Introduction

The WISE-4220 series is an Ethernet-based wireless IoT device, integrated with IoT data acquisition, processing, and publishing functions. As well as various I/O and sensor types, the WISE-4220 series provides data pre-scaling, data logic, and data logger functions. These data can be accessed via mobile devices and be published to the cloud with security at anytime and 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-4220 to be accessed via other Wi-Fi devices directly as an AP.

**Features**

- 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
- Data can be automatically pushed to Dropbox or computer
- Supports RESTful web API in JSON format for IoT integration

**Data Storage**

The WISE-4220 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.
## Specifications

### General
- **WLAN Standard**: IEEE 802.11b/g/n
- **Frequency Band**: 2.4GHz ISM Band
- **Transmit Power**: 802.11b: 12.0 dBm ±1dBm, 802.11g: 15.5 dBm ±1dBm, 802.11n: 15.5 dBm ±1dBm
- **Antenna**: Connector: Reverse SMA Gain (Peak): 2.45 dBi
- **Outdoor Range**: 150m with line of sight
- **Connectors**: Plug-in screw terminal block (power)
- **Certification**: System (1.5 second) and Communication (programmable)
- **Dimensions (W x H x D)**: 70 x 102 x 38 mm
- **Enclosure**: PC
- **Mounting**: DIN 35 rail, wall, stack, and pole
- **Power Input**: 10 ~ 50 Vdc
- **Power Consumption**: 1.2 W @ 24 VDC
- **Power Reversal Protection**: Supports
- **Supported User Defined Modbus Address**: Supports Data Log Function
- **Supported Protocols**: Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP
- **Supports RESTful Web API in JSON format**: Supports Web Server in HTML5 with JavaScript & CSS3
- **Supports System Configuration Backup and User Access Control**: Supports System Configuration Backup and User Access Control
- **Supported Protocols**: Modbus/RTU, TCP/IP, UDP, DHCP, and HTTP
- **Supports Web Server in HTML5 with JavaScript & CSS3**: Supports Data Log Function
- **Supports User Defined Modbus Address**: Supports Data Log Function
- **Supported Protocols**: Modbus/TCP, TCP/IP, UDP, DHCP, and HTTP
- **Supports RESTful Web API in JSON format**: Supports Web Server in HTML5 with JavaScript & CSS3
- **Supports System Configuration Backup and User Access Control**: 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 ~ 90% RH (non-condensing)

### WISE-4220-S231 (Built-in Temperature and Humidity Sensor)

#### Temperature Sensor
- **Operating Range**: -25°C ~ 70°C (-13~158°F)
- **Resolution**: 0.1°C/F/K
- **Accuracy**: ±2.0°C (±3.6°F) (vertical installation)

#### Humidity Sensor
- **Operating Range**: 10 ~ 90% RH
- **Resolution**: 0.1% RH
- **Accuracy**: ±4% RH @ 0% ~ 50% RH
- **Accuracy**: ±10% RH @ 52% ~ 63% RH
- **Accuracy**: ±13% RH @ 69% ~ 90% RH

### WISE-S214 (4AI/4DI)

#### Analog Input
- **Channels**: 4
- **Resolution**: 16bits Bipolar, 15bits Unipolar
- **Sampling Rate**: 1MHz (Total) with50/60Hz Rejection
- **Accuracy**: ±0.1% for Voltage Input, ±2.2% for Current Input
- **Input Range**: 0~150mV, 0~500mV, 0~1V, 0~5V, 0~10V, ±150mV, ±500mV, ±1V, ±5V, ±10V, ±25mA, ±50mA
- **Input Impedance**: >10MΩ (Voltage)
- **Support Data**: Scaling and Averaging

#### Digital Input
- **Channels**: 4 (Dry Contact)
- **Supports 200kHz Counter Input (32-bit + 1-bit overflow)**
- **Supports keep/discard counter value on power-off**
- **Support inverted digital input status**

### WISE-S250 (6DI, 2DO & 1RS-485)

#### Digital Input
- **Channels**: 6 (Dry Contact)
- **Supports 3kHz Frequency Input**

#### Digital Output (Sink Type)
- **Channel**: 2
- **Output Current**: 100 mA
  - At 0 -> 1: 100 us
  - At 1 -> 0: 100 us (for Resistive Load)
- **Supports Pulses Output**: 5 kHz
- **Max. Load Voltage**: 30V

### WISE-S251 (6DI/1RS-485)

#### Digital Input
- **Channels**: 6 (Dry Contact)
- **Supports 200kHz Counter Input (32-bit + 1-bit overflow)**
- **Supports keep/discard counter value on power-off**
- **Support inverted digital input status**

#### Serial Port
- **Port Number**: 1
- **Type**: RS-485
- **Data Bits**: 7, 8
- **Stop Bits**: 1, 2
- **Parity**: None, Odd, Even
- **Baud Rate (bps)**: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
- **Protocol**: Modbus/RTU (Total 32 addresses by 8 max. instructions)

### Ordering Information

#### Wi-Fi 2.4G Wireless I/O Module
- **WISE-4229-A**: Wi-Fi 2.4G Wireless I/O Module
- **WISE-4229-S231-A**: Wi-Fi 2.4G Wireless Module with Temperature and Humidity Sensor

#### WISE-S200 I/O Module
- **WISE-S214-A**: 4AI/4DI
- **WISE-S250-A**: 6DI, 2DO & 1RS-485
- **WISE-S251-A**: 6DI & 1RS-485

#### Accessories
- **PWR-242-AE**: DIN Rail Power Supply (2.1A Output Current)
- **PWR-244-AE**: Panel Mount Power Supply (4.2A Output Current)
- **PWR-244-AE**: Panel Mount Power Supply (3A Output Current)