# ADAM-5000/TCP

## Distributed DA&C System Based on Ethernet

CE FCC

## Features

- ARM 32-bit RISC CPU
- 10/100Base-T auto-negotiation high-speed communication port
- Supports Modbus/TCP for easy integration
- Supports UDP event handling function
- Up to 100 m communication distance w/o repeater
- Allows remote configuration via Ethernet
- Allows concurrent access for 8 host PCs
- 8 I/O slots for up to 128 points data monitoring and control.
- 1500 $V_{DC}$ isolation for Ethernet communication
- Built-in watchdog timer for system auto-reset.
- Windows utility
  - I/O modules configuration and calibration
  - Network auto searching
  - Data stream setting
  - Current status monitoring and alarm trigger
- Provides ActiveX drivers to develop applications

## Introduction

ADAM-5000/TCP is an Ethernet-based I/O system. Without a repeater, ADAM-5000/TCP can cover a communication distance up to 100 m. This allows remote configuration via Ethernet and 8 PCs can simultaneously access the data. The ADAM-5000/TCP is a solution for easy configuration and efficient management, an ideal and cost-effective solution for eAutomation architecture.

## Specifications

- **CPU** 32-bit RISC CPU
- **Memory** 4 MB RAM<br>512 KB flash ROM
- **Operating System** Real-time OS
- **I/O Capacity** 8 slots
- **Status Indicator** Power (3.3 V, 5 V), CPU, communication (Link, Active, 10/100 Mbps, Tx, Rx)
- **CPU Power Consumption** 5.0 W
- **Reset Push Button** Yes

### Isolation

- **Ethernet Comm.** 1500 $V_{DC}$
- **I/O Module** 3000 $V_{DC}$
- **Comm. Power** 3000 $V_{DC}$

### Diagnostic

- **Power-up Self Test** Hardware and software

### Ethernet Network

- **Interface** 10/100Base T
- **Wiring** UTP, category 5 or greater
- **Bus Connection** RJ45 modular jack
- **Comm. Protocol** Modbus/TCP, TCP, UDP, IP, ARP
- **Data Transfer Rate** Up to 100 Mbps
- **Max. Communication Distance** 100 meters w/o repeater
- **Even Response Time** < 5 ms

### Mechanical

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

### Serial Network

- **Interface** RS-485
- **Comm. Protocal** Modbus/RTU
- **Max. Node** Up to 32 modes
- **Baudrate** Up to 115.2 kbps

### Power Requirements

- **Unregulated 10 to 30 $V_{DC}$**
- **Protection** Over-voltage and power reversal

### Software Support

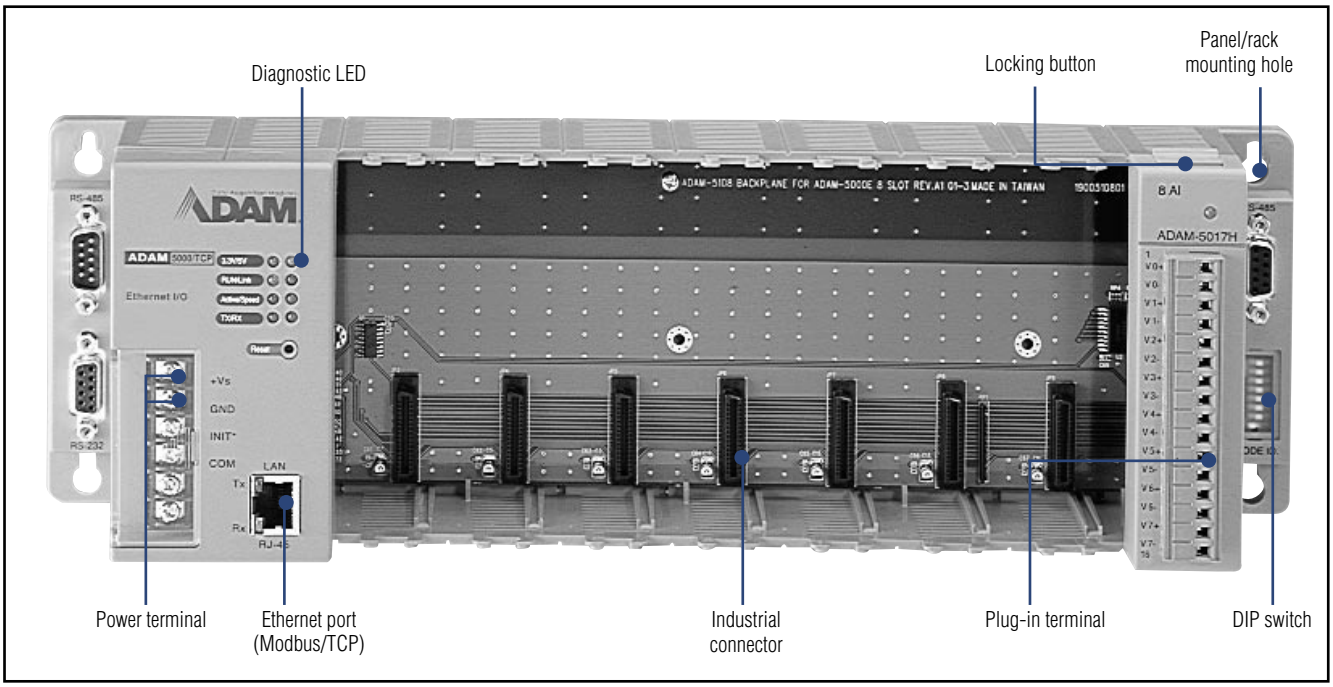
- **ActiveX Driver**
- **Windows Utility** Network setting, I/O configuration & calibration, data stream, alarm setting
- **Modbus/TCP OPC Server**

### 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/TCP** Distributed DA&C System Based on Ethernet (8 slot)
- **PCLS-ADAMVIEW32** ADAMView Data Acquisition Software




# Feature Details

### Communication Network

With a 32-bit RISC CPU, ADAM-5000/TCP greatly enhances data processing performance and ability, especially in network communication. There is a standard RJ-45 modular jack Ethernet port on the ADAM-5000/TCP's CPU board, and the field I/O modules are able to link to an Ethernet network directly without any other converter or data gateway. The communication speed can be auto-switched between 10 Mbps and 100 Mbps data transfer rates, depending on the network environment. In addition, ADAM-5000/TCP can be used as an Ethernet data gateway. It provides an RS-485 interface to integrate serial devices supporting the Modbus/RTU protocol.

### Modbus/TCP Protocol

Modbus/TCP is one of the most popular standards used for industrial Ethernet networks. Using this communication protocol, ADAM-5000/TCP is easy to integrate with any HMI software packages or user-developed applications which support Modbus. Users do not have to prepare a specific driver for the ADAM-5000/TCP when they install the DA&C system with their own operating application. It reduces required engineering efforts. Moreover, the ADAM-5000/TCP works as a Modbus data server as well. It allows eight PCs or tasks to access its current data simultaneously, no matter if they connect from LAN, an intranet, or the Internet.

### Hardware Capacity & Diagnostics

ADAM-5000/TCP is designed with high I/O capacity and supports all types of ADAM-5000 I/O modules. Providing 8 slots for any mixed modules, this DA&C system handles up to 128 I/O points (only four ADAM-5024s allowed). Different from other main units, the ADAM-5000/TCP has not only higher I/O capacity, but also smarter diagnostics ability. There are eight indicators on the front case of the CPU module. Users can read the system status clearly, which includes power, CPU, Ethernet link, communication active, communication rate, etc. In addition, there are also Tx and Rx LEDs on the Ethernet port, indicating data sending and receiving.

### Event Handing & Data Streaming

Though TCP/IP is the standard communication protocol for Ethernet, data transmission management is still a bottleneck when many clients are on the network at the same time. Therefore, the ADAM-5000/TCP also supports the UDP protocol to deal with regular data stream broadcasting and event/alarm triggering. These functions will upgrade your system with intelligence and performance.

### Isolated Communication

High speed transient suppressors isolate the ADAM-5000/TCP Ethernet port from dangerous voltage up to 1500 $V_{DC}$ power spikes and avoid surge damage to the whole system.