

Advantech IoT Sensing Devices

Bringing Edge Intelligence to Big Data

- ✓ Edge DAQ Devices
- ✓ Wireless IoT Sensing Devices
- ✓ Remote I/O Modules



ADVANTECH

Enabling an Intelligent Planet



www.advantech.com

Edge DAQ Devices

Booster for Equipment Manufacturers, Rental Services, and End Users

Advantech's edge data acquisition solutions are designed to simplify remote equipment monitoring. These solutions can improve service quality by facilitating product care, enabling equipment operation monitoring, and allowing for efficiency and energy consumption analysis. This allows manufacturers, rental services, and end users to obtain insights on usage behaviors by connecting machine data to the cloud in order to derive intelligence through the analysis of big data. Advantech provides three major solutions for protocol translation and minimizing programming effort in different application scenarios: 1) WebAccess/ Taglink, 2) Node-RED core product solution, and 3) the ADAM-5630 open edge data acquisition platform.



WebAccess/ TagLink Core DAQ Solution



Modularize Edge DAQ



ADAM-3600

Wireless Intelligent RTU with WebAccess/TagLink

- Linux-based
- CPU: Arm® Cortex-A8, 32 bit
- RAM: 256 MB
- Data storage: micro-SD
- 2 x LAN ports
- 2 x wireless comm. interface (mini-PoE)
- 8 x DI, 8 x AI, 4 x isolated DO channels

ADAM-3651/ ADAM-3656

Digital I/O Expansion Module

- ADAM-3651: 8-ch DI module
- ADAM-3656: 8-ch DO module



ADAM-3617/ ADAM-3624

Analog I/O Expansion Module

- ADAM-3617: 4-ch AI module
- ADAM-3624: 4-ch AO module

Edge Intelligent Communication



ECU-1251TL

RISC-based IIoT Gateway with WebAccess/TagLink

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 800 MHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD, 1 GB
- 2 x LAN, 1 x USB 2.0, 4 x RS-485/ 232 ports
- 1 x mini-PoE/ USB

ECU-1051TL

Compact RISC-based IIoT Gateway with WebAccess/TagLink

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 600 MHz)
- RAM: 256 MB
- Data storage: NAND flash
- 2 x LAN, 2 x COM ports



ECU-1050TL

Wireless to Wireless RISC based IIoT Gateway with WebAccess/TagLink

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 600 MHz)
- RAM: 256 MB
- Data storage: NAND flash
- 1 x LAN port
- 2 x wireless comm. interface (mini-PoE)



Node-RED Core DAQ Solution



Node-RED

- Graphical programming with drag-and-drop user interface
- Exclusive function nodes for fast and customized application deployment
- Encrypted data to the cloud or a database
- Universal JavaScript-based programming for customization
- Data analytics and visualization



NEW



NEW



NEW

ADAM-6750

Data Analytics Gateway with Digital I/O

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 1 GHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD (1 GB)
- 2 x LAN, 1 x RS-485 port
- 8-ch DI/ 4-ch DO

ADAM-6717UH

Data Analytics Gateway with High-Speed Analog Input

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 1 GHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD (1 GB)
- 2 x LAN ports
- 8-ch AI/ 1-ch DO (sample rate: 100 KHz over 8 channels)

ADAM-6771

Data Analytics Gateway

- Linux-based
- CPU: Arm® Cortex-A8 (32-bit, 1 GHz)
- RAM: 1 GB
- Memory: 256 MB
- External storage: micro-SD (1 GB)
- 2 x LAN, 1 x USB 2.0, 2 x RS-485, 2 x RS-485/ 232 ports

Edge Intelligent DAQ Controller



NEW

ADAM-5630

TI Cortex-A8 (600 MHz) w/ 512 MB of DDR3 RAM

- Real-time Linux
- 2 x LAN ports with two MAC addresses
- 4/ 8 slots selection
- Micro-SD slot for storage
- Wired and wireless communication expansion options
- Supports web services

Expansion Modules



NEW



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NEW



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NEW

ADAM-5037

8-ch High-Speed AI Module

- 4/ 8 slots selection
- Micro-SD slot for storage

ADAM-5101

Storage Expansion Module

- Supports mini PCI express or M.2 interface

ADAM-5101P

Mini-PCI Express Expansion

- Supports wireless expansion
- 2 x Antenna Points

ADAM-5191

Serial Expansion Module

- 4 x serial ports
- Supports RS-485/ 232/ 422

ADAM-5192

Network Expansion Module

- 2 x LAN ports



ADAM-5000 Expansion I/O Modules

- 9 x AI/ AO Channels
- 16 x DI/ DO Channels
- 2 x Counters

Wireless IoT Sensing Devices

Intelligent Wireless Sensing Devices for IoT Big Data Acquisition

With developments in wireless and cloud technology, more remote management services have adopted cloud services for wide area communication. To shorten the gap between the network edge and the cloud, Advantech provides wireless sensing devices that directly pass data to the cloud by utilizing MQTT and RESTful APIs.

While WISE-4000 are designed for wide area communication with Wi-Fi, LPWAN, LoRa, NB-IoT/eMTC, and 3G/LTE, the WISE-2000 are all-in-one devices for specific applications, and the WISE-6000 comprise ready-to-use M2I edge devices for remote machine status monitoring and management.



Wireless I/O Modules

WISE-4000 Series

2.4 GHz Wi-Fi I/O Module

- REST and MQTT protocol for IoT or cloud services
- Local data logger and cloud storage w/ secure sockets
- HTML5 web interface for mobile configuration

WISE-4012

- 4-ch AI/ DI + 2-ch DO

WISE-4051

- 8-ch DI + 1 x RS-485 port

WISE-4050/ 4060

- 4-ch DI + 4-ch DO/ relay

WISE-4012E IoT Developer Kit

- 2-ch AI + 2-ch DI + 2-ch relay
- Ready-to-use software and accessories for immediate use



Wireless Sensor Nodes

WISE-4200/ 4400/ 4600 Series

Sensor to Intelligence Node

WISE-4220 (2.4 GHz Wi-Fi)

- REST and MQTT protocol for IoT or cloud services
- Local data logger and cloud storage w/ secure sockets



WISE-4210 (Sub-GHz LPWAN)

- Less interference than at 2.4 GHz
- Long distance communication with 3.6 V AA battery power



WISE-4470 (Cellular, NB-IoT)

- Local data logger and cloud storage w/ secure sockets
- IP65-rated protection with M12 connectors and an internal antenna

WISE-4610 (LoRa, LoRaWAN)

- IP65-rated protection with M12 connectors for outdoor applications
- Solar panel rechargeable battery and optional GPS for location tracking



NEW

Wireless Sensor Devices



WISE-2000 Series

Self-Powered Sensor Nodes and Intelligent RFID Gateways

WISE-2210 (Sub-GHz LPWAN)

- Self-Powered by photovoltaic panel or current transducer
- Power consumption measuring or environment monitoring for equipment and machine

WISE-2800 (RFID)

- 4-port UHF RFID read/ write function
- Node-RED programmable for data read/ write, filtering, and transfer
- Application-ready function block
- Ethernet and Wi-Fi interface for up-link

Remote I/O Modules

Transformation for IIoT's Wider & Larger Application

Advantech's ADAM remote I/O modules, with their cutting-edge functional design, have been a consistently reliable figure in the industrial automation field for over 25 years. The versatile product offerings and latest technology updates for this series of modules continue to accelerate the realization of industrial IoT and fulfill the demands of larger scale network infrastructure in an increasingly more diverse range of applications. With RFID and USB technology, users have additional options for configuration and inspection, even when unpowered. Additionally, for larger network infrastructure, ADAM Ethernet-based remote I/O modules use SNMP and MQTT to enhance communication efficiency.



RFID Introduction



RFID Access Applicable to ADAM-4100 and ADAM-6200 series

Serial I/O Modules



ADAM-4100 Series

Robust RS-485 I/O Modules

- Wide operating temperature range (-40~85°C / -40~185°F)
- High protection level: 4-kV surge, 3-kV EFT, 8-kV ESD
- High common mode voltage: 200 V_{DC}
- Burnout detection

Module Selection

- ADAM-4117: Robust 8-ch AI module
- ADAM-4118: Robust 8-ch thermocouple
- ADAM-4150: 7-ch DI/ 8-ch DO module
- ADAM-4168: 8-ch relay module



ADAM-4000 Series

RS-485 I/O Modules

- Watchdog timer
- ±35 V_{DC} overvoltage protection
- 3,000 V_{DC} voltage isolation

Module Selection

- ADAM-4017+: 8-ch AI module
- ADAM-4024: 4-ch AO/ 4-ch DO module
- ADAM-4015: 6-ch RTD module
- ADAM-4051: 16-ch DI module
- ADAM-4055: 8-ch DI/ 8-ch DO module

Ethernet I/O Modules



ADAM-6200 Series

Daisy-Chain Ethernet I/O Modules

- Cloud management: configuration, monitoring, and firmware updates
- Daisy chain connectivity w/ auto-bypass protection
- Supports HTML5, JavaScript, XML
- Supports GCL and P2P functions
- Group configuration capability

Module Selection

- ADAM-6217: 8-ch AI module
- ADAM-6224: 4-ch AO/ 4-ch DI module
- ADAM-6250: 8-ch DI/ 7-ch DO module
- ADAM-6251: 16-ch DI module
- ADAM-6266: 4-ch Relay/ 4-ch DI module



ADAM-6100 Series

Real-Time Ethernet I/O Modules

- Daisy chain connectivity
- Coupler-free design
- GSD, L5K, and EDS file-ready
- 2,500 V_{DC} isolation protection

Module Selection

- ADAM-6117EI/PN: 8-ch AI module
- ADAM-6160EI/PN: 6-ch relay module
- ADAM-6150EI/PN: 8-ch DI/ 7-ch DO module
- ADAM-6151EI/PN: 16-ch DI module
- ADAM-6156EI/PN: 16-ch DO module



ADAM-6000 Series

Smart Ethernet I/O Modules

- Cloud management: configuration, monitoring, and firmware updates
- Embedded web server
- Data stream function to push data
- Supports GCL and P2P functions
- Supports C#/.NET and VB.NET

Module Selection

- ADAM-6015: 7-ch RTD module
- ADAM-6017: 8-ch AI/ 2-ch DO module
- ADAM-6050: 12-ch DI/ 6-ch DO Relay module
- ADAM-6060: 6-ch DI/ 6-ch Relay module

*PROFINET/PN, EtherNet/ IP/EI

Regional Service & Customization Centers

China | Kunshan
86-512-5777-5666

Taiwan | Taipei
886-2-2792-7818

Netherlands | Eindhoven
31-40-267-7000

Poland | Warsaw
00800-2426-8080

USA | Milpitas, CA
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Seoul	82-2-3663-9494

Singapore

Singapore	65-6442-1000
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Malaysia

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Penang	60-4-537-9188

Thailand

Bangkok	66-02-2488306-9
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India

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Jakarta	62-21-751-1939
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France

Paris	33-1-4119-4666
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Italy

Milano	39-02-9544-961
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Benelux & Nordics

Breda	31-76-523-3100
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London	44-0-870-493-1433

Poland

Warsaw	48-22-31-51-100
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Moscow	8-800-555-01-50
St. Petersburg	8-800-555-81-20

Czech Republic

Ústí nad Orlicí	420-465-521-020
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Ireland

Oranmore	353-91-792444
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Toll Free	1-800-467-2415
Mexico City	52-55-6275-2727



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