

# Модули распределенного ввода/вывода серии ADAM-4000

## ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ

**По вопросам продаж и поддержки обращайтесь:**

Архангельск (8182)63-90-72  
Астана +7(7172)727-132  
Белгород (4722)40-23-64  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89  
Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Казань (843)206-01-48

Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Липецк (4742)52-20-81  
Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41

Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Новосибирск (383)227-86-73  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Пермь (342)205-81-47  
Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78

Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93

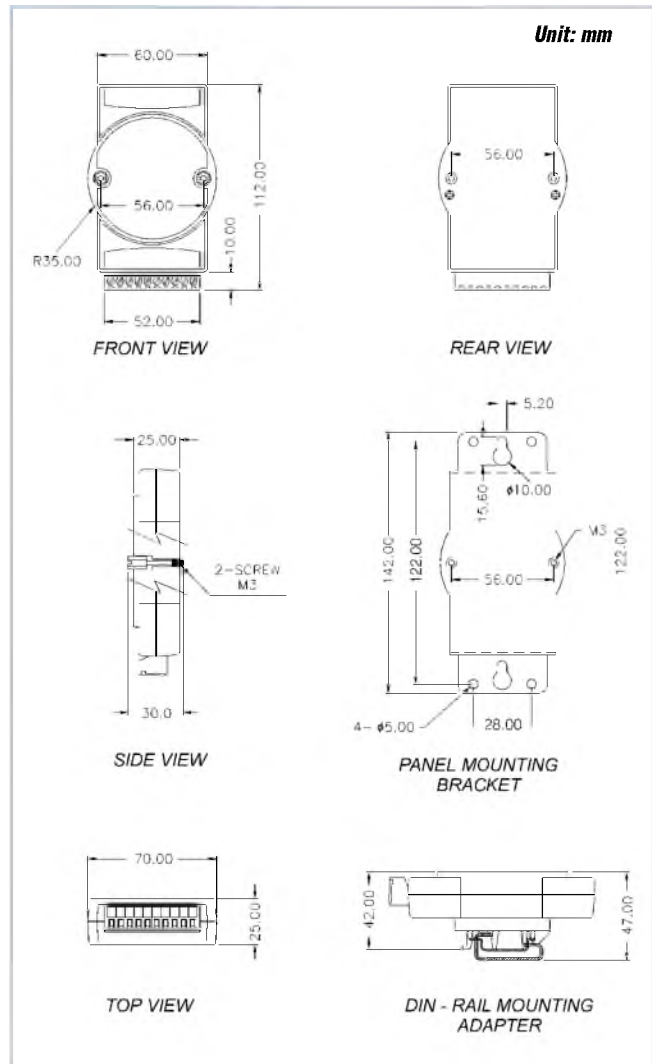
# ADAM 4000/4100 Series

## Common Specifications

### Communication

- RS-485 (2-wire) to host
- Speeds: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps (ADAM-4080, ADAM-4080D only support up to 38400 bps)
- Max. communication distance: 4000 feet (1.2 km)
- Power and communication LED indicator
- ASCII command/response protocol
- Communication error checking with checksum
- Asynchronous data format:  
Advantech protocol: 1 start bit, 8 data bits, 1 stop bit, no parity  
Modbus protocol: 1 start bit, 8 data bits, 1 or 2 stop bit, parity check (none, odd, even) (ADAM-4100 series only)
- Up to 256 multidrop modules per serial port
- Online module insertion and removal
- Transient suppression on RS-485 communication lines

## Dimensions



# ADAM-4011 ADAM-4012 ADAM-4013

## Thermocouple Input Module

## Analog Input Module

## RTD Input Module



ADAM-4011/4011D



ADAM-4012



ADAM-4013



### Specifications

- LED Indicator 5-digit (ADAM-4011D)
- Built-in Watchdog Timer

#### Analog Input

- Effective Resolution 16-bit
- Input Types Th.couple., mV, V or mA
- Input Range  $\pm 15$  mV,  $\pm 50$  mV,  $\pm 100$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 2.5$  V,  $\pm 20$  mA
- T/C Type and Temperature Range

J	0 ~ 760° C	R	500 ~ 1750° C
K	0 ~ 1370° C	S	500 ~ 1750° C
T	-100 ~ 400° C	B	500 ~ 1800° C
E	0 ~ 1000° C		

- Isolation Voltage 3000 V<sub>DC</sub>
- Input Surge Protection Yes
- Sampling Rate 10 samples/sec.
- Input Impedance 2 M $\Omega$
- Bandwidth 2.62 Hz
- Accuracy  $\pm 0.05\%$  for V input
- Zero Drift  $\pm 3$  mV/° C
- Span Drift  $\pm 25$  ppm/° C
- CMR @ 50/60 Hz 150 dB
- NMR @ 50/60 Hz 100 dB

#### Digital Input

- Channels 1  
Logic levels 0: 1 V max. 1: 3.5~30 V  
Pull up current: 0.5 mA, 10 k $\Omega$  resistor to +5 V
- Event Counter Max. input freq.: 50 Hz  
Min. input pulse width: 1 msec.

#### Digital Output

- Channels 2, open collector to 30 V, 30 mA max. load
- Power Dissipation 300 mW
- Power Consumption 1.2 W @ 24 V<sub>DC</sub>

### Ordering Information

- ADAM-4011 Thermocouple Input Module
- ADAM-4011D Thermocouple Input Module w/ LED Display

### Specifications

#### Analog Input

- Effective Resolution 16-bit
- Input Type mV, V or mA
- Input Range  $\pm 150$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 5$  V,  $\pm 10$  V and  $\pm 20$  mA
- Isolation Voltage 3000 V<sub>DC</sub>
- Sampling Rate 10 samples/sec.
- Input Impedance 2 M $\Omega$
- Bandwidth 2.62 Hz
- Accuracy  $\pm 0.05\%$  or better
- Zero Drift  $\pm 6$  mV/° C
- Span Drift  $\pm 25$  ppm/° C
- CMR @ 50/60 Hz 150 dB
- NMR @ 50/60 Hz 100 dB

#### Digital Input

- Channels 1  
logic level 0: +1 V max.  
logic level 1: +3.5 V ~ +30 V  
pull up current: 0.5 mA, 10 k $\Omega$  resistor to +5 V  
Max. input frequency: 50 Hz  
Min. input pulse width: 1 msec.
- Event Counter

#### Digital Output

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

#### Built-in Watchdog Timer

#### Power

- Power Requirements Unregulated 10~30 V<sub>DC</sub>
- Power Consumption 1.2 W @ 24 V<sub>DC</sub>

### Ordering Information

- ADAM-4012 Analog Input Module – mV, mA, or high voltage

### Specifications

#### Analog Input

- Effective Resolution 16-bit
  - Input Type Pt or Ni RTD
  - RTD Types and Temperature Ranges
- | IEC RTD 100 ohms |         |    |                      |
|------------------|---------|----|----------------------|
| Pt               | -100° C | to | +100° C a = 0.00385  |
| Pt               | 0° C    | to | +100° C a = 0.00385  |
| Pt               | 0° C    | to | +200° C a = 0.00385  |
| Pt               | 0° C    | to | +600° C a = 0.00385  |
| JIS RTD 100 ohms |         |    |                      |
| Pt               | -100° C | to | +100° C a = 0.003916 |
| Pt               | 0° C    | to | +100° C a = 0.003916 |
| Pt               | 0° C    | to | +200° C a = 0.003916 |
| Pt               | 0° C    | to | +600° C a = 0.003916 |
| Ni RTD           |         |    |                      |
| Ni               | -80° C  | to | +100° C              |
| Ni               | 0° C    | to | +100° C              |
- Isolation Voltage 3000 V<sub>DC</sub>
  - Sampling Rate 10 samples/sec.
  - Input Impedance 2 M $\Omega$
  - Bandwidth 2.62 Hz
  - Input Connections 2, 3 or 4 wire
  - Accuracy  $\pm 0.05\%$  or better
  - Zero Drift  $\pm 3$  mV/° C
  - Span Drift  $\pm 25$  ppm/° C
  - CMR @ 50/60 Hz 150 dB
  - NMR @ 50/60 Hz 100 dB

#### Built-in Watchdog Timer

#### Power

- Power Requirements Unregulated 10~30 V<sub>DC</sub>
- Power Consumption 0.7 W @ 24 V<sub>DC</sub>

### Ordering Information

- ADAM-4013 RTD Input Module – RTD

# ADAM-4561

# ADAM-4562

## 1-port Isolated USB to RS-232/422/485 Converter

## 1-port Isolated USB to RS-232 Converter



### Features

- Full compliance with USB V1.1 specifications
- RS-232/422/485 port supported (only ADAM-4561)
- Transmission speed up to 115.2 kbps
- Isolation protection 3000 V<sub>DC</sub> provided
- Automatic RS-485 data flow control
- No external power supply necessary; the hub derives its power from the USB port
- Plug & Play installation
- No additional IRQs or I/O ports required
- Hot swap function supported

### Introduction

ADAM-4561/4562 allows PC users to connect a serial device to a system that use a USB interface. To attach the ADAM-4561/4562 to a PC, you don't need to open the chassis or power down your PC. Instantly get one or two extra high-speed RS-232/422/485 ports. The power is derived from the USB port, so there are no power adapters to deal with. This makes the ADAM-4561/4562 especially suitable for modems, printers, POS systems and industrial control devices.

Compliant with USB V1.1, ADAM-4561/4562 features several powerful functions such as high-speed 115.2 kbps transmission, support for various operating systems, independent RS-232/422/485 ports and more. By simply plugging in a USB hub, ADAM-4561/4562 eliminates the configuration issues associated with high-priced, older card solutions. You only have to install the drivers, no need to set cards slots, IRQ addresses, DMA channels, or device addresses. This reduces programming effort.

### Specifications

#### General

- **Certifications** CE, FCC
- **Connectors** 1 x USB Type B (Type A to Type B cable provided)  
1 x Plug-in screw terminal (#14 ~ 22 AWG)
- **Enclosure** ABS+PS
- **Mounting** DIN 35 rail, stack, wall
- **Power Consumption** ADAM-4561: 270 mA @ 5 V (Typical)  
300 mA @ 5 V (Max.)  
ADAM-4562: 155 mA @ 5 V (Typical)  
220 mA @ 5 V (Max.)

#### Communications

- **Data Bits** 5, 6, 7, 8
- **Error Detection** Parity error, frame error, serial break (ADAM-4562)
- **Max. Distance** 15 ft (4.6 m)
- **Parity Bits** ADAM-4561: Odd, even, none  
ADAM-4562: Odd, even, mark, space, none
- **RS-232 Signals** ADAM-4561: 3-wire(Tx, Rx, GND)  
ADAM-4562: 9-wire
- **Stop Bits** 1, 1.5, 2
- **Transmission Speed** ADAM-4561: 50 bps to 115.2 kbps  
ADAM-4562: 75 bps to 115.2 kbps

#### Protection

- **Isolation Protection** ADAM-4561: 3,000 V<sub>DC</sub> (RS-232/422/485)  
ADAM-4562: 2,500 V<sub>DC</sub>
- **Surge Protection** 3,000 V<sub>DC</sub> (RS-485)

#### Software

- **Driver Support** Windows® 98/2000/ME/XPEEnvironment
- **Operating Temperature** 0 ~ 70° C (32 ~ 158° F)
- **Storage Temperature** -25 ~ 80° C (-13 ~ 176° F)
- **Operating Humidity** 20 ~ 95% (non-condensing)
- **Storage Humidity** 5 ~ 95% (non-condensing)

### Ordering Information

- **ADAM-4561** 1-port Isolated USB to RS-232/422/485 Converter
- **ADAM-4562** 1-port Isolated USB to RS-232 Converter

# ADAM-4015

# ADAM-4015T

# ADAM-4016

6-ch RTD Module with Modbus®

6-ch Thermistor Module with Modbus

1-ch Analog Input/Output Module



ADAM-4015



ADAM-4015T



ADAM-4016



## Specifications

### General

- Connectors 2 x Plug-in terminal block (#14 – 28 AWG)
- Power Consumption 1.2 W @ 24 V<sub>DC</sub>
- Watchdog Timer System (1.6 second) & Communication
- Support Protocol ASCII command and Modbus/RTU
- Wire Burnout Detector Yes

### Analog Input

- Channels 6 differential
- Input Connections 2, 3, or 4-wire
- Input Impedance 10 MΩ
- Input Type Pt, Balco and Ni RTD
- RTD Types and Temperature Ranges
  - Pt 100 RTD:
    - Pt -50° C to 150° C
    - Pt 0° C to 100° C
    - Pt 0° C to 200° C
    - Pt 0° C to 400° C
    - Pt -200° C to 200° C
  - IEC RTD 100 ohms (a = 0.00385)
  - JIS RTD 100 ohms (a = 0.00392)
  - Pt 1000 RTD
    - Pt -40° C to 160° C
  - Balco 500 RTD
    - 30° C to 120° C
  - Ni 50 RTD
    - Ni -80° C to 100° C
  - Ni 508 RTD
    - Ni 0° C to 100° C
  - BA1
    - 200° C to 600° C
- Accuracy ±0.1% or better
- CMR @ 50/60 Hz 120 dB
- Span Drift ± 25 ppm/° C
- Zero Drift ± 3 μV/° C

## Specifications

### General

- Connectors 2 x Plug-in terminal block (#14 – 28 AWG)
- Power Consumption 1.2 W @ 24 V<sub>DC</sub>
- Watchdog Time System (1.6 second) & Communication
- Support Protocol ASCII command and Modbus/RTU
- Wire Burnout Detector Yes

### Analog Input

- Channels 6 differential
- Input Connections 2, 3-wire
- Input Impedance 10 MΩ
- Input Type Thermistor
- Thermistor Types and Temperature Ranges
  - Thermistor 3 k 0 – 100° C
  - Thermistor 10 k 0 – 100° C
- Accuracy ±0.1% or better
- CMR @ 50/60 Hz 120 dB
- Span Drift ± 25 ppm/° C
- Zero Drift ± 3 μV/° C

## Specifications

### General

- Connectors 2 x Plug-in terminal block (#14 – 28 AWG)
- Power Consumption 2.2 W @ 24 V<sub>DC</sub>
- Watchdog Timer System (1.6 second)
- Support Protocol ASCII command

### Analog Input

- Channels 1 differential
- Input Impedance Voltage: 2 MΩ  
Current: 125 Ω  
(Added by users)  
mV and mA
- Input Type
- Input Range ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±20 mA  
Voltage mode: ±0.1% or better  
Current mode: ±0.2% or better
- Accuracy
- CMR @ 50/60 Hz 150 dB
- Span Drift ±25 ppm/° C
- Zero Drift ±6 μV/° C

### Analog Output

- Channels 1
- Accuracy 0.05% of FSR
- Output Type V
- Output Range 0 – 10 V
- Drift ±50 ppm/° C
- Drive Current 30 mA
- Isolation Voltage 3000 V<sub>DC</sub>

### Digital Output

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

## Common Specifications

### General

- Power Input Unregulated 10 – 30 V<sub>DC</sub>

### Analog Input

- Resolution 16 bits
- NMR @ 50/60 Hz 100 dB
- Sampling Rate 10 sample/second (total)
- Isolation Voltage 3000 V<sub>DC</sub>

### Environment

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

## Ordering Information

- ADAM-4015 6-ch RTD Input Module with Modbus
- ADAM-4015T 6-ch Thermistor Input Module with Modbus
- ADAM-4016 1-ch Analog Input/Output Module

# ADAM-4571/L

# ADAM-4570/L

1-port RS-232/422/485 Serial Device Server

2-port RS-232/422/485 Serial Device Server



## Specifications

### Ethernet Communications

- **Compatibility** IEEE 802.3, IEEE 802.3u
- **Speed** 10/100 Mbps
- **No. of Ports** 1
- **Port Connector** 8-pin RJ45
- **Protection** Built-in 1.5 KV magnetic isolation

### Serial Communications

- **Port Type** ADAM-4571/4570: RS-232/422/485, software selectable  
ADAM-4571L/4570L: RS-232
- **No. of Ports** ADAM-4571/4571L: 1  
ADAM-4570/4570L: 2
- **Port Connector** ADAM-4571/4571L: DB9 male  
ADAM-4570/4570L: 10-pin RJ48
- **Data Bits** 5, 6, 7, 8
- **Stop Bits** 1, 1.5, 2
- **Parity** None, Odd, Even, Space, Mark
- **Flow Control** XON/XOFF, RTS/CTS
- **Baud Rate** 50 bps ~ 921.6 kbps, any baud rate setting
- **Serial Signals** RS-232: TxD, RxD, CTS, RTS, DTR, DSR, DCD, RI, GND  
RS-422: TxD+, TxD-, RxD+, RxD-, GND  
RS-485: Data+, Data-, GND
- **Protection** 15 KV ESD protection for all signals

### Software

- **OS Support** 32-bit/64-bit Windows XP/Vista/7/8, Windows Server 2003/2008/2008 R2/2012, Windows CE 5.0, and Linux
- **Utility Software** Advantech EKI Device Configuration Utility
- **Operation Modes** COM port redirection (Virtual COM)  
TCP/UDP server (polling) mode  
TCP/UDP client (event handling) mode  
Pair Connection (peer to peer) mode
- **Configuration** Windows utility, Telnet console, Web Browser
- **Protocol** ARP, ICMP, IP, TCP, UDP, BOOTP, DHCP Client, Auto IP, Telnet, SNMP, HTTP, DNS, SMTP

### Mechanics

- **Dimension (W x H x D)** 70 x 130 x 30 mm (2.76" x 5.12" x 1.18")
- **Enclosure** ABS+PC with solid mounting hardware
- **Mounting** DIN-rail, Stack, Wall
- **Weight** ADAM-4571/4571L: 135 g  
ADAM-4570/4570L: 160 g

### General

- **LED Indicators** System: Power, System Status  
LAN: Speed, Link/Active  
Serial: Tx, Rx
- **Reboot Trigger** Built-in WDT (watchdog timer)

### Power Requirements

- **Power Input** 10 ~ 30 V<sub>DC</sub>
- **Power Connector** Terminal block
- **Power Consumption** ADAM-4571/4571L: 2.5 W  
ADAM-4570/4570L: 2.5 W

### Environment

- **Operating Temperatures** -10 ~ 60°C (14 ~ 140°F)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
- **Operating Humidity** 5 to 95% RH

### Regulatory Approvals

- **EMC** CE, FCC Part 15 Subpart B (Class A)

## Ordering Information

- **ADAM-4571** 1-port RS-232/422/485 Serial Device Server
- **ADAM-4571L** 1-port RS-232 Serial Device Server
- **ADAM-4570** 2-port RS-232/422/485 Serial Device Server
- **ADAM-4570L** 2-port RS-232 Serial Device Server

\*ADAM-4570/4570L includes 2pcs OPT1A

### Accessories

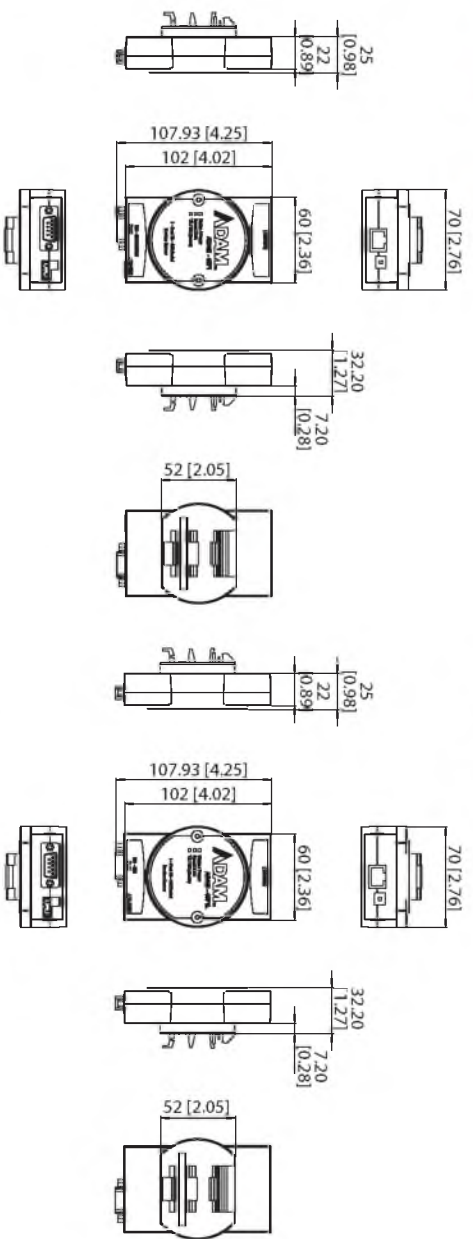
- **OPT1A** 1 m RJ48 to DB9 Male Cable
- **OPT1D** 30 cm RJ48 to DB9 Male Cable

**Dimensions**

Unit: mm [inch]

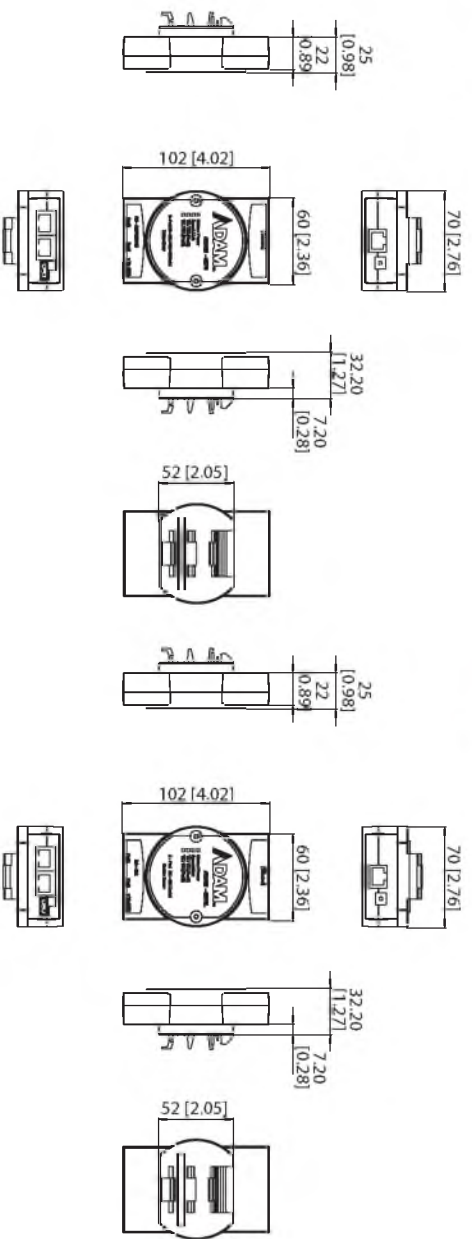
**ADAM-4571**

**ADAM-4571L**



**ADAM-4570**

**ADAM-4570L**



# ADAM-4017/4017+ ADAM-4018/4018+ ADAM-4018M

8-channel Analog Input Module with Modbus

8-channel Thermocouple Input Module with Modbus

8-channel Analog Input Data Logger



ADAM-4017/4017+



ADAM-4018/4018+



ADAM-4018M



## Specifications

### Analog Input

- **Effective Resolution** 16-bit
- **Channels** Six differential, two single-ended (4017) eight differential (4017+)
- **Channel Independent Configuration** ADAM-4017+ only
- **Modbus** ADAM-4017+ only
- **Input Type** mV, V, mA
- **Input Range**  $\pm 150$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 5$  V,  $\pm 10$  V,  $\pm 20$  mA, 4–20mA (4017+ only)
- **Isolation Voltage** 3000 V<sub>DC</sub>
- **Fault and Overvoltage Protection** Withstands overvoltage up to  $\pm 35$  V
- **Sampling Rate** 10 samples/sec. (total)
- **Input Impedance** 20 M $\Omega$
- **Bandwidth** 13.1 Hz @ 50 Hz, 15.72 Hz @ 60 Hz
- **Accuracy**  $\pm 0.1\%$  or better
- **Zero Drift**  $\pm 6$  mV/ $^{\circ}$ C
- **Span Drift**  $\pm 25$  ppm/ $^{\circ}$ C
- **CMR @ 50/60 Hz** 92 dB min.

### Built-in Watchdog Timer

- **Power Requirements** Unregulated +10 – +30 V<sub>DC</sub>
- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>
- **Built-in TVS/ESD Protection**

## Ordering Information

- **ADAM-4017-D2** 8-channel Analog Input Module
- **ADAM-4017+** 8-channel Differential Analog Input Module w/Modbus

## Specifications

### Analog Input

- **Effective Resolution** 16-bit
- **Channels** Six differential, two single-ended (4018) eight differential (4018+)
- **Ch. Independent Conf.** ADAM-4018+ only
- **Modbus** ADAM-4018+ only
- **Input Type** Thermocouple, mV, V, mA (4018) (4018+ Supports T/C & 4–20 mA only)
- **Input Range**  $\pm 15$  mV,  $\pm 50$  mV,  $\pm 100$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 2.5$  V,  $\pm 20$  mA (4018); 4–20 mA (4018+)
- **T/C Type and Temperature Ranges**

<b>J</b>	0 – 760 $^{\circ}$ C	<b>R</b>	500 – 1750 $^{\circ}$ C
<b>K</b>	0 – 1370 $^{\circ}$ C	<b>S</b>	500 – 1750 $^{\circ}$ C
<b>T</b>	-100 – 400 $^{\circ}$ C	<b>B</b>	500 – 1800 $^{\circ}$ C
<b>E</b>	0 – 1000 $^{\circ}$ C		

- **Isolation Voltage** 3000 V<sub>DC</sub>
- **Fault and Overvoltage Protection** Resists overvoltage up to  $\pm 35$  V
- **Sampling Rate** 10 samples/sec. (total)
- **Input Impedance** 20 M $\Omega$
- **Bandwidth** 13.1 Hz @ 50 Hz, 15.72 Hz @ 60 Hz
- **Accuracy**  $\pm 0.1\%$  for voltage input
- **Zero Drift**  $\pm 3$  mV/ $^{\circ}$ C
- **Span Drift**  $\pm 25$  ppm/ $^{\circ}$ C
- **CMR @ 50/60 Hz** 92 dB min.

### Built-in Watchdog Timer and Individual wire burned-out detection (4018+ only)

- **Power Requirements** Unregulated +10 – +30 V<sub>DC</sub>
- **Power Consumption** 0.8 W @ 24 V<sub>DC</sub>
- **Built-in TVS/ESD Protection**

## Ordering Information

- **ADAM-4018-D2** 8-ch. Th.couple Input Module
- **ADAM-4018+** 8-ch. Differential, mA and Thermocouple Input Module w/Modbus

## Specifications

### Analog Input

- **Effective Resolution** 16-bit
- **Channels** Six differential, two single-ended
- **Input Type** Thermocouple, mV, V, mA
- **Input Range**  $\pm 15$  mV,  $\pm 50$  mV,  $\pm 100$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 2.5$  V,  $\pm 20$  mA
- **T/C Type and Temperature Range**

<b>J</b>	0 – 760 $^{\circ}$ C	<b>R</b>	500 – 1750 $^{\circ}$ C
<b>K</b>	0 – 1370 $^{\circ}$ C	<b>S</b>	500 – 1750 $^{\circ}$ C
<b>T</b>	-100 – 400 $^{\circ}$ C	<b>B</b>	500 – 1800 $^{\circ}$ C
<b>E</b>	0 – 1000 $^{\circ}$ C		

- **Isolation Voltage** 3000 V<sub>DC</sub>
- **Sampling Rate** 10 samples/sec. (total)
- **Input Impedance** 1.8 M $\Omega$
- **Bandwidth** 13.1 Hz @ 50 Hz, 15.72 Hz @ 60 Hz
- **Accuracy**  $\pm 0.1\%$  for voltage input
- **Zero Drift**  $\pm 3$  mV/ $^{\circ}$ C
- **Span Drift**  $\pm 25$  ppm/ $^{\circ}$ C
- **CMR @ 50/60 Hz** 92 dB min.

### Storage

- **Capacity** 38,000 samples (total) (128 KB flash memory)
- **Storage Mode** Write to end of memory & cyclic
- **Logging Mode** Internal log or event log (high/low)
- **Sampling Interval** 2 secs. – 18 hours

### Built-in Watchdog Timer

- **Power Requirements** Unregulated +10 – +30 V<sub>DC</sub>
- **Power Consumption** 1.8 W @ 24 V<sub>DC</sub>

## Ordering Information

- **ADAM-4018M** 8-channel Analog Input Data logger – mV, V, mA, or thermocouple



# ADAM-4019+ ADAM-4021 ADAM-4022T

8-channel Universal Analog Input Module with Modbus®

Analog Output Module

Serial Based Dual Loop PID Controller



ADAM-4019+



ADAM-4021



ADAM-4022T



## Specifications

### Analog Input

- **Effective Resolution** 16-bit
- **Channels** 8 differential channels for individual input type
- **Input Type** Thermocouple, mV, V, mA
- **Input Range** +/-1V, +/-2.5V, +/-5V, +/-10V, +/-100mV, +/-500mV, +/-20mA, +/-20mA
- **T/C Type and Temperature Range**
  - J 0 ~ 760 °C
  - K 0 ~ 1370 °C
  - T -100 ~ 400 °C
  - E 0 ~ 1000 °C
  - R 500 ~ 1750 °C
  - S 500 ~ 1750 °C
  - B 500 ~ 1800 °C
- **Burn-out Detection** +/-20mA & All T/C
- **Isolation Voltage** 3000 V<sub>DC</sub>
- **Fault and Over-voltage Protection** Resists over-voltage up to 35 V
- **Input Impedance** 20 MΩ
- **Bandwidth** 13.1 Hz @ 50 Hz, 15.72 Hz @ 60 Hz
- **Accuracy** ±0.1% of voltage input
- **Zero Drift** ±3 μV/°C
- **Span Drift** ±25 ppm/°C
- **CMR @ 50/60 Hz** 92 dB min.

### Built-in Watchdog Timer

#### Power

- **Power Requirements** Unregulated +10 ~ +30 V<sub>DC</sub>
- **Power Consumption** 1.0 W @ 24 V<sub>DC</sub>

## Ordering Information

- **ADAM-4019+** 8-channel Universal Analog Input module with Modbus®

## Specifications

### Analog Output

- **Effective Resolution** 12-bit
- **Output Type** mA, V
- **Output Range** 0 to 20 mA, 4 to 20 mA, and 0 to 10 V
- **Isolation Voltage** 3000 V<sub>DC</sub>
- **Output Impedance** 0.5 Ω
- **Accuracy** ±0.1% of FSR for current output  
±0.2% of FSR for voltage output
- **Readback Accuracy** ±1% of FSR
- **Resolution** ±0.015% of FSR
- **Zero Drift** Voltage output: ±30 μV/°C  
current output: ±0.2 μA/°C
- **Span Temperature Coefficient** ±25 ppm/°C
- **Programmable Output Slope** 0.125 ~ 128 mA/sec.  
0.0625 ~ 64.0 V/sec.
- **Current Load Resistor** 0 to 500 Ω (source)

### Built-in Watchdog Timer

#### Power

- **Power Requirement** Unregulated +10 ~ +30 V<sub>DC</sub>
- **Power Consumption** 1.4 W @ 24 V<sub>DC</sub>

## Ordering Information

- **ADAM-4021** Analog Output Module – V or mA

## Specifications

### Analog Input

- **Channels** 4
- **Input Type** mA, V, Thermistor, RTD
- **Input Range** 0 to 20 mA, 4 to 20 mA, 0 to 10 V
- **Thermistor Type and Temperature Ranges**
  - Thermistor 3K: 0 ~ 100° C
  - Thermistor 10K: 0 ~ 100° C
- **RTD Type and Temperature Ranges**
  - Pt 100 RTD Pt -100 ~ 100° C
  - Pt 0 ~ 100° C
  - Pt 0 ~ 200° C
  - Pt 0 ~ 600° C
  - IEC RTD 100 ohms (a = 0.00385)
  - JIS RTD 100 ohms (a = 0.00392)
  - Pt 1000 RTD
  - Pt -40 ~ 160° C

### Analog Output

- **Channels** 2
- **Output Type** mA, V
- **Output Range** 0 to 20 mA, 4 to 20 mA, 0 to 10 V

### Digital Input

- **Channels** 2
- **Dry Contact** Logic level 0-close to GND  
Logic level 1-open

### Digital Output

- **Channels** 2  
Open Collector to 30 V, 100 mA max. load  
3,000 V<sub>DC</sub>

### Surge Protection (Power)

### Built-in Watchdog Timer

- **Power Requirements** Unregulated 10 ~ 30 V<sub>DC</sub>
- **Power Consumption** 4 W @ 24 V<sub>DC</sub>

## Ordering Information

- **ADAM-4022T** Serial Based Dual Loop PID Controller

# ADAM-4024

# ADAM-4050

# ADAM-4051

4-channel Analog Output Module with Modbus®

Digital I/O Module

16-channel Isolated Digital Input Module with LED & Modbus®



ADAM-4024

CE FCC



ADAM-4050

CE 



ADAM-4051

CE FCC

## Specifications

### Analog Output

- **Effective Resolution** 12-bit
- **Channels** 4
- **Output Type** mA, V
- **Output Range** 0 to 20 mA, 4 to 20 mA, ±10 V
- **Isolated Voltage** 3000 V<sub>DC</sub>
- **Output Impedance** 0.5 Ω
- **Accuracy** ±0.1 % of FSR for current output  
±0.1 % of FSR for voltage output
- **Resolution** ±0.015 % of FSR
- **Zero Drift** Voltage output: ±30 μV/°C  
current output: ±0.2 μA/°C
- **Span Temperature Coefficient** ±25 ppm/°C
- **Programmable Output Slope** 0.125 ~ 128 mA/sec.  
0.0625 ~ 64.0 V/sec.
- **Current Load Resistor** 0 to 500 Ω (source)

### Built-in Watchdog Timer

- **Isolated Digital Input** Channel: 4  
level 0: +1 V max  
level 1: 10 ~ 30 V<sub>DC</sub>

### Built-in Watchdog Timer

- **Power Requirement** Unregulated +10 ~ +30 V<sub>DC</sub>
- **Power Consumption** 3 W @ 24 V<sub>DC</sub>

## Ordering Information

- **ADAM-4024** 4-channel Analog Output Module w/Modbus® V or mA

## Specifications

### Digital Input

- **Channels** 7  
logic level 0: +1 V max.  
logic level 1: +3.5 V ~ +30 V  
pull up current: 0.5 mA,  
10 kΩ resistor to +5 V

### Digital Output

- **Channels** 8  
open collector to 30 V,  
30 mA max. load  
power dissipation: 300 mW

### Built-in Watchdog Timer

#### Power

- **Power Requirements** Unregulated +10 ~ +30 V<sub>DC</sub>
- **Power Consumption** 0.4 W @ 24 V<sub>DC</sub>

## Ordering Information

- **ADAM-4050** Digital I/O Module

## Specifications

### Digital Input

- **Channels** 16
- **Input Voltage** 50 V max
- **Input Voltage level** (Configurable)  
Dry contact:  
logic level 0: close to GND  
logic level 1: open wet contact:  
logic level 0: +3 V max  
logic level 1: +10 to 50 V
- **Optical Isolation** 2,500 V<sub>DC</sub>
- **Over Voltage Protection** 70 V<sub>DC</sub>

### Built-in Watchdog Timer

- **Power Consumption** 1 W @ 24 V<sub>DC</sub> (Typical)
- **LED Indicator** On: Active  
Off: Non-active

## Ordering Information

- **ADAM-4051** 16-channel Isolated Digital Input Module with LED and Modbus®

# ADAM-4052

# ADAM-4053

# ADAM-4055

Isolated Digital Input Module

16-channel Digital Input Module

16-channel Isolated Digital I/O Module with LED & Modbus



ADAM-4052



ADAM-4053



ADAM-4055



## Specifications

### Digital Input

- Channels 8  
six fully independent isolated channels.  
two isolated channels with common ground
- Digital Input Level Logic level 0: +1 V max.  
Logic level 1: +3 ~ +30 V
- Isolation Voltage 5,000 V<sub>RMS</sub>
- Input Resistance 3 k $\Omega$ /0.5 W

### Built-in Watchdog Timer

#### Power

- Power Requirements Unregulated +10 ~ +30 V<sub>DC</sub>
- Power Consumption 0.4 W @ 24 V<sub>DC</sub>

## Ordering Information

- ADAM-4052 Isolated Digital Input Module

## Specifications

### Digital Input

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

### Built-in Watchdog Timer

#### Power

- Power Requirements Unregulated +10 ~ +30 V<sub>DC</sub>
- Power Consumption 1.0 W @ 24 V<sub>DC</sub>

## Ordering Information

- ADAM-4053 16-channel Digital Input Module

## Specifications

### Digital Input/Output

- Channels 16
  - I/O Type 8 DO & 8 DI
  - Digital Output Open collector to 40 V  
(200 mA max. load)
  - Digital Input (Configurable)  
Dry Contact:  
Logic level 0: open  
Logic level 1: close to GND  
Wet Contact:  
Logic level 0: +3 Vmax  
Logic level 1: +10 to 50 V
  - Optical Isolation 2500 V<sub>DC</sub>
  - Over Voltage Protection 70 V<sub>DC</sub>
- ### Built-in Watchdog Timer
- Power Consumption 1 W @ 24 V<sub>DC</sub> (Typical)
  - LED Indicator On: Active  
Off: Inactive

## Ordering Information

- ADAM-4055 16-channel Digital I/O Module with LED and Modbus®

# ADAM-4056S ADAM-4056SO ADAM-4060 ADAM-4068

12-channel Sink Type Isolated Digital Output Module  
12-channel Source Type Isolated Digital Output Module  
4-channel Relay Output Module  
8-channel Relay Output Module with Modbus® and LED



ADAM-4056S/4056SO

FCC CE



ADAM-4060

CE FM



ADAM-4068

CE FCC

## Specifications

### ADAM-4056S and ADAM-4056SO

- Channels 12
- Optical Isolation 5,000 V<sub>DC</sub>
- Power Requirement Unregulated 10–30 V<sub>DC</sub>
- Power Consumption 1 W @ 24 V<sub>DC</sub>
- Built-in Watchdog Timer

### ADAM-4056S

- Digital Output Type Sink
- I/O Type Sink Type Output
- Digital Output Open collector to 40V (200mA max. load)
- Certifications CE, FCC

### ADAM-4056SO

- Digital Output Type Source
- I/O Type Source Type Output
- Digital Output VCC: 10 ~ 35 V<sub>DC</sub>  
Current: 1A (per ch.)
- Certifications CE, FCC
- Over Current Detection and Protection

## Ordering Information

- ADAM-4056S 12-channel Sink Type Isolated Digital Output Module
- ADAM-4056SO 12-channel Source Type Isolated Digital Output Module

## Specifications

### Relay Output

- Channels 4-channels relay, two Form A and two Form C
- Contact Rating AC: 125 V @ 0.6 A  
250 V @ 0.3 A  
DC: 30 V @ 2 A  
110 V @ 0.6 A
- Breakdown Voltage 500 V<sub>AC</sub> (50/60 Hz)
- Relay on Time (typical) 3 ms
- Relay off Time (typical) 1 ms
- Total Switching Time 10 ms
- Insulation Resistance 1,000 MΩ minimum at 500 V<sub>DC</sub>

### Built-in Watchdog Timer

### Power

- Power Requirements Unregulated 10–30 V<sub>DC</sub>
- Power Consumption 0.8 W @ 24 V<sub>DC</sub>

## Ordering Information

- ADAM-4060 4-channel Relay Output Module

## Specifications

### Relay Output

- Channels Four form A and four form C
- Contact Rating AC: 125 V @ 0.6 A  
250 V @ 0.3 A  
DC: 30 V @ 2 A  
110 V @ 0.6 A
- Breakdown Voltage 500 V<sub>AC</sub> (50/60 Hz)
- Relay on Time (typical) 2 ms
- Relay off Time (typical) 4 ms
- Insulation Resistance 1,000 MΩ minimum at 500 V<sub>DC</sub>

### Built-in Watchdog Timer

- System and Comm. Watchdog

### Power

- Power Requirements Unregulated 10 ~ 30 V<sub>DC</sub>
- Power Consumption 0.6 W @ 24 V<sub>DC</sub>

## Ordering Information

- ADAM-4068 8-channel Relay Output Module with Modbus® and LED

# ADAM-4069 ADAM-4080 ADAM-4080D ADAM-4914V

## 8-channel Power Relay Output Module with Modbus® Counter/Frequency Module Counter/Frequency Module with LED Display 4-channel Voltage Input Surge Protection Module



ADAM-4069

### Specifications

#### Relay Output

- **Channels** 4 form A, 4 form C
- **Contact Rating** AC: 250 V @ 5 A  
DC: 30 V @ 5 A
- **Breakdown Voltage** 1000 V<sub>AC</sub> (50/60 Hz)
- **Relay on Time (typical)** 5 ms
- **Relay off Time (typical)** 5.6 ms
- **Insulation Resistance** 1,000 MΩ minimum at 500 V<sub>DC</sub>
- **Built-in Watchdog Timer** System and Comm. Watchdog

#### Power

- **Power Requirements** Unregulated  
+10 ~ +30 V<sub>DC</sub>
- **Power Consumption** 0.6 W @ 24 V<sub>DC</sub>

### Ordering Information

- **ADAM-4069** 8-channel Power Relay Output Module with Modbus®



ADAM-4080/4080D



### Specifications

#### Counter Input

- **Channels** Two independent 32-bit counters
- **Input Frequency** 50 kHz max.
- **Input Mode** Isolated or non-isolated
- **Isolation Input Level** Logic level 0: +1 V max.  
Logic level 1: +3.5 V ~ +30 V
- **Isolation Voltage** 2500 V<sub>RMS</sub>
- **Non-isolated Input Level** Programmable threshold:  
Logic level 0: 0 to +5 V (default = 0.8 V)  
Logic level 1: 0 to +5 V (default = 2.4 V)
- **Input Pulse Width** >10 ms.
- **Maximum Count** 4,294,967,295 (32 bits)
- **Programmable Digital Noise Filter** 2 ~ 65 ms
- **Alarm** Alarm comparator on each counter
- **Preset Type** Absolute or relative

#### Frequency Measurement

- **Range** 5 Hz ~ 50 kHz
- **Programmable Built-in Gate Time** 1.0/0.1 sec.

#### Display (ADAM-4080D Only)

- **LED Indicator** 5-digit readout, CH 0 or CH 1 (programmable)

#### Digital Output

- **Channels** 2  
Open collector to 30 V,  
30 mA max. load  
power dissipation: 300 mW for each channel

#### Built-in Watchdog Timer

##### Power

- **Power Requirements** Unregulated 10~30 V<sub>DC</sub>
- **Power Consumption** 2.0 W @ 24 V<sub>DC</sub>



ADAM-4914V

### Specifications

#### Input

- **Channels** 4 differential voltage input and thermocouple

#### Performance

- **Discharge Voltage** BETWEEN LINES: 18 V min  
LINE TO GND: 350 V max.
- **Max. Surge Voltage** BETWEEN LINES: 23 V min  
LINE TO GND: +4,000 V max.
- **Leakage Current** BETWEEN LINES: ≤ 10μA @ 7.5 V<sub>DC</sub>  
LINE TO GND: ≤ 5μA @ +140 V<sub>DC</sub>
- **Response Time** ≤ 0.1 μsec.
- **Discharge Current** 5,000 A (8/20 μsec.)
- **Internal Series Resistance** Approx. 20Ω including return
- **Maximum Line Voltage** 10 V

### Ordering Information

- **ADAM-4914V** 4-channel Voltage Input Surge Protection Module
- **ADAM-4080** Counter/Frequency Module
- **ADAM-4080D** Counter/Frequency Module with LED Display

# ADAM-4117 ADAM-4118

Counter/Frequency Module

8-channel Analog Input Module

8-channel Thermocouple Input Module



ADAM-4080/4080D



ADAM-4117



ADAM-4118

## Specifications

### General

- **LED Indicators** 5-digit readout, CH 0 or CH 1 (programmable) (ADAM-4080D only)
- **Power Consumption** 2.0 W @ 24 V<sub>DC</sub>
- **Power Input** Unregulated 10–30 V<sub>DC</sub>

### Counter Input

- **Alarm** Alarm comparator on each counter
- **Channels** Two independent 32-bit counters
- **Input Frequency** 50 kHz max. (non-isolation)
- **Input Pulse Width** >10 μs.
- **Input Mode** Isolated or non-isolated
- **Isolation Input Level** Logic level 0: +1 V max. Logic level 1: 3.5–30 V
- **Isolation Voltage** 2500 V<sub>RMS</sub>
- **Non-isolated Input Level** Programmable threshold: Logic level 0: 0 to +5 V (default = 0.8 V) Logic level 1: 0 to +5 V (default = 2.4 V)
- **Maximum Count** 4,294,967,295 (32 bits)
- **Preset Type** Absolute or relative
- **Programmable Digital Noise Filter** 2 ~ 65 μs

### Frequency Measurement

- **Range** 5 Hz – 50 kHz
- **Programmable Built-in Gate Time** 1.0/0.1 sec.

### Digital Output

- **Channels** 2
- **Open Collector** 30 V, 30 mA max. load
- **Power Dissipation** 300 mW for each channel

## Specifications

### General

- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>
- **Power Input** Unregulated 10–48 V<sub>DC</sub>

### Analog Input

- **Accuracy** Voltage mode : ±0.1% or better Current mode : ±0.2% or better
- **ASCII commands and Modbus protocol**
- **Built-in TVS/ESD Protection**
- **Channels** 8 x differential and independent configuration channels 92 dB min.
- **CMR @ 50/60 Hz** With stands overvoltage protection up to ±60 V
- **Fault and Overvoltage** 200 V<sub>DC</sub> Voltage: 20 MΩ Current: 120 Ω
- **Input Type** mV, V (supports uni-polar and bipolar), mA
- **Input Range** 0–150mV, 0–500mV, 0–1V, 0–5V, 0–10V, 0–15V, ±150 mV, ±500 mV, ±1V, ±5 V, ±10 V, ±15V, ±20 mA, 4–20mA
- **Isolation Protection** 3000 V<sub>DC</sub>
- **Resolution** 16 bits
- **Sampling Rate** 10/100 samples/sec (selected by Utility)
- **Span Drift** ±25 ppm/°C
- **Watchdog Timers** 2
- **Zero Drift** ±6μV/°C

## Common Specifications

### General

- **Dimensions** 70 x 122 x 30 mm
- **Connector** 2 x Plug-in terminal blocks (#14 – 22 AWG)
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall
- **Watchdog Timer** 1.6 sec. (system)

### Environment

- **Humidity** 5 – 95% RH
- **Operating Temperature** 4080/4080D: -10–70°C (14–158°F) 4117/4118: -40–85°C(-40– 185°F)
- **Storage Temperature** 4080/4080D: -25–85°C(-13–185°F) 4117/4118: -40 – 85°C(-40– 185°F)

## Specifications

### Analog Input

- **Analog Input Channel** 8 differential & independent thermocouple configurations Voltage: 20 MΩ Current: 120 Ω
- **Input Impedance**
- **Input Range** Thermocouple J 0 ~ 760 °C K 0 ~ 1370 °C T -100 ~ 400 °C E 0 ~ 1000 °C R 500 ~ 1750 °C S 500 ~ 1750 °C B 500 ~ 1800 °C
- **Sampling Rate** Voltage mode ±15 mV, ±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V Current mode ±20 mA, +4–20 mA 10/100 samples/sec(selected by Utility) 3,000 V<sub>DC</sub>
- **Isolation Protection**
- **Power**
- **Power Consumption** 0.5 W @ 24 V<sub>DC</sub>
- **Communication**
- **Network** RS-485 (2-wire)
- **Speed** 1.2 ~ 115.2 kbps
- **Distance** 1.2 km (4000 ft)
- **Data Format** Advantech protocol: 1 start bit, 8 data bits, 1 stop bit, none parity
- **Modbus Protocol** 1 start bit, 8 data bits, 1 or 2 stop bit, parity check (none, even, odd)
- **Modbus/RTU Protocol Support** Yes
- **Watchdog Timers** System, Communication

## Ordering Information

- **ADAM-4080** Counter/Frequency module
- **ADAM-4080D** Counter/Frequency module with LED Display
- **ADAM-4117** 8-channel Analog Input Module
- **ADAM-4118** 8-channel Thermocouple Input Module

# ADAM-4150

# ADAM-4168

# ADAM-4914V

Digital I/O module

Relay Output Module

4-channel Voltage Input Surge Protection Module



ADAM-4150



ADAM-4168



ADAM-4914V

## Specifications

### Digital Input/Output

- **Channels** 7 input channels  
8 output channels
- **Digital Input (Supports 3 kHz counter)**  
Dry contact: Logic level 0: Close to GND.  
Logic level 1: Open  
Wet contact: Logic level 0: +3 V max.  
Logic level 1: +10 V to +30 V
- **Isolation Voltage** 3000 V<sub>DC</sub>
- **Digital Output**  
Open drain to 40 V, 0.8A max.  
Maximum power dissipation: 1 W load  
Ron Maximum: 150m ohm  
Supports 1 kHz pulse output
- **Power Consumption** 0.4 W (Typical)  
0.7 W (Max)
- **Watchdog Timer** System, Communication

## Specifications

### Relay Output

- **Output Channels** 8 Form A
- **Contact Rating** AC: 125 V @ 0.6 A  
250 V @ 0.3A  
DC: 30 V @ 2 A  
110 V @ 0.6 A
- **Breakdown Voltage** 750 V<sub>AC</sub> (50/60 Hz)
- **Insulation Resistance** 1 G Ω min. @ 500 V<sub>DC</sub>
- **Power Consumption** 0.4 W (typical)  
1.8 W (max.)
- **Relay Response Time** ON : 3 ms Off: 1 ms (typical)
- **Total Switching Time** 10 ms
- **Supports 100 Hz pulse output**
- **Watchdog Timer** System, Communication

## Specifications

### Input

- **Channels** 4 differential voltage input and thermocouple
- **Performance**
- **Discharge Current** 5,000 A (8/20 μsec.)
- **Discharge Voltage** BETWEEN LINES: 18 V min  
LINE TO GND: 350 V max.
- **Internal Series Resistance** Approx. 20 Ω including return
- **Max. Surge Voltage** BETWEEN LINES: 23 V min  
LINE TO GND: +4,000 V max.
- **Leakage Current** BETWEEN LINES: ≤ 10 μA @ 7.5 V<sub>DC</sub>  
LINE TO GND: ≤ 5 μA @ +140 V<sub>DC</sub>
- **Maximum Line Voltage** 10 V
- **Response Time** ≤ 0.1 μsec.

## Common Specifications

- **Dimensions** 70 x 122 x 30 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall
- **Power Input** Unregulated 10–48 V<sub>DC</sub>
- **Watchdog Timer** 1.6 sec. (system)
- **Connector** 2 x Plug-in terminal blocks (#14 – 22 AWG)
- **Environment**
- **Humidity** 5 – 95% RH
- **Operating Temperature** 4914V: -10–70 °C (14 – 158° F)  
4150/4168: -40 ~ 85 °C (-40 ~ 185° F)
- **Storage Temperature** 4914V: -25 – 85°C (-13 – 185° F)  
4150/4168: -40 ~ 85°C (-40 ~ 185° F)

## Ordering Information

- **ADAM-4150** Digital I/O Module
- **ADAM-4168** Relay Output Module
- **ADAM-4914V** 4-channel Voltage Input Surge Protection Module

# ADAM-4500

## PC-based Communication Controller



CE

### Features

- Powerful communication controller in a small package
- Built-in Boot ROM DOS to run PC programs
- Free ROM/RAM memory for user's applications
- 2-wire, multi-drop RS-485 networking
- Communication speed up to 115.2 Kbps
- RS-232/RS-485 modes (jumper selectable)
- Automatic data flow control in RS-485 mode
- Built-in real-time clock and watchdog timer
- Easy mounting on a DIN-rail or panel
- Accepts unregulated power sources between 10 to 30 V<sub>DC</sub>
- Program download cable and utility included

### Introduction

The ADAM-4500 is a fully functional stand-alone controller for industrial automation and control. It provides an ideal environment for controlling PC hardware with a minimal amount of development effort. Its built-in ROM-DOS lets users run standard PC programs or new programs produced by PC language development tools. ROM-DOS is an MS-DOS equivalent operating system allowing you to run all standard PC software.

#### Built-in RS-232/485 COM Ports

The ADAM-4500 has two communication ports (COM1 and COM2). These provide easy communication between the controller and other devices in your applications. COM1 can be configured for RS-232 or RS-485 communication via a jumper setting, while COM2 is dedicated as an RS-485 port. This design allows the controller to be used in a variety of applications. For example, a user can download an application into the ADAM-4500's on-board Flash memory while the ADAM-4500 is connected to an RS-485 network, then let it control all the modules in the network.

#### Built-in Real-time Clock and Watchdog Timer

The real-time clock in the controller ensures accurate time recording while the system operates. The watchdog timer is designed to automatically reset the CPU if the system fails.

### Specifications

#### Board

- **CPU** 80188-40
- **Flash ROM** 256 KB (170 KB free memory for users)
- **Operating System** Boot ROM DOS
- **Timer BIOS** Yes
- **SRAM** 256 KB (234 KB free memory for users)
- **Real-time Clock** Yes
- **Watchdog Timer** Yes
- **COM1** RS-232/485
- **COM2** RS-485
- **Program Download Port(RS-232)** Tx, Rx, GND
- **Power Requirement** Unregulated +10 to +30 V<sub>DC</sub>
- **Power Consumption** 2.0 W
- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
- **Case** ABS with captive mounting hardware
- **Plug-in Screw** Accepts 0.5 mm to 2.5 mm
- **Terminal Block** 1-#12 or 2-#14 ~ #22 AWG
- **Dimensions** 60 x 120 mm (2.36" x 4.72")

#### RS-232 Interface

- **Signals** TxD, RxD, RTS, CTS, DTR, DSR, DCD, RI, GND
- **Mode** asynchronous full duplex, point to point
- **Transmission Speed** Up to 115.2 kbps
- **Max Transmission Distance** 15.2 meters (50 feet)

#### RS-485 interface

- **Signals** DATA+, DATA-, GND
- **Mode** Half duplex, multi-drop
- **Transmission Speed** Up to 115.2 kbps
- **Max Transmission Distance** 1200 meters (4000 feet)

#### Software

The ADAM-4500 module provides 170 KB ROM for your downloaded applications and 234 KB RAM for application operation. Its built-in ROM-DOS is an MS-DOS equivalent operating system, which provides all of the basic functions of MS-DOS except BIOS. Application programs written in high level languages such as C or C++ can run under ROM-DOS. Application programs should be converted into 80188 compatible code before being downloaded into the ADAM-4500. The download utility is included with the ADAM-4500.

### Ordering Information

- **ADAM-4500** PC-based communication controller



# ADAM-4510/4510I/4510S ADAM-4520/4520I/4522 ADAM-4521

RS-422/485 Repeaters  
RS-232 to RS-422/485  
Converters  
Addressable RS-422/485  
to RS-232 Converter



ADAM-4510/4510I/4510S



ADAM-4520/4520I/4522



ADAM-4521



## Specifications

### General

- **Connectors** 2 x Plug-in terminal blocks (#14 – 22 AWG)
- **Isolation Protection** 3000 V<sub>DC</sub> (4510I/4510S only)
- **Power Consumption** 1.4 W @ 24 V<sub>DC</sub>

### Communications

- **Input** RS-485 (2-wire) or RS-422 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire).
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422. (switchable)

### Environment

- **Operating Temperature**  
ADAM-4510/4510S: -10–70° C (14–158° F)  
ADAM-4510I: -40–85° C (-40–185° F)
- **Storage Temperature**  
ADAM-4510/4510S: -25–85° C (-13–185° F)  
ADAM-4510I: -40–85° C (-40–185° F)

## Specifications

### General

- **Connectors** 1 x Plug-in terminal block (#14 – 22 AWG) (RS-422, RS-485)  
1 x DB9-F (RS-232)
- **Isolation Protection** 3000 V<sub>DC</sub> (4520/4520I only)
- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>

### Communications

- **Input** RS-232 (4-wire)
- **Output** RS-485 (2-wire) or RS-422 (4-wire).
- **Speed Modes (bps)** 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422. (switchable)

### Environment

- **Operating Temperature**  
ADAM-4520/4522: -10–70° C (14–158° F)  
ADAM-4520I: -40–85° C (-40–185° F)
- **Storage Temperature**  
ADAM-4520/4522: -25–85° C (-13–185° F)  
ADAM-4520I: -40–85° C (-40–185° F)

## Specifications

### General

- **Connectors** 1 x Plug-in terminal block (#14 – 22 AWG) (RS-422, RS-485)  
1 x DB9-F (RS-232)
- **Power Consumption** 1.0 W @ 24 V<sub>DC</sub>

### Communications

- Built-in microprocessor and watchdog timer
- RS-232 and 485 can be set to different baudrates
- RS-485 surge protection and automatic RS-485 data flow control
- Software configurable to either addressable or non-addressable mode
- **Speed Modes (bps)** 300, 600, 1200, 2400, 4800, 9600, 19.2 k, 38.4 k, 57.6 k, 115.2 k (software configurable)

### Environment

- **Operating Temperature** -10–70° C (14–158° F)
- **Storage Temperature** -25–85° C (-13–185° F)

## Common Specifications

### General

- **Dimensions (WxHxD)** 70 x 122 x 30 mm
- **Enclosure** ABS + PC
- **Mounting** DIN 35 rail, stack, wall
- **Power Input** Unregulated 10–30 V<sub>DC</sub> w/power reversal protection

### Environment

- **Humidity** 5 – 95% RH

## Ordering Information

- **ADAM-4510** RS-422/RS-485 Repeater
- **ADAM-4510S** Isolated RS-422/RS-485 Repeater
- **ADAM-4510I** Robust Isolated RS-422/485 Repeater
- **ADAM-4520** Isolated RS-232 to RS-422/RS-485 Converter
- **ADAM-4520I** Robust Isolated RS-232 to RS-422/485 Converter
- **ADAM-4522** RS-232 to RS-422/485 Converter
- **ADAM-4521** Addressable RS-422/485 to RS-232 Converter

**По вопросам продаж и поддержки обращайтесь:**

Архангельск (8182)63-90-72  
Астана +7(7172)727-132  
Белгород (4722)40-23-64  
Брянск (4832)59-03-52  
Владивосток (423)249-28-31  
Волгоград (844)278-03-48  
Вологда (8172)26-41-59  
Воронеж (473)204-51-73  
Екатеринбург (343)384-55-89  
Иваново (4932)77-34-06  
Ижевск (3412)26-03-58  
Казань (843)206-01-48

Калининград (4012)72-03-81  
Калуга (4842)92-23-67  
Кемерово (3842)65-04-62  
Киров (8332)68-02-04  
Краснодар (861)203-40-90  
Красноярск (391)204-63-61  
Курск (4712)77-13-04  
Липецк (4742)52-20-81  
Магнитогорск (3519)55-03-13  
Москва (495)268-04-70  
Мурманск (8152)59-64-93  
Набережные Челны (8552)20-53-41

Нижний Новгород (831)429-08-12  
Новокузнецк (3843)20-46-81  
Новосибирск (383)227-86-73  
Орел (4862)44-53-42  
Оренбург (3532)37-68-04  
Пенза (8412)22-31-16  
Пермь (342)205-81-47  
Ростов-на-Дону (863)308-18-15  
Рязань (4912)46-61-64  
Самара (846)206-03-16  
Санкт-Петербург (812)309-46-40  
Саратов (845)249-38-78

Смоленск (4812)29-41-54  
Сочи (862)225-72-31  
Ставрополь (8652)20-65-13  
Тверь (4822)63-31-35  
Томск (3822)98-41-53  
Тула (4872)74-02-29  
Тюмень (3452)66-21-18  
Ульяновск (8422)24-23-59  
Уфа (347)229-48-12  
Челябинск (351)202-03-61  
Череповец (8202)49-02-64  
Ярославль (4852)69-52-93