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

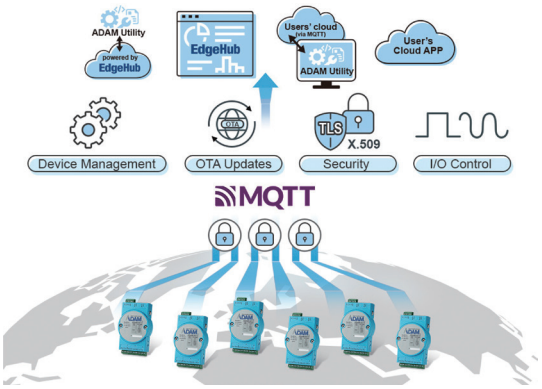
Introduction

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

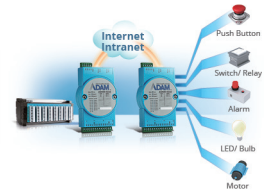
Innovative ADAM-6000/6200 Secure Cloud I/O offers device management, OTA updates, security and device monitoring functions in IoT era and help user easily manage widespread assets across diverse applications



- **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

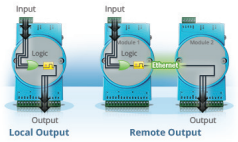
Simple and Intuitive Logic Control

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.

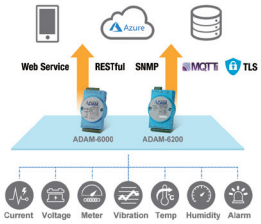
Easy Deployment and Robust Communication

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.

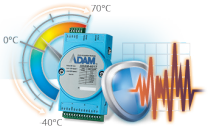
MQTT

- 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.

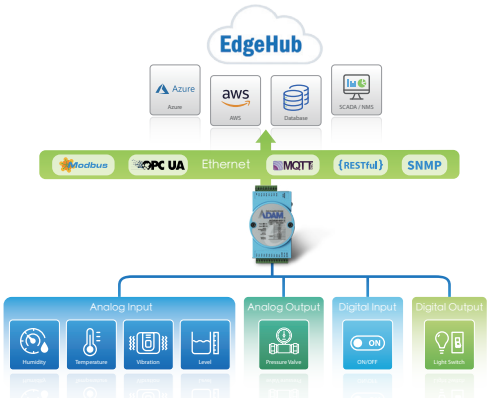
Industrial Grade with Isolation & Wide-operating Temperature



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



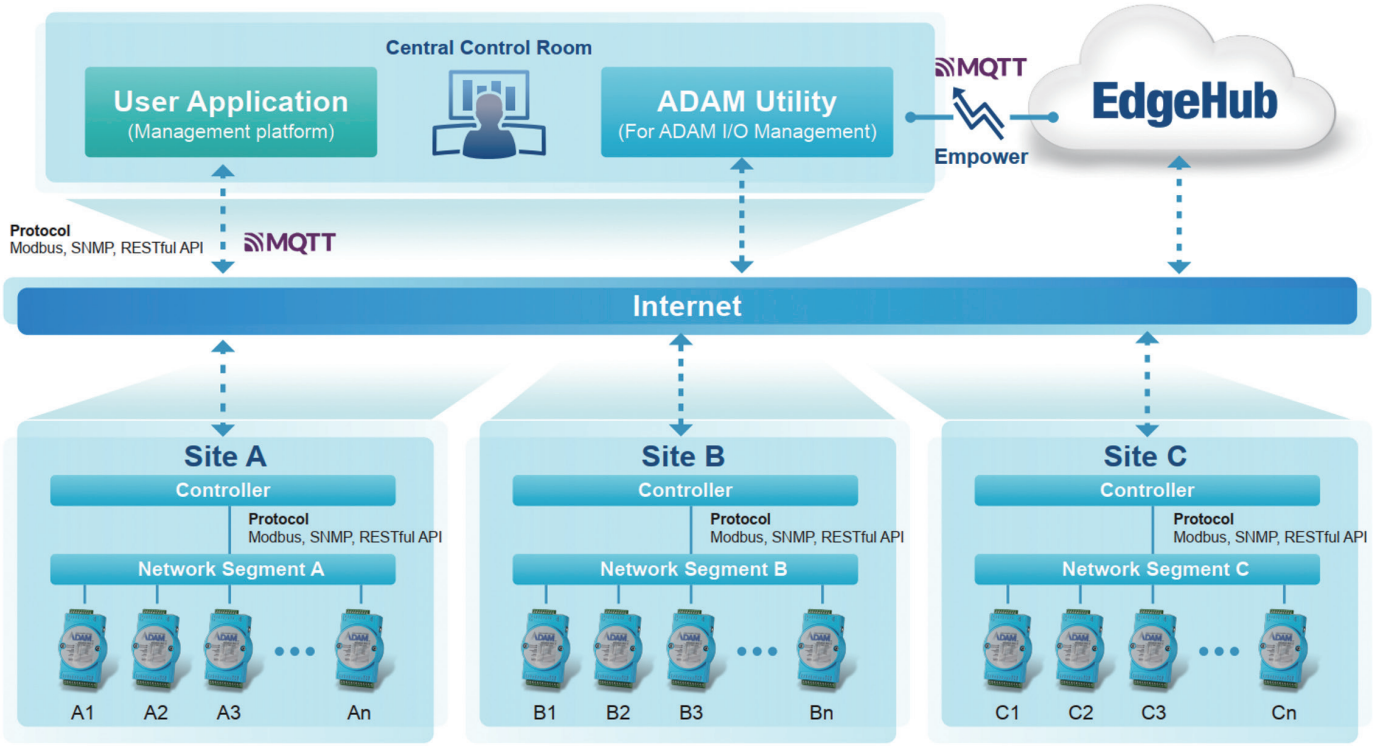
ADAM-6000/6200/6300 Series Comparison

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

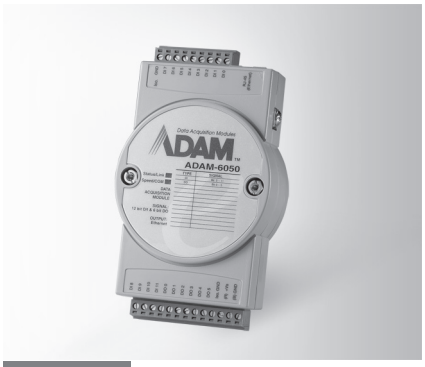
- User-defined event settings with real-time notification delivery through multiple communication channels.
- Define event rules based on device I/O tags
- Configure targeted notifications with customizable groups, users, and content
- Distribute alerts through email and other supported channels
- Track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

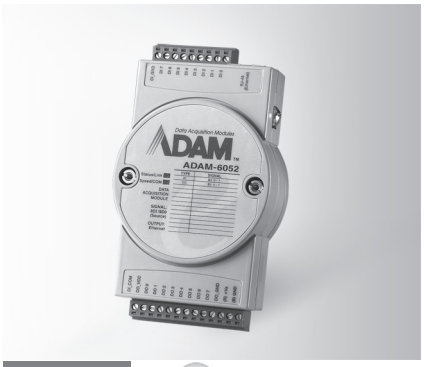
ADAM-6050
ADAM-6051
ADAM-6052

18-ch Isolated Digital I/O Modbus TCP Module
14-ch Isolated Digital I/O Modbus TCP Module with 2-ch Counter
16-ch Source-type Isolated Digital I/O Modbus TCP Module



ADAM-6050

ADAM-6051



ADAM-6052

Specifications

Digital Input

- **Channels** 12
- **Dry Contact** Logic level 0: Closed to GND
  Logic level 1: Open
- **Wet Contact** Logic level 0: 0 ~ 3 V_{DC}
  Logic level 1: 10 ~ 30 V_{DC} or floating
  Support DO type: Sink (NPN)
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**

Digital Output

- **Channels** 6 (sink type), open collector to 30 V, 100 mA maximum load
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Ordering Information

- **ADAM-6050-D1** 18-ch Isolated DI/O Modbus TCP Module

Specifications

Digital Input

- **Channels** 12
- **Dry Contact** Logic level 0: Closed to GND
  Logic level 1: Open
- **Wet Contact** Logic level 0: 0 ~ 3 V_{DC}
  Logic level 1: 10 ~ 30 V_{DC} or floating
  Support DO type: Sink (NPN)
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**

Counter Input

- **Channels** 2
- **Mode** Counter, Frequency
- **Keep/Discard Counter Value when Power-off**
- **Maximum Count** 4,294,967,295 (32-bit + 1-bit overflow)
- **Input Frequency** Frequency Mode: 0.2 ~ 4500 Hz
  Counter Mode: 0 ~ 4.5 kHz

Digital Output

- **Channels** 2 (sink type), open collector to 30 V, 100 mA maximum load
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**

Ordering Information

- **ADAM-6051-D** 16-ch Isolated DI/O with Counter Modbus TCP Module

Specifications

Digital Input

- **Channels** 8
  Dry/Wet Contact decided by switch or jumper
- **Dry Contact** Logic level 0: Open
  Logic level 1: Closed to GND
- **Wet Contact** Logic level 0: 0 ~ 3 V_{DC} or floating
  Logic level 1: 10 ~ 30 V_{DC}
  Support DO type: Source (PNP)
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**

Digital Output

- **Channels** 8 (Source Type)
- **Voltage Range** 10 ~ 35 V_{DC}
- **Current** 1 A (per channel)
- **Supports 5 kHz Pulse Output**
- **Supports High-to-Low and Low-to-High Delay Output**
- **Supports Over Current Protection**

Ordering Information

- **ADAM-6052-D** 16-ch Source-type Isolated DI/O Modbus TCP Module

Common Specifications

General

- **Certification** FCC, CE, UL
  *Class I, Division 2, Groups A, B, C and D Hazardous Locations
- **LAN** 1-port 10/100Base-T(X)
- **Power Consumption** 2 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 Peer-to-Peer, GCL**
- **Supports User Defined Modbus Address**
- **Supports Modbus/TCP, TCP/IP, UDP, RESTful, MQTT (D version), SNMP (D version) Protocol**

Protection

- **Power Reversal Protection**
- **Isolation Protection** 2,000 V_{DC}

Environment

- **Operating Temperature** -20 ~ 70°C (-4 ~ 158°F)
  D version -40 ~ 70°C (-40~158°F)
- **Storage Temperature** -30 ~ 80°C (-22 ~ 176°F)
  D version -40 ~ 85°C (-40~185°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)