

# WISE-4051

## 8-ch Digital Input IoT Wireless I/O Module with RS-485 Port



### Features

- 8-ch digital input with 1-port RS-485 for Modbus devices
- 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-4051 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-4051 provides data pre-scaling, data logic, and data logger functions. Data can be accessed via mobile devices and be securely 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-4051 to be accessed via other Wi-Fi devices directly as an AP.



#### Modbus/RTU to Web Service or Modbus/TCP

The RS-485 port of the WISE-4051 supports Modbus, which can be used to poll the data from Modbus/RTU devices, like ADAM-4000, or ADAM-5000/485. Then you can access the data by Modbus or REST from the WISE-4051. The data can also be logged.



#### RESTful Web Service with Security Socket

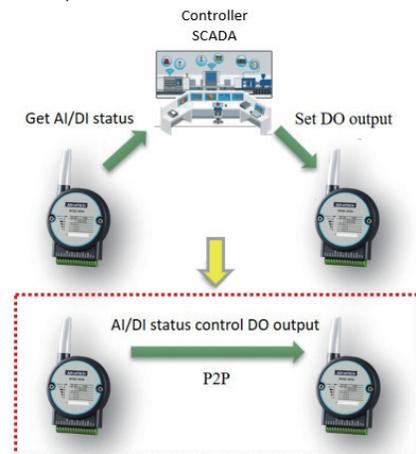
As well as supporting Modbus/TCP, the WISE-4051 series also supports IoT communication protocol, RESTful web service. Data can be polled or even be pushed automatically from the WISE-4051 when the I/O status is changed. The I/O status can be retrieved over the web using JSON. The WISE-4051 also supports 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.



**Data Storage**

The WISE-4051 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 be 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.



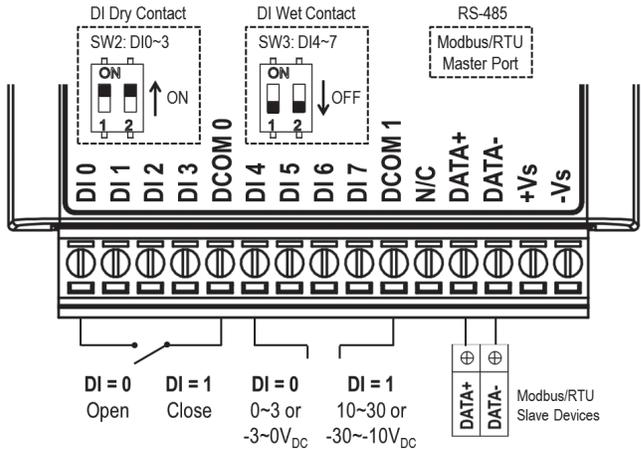
**General**

- **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
- **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<sub>DC</sub>
- **Power Consumption** 2.2 W @ 24 V<sub>DC</sub>
- **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**



**Specifications**

**Digital Input**

- **Channels** 8
- **Logic Level** Dry Contact 0: Open  
1: Close to DCOM  
Wet Contact 0: 0 ~ 3 V<sub>DC</sub>  
1: 10 ~ 30 V<sub>DC</sub> (3 mA min.)
- **Isolation** 3,000 V<sub>rms</sub>
- **Channel Mode** DI (Logic status), Counter, Low to High Latch, High to Low Latch, Frequency
- **Supports 3 kHz Counter Input (32-bit + 1-bit overflow)**
- **Keep/Discard Counter Value when Power-off**
- **Supports 3 kHz Frequency Input**
- **Supports Inverted DI Status**

**Serial Port**

- **Port Number** 1
- **Type** RS-485
- **Serial Signal** DATA+, DATA-
- **Data Bits** 7, 8
- **Stop Bits** 1, 2
- **Parity** None, Odd, Even
- **Baud Rate** 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 (bps)
- **Protection** 15 kV ESD
- **Protocol** Modbus/RTU (Total 64 address by max. 20 instructions)

### Ordering Information

- **WISE-4051-B** 8-ch Digital Input IoT Wireless I/O Module with RS-485 Port

### 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

