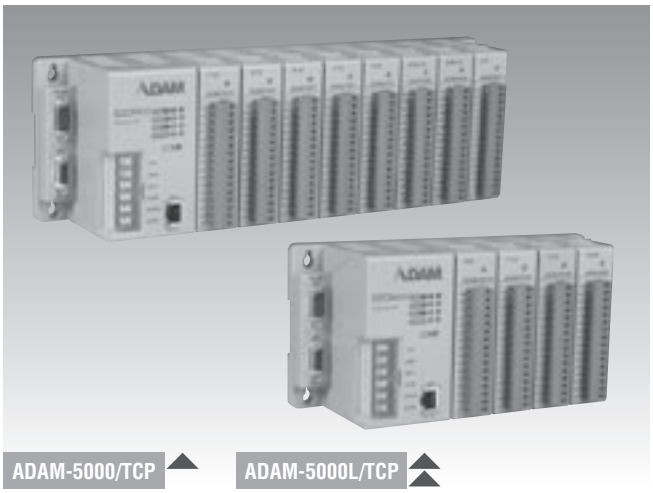
ADAM-5000L/TCP
4-slot Ethernet-based Distributed DA&C System

ADAM-5000/TCP
8-slot Ethernet-based Distributed DA&C System



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
- 4 I/O slots for up to 64 points and 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 .NET Class LIB to develop applications

Introduction

ADAM-5000L/TCP and ADAM-5000/TPC are both Ethernet-based I/O systems. Without a repeater, ADAM-5000L/TCP and ADAM-5000/TCP can cover a communication distance up to 100 m. This allows remote configuration via Ethernet and eight PCs can simultaneously access the data. The ADAM-5000L/TCP and ADAM-5000/TCP are the solutions for easy configuration and efficient management. An ideal and cost-effective solution for eAutomation architecture.

Specifications

Control System

- **CPU** 32-bit ARM RISC
- **I/O Slots** ADAM-5000L/TCP: 4
ADAM-5000/TCP: 8
- **Memory** Flash ROM: 512 KB
RAM: 4 MB
- **Operating System** Real-time OS
- **LED Indicators** Power (3.3 V, 5 V)
CPU
Communication (Link, Active, 10/100 Mbps, Tx, Rx)
Battery

Communications (Ethernet)

- **Comm. Distance** 100 meters w/o repeater
- **Comm. Protocol** Modbus/TCP, TCP, UDP, IP, ARP
- **Data Transfer Rate** Up to 100 Mbps
- **Event Response Time** < 5 ms
- **Interface** 1 x 10/100Base-T (RJ-45)
- **Wiring** UTP, category 5 or greater

Communications (Serial)

- **Comm. Distance** RS-485: 1.2 km (4000 feet)
RS-232: 15 m
- **Comm. Protocol** Modbus/RTU
- **Data Transfer Rate** Up to 115.2 kbps
- **Interface** 1 x DB9-M for RS-485
1 x DB9-F for RS-485
1 x DB9-F for RS-232
- **Max. Nodes** 12 (in RS-485 daisy-chain network for Remote I/O connection)

Power

- **Power Consumption** 4.0 W @ 24 Vdc (ADAM-5000L/TCP) (not including I/O modules)
5.0 W @ 24 Vdc (ADAM-5000/TCP) (not including I/O modules)
- **Power Input** Unregulated 10 ~ 30 V_{DC}

Software

- **.NET Class LIB**
- **Windows Utility** Network setting, I/O configuration & calibration, data stream, alarm setting
- **Modbus/TCP OPC Server**

Protection

- **Communication Line Isolation** 3000 V_{DC}
- **I/O Module Isolation** 3000 V_{DC}
- **LAN Communication** 1500 V_{DC}
- **Overvoltage Protection** Yes
- **Power Reversal Protection** Yes

General

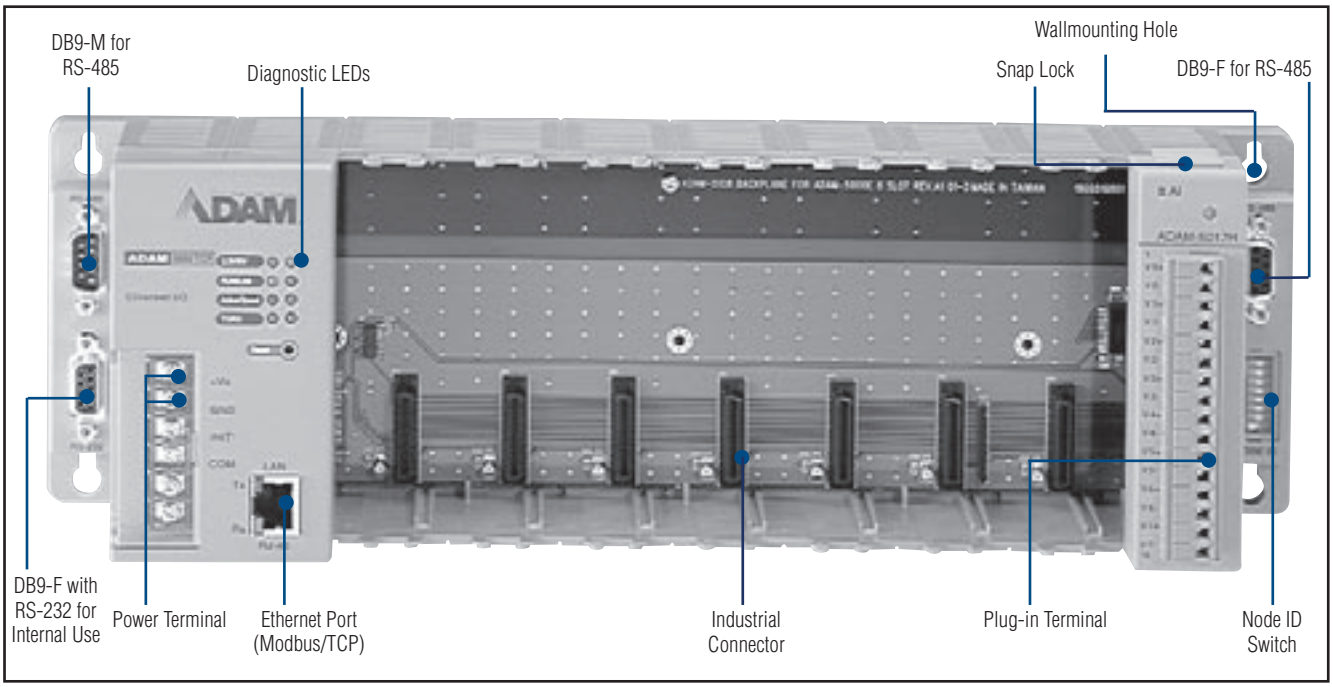
- **Certifications** CE, FCC class A
- **Connectors** 1 x DB9-M/DB9-F/screw terminal for RS-485 (communication)
1 x DB9-F for RS-232 (internal use)
1 x Screw-terminal for power input
1 x RJ-45 for LAN
- **Dimensions (W x H x D)** ADAM-5000L/TPC: 231 x 110 x 75 mm
ADAM-5000/TCP: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, wall

Environment

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

Ordering Information

- **ADAM-5000L/TCP** 4-slot Ethernet-based Distributed DA&C System
- **ADAM-5000/TCP** 8-slot Ethernet-based Distributed DA&C System



Feature Details

Communication Network

With a 32-bit RISC CPU, ADAM-5000/TCP and ADAM-5000L/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 and ADAM-5000L/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 and ADAM-5000L/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 and ADAM-5000L/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 and ADAM-5000L/TCP when they install the DA&C system with their own operating application. It reduces required engineering efforts. Moreover, ADAM-5000/TCP and ADAM-5000L/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 and ADAM-5000L/TCP is designed with high I/O capacity and supports all types of ADAM-5000 I/O modules. Providing 8/4 slots for any mixed modules, this DA&C system handles up to 8/4 modules, providing 128/64 I/O points points (only four ADAM-5024s allowed). Different from other main units, the ADAM-5000/TCP and ADAM-5000L/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 Handling & 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 and ADAM-5000L/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 and ADAM-5000L/TCP Ethernet port from dangerous voltage up to 1500 V_{DC} power spikes and avoid surge damage to the whole system.