

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

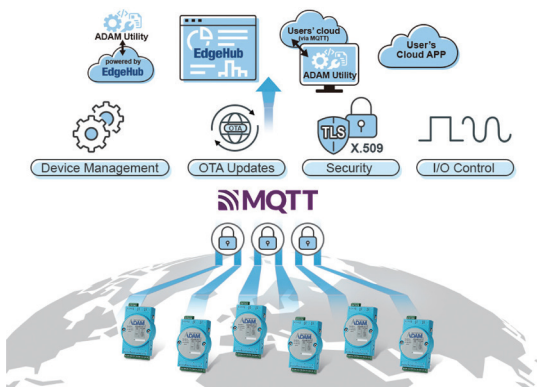
Introduction

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

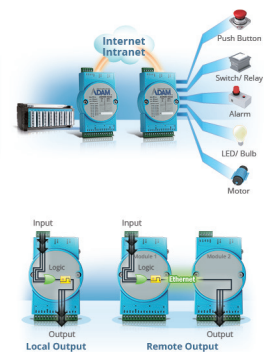
Innovative ADAM-6000/6200 Secure Cloud I/O offers device management, OTA updates, security and device monitoring functions in IoT era and help user easily manage widespread assets across diverse applications



- **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 notification

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

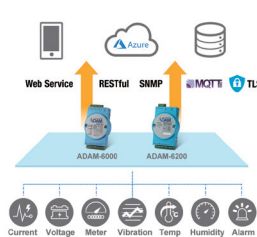


Flexible deployment with daisy chain networking and auto-bypass protection

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

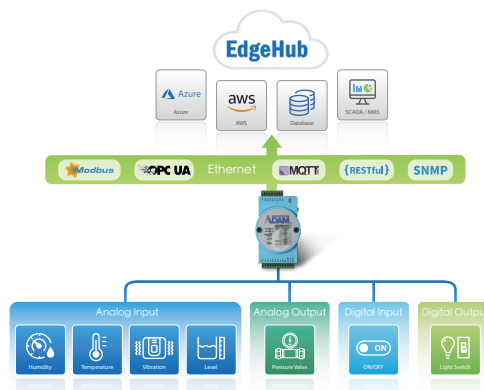
Temperature



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.

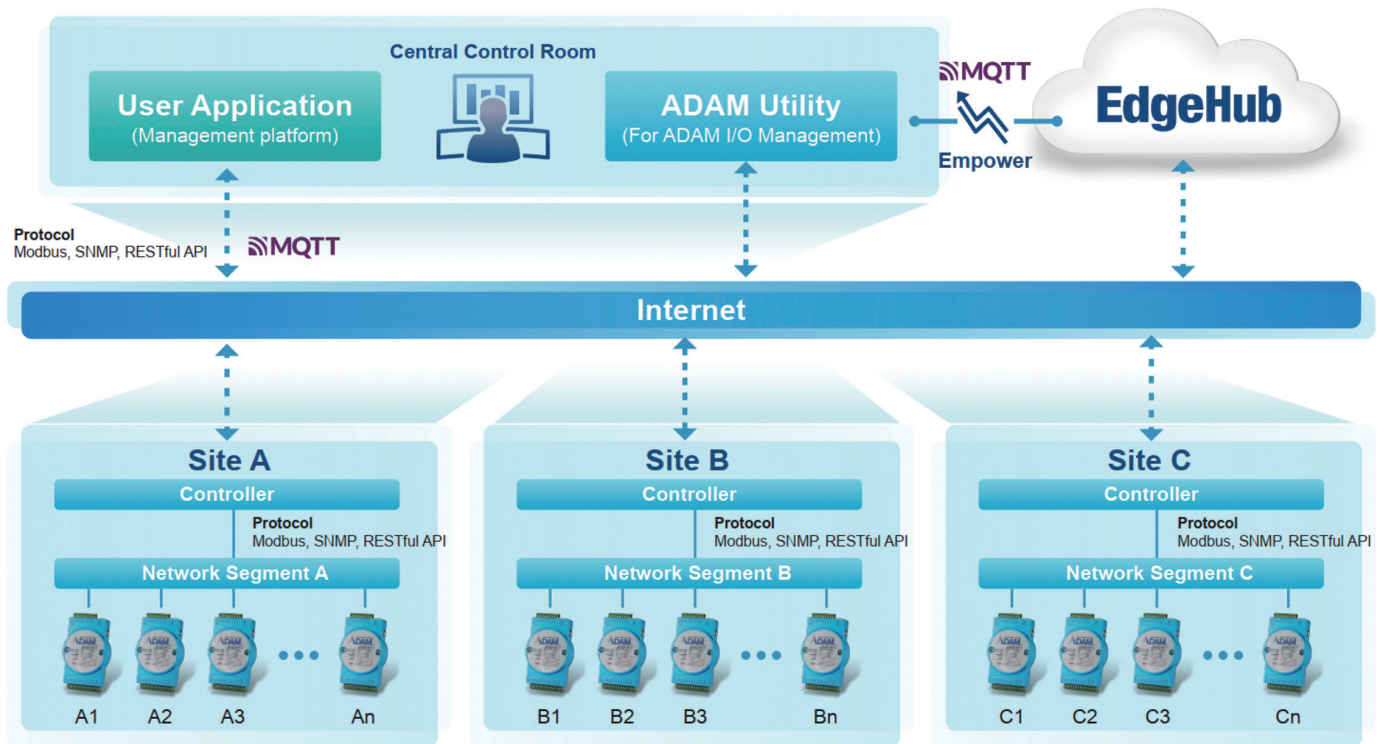
Application Structure



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)

More information on website



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-6022

ADAM-6024

Ethernet-based Dual-loop PID Controller

12-ch Isolated Universal Input/Output

Modbus TCP Module



ADAM-6022



Specifications

General

- Loop Number 2 (3 AI, 1 AO, 1 DI, 1 DO for each control loop)

Analog Input

- Channels 6 (differential)
- Input Range $\pm 10 V_{DC}$, 0 ~ 20 mA, 4 ~ 20 mA

Analog Output

- Channels 2
- Output Type V, mA
- Output Range 0 ~ 10 V_{DC} , 4 ~ 20 mA, 0 ~ 20 mA

Digital Input

- Channels 2
- Dry Contact Logic level 0: close to GND
Logic level 1: open
Logic level 0: 0 ~ 3 V_{DC}
Logic level 1: 10 ~ 30 V_{DC}
- Wet Contact

Digital Output

- Channels 2, open collector to 30 V, 100 mA max. load
- Power Dissipation 300 mW for each module

Ordering Information

- ADAM-6022 Ethernet-based Dual-loop PID Controller



ADAM-6024



Specifications

Analog Input

- Channels 6 (differential)
- Input Range $\pm 10 V_{DC}$, 0 ~ 20 mA, 4 ~ 20 mA

Analog Output

- Channels 2
- Output Type V, mA
- Output Range 0 ~ 10 V_{DC} , 4 ~ 20 mA, 0 ~ 20 mA

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Digital Output

- Channels 2, open collector to 30 V, 100 mA max. load
- Power Dissipation 300 mW for each module

Supports

- Peer-to-Peer (Receiver only)
- GCL (Receiver only)

Ordering Information

- ADAM-6024 12-ch Isolated Universal I/O Modbus TCP Module

Common Specifications

General

- Certification CE, FCC, UL
- LAN 10/100Base-T(X)
- Power Consumption 4 W @ 24 V_{DC}
- Connectors 1 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)
- Watchdog System (1.6 second) and Communication (programmable)
- Power Input 10 ~ 30 V_{DC}
- Supports Modbus/TCP, TCP/IP, UDP, RESTful (D version), MQTT (D version), SNMP (D version)

Analog Input

- Input Impedance 20 M Ω
- Accuracy $\pm 0.1\%$ of FSR
- Resolution 16-bit
- Sampling Rate 10 sample/second
- CMR @ 50/60 Hz 90 dB
- NMR @ 50/60 Hz 60 dB
- Span Drift ± 25 ppm/ $^{\circ}$ C
- Zero Drift ± 6 μ V/ $^{\circ}$ C

Analog Output

- Accuracy $\pm 0.1\%$ of FSR
- Resolution 12-bit
- Drift ± 50 ppm/ $^{\circ}$ C
- Current Load Resistor Max. 500 Ω
- Voltage Load Resistor Min. 1K Ω

Protection

- Isolation Protection 2,000 V_{DC}
- Built-in TVS/ESD Protection
- DI Over Voltage Protection 35 V_{DC}
- Power Reversal Protection

Environment

- Operating Temperature -10 ~ 50 $^{\circ}$ C (14 ~ 122 $^{\circ}$ F)
D version: -40 ~ 70 $^{\circ}$ C (-40~158 $^{\circ}$ F)
- Storage Temperature -20 ~ 80 $^{\circ}$ C (-4 ~ 176 $^{\circ}$ F)
D version: -40 ~ 80 $^{\circ}$ C (-40~176 $^{\circ}$ F)
- Operating Humidity 20 ~ 95% RH (non-condensing)
- Storage Humidity 0 ~ 95% RH (non-condensing)