WISE-4012

4-ch Universal Input and 2-ch Digital Output IoT Wireless I/O Module



Features

- 4-ch universal input and 2-ch digital output
- 2.4GHz Wi-Fi reducing the wiring cost during big data acquisition
- Easily extend the existing network by adding APs, and share existing Ethernet software
- Configured by mobile devices directly without installing any software or Apps
- Zero data loss using the log function with RTC time stamp
- Supports Dropbox, WebAccess/SCADA, iSensing MQTT, IFTTT, Azure, AWS, Azure MQTT, and other cloud services
- Supports RESTful web API in JSON format for IoT integration
- Supports Peer to Peer (P2P) function

Introduction

The WISE-4012 is an Ethernet-based wireless IoT device, integrated with IoT data acquisition, processing, and publishing functions. As well as various I/O types, the WISE-4012 provides data pre-scaling, data logic, and data logger functions. These data can be accessed via mobile devices and be securley published to the cloud anytime from anywhere.

Features

IEEE 802.11 b/g/n 2.4GHz Wi-Fi with AP Mode

The Wi-Fi interface is easily integrated with wired or wireless Ethernet devices, users only need to add a wireless router or AP to extend existing Ethernet network to wireless. The limited AP mode enables the WISE-4012 to be accessed via other Wi-Fi devices directly as an AP.



HTML5 Web Configuration Interface

All the configuration interfaces are applied in web service, and the web pages are based on HTML5, so users can configure the WISE-4012 without the limitation of OS/devices. You can use your mobile phone or tablet to directly configure the WISE-4012.



RESTful Web Service with Security Socket

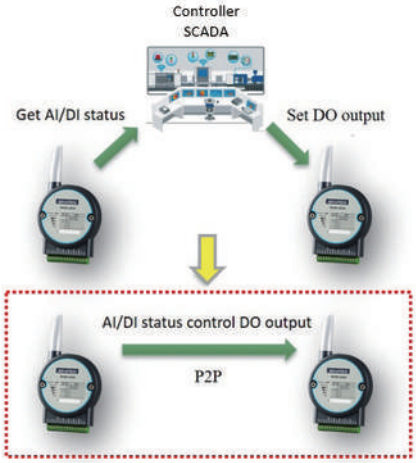
As well as supporting Modbus/TCP, the WISE-4012 also supports IoT communication protocol, RESTful web service. Data can be polled or even be pushed automatically from the WISE-4012 when the I/O status is changed. The I/O status can be retrieved over the web using JSON. The WISE-4012 also supports HTTPS which has security that can be used in a Wide Area Network (WAN).



Peer to Peer (P2P)

This function allows modules to send signals to each other remotely (up to 16 devices). These signals can be sent periodically or triggered by a change in status (e.g., an AI/DI input change triggering a DO output). It supports two modes: a basic mode for a single target module/channel and an advanced mode for multiple target modules/channels.

By utilizing P2P technology, modules can communicate directly, effectively reducing latency and improving response time. Furthermore, data transmission uses the UDP protocol (ASCII commands) and can be encrypted with AES-128 to ensure communication security.



All product specifications are subject to change without notice.

Data Storage

The WISE-4012 can log up to 10,000 samples of data with a time stamp. The I/O data can be logged periodically, and also when the I/O status changes. Once the memory is full, users can choose to overwrite the old data to ring log or just stop the log function.



Cloud Storage

Data logger can push the data to file-based cloud services like Dropbox using pre-configured criteria. With RESTful API, the data can also been pushed to a private cloud server in the format of JSON. Users can setup their private cloud server using the provided RESTful API and their own platform.



Specifications

Universal Input

- **Channels** 4
- **Resolution** 16-bit
- **Sampling Rate** Analog Input 10Hz (Total)
  Digital Input 2Hz (Per Channel)
- **Accuracy** ±0.1% of FSR (Voltage)
  ±0.2% of FSR (Current)
- **Input Type and Range**
  Analog Input ±150mV, ±500mV, ±1V, ±5V, ±10V, 0~150mV, 0~500mV, 0~1V, 0~5V, 0~10V, 0~20mA, 4~20mA, ±20mA
  Digital Input (Dry Contact) 0: Open, 1: Close
- **Input Impedance** > 10M Ω (Voltage)
  120 Ω (External resistor for current)
- **Over Voltage Protection** ±35 V_{DC}
- **Burn-out Detection** Yes (4~20mA only)
- **Supports Data Scaling and Averaging**
- **Channel Mode** DI (Logic status), Counter, Low to High Latch, High to Low Latch, Frequency

*Only for Digital Input mode

Digital Output

- **Channels** 2
  (Open collector to 30 V, 400 mA max. for resistance load)
- **Isolation** 3,000 V_{rms}
- **Supports 5 kHz Pules Output**
- **Supports High-to-Low and Low-to-High Delay Output**

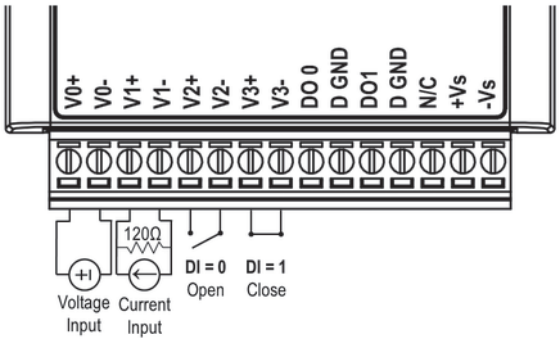
General

- **WLAN** IEEE 802.11b/g/n 2.4GHz
- **Outdoor Range** 110 m with line of sight
- **Connectors** Plug-in screw terminal block (I/O and power)
- **Watchdog Timer** System (1.6 second) and Communication (programmable)
- **Certification** CE, FCC, R&TTE, NCC, SRRC, RoHS, KC
- **Dimensions (W x H x D)** 80 x 148 x 25 mm
- **Enclosure** PC
- **Mounting** DIN 35 rail, wall, and stack
- **Power Input** 10 ~ 30 V_{DC}
- **Power Consumption** 2.5 W @ 24 V_{DC}
- **Power Reversal Protection**
- **Supports User Defined Modbus Address**
- **Supports Data Log Function** Up to 10000 samples with RTC time stamp
- **Supported Protocols** Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP, MQTT
- **Supports RESTful Web API in JSON format**
- **Supports Web Server in HTML5 with JavaScript & CSS3**
- **Supports System Configuration Backup and User Access Control**

Environment

- **Operating Temperature** -25 ~ 70°C (-13~158°F)
- **Storage Temperature** -40 ~ 85°C (-40~185°F)
- **Operating Humidity** 20 ~ 95% RH (non-condensing)
- **Storage Humidity** 0 ~ 95% RH (non-condensing)

Pin Assignment



Ordering Information

- **WISE-4012-AE** 4-ch Universal Input and 2-ch Digital Output IoT Wireless I/O Module

Selection Table

Model Name	Universal Input	Digital Input	Digital Output	Relay Output	RS-485
WISE-4012	4		2		
WISE-4050		4	4		
WISE-4051		8			1
WISE-4060		4		4	

Accessories

- **96PSD-A30W24-DS** DIN Rail Power Supply (1.25A Output Current)
- **BB-RPS-V2-WR2-US** Power Supply, 12V/1A, US plug
- **BB-RPS-V2-WR2-EU** Power Supply, 12V/1A, EU plug
- **1750008767-01** Magnetic Antenna Extend Cable Base 150cm
- **EKI-6333AC-2G** IEEE 802.11 a/b/g/n/ac Concurrent Dual-Band Wi-Fi AP/Client

Dimensions

Unit: mm



Front View | Side View | Mounting Kit