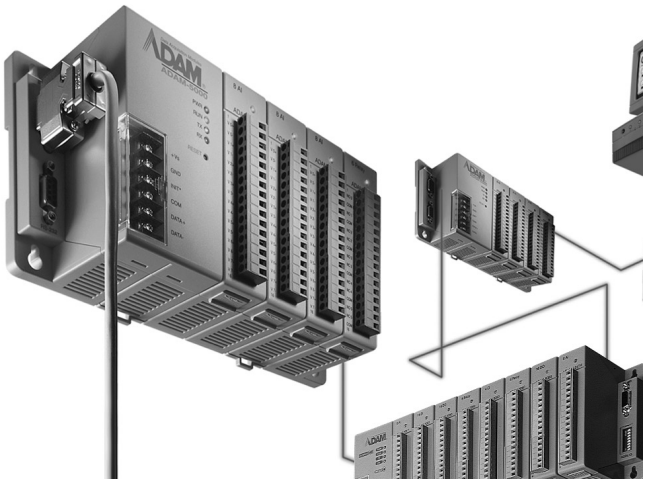
ADAM-5000/485

Distributed DA&C System Based on RS-485



Features

- RS-485 Communication for easy installation and networking
- 4 or 8 slots for up to 128 points data monitoning card control in one module
- Extensive Software support, inclucles windows DLL drivers, OCX drivers, OPC server and popular HMI/SCAPA Software driver.
- Seamlessly inteqrated with easy-to-use ADAMView data acquisition Software.

Introduction

The ADAM-5000/485 and ADAM-5000E systems use the EIA RS-485 communication protocol. This is the industry's most widely used, balanced, bidirectional transmission line standard. The RS-485 was specifically developed for industrial applications to transmit and receive data at high rates over long distances.

Processor

- **CPU** 16-bit microprocessor
- **I/O module capacity** 4 or 8
- **Watchdog Timer** Yes
- **Power Consumption** 1.0 W (ADAM-5000/485)
  4.0 W (ADAM-5000E)

Isolation

- **Communication Isolation** 2500 V_{DC} (ADAM-5000/485)
  3000 V_{DC} (ADAM-5000E)
- **Communication Power Isolation** 3000 V_{DC}
- **I/O Module Isolation** 3000 V_{DC}

Diagnosis

- **Status Display** Power, CPU, communication
- **Self-test** Yes, while on
- **Software Diagnosis** Yes

Communication

- **Network** RS-232 or RS-485 (2-wire) to host
- **Speeds (bps)** 1200, 2400, 4800, 9600, 19.2 K, 38.4 K, 57.6 K, and 115.2 Kbps
- **Max. Communication Distance** 4000 feet (1.2 km)
- **Command Format** ASCII command/response protocol
- **Reliability Check** Communication error checking with checksum
- **Asynchronous Data Format** 1 start bit, 8 data bits, 1 stop bit, no parity
- **Maximum Nodes** Up to 256 multi-drop systems per host serial port
- **Protection** Transient suppression on RS-485 communication lines

Power Requirements

- **Unregulated +10 to +30 V_{DC}**
- **Protected against Power Reversal**
- **Power Protection** Transient suppression on power input

Mechanical

- **Case** KJW with captive mounting hardware
- **Plug-in Screw Terminal Block** Accepts 0.5 mm^2 to 2.5 mm^2, 1 - #12 or 2 - #14 to #22 AWG

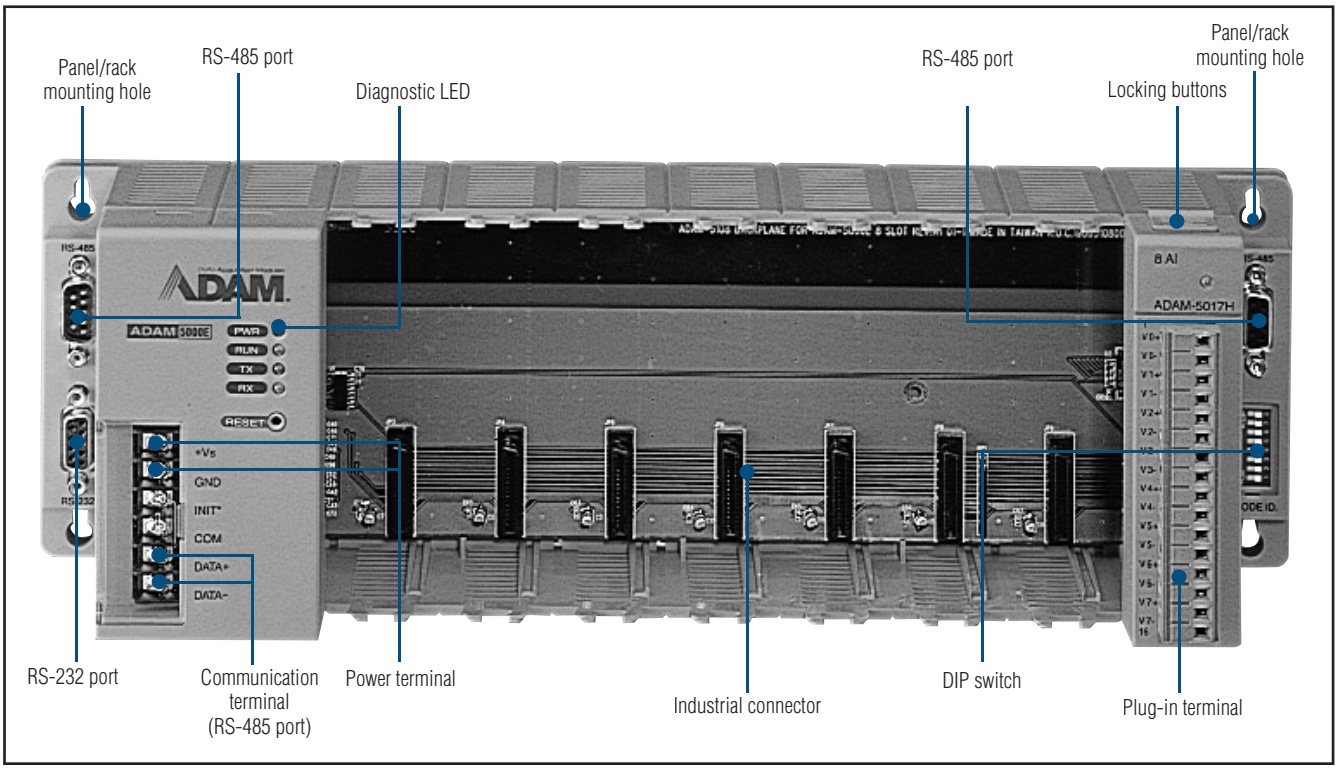
Environment

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

Ordering Information

- **ADAM-5000/485** Distributed DA&C System Based on RS-485 (4 slot)
- **ADAM-5000E** Distributed DA&C System Based on RS-485 (8 slot)
- **PCLS-OPC/ADM** OPC Server for ADAM-4000/5000 Series (RS-485)
- **PCLS-OCX** ActiveX Control for Data Acquisition and Control
- **PCLS-ADAMView-W32** ADAMView Data Acquisition Software

All product specifications are subject to change without notice.



Feature Details

Two-wire Communication

The ADAM-5000/485 and ADAM-5000E systems use a single twisted pair of wires to transmit and receive data. Special circuitry ensures clean, reliable communication and suppresses communication line noise. This reduces overall network cost by simplifying installation and minimizing the number of cables, connectors, communication repeaters and filters required.

Surge Protection

High speed transient suppressors protect the system from dangerous voltage surges or power spikes.

Network Expansion

The ADAM-4510 repeater simply amplifies or boosts existing signals, enabling them to travel over longer distances.

Each repeater allows you to add up to 32 ADAM-5000 units to your network, extending the network by another 4000 feet (1.2 km). Up to 256 ADAM-5000/485, ADAM-5000E units can be connected to a single RS-485 network.

RS-232 to RS-485 Conversion

RS-232 serial ports are standard with most industrial computer systems. Though widely accepted, RS-232 has limited transmission speed, range and networking capabilities. The RS-485 standard overcomes these limitations by using differential voltage lines for data and control signals.

The ADAM-4520's isolated converter lets you take advantage of an RS-485 on an RS-232 system by converting RS-232 signals to RS-485 signals. Software written for half-duplex RS-232 may also be used without modification.

The ADAM-4520 helps you build an industrial grade, long distance communication system with standard PC hardware.

Intelligent RS-485 Data Flow Control

The RS-485 communication protocol will support half-duplex communication. Only two wires are needed for transmitting and receiving data. Handshaking signals such as RTS (Request to Send) normally control the direction of the data flow. A special I/O circuit in the ADAM-4510 and ADAM-4520 senses the data flow direction and automatically switches the transmission direction, making handshaking signals unnecessary. The RS-485 bus control is completely transparent to the user.

Built-in RS-232 Communication

ADAM-5000/485 and ADAM-5000E systems provide up to 64/128 I/O points and an RS-232 port. A host PC can be locally connected to the system to control and monitor simple applications, thereby facilitating local troubleshooting.

ASCII-based Protocol

ADAM-5000 commands are issued in printable ASCII-based format. ADAM applications can be written in any high-level language that supports ASCII string functions, such as C, Pascal or BASIC. ASCII support means you can use virtually any computer to manage your ADAM network.

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