ARIO Utility User's Manual

RS-485 Remote I/O Configuration Utility

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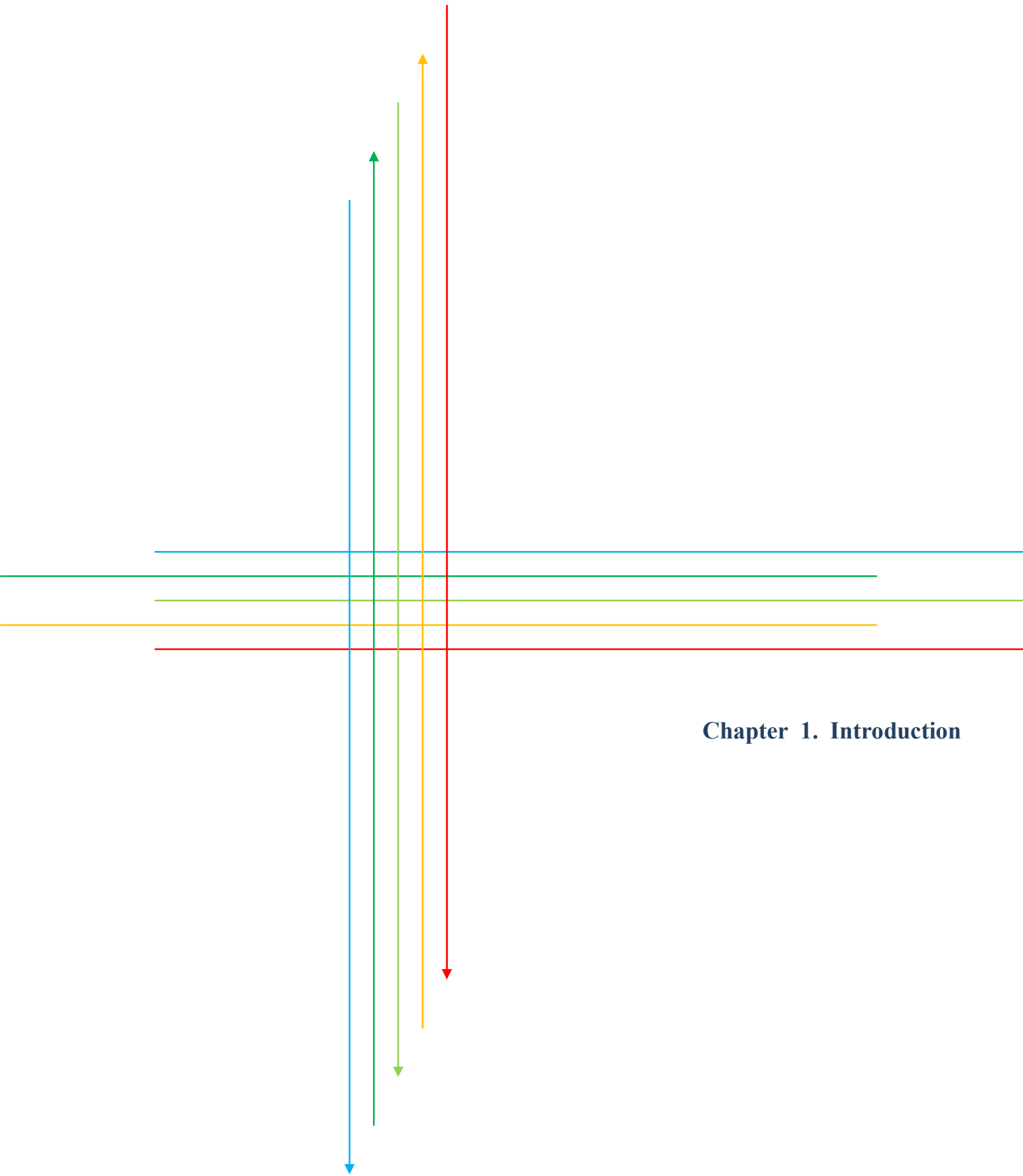
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Chapter 1. Introduction

1.1 Utility Overview

Welcome to use Wolf series module configuration utility. This utility is provided for Wolf series remote I/O module using RS-485 to configure the I/O configuration. Wolf series remote I/O module provides 7 kinds of control mode: analog input, output, analog input/output, digital input, output, digital input/output and relay etc. The protocol used in-between host and modules is Modbus/RTU. A great variety of baud rates (1200, 2400, 4800, 9600, 19.2k, 38.4k, 57.6k and 115.2k) are also available for user to select appropriate transmission rate.
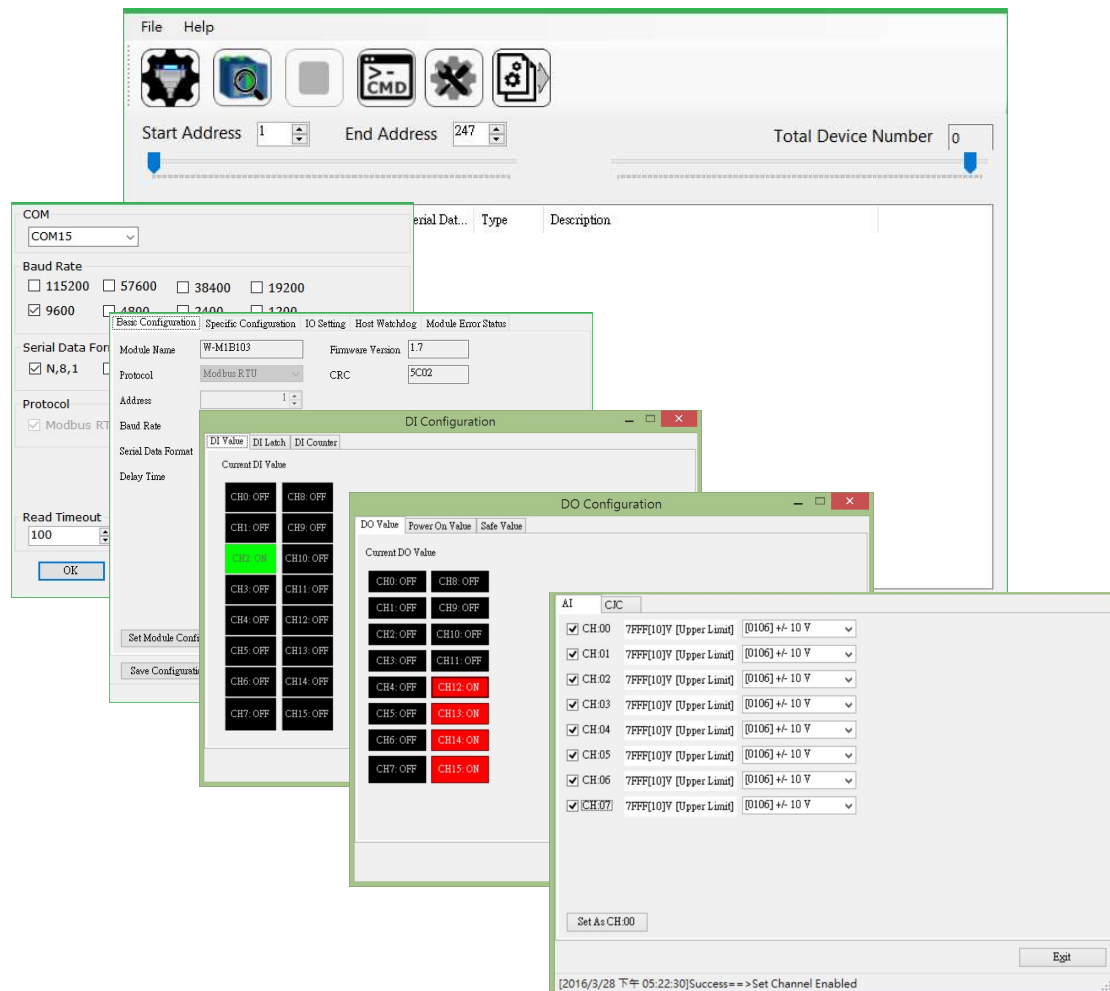
1.2 Power Requirement

In addition to prepare Wolf series module, you need to prepare a DC power supply range from +10 to +60V for module before using this utility.

1.3 RS-485 Network Connections

This utility uses RS-485 as network connection. If your PC is not equipped the RS-485 communication port, you need a USB to RS-485 converter or RS-232 to RS-485 converter. Please refer to module user manual for more details about building the system architecture.

1.4 Setup and Use

1.4.1 Power Supply and RS-485 Network Connections

When you have the Wolf series module, power supply, and RS-485 communication port ready. Please following the instruction of module user's manual to connect power supply and network. After that, you can start to use this utility to configure and test the functionality of module.

1.4.2 Module Address Setup and Default Communication Configuration

After connecting the power supply and network, the first step is to setup module address for each module. Please note that the address of connected module on the same RS-485 port is not replicable. Please refer to chapter 2.1.10 of module manual for setup procedures. The factory default baud rate setting of module is 9600bps, and the default parity, data bits, and stop bit format is N, 8, 1. The baud rate range is from 1200bps to 115.2Kbps. The parity, data bits, and stop bit format is N, 8, 1, N, 8, 2, E, 8, 1, or O, 8, 1. If you forgot the configuration

that you have configured, you can revert to factor default setting by following the instruction of module manual. Please refer to chapter 2.1.11 of module manual for operating procedures.

1.4.3 Setup Host PC Communication Port

Then run this utility on PC workstation, the following main screen will appear:
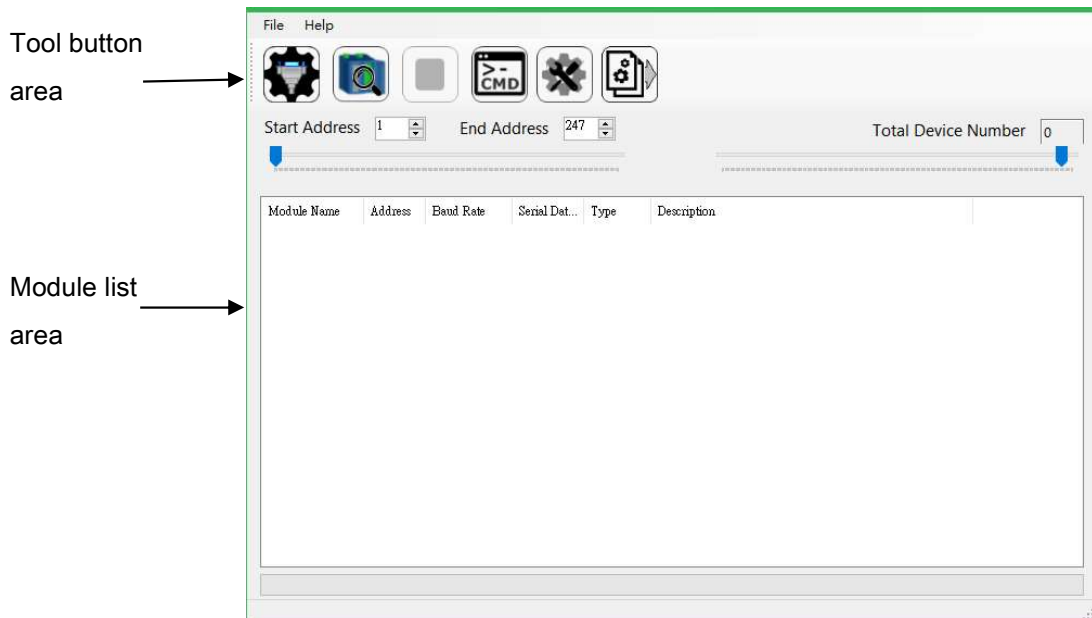
This utility will get all usable COM port, please click com port setting to select a correct COM port:

Click
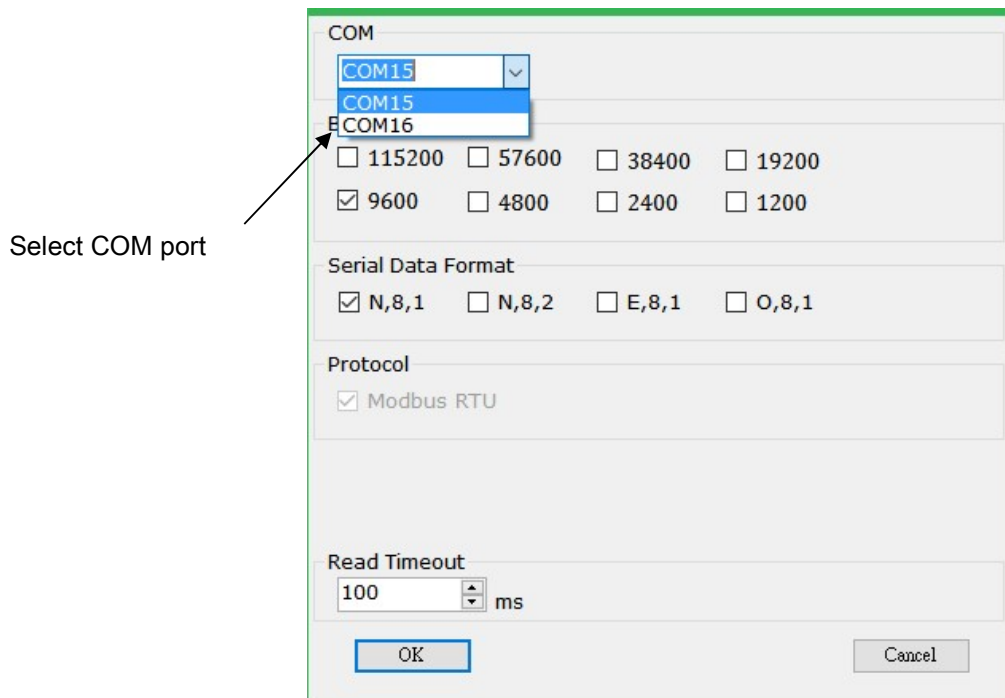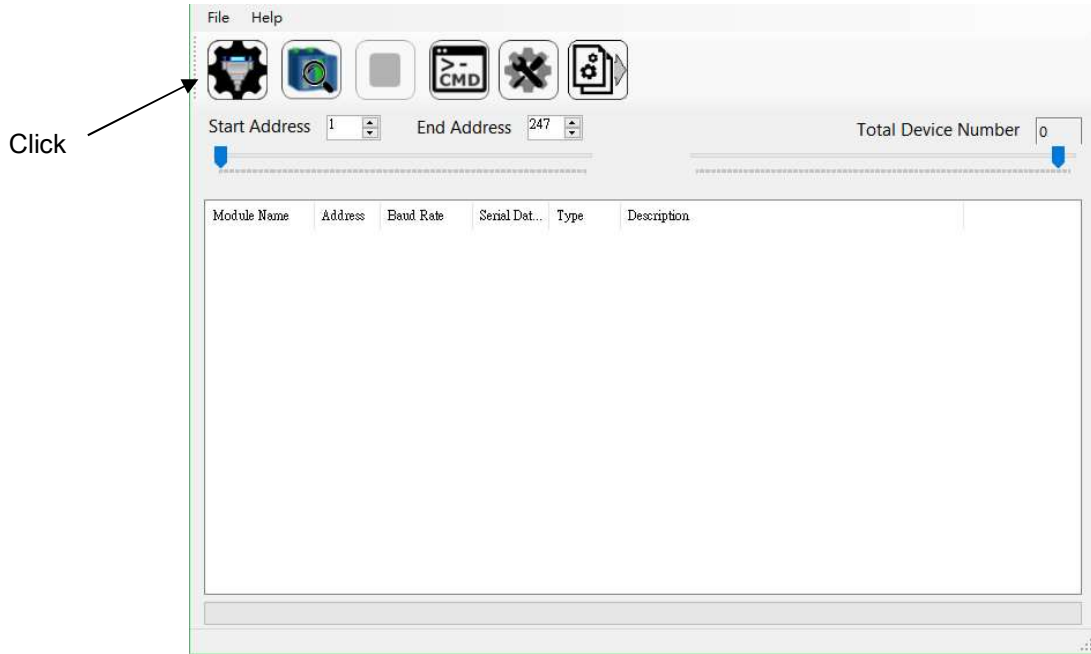
Select COM port

1.4.4 Search Module

After the module has been connected and the COM port has been configured, you might use following default search condition to search module (If you forgot the module setting, you can select all condition, but it will extend the search time)：
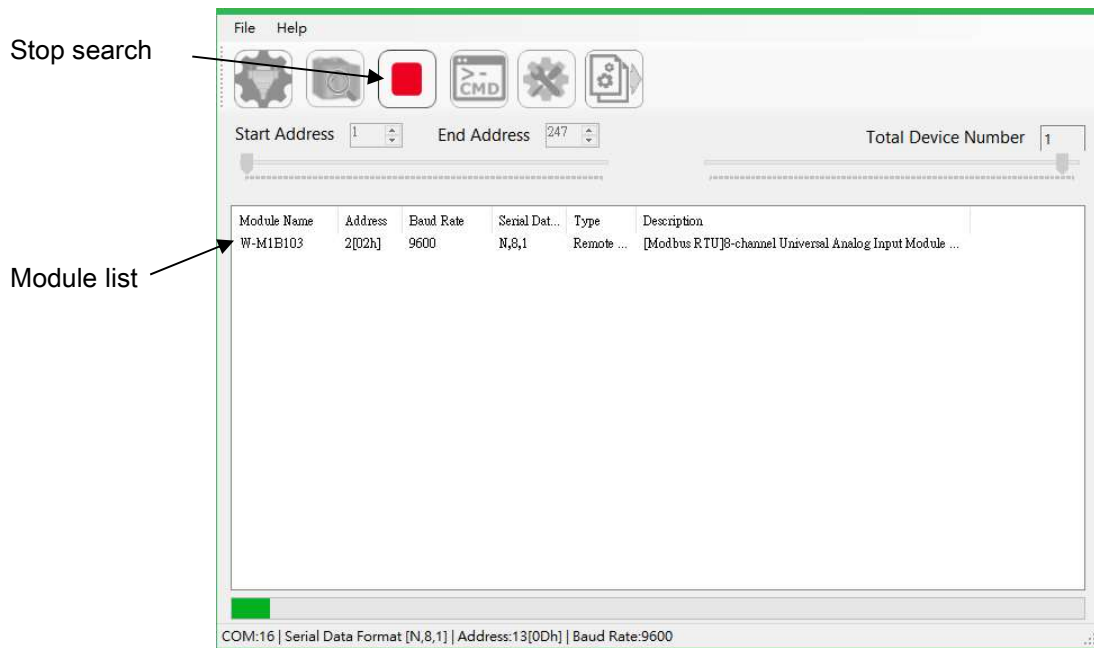
1. Communication parameter

2. Address Range

Select address range (If you forgot module setting, you can choose 1 to 247, but it will extend the search time).
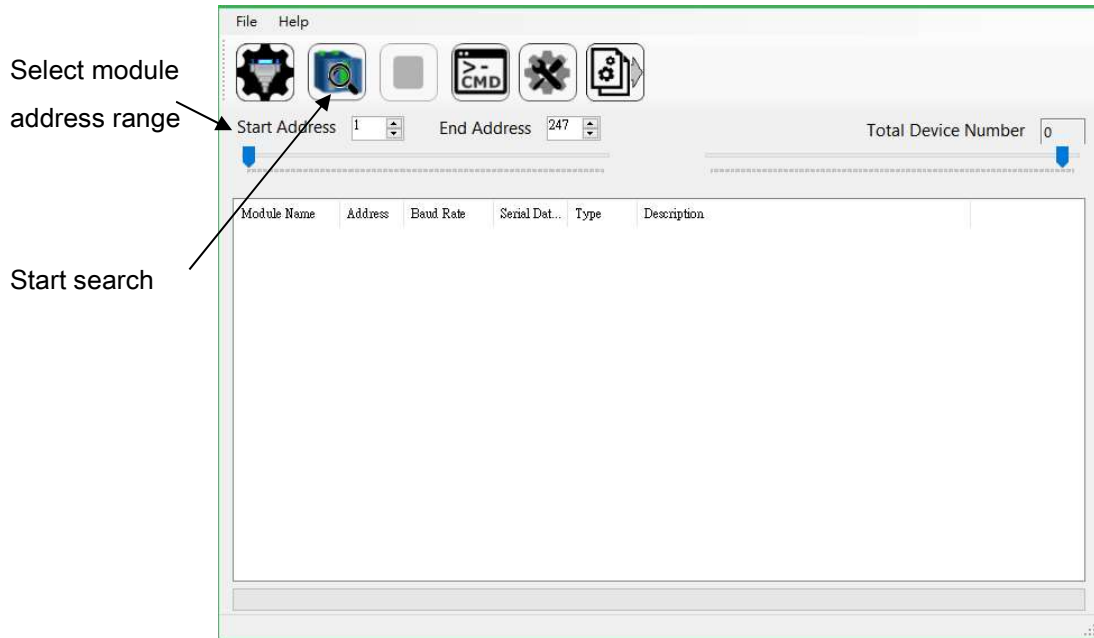

The result of search module is as below:

1.4.5 Guideline for Failure to Find Module

If there are any modules that are connected on the same RS-485 port and are unable to be found, please examine the following case:

1. Please check if module is connected on the same RS-485 port, please check the cable if it is not connected.

2. Whether the cable is connected correctly? Whether the wire is broken or not?

3. Whether the connection distance is too long (Which is also related to cable characteristics of RS-485) or excessive module number. Please try to decrease the baud rate or add a repeater. And you can only connect maximum of 32 modules in the same segment, you need to use repeater if module number exceeds.

4. Communication configuration might not include setting of partial modules. Please try to select all configuration and search module again, although utility might spend a lot of time to search, please be patient and wait for a while.

5. If none of above is the correct case, please initialize the module to factory default, and try to search it again.

6. If problem still cannot be resolved, it could be malfunction of module. Please follow the instruction of module user manual.
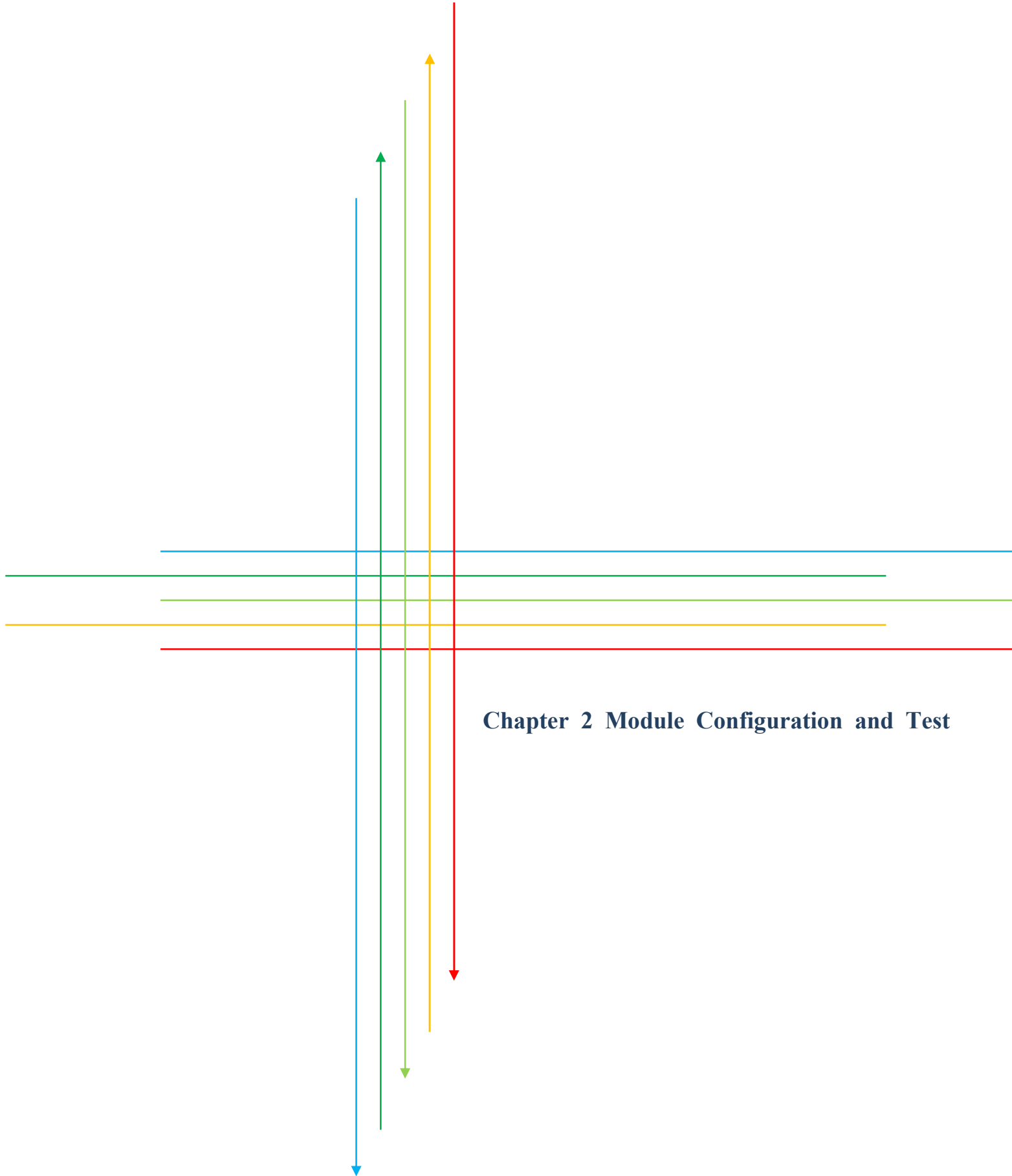
Chapter 2 Module Configuration and Test

2.1 Module Configuration

In the list of modules, click the module that you are going to configure, and then click the "Remote I/O Module Configuration" button to configure module.

2. Click "Remote I/O Module Configuration" button

1. Select the module that you want to configure
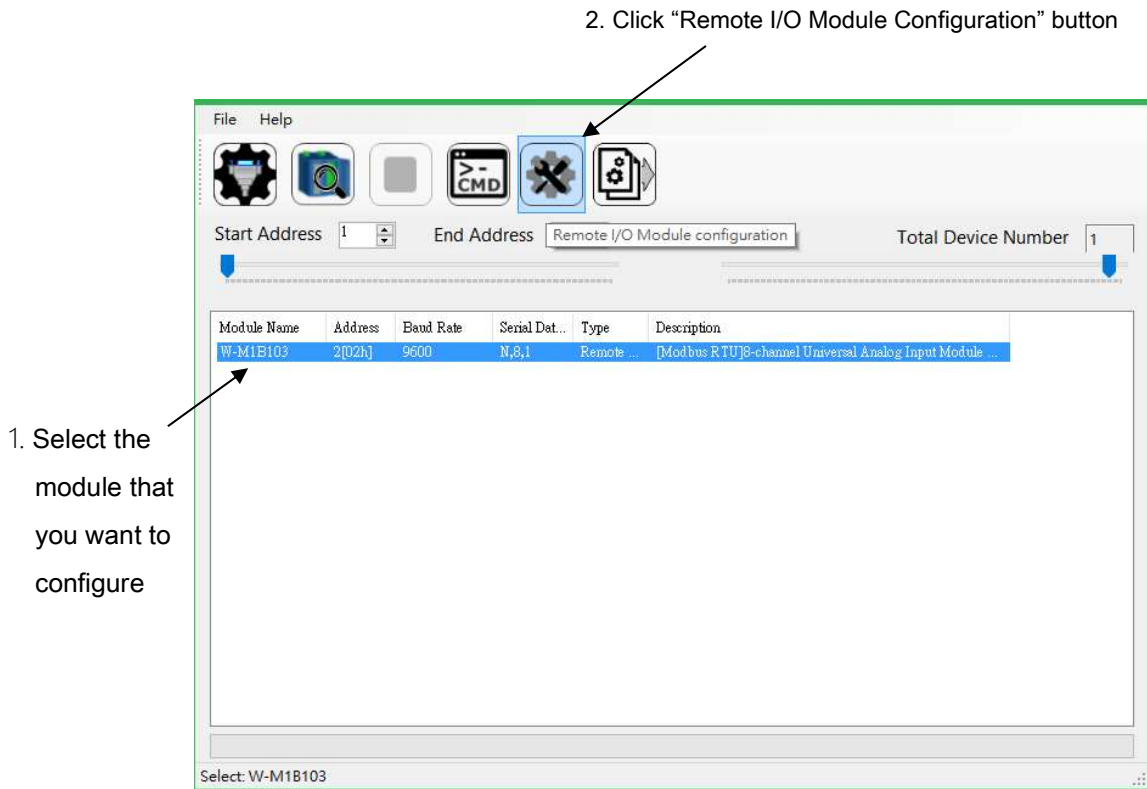
2.1.1 Basic Configuration

After entering the module configuration window, you can see there are 4 tab pages of configurable configuration. They will be further explained in the following section. First, let's see the basic configuration:

After change is done, click this button to apply new setting.
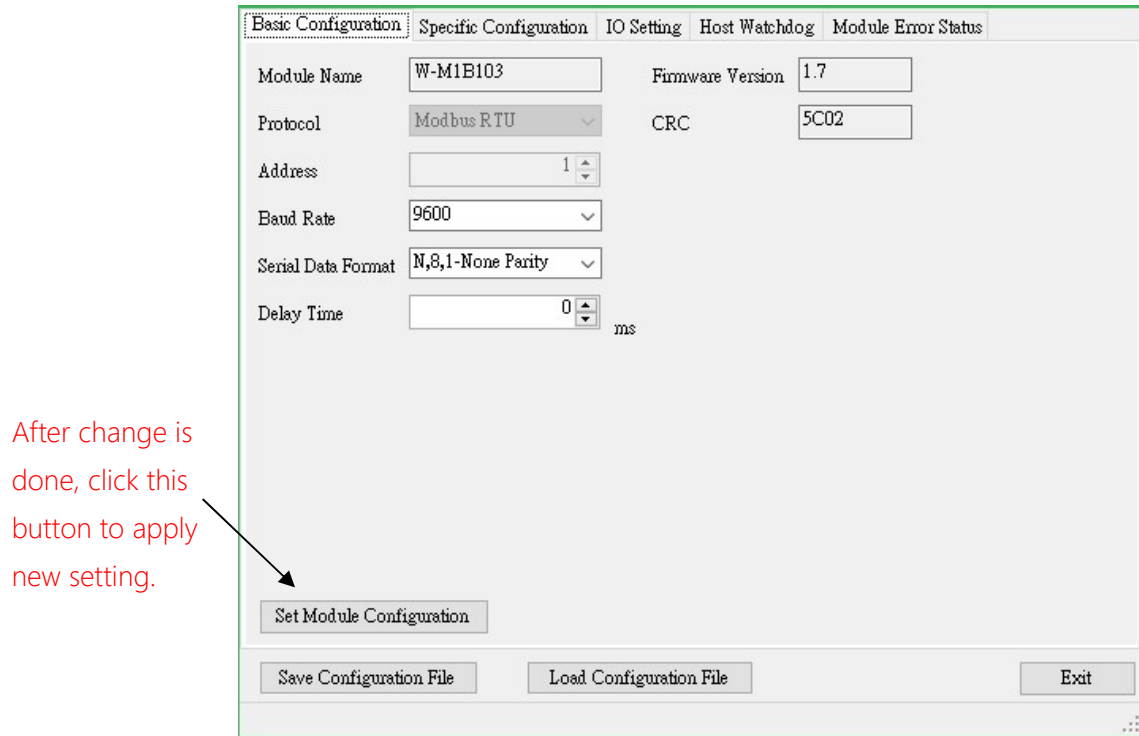
※ **After setting is done in this tab, user must power off and then power on module for taking effect of new configuration.**

2.1.2 Specific Configuration

Each module has some specific parameter setting, please refer to module manual for more details.

Digital Input Module: Invert DI State

After change is done, click this button to apply new setting.
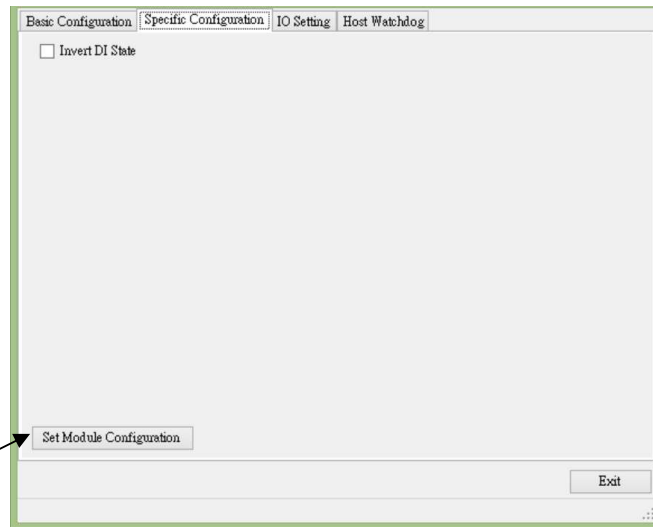
Digital Output Module: Invert DO State

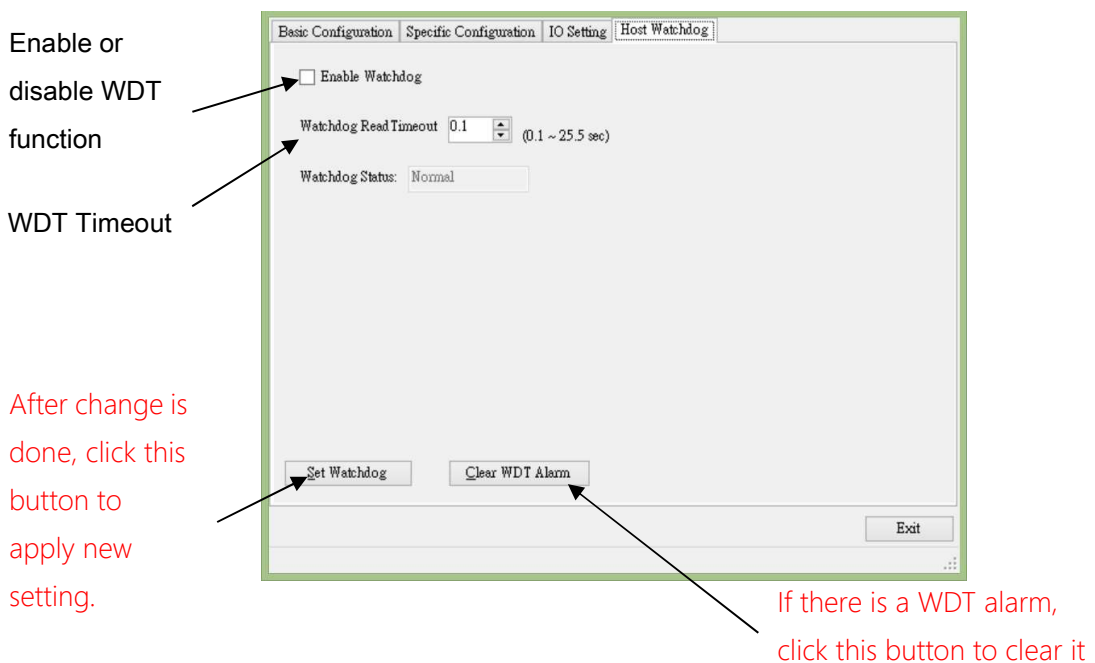After change is done, click this button to apply new setting.
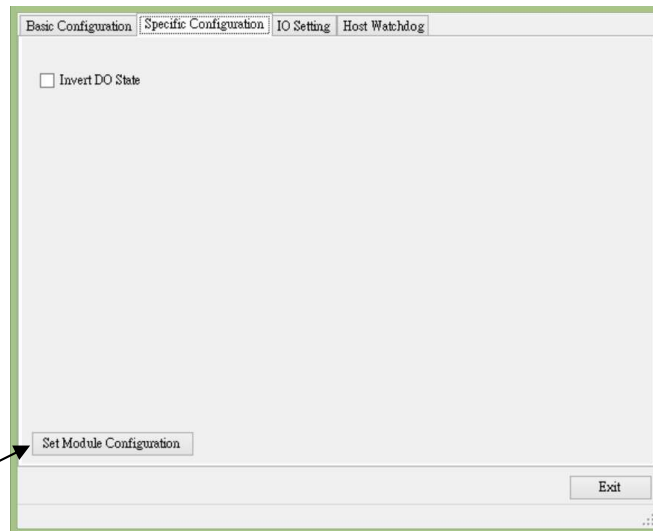
Analog Input/Output Module: Set the data format of module to be 2's complement hexadecimal or engineering format.

After change is done, click this button to apply new setting.
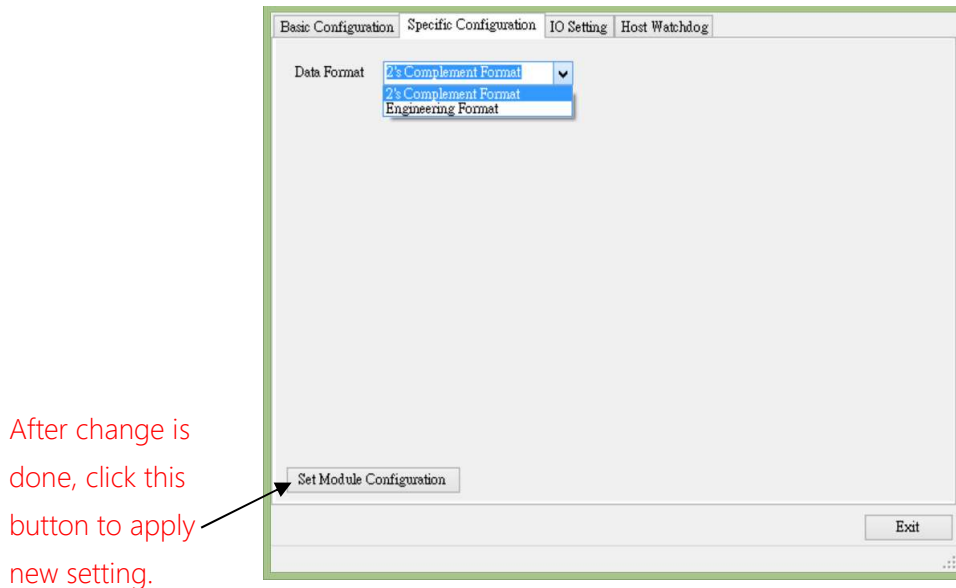
2.1.3 Watchdog

Host watchdog is software monitoring the operation status of system, its purpose is to provide immediate counter-measure when erroneous network, communication or breakdown occur. Once time-out occurs, the module will reset all outputs to configured SAFE mode.

Enable or disable WDT function

WDT Timeout

After change is done, click this button to apply new setting.

If there is a WDT alarm, click this button to clear it

2.1.4 Module Error Status

Display EEPROM status and the communication status between master board and slave board. The module error status indicates if any error occurs.

2.2 Module IO Setting

When module has Digital Input channels, DI will show numbers, and it can be clicked.

Click to setup
configuration
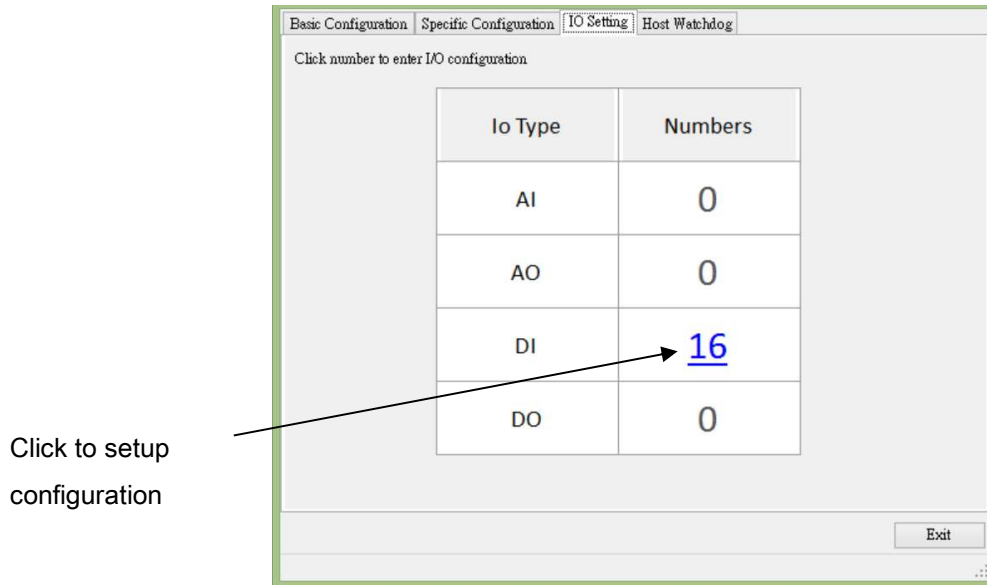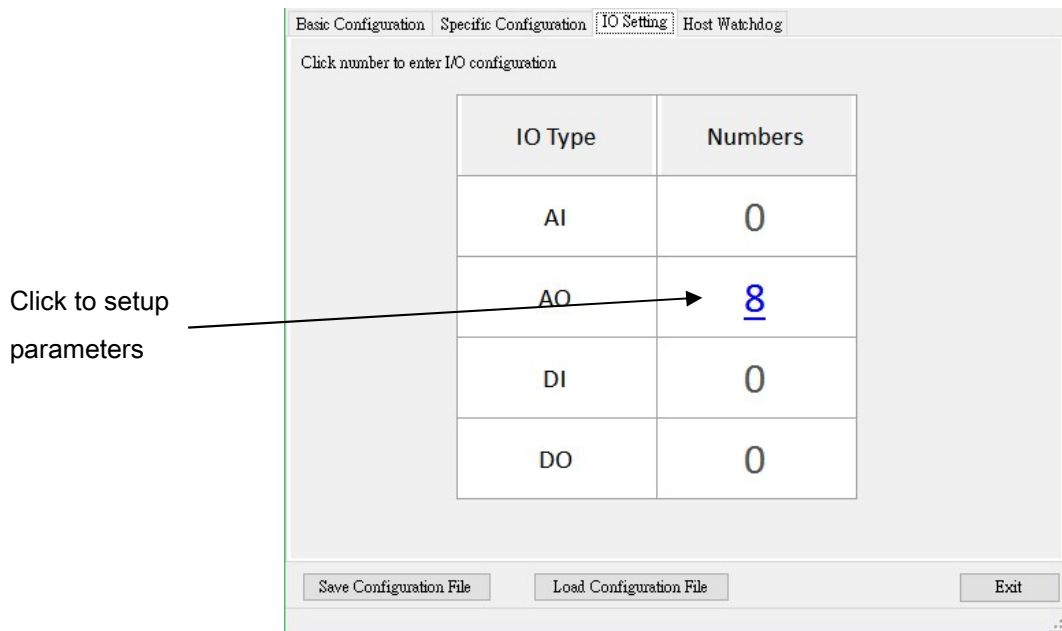
When module has Digital Output channels, DO will show numbers, and it can be clicked.

Click to setup
parameters
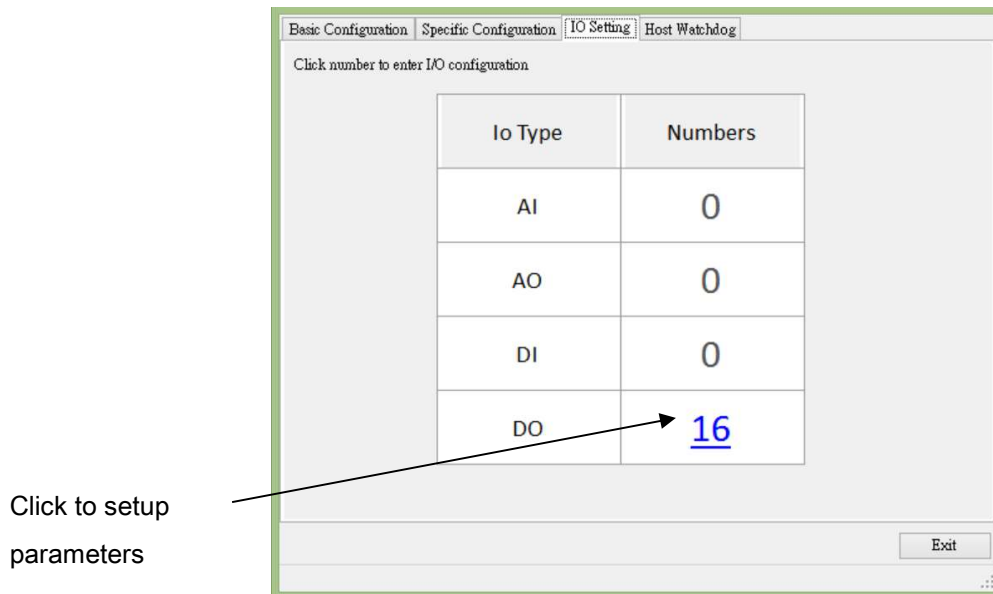
When module has Analog Input channels, AI will show numbers, and it can be clicked.

Basic Configuration | Specific Configuration | IO Setting | Host Watchdog

Click number to enter I/O configuration

Io Type	Numbers
AI	8
AO	0
DI	0
DO	0

Click to setup parameters

Exit
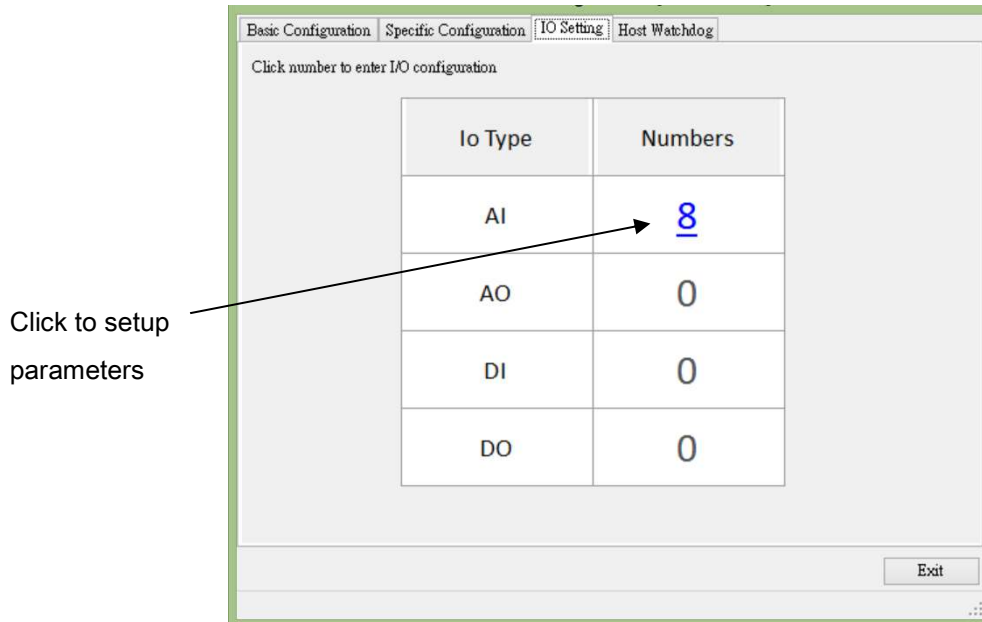
When module has Analog Output channels, AO will show numbers, and it can be clicked.

Basic Configuration | Specific Configuration | IO Setting | Host Watchdog

Click number to enter I/O configuration

IO Type	Numbers
AI	0
AO	8
DI	0
DO	0

Click to setup parameters

Save Configuration File | Load Configuration File | Exit

2.2.1 Analog Input channel setting and test

After entering the AI configuration window, you can setup AI channel

configuration and Temperature/CJC (Cold Junction Compensation)

configuration:

AI reading

Channel Type
Code

Set channel type
code of all channel as
channel 0
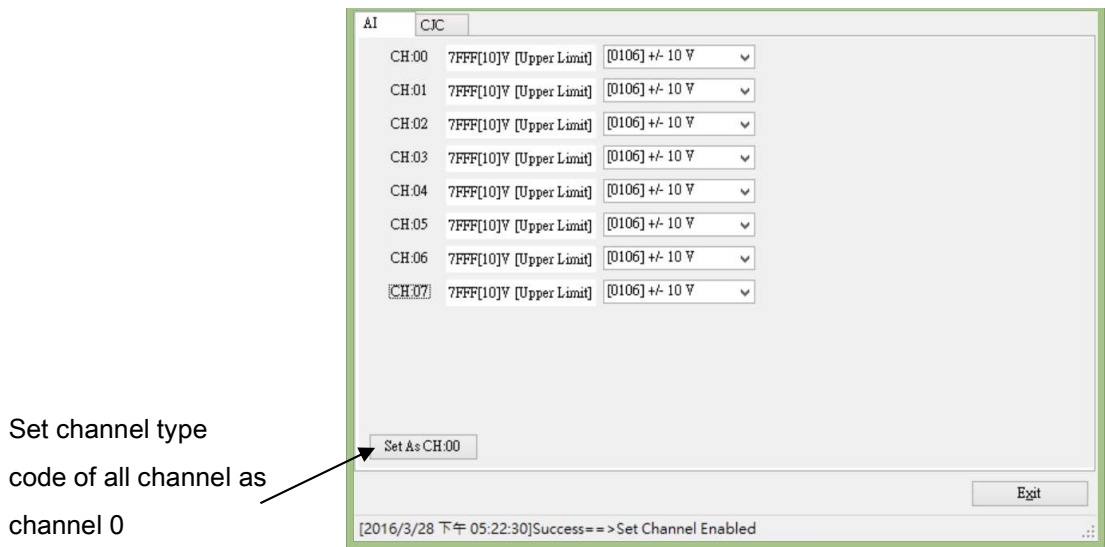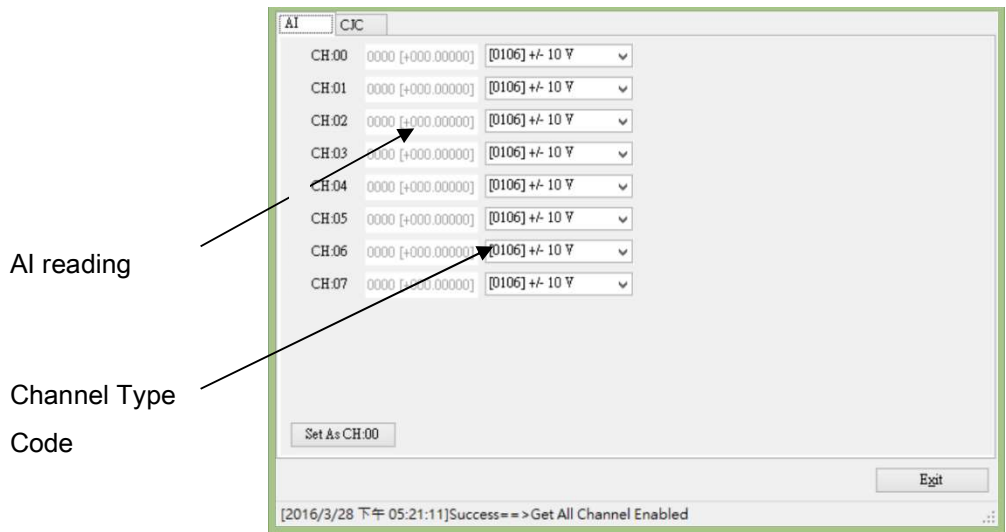
Temperature/CJC Configuration:

Temperature Offset of all channel   CJC Offset of all channel

Enable CJC offset function.
TC temperature reading will
be adjusted by CJC offset

Current CJC temperature

2.2.2 Analog Output Channel

AO:

AO output value is displayed in hexadecimal format or decimal format

Click to output value

Set channel type code of all channel as channel 0

AO Power on Value:

AO Safe Value:

2.2.3 Digital Input Channel Test

After entering digital input configuration, you can test DI on/off status, latch
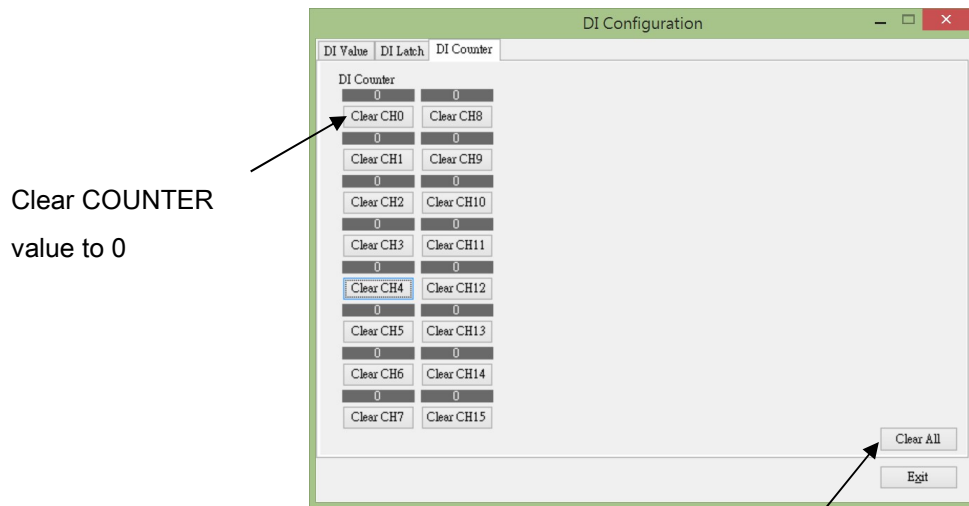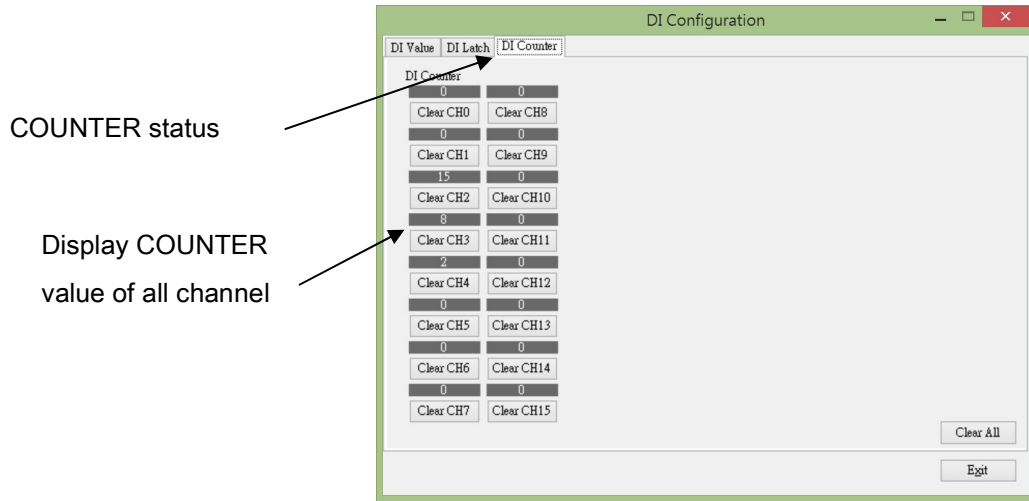
status, and counter function.

Display DI status of all
channel

Display DI On/Off status of
all channel

Display DI On/Off status of
all channel

LATCH status

Display LATCH status of all
channel (including LATCH
HIGH and LATCH LOW)

COUNTER status

Display COUNTER
value of all channel

Clear COUNTER
value to 0

Clear all COUNTER value to 0

2.2.4 Digital Output Channel Configuration

After entering DO (digital output) configuration, you can test DO on/off, and configure power on value and safe value (which takes effect when host watchdog timeout has occurred).
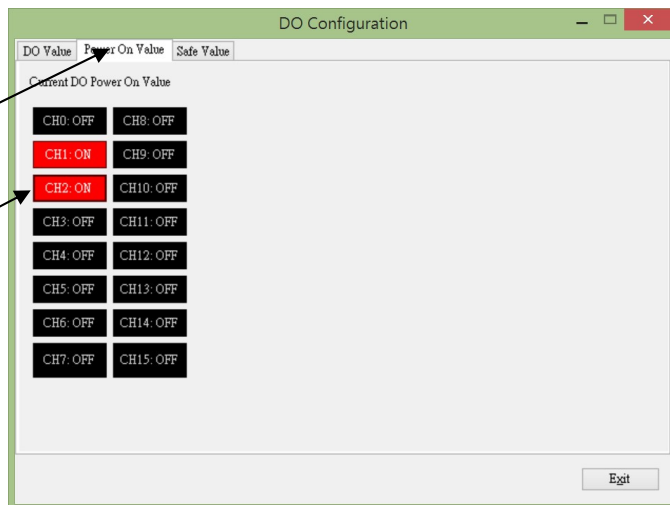
Test ON/OFF control of all channel

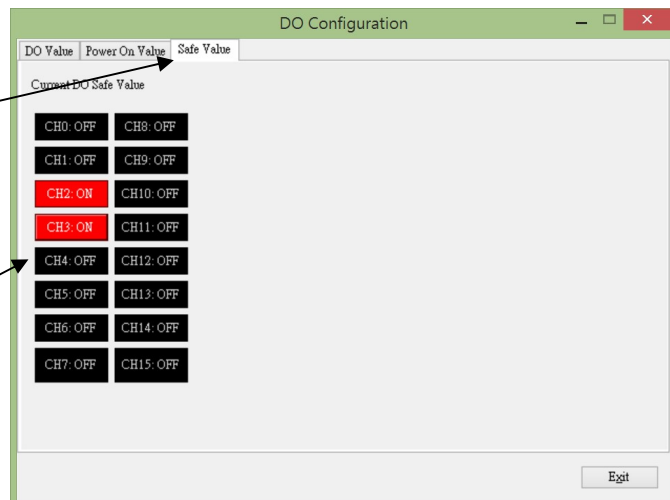Click to test ON/OFF control of all channel

Power-on ON/OFF value configuration

Click to configure power-on value of all channel

SAFE value configuration

Click to configure SAFE value of all channel

2.3 Safe/Load Module Configuration File

Module configuration can be save to file for backup or template file. The template file also can be loaded into module for quick setup module configuration. The operating steps are as follows:

In IO Setting tab page, you can see [Save Configuration File] and [Load Configuration File] button:

Save configuration to file for backup or template file:

Click the [Save Configuration File] button.

.
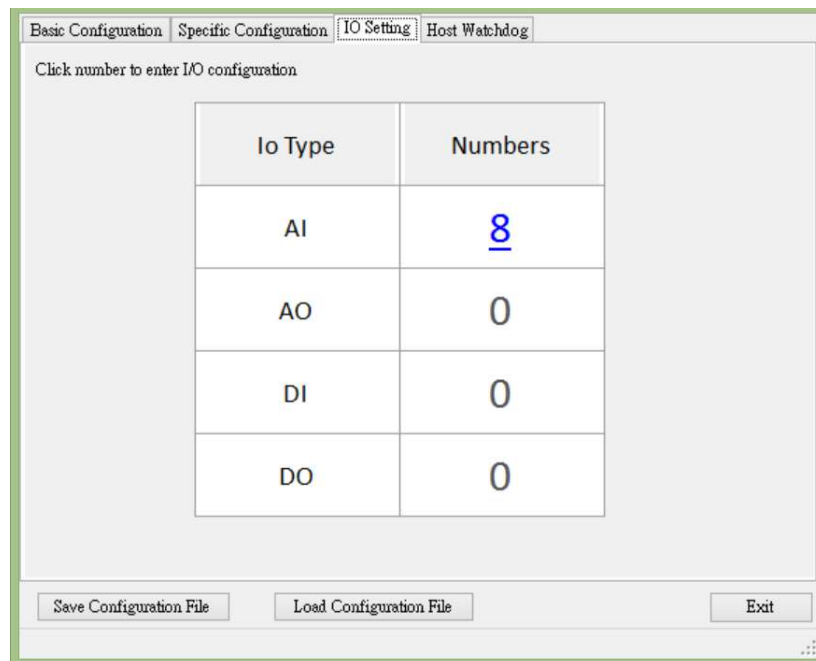
It will pop up a window for type in file description to describe data for

management。Please click [Ok] to continue or [Cancel] to cancel this operation.
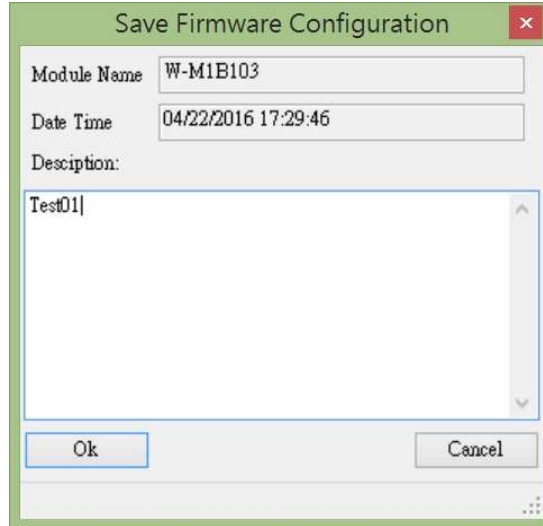
After clicking the [Ok] button, it will pop up a save file dialog to prompt the user

to select a location for saving a file, please specifies a file name and select a

location to safe file.

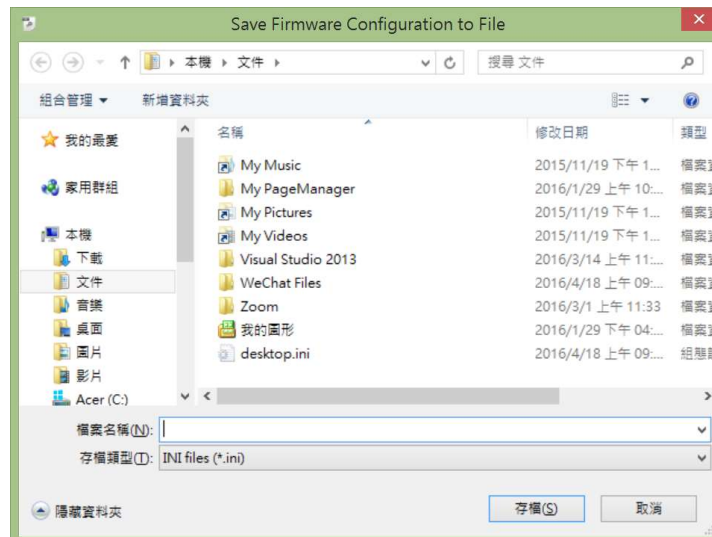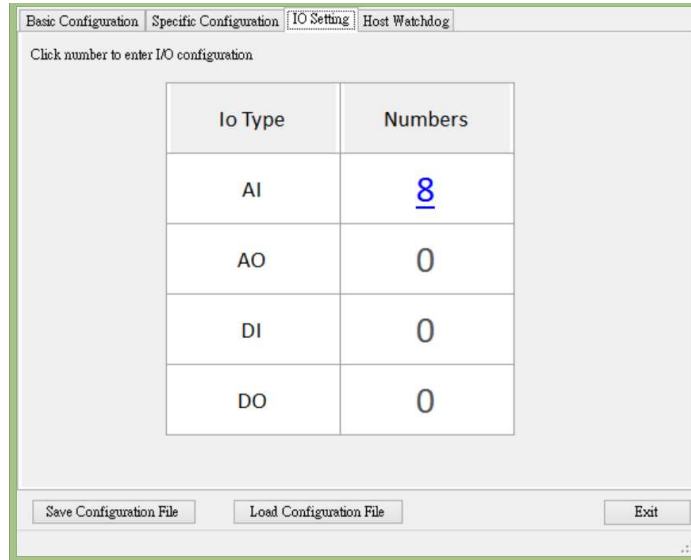Load a template file into module:

In IO Setting tab page, click the [Load Configuration File] button.

It will pop up an open file dialog to prompt the user to open a file, please select

file and click open to load the file.
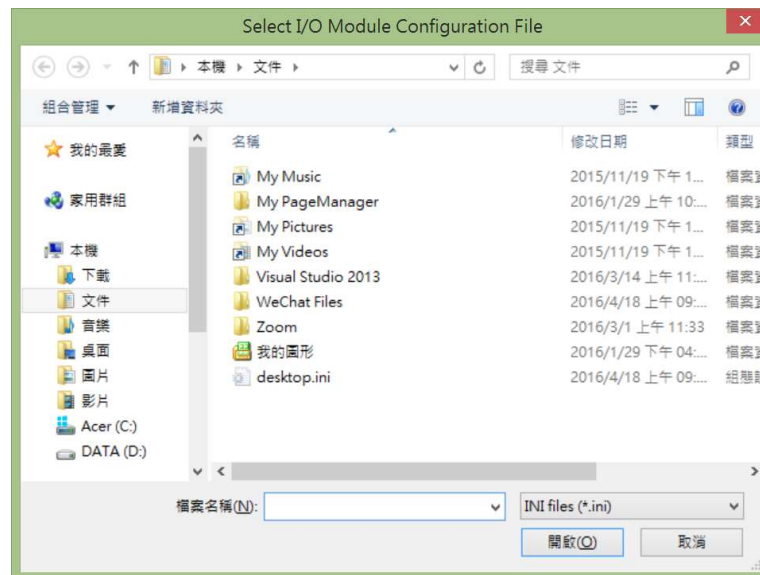
After loading file and before loading configuration to module, it will pop up a warning window, indicating notes for attention and the contents of configuration file，Click [ok] button to continue or [Cancel] to cancel this operation.
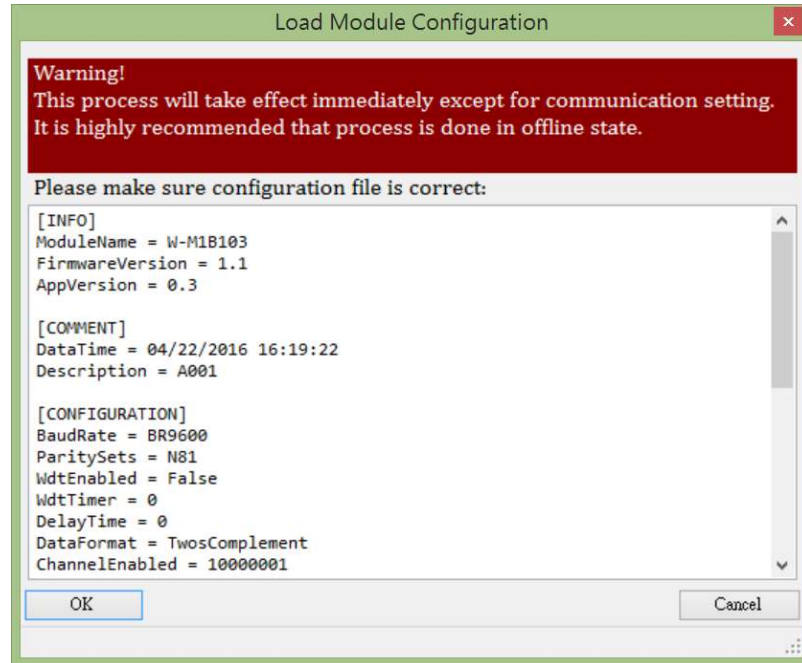
※ If the communication configuration has been changed, you must restart the I/O module for loading new configuration correctly.
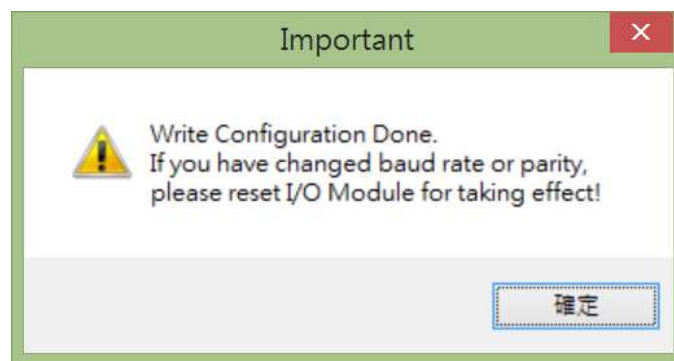
2.4 Batch Load Module Configuration

Module configuration can also be loaded into more than one module using batch load module configuration. The operating steps are as follows:

Click "Batch Load Module Configuration" button

1. First, choose one of the source type that you want to use for setup other modules.

2. If you choose "Module", then choose the right module by "Address"

3. Select target module that you want to setup

4. Click Ok to apply changes

1. If you choose "Configuration File", then click the button to select the source configuration
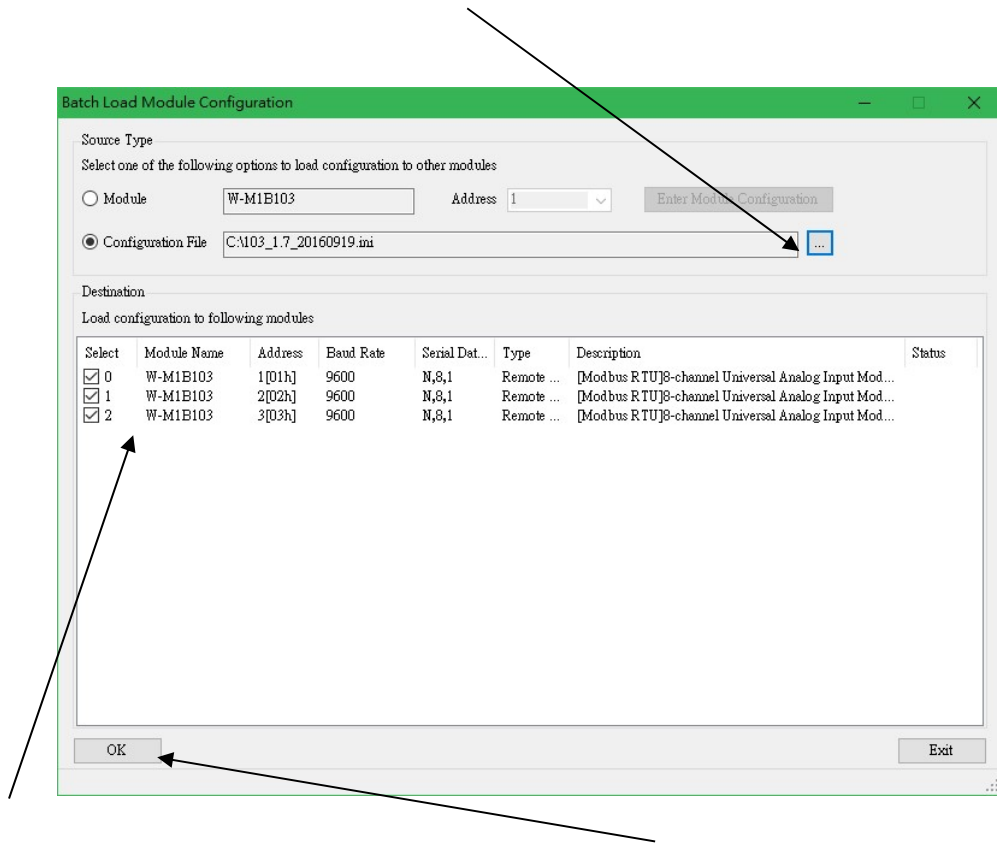
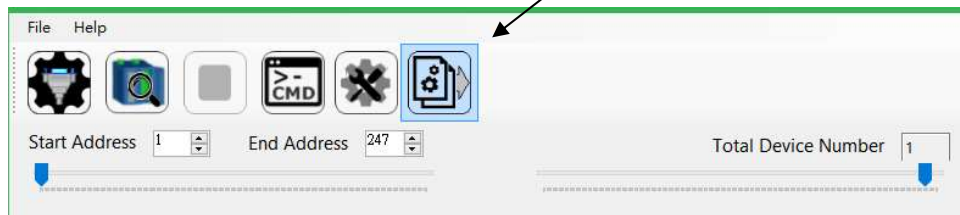2. Select target module that you want to setup   3. Click "Ok" to apply changes

Click "Yes" to continue.

※ If the communication configuration has been changed, you must restart the I/O module for loading new configuration correctly.
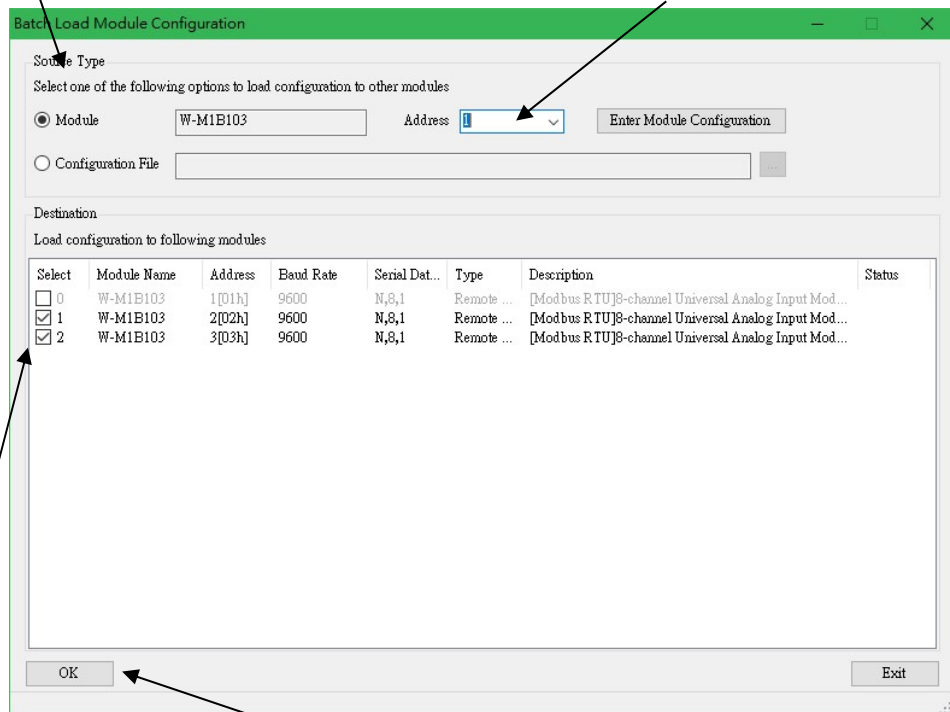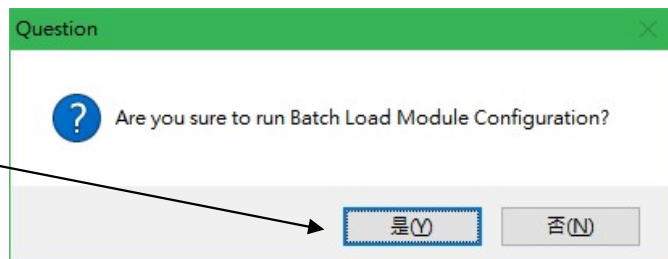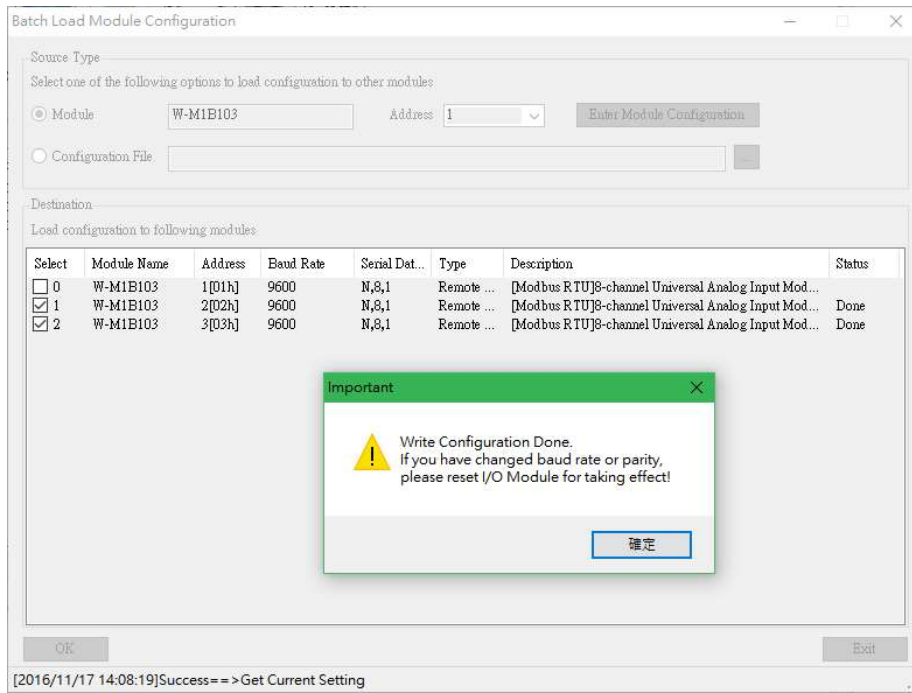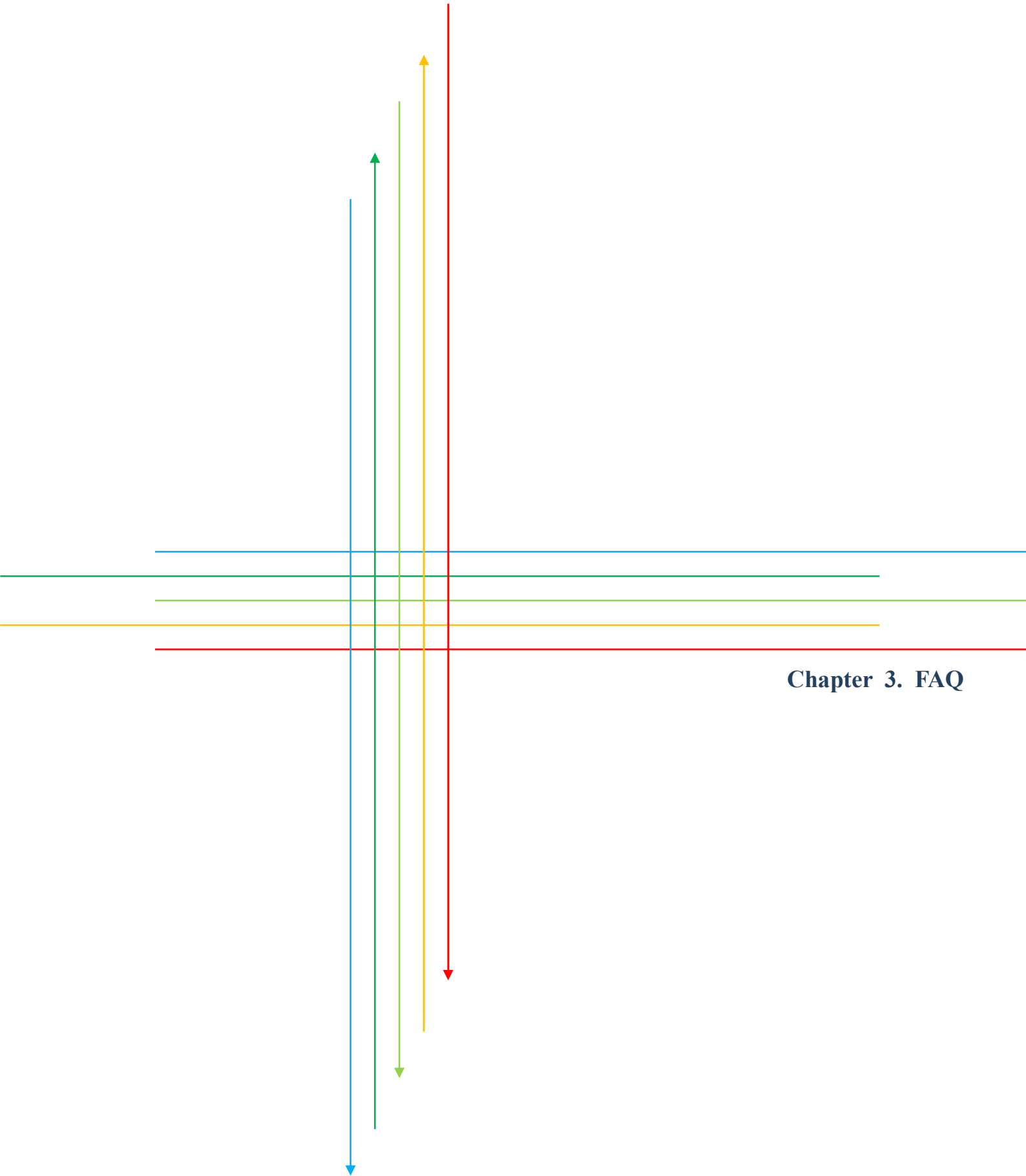
Chapter 3. FAQ

If you have difficulty in using Wolf Series module, please look up the related information in this manual. Shall you have any unsolved issues, comment or suggestion, please visit our website and contact us. With the greatest enthusiasm and endeavor, we will be always ready to serve you.

Email: service@advanio.com.tw

Website: http://www.advanio.com.tw

3.1 Communication

If you failed in communicating with the module, please proceed with the following steps:

Step 1:

Confirm the power supply voltage range is set at +10 to + 60V DC, otherwise, make sure the power LED indicators on the module is normal.

Step 2:

Upon receiving the command, the Power LED will flash once. Follow this procedure to check if the module receives command from the host.

Step 3:

Under permissive conditions, other equipment may also be used to detect whether the host PC can be communicate with a normal communication protocol which based on RS485 communication network equipment.

Step 4:

If the host is a PC with Windows Operation System installed, user can execute Utility software to check the availability of I/O module. (Please

download the software via Advanio official site.

(http: //www.advanio.com.tw).

Step 5:

Setup the module into INIT mode, and have it communicate with the following parameters: serial transmission rate is 9600bps, no parity bit and the communication protocol is Modbus. (Confirm your Address setting)

3.2 **Read data**

If data collected from I/O module are abnormal, perform the following steps to check it:

Abnormal data read may be resulted from the abnormal parameter storage in Memory, please use Utility software to check it or reset it to INIT mode.

Please refer to 2.1.11 (Factory Reset) to solve I/O module abnormality.
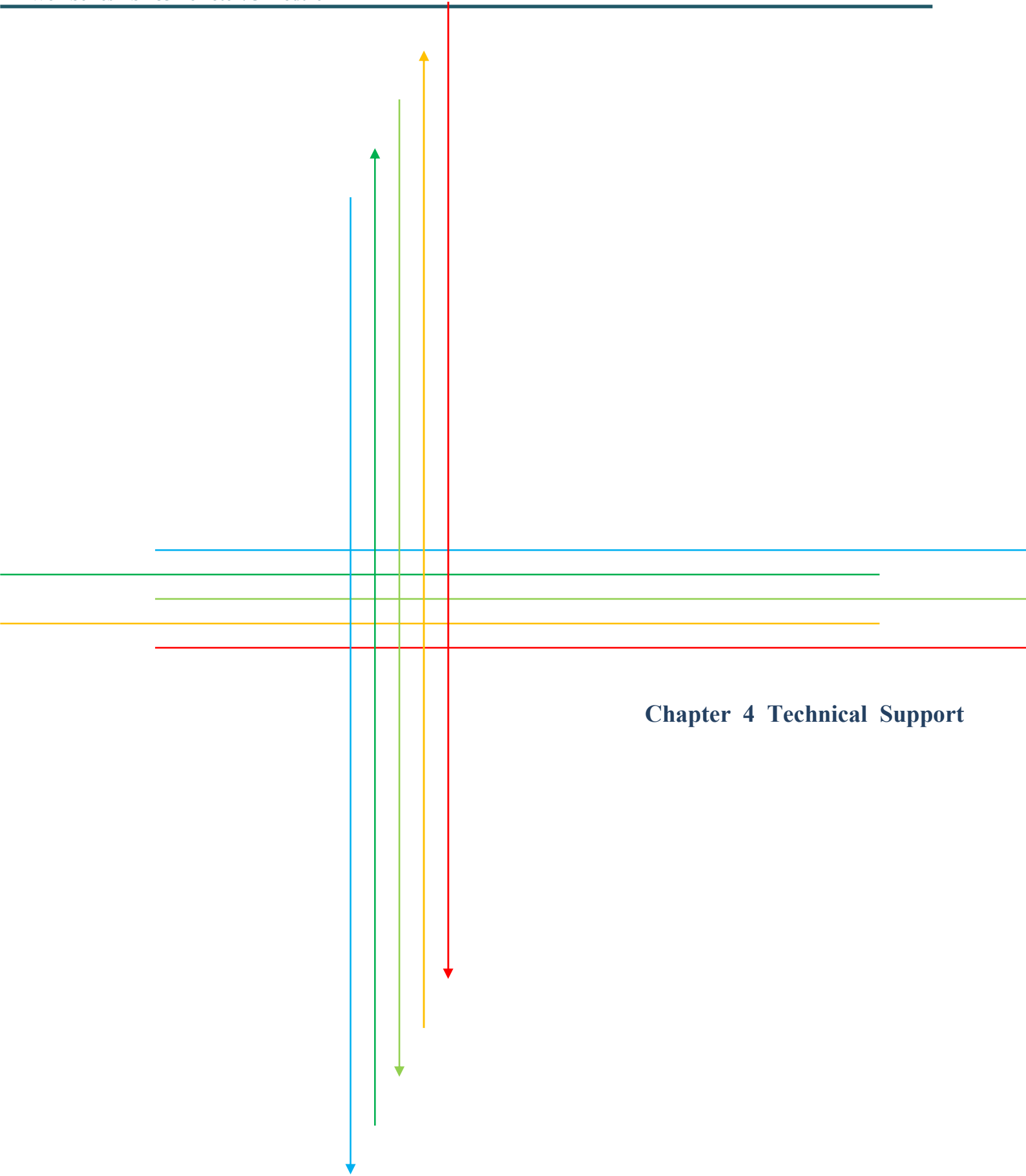
Chapter 4 Technical Support

If any problem encountered during the application, please look up the user manual or contact us via company official website. We will be at your service.

Email: service@advanio.com.tw

Website: http://www.advanio.com.tw

Before Contacting our Technical Support, please prepare information as follows:

1. Serial number can be found on the bar code labeled on the cover of module.

2. Firmware version: For more details, please refer to MODBUS command about read firmware version command.

3. Host configuration (type and operating system).

4. If the problem is repeated, please provide full problem description and related applications.

5. For particular error messages display, please provide full content in Dialog Box including title and original text.

6. Any problem with program and hardware device concerned, please fully describe the details.

7. Your comments and suggestions will be highly appreciated.

You will have your feedback via Email within 2 working days.