# 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
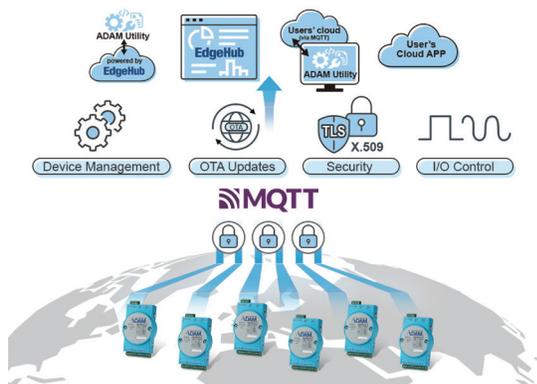
- **Device Management:** UUID, networking setting, I/O channel configuration
- **OTA Updates:** firmware, certificate and configuration mass deployment
- **Security:** TLS, X.509 certificate, cipher suites, IP allowlisting, protocol disabled
- **I/O Control:** digital I/O on/off, analog I/O read/write, 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.
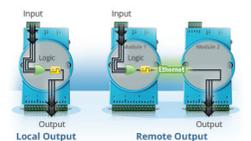
Graphic condition logic (GCL)

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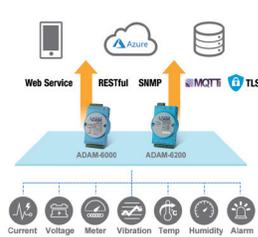
Cloud
- Support EdgeHub, Azure IoT Hub and any user's cloud.

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
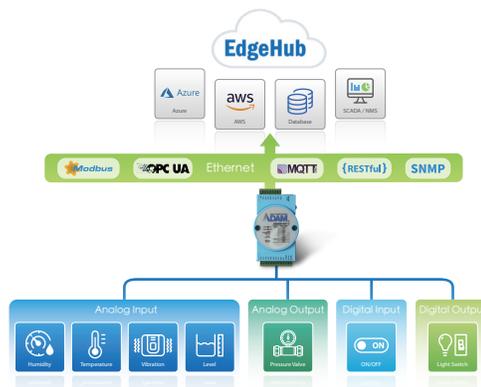
ADAM-6000/6200/6300 Series Comparison

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 Empower

EdgeHub

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
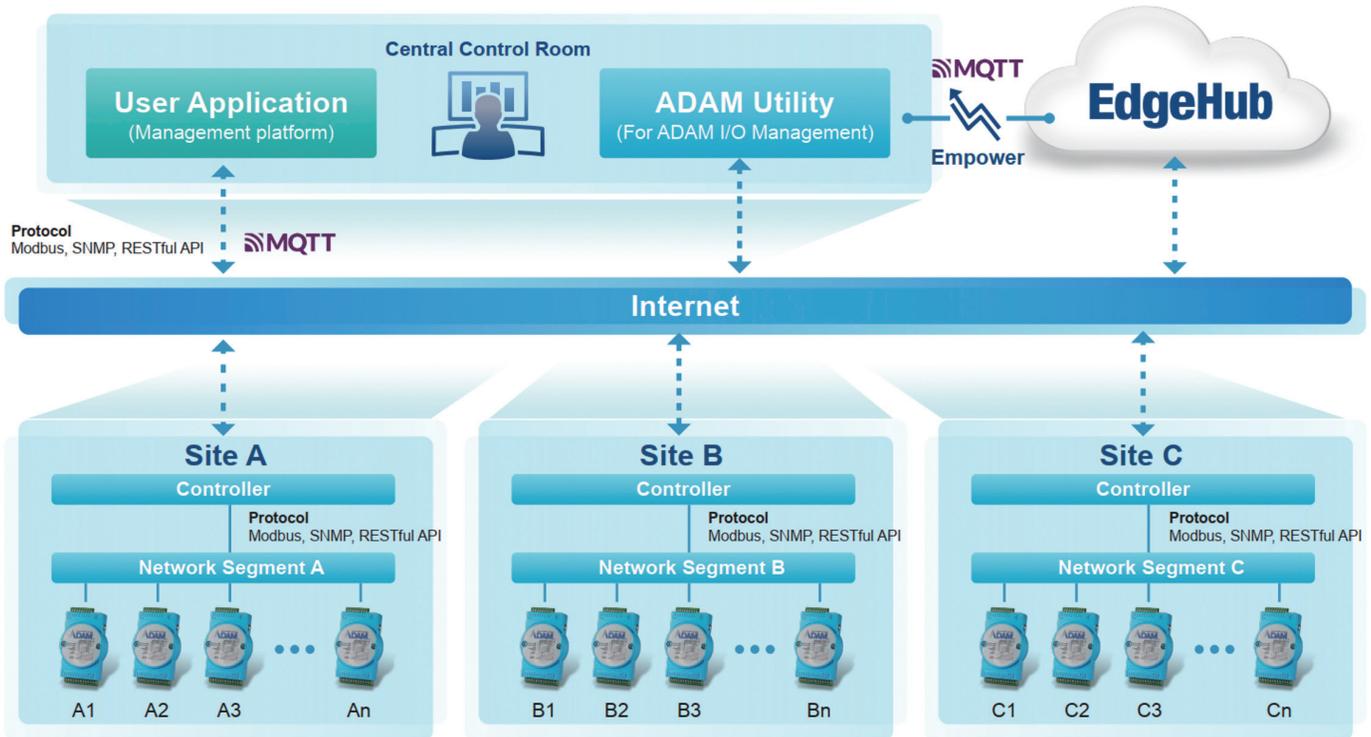
Direct I/O and Centralized Configuration

- 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-6350
ADAM-6360D
ADAM-6366

IoT OPC UA Ethernet I/O - DI/O Module

IoT OPC UA Ethernet I/O - SSR Relay Output Module

IoT OPC UA Ethernet I/O - SSR Relay Output Module

ADAM-6350 $\quad$ CE FC RoHS COMPLIANT 2002/95/EC

ADAM-6360D $\quad$ CE FC RoHS COMPLIANT 2002/95/EC

ADAM-6366 $\quad$ CE FC RoHS COMPLIANT 2002/95/EC

Specifications

Digital Input
- **Channels** $\quad$ 18
- **Dry contact** $\quad$ logic 0: Open
  logic 1: Closed to ground
- **Wet contact** $\quad$ logic 0: 0 ~ 3 V_{DC} or floating
  logic 1: 10 ~ 30 V_{DC}
  Support DO type:
  Sink (NPN) and Source (PNP)
- **DI12~DI17 support 3 kHz counter input**
- **DI12~DI17 support 3 kHz frequency input**

Digital Output
- **Channels** $\quad$ 18
- **Output type** $\quad$ Sink type, 30 V_{DC},
  0.1A max. per channel
- **DO12~DO17 support 3 kHz pulse output**

Specifications

Relay Output (PhotoMOS SPST)
- **Channels** $\quad$ 8 (Form A)
- **Contact rating** $\quad$ 1 A @25°C @30 V_{DC}
  (Resistive and $\quad$ 0.7A @70°C @30 V_{DC}
  Inductive load)
- **Relay-on time** $\quad$ 1.3 ms
- **Relay-off time** $\quad$ 0.8 ms
- **Isolation (Relay** $\quad$ 1500Vrms
  output to power)
- **Peak Load Current** $\quad$ 4A (100ms (1 pulse))
- **Total Power** $\quad$ 400mW / channel
  Dissipation
- **On-state resistance** $\quad$ 0.5Ω

Digital Input
- **Channels** $\quad$ 14
- **Dry contact** $\quad$ logic 0: Open
  logic 1: Closed to ground
- **Wet contact** $\quad$ logic 0: 0 ~ 3 V_{DC} or floating
  logic 1: 10 ~ 30 V_{DC}
  Support DO type:
  Sink (NPN) and Source (PNP)
- **DI8~DI13 support 3 kHz counter input**
- **DI8~DI13 support 3 kHz frequency input**

Digital Output
- **Channels** $\quad$ 6
- **Output type** $\quad$ Sink type, 30 V_{DC},
  0.1A max. per channel
- **DO0~DO5 support 3 kHz pulse output**

Specifications

Relay Output
- **Channels** $\quad$ 6 (Form A)
- **Contact rating** $\quad$ 0.25A@250V_{AC}
  2A@30V_{DC}
- **Relay-on time** $\quad$ 3 ms
- **Relay-off time** $\quad$ 5 ms
- **Electrical endurance** $\quad$ Resistive, 0.25A@250V_{AC}:
  at contact application $\quad$ 1x10^5 operations/min.
  Resistive, 2A@30V_{DC}:
  1x10^5 operations/min.
- **Insulation Resistance** $\quad$ 1 GΩ

Digital Input
- **Channels** $\quad$ 18
- **Dry contact** $\quad$ logic 0: Open
  logic 1: Closed to ground
- **Wet contact** $\quad$ logic 0: 0 ~ 3 V_{DC} or floating
  logic 1: 10 ~ 30 V_{DC}
  Support DO type:
  Sink (NPN) and Source (PNP)
- **DI12~DI17 support 3 kHz counter input**
- **DI12~DI17 support 3 kHz frequency input**

Digital Output
- **Channels** $\quad$ 6
- **Output type** $\quad$ Sink type, 30 V_{DC},
  0.1A max. per channel
- **DO0~DO5 support 3 kHz pulse output**

Common Specifications

General
- **Power input** $\quad$ 10 ~ 30 V_{DC}
- **Power Consumption** $\quad$ 2.8 W @ 24 V_{DC}
  (ADAM-6350)
  2.8 W @ 24 V_{DC}
  (ADAM-6360D)
  4.5 W @ 24 V_{DC}
  (ADAM-6366)
- **LAN port** $\quad$ 2-port 10/100 Base-T(X)
  (for Daisy Chain)
- **Connectors** $\quad$ 2 x RJ-45 (LAN), Plug-in
  screw terminal block
  (I/O and power)
- **Watchdog** $\quad$ System and Communication
- **Protocol** $\quad$ OPC UA, Modbus

Protection
- **Isolation** $\quad$ 2,500 V_{DC}
- **Power Reversal Protection**

OPC UA
- **Max Monitored Items** $\quad$ 600
  (including all sessions)
- **Max Sessions** $\quad$ 4 (including security or
  non-security session)
- **Max Subscriptions per** $\quad$ 1
  Session
- **Support security/certificate management**

Modbus/TCP
- **Modbus/TCP connection** 4

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

Ordering Information
- **ADAM-6350-A1** $\quad$ OPC UA and Security
  Remote I/O - DI/O
  Module
- **ADAM-6360D-A1** $\quad$ OPC UA and Security
  Remote I/O - SSR
  Relay Output Module
- **ADAM-6366-A1** $\quad$ OPC UA and Security
  Remote I/O - SSR
  Relay Output Module

OPC UA Ethernet I/O Modules: ADAM-6300

Model	ADAM-6315	ADAM-6317	ADAM-6318	ADAM-6324	ADAM-6350	ADAM-6360D	ADAM-6366
Description	IoT OPC UA Ethernet I/O - RTD Input Module	IoT OPC UA Ethernet I/O - Analog Input Module	IoT OPC UA Ethernet I/O - T/C Input Module	IoT OPC UA Ethernet I/O - Analog Output Module	IoT OPC UA Ethernet I/O - Digital I/O Module	IoT OPC UA Ethernet I/O - SSR Relay Output Module	IoT OPC UA Ethernet I/O - Relay Output Module
General Power Input	10~30 V_{DC}						
LAN Port	2 x RJ-45 10/100 Mbps						
Connectors	2 x RJ-45 (LAN), Plug-in screw terminal block (I/O and power)						
Watchdog	System and Communication						
Protocol	OPC UA, Modbus TCP						
Protection Isolation	2500 V_{DC}						
Power Reversal Protection	✓						
OPC UA Max Monitored Items	600 (including all sessions)						
Max Sessions	4 (including security or non-security session)						
Max Subscriptions per Session	1						
Support Security/ Certificate Management	✓						
Modbus TCP Connections	4						
Environment Operating Temperature	-25° ~ 70°C (-13 ~ 158°F)						
LED Indicator	Status, Error, Link, Active						
Analog Input Channels	8	8	7	–	–	–	–
Voltage Input	RTD: Pt 100, Pt 1000, Balco 500, Ni 518	0~150mV, 0~500mV, 0~1V, 0~5V, 0~10V, ±150 mV, ±500 mV, ±1V, ±5 V, ±10 V	Thermocouple: J, K, T, E, R, S, B	–	–	–	–
Current Input	–	0 ~ 20 mA, 4 ~ 20 mA, ± 20 mA	–	–	–	–	–
Sampling Rate	10/1024 Hz (total)	10/100 Hz (total)	10 Hz (total)	–	–	–	–
Burn-out Detection	✓	✓ (4~20 mA)	✓	–	–	–	–
Resolution	16-bit	16-bit	16-bit	–	–	–	–
Digital Input Digital Input Channels	10	11	10	11	18	14	18
Counter Input	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI12~DI17)	3 kHz (DI8~DI13)	3 kHz (DI12~DI17)
Frequency Input	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI4~DI9)	3 kHz (DI5~DI10)	3 kHz (DI12~DI17)	3 kHz (DI8~DI13)	3 kHz (DI12~DI17)
Digital Output Digital Output Channels	10	10	13	12	18	6	6
Relay Output Channels	–	–	–	–	–	8 x Form A (SSR)	6 x Form A
Contact Rating	–	–	–	–	–	1 A @25°C @ 30 V_{DC} 0.7A @70°C @30 V_{DC}	250 V_{AC} @ 0.25 A, 30 V_{DC} @ 2 A
Pulse Output	3 kHz (DO4~DO9)	3 kHz (DO4~DO9)	3 kHz (DO7~DO12)	3 kHz (DO6~DO11)	3 kHz (DO12~DO17)	3 kHz (DO0~DO5)	3 kHz (DO0~DO5)
Analog Output Channels				4	–	–	–
Type				0~5 V, 0~10 V, ± 5 V, ± 10 V, 0~20 mA, 4~20 mA			
Certification	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC	CE, FCC

✓: supported, – : not supported, △ : optional