ADAM-4500

PC-based Communication Controller

Introduction

The ADAM-4500 is a fully functional stand-alone controller for industrial automation and control. It provides an ideal environment for producing compatible PC hardware with a minimal amount of development effort. Its built-in ROM-DOS lets the 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 / RS-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 COM 2 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 an accurate time recording while the system operates. The watchdog timer is designed to automatically reset the CPU when the system fails.

Applications

- Embedded control applications
- Distributed data acquisition and control
- Laboratory data collection and process control
- Production monitoring and control

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 115.2k baud rate
- 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_{DC}
- Program download cable and utility included

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
- **Watch dog timer:** Yes
- **COM1:** RS-232/RS-485
- **COM2:** RS-485
- **Program download port(RS-232):** Tx, Rx, GND
- **Power:** Unregulated 10 to 30 V_{DC}
- **Power consumption:** 2.0 W
- **Operating temperature:** -10 to 70° C (14 to 158° F)
- **Case:** ABS with captive mounting hardware
- **Plug-in screw terminal block:** accepts 0.5 mm to 2.5 mm 1-#12 or 2-#14 ~ #22 AWG
- **Dimension:** 60 mm x 120 mm (2.36" x 4.41")

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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:** 50 feet (15.2 meters)

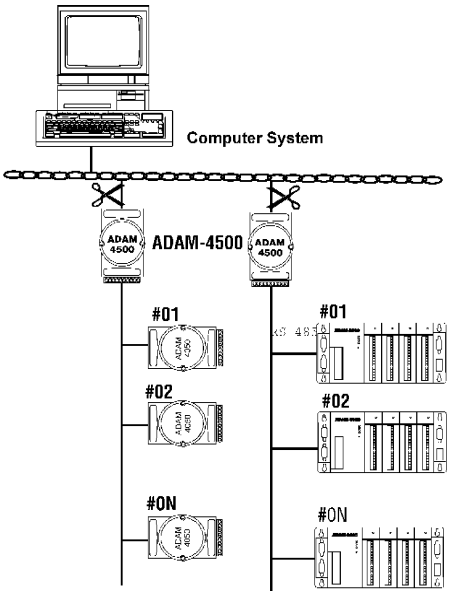
RS-485 interface

- **Signals:** DATA+, DATA-, GND
- **Mode:** Half duplex, multi-drop
- **Transmission speed:** up to 115.2 kbps
- **Max transmission distance:** 4000 feet (1220 meters)

Software

The ADAM-4500 module provides 170 KB ROM for user application downloading 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.

System Configuration



Ordering Information

❑ **ADAM-4500:** PC-based Communication Controller

Setup Procedures of Standalone Control Applications

Step 1: Review the system requirements

Step 2: Write the application program on a PC

Step 3: Convert to 80188 compatible code and download to ADAM-4500

Step 4: Power on the standalone control system