# 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
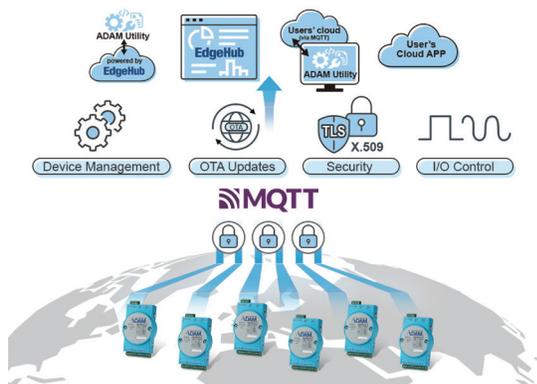
- **Device Management:** UUID, networking setting, I/O channel configuration
- **OTA Updates:** firmware, certificate and configuration mass deployment
- **Security:** TLS, X.509 certificate, cipher suites, IP allowlisting, protocol disabled
- **I/O Control:** digital I/O on/off, analog I/O read/write, 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.
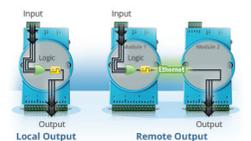
Graphic condition logic (GCL)
- GCL function is built-in ADAM-6000 and ADAM-6200 modules for users to easily set up logic rules in any application.
- User defined logic rules through graphical configuration environment in ADAM.NET utility.
- No additional controllers or programming is needed.

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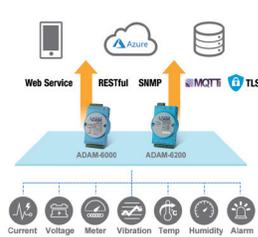
Cloud
- Support EdgeHub, Azure IoT Hub and any user's cloud.

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.

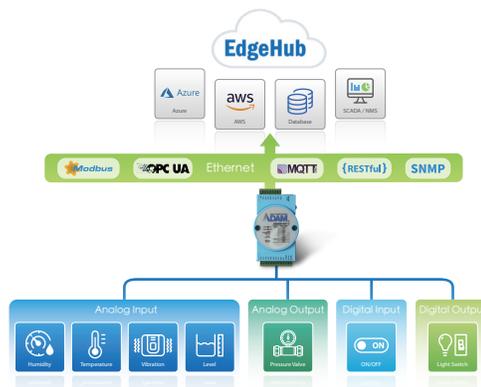### Industrial Grade with Isolation & Wide-operating Temperature

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)

EdgeHub-enabled Cross-Site Device Management Solution

Central Control Room

User Application (Management platform)

ADAM Utility (For ADAM I/O Management)

MQTT

EdgeHub

Empower

Protocol Modbus, SNMP, RESTful API **MQTT**

Internet

Site A

Controller

Protocol Modbus, SNMP, RESTful API

Network Segment A

A1 A2 A3 ... An

Site B

Controller

Protocol Modbus, SNMP, RESTful API

Network Segment B

B1 B2 B3 ... Bn

Site C

Controller

Protocol Modbus, SNMP, RESTful API

Network Segment C

C1 C2 C3 ... Cn
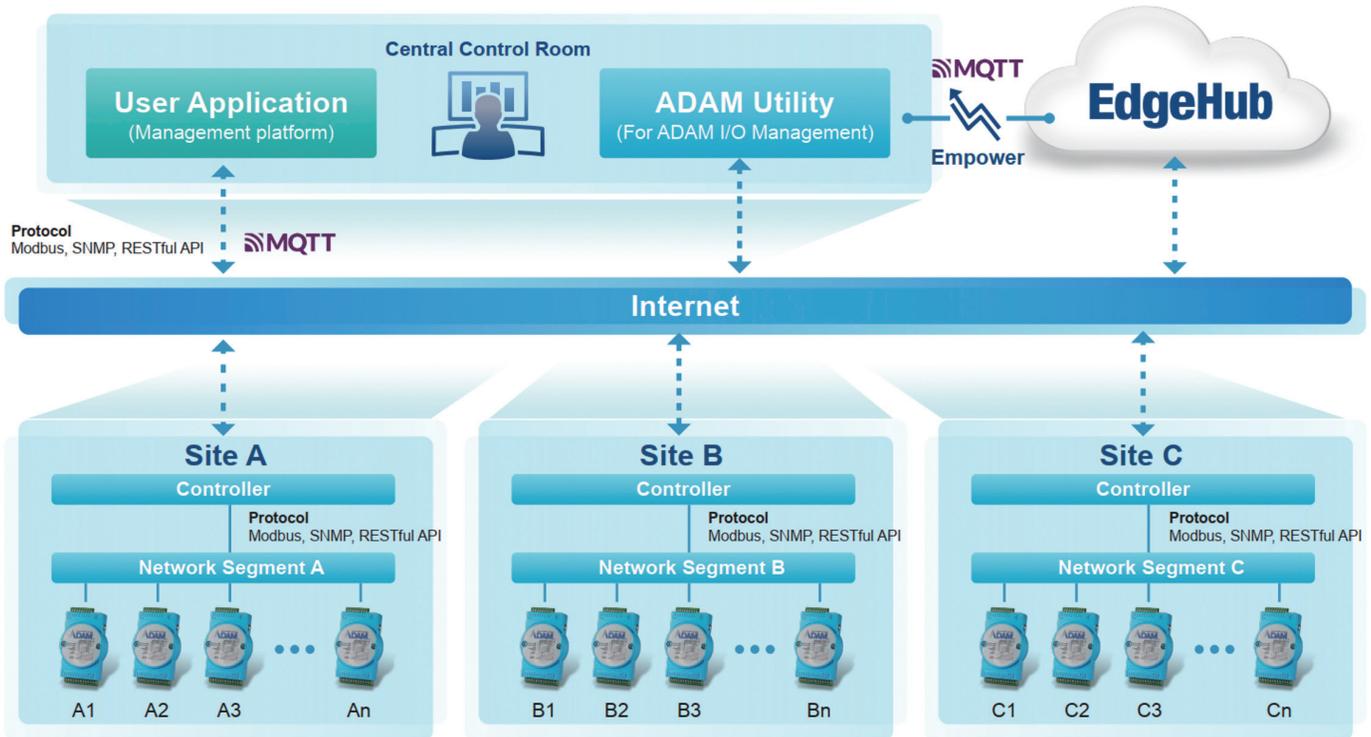
Direct I/O and Centralized Configuration

- 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-6315
IoT OPC UA Ethernet I/O - RTD Module

ADAM-6317
IoT OPC UA Ethernet I/O - AI Module

ADAM-6315

CE FC RoHS COMPLIANT 2002/95/EC

ADAM-6317

CE FC RoHS COMPLIANT 2002/95/EC

Specifications

Analog Input

- **Channels**   8 (differential)
- **Input Impedance**   > 10 MΩ
- **Input Connections**   2 or 3 wire
- **Input Type**   Pt, Balco and Ni RTD
- **RTD Types and Temperature Ranges**

  Pt 100
  - -50°C - 150°C
  - 0°C - 100°C
  - 0°C - 200°C
  - 0°C - 400°C
  - -100°C - 100°C
  - -200°C - 200°C

  *Supports both IEC 60751 ITS90 (0.00385Ω/Ω/°C) and JIS C 1604 (0.00392Ω/Ω/°C)

  - Pt 1000   -40°C - 160°C
  - Balco 500   -30°C - 120°C
  - Ni 508   0°C - 100°C
  - Ni 518   -80°C - 100°C
- **Accuracy**   ± 0.1 % or better
  High speed mode ±0.5% or better
- **Span Drift**   ± 25 ppm/°C
- **Zero Drift**   ± 6 μV/°C
- **Resolution**   16-bit
- **Sampling Rate**   Normal speed mode:10 sample/ second (total)
  High speed mode:1024 sample/second (total)
  CMR: 90 dB @ 50/60 HZ
  NMR: 60 dB @ 50/60 HZ

  * High speed mode does not support CMR/NMR
- **Wire Burnout Detection**

Digital Input

- **Channels**   6
- **Dry contact**   logic 0: Open; logic 1: Closed to ground
- **Wet contact**   logic 0: 0 ~ 3 V$_{DC}$ or floating; logic 1: 10 ~ 30 V$_{DC}$
  Support DO type: Sink (NPN) and Source (PNP)
- **DI0~DI5 support 3 kHz counter input**
- **DI0~DI5 support 3 kHz frequency input**

Digital Output

- **Channels**   8
- **Output type**   Sink type, 30 V$_{DC}$, 0.1A max. per channel
- **DO2~DO7 support 3 kHz pulse output**

Ordering Information

- **ADAM-6315-A1**   OPC UA and Security Remote I/O - RTD Module

Specifications

Analog Input

- **Channels**   8 (differential)
- **Sampling Rate**   10 or 100 samples/ second (total)
- **Resolution**   16 bits
- **Input Range**   0 ~ 150mV, 0 ~ 500mV,
  0 ~ 1V, 0 ~ 5V, 0 ~ 10V,
  ±150 mV, ±500 mV, ±1V,
  ±5 V, ±10 V, ±20 mA,
  0 ~ 20 mA, 4 ~ 20mA

Digital Input

- **Channels**   11
- **Dry contact**   logic 0: Open
  logic 1: Closed to ground
- **Wet contact**   logic 0: 0 ~ 3 V$_{DC}$ or floating
  logic 1: 10 ~ 30 V$_{DC}$
  Support DO type:
  Sink (NPN) and Source (PNP)
- **DI5~DI10 support 3 kHz counter input**
- **DI5~DI10 support 3 kHz frequency input**

Digital Output

- **Channels**   10
- **Output type**   Sink type, 30 V$_{DC}$,
  0.1A max. per channel
- **DO4~DO9 support 3 kHz pulse output**

Ordering Information

- **ADAM-6317-A1**   OPC UA and Security Remote I/O - AI Module

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Common Specifications

General

- **Power input**   10 ~ 30 V$_{DC}$
- **Power Consumption**   2.9 W @ 24 V$_{DC}$ (ADAM-6317)
  2.8 W @ 24 V$_{DC}$ (ADAM-6350)
- **LAN port**   2-port 10/100 Base-T(X) (for Daisy Chain)
- **Connectors**   2 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- **Watchdog**   System and Communication
- **Protocol**   OPC UA, Modbus

Protection

- **Isolation**   2,500 V$_{DC}$
- **Power Reversal Protection**

OPC UA

- **Max Monitored Items**   600 (A maximum of 32 ScaledValueHistory items can be included in all sessions)
- **Max Sessions**   4 (including security or non-security session)
- **Max Subscriptions per Session**   1
- **Support security/certificate management**

Modbus/TCP

- **Modbus/TCP connection**   4

Environment

- **Operating Temperature**   -25° C ~ 70° C
- **Storage Temperature**   -25° C ~ 85° C
- **Operating Humidity**   20 ~ 95% RH (non-condensing)
- **Storage Humidity**   0 ~ 95% RH (non-condensing)