages. According to the task to be handled, programmer experience level, and different company standards, you may choose one of the five standardized programming languages.

The IEC 61131-3 standard has been established to support multiple control languages: Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), Structured Text (ST) and Instruction List (IL). This is to meet the different control needs that exist in the versatile automation field. With IEC 61131-3 technology, one automation system can be easily leveraged to different applications. This reduces engineers' efforts to learn proprietary programming tools and saves investment costs.

IEC-61131 Standard Language

Ladder Diagram

Structure Text



Functional Block Diagram

Instruction List

Sequential Function Chart

Borland Turbo C

The ADAM-5000 series can be programmed in a way similar to how one uses an x86 PC. Programmers in C language can write and compile applications in Inprise (Borland) Turbo C and download to the ADAM-551Xs. Given the prevalence of C language programming tools, this is a distinct advantage for many users and can result in a very short learning curve and very modest training expense requirements.

C Language

Controller

RS-485

Ethernet

I/O System

RS-485

Ethernet

Main Units

- **ADAM-5510 / ADAM-5510M**
  4-slot PC-based Controller
- **ADAM-5510KW**
  4-slot SoftLogic Controller

- **ADAM-5510E**
  8-slot PC-based Controller
- **ADAM-5510EKW**
  8-slot SoftLogic Controller

- **ADAM-5510/TCP**
  4-slot Ethernet PC-based Controller
- **ADAM-5510KW/TCP**
  4-slot Ethernet SoftLogic Controller

- **ADAM-5510E/TCP**
  8-slot Ethernet PC-Based Controller
- **ADAM-5510EKW/TP**
  8-slot Ethernet SoftLogic Controller

- **ADAM-5000/485**
  4-slot Data Acquisition System

- **ADAM-5000E**
  4-slot Data Acquisition System

- **ADAM-5000/TCP**
  8-slot Ethernet Data Acquisition System

I/O Modules

Analog Input Modules
- ADAM-5013 RTD Module
- ADAM-5017 Analog Input Module
- ADAM-5017H High-speed AI Module
- ADAM-5018 Thermocouple Input Module

Analog Output Module
- ADAM-5024 Analog Output Module

Digital I/O Modules
- ADAM-5050 16-ch. Digital I/O Module
- ADAM-5051 16-ch. Digital Input Module
- ADAM-5052 8-ch. Iso. DI Module
- ADAM-5055S 16-ch. Iso. DI/O Module
- ADAM-5056 16-ch. Digital Output Module

Relay Output & Counter Modules
- ADAM-5060 6-ch. Relay Module
- ADAM-5068 8-ch. Relay Module
- ADAM-5080 Counter Module

Communication Module
- ADAM-5090 4-port RS-232 Comm. Module

ADAM-5000 Selection Table

Main Units

System	ADAM-5510	ADAM-5510M/5510E ADAM-5510KW/5510EKW	ADAM-5510/TCP ADAM-5510E/TCP	ADAM-5510EKW/TP
CPU	80188	80188	80188	80188
RAM	256 KB	640 KB	640 KB	640 KB
Flash ROM	256 KB	256 KB	256 KB	256 KB
Flash Memory	256 KB	256 KB	256 KB	256 KB
Flash Disk	-	1 MB	1 MB	1 MB
OS	ROM-DOS	ROM-DOS	ROM-DOS	ROM-DOS
COM1	RS-232	RS-232 (ADAM5510M/5510KW) RS-232/485 (ADAM-5510E/5510EKW)	RS-232(ADAM-5510/TCP) RS232/485(ADAM5510E/TCP)	RS-232/485
COM2	RS-485	RS-485	RS-485	RS-485
COM3 (Programming)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)
COM4	-	RS-232/485	RS-232/485	RS-232/485
I/O Slots	4	4/8	4/8	4/8
Isolation	Yes	Yes	Yes	Yes
Network	RS-232/485 (2-wire)	RS-232/485 (2-wire)	Ethernet (RJ-45)	Ethernet (RJ-45)
Protocol	User defined	User defined (ADAM-5510M/5510E) MODBUS/RTU (ADAM-5510KW/5510EKW)	User defined, MODBUS/TCP	Modbus/RTU, Modbus/TCP

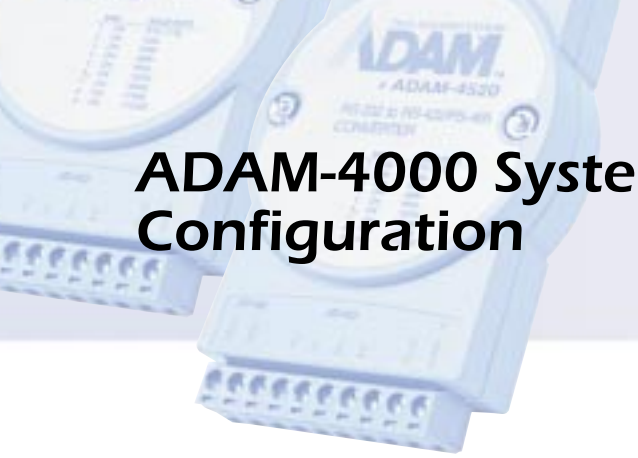
I/O Modules

Module		Analog I/O							
		ADAM-5013	ADAM-5017	ADAM-5017H	ADAM-5018	ADAM-5024	ADAM-5050	ADAM-5051	ADAM-5051D
Analog Input and Analog Output	Resolution	16 bit	16 bit	12 bit	16 bit	12 bit	-	-	-
	Input Channel	3	8	8	7	-	-	-	-
	Sampling Rate	10	10	8K	10	-	-	-	-
	Voltage Input	-	±150 mV ±500 mV ±1 V ±5 V ±10 V	±250 mV ±500 mV ±1 V ±5 V ±10 V	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	0~10 V (Voltage Output)	-	-	-
	Current Input	-	±20 mA*	±20 mA*	±20 mA*	0~20 mA 4~20 mA (Current Output)	-	-	-
	Direct Sensor Input	Pt or Ni RTD	-	-	J, K, T, E, R, S, B	-	-	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	-	-	-	16 DIO (bit-wise selectable)	16	16 W/LED
	Digital Output Channels	-	-	-	-	-		-	-
Counter (32-bit)	Channels	-	-	-	-	-	-	-	-
	Input Frequency	-	-	-	-	-	-	-	-
	Mode	-	-	-	-	-	-	-	-
COMM	Channels	-	-	-	-	-	-	-	-
	Type	-	-	-	-	-	-	-	-
Isolation		3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	-	-	-

ADAM-5511	ADAM-5000/TCP	ADAM-5000/485	ADAM-5000E	Remarks
80188	RISC CPU	80188	80188	-
256 KB	4 MB	-	-	-
256 KB	512 KB	-	-	-
-	-	-	-	
512 KB	-	-	-	-
ROM-DOS	real-time OS	-	-	-
RS-232 (Modbus)	RS-485 (Modbus)	RS-485	RS-485	
RS-485(Modbus)	-	RS-485	RS-485	-
RS-232 (TX, RX, GND)		TX, RX, GND	TX, RX, GND	
-	-	-	-	-
4	8	4	8	
Yes	Yes	Yes	Yes	-
RS-232/485 (2-wire)	Ethernet	RS-232/485 (2-wire)	RS-232/485 (2-wire)	
Modbus/RTU	Modbus/TCP, Modbus/RTU	ADAM ASCII	ADAM ASCII	-

Digital I/O								Counter/ Frequency	Communication
ADAM-5051S	ADAM-5052	ADAM-5055S	ADAM-5056	ADAM-5056D	ADAM-5056S /5056SO	ADAM-5060	ADAM-5068	ADAM-5080	ADAM-5090
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-
16 W/LED	-	8 w/LED	-	-	-	-	-	-	-
	8	8 w/LED	16	16 w/LED	16 w/LED	6 relay (2 form A / 4 form C)	8 relay (8 form A)	-	-
-	-	-	-	-	-	-	-	4	-
-	-	-	-	-	-	-	-	5000 Hz (max)	-
-	-	-	-	-	-	-	-	Frequency, Up/ Down Counter, Bi-direction Counter	-
-	-	-	-	-	-	-	-	-	4
-	-	-	-	-	-	-	-	-	RS-232
2500 V_{DC}	5000 V_{RMS}	2500 V_{DC}	-	-	2500 V_{DC}	-	-	1000 VRMS	-

ADAM-4000 System Configuration

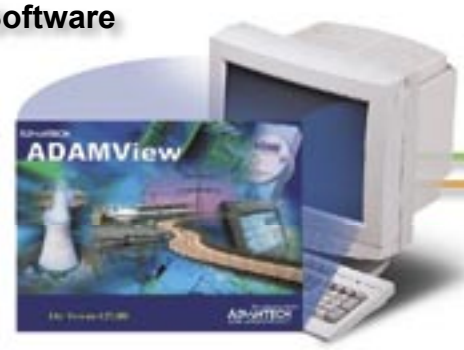


ADAMView

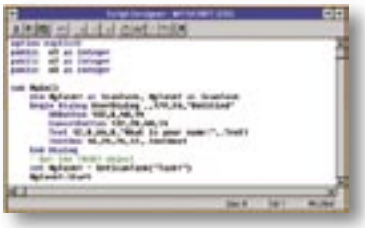
Data Acquisition & Control Software

ADAMView is designed for low-volume ADAM projects. It is a software for a complete operation interface, bundled with a multi-tasking environment,

Basic Script Programming, DDE & ODBC data exchange service, etc. In brief, ADAMView is a cost-effective and simple SCADA software for the ADAM I/O series.

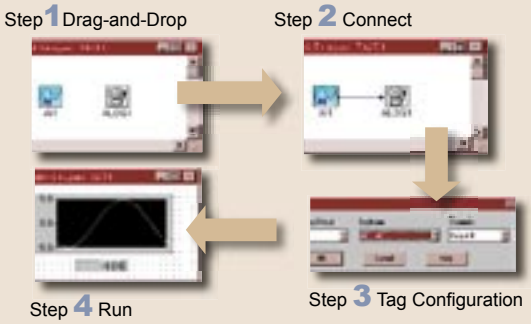


Basic Script



- User-defined to meet your specific needs.
- Over 600 commands, such as calculations, reading, writing files, DDE, ODBC…
- Allows you to access and share data with Microsoft Access and Microsoft Excel.

4 Steps Easy Configuration



Object-based Graphic Configuration

- Easily configured by drag & drop
- Pre-built dynamic graphic library (Meter, slider, drawing tools)
- Pre-built graphical control (ON/OFF control, numeric control, knob control)
- Multiple displays support

Communication Modules

Ethernet

ADAM-457x
Ethernet Data Gateway

RS-232

ADAM-454x
Fiber Optic Converter

ADAM-4531
Modbus to BACnet Converter

ADAM-4520
Serial Converter

RS-232/485

Controllers

ADAM-4500

PC-based Communication Controller

Features:

- 80188 microprocessor
- 256 KB Flash ROM, 256 KB SRAM
- Built-in ROM DOS
- Built-in RS-232 and 485 communication
- Built-in real-time clock and watchdog timer

ADAM-4022T

Dual-loop PID Controller

Features:

- 2 loop PID control algorithms built in one package
- Supports multiple analog input ranges: 0 ~ 10 V_{DC}, 0 ~ 20 mA, 4 ~ 20 mA, and thermistor
- Supports heating/cooling (direct/reverse) action mode
- Supports Modbus/RTU protocol

I/O Modules

Analog Input Modules

- ADAM-4011/4011D T/C Input
- ADAM-4012 Analog Input
- ADAM-4013 RTD Input
- ADAM-4015 6-ch. RTD Input•
- ADAM-4017 8-ch. Analog Input
- ADAM-4017+ 8-ch. Analog Input•
- ADAM-4018 8-ch. T/C Input
- ADAM-4018+ 8-ch. T/C Input•

Analog Output Modules

- ADAM-4021 Analog Output
- ADAM-4024 4-ch. Analog Output•

Digital I/O Modules

- ADAM-4050 15-ch Digital I/O
- ADAM-4051 16-ch. Digital Input•
- ADAM-4055 16-ch. Digital I/O•
- ADAM-4056S/4056SO 12-ch. DO•

Relay Output Modules

- ADAM-4060 4-ch. Relay Output
- ADAM-4068 8-ch. Relay Output•

Counter Modules

- ADAM-4080 2-ch. Counter Module

• Support Modbus Protocol

ADAM-4000 I/O Modules Selection Table

I/O Modules

Module		Analog Input									
		ADAM-4011/ ADAM-4011D	**ADAM-4012**	**ADAM-4013**	**ADAM-4015**	**ADAM-4015T**	**ADAM-4016**	**ADAM-4017/ ADAM-4017+**	**ADAM-4018/ ADAM-4018+**	**ADAM-4018M**	**ADAM-4019**
Resolution		16 bit	16 bit	16 bit	16 bit	16 bit	16 bit	16 bit	16 bit	16 bit	16 bit
Analog Input	Input Channels	1 differential	1 differential	1 differential	6 differential	6 differential	1 differential	8 differential (ADAM-4017+)	8 differential (ADAM-4018+)	6 differential 2 S. E.*	8 differential
	Sampling Rate	10 Hz	10 Hz	10 Hz	10 Hz (total)	12 Hz (total)	10 Hz (total)	10 Hz (total)	10 Hz (total)	10 Hz (total)	10 Hz (total)
	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	±50 mV ±100 mV ±500 mV ±1 V ±2.5 V (4018)	±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	± 100 mV ± 500 mV ± 1 V ± 2.5 V ± 5 V ± 10 V
	Current Input	±20 mA	±20 mA	-	-	-	±20 mA	4~20 mA (4017+)	4~20 mA ±20 mA	±20 mA	± 20 mA
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	-	RTD Pt, Ni	RTD Pt, Ni, Balco	Thermistor 3K, 10 K	-	-	J, K, T, E, R, S, B Thermocouple	J, K, T, E, R, S, B Thermocouple	J, K, T, E, R, S, B Thermocouple
	Burn-out Detection	Yes	-	-	Yes	Yes	-	-	Yes (4018+)	-	-
	Channel Independent Configuration	-	-	-	Yes	Yes	-	Yes (4017+)	Yes (4018+)	-	Yes
	Storage Capacity	-	-	-	-	-	-	-	-	128 KB Flash Memory	-
Analog Output	Output Channels	-	-	-	-	-	1	-	-	-	-
	Voltage Output	-	-	-	-	-	0 - 10 V	-	-	-	-
	Drive Current	-	-	-	-	-	30 mA	-	-	-	-
Digital Input and Output	Digital Input Channels	1	1	-	-	-	-	-	-	-	-
	Digital Output Channels	2	2	-	-	-	4	-	-	-	-
	Event Counter	Yes	Yes	-	-	-	-	-	-	-	-
	High/Low Alarm Settings	Yes	Yes	-	-	-	-	-	-	-	-
Isolation		3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}
Digital LED Display		Yes (4011D)	-	-	-	-	-	-	-	-	-
Watchdog Timer		Yes (System)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)
Modbus Support		-	-	-	Yes	Yes	-	Yes (4017+)	Yes (4018+)	-	-

* S.E.: Single-ended

I/O Modules

Module		Analog Output		Digital Input/Output						Relay Output		Counter
		ADAM-4021	ADAM-4024	ADAM-4050	ADAM-4051	ADAM-4052	ADAM-4053	ADAM-4056S/ ADAM-4056SO	ADAM-4055	ADAM-4060	ADAM-4068	ADAM-4080/ ADAM-4080D
Resolution		12 bit	12 bit	-	-	-	-	-	-	-	-	-
Analog Input	Input Channels	-	-	-	-	-	-	-	-	-	-	-
	Sampling Rate	-	-	-	-	-	-	-	-	-	-	-
	Voltage Input	-	-	-	-	-	-	-	-	-	-	-
	Current Input	-	-	-	-	-	-	-	-	-	-	-
	Direct Sensor Input	-	-	-	-	-	-	-	-	-	-	-
	Burn-out Detection	-	-	-	-	-	-	-	-	-	-	-
	Channel Independent Configuration	-	Yes	-	-	-	-	-	-	-	-	-
	Storage Capacity	-	-	-	-	-	-	-	-	-	-	-
Analog Output	Output Channels	1	4	-	-	-	-	-	-	-	-	-
	Voltage Output	0 - 10 V	0 - 10 V +/-10V	-	-	-	-	-	-	-	-	-
	Current Output	0 - 20 mA 4 - 20 mA	0 - 20 mA 4 - 20 mA	-	-	-	-	-	-	-	-	-
Digital Input and Output	Digital Input Channels	-	4	7	16	8	16	-	8	-	-	-
	Digital Output Channels	-	-	8	-	-	-	12 (Sink): ADAM-4056S 12 (Source): ADAM-4056SO	8	4-channel relay	8-channel relay	2
	Alarm Settings	-	Yes	-	-	-	-	-	-	-	-	Yes
Counter (32-bit)	Channels	-		-		-	-	-		-	-	2
	Input Frequency	-	-	-	-	-	-	-	-	-	-	50 kHz
Isolation		3,000 V_{DC}	3,000 V_{DC}	-	2,500 V_{DC}	5,000 V_{RMS}	-	2,500 V_{DC}	2,500 V_{DC}	-	-	2,500 V_{RMS}
Digital LED Indicator		-	-	-	Yes	-	-	-	Yes	-	-	5-digit (4080D)
Watchdog Timer		Yes (System)	Yes (System & Comm.)	(System & Comm.)	(System & Comm.)	Yes (System)	Yes (System)	(System & Comm.)	(System & Comm.)	(System & Comm.)	(System & Comm.)	Yes (System)
Safety Setting		-	Yes	Yes	-	-	-	Yes	Yes	Yes	Yes	-
Modbus Support		-	Yes	-	Yes	-	-	Yes	Yes	-	Yes	-

eController & Web I/O Solution in Facility Management System

A factory building is a typical application for a facility management system. In a factory building, several sub-systems are required to be integrated together, such as warehouse management, production line process control, security, lighting, equipment surveillance and so on. Advantech's Ethernet-based facility management system integrates control, communication, management and video together as a single automation system.

The UNO series boasts its compact size, fanless design, and versatile communication interfaces. Equipped with Ethernet and ADAM I/O driver, the UNO series proves itself as the best embedded platform on factory floors. The ADAM-6000 series is a controller independent, distributed I/O solution with modular design and onboard intelligence, which makes it suitable for SCADA and stand-alone control applications.

Features:

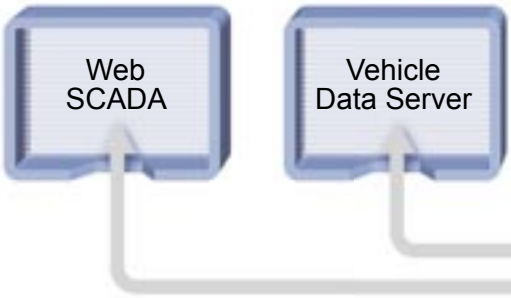
- Ethernet-enabled, off-the shelf solutions transform a traditional factory into an eManufacturing plant.
- Web HMI & SoftLogic technology allows users to monitor and operate process anytime, antwhere.

Proven in Industrial Environment

Disk Free Design

Fanless Design

Anti-shock / Anti-vibration



WebOIT Series

Web-enabled Operator Interface Terminal

The WebOIT series comes complete with everything needed to make a connection from your PLC to the Internet with Web-enabled technology.

- Integrated Web server technology
- A complete solution for all your control needs
- Powerful, flexible, state-of-the-art graphic screens

WebLink Series

Web-enabled Device Connection

WebLink series is a web server embedded device that connects field devices through RS-232/422/485, Ethernet or fieldbus communication, to the Intranet/Internet.

- Browser-only client to save cost and facilitate maintenance
- Remotely view and control I/O data anytime, anywhere
- Alarm/event instantly handled through email

Field Data Gateway

Power Distribution Monitoring

Access Control Server

PC-based Controller

UNO Series

Universal Network Controller

The UNO series is an application-ready platform with rich networking interfaces that fulfills extensive needs for different projects.

- Field proven design
- Various comm. interfaces
- System watchdog

ADAM-6500

Web-based Communication Controller

The ADAM-6500 is a fully functional Ethernet-enabled controller for industrial automation control. It provides an ideal environment to develop applications converting RS-232/485 devices/equipment data to the Ethernet/Internet world.

- Built-in Ethernet and RS-232/485 COM ports
- Built-in real-time clock and watchdog timer
- CompactFlash expandable

ADAM-6000 Series

Smart Web I/O

The ADAM-6000 Ethernet-based DA&C Modules include the following features:

- Smart I/O: ADAM-6000 I/O provides intelligent functions that accelerate future automation development.
- Web I/O: ADAM-6000 I/O modules provide built-in standard and customizable web pages, which truly demonstrate the power of Web monitoring.
- Mixed I/O: A just-fit mixed I/O module reduces engineering effort, as well as installation and maintenance cost. Obviously, the ADAM-6000 series is the perfect choice to meet specific requirements of various vertical markets.

Embedded Application Ready Platform

Embedded Operation System

Integrate with SoftLogic as Embedded Controller

Integrate with A-Studio as SCADA Server

UNO and ADAM-6000 System Configuration

SCADA Software

Advantech Studio

Human Machine Interface Software

Advantech Studio is a powerful, integrated collection of automation tools that includes all the building blocks required to develop modern Human Machine Interfaces (HMIs), and Supervisory Control and Data Acquisition System (SCADA) applications that run on Windows NT/2000/XP and CE, or in an Internet / Intranet environment.

Advantech Studio can be bundled with the UNO series as a web server embedded device (WebLink series). The WebLink series extracts real-time data from plant floor systems, aggregates it on a web server, transforms it into usable business information, and distributes it to appropriate users through a standard web browser.

Features:

- Publish real-time dynamic and animated graphic screens, trends, alarms, reports and recipes to standard browsers.
- Multi-level security for applications over the Intranet and Internet.
- Windows 98/2000/NT/XP and CE versions provided.

Embedded O/S

- Microsoft Windows CE
- Windows XP
- Embedded Linux

Windows XP Embedded

Windows CE .net

Linux20

Control Platform/WebLink

Dual LAN

On-board I/O

UNO-2050
- 2xRS-422/485
- 8xDI & 8xDO

PCMCIA

UNO-2053
- 2xRS-232
- 2xUSB
- PCMCIA

Single LAN

On-board I/O

UNO-2052
- 2xCAN Interfaces
- RS-232
- 4xDI & 4xDO & 2xAI

PCMCIA

UNO-2059
- 4xRS-232/485
- 2xUSB
- PCMCIA

Pentium

Communication Controller

UNO-3062
- 2xRS-232 & 2xRS-232/422/485
- 4xUSB
- 2xPCI slots

UNO-2160
- 2xRS-232 & 2xRS-232/422/485
- 2xUSB & PCMCIA
- 2xPC/104 slots

Pentium III

ADAM-6500
Ethernet-enabled Communication Controller
- Ethernet Interface
- Built-in Windows CE .NET
- 3xRS-232 / 2xRS-485

Web I/O Modules

ADAM-6510
Ethernet Hub

Ethernet

PID Module
- ADAM-6022 Dual-loop PID Module

Analog Input
- ADAM-6015 RTD Module
- ADAM-6017 8-ch. AI Module
- ADAM-6018 T/C Module

Analog Output
- ADAM-6024 Dual-loop PID Module

ADAM-6520
Ethernet Switch

Digital I/O
- ADAM-6050 16-ch DI/O Module
- ADAM-6051 18-ch. DI/O Module
- ADAM-6052 16-ch. Source Input Module
- ADAM-6060 Relay Output Module

UNO & ADAM-6000 Selection Table

UNO-2000/3000 Universal Network Controllers

Model Name	UNO-2041	UNO-2050	UNO-2052	UNO-2053	UNO-2059	UNO-2160	UNO-3062
CPU	486 MHz	GX1-300 MHz				Celeron 400	
On-Board RAM	32 MB EDO RAM	64/128 MB SDRAM				256/512 MB SDRAM	
Battery-backup RAM	-	-				512 KB	
VGA/KB/MS	Yes						
Serial Ports	2x RS-232 2xRS-232/485	2x RS-232 2xisolated RS-232/422/485	2xCAN 1xRS-232	2xRS-232	2xRS-232 2xRS-232/422/ 485	2xRS-232 2xRS-232/422/485	
10/100Base-T Ethernet Ports	Extend one port by PCM-3660	Two	One	Two	One	Two	Two
USB Ports	-	-	One	Two	Two	Two	Four
PC Card Slots	Extend one port by PCM-3110A	-	-	One	One	One	One
Printer Ports	-	-	-	-	-	One	-
PC/104 Extensions	One	-	-	-	-	Two	-
PCI Extensions	-	-	-	-	-	-	Two
On-Board I/O	By adding PC/104 I/O	8-ch isolated DI 8-ch isolated DO	4-ch isolated DI 4-ch isolated DO 2-ch isolated AI	-	-	-	4-ch isolated DI 4-ch isolated DO
Watchdog Timer	No	Yes					
CompactFlash™ Slots	One internal						One external
2.5'' HDD Extension	No	Yes					
Operating Systems	DOS Windows® CE .NET	Windows® CE .NET Windows 2000/XP/Linux				Windows® XP Embedded Windows® CE .NET Windows 98/2000/XP Linux	
Programming Runtime Library	Yes						
Software Development Kit	Yes						
Activesync	Yes						
Web Server/ E-mail Service	Yes						
Modem Dial-In(RAS) /Dial-Up Function	Yes						
Mounting	DIN-Rail/Panel/Wall					Panel/Wall	
Anti-vibration	1G w/CF @ IEC 68 section 2-6, sine, 5~500 Hz, 1 Oct./ min, 1hr/axis.	2G w/CF, 1G w/HDD @ IEC 68 section 2-6, sine, 12~300 Hz, 1 Oct./min, 1hr/axis.				2G w/CF, 0.5G w/HDD @ IEC 68 section 2-6, sine, 5~500 Hz, 1 Oct./ min, 1hr/axis.	
Anti-shock	20 G w/ CF @ DIN IEC 68 section 2-27, half sine, 11ms 50 G W/ CF @ Wall/Panel IEC 68 section 2-27, half sine, 11ms						
IP40 Certificate	Yes						
Power Input Range	10~30 V_{DC}	9~36 V_{DC}	9~36 V_{DC}	10~30 V_{DC}	9~36 V_{DC}	9~36 V_{DC}	16~36 V_{DC}
Operating Temperature	0~55° C	-10~55° C @ 5~85% relative humidity				-10~50° C @ 5~85% relative humidity	
Related Humidity	95% @ 40° C						
Power Consumption	0.6 A max under +24 V power input or 1.2 A max under +12 V power input						
Power Requirement	1 A typical under +24 V power input or 1.5 A typical under +12 V power input					Max. 35 W	
Dimensions (W x L x H)	188.8 x 106.5 x 35.5 mm (7.5" x 4.2" x 1.4")					220 x 160 x 50 mm (8.6" x 6.2" x 1.9")	140 x 220 x 390 mm (5.5'' x 8.6'' x 15.3'')
Weight	0.8 Kg					1.6 kg	3.5 kg

ADAM-6000 Smart Web I/O Modules

Module		ADAM-6015	ADAM-6017	ADAM-6018	ADAM-6024	ADAM-6050	ADAM-6051	ADAM-6052	ADAM-6060
Interface		10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet
Resolution		16 bit	16 bit	16 bit	16 bit for AI 12 bit for AO	-	-	-	-
Analog	Input	Input channels	7 differential	8 differential	6 diff. AI	6 diff. AI	-	-	-
	Sampling Rate	10 samples/ sec	10 samples/ sec	10 samples/ sec	10 samples/ sec	-	-	-	-
	Input Type	PT-50 PT-100 PT-200 PT-1000 Balco 500 NI 50	±150 mV ±500 mV 0 ~ 5 V ±10 V		0 ~ 10 V_{DC}	0 ~ 10 V_{DC}	-	-	-
	Current Input		0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-
	Direct Sensor Input	Pt, Balco and Ni RTD	-	J.K.T.E.R.S.B. Thermocouple	-	-	-	-	-
	Burn-out Detection	Yes	-	Yes	-	-	-	-	-
	Channel Independent Configuration	Yes	Yes	Yes	Yes	-	-	-	-
	Math. Functions	Max. Min. Avg.	Max. Min. Avg.	Max. Min. Avg.	-	-	-	-	-
Analog Output	Output Channels	-	-	-	2 AO	-	-	-	-
	Voltage Output	-	-	-	4 ~ 20 mA with 15 V_{DC}	-	-	-	-
	Drive Current	- -	-	-	0 ~ 10 V_{DC} with 30 mA	-	-	-	-
Digital Input and Output	Digital Input Channels	-	-	-	2 (Sink)	12 (Sink)	12 (Sink)	8 (Source)	6 (Sink)
	Digital Output Channels	-	2 (Sink)	8 (Sink)	2 (Sink)	6 (Sink)	2 (Sink)	8 (Source)	6-channel relay (No)
	Event Counter	-	-	-	-	-	2 (5 KHz)	-	-
	High/Low Alarm Settings	Yes	Yes	Yes	-	-	-	-	-
Isolation		2000 V_{RMS}	2000 V_{RMS}	2000 V_{RMS}	2000 V_{RMS}	2000 V_{RMS}	2000 V_{RMS}	2000 V_{RMS}	2000 V_{RMS}
Watchdog Timer		Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

eConnectivity Solution in eManufacturing

Companies are under pressure to meet the demands of customers to stay competitive. e-manufacturing, the key element of the e-business concept, integrates plant floors and enterprise applications by leveraging web-based technologies, collaborating with value network partners, and electronically drive work flows. e-manufacturing provides the front office with a transparent and complete view of flow processes and plant floor assets that facilitate efficient supply and reduce costs. e-manufacturing effectively eliminates the massive information bottleneck between back-end plants and front-end offices.

Features:

- Reduce monitoring / maintenance cost and effort
- Increase reliability and response time through networked control
- Integrate information through Ethernet

Industrial Ethernet Hub/Switch

- ADAM-6510/6520 4/5-port Ethernet Hub/Switch
- ADAM-6521/6522 5/4-port Ethernet Switch with Fiber Optic Interface
- EDG-6528 8-port Industrial 10/100 Mbps Ethernet Switch
- EDG-6528M/6528S 8-port Industrial 10/100 Mbps Ethernet Switch with 2-port 100FX(SC) Multi/ Single-mode Fiber Interface

Ethernet Media Converter

- ADAM-6541 Ethernet to Multi-mode Fiber Optic Converter
- ADAM-6542 Ethernet to Single Strand Fiber Optic Converter

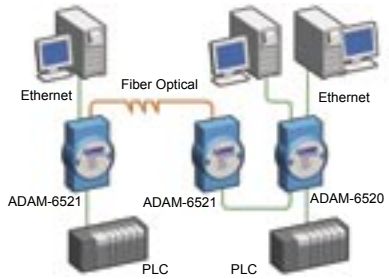
Serial to Ethernet Data Gateway

- ADAM-4570/4571 2/1-port RS-232/422/485 to Ethernet Data Gateway
- ADAM-4570L/4571L 2/1-port RS-232 to Ethernet Data Gateway
- ADAM-4570S/4571S 2/1-port RS-422/485 to Ethernet Data Gateway with Security
- EDG-4100 1-port RS-232 to Ethernet Data Gateway Board
- EDG-4508+/4516+ 8/16-port RS-232/422/485 to Ethernet Data Gateway
- ADAM-4572 Modbus to Ethernet Data Gateway
- ADAM-4577/4579 1/2-port Universal Serial Device Gateway

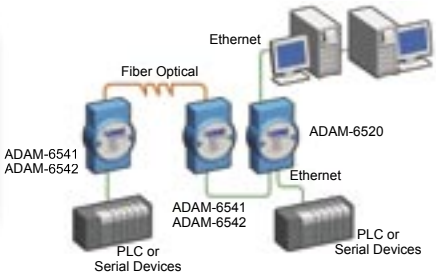
Serial Media Converter

- ADAM-4520 General Isolated RS-232 to 422/485 Converter
- ADAM-4510/4510S General Isolated RS-422/485 Repeater
- ADAM-4541/4542+ Fiber Optics to RS-232/422/485 Converter

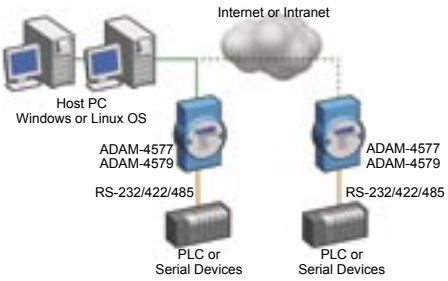
The industrial-grade hubs and switches are especially suitable for industrial environments with Ethernet networking needs, such as semiconductor factories, inventory control at warehouses, assembly lines and production. The rugged industrial-grade design assures reliability and stability. Expand your industrial network efficiently and cost-effectively with the industrial Ethernet hubs and switches.



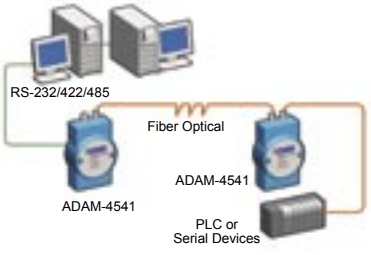
The Ethernet media converters are designed to convert Ethernet network signals (10/100Base-TX) to fiber network signals (100Base-FX). They transparently convert Ethernet signals into optic signals. Fiber optic communication provides wide bandwidth and secure long-distance transmission without electromagnetic interference.



The Ethernet data gateways enable RS-232/422/485 serial devices to be connected to a host computer over an Ethernet network quickly and cost-effectively. No extra programming effort is required at the host computer, so software development costs can be saved. Ethernet data gateways are especially suitable for remotely controlling and monitoring your serial devices via the Ethernet.



The Serial Media Converters provide conversion between serial networks and other media. They can transparently convert RS-232 signals to RS-422/485 signals, as well as wireless and fiber optic signals. The ADAM-4520 transparently converts RS-232 signals into RS-422 or RS-485 signals without changing a PC's hardware or software. The ADAM-4510S enables extension of serial network transmission. The ADAM-4541 can be used as a RS-232/422/485 point-to-point or point-to-multipoint connection for transmitting and converting full/half-duplex signals and their equivalents within a fiber optic environment.



eConnectivity Solution Selection Table

Industrial Ethernet Hub/Switch

Model Name	Ethernet Hub	Ethernet Switches			
	ADAM-6510	ADAM-6520	ADAM-6521	EDG-6528	EDG-6528S EDG-6528M
Interfaces	10Base-T	10/100Base-T	10/100Base-T 100Base-FX	10/100Base-T	10/100Base-T 100Base-FX
Ports	4 x RJ-45 1 x RJ-45 (uplink)	5 x RJ-45	4 x RJ-45 1 x Fiber	8 x RJ-45	6 x RJ-45 2 x Fiber
Surge Protection	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}	3000 V_{DC}
ESD Protection	-	-	-	4000 V_{DC}	4000 V_{DC}
Power Requirement	10~30 V_{DC}	10~30 V_{DC}	10~30 V_{DC}	10~48 V_{DC}	10~48 V_{DC}
Operating Temperature	-10 ~ 70° C	-10 ~ 70° C	-10 ~ 65° C	-40 ~ 85° C	-40 ~ 70° C

Media Converter

Model Name	Ethernet Media Converters		Serial Media Converters		
	ADAM-6541	ADAM-6542/W15 ADAM-6542/W13	ADAM-4510 and ADAM-4510S	ADAM-4520 and ADAM-4522	ADAM-4541 and ADAM-4542+
Interfaces	10/100Base-T 100Base-FX	10/100Base-T 100Base-FX	RS-422, RS-485	RS-232, RS-422 / RS-485	Fiber Optic, RS-232/422/485
Ports	1 x RJ-45 1 x Fiber	1 x RJ-45 1 x Fiber WDM	1	1	1
Surge Protection	3000 V_{DC}	3000 V_{DC}	-	-	-
ESD Protection	1500 V_{RMS}	1500 V_{RMS}	-	-	-
Speeds	-	-	From 1200 to 115.2 K	From 1200 to 115.2 K	From 1200 to 115.2 K
Connectors	-	-	RS-422/485: Plug-in screw terminal	RS-232: Female DB9 RS-422/485: Plug-in screw terminal	Fiber: ST RS-232/422/485: Plug-in screw terminal
Isolation	-	-	3000 VDC (ADAM-4510S)	-	-
Power Requirement	10~30 V_{DC}	10~30 V_{DC}	+10~+30 V_{DC}	+10~+30 V_{DC}	+10~+30 V_{DC}
Operating Temperature	-10 ~ 70° C	-10 ~ 70° C	-10~70'° C	-10~70° C	-10~70° C

Serial to Ethernet Data Gateway

Model Name	Ethernet Data Gateway							Universal Serial Device Gateway	
	EDG-4100	ADAM-4571	ADAM-4571L	ADAM-4571S	ADAM-4570	ADAM-4570L	ADAM-4570S	ADAM-4577	ADAM-4579
Interface	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10 Mbps Ethernet	10/100 Mbps Ethernet
Ports	1	1	1	1	2	2	2	1	2
Serial Type	RS-232	RS-232/422/485	RS-232	isolated RS-422/485	RS-232/422/485	RS-232	isolated RS-422/485	RS-232/422/485	RS-232/422/485
Speed	230 Kbps	230 Kbps	230 Kbps	230 Kbps	230 Kbps	230 Kbps	230 Kbps	230 Kbps	230 Kbps
Surge Protection		15 K VESD	15 K VESD	15 K VESD	15 K VESD	15 K VESD	15 K VESD	15 K VESD	15 K VESD
Parity	Even, odd, none	Even, odd, none	Even, odd, none	Even, odd, none	Even, odd, none	Even, odd, none	Even, odd, none	Even, odd, none	Even, odd, none
Data Bit	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8
Stop Bit	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2
S/W Utility	Configuration/ port mapping	Configuration/ port mapping	Configuration/ port mapping	Configuration/ port mapping	Configuration/ port mapping	Configuration/ port mapping	Configuration/ port mapping	Configuration	Configuration
Connectors	Network: RJ-45 or 4 pin head Serial: 8 pin header	Network: RJ-45 Serial: RJ-48	Network: RJ-45 Serial: DB9	Network: RJ-45 Serial: RJ-48	Network: RJ-45 Serial: RJ-48	Network: RJ-45 Serial: RJ-48	Network: RJ-45 Serial: RJ-48	Network: RJ-45 Serial: DB9	Network: RJ-45 Serial: RJ-48
Drivers	Windows 98/NT/ 2000/XP	Windows 98/NT/ 2000/XP	Windows 98/NT/ 20 00/XP	Windows NT/ 2000/XP	Windows 98/NT/ 2000/XP	Windows 98/NT/ 2000/XP	Windows NT/ 2000/XP	Socket or WinSocket	Socket or WinSocket
Power Requirements	+5 V ±5%	+10 ~ +30 V							
Operating Temp.	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)	0 ~ 60° C (32 ~ 140° F)

Model Name	EDG-4504	EDG-4508+	EDG-4516+
Interface	10/100 Mbps Ethernet	10/100 Mbps Ethernet	10/100 Mbps Ethernet
Port	4	8	16
Serial Type	RS-232/422/485	RS-232/422/485	RS-232/422/485
Speed	230 Kbps	230 Kbps	230 Kbps
Surge Protection	15 K V_{ESD}	15 K V_{ESD}	15 K V_{ESD}
Parity	Even, odd, none, space, mark	Even, odd, none, space, mark	Even, odd, none, space, mark
Data Bit	5, 6, 7, 8	5, 6, 7, 8	5, 6, 7, 8
Stop Bit	1, 1.5, 2	1, 1.5, 2	1, 1.5, 2
S/W Utility	Configuration/port mapping	Configuration/port mapping	Configuration/port mapping
Connector	Network: RJ-45 Serial: DB9	Network: RJ-45 Serial: RJ-48	Network: RJ-45 Serial: RJ-48
Driver	Windows 98/NT/2000/XP	Windows 98/NT/2000/XP	Windows 98/NT/2000/XP
Power Requirement	+10 ~ +30 V	90 ~ 260 V	
Operating Temperature	0 ~ 60° C (32 ~ 140° F)	0 ~ 55° C (32 ~ 131° F)	0 ~ 55° C (32 ~ 131° F)