Advantech
Remote I/O Solutions

Complete Remote Measurement and Control Systems for Industrial Applications

- Wireless I/O Modules
- Ethernet I/O Modules
- Robust I/O Modules
- RS-485 I/O Modules

ADVANTECH
eAutomation

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ADAM Family
The Most Compact Remote I/O

ADAM-6000 Ethernet I/O

In the past, integrating automation and enterprise systems required changing the entire architecture of the control system. Nowadays, we can accomplish this integration easily through the latest Internet technology. Industrial Ethernet products provide an open network architecture to create seamless integration between different layers. As industrial networks move to Ethernet, Advantech's ADAM-6000 series is quickly becoming the best investment for industrial usage, since they provide the most open and popular communication interface.

ADAM-6000W Wireless I/O

ADAM-6000W I/O modules leverage the popular 802.11b wireless LAN capability to transfer data. Among numerous other benefits, wireless technology helps save system wiring costs. For many applications it is difficult or even impossible to establish an Ethernet connection. ADAM-6000W modules are an ideal solution to overcome this problem.

ADAM-4000 RS-485 I/O

ADAM-4000 modules are the perfect choice for establishing a cost-effective remote I/O system. Customers can benefit from ADAM-4000 modules through its simple wiring --- using only two wires to communicate with their controller or other RS-485 devices. ADAM-4000 modules use the EIA RS-485 communication protocol, the industry's most widely used bi-directional, balanced transmission line which is suitable for industrial environments.

ADAM-4000 Robust Family

The ADAM-4000 robust family includes ADAM-4100 series I/O modules, ADAM-4510I and ADAM-4520I . ADAM-4100 series modules are compact and versatile sensor-to-computer interface units, while ADAM-4510I and ADAM-4520I are robust industrial-grade communication modules. They are all designed for reliable operation in harsh environments, and can operate in wide temperatures, with wide power input and even in environments with noise-interference.

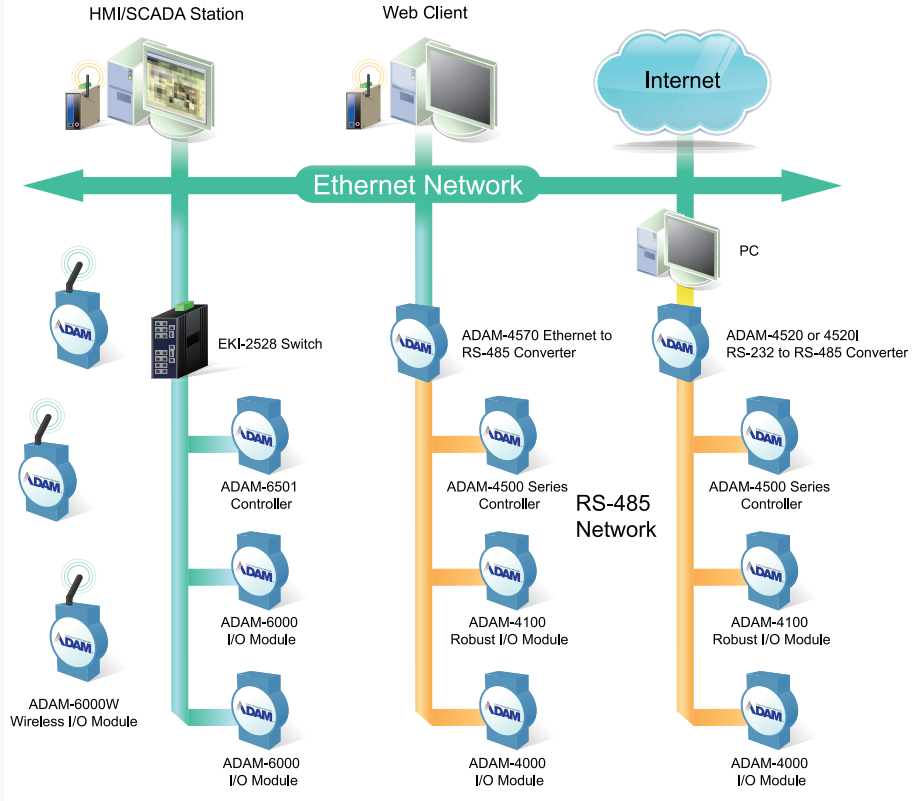
Communication Modules & Controllers

Advantech provides not only complete remote I/O solutions, but also the necessary communication modules and controllers. ADAM-4510, ADAM-4520, ADAM-4541, and ADAM-4542+ have various communication interfaces to integrate different RS-485 and fiber optic networks together. Through these modules, customers can enlarge the network system architecture. As for controllers, the ADAM-4500 series and ADAM-6501 module feature standalone computing ability to act as a controller in an industrial control system.

ADAM Family System Architecture



• ADAM Family System Diagram



ADAM-6000 Ethernet I/O Modules

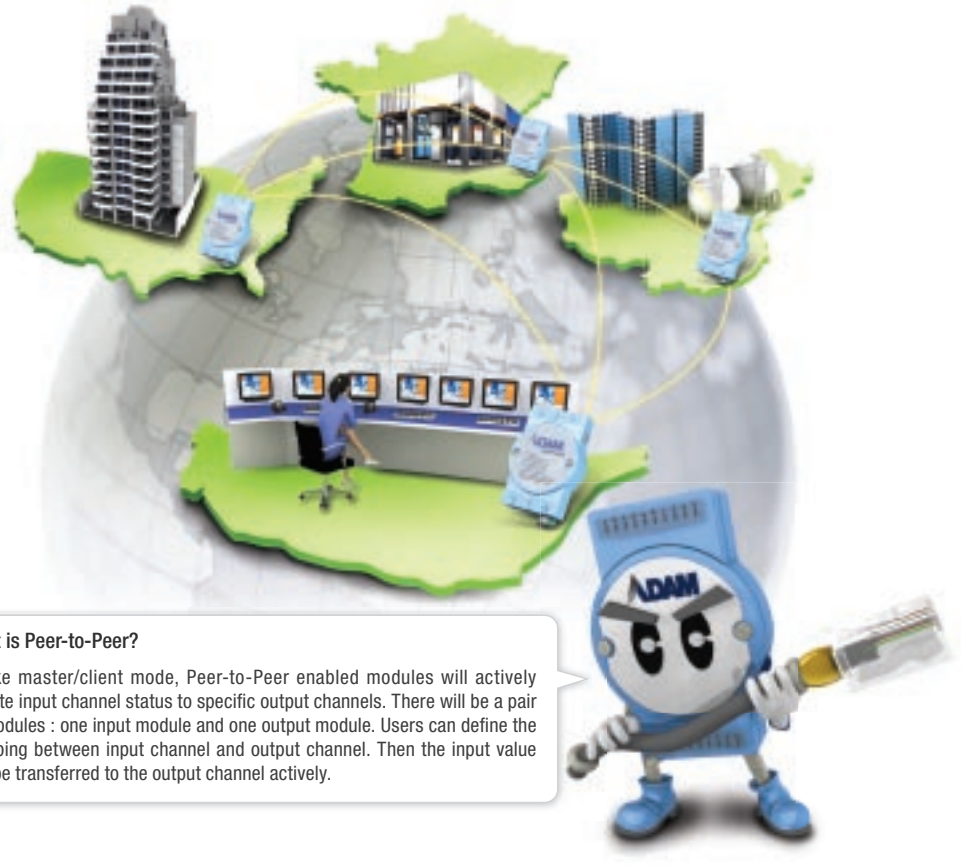
ADAM-6000 Ethernet I/O Features: Peer-to-Peer *Unlimited Distance!!*

• Requirements

One of our clients has three branches across multiple countries. For each branch, cameras were installed near the gates. At the headquarters, people in the control room can monitor each gate via Intranet. Now they want to enhance the system to remotely control each gate, so that each gate can be controlled from inside the control room of the headquarters. Since the distance between the headquarters and each branch is thousands of miles away, it may be very difficult to establish the extra communication network for this purpose.

• Solution

Through merely 3 pairs of Advantech ADAM-6000 Peer-to-Peer Ethernet I/O modules (without any other hardware), this application has been easily solved. For each pair of ADAM-6000 modules, one module is inside control room of headquarters, and another is located at each branch. When the module in headquarters is activated, it will notify its paired module at the branch to open or close the gate. The communication is Ethernet-based, so that our client can leverage their existing Ethernet infrastructure.



What is Peer-to-Peer?

Unlike master/client mode, Peer-to-Peer enabled modules will actively update input channel status to specific output channels. There will be a pair of modules : one input module and one output module. Users can define the mapping between input channel and output channel. Then the input value will be transferred to the output channel actively.

What Benefits Do Peer-to-Peer Modules Provide?

• No Controller Required

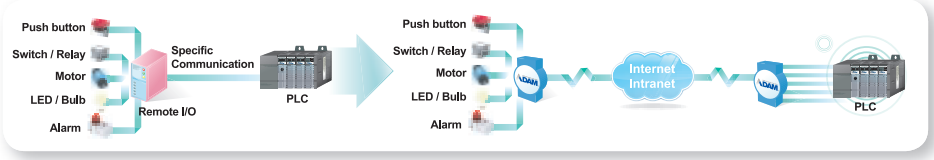
Ethernet I/O modules without Peer-to-Peer functionality have to read data from the input module and then send data to the output module. With Advantech's Peer-to-Peer solutions, the controller can be removed since data will automatically transfer. This not only simplifies the process, but also helps save system hardware costs.

• No Programming Required

To utilize Peer-to-Peer modules, the only thing required is to configure the settings through ADAM.NET Utility (refer to page 33). No additional programming is needed, saving system development time.

• Simple and Flexible System Wiring

Long distance wiring can easily become a nightmare. For some automation applications, if the PLC and the sensors are far away, one remote I/O module needs to be located near the sensors, and a proprietary communication network needs to connect the PLC and the remote I/O module, and the communications distance is severely limited. Moreover, networks provided by PLC manufacturers are rarely open. Peer-to-Peer modules can replace limited and closed networks with no limitations since they leverage open and flexible Ethernet networks.

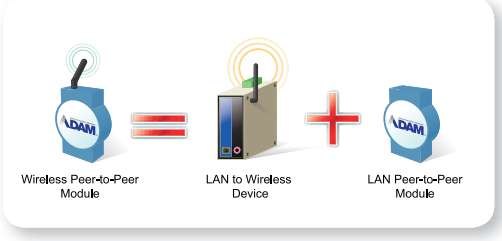


Why is Advantech's Peer-to-Peer Technology the Best Choice?

• Fast Response Time (< 1.2 ms for wired modules, < 30 ms for wireless modules)

• Simple Wireless Solutions

Advantech provides ADAM-6000W wireless Peer-to-Peer modules (refer to page 15 for more details). Without wireless Peer-to-Peer modules, extra LAN to Wireless devices are needed for Peer-to-Peer functionality. Advantech wireless Peer-to-Peer solutions remove the LAN to Wireless device, that the system cost is saved.



• Advanced Security

When engineers use Peer-to-Peer modules, the output module should not be controlled by non-authorized computers or devices. ADAM-6000 Peer-to-Peer Ethernet I/O modules let users decide which IP or MAC address has control authority. This can make sure the output module is only controlled by its paired input module.

• Advanced Reliability

When communication between pairs of ADAM-6000 Peer-to-Peer modules is broken, the digital output module can generate pre-defined value to ensure safety.

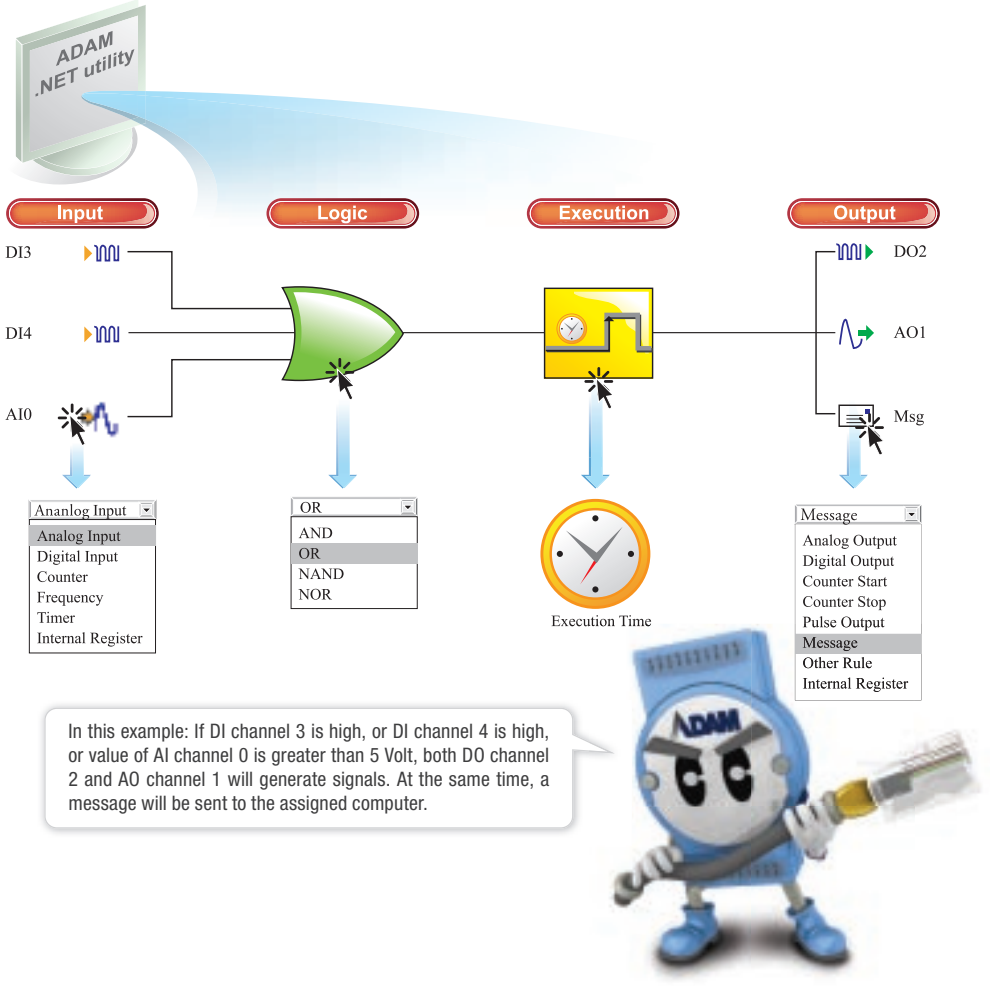
ADAM-6000 Ethernet I/O Features: GCL *Unlimited Applications!!*

Using Ethernet Modules as Controllers

- What is GCL?

GCL (Graphic Condition Logic) gives Ethernet I/O modules control ability. Users can define the control logic rules through graphical configuration environment in ADAM.NET Utility (refer to page 33 for more detail), and download defined logic rules to specific ADAM-6000 Ethernet I/O module. Then, that Ethernet module will execute the logic rules automatically just like a standalone controller.

For each Ethernet I/O module, 16 logic rules can be defined. In the configuration environment of ADAM.NET Utility, 4 graphic icons shows the 4 stages of one logic rule: Input, Logic, Execution and Output. Users can simply click on each icon and one dialog window will pop-up for user to configure each stage. After completing all configurations, users can click one button to download the defined logic rules to the specific Ethernet I/O module.



In this example: If DI channel 3 is high, or DI channel 4 is high, or value of AI channel 0 is greater than 5 Volt, both DO channel 2 and AO channel 1 will generate signals. At the same time, a message will be sent to the assigned computer.

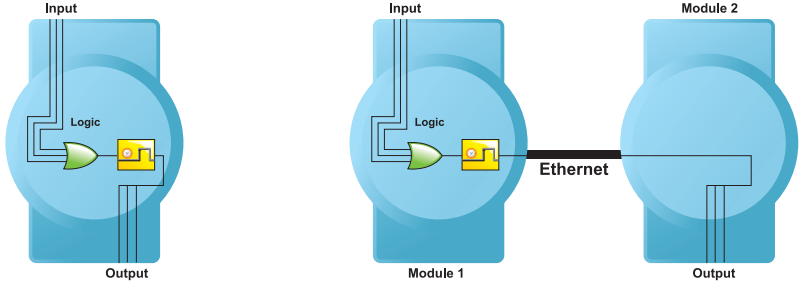
ADAM-6000 GCL-the simplest Logic Ethernet I/O

- Complete Graphical Configuration Environment

Unlike other text-based logic configuration utilities, Advantech GCL provides a complete graphical configuration utility, which is very intuitive to use. By simply clicking the icons, all related configurations can be done through the pop-up dialog window. GCL is not only easy-to-use, but is also features very powerful functionality.

- Supports Local and Remote Output

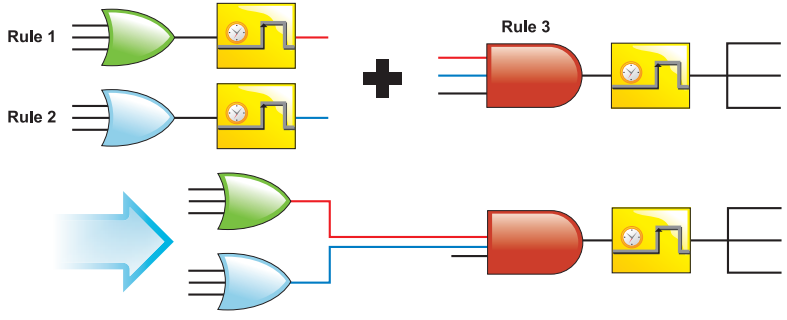
When users define the destination of Output stage (such as digital output, analog output, counter and pulse output), users can choose either a local or remote module as its target.



Local Output Remote Output

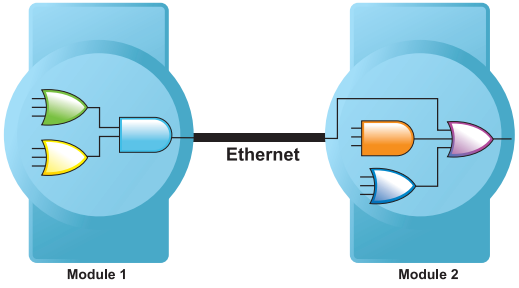
- Cascade Logic

The output of one logic rule can be another rule. Therefore, different rules can be combined together. GCL provides this kind of functionality called Cascade Logic. Once different rules are combined, it helps to create more input numbers. For example, if users combine rule 1 and rule 2 with rule 3, the maximum inputs become 7 inputs. (Two inputs of rule 3 will be rule 1 and rule 2, refer to figure below) So users can define complex logic architecture to satisfy various application requirements.



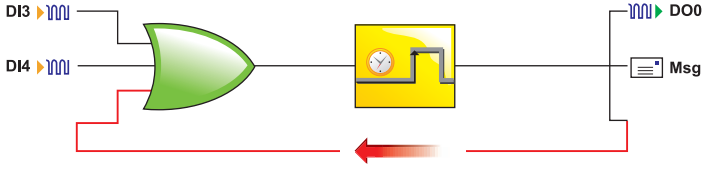
• Distributed Cascade Logic

Users can assign other rule as output of one logic rule. In fact, that "Other Rule" can be on the same module, or on another remote module. So, one GCL logic architecture can operate across different modules. Several Ethernet I/O modules can be integrated into one complete logic system.



• Feedback Function

Users can assign input and output of logic rule to the same internal register, allowing GCL feedback. No hardware wiring is needed. In the example below, the 3rd input and the 3rd output are mapped to the same internal register, so the output value will transfer back to the input.



• Rich I/O Options

With Advantech complete ADAM-6000 Ethernet I/O modules, GCL delivers variety of input and output options.

Analog Input	Thermocouple, RTD, Voltage, Current
Analog Output	Voltage, Current
Digital Input	Dry Contact, Wet Contact, Counter / Frequency input (up to 4.5 kHz)
Digital Output	Dry Contact, Wet Contact, Relay output, Pulse output (up to 5 kHz)

• Fast Processing Time

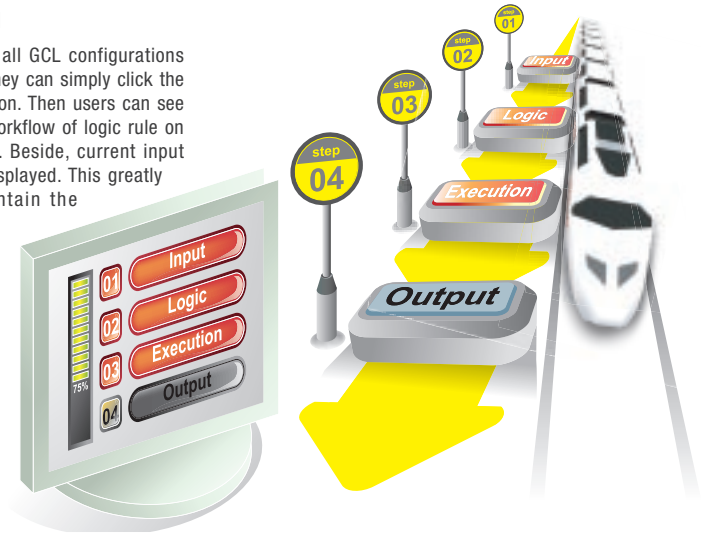
Advantech GCL features extremely short logic rule processing time in market. When users choose local output (the output channel and input channel are on the same module), the processing time (including hardware input delay time, one logic rule execution time and hardware output delay time) is less than 1 millisecond. If users choose remote output (the output channel is on another module), there will be extra communication time, so the total time needed (including processing and communication time) is less than 3 milliseconds.

• Scaling (For Analog Input)

When configuring Analog Input, GCL provides linear scaling function to convert measured voltage/current value to its engineer unit value (such as temperature or pressure unit). Then users can use the engineer unit value to define the logic condition.

• Online Monitoring

After users complete all GCL configurations in ADAM.NET Utility, they can simply click the "Run Monitoring" button. Then users can see real-time execution workflow of logic rule on ADAM-6000 modules. Beside, current input values will also be displayed. This greatly helps users to maintain the system .



Key Features of Peer-to-Peer and GCL

- No controller needed
- Active and real-time I/O messaging
- Proactive I/O event notification
- Easy graphic configuration environment, no programming needed
- Variety of I/O interface for Peer-to-Peer and GCL
  - Analog: Temperature (Thermocouple, RTD), Voltage, Current
  - Digital: Dry contact, Wet contact, Frequency input, Counter, Pulse output
- Complete Peer-to-Peer solution: Wired and Wireless modules
- High speed Peer-to-Peer I/O : < 1.2 ms (Wired module) < 30 ms (Wireless module)
- High speed GCL for logic I/O: < 1 ms (local output, one rule)
  < 3 ms (remote output, one rule)
- GCL online monitoring and debugging
- GCL unique logic cascade architecture:
  - Combine different logic rules to fulfill more complex applications
  - Utilize logic cascade to have number of inputs as many as you want
- GCL unique logic feedback function
- GCL AI Scaling: convert to real-world engineer unit value
- Excellent reliability and security
- .NET class library programming

ADAM-6000 Module Selection Table

Category		Analog Input/Output				Digital Input/Output					Wireless		
Module Name		ADAM-6015	ADAM-6017	ADAM-6018	ADAM-6024	ADAM-6050	ADAM-6051	ADAM-6052	ADAM-6060	ADAM-6066	ADAM-6050W	ADAM-6051W	ADAM-6060W
Communication	Interface	10/100 Mbps Ethernet				10/100 Mbps Ethernet					802.11b wireless LAN		
	Protocol	Modbus/TCP, TCP/IP, UDP, HTTP				Modbus/TCP, TCP/IP, UDP, HTTP					Modbus/TCP, TCP/IP, UDP, HTTP		
Security		IP or MAC Filtering				IP or MAC Filtering					IP Filtering		
Peer-to-Peer Function[1]		Yes			Receiver only [2]	Yes					Yes		
GCL[1]		Yes			Receiver only [2]	Yes					-		
Communication Protocol		ASCII Command or Modbus/TCP				ASCII Command or Modbus/TCP					ASCII Command or Modbus/TCP		
Analog Input	Channels	7	8	8	6	-					-		
	Input Type and Range	Pt, Balco or Ni RTD	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, 0~20 mA, 4~20 mA	J, K, T, E, R, S, B Thermocouple	±10V, 0~20 mA, 4~20 mA	-					-		
	Resolution	16-bit				-					-		
	Sampling Rate	10 sample/second (All Channels)				-					-		
	Zero Drift	±6 μV/ ˚C				-					-		
	Span Drift	±25 ppm/ ˚C				-					-		
	Accuracy	±0.1% of FSR[3]				-					-		
	Over Voltage Protection	±35 VDC				-					-		
Analog Output	Channels	-			2	-					-		
	Resolution	-			12-bit	-					-		
	Output Range	-			0~10 V, 0~20 mA, 4~20 mA	-					-		
Digital Input	Channels	-			2	12	12	8	6	6	12	12	6
	Extra Counters	-			-	-	2	-			-	2	-
	Dry Contact	-			Yes	Yes					Yes		
	Wet Contact	-			Logic level 0: 0~3 VDC Logic level 1: 10~30 VDC	Logic level 0: 0~3 VDC Logic level 1: 10~30 VDC					Logic level 0: 0~3 VDC Logic level 1: 10~30 VDC		
	Counter Input	-			-	3 KHz	4.5 KHz	3 KHz			3 KHz	4.5 KHz	3 KHz
	Frequency Input	-			-	3 KHz	4.5 KHz	3 KHz			3 KHz	4.5 KHz	3 KHz
	Invert DI Status	-			-	Yes					Yes		
Digital Output	Channels	-	2	8	2	6	2	8	6	6	6	2	6
	DO Type	-	Sink			Sink		Source	Relay		Sink		Relay
	Mode	-	Open Collector to 30V, 100 mA maximum load			Open Collector to 30V,100 mA maximum load		35 V, 1A	AC: 120 V @ 0.5 A DC: 30 V @ 1 A	AC: 250 V @ 5 A DC: 30 V @ 5 A	Open Collector to 30V,100 mA maximum load		AC: 120 V @ 0.5 A DC: 30 V @ 1 A
	Pulse Output	2000 VDC			-	Yes					Yes		
	Over Current Protection	-	-	-	-	-		1 A/channel	-		-		
Isolation Protection		2000 VDC			2000 VDC [4]	2000 VDC					2000 VRMS		
Operating Temperature		-10~70 ˚C			-10 ~ 50 ˚C	-10 ~ 70 ˚C					-10 ~ 60 ˚C		
Storage Temperature		-20 ~ 80 ˚C									-20 ~ 80 ˚C		

Note 1: Peer-to-Peer and GCL cannot run at the same time, only one feature is enabled at one time.
Note 2: ADAM-6024 can only play the receiver using either Peer-to-Peer or GCL.
When it receive the data from another module, it can only generate analog output signal.
Note 3: Full Scale Range
Note 4: Only for analog input and analog output

ADAM-6015

7-ch Isolated RTD Input Module

- 7 analog inputs (all differential)
  - Programmable input range (each channel different range)
  - Supports 2, 3-wire RDT (Pt, Balco or Ni)
  - Resolution: 16-bit
  - Sampling Rate: 10 Hz (total)
  - Over Voltage Protection: ±35 VDC
  - Built-in TVS/ESD Protection
- Wire burn-out detection (All RTD)

Ordering Information

ADAM-6015	7-ch Isolated RTD Input Module

ADAM-6017

8-ch Isolated Analog Input with 2-ch DO Module

- 8 analog inputs (all differential)
  - Programmable input range (each channel different range)
  - Supports V, mV and mA
  - Resolution: 16-bit
  - Sampling rate: 10 Hz (total)
  - Over Voltage Protection: ±35 VDC
  - Built-in TVS/ESD protection
- 2 digital outputs (Sink)
  - Open collector to 30V, 100 mA (maximum load)

Ordering Information

ADAM-6017	8-ch Isolated AI with 2-ch DO

ADAM-6018

8-ch Isolated Thermocouple Input with 8-ch DO Module

- 8 analog inputs (all differential)
  - Programmable input range (each channel different range)
  - Supports Thermocouple (J, K, T, E, R, S, B type)
  - Resolution: 16-bit
  - Sampling rate: 10 Hz (total)
  - Over Voltage Protection: ±35 VDC
  - Built-in TVS/ESD protection
- Wire burn-out detection (All Thermocouple)
- 8 digital outputs (Sink)
  - Open collector to 30V, 100 mA (maximum load)

Ordering Information

ADAM-6018	8-ch Isolated Thermocouple Input w/ 2DO

ADAM-6024

12-ch Isolated Universal Input/Output Module

- 6 analog inputs (all differential)
  - Programmable input range (each channel different range)
  - Supports V and mA
  - Resolution: 16-bit
  - Sampling rate: 10 Hz (total)
  - Built-in TVS/ESD protection, Over Voltage Protection ±35VDC
- 2 analog outputs
  - Programmable output range
  - Supports V and mA
  - Resolution: 12-bit
- 2 digital inputs
  - Dry contact (logic low: close to ground, logic high: open)
  - Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
- 2 digital outputs (Sink)
  - Open collector to 30V, 100 mA (maximum load)

Ordering Information

ADAM-6024	12-ch Isolated Universal I/O Module

ADAM-6050

18-ch Isolated Digital I/O Module

- 12 digital inputs
  - Isolated channels with common ground
  - Support digital input level inverted
  - Dry contact (logic low: close to ground, logic high: open)
  - Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 6 digital outputs (Sink)
  - Open collector to 30V, 100 mA (maximum load)
  - Supports 5 kHz pulse output
  - Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6050	18-ch Isolated DI/O Module

ADAM-6051

14-ch Isolated Digital I/O with 2-ch Counter Module

- 12 digital inputs
  - Isolated channels with common ground
  - Support digital input level inverted
  - Dry contact (logic low: close to ground, logic high: open)
  - Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 2 counter/frequency inputs (32-bit + 1-bit overflow)
  - Frequency range: 0.2 ~ 4500 Hz(frequency mode)
    0 ~ 4500 Hz (counter mode)
- 2 digital outputs (Sink)
  - Open collector to 30V, 100 mA (maximum load)
  - Supports 5 kHz pulse output
  - Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6051	16-ch Isolated DI/O with Counter Module

ADAM-6052

16-ch Source-Type Isolated Digital I/O Module

- 8 digital inputs
  - -Isolated channels with common ground
  - -Supports digital input level inverted
  - -Dry contact (logic low: close to ground, logic high: open)
  - -Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - -Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 8 digital outputs (Source)
  - -Voltage: 10 ~ 35 VDC (per channel)
  - -Current: 1 A (per channel)
  - -Supports 5 kHz pulse output
  - -Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6052	16-ch Source-type Isolated DI/O Module

ADAM-6060

6-ch Digital Input and 6-ch Relay Module

- 6 digital inputs
  - -Isolated channels with common ground
  - -Supports digital input level inverted
  - -Dry contact (logic low: close to ground, logic high: open)
  - -Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - -Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 6 relay outputs (all form A)
  - -AC contact rating (Resistive): 0.5 A @ 120 V
  - -DC contact rating (Resistive): 1 A @ 30 V
  - -Maximum switching rate: 20 operations/minute (at rated load)
  - -Supports pulse output
  - -Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6060	6-ch DI and 6-ch Relay Module

ADAM-6066

6-ch Digital Input and 6-ch Power Relay Module

- 6 digital inputs
  - -Isolated channels with common ground
  - -Supports digital input level inverted
  - -Dry contact (logic low: close to ground, logic high: open)
  - -Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - -Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 6 relay outputs (all form A)
  - -AC contact rating (Resistive): 5 A @ 250 V
  - -DC contact rating (Resistive): 5 A @ 30 V
  - -Maximum switching rate: 20 operations/minute (at rated load)
  - -Supports pulse output
  - -Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6066	6-ch DI and 6-ch Power Relay Module

ADAM-6050W

18-ch Wireless Isolated Digital I/O Module

- 12 digital inputs
  - -Isolated channels with common ground
  - -Supports digital input level inverted
  - -Dry contact (logic low: close to ground, logic high: open)
  - -Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - -Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 6 digital outputs (Sink)
  - -Open collector to 30V, 100 mA (maximum load)
  - -Supports 5 kHz pulse output
  - -Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6050W	18-ch Wireless Isolated DI/O Module

ADAM-6051W

14-ch Wireless Isolated Digital I/O with 2-ch Counter Module

- 12 digital inputs
  - -Isolated channels with common ground
  - -Supports digital input level inverted
  - -Dry contact (logic low: close to ground, logic high: open)
  - -Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - -Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 2 counter/frequency inputs (32-bit + 1-bit overflow)
  - -Frequency range: 0.2 ~ 4500 Hz (frequency mode)
    0 ~ 4500 Hz (counter mode)
- 2 digital outputs (Sink)
  - -Open collector to 30V, 100 mA (maximum load)
  - -Supports 5 kHz pulse output
  - -Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6051W	16-ch Wireless Isolated DI/O w/ Counter

ADAM-6060W

6-ch Wireless Digital Input and 6-ch Relay Module

- 6 digital inputs
  - -Isolated channels with common ground
  - -Supports digital input level inverted
  - -Dry contact (logic low: close to ground, logic high: open)
  - -Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - -Supports 3 kHz counter (32-bit + 1-bit overflow) and frequency input
- 6 relay outputs (all form A)
  - -AC contact rating (Resistive): 0.5 A @ 120 V
  - -DC contact rating (Resistive): 1 A @ 30 V
  - -Maximum switching rate: 20 operations/minute (at rated load)
  - -Supports pulse output
  - -Supports high-to-low and low-to-high delay output

Ordering Information

ADAM-6060W	6-ch Wireless DI and 6-ch Relay Module

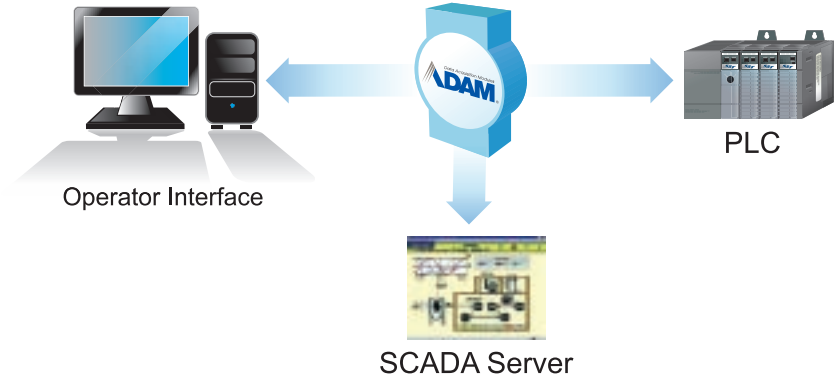
ADAM-4000 RS-485 I/O Modules

ADAM-4000 series modules provide ideal industrial automation, control and measurement solutions. Similar to ADAM-6000 series modules, ADAM-4000 modules provide rich I/O flexibility to satisfy a variety of applications. The main difference between ADAM-4000 and ADAM-6000 modules is the communication interface: ADAM-6000 modules leverage Ethernet while ADAM-4000 modules adapt RS-485.

- ADAM-4000 Product Categories
  1. Controllers (refer to page 34)
  2. Communication Modules (refer to page 32)
  3. I/O Modules (refer to page 22 ~ 31)
  4. Robust I/O (ADAM-4100 series) and Communication Modules (Refer to page 17~21)

ADAM-4000 Module Benefits

- Complete I/O solutions to satisfy versatile applications.
- Leverages the most popular and cost-effective industrial network: RS-485
- Two communication protocols:
  - ASCII command
  - Modbus ➡ Easily integrate with other devices and software (Refer to figure below)

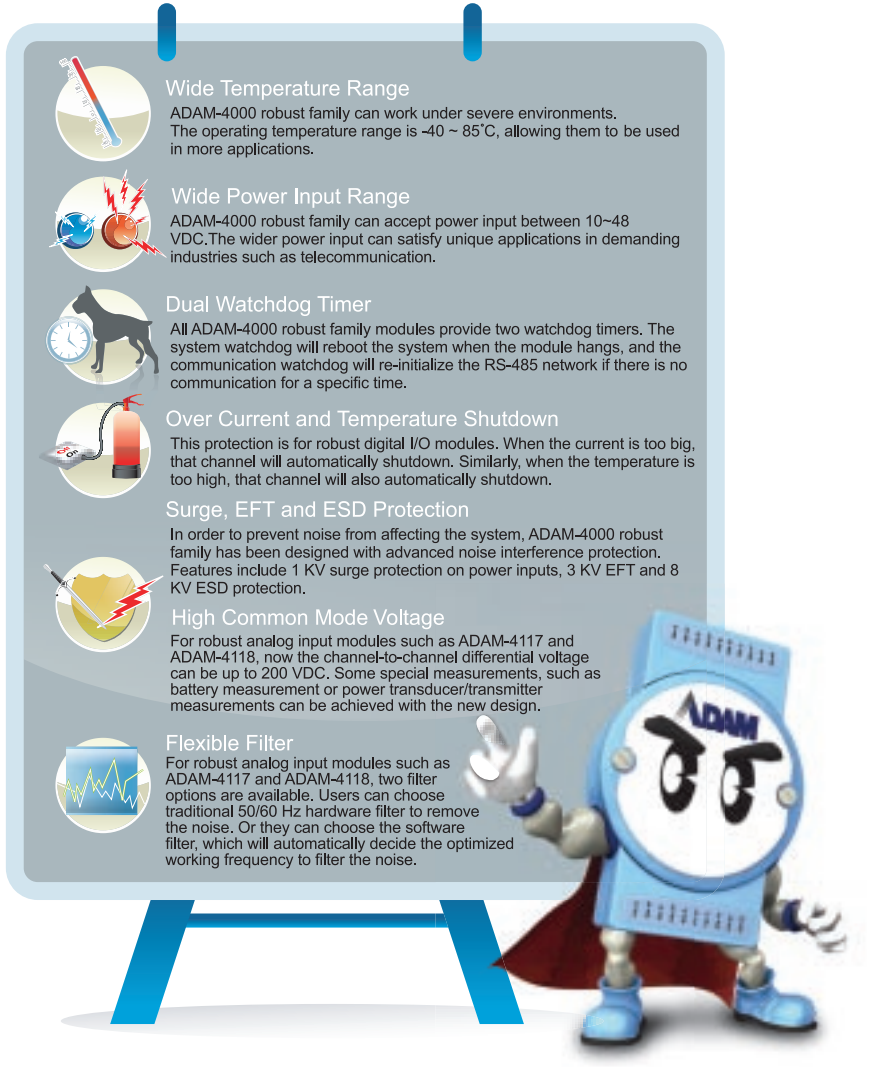


ADAM-4000 Robust Family

Designed for Harsh Environment Applications

ADAM-4000 Robust Family

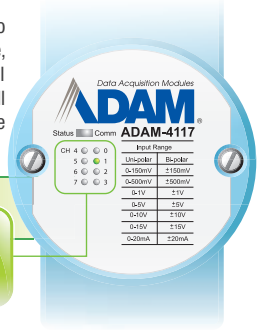
The ADAM-4000 robust family includes the ADAM-4100 series I/O modules, ADAM-4510I and ADAM-4520I. The ADAM-4000 robust family is designed to endure more severe and adverse environment. Wider operating temperature makes them suitable for more widespread applications. The ADAM-4000 robust family features rich anti-noise functions which empower ADAM-4000 robust family to confront harsh environments in many industrial automation applications.



Easy to Diagnose and Maintain

•Display Channel Status and Node Address by LED

There is switch on one side of ADAM-4100 Series I/O modules. If the switch is set to "Normal", the LEDs on module face will show the channel status. For analog module, the LED will be lit when related channel is active. For digital module, the LED will be lit when related channel value is high. If the switch is set to "Init", the LEDs will display the node address. This can greatly help engineers to troubleshoot the module in the field.

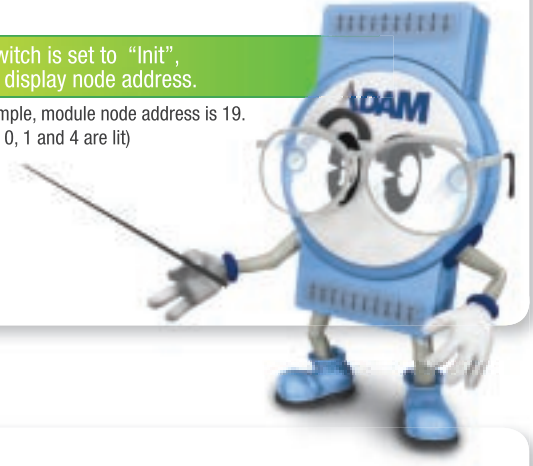


When switch is set to "Normal", LED will display channel status.

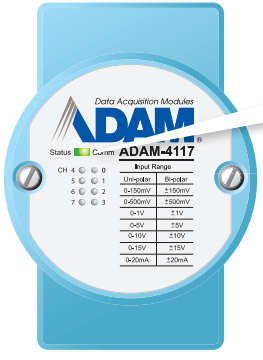
In this example, only channel 1 is active.
(Only LED of channel 1 is lit.)

When switch is set to "Init", LED will display node address.

In this example, module node address is 19.
(Since LED 0, 1 and 4 are lit)



•Module Locate Function



- Normal SItuation (Flashing)

  Status Comm

- LED will stop flashing when you locate this module

  Status Comm

When multiple ADAM-4100 series I/O modules are within the same RS-485 network, it is hard to find one specific module. With the Module Locate function, users can choose specific module in ADAM.NET Utility, and the LED on that module will stop flashing. So users can easily identify the module location. This helps users more easily maintain the system.

ADAM-4000 Robust Family Selection Guide

Module		ADAM-4117	ADAM-4118	ADAM-4150	ADAM-4168
Analog Input	Resolution	16-bit		-	-
	Input Channels	8 differential		-	-
	Sampling Rate	10/100 Hz (total)		-	-
	Voltage Input	0 ~ 150 mV, 0 ~ 500 mV, 0 ~ 1 V, 0 ~ 5 V, 0 ~ 10 V, 0 ~ 15 V, ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, ±15 V	±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5V	-	-
	Current Input	0 ~ 20 mA, ±20 mA, 4 ~ 20 mA	±20 mA, 4 ~ 20 mA	-	-
	Direct Sensor Input	-	J, K, T, E, R, S, B Thermocouple	-	-
	Burn-out Detection	Yes (mA)	Yes (mA and All T/C)	-	-
	Channel Independent Configuration	Yes		-	-
Digital Input and Output	Digital Input Channels	-	-	7	-
	Digital Output Channels	-	-	8	8 (Relay)
Isolation Voltage		3000 VDC			
Digital LED Indicator		Communication and Power			
Watchdog Timer		Yes (System & Communication)			
Safety Setting		-		Yes	
Communication Protocol		ASCII Command or Modbus/RTU			
Power Requirement		10 ~ 48 VDC			
Operating Temperature		-40 ~ 85° C			
Storage Temperature		-40 ~ 85° C			
Humidity		5 ~ 95% RH			
Power Consumption		1.2 W @ 24 VDC	0.5 W @ 24 VDC	0.7 W @ 24 VDC	1.8 W @ 24 VDC

Module	ADAM-4510I	ADAM-4520I
Network	RS-422/485	RS-232 to RS-422/485
Communication Speed (bps)	From 1200 to 115.2k	
Communication Distance	1.2 km	
Interface Connectors	RS-422/485: plug-in screw terminal	RS-232: female DB9 RS-422/485: plug-in screw terminal
Digital LED Indicators	Communication and Power	
Auto Data Flow Control	Yes	
Isolation Voltage	3000 VDC	
Power Requirement	10 ~ 48 VDC	
Operating Temperature	-40 ~ 85° C	
Storage Temperature	-40 ~ 85° C	
Humidity	5 ~ 95% RH	
Power Consumption	1.4 W @ 24 VDC	1.2 W @ 24 VDC

ADAM-4510I

Robust RS-422/485 Repeater

- Robust design (-40~85°C)
- Communication distance: 1.2 km
- Baud Rate: 1200 bps ~ 115.2 kbps
- Auto data flow control
- Auto Baud-rate sensing
- Isolation Voltage: 3000 VDC
- Surge, EFT and ESD Protection
- RS-485 to RS-232 convert ability

Ordering Information

ADAM-4510I	Robust RS-422/485 Repeater

ADAM-4520I

Robust RS-232 to RS-422/485 Converter

- Robust Design (-40~85°C)
- Communication distance: 1.2 km
- Baud Rate: 1200 bps ~ 115.2 kbps
- Auto data flow control
- Auto Baud-rate sensing
- Isolation Voltage: 3000 VDC
- Surge, EFT and ESD Protection

Ordering Information

ADAM-4520I	Robust RS-232 to RS-422/485 Converter

ADAM-4117

Robust 8-ch Analog Input Module with Modbus

- Robust design (-40~85°C)
- 8 analog inputs (all differential)
  - -Programmable input range (each channel different range)
  - -Support V, mV and mA
  - -Resolution: 16-bit
  - -Sampling rate: 10 or 100 Hz (total)
- Over Voltage Protection Voltage: ±60 VDC
- High Common Mode: 200 VDC
- Built-in TVS/ESD protection
- Isolation Voltage: 3000 VDC
- Surge, EFT and ESD Protection

Ordering Information

ADAM-4117	Robust 8-ch Analog Input Module with Modbus

ADAM-4118

Robust 8-ch Thermocouple Input Module with Modbus

- Robust design (-40~85°C)
- 8 analog inputs (all differential)
  - -Programmable input range (each channel different range)
  - -Supports V, mV, mA and Thermocouple (J, K, T, E, R, S, B Type)
  - -Resolution: 16-bit
  - -Sampling rate: 10 or 100 Hz (total)
- Over Voltage Protection: ±60 VDC
- High Common Mode Voltage: 200 VDC
- Built-in TVS/ESD protection
- Isolation Voltage: 3000 VDC
- Surge, EFT and ESD Protection
- Wire burn-out Detection

Ordering Information

ADAM-4118	Robust 8-ch Thermocouple Input Module with Modbus

ADAM-4150

Robust 15-ch Digital Input/Output Module with Modbus

- Robust design (-40~85°C)
- 7 digital inputs
  - -Supports digital input level inverted
  - -Dry contact (logic low: close to ground, logic high: open)
  - -Wet contact (logic low: 0 ~ 3 V, logic high: 10 ~ 30 V)
  - -Support 3 kHz counter (32-bit + 1-bit overflow) and frequency input
  - -Over Voltage Protection: ±40 VDC
- 8 digital outputs
  - -Open collector to 40V, 1 A (maximum load)
  - -Support 5 kHz pulse output
  - -Supports high-to-low and low-to-high delay output
- Isolation Voltage: 3000 VDC
- Surge, EFT and ESD Protection

Ordering Information

ADAM-4150	Robust Digital I/O Module with Modbus

ADAM-4168

Robust 8-ch Relay Output Module with Modbus

- Robust design (-40~85°C)
- 8 relay outputs (all form A)
  - -Support pulse output
- AC contact rating (Resistive)
  - -0.5 A @ 120 V
  - -0.25 A @ 240 V
- DC contact rating (Resistive)
  - -1 A @ 30 V
  - -0.3 A @ 110 V
- Maximum operating speed: 50 operations/minute (at rated load)
- Isolation Voltage: 3000 VDC
- Surge, EFT and ESD Protection

Ordering Information

ADAM-4168	Robust Relay Output Module with Modbus

ADAM-4000 Module Selection Guide

		Analog Input										Analog Output		Digital Input/Output						Relay Output			Counter
Module		ADAM-4011	ADAM-4012	ADAM-4013	ADAM-4015 ADAM-4015T	ADAM-4016	ADAM-4017	ADAM-4017+	ADAM-4018	ADAM-4018+	ADAM-4019+	ADAM-4021	ADAM-4024	ADAM-4050	ADAM-4051	ADAM-4052	ADAM-4053	ADAM-4055	ADAM-4056S/ ADAM-4056SO	ADAM-4060	ADAM-4068	ADAM-4069	ADAM-4080
Resolution		16-bit										12-bit	12-bit	-	-	-	-	-	-	-	-	-	-
Analog Input	Input Channels	1 differential			6 differential	1 differential	6 differential, 2 single-ended	8 differential	6 differential, 2 single-ended	8 differential	8 differential	-	-	-	-	-	-	-	-	-	-	-	-
	Sampling Rate	10 Hz			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	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V	±15 mV, ±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	±20 mA	4~20 mA, ±20 mA	±20 mA	4~20 mA, ±20 mA	4 ~ 20 mA ± 20 mA	-	-	-	-	-	-	-	-	-	-	-	-
	Direct Sensor Input	J, K, T, E, R, S, B Thermocouple	-	RTD	ADAM-4015: RTD ADAM-4015T: Thermistor	-	-	-	J, K, T, E, R, S, B Thermocouple			-	-	-	-	-	-	-	-	-	-	-	-
	Burn-out Detection	Yes	-	-	Yes	-	-	-	-	Yes	Yes (4~20 mA & All T/C)	-	-	-	-	-	-	-	-	-	-	-	-
	Channel Independant Configuration	-	-	-	Yes	-	-	Yes	-	Yes	Yes	-	-	-	-	-	-	-	-	-	-	-	-
Analog Output	Output Channels	-	-	-	-	1	-	-	-	-	-	1	4	-	-	-	-	-	-	-	-	-	-
	Voltage Output	-	-	-	-	0 - 10 V	-	-	-	-	-	0 ~ 10 V	±10 V	-	-	-	-	-	-	-	-	-	-
	Current Output	-	-	-	-	30 mA	-	-	-	-	-	0 ~ 20 mA 4 ~ 20 mA	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-	-	-	-	-	-	-
Digital Input and Output	Digital Input Channels	1	1	-	-	-	-	-	-	-	-	-	4	7	16	8	16	8	-	-	-	-	-
	Digital Output Channels	2	2	-	-	4	-	-	-	-	-	-	-	8	-	-	-	8	ADAM-4056S: 12 (Sink) ADAM-4056SO: 12 (Source)	4-ch relay	8-ch relay	8-ch power relay	2
	Alarm Settings	Yes	Yes	-	-	-	-	-	-	-	-	-	Yes	-	-	-	-	-	-	-	-	-	Yes
Counter (32-bit)	Channels	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
	Input Frequency	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50 kHz
Isolation		3000 VDC										3,000 VDC	3,000 VDC	-	2,500 VDC	5,000 VRMS	-	2,500 VDC	5000 VDC	-	-	-	2,500 VRMS
Digital LED Indicator		-										-	-	-	Yes	-	-	Yes	Yes	-	-	-	-
Watchdog Timer		Yes (System)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)	Yes (System & Comm.)	Yes (System & Comm.)	Yes (System)
Safety Setting		-										-	Yes	-	-	-	-	Yes	Yes	Yes	Yes	Yes	-
Modbus/RTU Support *		-	-	-	Yes	-	-	Yes	-	Yes	Yes	-	Yes	-	Yes	-	-	Yes	Yes	-	Yes	Yes	-

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

ADAM-4011

1-ch Thermocouple Input Module

- 1 analog input (differential)
  - -Programmable input range
  - -Support V, mV, mA, and Thermocouple (J, K, T, E, R, S, B type)
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz
- 1 digital input
  - -Logic low: 0 ~ 1 V
  - -Logic high: 3.5 ~ 30 V
  - -Supports event counter: 50 Hz
- 2 digital outputs (Sink)
  - -Open collector to 30V, 30 mA (maximum load)
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4011	1-ch Thermocouple Input Module

ADAM-4012

1-ch Analog Input Module

- 1 analog input (differential)
  - -Programmable input range
  - -Supports V, mV and mA
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz
- 1 digital input
  - -Logic low: 0 ~ 1 V
  - -Logic high: 3.5 ~ 30 V
  - -Supports event counter: 50 Hz
- 2 digital outputs (Sink)
  - -Open collector to 30V, 30 mA (maximum load)
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4012	1-ch Analog Input Module

ADAM-4013

1-ch RTD Input Module

- 1 analog input (differential)
  - -Programmable input range
  - -Supports 2, 3, 4-wire RTD (Pt or Ni)
  - -Resolution: 16-bit
  - -Sampling Rate: 10 Hz
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4013	1-ch RTD Input Module

ADAM-4015

6-ch RTD Input Module with Modbus

- 6 analog inputs (differential)
  - -Programmable input range
  - -Supports 2, 3, 4-wire RTD (Pt, Balco, Ni, or BA1)
  - -Resolution: 16-bit
  - -Sampling Rate: 10 Hz (total)
- Wire burn-out detection (All RTD)
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4015	6-ch RTD Input Module with Modbus

ADAM-4015T

6-ch Thermistor Module with Modbus

- 6 analog inputs (differential)
  - -Programmable input range
  - -Supports 2, 3-wire Thermistor
  - -Resolution: 16-bit
  - -Sampling Rate: 10 Hz (total)
- Burn-out detection (All Thermistor)
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4015T	6-ch Thermistor Input Module with Modbus

ADAM-4016

1-ch Analog Input/Output Module

- 1 analog input (differential)
  - -Programmable input range
  - -Supports mV and mA
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz
- 1 analog output
  - -Programmable output range
  - -Supports V and mA
  - -Resolution: 16-bit
- 4 digital outputs (Sink)
  - -Open collector to 30V, 30 mA (maximum load)
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4016	1-ch Analog Input/Output Module

ADAM-4017

8-ch Analog Input Module

- 8 analog inputs (6 differential, 2 single-ended)
  - -Programmable input range
  - -Supports V, mV and mA
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz (total)
- Over Voltage Protection: ±35 VDC
- Built-in TVS/ESD protection
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4017	8-ch Analog Input Module

ADAM-4017+

8-ch Analog Input Module with Modbus

- 8 analog inputs (all differential)
  - -Programmable input range (each channel different range)
  - -Supports V, mV and mA
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz (total)
- Over Voltage Protection: ±35 VDC
- Built-in TVS/ESD protection
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4017+	8-ch Analog Input Module with Modbus

ADAM-4018

8-ch Thermocouple Input Module

- 8 analog inputs (6 differential, 2 single-ended)
  - -Programmable input range
  - -Supports V, mV, mA and Thermocouple (J, K, T, E, R, S, B type)
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz (total)
- Over Voltage Protection: ±35 VDC
- Built-in TVS/ESD protection
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4018	8-ch Thermocouple Input Module

ADAM-4018+

8-ch Thermocouple Input Module with Modbus

- 8 analog inputs (all differential)
  - -Programmable input range (each channel different range)
  - -Supports mA and Thermocouple (J, K, T, E, R, S, B type)
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz (total)
- Wire burn-out detection (All Thermocouple)
- Over Voltage Protection: ±35 VDC
- Built-in TVS/ESD protection
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4018+	8-ch Thermocouple Input Module with Modbus

ADAM-4019+

8-ch Universal Input Module with Modbus

- 8 analog inputs (all differential)
  - -Programmable input range (each channel different range)
  - -Support V, mV, mA and Thermocouple (J, K, T, E, R, S, B type)
  - -Resolution: 16-bit
  - -Sampling rate: 10 Hz (total)
- Wire burn-out detection (4 ~ 20 mA and Thermocouple)
- Over Voltage Protection: ±35 VDC
- Built-in TVS/ESD protection
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4019+	8-ch Universal Analog Input Module with Modbus

ADAM-4021

1-ch Analog Output Module

- 1 analog output
  - -Programmable output range
  - -Supports V and mA
  - -Resolution: 12-bit
- Programmable output slope
  - -0.125 ~ 128 mA/second
  - -0.0625 ~ 64 V/second
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4021	1-ch Analog Output Module

ADAM-4024

4-ch Analog Output Module with Modbus

- 4 analog outputs
  - -Programmable output range
  - -Supports V and mA
  - -Resolution: 12-bit
- Programmable output slope
  - -0.125 ~ 128 mA/second
  - -0.0625 ~ 64 V/second
- 4 digital inputs
  - -Logic low: 0 ~ 1 V
  - -Logic high: 10 ~ 30 V
- Isolation Voltage: 3000 VDC

Ordering Information

ADAM-4024	4-ch Analog Output Module with Modbus

ADAM-4050

15-ch Digital I/O Module

- 7 digital inputs
- Wet contact digital input level
  - -Logic low: 0 ~ 1 V
  - -Logic high: 3.5 ~ 30 V
- 8 digital outputs (Sink)
  - -Open collector to 30V, 30 mA (maximum load)

Ordering Information

ADAM-4050	15-ch Digital I/O Module

ADAM-4051

16-ch Isolated Digital Input Module with Modbus

- 16 digital inputs
  - -Isolated channels with common ground
  - -Support digital input level inverted
- Dry contact digital input level
  - -Logic low: open
  - -Logic high: close to ground
- Wet contact digital input level
  - -Logic low: 0 ~ 3 V
  - -Logic high: 10 ~ 50 V
- Isolation Voltage: 2500 VDC
- Over Voltage Protection: 70 VDC
- LED indicators

Ordering Information

ADAM-4051	16-ch Isolated Digital Input Module with Modbus

ADAM-4052

8-ch Isolated Digital Input Module

- 8 digital inputs
  - -6 fully independent isolated channels
  - -2 isolated channels with common ground
- Wet contact digital input level
  - -Logic low: 0 ~ 1 V
  - -Logic high: 3 ~ 30 V
- Isolation Voltage: 5000 VRMS

Ordering Information

ADAM-4052	8-ch Isolated Digital Input Module

ADAM-4053

16-ch Digital Input Module

- 16 digital inputs
- Dry contact digital input level
  - -Logic low: close to ground
  - -Logic high: open
- Wet contact digital input level
  - -Logic low: 0 ~ 2 V
  - -Logic high: 4 ~ 30 V

Ordering Information

ADAM-4053	16-ch Digital Input Module

ADAM-4055

16-ch Isolated Digital I/O Module with Modbus

- 8 digital inputs
  - -Isolated channels with common ground
  - -Support digital input level inverted
- Dry contact digital input level
  - -Logic low: open
  - -Logic high: close to ground
- Wet contact digital input level
  - -Logic low: 0 ~ 3 V
  - -Logic high: 10 ~ 50 V
- Isolation Voltage: 2500 VDC
- Over Voltage Protection: 70 VDC
- LED indicators
- 8 digital outputs (Sink)
  - -Open collector to 40V, 200 mA (maximum load)

Ordering Information

ADAM-4055	16-ch Isolated Digital I/O Module with Modbus

ADAM-4056S

12-ch Isolated Sink Type Digital Output Module with Modbus

- 12 digital outputs (Sink)
  - -Open collector to 40V, 200 mA (maximum load)
- Isolation Voltage: 5000 VDC
- LED indicators

Ordering Information

ADAM-4056S 12-ch Sink Type Isolated Digital Output Module with Modbus

ADAM-4056SO

12-ch Isolated Source Type Digital Output Module with Modbus

- 12 digital outputs (Source)
  - -Voltage: 10 ~ 35 VDC (per channel)
  - -Current: 1 A (per channel)
- Isolation Voltage: 5000 VDC
- LED indicators
- Over Current Detection and Protection

Ordering Information

ADAM-4056SO 12-ch Source Type Isolated Digital Output Module with Modbus

ADAM-4060

4-ch Relay Output Module

- 4 relay outputs
  - -2 form A, 2 form C
- AC contact rating (Resistive)
  - -0.6 A @ 125 V
  - -0.3 A @ 250 V
- DC contact rating (Resistive)
  - -2 A @ 30 V
  - -0.6 A @ 110 V
- Maximum operating speed: 20 operations/minute (at rated load)

Ordering Information

ADAM-4060 4-ch Relay Output Module

ADAM-4068

8-ch Relay Output Module with Modbus

- 8 relay outputs
  - -4 form A, 4 form C
- AC contact rating (Resistive)
  - -0.5 A @ 120 V
  - -0.25 A @ 240 V
- DC contact rating (Resistive)
  - -1 A @ 30 V
  - -0.3 A @ 110 V
- Maximum operating speed: 50 operations/minute (at rated load)

Ordering Information

ADAM-4068 8-ch Relay Output Module with Modbus

ADAM-4069

8-ch Power Relay Output Module with Modbus

- 8 relay outputs
  - -4 form A, 4 form C
- AC contact rating (Resistive)
  - -5 A @ 250 V
- DC contact rating (Resistive)
  - -5 A @ 30 V
- Maximum operating speed: 6 operations/minute (at rated load)

Ordering Information

ADAM-4069 8-ch Power Relay Output Module with Modbus

ADAM-4080

2-ch Counter/Frequency Input Module

- 2 counter/frequency inputs (32-bit + 1-bit overflow)
- Input Frequency: 5 Hz ~ 50 kHz
- Isolated input level
  - -Logic low: 0 ~ 1 V
  - -Logic high: 3.5 ~ 30 V
- Non-isolated input level
  - -Logic low: 0 ~ 0.8 V
  - -Logic high: 2.4 ~ 5 V
- Programmable digital noise filter (2 µs ~ 65 ms)
- 2 digital outputs (Sink)
  - -Open collector to 30V, 30 mA (maximum load)
- Isolation Voltage: 2500 VRMS

Ordering Information

ADAM-4080 2-ch Counter/Frequency Module

ADAM-4510/4510S

RS-422/485 Repeater

- Communication distance: 1.2 km
- Baud Rate: 1200 bps ~ 115.2 kbps
- Auto data flow control
- Isolation Voltage: 3000 VDC (4510S only)

Ordering Information

ADAM-4510	RS-422/485 Repeater
ADAM-4510S	Isolated RS-422/485 Repeater

ADAM-4520/4522

RS-232 to RS-422/485 Converter

- Communication distance: 1.2 km
- Baud Rate: 1200 bps ~ 115.2 kbps
- Auto data flow control
- Isolation Voltage: 3000 VDC (4520 only)

Ordering Information

ADAM-4522	RS-232 to RS-422/485 Converter
ADAM-4520	Isolated RS-232 to RS-422/485 Converter

ADAM-4541/4542+

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

- Serial Communication
  - -Communication Mode: Asynchronous
  - -Baud Rate: 1200 bps ~ 115.2 kbps
- Fiber Optic Communication
  - -Transmission Distance:
    - 2.5 km (ADAM-4541)
    - 15 km (ADAM-4542+)
  - -Transmission Mode:
    - Multi-mode (ADAM-4541)
    - Single mode (ADAM-4542+)

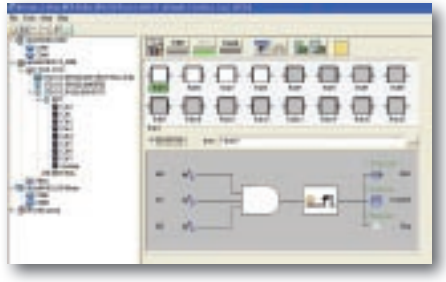
Ordering Information

ADAM-4541	Multi-mode Fiber Optic to RS-232/422/485 Converter
ADAM-4542+	Single-mode Fiber Optic to RS-232/422/485 Converter

ADAM Family Software Package

ADAM .NET Utility

ADAM.NET Utility is a user-friendly tool for system configuration. All ADAM I/O modules (ADAM-4000 series and ADAM-6000 series) and remote controllers (ADAM-4500 series) can be configured and tested through this easy-to-use graphical utility. With its powerful functionality, users can configure all related settings such as channel range, calibration, IP address, security, Peer-to-Peer and GCL.



ADAM .NET Class Library

Advantech offers ADAM .NET class library for programmers to develop applications in Microsoft Visual Studio .NET 2003 . ADAM. NET class library can dramatically reduce programmers development time since it provides a variety of functions including communications, data reading, data writing, hardware configuration, and more.

LogixView

LogixView is the latest software package to develop graphical user interface for monitoring and controlling ADAM I/O modules. This package is based on Microsoft .NET technology, and used in Visual Studio 2005 environment. LogixView offers complete graphical components for data acquisition and control applications. Users can simply drag and drop the components into Visual Studio .NET project and change their properties to make their programs run as demands. In other word, users no longer need to write code for the data acquisition and control to connect with hardware, that they can concentrate on other tasks in their main program such as logic and event handling.

Powerful Mini Controller: ADAM-4500 Series

General Features

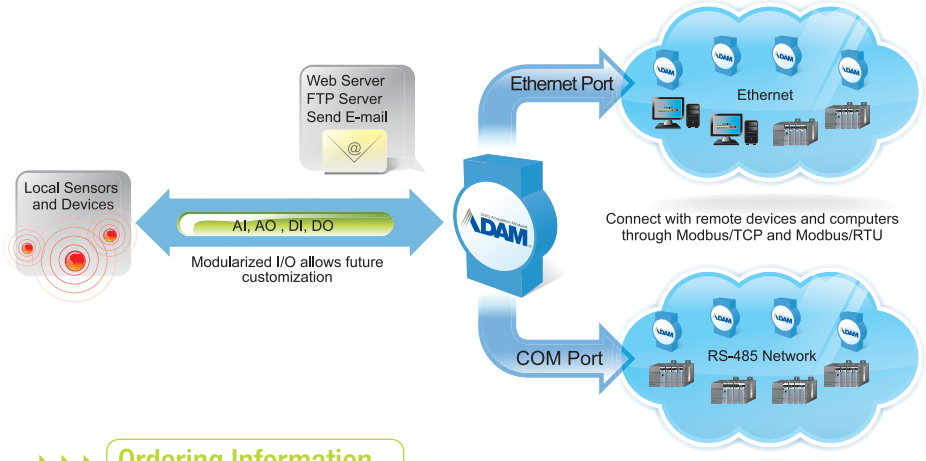
- 80188 16-bit CPU, 40 MHz
- ROM-DOS (Operating System)
- 1.5 MB Flash Memory
- 640 KB SRAM (384 KB Battery Backup)
- 1 x 10/100Base-T LAN
- 4 Serial Ports (1 x RS-232, 2 x RS-485, 1 x RS-232/485)
- 7-segment Display (optional)

Modularized I/O

- ADAM-4501 and 4501D
  4 DI and 4 DO
- ADAM-4502 and 4502D
  1 AI (16-bit), 1 AO (12-bit), 2 DI and 2DO

I/O number and type can be customized depending on customer's requirements

ADAM-4500 series is a compact-sized controller with x86 CPU which provides a variety of interface. Users can write C program and download it to the ADAM-4500 series controller to control the system.



Ordering Information

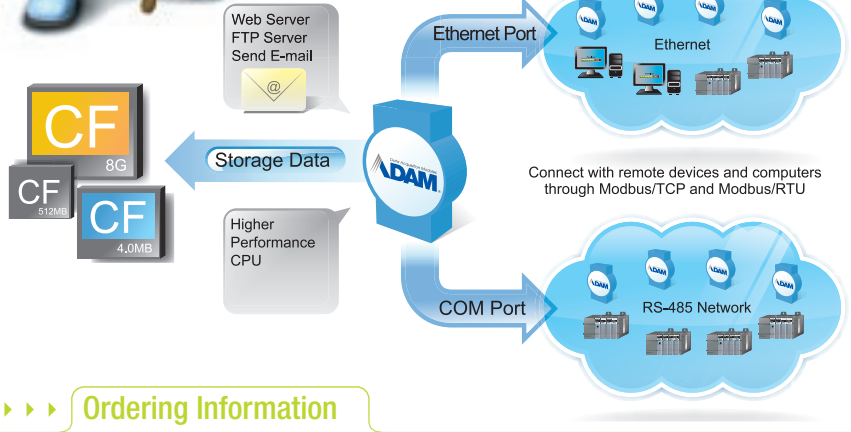
ADAM-4501	Ethernet-enabled Communication Controller with 4 x DI/O
ADAM-4501D	ADAM-4501 with 7-segment LED Display
ADAM-4502	Ethernet-enabled Communication Controller with 1 x AI/O, 2 x DI/O
ADAM-4502D	ADAM-4502 with 7-segment LED Display

Communication Gateway and Data Logger: ADAM-6501

General Features

- Intel 32-bit XScale CPU, 400 MHz
- Windows CE .NET (Operating System)
- Microsoft embedded VC++ development environment
- 32 MB Flash Memory
- 64 MB SRAM (2 MB Battery Backup)
- 1 x 10/100Base-T LAN
- 1 x RS-232
- 1 x RS-485
- 1 x CompactFlash Slot

ADAM-6501 module is a fully functional Ethernet-enabled controller. The built-in Windows CE.NET operating system lets users run applications developed by Microsoft embedded VC++ and Visual Studio .NET. With built-in CF slot, ADAM-6501 module is able to store data from the Ethernet or serial network.



Ordering Information

ADAM-6501	Web-enabled Communication Controller