






Wireless Module Information							
<div>  Wireless Status </div> <table border="1"> <thead> <tr> <th>Type</th><th>Status</th></tr> </thead> <tbody> <tr> <td>WLAN RSSI Level</td><td>  Very Good </td></tr> <tr> <td>MAC ID of the Client Device</td><td>54-A0-50-9</td></tr> </tbody> </table> <div>Refresh</div>	Type	Status	WLAN RSSI Level	 Very Good	MAC ID of the Client Device	54-A0-50-9	<p>For WISE-4000 Wireless Series, user can check WLAN RSSI Level to know the signal quality in Wireless Status part. And it also shows the MAC ID of the client device.</p> <p>If the module is working in AP Mode, WLAN RSSI Level and Refresh button will not be shown</p>
Type	Status						
WLAN RSSI Level	 Very Good						
MAC ID of the Client Device	54-A0-50-9						
<div>  Network Information </div> <div> WLAN Mode <input type="text" value="AP Mode"/> </div> <div> Mac <input type="text" value="00-D0-C9-F6-EA-95"/> </div> <div> IP <input type="text" value="192.168.1.1"/> </div> <div> Subnet <input type="text" value="255.255.255.0"/> </div> <div> Gateway <input type="text" value="192.168.1.1"/> </div> <div> IP Mode <input type="radio"/> Static <input checked="" type="radio"/> DHCP </div> <div>Go to Configuration</div>	<p>WLAN Mode will be shown in Network Information</p>						

Module Information

Module

Model Name

WISE-4050/LAN

Customized Name

WISE-4050/LAN

UUID

WISE-4050/LAN_00D0C9660049

Location

Description

Go to Configuration

Network

Mac

00-D0-C9-66-00-49

IP

10.0.0.1

Subnet

255.0.0.0

Gateway

0.0.0.0

IP Mode


☒ Static
☐ DHCP

Go to Configuration

Module Information	
Module Name	Module Description
WISE-4050/LAN	4-channels digital input

Module Information	
Firmware Description	
FW	Fw:A0.95 B00, Bootloader:A0.95 B00

1. In the information page, you can see the dashboard: module detail, network setting, and module information, including the firmware version.
2. Click "Go to Configuration" to perform the configuration.

Module Configuration	
<div> Configuration</div> <div><div>Information</div><div>Wireless</div><div>Network App</div><div>Time & Date</div><div>SNTP</div><div>Modbus</div><div>Control</div><div>General</div><div>Cloud</div><div>Firmware</div><div>Account</div></div>	<p>You can click different tab to switch the item you are going to configure</p>
<div><div>Information</div><div>Module Information</div><div><div>Model Name</div><div>WISE-4050/LAN</div><div>Customized Name</div><div>WISE-4050/LAN</div><div>Location Information</div><div><div>Latitude</div><div></div><div>Longitude</div><div></div><div>Altitude</div><div></div><div>Location</div><div></div></div></div></div>	<p>[Information]</p> <p>Customized Name / UUID Means model name and UUID of the module. You also can rename it for recognition if required.</p> <p>Description You can add comments on this module for recognition.</p> <p>Location Information You can note the location information for the module</p>

Wireless (WISE-4000 Wireless module only)

WLAN Settings

WLAN Mode

AP Mode ▼

SSID of the AP Mode

WISE-4060_CC006D

SSID Hidden

☐ Enabled/Disabled

Country Code

US ▼

Operational Channel

11

Security Type

Security Open ▼

AP Mode IP Settings

Mac

00-D0-C9-CC-00-6D

IP

192.168.1.1

Subnet Mask

255.255.255.0

Gateway

192.168.1.1

IP Mode

☐ Static ☒ DHCP

✓ Submit

[AP Mode]

When using the module in AP mode, users can configure the SSID and also decide how the WISE module works as an AP, including the security.

The AP-Network is fixed and does not allow user to make their own changes.

<div><h3>WLAN Settings</h3><p>WLAN Mode</p><div>Infrastructure Mode ▾</div><p>SSID of the Access Point</p><div></div><p>Security Type</p><div>Security Open ▾</div><p>Infrastructure Mode IP Settings</p><p>Mac</p><div>00-D0-C9-CC-00-6D</div><p>IP</p><div>192.168.1.1</div><p>Subnet Mask</p><div>255.0.0.0</div><p>Gateway</p><div>192.0.0.0</div><p>IP Mode</p><p><input checked="" type="radio"/> Static <input type="radio"/> DHCP</p><div>✓ Submit</div></div>	<p>[Infrastructure Mode]</p> <p>When using the module in Infrastructure mode, users need to enter the SSID of the AP that WISE going to access, and configure the security from here.</p> <p>After configuring the AP the WISE module going to access, the network configuration also needs to be defined in the Infrastructure-Network.</p>
---	--

<div><h3>Network</h3><p>Mac</p><div>00-D0-C9-66-00-49</div><p>IP</p><div>10.0.0.1</div><p>Subnet</p><div>255.0.0.0</div><p>Gateway</p><div>0.0.0.0</div><p>IP Mode</p><p><input checked="" type="radio"/> Static <input type="radio"/> DHCP</p></div>	<p>[Network]</p> <p>For WISE-4000/LAN wired module, you can select the Connection mode as DHCP or Static IP and configure the IP address, Subnet address, and Default gateway.</p>
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<div data-bbox="392 165 810 654"> <h3>Application Network</h3> <p>Web Server Port (Default:80)</p> <div>80</div> <p>HostIdle (Timeout)</p> <div>720sec</div> <p>Communication WDT Mode</p> <div><input type="checkbox"/> Enable/Disable</div> <div>Submit</div> </div>	<p>[Network App]</p> <p>You configure the web server port, Host Idle (timeout), and decide whether to enable communication WDT here</p>
<div data-bbox="392 680 810 1106"> <h3>Local Time</h3> <p>Current Time</p> <div></div> <p>Time Zone</p> <div>(GMT+08:00) Taipei</div> <p>Time Calibration</p> <div>Click Me...</div> </div>	<p>[Time & Date]</p> <p>You can see the current time here, decide which time zone for your local time, and also do the time calibration by read the time from host devices</p>
<div data-bbox="392 1133 810 1720"> <h3>SNTP</h3> <p>Enable SNTP Client</p> <div><input type="checkbox"/> Enabled/Disabled</div> <p>SNTP Time Polling Interval</p> <div>43200sec</div> <p>Primary SNTP Server</p> <div></div> <p>Secondary SNTP Server</p> <div></div> <div>Submit</div> </div>	<p>[SNTP]</p> <p>You can enable the SNTP function, so the module can act as a SNTP client to do time synchronization from assigned SNTP server.</p>

Coils Status(0X)

Holding Registers(4X)

Setting Address

Item	Base	Length
DI Status	1	4
DO Status	1001	4

Coils Status(0X)

Holding Registers(4X)

Setting Address

Item	Base	Length
DI Status	301	1
Counter Frequency	1	8
DO Status	1301	1

Control

Enable Locate

Enable

Restore to Default

Restore

Reset Password

Reset

System Restart

Restart

[Modbus]

In order to provide user with more flexible and scalable in deploying module, this module remove the limitation of Modbus address setting and make it configurable as user's actual need. Basically, there're two kinds of Modbus address section (0X and 4X) for you to configure each function item.

[Control]

Enable Locate

It can help user search module with light sign. (Status LED will be constantly on for 30 sec when it enabled.)

Restore to Default

The system configuration of module will be clear and restored to factory default when it enabled.

Reset Password

You can reset the password here

System Restart

The system of this module will reboot when it enabled.

General Configuration

Scan Interval

1000

ms

FSV by Communication WDT

☒

Enabled/Disabled

Note:Each IO will switch to it's FSV if the module's WDT is enabled and it gets triggerd.

[General]

After Communication WDT been enabled in "Network App" tab, you can enable the IO FSV triggered by communication WDT

The Scan Interval here decides the I/O polling interval in the next part of the “I/O Status”. This value will not be saved into the module, so it is valid until the power is switched off.

Files

Firmware

Configuration File

With IP Settings(Default) ▾

Download Configuration File

[Firmware]

User can upgrade the firmware file here. Or Upload/Download the configuration file from WISE-4000 wireless module.

The following items will be saved in the configuration file:

Configuration	Information, Wireless, Network App, Time & Data, SNTP, Modbus, General Cloud, Account
I/O Status	I/O Configuration
Advanced	Access Control, Data Logger (Data log and Cloud upload)


Account

Type	Password	Authority
Root	<div> Change Password</div>	Read/Wr
Admin	<div> Change Password</div>	Read/Wr
User	<div> Change Password</div>	Read

[Account]

You can change the passwords of each account here.

I/O Status

 **IO Staus**

DI




DO

Status

Configuration

Trend

Status

Channel	Staus
0	
1	
2	

[Status]

The I/O statuses are shown here, for the output status, you can also change the I/O status here.

Setting

Channel

0

Tag Name

DI_0

Mode

DI

All datas in the data logger will be cleared, if 'Mode' has be changed.

Refresh

Refresh

Invert Signal

Enabled/Disabled

Digital Filter

Enabled/Disabled

Min. Low Signal Width

10.1ms

Max. Low Signal Width

10.1ms

Submit

Overview

Channel	Tag Name	Mode	Parameter
0	DI_0	DI	Inv = 0, Fltr =
1	DI_1	DI	Inv = 0, Fltr =
2	DI_2	DI	Inv = 0, Fltr =
3	DI_3	DI	Inv = 0, Fltr =

[Configuration]

Setting

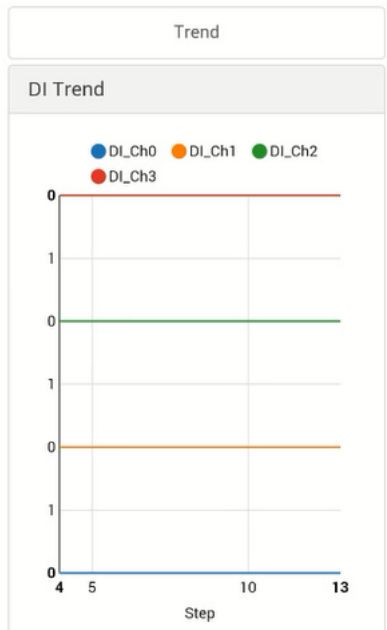
User can do detail I/O setting in the tab, include the Tag Name, range type, filter, and also the working mode.


Calibration

For the analog module, after login root account, user can click calibration button to restore the factory calibration value.

Overview

In the end, there is an overview table for the configuration summary of each channel

	<p>[Trend]</p> <p>The status trend of I/O will be shown here.</p>
---	---

Advanced Function - Access Control	
 <h3>Access Control</h3> <p>For avoiding from unauthorized access, this function provided manage which host PC or device has been permitted to remotely control module by IP or MAC Address.</p> <p>Go to ↗</p>	<p>To avoid unauthorized access, you can manage which host PC or device can remotely control the WISE-4000 module by IP or MAC Address.</p>

Access Control




Enable/Disable <input type="checkbox"/>	IP/MAC(Ex: 255.255.255.255 or AA-AA-AA-AA-AA-AA)
<input type="checkbox"/> 0	<input type="text" value="255.255.255.255"/>
<input type="checkbox"/> 1	<input type="text" value="255.255.255.255"/>
<input type="checkbox"/> 2	<input type="text" value="255.255.255.255"/>
<input type="checkbox"/> 3	<input type="text" value="255.255.255.255"/>
<input type="checkbox"/> 4	<input type="text" value="255.255.255.255"/>
<input type="checkbox"/> 5	<input type="text" value="255.255.255.255"/>
<input type="checkbox"/> 6	<input type="text" value="255.255.255.255"/>
<input type="checkbox"/> 7	<input type="text" value="255.255.255.255"/>

Enable one of the rows and enter the IP address or MAC address which allows to access the WISE-4000 device.

For WISE-4000 wireless modules, users can only configure access control by the IP address, not the MAC address

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<h2>Advance Function - Data Log</h2> <div>  <p>Data Log Data logging, Recording without programming</p> <p>Go to </p> </div>	<p>The WISE-4000 series supports data log functions, the I/O status can be logged in the module and also be queried from the module .</p>
<div>  <h2>Data Logger</h2> </div> <div> <div>Data Log</div> <div>Local Log Configuration</div> <div>Local Viewer</div> </div> <div> <h3>Enable Log</h3> <div> <p>Start Log</p> <div> <div></div> <div>OFF</div> </div> </div> </div>	<h2>Local Log Configuration</h2> <p>[Enable Log]</p> <h3>Start Log</h3> <p>Users can enable the data logger here</p>



Data Log

Data logging, Recording without programming

Go to ➞

The WISE-4000 series supports data log functions, the I/O status can be logged in the module and also be queried from the module .

 Data Logger

Data Log

Local Log Configuration

Local Viewer

Enable Log

Start Log



Local Log Configuration

[Enable Log]

Start Log

Users can enable the data logger here

Log Conditions

☒

By Period

600

0.1 sec

☒

By Communication WDT Log

General

☐

Clear Log when Power Up

☐

Circular Log when Memory Full

Log Data

Channel Fields

DI

DO/Relay

AI

AO

Channel	Enabled Channel <input type="checkbox"/>	Change
0	<input checked="" type="checkbox"/>	<input type="checkbox"/>
1	<input checked="" type="checkbox"/>	<input type="checkbox"/>
2	<input checked="" type="checkbox"/>	<input type="checkbox"/>
3	<input checked="" type="checkbox"/>	<input type="checkbox"/>

All datas will be cleared in the data logger, if change the parameters in the "Channel Fields".

[Log Conditions].

By Period

Check the box to enable periodically logging, and the log period can be decided in following box. Pleased been noted that the period is increased by 0.1 sec, it means if user configure "600" here, the status of the I/O will be logged each minute.

By Communication WDT

If the communication WDT has been enabled, once the condition of the WDT has been met, the status of the I/O will be logged

[General]

Clear Log when Power Up

Decided whether to keep last value when the logger had been restarted.

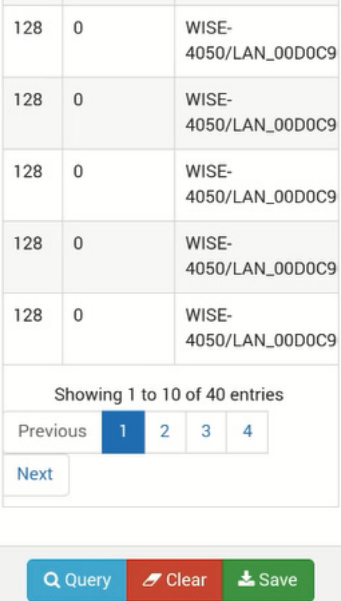
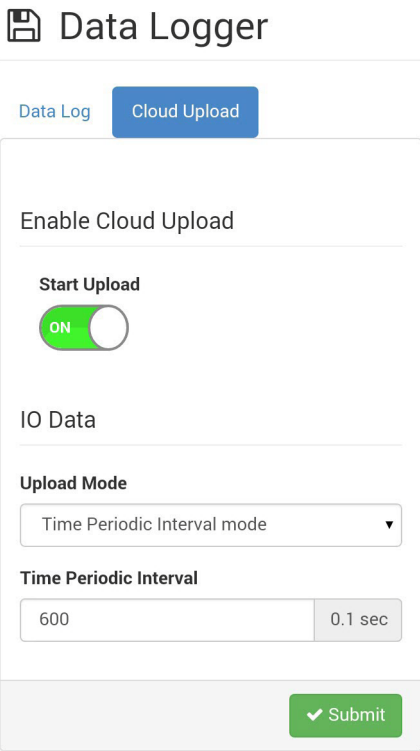
Circular Log when Memory Full

Once the box been check, the data will been circular log when memory was full. Otherwise, the logger will stop.


[Channel Setting]

Users can configure which channel of the module will be logged and decide whether to log the data when the status is changed by checking the "Change of Status" box.

<div><div>Local Viewer</div><div><div>Query Format ▾</div><div>UUID<div><input checked="" type="checkbox"/> Enabled/Disabled</div></div><div>MAC ID<div><input type="checkbox"/> Enabled/Disabled</div></div><div>Timestamp<div>Coordinated Universal Time(UTC) ▾</div></div></div></div>	<p>Local Viewer</p> <p>[Query Format]</p> <p>Users can decide which type of data has been queried.</p>
<div><div>Query Filter ▾</div><div><div>Filter Mode<div>Amount of Latest Data ▾</div></div><div>Current Total Amount<div><div></div>0</div></div><div>Total Amount<div><div></div>20</div></div></div><div><div>Query Filter ▾</div><div><div>Filter Mode<div>Time Filter ▾</div></div><div>Timestamp of the Oldest<div><div></div>1970-01-01T08:00:00</div></div><div>Start Time<div><div></div>1970-01-01T08:00:00</div></div><div>Timestamp of the Latest<div><div></div>1970-01-01T08:00:00</div></div><div>End Time<div><div></div>1970-01-01T08:00:00</div></div></div><div><div>Query</div><div>Clear</div></div></div></div>	<p>[Query Filter]</p> <p>Filter Mode</p> <ul style="list-style-type: none">■ Amount of Latest Data: User can query the latest amount of data by this mode■ Time Filter: User can query the data from and to the time by configured here

	<p>After "Query" has been clicked, the data will be shown in the dashboard and also in the list. Users can click the "Save" button to save the logged data.</p> <p>Refer to B.2.4 for a detailed definition of each column. For example: Log Type 128 means periodical logging, I/O Type 1 means DI status</p>
	<p>Cloud Upload (WISE-4000 wireless series only)</p> <p>[Enable Cloud Upload]</p> <p>Start Upload After configuring the cloud server as described below, users can start automatically upload functions here.</p> <p>[Upload Mode]</p> <ul style="list-style-type: none"> ■ Time Periodic Interval mode: Data can be upload be configured period ■ Item Periodic Interval mode: Data can be upload once it reaches the configured of sample data

Advance Function - Diagnostician




Diagnostician


For diagnose the device, this function provided organization status for specific function in device.

[Go to](#)

WISE-4000 wireless modules provide Diagnostician page for indicating the operating status of WISE module. The status of each function will be shown here for troubleshooting.



Diagnostician

Name	Description	Value
 Data Logger	Event Status	Normal

For Data Logger, the value will indicate the event status ie: normal, memory full, or cloud upload fail.

4.2.7 Configuring Cloud Server (WISE-4000 wireless series only)

1. Make sure the WISE-4000 module is able to access the Internet, and the device that's going to configure the WISE-4000 module is within the same IP domain as the WISE-4000 module
2. Go to the Cloud tab of Configuration.


Note! The following instructions use Dropbox. Make sure Dropbox provide their service in your region or find an alternative public cloud service.




3. Select Dropbox as the cloud server.


Cloud Configuration

Cloud Server

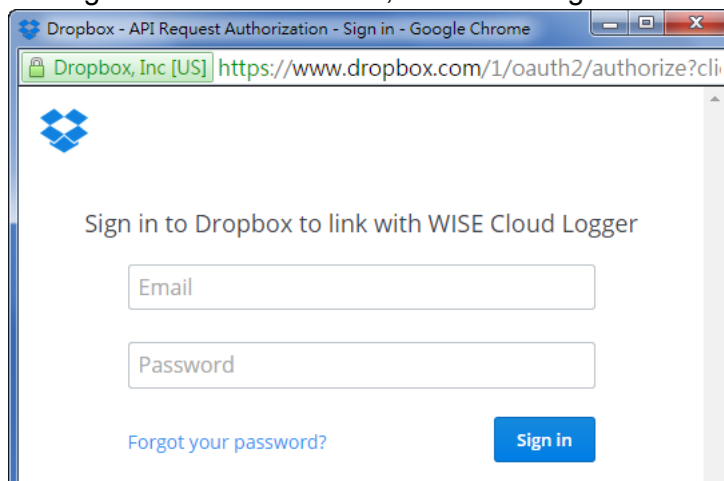

Dropbox

Link Status

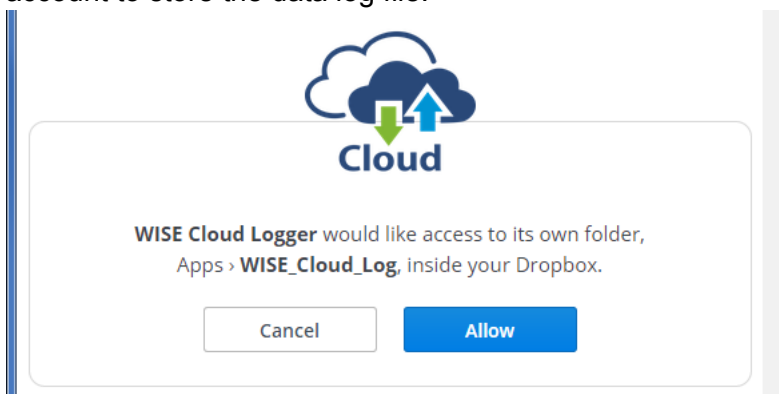


 Authenticate

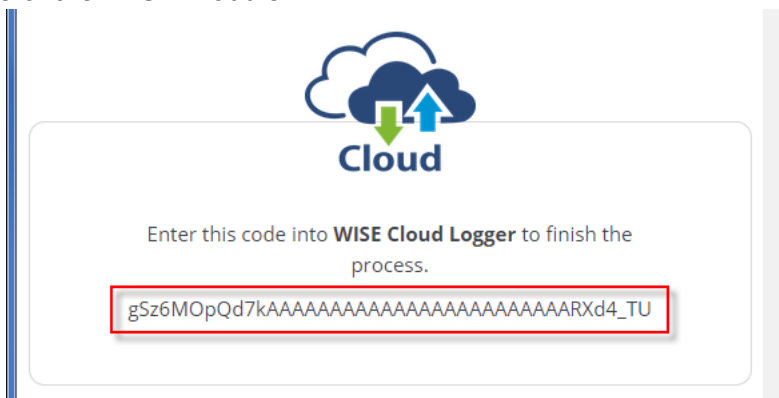
4. The browser will open a new window for Dropbox. Enter your Dropbox account information including E-mail and Password, then click "Sign in".



5. After logging in, click "Allow" to allow WISE Cloud Logger Apps to access your Dropbox account to store the data log file.



6. Dropbox will then provide a code, copy this code and return to the configuration web page of the WISE module.



7. Click "Next" to enter the code.


IMAGE NOT SUPPLIED BY PM!

8. Paste the code provided by WISE Cloud Logger, then click "Submit".

Grant Cloud Access x

Step 2

Copy the "User Code" on Cloud Service Website and paste to the following column:



gSz6MOpQd7kAAAAAAAAAAAAAAAAAAAAAAAAARXd4_TU

✔ Submit

●●●

9. If your WISE-4000 module is correctly connected to the Internet, you will be able to set the functions successfully. Click "Close" to return to Configuration.


Grant Cloud Access x

✔ Setting Successfully

✕ Close

●●●

10. You will then be able to see the "Link Status" shows "Ready".


 Configuration

Information Wireless Network App Time & Date SNTP

Modbus Control General Cloud Firmware Account

Cloud Configuration


Cloud Service

 Dropbox

ON

Link Status

Ready



Configure

4.3 Configure WISE-4000 with ADAM.NET Utility

ADAM.NET Utility, which is designed with graphical operation interface, is aimed to offer users directly configure, control WISE-4000 module, and monitor the real-time status of remote WISE-4000 module via Ethernet or Wireless connection.

To keep you informed with latest update, you also can check it from the following download link on Advantech website.

http://support.advantech.com.tw/Support/DownloadSRDetail.aspx?SR_ID=1-2AKUDB

Note! ■ Before installing ADAM.NET Utility, you need to install .NET Framework 2.0 or higher version.



- System requirement
- Microsoft Windows XP/7
 - At least 32 MB RAM
 - 20 MB of hard disk space available
 - VGA color or higher resolution monitor
 - Mouse or other pointing devices
 - 10/100 Mbps or higher Ethernet Card

1. Install ADAM.NET Utility in your computer.
(After successfully installation, there will be a shortcut generated on the screen)



2. Double click the shortcut icon, and then you will see the main operation window.
3. Click Search Module icon in Toolbar. You will see all online modules in the left Module Tree screen and an unconfigured new module, whose default password is 00000000, will appear on the Others section as below. Now you can define the network mode of the module in the beginning. After that, you will be able to perform other settings.

Note! The default password is 00000000



4.3.1 Operation Framework

The operation window mainly contains 4 areas, including Menu, Toolbar, Module Tree screen and Main Operation screen.

4.3.1.1 Menu

a. File

■ Open Favorite Group

You can import the favorite configuration group file (.XML) from your computer.

-
- **Save Favorite Group**
You can save the favorite group configuration group as XML file to your computer.
 - **Auto-Initial Group**
If you want to have the same favorite group configuration when you exit ADAM.NET utility and launch it again, you need to check this option.
 - **Exit**
Exit ADAM.NET Utility.

b. Tools■ **Search Device**

Search all the WISE-4000 modules you connected in local Ethernet.

■ **Add Devices to Group**

It's used to add WISE-4000 modules to your favorite group. After activating search function, all online modules will show on Module Tree Screen area. Now you can enable this function to select the device you want to add in the Module Tree Screen.

■ **Group Configuration**

Group Configuration is on WISE-4000 series module. It can help you efficiently configure or maintain massive WISE-4000 modules with the same configuration file or firmware upgrade at one time in the local network. The following steps will instruct you how to operate it.

■ **Terminal for Command Testing**

WISE-4000 series module Modbus/TCP as communication protocol, so you can launch the terminal to directly communicate with WISE-4000 series module by these two protocols.

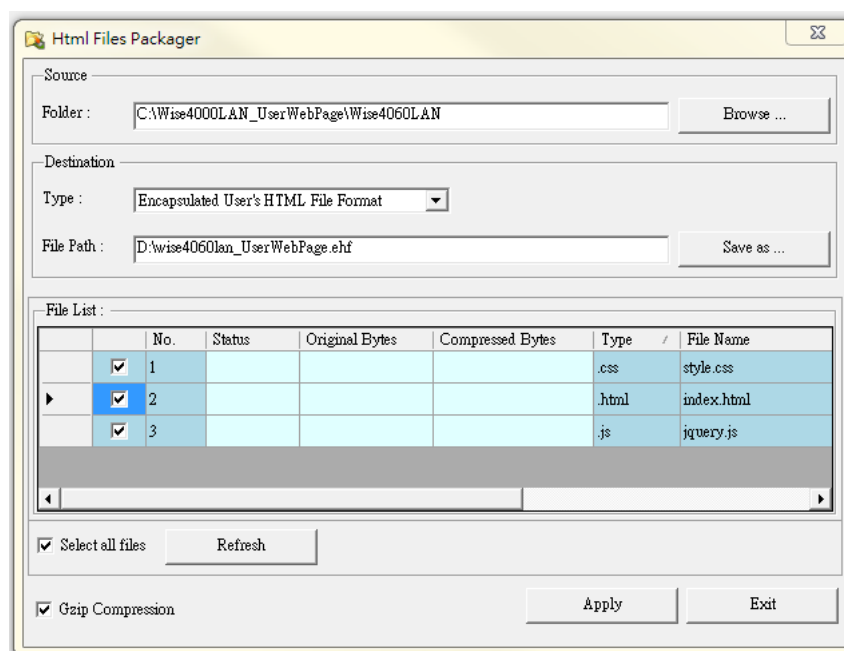
■ **Print Screen**

You can save current ADAM.NET Utility screen into an image file by this option.

■ **HTML File Packager**

You can pack your user web page by this tool:

1. Put all the files that going to pack in same folder, and "Browse..." the folder
2. Press "Save as..." and give a file name after package
3. Check all the files had been selected in "File List"
4. Check "Gzip Compression" to reduce the file size
5. After press the "Apply" button, your user web page will be compressed as "*.ehf" file, then you can download the file into your WISE module



c. Setup

- **Favorite Group**

You can configure your favorite group including add one new device, modify or delete one current device, sort current devices and diagnose connection to one device.

- **Refresh Serial and Ethernet**

ADAM.NET utility will refresh the serial and LAN network connection situation.

- **Add COM Ports**

This option is used to add serial COM ports in ADAM.NET Utility. You won't need to use this option for WISE-4000 modules.

- **Show TreeView**

Check this option to display the Module Tree Screen area.

- **Allow Calibration**

Check this option to allow calibration function enabled on AI/O module.

d. Help

- **Check Up-to-Date on the Web**

It will automatically connect to support and download page of Advantech website when it enabled. You can find and download the latest version of WISE-4000 utility there.

- **About ADAM.NET Utility**

The current version of ADAM.NET Utility is installed on your computer.

4.3.1.2 Toolbar

There are 8 graphical icons for common used options of Menu on the toolbar.



Definition (from left to right)

1. Open favorite group
2. Save favorite group
3. Search Modules
4. Add Devices to Group
5. Terminal for Command Testing
6. Group Configuration
7. Monitor Data Stream/Event
8. Print Screen

4.3.1.3 Module Tree Screen

The Module Tree Screen locates on the left part of ADAM.NET utility operation window. There are four categories in this area:

Serial

All serial I/O Modules (ADAM-4000 and ADAM-5000 RS-485 serial modules) connected to the host PC will be listed in this category.

Ethernet

All Ethernet I/O Modules (WISE-4000, ADAM-6000, ADAM-6100, and ADAM-5000 TCP modules) connected to the host PC will be listed in this category.

Favorite Group

You can define which devices listed in the three categories above into your personal favorite group. This will make you easier to find your interested modules. Right click on the WISE-4000 device item under the Favorite Group item and you can select Add New Group to create a new group. After you create your own group, right click on your group and Add New Device into your group. You can also select Diagnose connection to check the communication.

ADAM-4500_5510 Series

This is a DOS interface utility for remote controllers such as ADAM-4500 and ADAM-5510 series.

Wireless Sensor Networks

All wireless I/O Modules (ADAM-2000 modules) connected to the host PC, through wireless gateway, will be listed in this category.

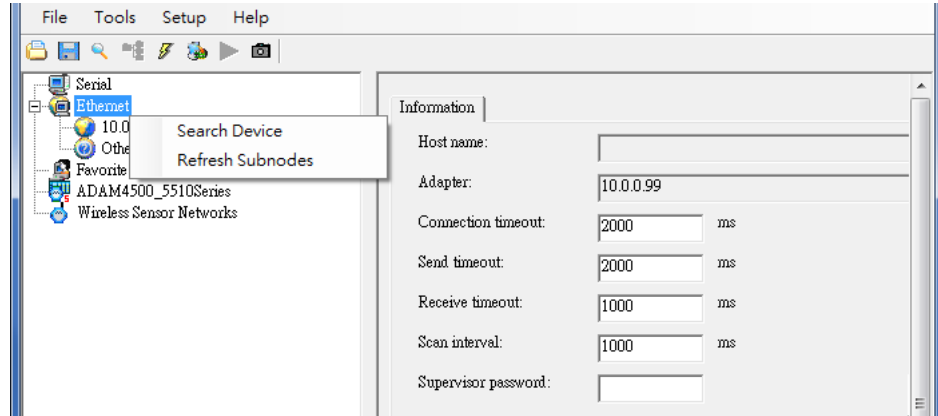
4.3.1.4 Main Operation Screen

Main Operation Screen located on the right side of utility includes I/O status display and function setting. You can select different items in Module Tree Screen, and then Main Operation Screen will change dependently. You can do all configurations and test in this area.

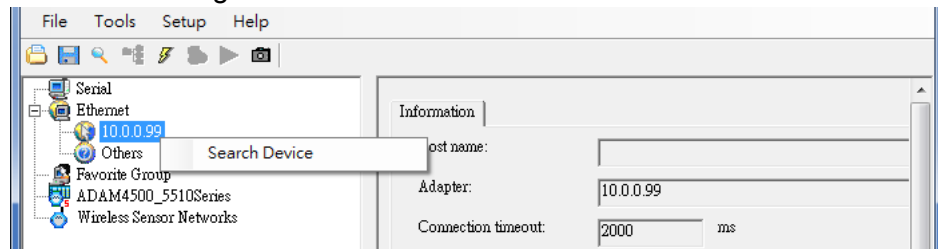
In Information page (after clicking Ethernet), you can configure Connection/Send/Receive/Scan Timeout. The supervisor password is a shortcut to let you enter a password at one time which's applied for certain modules, so you don't need to enter the same password for each module when you check it.

4.3.2 Configure WISE-4000

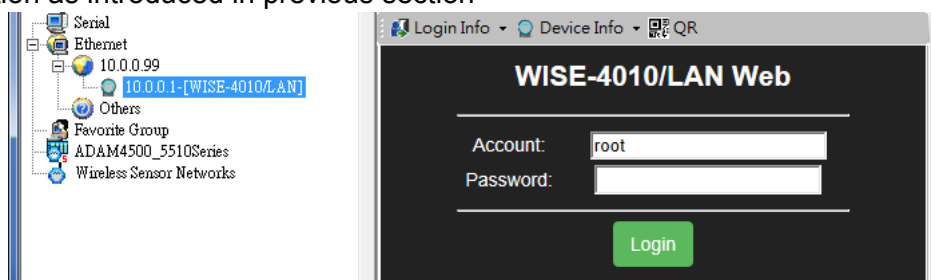
1. Configure the computer's IP address as the same domain as WISE-4000 module. For the new WISE-4000/LAN Series which default IP address is 10.0.0.1, the IP address of computer can be configured as 10.0.0.99 for example as following.
2. Open the Adam/Apax .NET Utility then you can see the IP address of computer been shown under "Ethernet" tree. You can right click to refresh the subnodes of this tree. Or click "Search Device" to find WISE-4000 module.



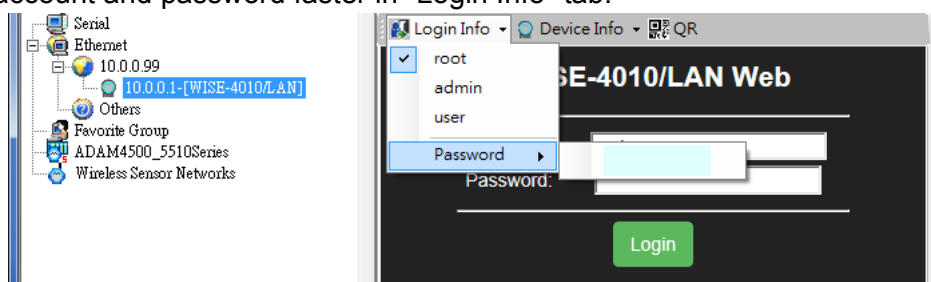
3. Users can also right click the IP address to find WISE-4000 module.



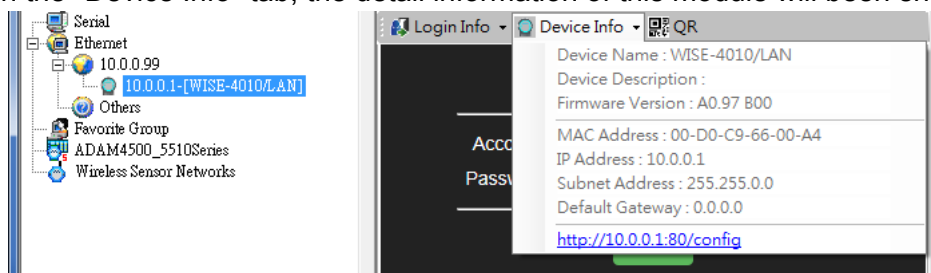
4. After the module been found, it will be listed under IP address in same domain, you can login the embedded web configuration web page for further configuration as introduced in previous section



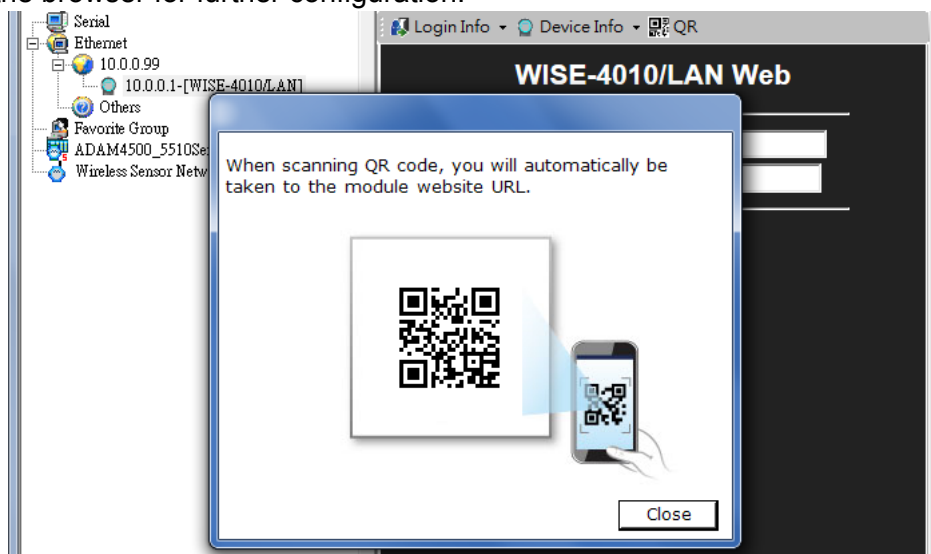
5. There are some function provide in same pages in utility, first you can enter the account and password faster in "Login Info" tab.



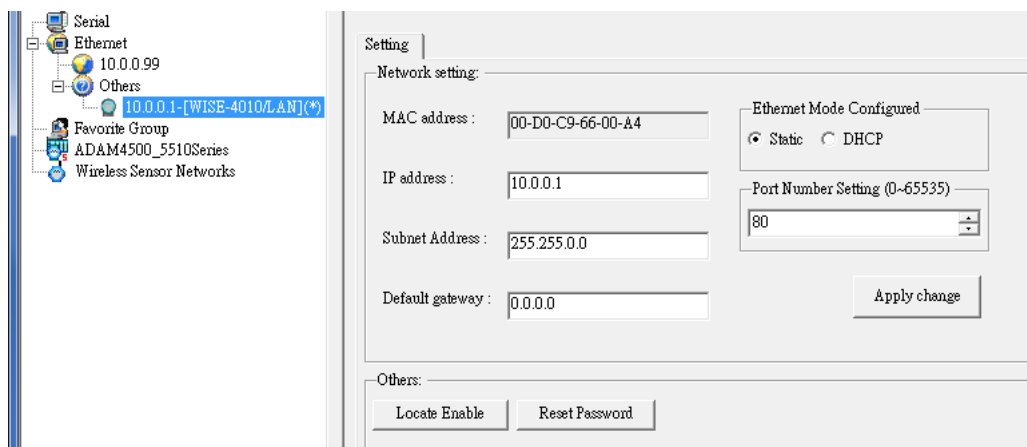
6. In the "Device Info" tab, the detail information of this module will be shown



7. The "QR" tab will generate the QR code of the web configuration web page for mobile device to access the module. User can also click the QR code to open the browser for further configuration.



Note! *If you are not able to search the module, you can configure the SW1 behind the module to initial mode. After power up and search the module in utility, user can find the module with default IP address, and the device name will be shown in "Others" tree with (*) sign. So user can change the device network setting in this page. Or try to locate the device and also reset the password with same page. After the new network setting been apply, please configure the SW1 back to normal mode and power up again to reboot in new network setting.*

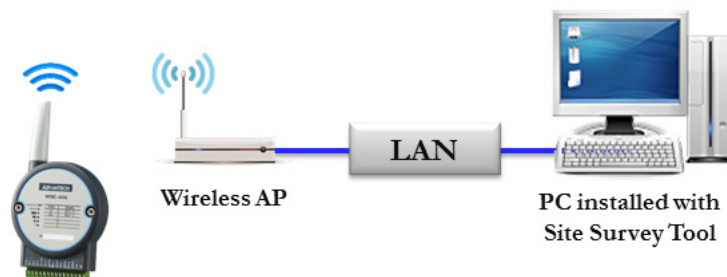


4.4 Site Survey Tool for WISE-4000 Wireless Series

WISE-4000 Wireless Series provides Site Survey Tool for testing the communication quality between WISE-4000 wireless module with wireless access point or wireless router.

4.4.1 Site Survey Architecture

Wiring the wireless AP with the PC installed with Site Survey Tool (Utility), if possible, the network should only have PC, AP, and WISE-4000 only.



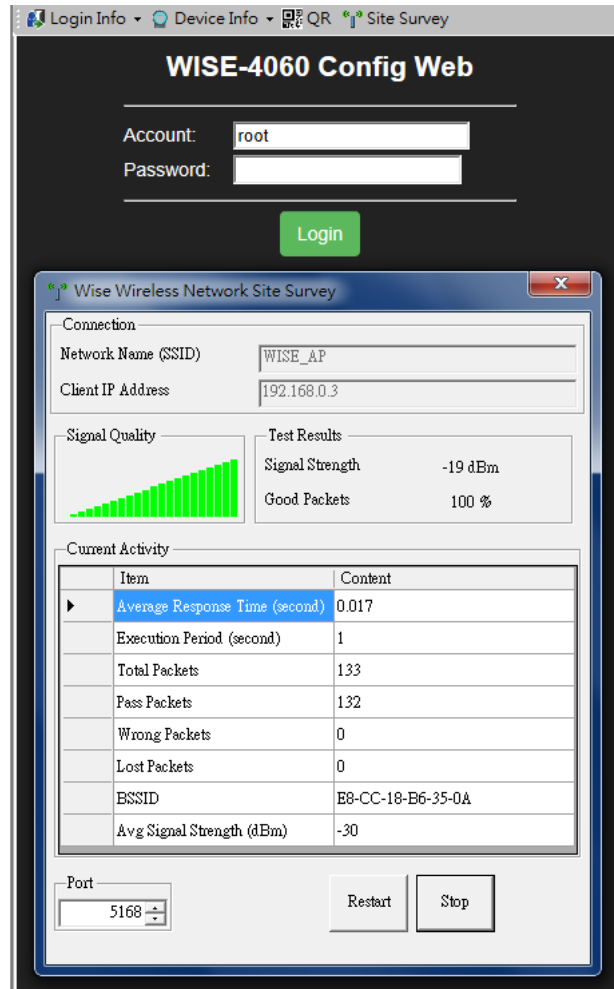
4.4.2 Site Survey Mode

WISE module will go to site survey mode operation for testing communication quality. Most of the functions of WISE module will temporally stop to doing site survey operation. And the LED status will work as following:

LED	Color	Indication	Behavior
Status	Green	OFF	Site Survey mode
Com	Yellow	Blink	Site Survey data packet TX/RX
AP/Infra	Green	OFF	Site Survey mode (Station Mode)
Signal Strength	Green	Blink	Site Survey mode

4.4.3 Site Survey Tool

Search WISE-4000 module as described in the last section, after click the module shown in Ethernet tree. There is a "Site Survey" icon as following. Click the "Site Survey" icon to open site survey tool windows as following. Click "Start" to set the module in site survey mode and start the site survey tool. User can click "Restart" to restart the testing result, or click "Stop" to stop the testing and set the module back to normal operation.



Connection

Network Name (SSID): Show which wireless AP is connected.

Client IP Address: Show the IP address of the wireless adapter of PC

Signal Quality

Show the signal strength by bar chart

Testing Results

Signal Strength: The average result of the signal strength during testing

Good Package: The percentage of passed packets during testing

Current Activity

Detail information of each testing packets

Port

User can configure which UDP port of PC is assigned for site survey testing

Appendix **A**

I/O Modbus Mapping Table

A.1 Modbus Function Code Introduction

To full-fill the programming requirement, there is a series of function code standard for user's reference.

Code (Hex)	Name	Usage
01	Read Coil Status	Read Discrete Output Bit
02	Read Input Status	Read Discrete Input Bit
03	Read Holding Registers	Read 16-bit register. Used to read integer or floating point process data.
04	Read Input Registers	
05	Force Single Coil	Write data to force coil ON/OFF
06	Preset Single Register	Write data in 16-bit integer format
08	Loopback Diagnosis	Diagnostic testing of the communication port
0F	Force Multiple Coils	Write multiple data to force coil ON/OFF
10	Preset Multiple Registers	Write multiple data in 16-bit integer format

A.2 WISE-4010/LAN Modbus Mapping Table

Address (0X):

Address (0X)	Channel	Description	Attribute
00017	0	DO Value	Read/Write
00018	1		Read/Write
00019	2		Read/Write
00020	3		Read/Write
00101	0	Reset Historical Maximum AI Value	Write
00102	1		Write
00103	2		Write
00104	3		Write
00105	Average Ch 0~3		Write
00111	0	Reset Historical Min. AI Value	Write
00112	1		Write
00113	2		Write
00114	3		Write
00115	Average Ch 0~3		Write
00121	0	Open-Circuit Flag (Burnout)	Read
00122	1		Read
00123	2		Read
00124	3		Read

00131	0	High Alarm Flag	Read
00132	1		Read
00133	2		Read
00134	3		Read
00135	Average Ch 0~3		Read

00141	0	Low Alarm Flag	Read
00142	1		Read
00143	2		Read
00144	3		Read
00145	Average Ch 0~3		Read

Address (4X):

Address (4X)	Channel	Description	Attribute
40211		Module Name 1	Read
40212		Module Name 2	Read

40221	All AI	AI Channel Enabled	Read/Write
-------	--------	--------------------	------------

40303	All DO	DO Value	Read/Write
-------	--------	----------	------------

40001	0	AI Value	Read
40002	1		Read
40003	2		Read
40004	3		Read
40005	Average Ch 0~3		Read

40009-40010	0	Pulse Output Low Level Width	Read/Write
40011~40012	1		Read/Write
40013~40014	2		Read/Write
40015~40016	3		Read/Write

40017-40018	0	Pulse Output High Level Width	Read/Write
40019~40020	1		Read/Write
40021~40022	2		Read/Write
40023~40024	3		Read/Write

40025-40026	0	Set Absolute Pule	Read/Write
40027~40028	1		Read/Write
40029~40030	2		Read/Write
40031~40032	3		Read/Write

40033~40034	0	Set Incremental Pulse	Read/Write
40035~40035	1		Read/Write
40037~40038	2		Read/Write
40037~40040	3		Read/Write
40101~40102	0	AI Status*	Read
40103~40104	1		Read
40105~40106	2		Read
40107~40108	3		Read
40111	0	Historical Maximum AI Value	Read
40112	1		Read
40113	2		Read
40114	3		Read
40115	Average Ch 0~3		Read
40121	0	Historical Minimum AI Value	Read
40122	1		Read
40123	2		Read
40124	3		Read
40125	Average Ch 0~3		Read
40131~40132	0	AI Floating Value (IEEE754)	Read
40133~40134	1		Read
40135~40136	2		Read
40137~40138	3		Read
40139~40140	Average Ch 0~3		Read
40151~40152	0	Historical Maximum AI Floating Value (IEEE754)	Read
40153~40154	1		Read
40155~40156	2		Read
40157~40158	3		Read
40159~40160	Average Ch 0~3		Read
40171~40172	0	Historical Minimum AI Floating Value (IEEE754)	Read
40173~40174	1		Read
40175~40176	2		Read
40177~40178	3		Read
40179~40180	Average Ch 0~3		Read
40191	0	AI Value After Scaling	Read
40192	1		Read
40193	2		Read
40194	3		Read
40195	Average Ch 0~3		Read

40201	0	AI Type Code** (The type codes of channels for average value can't be changed.)	Read/Write
40202	1		Read/Write
40203	2		Read/Write
40204	3		Read/Write
40205	Average Ch 0~3		Read

* AI Status (2 Registers)

Lower Register		Higher Register	
Bit	Description	Bit	Description
0	Fail to Provide AI Value	0	DI triggered to Safety Value
1	Over Range	1	DI triggered to Startup Value
2	Under Range	2	Reserved
3	Open Circuit / Burnout	3	Reserved
4	Reserved	4	Reserved
5	Reserved	5	Reserved
6	Reserved	6	Reserved
7	ADC Initializing/Error	7	Reserved
8	Reserved	8	Reserved
9	Zero/Span Calibration Error	9	Reserved
10	Reserved	10	Reserved
11	Reserved	11	Reserved
12	Reserved	12	Reserved
13	Reserved	13	Reserved
14	Reserved	14	Reserved
15	Reserved	15	Reserved

** AI Type Code (2 Registers)

Type Code	Input Range
0x1080	4~20 mA
0x1082	0~20 mA

A.3 WISE-4050/LAN Modbus Mapping Table

Address 0X	Channel	Description	Attribute
00001	0	DI Value	Read
00002	1		Read
00003	2		Read
00004	3		Read
00017	0	DO Value	Read/Write
00018	1		Read/Write
00019	2		Read/Write
00020	3		Read/Write
00033	0	Counter Status (0: stop 1: start)	Read/Write
00034	1		Read/Write
00035	2		Read/Write
00036	3		Read/Write
00037	0	Clear Counter (1: write to clear value)	Write
00038	1		Write
00039	2		Write
00040	3		Write
00041	0	Clear Overflow (1: counter overflow, auto set to 0 after read)	Read/Write
00042	1		Read/Write
00043	2		Read/Write
00044	3		Read/Write
00045	0	DI Latch Status (1: DI latched, 0: write to clear latch)	Read/Write
00046	1		Read/Write
00047	2		Read/Write
00048	3		Read/Write
Address 4X	Channel	Description	Attribute
40211	-	Module Name 1	Read
40212	-	Module Name 2	Read
40301	All DI	DI Value	Read
40303	All DO	DO Value	Read/Write
40001~40002	0	Counter/Frequency Value	Read
40003~40004	1		Read
40005~40006	2		Read
40007~40008	3		Read

40009~40010	0	Pulse Output Low Level Width	Read/Write
40011~40012	1		Read/Write
40013~40014	2		Read/Write
40015~40016	3		Read/Write
40017~40018	0	Pulse Output High Level Width	Read/Write
40019~40020	1		Read/Write
40021~40022	2		Read/Write
40023~40024	3		Read/Write
40025~40026	0	Set Absolute Pulse Output Number	Read/Write
40027~40028	1		Read/Write
40029~40030	2		Read/Write
40031~40032	3		Read/Write
40033~40034	0	Set Incremental Pulse Output Number	Read/Write
40035~40036	1		Read/Write
40037~40038	2		Read/Write
40039~40040	3		Read/Write

A.4 WISE-4060/LAN Modbus Mapping Table

Address 0X	Channel	Description	Attribute
00001	0	DI Value	Read
00002	1		Read
00003	2		Read
00004	3		Read
00017	0	DO Value	Read/Write
00018	1		Read/Write
00019	2		Read/Write
00020	3		Read/Write
00033	0	Counter Status (0: stop 1: start)	Read/Write
00034	1		Read/Write
00035	2		Read/Write
00036	3		Read/Write
00037	0	Clear Counter (1: write to clear value)	Write
00038	1		Write
00039	2		Write
00040	3		Write
00041	0	Clear Overflow (1: counter overflow, auto set to 0 after read)	Read/Write
00042	1		Read/Write
00043	2		Read/Write
00044	3		Read/Write
00045	0	DI Latch Status (1: DI latched, 0: write to clear latch)	Read/Write
00046	1		Read/Write
00047	2		Read/Write
00048	3		Read/Write
Address 4X	Channel	Description	Attribute
40211	-	Module Name 1	Read
40212	-	Module Name 2	Read
40301	All DI	DI Value	Read
40303	All DO	DO Value	Read/Write
40001~40002	0	Counter/Frequency Value	Read
40003~40004	1		Read
40005~40006	2		Read
40007~40008	3		Read

40009~40010	0	Pulse Output Low Level Width	Read/Write
40011~40012	1		Read/Write
40013~40014	2		Read/Write
40015~40016	3		Read/Write
40017~40018	0	Pulse Output High Level Width	Read/Write
40019~40020	1		Read/Write
40021~40022	2		Read/Write
40023~40024	3		Read/Write
40025~40026	0	Set Absolute Pulse Output Number	Read/Write
40027~40028	1		Read/Write
40029~40030	2		Read/Write
40031~40032	3		Read/Write
40033~40034	0	Set Incremental Pulse Output Number	Read/Write
40035~40036	1		Read/Write
40037~40038	2		Read/Write
40039~40040	3		Read/Write

A.5 WISE-4012E Wireless Modbus Mapping Table

Address 0X	Channel	Description	Attribute
00001	0	DI Value	Read
00002	1		Read
00017	0	DO Value	R/W
00018	1		R/W
00033	0	Counter Status (0: stop 1: start)	R/W
00034	1		R/W
00035	0	Clear Counter (1: write to clear value)	Write
00036	1		Write
00037	0	Clear Overflow (1: counter overflow, auto set to 0 after read)	R/W
00038	1		R/W
00039	0	DI Latch Status (1: DI latched, 0: write to clear latch)	R/W
00040	1		R/W
00101	0	Reset Historical Maximum AI Value	Write
00102	1		Write
00103	Average Channel 0~1		Write
00111	0	Reset Historical Minimum AI Value	Write
00112	1		Write
00113	Average Channel 0~1		Write
00131	0	High Alarm Flag	Read
00132	1		Read
00133	Average Channel 0~1		Read
00141	0	Low Alarm Flag	Read
00142	1		Read
00143	Average Channel 0~1		Read
Address 4X	Channel	Description	Attribute
40211		Module Name 1	Read
40212		Module Name 2	Read
40221	All AI	AI Channel Enable	R/W

40301	All DI	DI Value	Read
40303	All DO	DO Value	R/W
40001	0	AI Value (Value Range: 0~10000, Value Unit: mV)	Read
40002	1		Read
40003	Average Channel 0~1		Read
40017~40018	0	Counter/Frequency Value	R/W
40019~40020	1		R/W
40021~40022	0	Pulse Output Low Level Width	R/W
40023~40024	1		R/W
40025~40026	0	Pulse Output High Level Width	R/W
40027~40028	1		R/W
40029~40030	0	Set Absolute Pulse	R/W
40031~40032	1		R/W
40033~40034	0	Set Incremental Pulse	R/W
40035~40036	1		R/W
40101~40102	0	AI Status*	Read
40103~40104	1		Read
40111	0	Historical Maximum AI Value	Read
40112	1		Read
40113	Average Channel 0~1		Read
40121	0	Historical Minimum AI Value	Read
40122	1		Read
40123	Average Channel 0~1		Read
40131~40132	0	AI Floating Value (IEEE754)	Read
40133~40134	1		Read
40135~40136	Average Channel 0~1		Read
40151~40152	0	Historical Maximum AI Floating Value (IEEE754)	Read
40153~40154	1		Read
40155~40156	Average Channel 0~1		Read

40171~40172	0	Historical Minimum AI Floating Value (IEEE754)	Read
40173~40174	1		Read
40175~40176	Average Channel 0~1		Read
40191	0	AI Value After Scaling	Read
40192	1		Read
40193	Average Channel 0~1		Read
40201	0	AI Type Code** (The type codes of channels for average value can't be changed.)	R/W
40202	1		R/W
40203	Average Channel 0~1		R

*** AI Status (2 Registers)**

Lower Register		Higher Register	
Bit	Description	Bit	Description
0	Fail to Provide AI Value	0	DI triggered to Safety Value
1	Over Range	1	DI triggered to Startup Value
2	Under Range	2	Reserved
3	Open Circuit / Burnout	3	Reserved
4	Reserved	4	Reserved
5	Reserved	5	Reserved
6	Reserved	6	Reserved
7	ADC Initializing/Error	7	Reserved
8	Reserved	8	Reserved
9	Zero/Span Calibration Error	9	Reserved
10	Reserved	10	Reserved
11	Reserved	11	Reserved
12	Reserved	12	Reserved
13	Reserved	13	Reserved
14	Reserved	14	Reserved
15	Reserved	15	Reserved

**** AI Type Code (2 Registers)**

Type Code	Input Range
0x0148	0~10 V

A.6 WISE-4050 Wireless Modbus Mapping Table

Address 0X	Channel	Description	Attribute
00001	0	DI Value	Read
00002	1		Read
00003	2		Read
00004	3		Read
00017	0	DO Value	R/W
00018	1		R/W
00019	2		R/W
00020	3		R/W
00033	0	Counter Status (0: stop 1: start)	R/W
00034	1		R/W
00035	2		R/W
00036	3		R/W
00037	0	Clear Counter (1: write to clear value)	Write
00038	1		Write
00039	2		Write
00040	3		Write
00041	0	Clear Overflow (1: counter overflow, auto set to 0 after read)	R/W
00042	1		R/W
00043	2		R/W
00044	3		R/W
00045	0	DI Latch Status (1: DI latched, 0: write to clear latch)	R/W
00046	1		R/W
00047	2		R/W
00048	3		R/W
Address 4X	Channel	Description	Attribute
40211	-	Module Name 1	Read
40212	-	Module Name 2	Read
40301	All DI	DI Value	Read
40303	All DO	DO Value	R/W
40001~40002	0	Counter/Frequency Value	Read
40003~40004	1		Read
40005~40006	2		Read
40007~40008	3		Read

40009~40010	0		R/W
40011~40012	1	Pulse Output	R/W
40013~40014	2	Low Level Width	R/W
40015~40016	3		R/W
40017~40018	0		R/W
40019~40020	1	Pulse Output	R/W
40021~40022	2	High Level Width	R/W
40023~40024	3		R/W
40025~40026	0		R/W
40027~40028	1	Set Absolute	R/W
40029~40030	2	Pulse Output Number	R/W
40031~40032	3		R/W
40033~40034	0		R/W
40035~40036	1	Set Incremental	R/W
40037~40038	2	Pulse Output Number	R/W
40039~40040	3		R/W

A.7 WISE-4060 Wireless Modbus Mapping Table

Address 0X	Channel	Description	Attribute
00001	0	DI Value	Read
00002	1		Read
00003	2		Read
00004	3		Read
00017	0	DO Value	R/W
00018	1		R/W
00019	2		R/W
00020	3		R/W
00033	0	Counter Status (0: stop 1: start)	R/W
00034	1		R/W
00035	2		R/W
00036	3		R/W
00037	0	Clear Counter (1: write to clear value)	Write
00038	1		Write
00039	2		Write
00040	3		Write
00041	0	Clear Overflow (1: counter overflow, auto set to 0 after read)	R/W
00042	1		R/W
00043	2		R/W
00044	3		R/W
00045	0	DI Latch Status (1: DI latched, 0: write to clear latch)	R/W
00046	1		R/W
00047	2		R/W
00048	3		R/W
Address 4X	Channel	Description	Attribute
40211	-	Module Name 1	Read
40212	-	Module Name 2	Read
40301	All DI	DI Value	Read
40303	All DO	DO Value	R/W
40001~40002	0	Counter/Frequency Value	Read
40003~40004	1		Read
40005~40006	2		Read
40007~40008	3		Read

40009~40010	0		R/W
40011~40012	1	Pulse Output	R/W
40013~40014	2	Low Level Width	R/W
40015~40016	3		R/W
40017~40018	0		R/W
40019~40020	1	Pulse Output	R/W
40021~40022	2	High Level Width	R/W
40023~40024	3		R/W
40025~40026	0		R/W
40027~40028	1	Set Absolute	R/W
40029~40030	2	Pulse Output Number	R/W
40031~40032	3		R/W
40033~40034	0		R/W
40035~40036	1	Set Incremental	R/W
40037~40038	2	Pulse Output Number	R/W
40039~40040	3		R/W

Appendix **B**

REST for WISE-4000
Series

B.1 Introduction

REpresentational State Transfer (REST) is a design style of software architecture for Web application behaves and services including image indication, resource request and response and message delivery. It can be developed compatible with popular protocols or standards like HTTP, URI, JSON, HTML. With the advantage of scalability, simplicity and performance, it's already adopted in Web service by Amazon, Yahoo. The Web service of is developed based on HTML5 language, if user need to integrate this into other Web services, the following information/command list should be referred for implementation.

B.2 REST Resources for WISE-4000 Series

B.2.1 Digital Input

B.2.1.1 /di_value/slot_index/ch_num

Description	Retrieves information about the digital input value resource on specific slot.
URL Structure	http://10.0.0.1/di_value/slot_index http://10.0.0.1/di_value/slot_index/ch_num
HTTP Method	GET:Returns the representation of all of digital input value resource. PUT:Replace all of digital input value resource PATCH:Apply partial modifications to digital input value resource.

GET	<p>Multiple Channel Request: GET /di_value/slot_index Single Channel Request: GET /di_value/slot_index/ch_num</p> <p>[Example]</p> <p>Request: GET /di_value/slot_0</p> <p>Content-type: application/json Response: 200 OK</p> <pre>{ "DIVal": [{ "Ch":0, "Md":0, "Stat":1, "Val":1, "Cnting":0, "ClrCnt":0, "OvLch": 0 }, { "Ch":1, "Md":0, "Stat":0, "Val":0, "Cnting":0, "ClrCnt":0, "OvLch": 0 }, { "Ch":2, "Md":1, "Stat":0, "Val":3378, "Cnting":1, "ClrCnt":0, "OvLch": 0 }, { "Ch":3, "Md":3, "Stat":0, "Val":1, "Cnting":0, "ClrCnt":0, "OvLch": 0 }] }</pre> <p>Request : GET /di_value/slot_0/ch_2</p> <p>Content-type: application/json Response: 200 OK</p> <pre>{ "Ch":2, "Md":0, "Stat":1, "Val":1, "Cnting":0, "ClrCnt":0, "OvLch": 0 }</pre>
-----	---

PUT	<p>Single/Multiple Channel Request: PUT /di_value/slot_index Single Channel Request: PUT /di_value/slot_index/ch_num</p> <p>[Example]</p> <p>Request: PUT /di_value/slot_0</p> <p>Content-type: application/json</p> <pre>{ "DIVal": [{ "Ch":0, "Md":0, "Stat":0, "Val":0, "Cnting":0, "ClrCnt":0, "OvLch": 0 }, { "Ch":1, "Md":0, "Stat":0, "Val":0, "Cnting":0, "ClrCnt":0, "OvLch": 0 }, { "Ch":2, "Md":1, "Stat":0, "Val":3378, "Cnting":0, "ClrCnt":1, "OvLch": 0 }, { "Ch":3, "Md":3, "Stat":0, "Val":0, "Cnting":0, "ClrCnt":0, "OvLch": 0 }] }</pre> <p>Response: 200 OK</p> <p>Request: PUT /di_value/slot_0/ch_2</p> <p>Content-type: application/json</p> <pre>{ "Ch":2, "Md":1, "Stat":0, "Val":3378, "Cnting":0, "ClrCnt":1, "OvLch": 0 }</pre> <p>Response: 200 OK</p>
-----	---

PATCH	<p>Single/Multiple Channel Request: PATCH /di_value/slot_index Single Channel Request: PATCH /di_value/slot_index/ch_num</p> <p>[Example]</p> <p>Request: PATCH /di_value/slot_0</p> <p>Content-type: application/json</p> <pre>{ "DlVal": [{ "Ch":2, "Cnting": 1 }, { "Ch":3, "OvLch":0 }] }</pre> <p>Response: 200 OK</p> <p>Request: PATCH /di_value/slot_0/ch_3</p> <p>Content-type: application/json</p> <pre>{ "Ch":3, "ClrCnt":1 }</pre> <p>Response: 200 OK</p>
-------	---

■ JSON array name definition:

Field	Abbreviation	Data Type
Array of Digital input configurations	DlVal	Array

■ Resource value definitions:

Field	Abbreviation	Data Type	Property	Description
Channel Number	Ch	Number	R	0, 1, ...: Digital input channel number.
Mode	Md	Number	R	Digital input mode.
				0 DI
				1 Counter
				2 LowToHighLatch
				3 HighToLowLatch
				4 Frequency
Signal Logic Status	Stat	Number	R	1, 0: Input signal is Logic High or Low.
Channel Value	Val	Number	R	DI measurement data
				Input Mode Value Description
				DI Logic Status of DI
				Counter Counter Value
				LowToHighLatch Logic status of DI
				HighToLowLatch Logic status of DI
Start Counter	Cnting	Number	RW	Frequency Frequency(unity 0.1 Hz)
Clear Counter	ClrCnt	Number	W	Start/Stop counter counting
				Read
Get/Clear Counter Overflow or Latch Sta- tus	OvLch	Number	RW	1 : counter is counting
				0 : not counting
				Write
				1 : start counting
				0 : stop counting
				1 : Clear the counter value
				counter overflow or latch status
				Read
				1 : overflow/latch occurred.
				0 : no overflow or latch
				Write
				0 : clear the overflow or latch status

B.2.2 Digital Output

B.2.2.1 /do_value/slot_index/ch_num

Description	Retrieves information about the digital output value resource on specific slot.
URL Structure	http://10.0.0.1/do_value/slot_index http://10.0.0.1/do_value/slot_index/ch_num
HTTP Method	GET:Returns the representation of all of digital output value resource. PUT:Replace all of digital output value resource PATCH:Apply partial modifications to digital output value resource.

GET	<p>Multiple Channel Request: GET /do_value/slot_index Single Channel Request: GET /do_value/slot_index/ch_num</p> <p>[Example]</p> <p>Request: GET /do_value/slot_0</p> <p>Content-type: application/json Response: 200 OK</p> <pre>{ "DOVal": [{ "Ch":0, "Md":0, "Stat":1, "Val":1, "PsCtn":0, "PsStop":0, "PsIV": 0 }, { "Ch":1, "Md":0, "Stat":0, "Val":0, "PsCtn":0, "PsStop":0, "PsIV": 0 }, { "Ch":2, "Md":1, "Stat":1, "Val":3378, "PsCtn":0, "PsStop":0, "PsIV": 0 }, { "Ch":3, "Md":3, "Stat":1, "Val":1, "PsCtn":0, "PsStop":0, "PsIV": 0 }] }</pre> <p>Request : GET /do_value/slot_0/ch_2</p> <p>Content-type: application/json Response: 200 OK</p> <pre>{ "Ch":2, "Md":0, "Stat":1, "Val":1, "PsCtn":0, "PsStop":0, "PsIV": 0 }</pre>
-----	---

PUT	<p>Single/Multiple Channel Request: PUT /do_value/slot_index Single Channel Request: PUT /do_value/slot_index/ch_num</p> <p>[Example]</p> <p>Request: PUT /do_value/slot_0</p> <p>Content-type: application/json</p> <pre>{ "DOVal": [{ "Ch":0, "Md":0, "Stat":1, "Val":1, "PsCtn":0, "PsStop":0, "PsIV": 0 }, { "Ch":1, "Md":0, "Stat":0, "Val":0, "PsCtn":0, "PsStop":0, "PsIV": 0 }, { "Ch":2, "Md":1, "Stat":1, "Val":3378, "PsCtn":0, "PsStop":0, "PsIV": 0 }, { "Ch":3, "Md":3, "Stat":1, "Val":1, "PsCtn":0, "PsStop":0, "PsIV": 0 }] }</pre> <p>Response: 200 OK</p> <p>Request: PUT /do_value/slot_0/ch_2</p> <p>Content-type: application/json</p> <pre>{ "Ch":2, "Md":2, "Stat":0, "Val":0, "PsCtn":0, "PsStop":0, "PsIV": 0 }</pre> <p>Response: 200 OK</p>
-----	---

PATCH	<p>Single/Multiple Channel Request: PATCH /do_value/slot_index Single Channel Request: PATCH /do_value/slot_index/ch_num</p> <p>[Example]</p> <p>Request: PATCH /do_value/slot_0</p> <p>Content-type: application/json</p> <pre>{ "DOVal": [{ "Ch":2, "Md": 2 }, { "Ch":3, "PsStop":1 }] }</pre> <p>Response: 200 OK</p> <p>Request: PATCH /do_value/slot_0/ch_3</p> <p>Content-type: application/json</p> <pre>{ "Ch":3, "PsCtn":1 }</pre> <p>Response: 200 OK</p>
-------	---

■ JSON array name definition:

Field	Abbreviation	Data Type
Array of Digital input configurations	DOVal	Array

■ Resource value definitions:

Field	Abbreviation	Data Type	Property	Description
Channel Number	Ch	Number	R	0, 1, ...: Digital output channel number. Digital output mode.
Mode	Md	Number	R	0 DO
				1 Pulse Output
				2 LowToHighDelay
				3 HighToLowDelay
Signal Logic Status	Stat	Number	R	1, 0: Output signal is Logic High or Low. DO measurement data Output Mode Value Description DO Get the current signal status or set its status
Channel Value	Val	Number	RW	Pulse Output Get or set the absolute pulse count value LowToHighDelay Get the current signal status or set its status HighToLowDelay Get the current signal status or set its status
Pulse Output Continue State	PsCtn	Number	RW	1 / 0: Pulse outputting is continuous or not.
Stop Pulse Output	PsStop	Number	W	1: Stop the pulse outputting. (Continue is disabled, Absolute and incremental values are reset to zero. DO signal status is set to logic low.)
Incremental Pulse Output Value	PsIV	Number	RW	Incremental Pulse Output Value

B.2.3 Analog Input

B.2.3.1 /ai_value/slot_index/ch_num

Description	Retrieves information about the analog input value resource on specific slot.
URL Structure	http://10.0.0.1/ai_value/slot_index http://10.0.0.1/ai_value/slot_index/ch_num
HTTP Method	GET:Returns the representation of all of analog input value resource. PUT:None PATCH:Apply partial modifications to analog input value resource.

GET	<div>Multiple Channel Request: GET /ai_value/slot_index Single Channel Request: GET /ai_value/slot_index/ch_num</div> <div>[Example]</div> <div>Request : GET /ai_value/slot_0</div> <div>Content-type: application/json Response: 200 OK</div> <div>{ "AIVal": [{ "Ch":0, "En":1, "Rng":328, "Val":148, "Eg":650, "Evt":0, "LoA": 0, "HiA": 0, "HVal":190, "HEg":1250, "LVal":15, "LEg":500, "SVal":148, "ClrH": 0, "ClrL": 0 }, { "Ch":1, "En":1, "Rng":328, "Val":0, "Eg":0, "Evt":0, "LoA":0, "HiA":0, "HVal":0, "HEg":0, "LVal":0, "LEg":0, "SVal":0, "ClrH": 0, "ClrL": 0 }, { "Ch":2, "En":1, </div>
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	<pre>"Rng":328, "Val":0, "Eg":0, "Evt":8, "LoA":0, "HiA":0, "HVal":0, "HEg":0, "LVal":0, "LEg":0, "SVal":0, "CirH": 0, "CirL": 0 }, { "Ch":3, "En":1, "Rng":328, "Val":0, "Eg":0, "Evt":0, "LoA":0, "HiA":0, "HVal":0, "HEg":0, "LVal":0, "LEg":0, "SVal":0, "CirH": 0, "CirL": 0 }, { "Ch":4, "En":1, "Rng":328, "Val":0, "Eg":0, "Evt":0, "LoA":0, "HiA":0, "HVal":0, "HEg":0, "LVal":0, "LEg":0, "SVal":0, "CirH": 0, "CirL": 0 }] }</pre> <p>Request : GET /ai_value/slot_0/ch_2</p> <p>Content-type: application/json Response: 200 OK</p> <pre>{ "Ch":2, "En":1, "Rng":328, "Val":0, "Eg":0, "Evt":8, "LoA":0, "HiA":0, "HVal":0, "HEg":0, "LVal":0, "LEg":0, "SVal":0, "CirH": 0, "CirL": 0 }</pre>
PUT	None

PATCH	<p>Single/Multi Channel Request: PATCH /ai_value/slot_index Single Channel Request: PATCH /ai_value/slot_index/ch_num</p> <p>[Example]</p> <p>Request: PATCH /ai_value/slot_0</p> <p>Content-type: application/json { "AIVal": [{ "Ch":2, "LoA": 0 }, { "Ch":3, "HiA":0 }] }</p> <p>Response: 200 OK</p> <p>Request: PATCH /ai_value/slot_0/ch_3</p> <p>Content-type: application/json { "LoA":0 }</p> <p>Response: 200 OK</p>
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■ JSON array name definition:

Field	Abbreviation	Data Type
Array of Analog input configurations	AIVal	Array

- Resource value definitions (Total channels = AI channel number + 1 average channel):

Field	Abbreviation	Data Type	Property	Description
Channel Number	Ch	Number	R	0, 1, ...: Analog input channel number. Note for the average channel: The average channel number for a 4-ch AI module is 4.
Input Range	Rng	Number	R	Analog input range.
				Range code
				328 (0x0148) 0 ~ 10 V
				259 (0x0103) +/- 150 mV
				260 (0x0104) +/- 500 mV
				320 (0x0140) +/- 1 V
				321 (0x0141) +/- 2.5 V
				322 (0x0142) +/- 5 V
				323 (0x0143) +/- 10 V
				327 (0x0147) 0 ~ 5 V
				384 (0x0180) 4 ~ 20 mA
				385 (0x0181) +/- 20 mA
				386 (0x0182) 0 ~ 20 mA
				65535 Invalid range, if average channel is disabled
Channel Enable	En	Number	R	1 / 0: Enable / Disable AI conversion Notice: Average channel is read only. When channel mask of average is not 0, the value is 1.
Channel Raw Value	Val	Number	R	0 ~ 65535: AI measurement data (Raw data)
Channel Engineering data	Eg	Number	R	AI engineering data, the value is 1/1000 scale. For example, 1630 → 1.63
Channel Event Status	Evt	Number	R	AI statuses
Low Alarm Status	LoA	Number	RW	Low alarm status Read 1 : low alarm occurred. 0 : not occurred Write 0 : clear the low alarm status
				High alarm status Read 1 : high alarm occurred. 0 : not occurred Write 0 : clear the high alarm status
Maximum AI Raw Value	HVal	Number	R	AI max. measurement data (Raw data)

Maximum AI Engineering data	HEg	Number	R	AI max. engineering data, the value is 1/1000 scale For example, 10200→10.2
Minimum AI Raw Value	LVal	Number	R	AI min. measurement data (Raw data)
Minimum AI Engineering data	LEg	Number	R	AI min. engineering data, the value is 1/1000 scale For example, 250 → 0.25
Channel Raw Value After Scaling	SVal	Number	R	0 ~ 65535 : AI measurement data (Raw data) after scaling
Clear Maximum AI Value	ClrH	Number	W	1 : Clear the Maximum AI value
Clear Minimum AI Value	ClrL	Number	W	1 : Clear the Minimum AI value

* AI Status (2 Registers)			
Lower Register		Higher Register	
Bit	Description	Bit	Description
0	Fail to Provide AI Value	0	DI triggered to Safety Value
1	Over Range	1	DI triggered to Startup Value
2	Under Range	2	Reserved
3	Open Circuit / Burnout	3	Reserved
4	Reserved	4	Reserved
5	Reserved	5	Reserved
6	Reserved	6	Reserved
7	ADC Initializing/Error	7	Reserved
8	Reserved	8	Reserved
9	Zero/Span Calibration Error	9	Reserved
10	Reserved	10	Reserved
11	Reserved	11	Reserved
12	Reserved	12	Reserved
13	Reserved	13	Reserved
14	Reserved	14	Reserved
15	Reserved	15	Reserved

B.2.4 Data Logger

B.2.4.1 /log_message

Description	Retrieves the log data in system memory.
URL Structure	http://10.0.0.1/log_message
HTTP Method	GET: According to the setting of filtering, server returns the all/partial of logged data.
GET	<p>Request: GET /log_message</p> <p>[Example]: Request: GET /log_message for WISE-4060/LAN module</p> <p>Content-type: application/json Response: 200 OK</p> <pre>{ "LogMsg": [{ "PE":128, "TIM":"2014-11-11T15:48:32+08:00", "UID":"ADAM-T160_00D0C9FE1601", "MAC":"00-D0-C9-FE-16-01", "Record" : [[0,3,3,1], [0,2,4,150], [0,5,5,250]] }, { "PE":128, "TIM":"2014-11-11T15:49:44+08:00", "UID":"ADAM-T160_00D0C9FE1601", "MAC":"00-D0-C9-FE-16-01", "Record" : [[0,3,3,0], [0,2,4,140], [0,5,5,240]] }, { "PE":128, "TIM":"2014-11-11T15:51:02+08:00", "UID":"ADAM-T160_00D0C9FE1601", "MAC":"00-D0-C9-FE-16-01", "Record" : [[0,3,3,0], [0,2,4,130], [0,5,5,230]] }] }</pre>

JSON array name definition:

Field	Abbreviation	Data Type
Array of log messages	LogMsg	Array
Array of I/O records	Record	Array

Resource value definitions:

Field	Abbreviations	Data type	Property	Description
Periodic/Event	128	Number	R	Recording mode of storage
				1DI
				2DO
				4Event from AI
				8AO
				16WDT
				128Periodic
Timestamp	TIM	String	R	Timestamp of the storage "Coordinated Universal Time (UTC) Ex. "1415757750" corresponds to November 12, 2014, 2:02:30 am, Standard Time. (meanwhile, 2014, 10:02:30 am, Taipei Time.) "Local Date/Time according GMT time zone (ISO 8601) Ex. "1994-11-05T08:15:30-05:00" corresponds to November 5, 1994, 8:15:30 am, US Eastern Standard Time.
UUID	UID	String	R	Universally Unique Identifier (UUID) Max. 32 characters
MAC ID	MAC	String	R	MAC address. (12+5) characters, ex, "00-D0-C9-F0-63-F7
Recording message	Record	Array	R	* The information in array is as follows. [Slot-index, Channel-index, I/O-type-index, I/O-value] * The data type in array is as follows. [Number, Number, Number, Number] Notice: When the I/O-type-index is engineering type (12, 13, 14, 18), the I/O value is 1/1000 scale. IndexRecording I/O-type of the storage 0Invalid 1DI Logic Status 2DI Counter value 3DI Frequency value 4DO Logic Status 5DO Absolute Pulse Output value 6DO Incremental Pulse Output Value 7AI value 8Historical Maximum AI value 9Historical Minimum AI value 10AI value after scaling 11AI status flags 12AI engineering value 13Historical Maximum AI engineering value 14Historical Minimum AI engineering value 15AO value 16AO value after scaling 17AO status flags 18AO engineering value

Remarks

www.advantech.com

Please verify specifications before quoting. This guide is intended for reference purposes only.

All product specifications are subject to change without notice.

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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

15.21 警語

FCC Caution: Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

FCC RF Radiation Exposure Statement:

1. This Transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
2. This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

Notes and Warnings to the User and Installer:

Caution:

This Installation Guide is intended for use by the professional wireless LAN system installer.

The device cannot be sold retail, to the general public or by mail order. It must be sold to dealers or have strict marketing control.

Warning: It is the responsibility of the professional installer to ensure that the system is used exclusively for fixed, point-to-point operations.

Warning: When using the device in the United States (or where FCC rules apply), it is the responsibility of the professional installer to ensure to control the output power not greater than the application.

低功率電波輻射性電機管理辦法

第十二條 經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

第十四條 低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

