

# ADAM-4118

# ADAM-4150

# ADAM-4168

**Robust 8-ch Thermocouple Input Module with Modbus**

**Robust 15-ch Digital I/O Module with Modbus**

**Robust 8-ch Relay Output Module with Modbus**



ADAM-4118



ADAM-4150



ADAM-4168



## Specifications

### General

- **Certification** FCC, CE
- **Power Consumption** 0.5W @ 24 V<sub>DC</sub>

### Analog Input

- **Channels** 8 differential and independent configuration channels
- **Input Impedance** 20 M $\Omega$
- **Input Type** T/C, mV, V, mA
- **Input Range** Thermocouple

|          |              |          |               |
|----------|--------------|----------|---------------|
| <b>J</b> | 0 ~ 760°C    | <b>R</b> | 500 ~ 1,750°C |
| <b>K</b> | 0 ~ 1,370°C  | <b>S</b> | 500 ~ 1,750°C |
| <b>T</b> | -100 ~ 400°C | <b>B</b> | 500 ~ 1,800°C |
| <b>E</b> | 0 ~ 1,000°C  | <b>N</b> | -200 ~ 1300°C |

Voltage mode 0~15 mV, 0~50 mV, 0~100 mV, 0~500 mV, 0~1 V, 0~2.5 V,  $\pm 15$  mV,  $\pm 50$  mV,  $\pm 100$  mV,  $\pm 500$  mV,  $\pm 1$  V,  $\pm 2.5$  V

Current mode 0~20mA,  $\pm 20$  mA, 4~20 mA

- **Accuracy** Voltage mode:  $\pm 0.1\%$  or better  
Current mode:  $\pm 0.2\%$  or better
- **Resolution** 16-bit
- **Sampling Rate** 10/100 samples/sec (selected by Utility)
- **CMR @ 50/60 Hz** 92 dB
- **Overvoltage Protection**  $\pm 60$  V<sub>DC</sub>
- **High Common Mode** 200 V<sub>DC</sub>
- **Span Drift**  $\pm 25$  ppm/°C (Typical)
- **Zero Drift**  $\pm 6\mu$ V/°C
- **Built-in TVS/ESD Protection**
- **Burnout Detection**

## Common Specifications

### General

- **Power Input** Unregulated 10 ~ 48 V<sub>DC</sub>
- **Watchdog Timer** System (1.6 second) & Communication
- **Connector** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Isolation Voltage** 3,000 V<sub>DC</sub>
- **Interface (B version)** RS-485, micro USB

### General

- **Certification** FCC, CE
- **Power Consumption** 1.6 W @ 24 V<sub>DC</sub>

### Digital Input

- **Channels** 7
  - **Input Level** Dry contact: Logic level 0: Close to GND  
Logic level 1: Open  
Wet contact: Logic level 0: 3 V max  
Logic level 1: 10 ~ 30 V
- (Note: The Digital Input Level 0 and 1 status can be inverted)

- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Supports 3 kHz Frequency Input**
- **Supports Invert DI Status**
- **Over Voltage Protection** 40 V<sub>DC</sub>

### Digital Output

- **Channels** 8, open collector to 40 V (0.1A max. per channel)
- **Power Dissipation** 1W load max
- **RON Maximum** 150 m $\Omega$
- **Supports 1 kHz Pulse Output**
- **Supports High-to-Low Delay Output**
- **Supports Low-to-High Delay Output**

## Specifications

### General

- **Certification** FCC, CE
- **Power Consumption** 2.3 W @ 24 V<sub>DC</sub>

### Relay Output

- **Output Channels** 8 Form A
- **Contact Rating (Resistive)** 0.5 A @ 120 V<sub>AC</sub>  
0.25 A @ 240 V<sub>AC</sub>  
1 A @ 30 V<sub>DC</sub>  
0.3 A @ 110 V<sub>DC</sub>
- **Breakdown Voltage** 750 V<sub>AC</sub> (50/60 Hz)
- **Initial Insulation Resistance** 1 G  $\Omega$  min. @ 500 V<sub>DC</sub>
- **Relay Response Time (Typical)** On:4ms  
Off:4ms
- **Total Switching Time (Typical)** 10 ms
- **Supports 100 Hz pulse output**
- **Maximum Operating Speed** 50 operations/min (at related load)

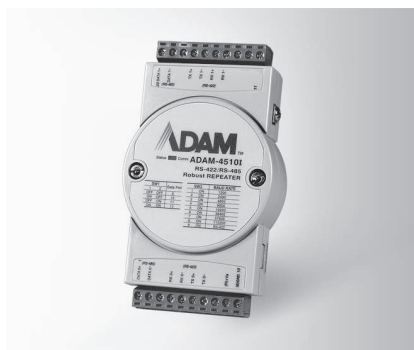
## Ordering Information

- **ADAM-4118-C** Robust 8-ch Thermocouple Input Module w/ Modbus
- **ADAM-4150-C** Robust 15-ch Digital I/O Module with Modbus
- **ADAM-4168-C** Robust 8-ch Relay Output Module with Modbus

# ADAM-4510I ADAM-4520I ADAM-4117

## Robust RS-422/485 Repeater

## Robust RS-232 to RS-422/485 Converter Robust 8-ch Analog Input Module with Modbus



ADAM-4510I



ADAM-4520I



ADAM-4117



## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Power Consumption** 1.4 W @ 24 V<sub>DC</sub>
- **Certification** FCC, CE, UL, UL C1D2

### Communications

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

## Specifications

### General

- **Connectors** 1 x plug-in terminal block (#14 ~ 22 AWG) (RS-422/485)  
1 x DB9-F (RS-232)
- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>
- **Certification** FCC, CE, UL, UL C1D2

### Communications

- **Input** RS-232 (DB9)
- **Output** RS-485 (2-wire) or RS-422 (4-wire)
- **Speed Modes (bps)** 1,200, 2,400, 4,800, 9,600, 19.2 k, 38.4 k, 57.6 k, 115.2 k, RTS control and RS-422 (switchable)
- **Supports Auto Baud-Rate**

## Specifications

### General

- **Connectors** 2 x plug-in terminal blocks (#14 ~ 22 AWG)
- **Watchdog Timer** System (1.6 second) & Communication
- **Supported Protocols** ASCII Command and Modbus/RTU
- **Power Consumption** 1.2 W @ 24 V<sub>DC</sub>
- **Interface (B version)** RS-485, micro USB
- **Certification** FCC, CE

### Analog Input

- **Channels** 8 differential and independent configuration channels
- **Input Impedance** 20 MΩ
- **Input Type** mV, V, 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, 0 ~ 20 mA, 4 ~ 20mA
- **Accuracy** Voltage mode : ±0.1% or better  
Current mode : ±0.2% or better
- **Resolution** 16-bit
- **Sampling Rate** 10/100 samples/sec (selected by utility)
- **CMR @ 50/60 Hz** 92 dB
- **Over Voltage Protection** ±60 V<sub>DC</sub>
- **High Common Mode** 200 V<sub>DC</sub>
- **Span Drift** ±25 ppm/°C (Typical)
- **Zero Drift** ±6μV/°C
- **Built-in TVS/ESD Protection**

## Common Specifications

### General

- **Power Input** Unregulated 10 ~ 48 V<sub>DC</sub> w/power reversal protection
- **Isolation Voltage** 3,000 V<sub>DC</sub>

### Environment

- **Operating Humidity** 5 ~ 95% RH
- **Operating Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Storage Temperature** -40 ~ 85°C (-40 ~ 185°F)
- **Supports Noise Rejection**

## Ordering Information

- **ADAM-4510I-AE** Robust RS-422/485 Repeater
- **ADAM-4520I-AE** Robust RS-232 to RS-422/485 Converter
- **ADAM-4117-C** Robust 8-ch Analog Input Module with Modbus