Ethernet I/O Modules: ADAM-6000/6200/6300

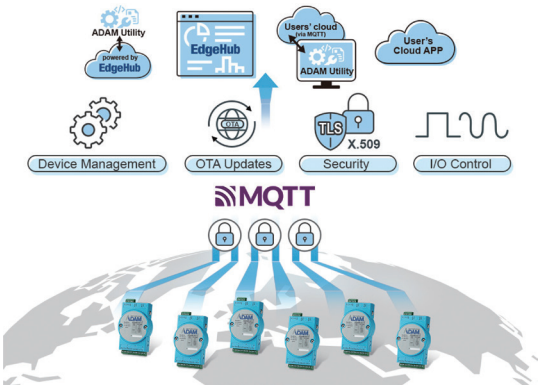
Introduction

Advantech's ADAM-6000/6200/6300 Ethernet I/O modules are easily integrated so they can remotely monitor and Cross-site Devices more flexibly.

Feature Highlights

Secure Cloud I/O

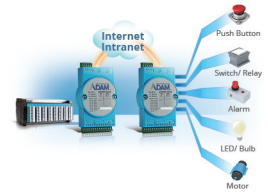
Innovative ADAM-6000/6200 Secure Cloud I/O offers device management, OTA updates, security and device monitoring functions in IoT era and help user easily manage widespread assets across diverse applications



- **Device Management:** UUID, networking setting, I/O channel configuration
- **OTA Updates:** firmware, certificate and configuration mass deployment
- **Security:** TLS, X.509 certificate, cipher suites, IP allowlisting, protocol disabled
- **I/O Control:** digital I/O on/off, analog I/O read/write, I/O value periodically updated, alarm notificatio

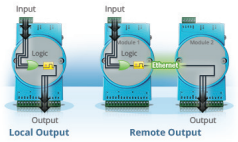
Simple and Intuitive Logic Control

ADAM-6000/6200 Peer-to-Peer (P2P) and Graphic Condition Logic (GCL) modules can perform as standalone products for measurement, control, and automation.



Peer-to-Peer (P2P) connection

- Easy channel mapping from different I/O modules without extra programming effort or additional controllers.
- Utilizes Peer-to-Peer modules, just configure settings through ADAM.NET utility.



Graphic condition logic (GCL)

- GCL function is built-in ADAM-6000 and ADAM-6200 modules for users to easily set up logic rules in any application.
- User defined logic rules through graphical configuration environment in ADAM.NET utility.
- No additional controllers or programming is needed.

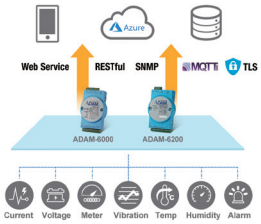
Easy Deployment and Robust Communication

Flexible deployment with daisy chain networking and auto-bypass protection

ADAM-6200/6300 series supports daisy chain connectivity that offers flexible cabling and space saving capabilities. With Ethernet auto-bypass function supported to prevent accidental power failures if one of the modules unexpectedly shuts down.

Rich IoT Protocols

The ADAM-6000/6200 series supports multiple protocols for IoT applications: MQTT, SNMP, Restful APIs, and Modbus, which are very flexible and can be easily integrated with Microsoft Azure, Database, Network and SCADA systems.



Cloud

- Support EdgeHub, Azure IoT Hub and any user's cloud.

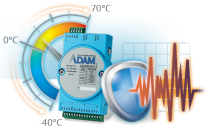
MQTT

- Actively publish MQTT messages with user defined intervals.
- Shorten downtime with agile sequence of event ("ms" resolution) and alarm notification.
- Privacy assured with the TLS (Transport Layer Security).
- User defined topic and payload to integrate existing system.

SNMP

- Simple way to monitor I/O data on NMS (Network Management System).
- SNMP trap to notify alarm events.
- Reduces implementation cost with ADAM MIB (Management Information Base) file.

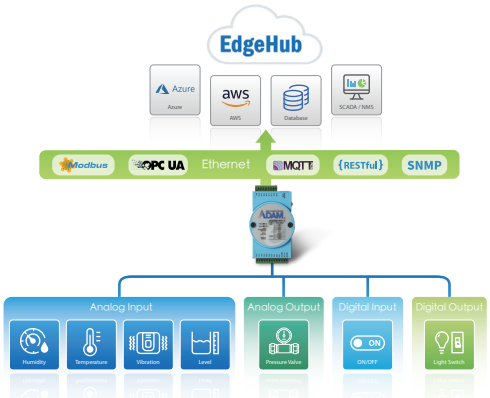
Industrial Grade with Isolation & Wide-operating Temperature



ADAM-6000/6200/6300 series has a rugged design.

- Supports isolation protection to avoid system damage from high-energy noise.
- Supports operating temperatures of between -40 ~70°C and can perform in most harsh environments.

Application Structure



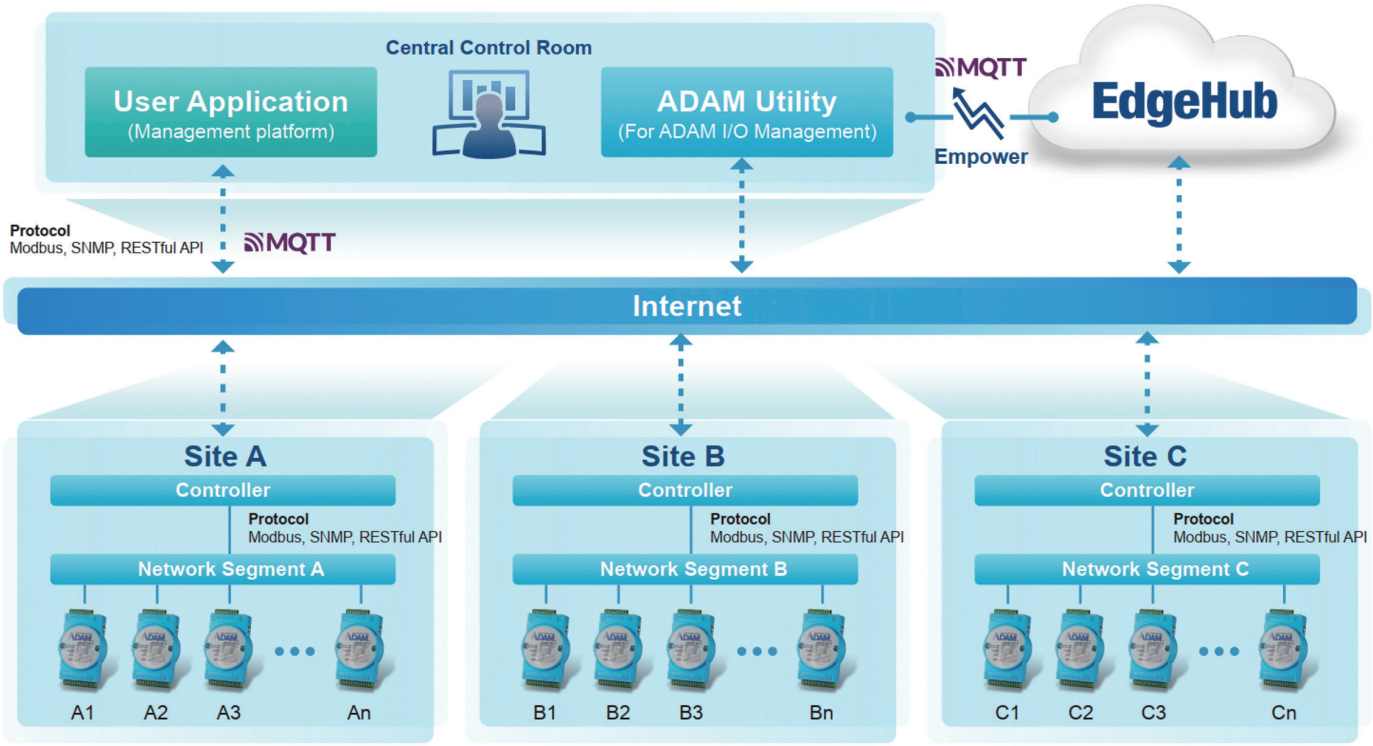
ADAM-6000/6200/6300 Series Comparison

Series Name		ADAM-6000 Series	ADAM-6200 Series	ADAM-6300 Series
Daisy-chain Connectivity		–	✓	✓
Protocol	MQTT	✓	✓	(By request)
	SNMP	✓	✓	(By request)
	Modbus	✓	✓	✓
	RESTful	✓	✓	(By request)
	OPC UA	–	–	✓
	Cloud I/O	✓	✓	(By request)

Effortless Cross-Site Management - Free to Use Now!

More information on website

EdgeHub-enabled Cross-Site Device Management Solution



Direct I/O and Centralized Configuration

- EdgeHub enables device management with remote configuration, monitoring and maintenance capabilities for Advantech devices.
- Configure and maintain ADAM devices via ADAM Utility with built-in EdgeHub and web interface.
- Monitor and control I/O in real-time
- Manage user-defined configuration profiles and apply to devices
- Update device firmware remotely through secure OTA
- Manage multiple devices in groups with batch configuration and monitoring

Configurable Data Logging and Dashboard

- Flexible data logging and visualization with selectable tag configurations and customizable dashboard.
- Configure data logging by selecting I/O tags to store
- Customize web-based dashboard to view real-time and historical data

Multi-Tenant Architecture

- Support multiple organizations with isolated environments and resource management through tenant management.
- Tenant isolation – device, data storage, network traffic, API access
- Hierarchical tenant structures with parent-child relationships for enterprise deployments
- Tenant-specific user management and authentication
- Device connection quota management per tenant

Flexible Event Notification System

- User-defined event settings with real-time notification delivery through multiple communication channels.
- Define event rules based on device I/O tags
- Configure targeted notifications with customizable groups, users, and content
- Distribute alerts through email and other supported channels
- Track event history and acknowledgement status

Enterprise-Grade Access Control

- Secure access management with role-based control (RBAC) and user account
- Define role-based access control with customized permission sets
- Control user access right to devices configurations, monitoring and operations
- Manage user accounts with hierarchical roles and granular permissions

ADAM-6217
ADAM-6224

8-ch Isolated Analog Input Modbus TCP Module

4-ch Isolated Analog Output Modbus TCP Module

ADAM-6217

ADAM-6224

Specifications

Analog Input

- **Channels** 8 (differential)
- **Input Impedance** > 10 MW (voltage)
  120 W (current)
- **Input Type** mV, V, mA
- **Input Range** ±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V, 0 ~ 20 mA, 4 ~ 20 mA, ±20 mA
- **Span Drift** ± 30 ppm/°C
- **Zero Drift** ± 6 µV/°C
- **Resolution** 16-bit
- **Accuracy** ± 0.1% of FSR (Voltage) at 25°C
  ± 0.2% of FSR (Current) at 25°C
- **Sampling Rate** 10 sample/second (total)
- **CMR @ 50/60 Hz** 92 dB
- **NMR @ 50/60 Hz** 67 dB
- **Common Mode** 200 V_{DC}

Ordering Information

- **ADAM-6217** 8-ch Isolated Analog Input Modbus TCP Module

Specifications

Analog Output

- **Channels** 4
- **Output Impedance** 2.1 Ω
- **Output Settling Time** 20 µs
- **Driving Load** Voltage: 2kΩ
  Current: 500 Ω
- **Programmable Output Slope** 0.125 ~ 128 mA/sec
  0.0625 ~ 64 V/sec
- **Output Type** V, mA
- **Output Range** 0 ~ 5 V, 0 ~ 10 V, ± 5 V, ± 10 V, 0 ~ 20 mA, 4 ~ 20 mA
- **Accuracy** ± 0.3% of FSR (Voltage) at 25°C
  ± 0.5% of FSR (Current) at 25°C
- **Resolution** 12-bit
- **Current Load Resistor** 0 ~ 500 Ω
- **Drift** ± 50 ppm/°C

Digital Input

- **Channels** 4 (Dry Contact only)
- **Dry Contact** Logic 0: Open
  Logic 1: Closed to DGND
- **Support DI Filter**
- **Support Inverted DI Status**
- **Support Trigger to Startup or Safety Value**

Ordering Information

- **ADAM-6224** 4-ch Isolated Analog Output Modbus TCP Module

Common Specifications

General

- **Ethernet** 2-port 10/100 Base-TX (for Daisy Chain)
- **Protocol** Modbus TCP, TCP/IP, UDP, HTTP, DHCP,RESTful, SNMP (B version), MQTT (B version)
- **Connector** Plug-in 5P/15P screw terminal blocks
- **Power Input** 10 - 30 V_{DC} (24 V_{DC} standard)
- **Watchdog Timer** System (1.6 seconds)
  Communication (Programmable)
- **Dimensions** 70 x 122 x 27 mm
- **Protection** Built-in TVS/ESD protection
  Power Reversal protection
  Isolation protection: 2500 V_{DC}
- **Power Consumption** ADAM-6217: 3.5W @ 24 V_{DC}
  ADAM-6224: 6W @ 24 V_{DC}

Features

- Daisy chain connection with auto-bypass protection
- Remote monitoring and control with smart phone/pad
- Group configuration capability for multiple module setup
- Flexible user-defined Modbus address
- Intelligent control ability by Peer-to-Peer and GCL function
- Multiple protocol support: Modbus TCP, TCP/IP, UDP, HTTP, DHCP, RESTful SNMP (B version), MQTT (B version)
- Web language support: XML, HTML 5, Java Script
- System configuration backup
- User Access Control

Environment

- **Operating Temperature** -10 ~ 70°C (14 ~ 158°F)
  -40 ~ 70°C (-40~158°F) (B version)
- **Storage Temperature** -20 ~ 80°C (-4 ~ 176°F)
  -40 ~ 85°C (-40~185°F) (B version)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)