ICP DAS WISE
User Manual
for WISE-70xx/71xx
Series

[Version 1.0]

ICP DAS CO., LTD.

泓格科技股份有限公司

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1 Introduction

WISE (Web Inside, Smart Engine) is a product series developed by ICP DAS that functions as control units for use in remote logic control and monitoring in various industrial applications. WISE offers a user-friendly and intuitive HMI interface that allows users to implement control logic on controllers just a few clicks away; no programming is required. With this powerful and easy-to-use software, it will minimize the learning curve, shorten time to market and dramatically reduce the effort and cost spent on system development. WISE system architecture is shown as below:

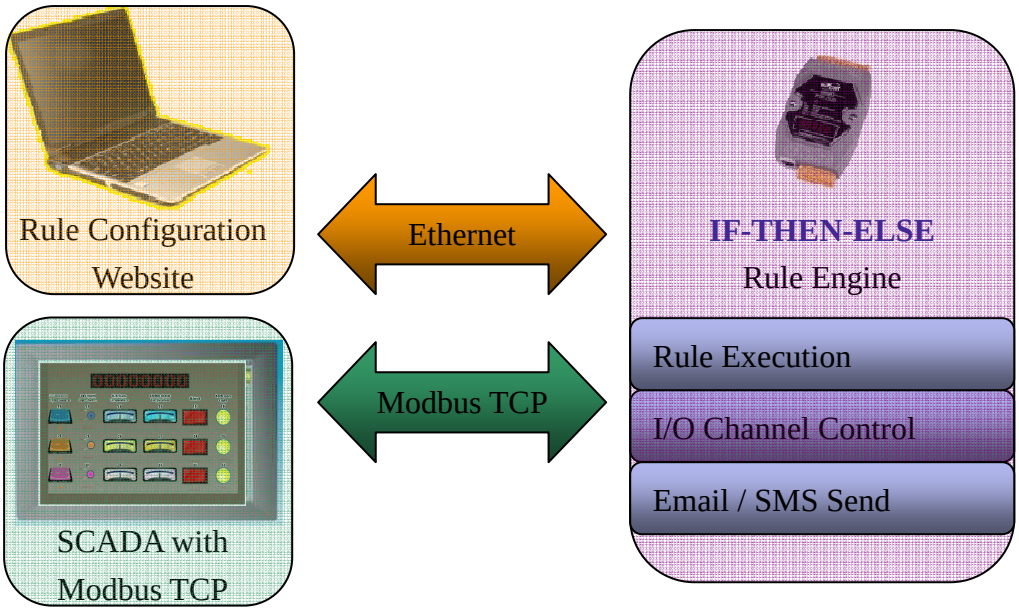

Figure 1-1：WISE system architecture

Through Web browser, users can access Web Server on ICP DAS WISE controllers to perform tasks such as logic edition and upload. A Rule Engine will be set up to manage and deploy rules for controllers. The Rule Engine will check whether the rules are valid or not and determine the execution of actions under specific conditions, for examples: setting up I/O channel values、perform scheduled tasks、sending Email or sending SMS message under a specific condition. In addition, through the Modbus TCP Protocol, it enables to control and monitor I/O channel or system status on controllers in real time.

WISE system features:

- IF-THEN-ELSE logic rules execution ability
  WISE controller equips with an IF-THEN-ELSE logic Rule Engine, it offers up to 36 IF-THEN-ELSE rules for users to set up the logic content. After completing rule edition and uploading rules to the WISE controller, the Rule Engine will loop execute the rules in accordance with the execute order under specific conditions.

- No programming is required to implement logic content on controllers
  WISE provides user-friendly Web UI pages for editing control logic on the controllers. It enables to implement logic edition by a few clicks on the mouse to set up and deploy logic rules without writing a single line of code.

- No extra software tool is required; all operations can be done through the Web browsers
  WISE HMI interface runs on regular Web browsers. To edit control logic, it only requires a browser to connect to the Web server on WISE controller. No extra software tool installation is needed on the target PC.

- Support various hardware controllers that are with different I/O types
  The wide range of I/O function modules ICP DAS provided allows users to find best solutions that meet their requirements. Please refer to the following table for modules and functions:

<table>
<tr><th rowspan="2">Functions</th><th colspan="2">Standard</th><th colspan="2">Power over Ethernet</th></tr>
<tr><th>Without Display</th><th>With Display</th><th>Without Display</th><th>With Display</th></tr>
<tr><td>Analog Input Modules</td><td rowspan="4">WISE-70xx Series</td><td rowspan="4"></td><td rowspan="4">WISE-71xx Series</td><td rowspan="4"></td></tr>
<tr><td>Multi Function I/O</td></tr>
<tr><td>Digital I/O</td></tr>
<tr><td>Relay Output & Digital Input</td></tr>
<tr><td>I/O Expansion Boards</td><td>WISE-7801</td><td>WISE-7801D</td><td>WISE-7901</td><td>WISE-7901D</td></tr>
<tr><td>FRnet Remote I/O Modules</td><td>WISE-7802</td><td>WISE-7802D</td><td>WISE-7902</td><td>WISE-7902D</td></tr>
<tr><td>SMS & Data Logger</td><td>WISE-4000</td><td>WISE-4000D</td><td colspan="2"></td></tr>
</table>

Figure 1-2：WISE Series Product

- Provide Timer and Schedule operation
  WISE features two kind of timing functions: Timer and Schedule. It allows user to schedule specific date or time for control logic execution, or perform specific tasks such as time delay.

- Real-time remote monitoring and alarm via SMS or Email
  WISE supports SMS and Email functions. SMS and Email functions are important functions for real-time message communication. The sending action can be added to the logic edition as part of logic control to provide real-time message transmission function.

- Real-time monitoring system status of controllers
  WISE supports Modbus TCP Protocol for users to perform real-time monitoring and control of the controllers. Please refer to Appendix 1 for the mapping table of controller system information and Modbus TCP protocol Address. In addition, WISE provides an easy to view HMI web interface for real-time monitoring. It allows users to get important real time system information even without SCADA software.

- Password protection for upload access control for logic rules
  WISE HMI web page offers password protection; it allows users to modify the password for upload access control of the logic rules.

This document is intended to give you a full-range instruction to WISE-70xx and WISE-71xx controllers. You will be able to learn how to edit logic of the rules and how to upload the rules to the controllers for conditional execution.

2 Before Connection

Before connecting to WISE Web HMI pages, please complete the following steps for network configuration. The network configuration of the controllers has to be set up for users to connect to Web server on WISE controllers.

- Please make sure the Init/Normal switch on the controller has been switched to "Normal" position. Connect the controller to power supply and to the network. The Init/Normal switch position is shown as below:

Figure 2-1：The location of the switch on the controller

- Install and execute MiniOS7 Utility. MiniOS7 Utility can be downloaded from the following link (please download version v318 or later):
  http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/minios7_utility/

- On toolbar, select Connection→Search (shown as below). A "MiniOS7 Scan" window will pop up and automatically start searching controllers in the network.

Figure 2-2：Select "Search" function on MiniOS7 Utility

- After finish searching, find the target controller and click "TCP Broadcast", and then click "IP Setting" button on the toolbar as shown below:

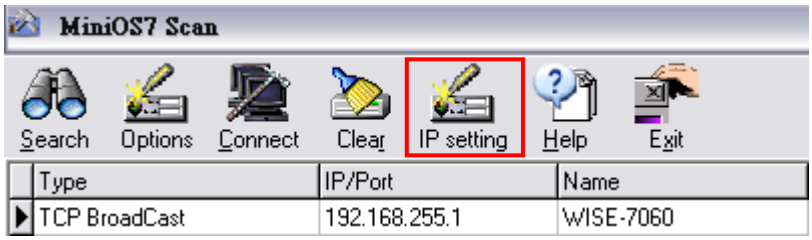

Figure 2-3：IP Setting button on MiniOS7 Scan

- Click "IP Setting" button, a network settings window will pop up. Input the information and click the "Set" button to complete the settings.

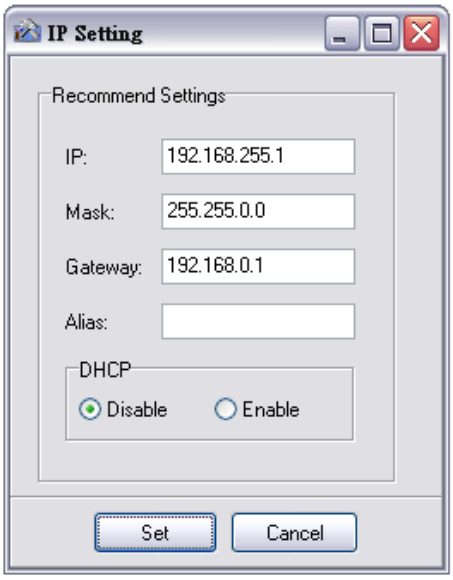

Figure 2-4：Network Settings page

- After finish Network settings, reboot the controller for the changes to take effect.

3 Website Overview

Please use IE or Firefox browser to connect to Web server on WISE controller. In order to get a better operation experience, 1280x1024 resolution is recommended. The main page of WISE controller Web page is shown as below:

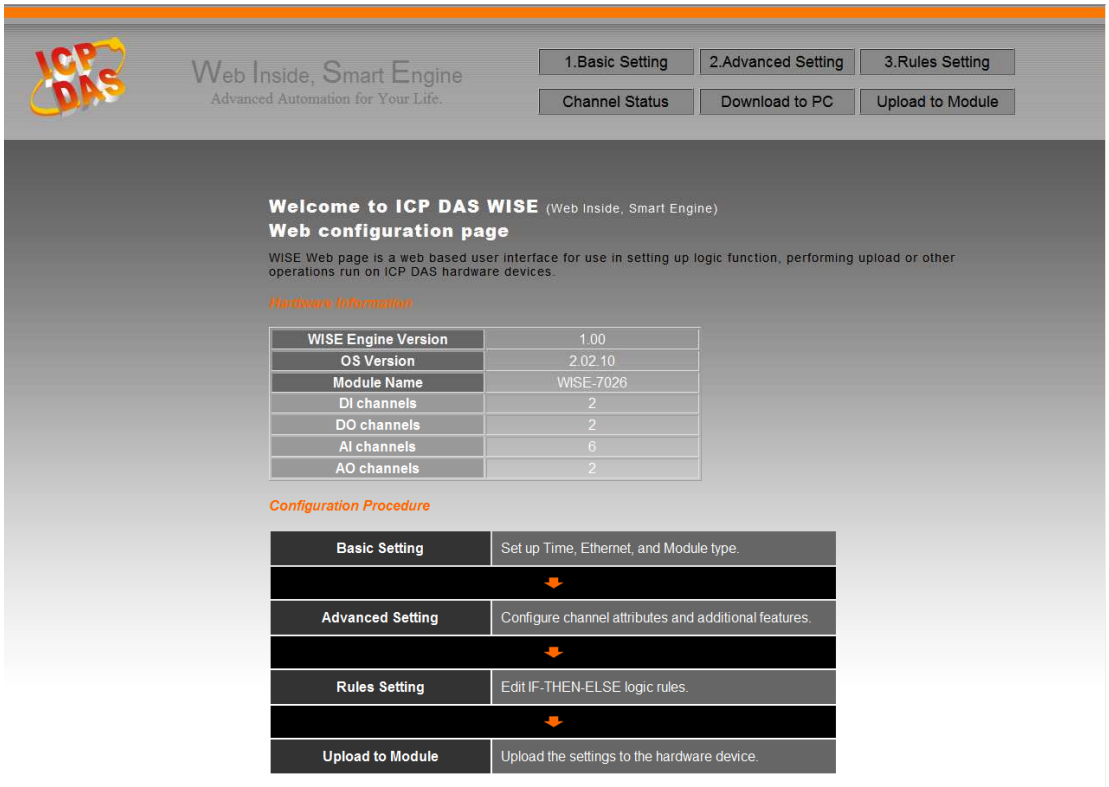

Figure 3-1：Main page of WISE Web UI

Six buttons will appear on the upper part of the Web page:

- Basic Setting
- Advanced Setting
- Rules Setting
- Channel Status
- Download to PC
- Upload to Module

The main page will display the WISE firmware version information, current controller hardware (that runs WISE) information and general operating procedures.

The procedures are as follows:

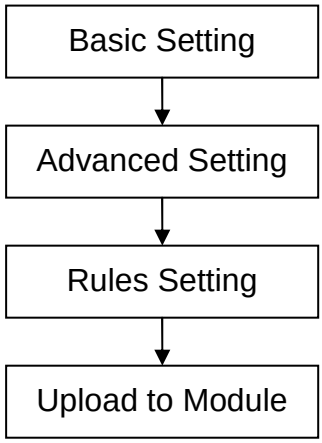

Figure 3-2：WISE Web UI Operation Procedures

Please note: DO NOT refresh the Web page when you are editing the pages, otherwise the contents of all previous settings will be gone. And please remember all settings will be effective only when they are uploaded to Modules, if you close the Web page before finish “Upload to Module”, all settings will be disappeared as well.

More detail information of each button will be given in the following parts.

4 Basic Setting

Under the Basic Setting section, it allows to perform Ethernet Setting, Module Setting and Password Setting. The Module Setting section allows users to set up configuration of AI/AO channels on Analog I/O Module such as: voltage range, current range, or operation modes.

4.1 Ethernet Setting

Ethernet Setting allows you to perform network configuration on hardware devices. The following figure illustrates the configuration interface:

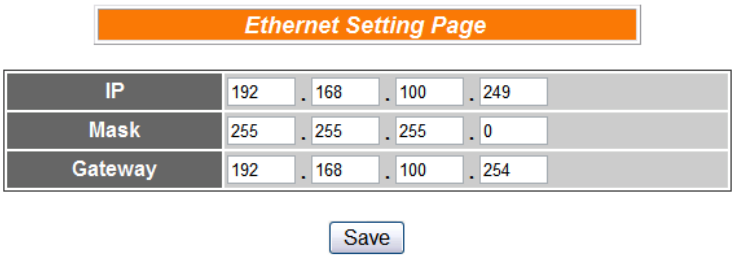

Figure 4-1：Ethernet setting page

Each time when you enter this page, it will display current network configuration automatically read from hardware devices. You can modify IP/Mask/Gateway configuration of the hardware devices in this section. After you finish modification, click “Save” and then all changes will be saved and written back to the hardware.

Please note: if you make any modification to the network configuration, the hardware device will reboot itself automatically. So if there are changes to IP, please use the new IP to re-connect to the web page.

4.2 Module Setting

On the module configuration page, it allows users to set up configuration of AI/AO channels on Analog I/O Module such as: voltage range, current range, or operation modes. The hardware module will be automatically detected and will appear on the drop down list. The Module Setting page allows users to set up the following three types of module (different modules may equip with different I/O):

- DI/DO Module (Digital I/O module): includes WISE-7042、WISE-7044/7144、WISE-7050、WISE-7051/7151、WISE-7052/7152、WISE-7053、WISE-7060/7160、WISE-7065/7165、WISE-7066 and WISE-7067/7167 modules. Please note: these modules contains DI / DO channels only, therefore no need to set up configuration for channel operation. The setting page is shown as below:

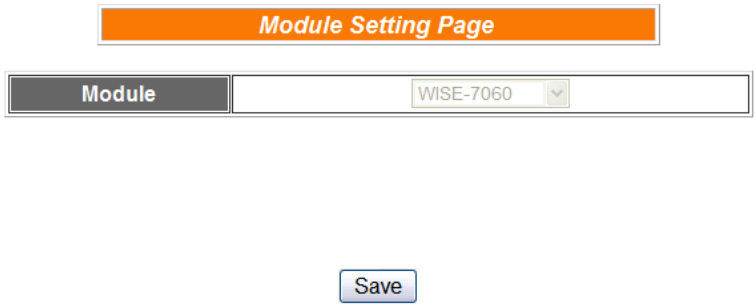

Figure 4-2：WISE-70xx/71xx DI/DO module setting page

- AI / DO Module (Analog Input module): includes WISE-7005/7105、WISE-7015/7115、WISE-7017/7117、WISE-7017-10、WISE-7018Z/7118Z and WISE-7019/7119 modules. These modules contains AI channel, therefore the voltage range, current range, or operation mode (such as RTD or Thermocouple) of each AI channel must be defined. The setting page is shown as below:

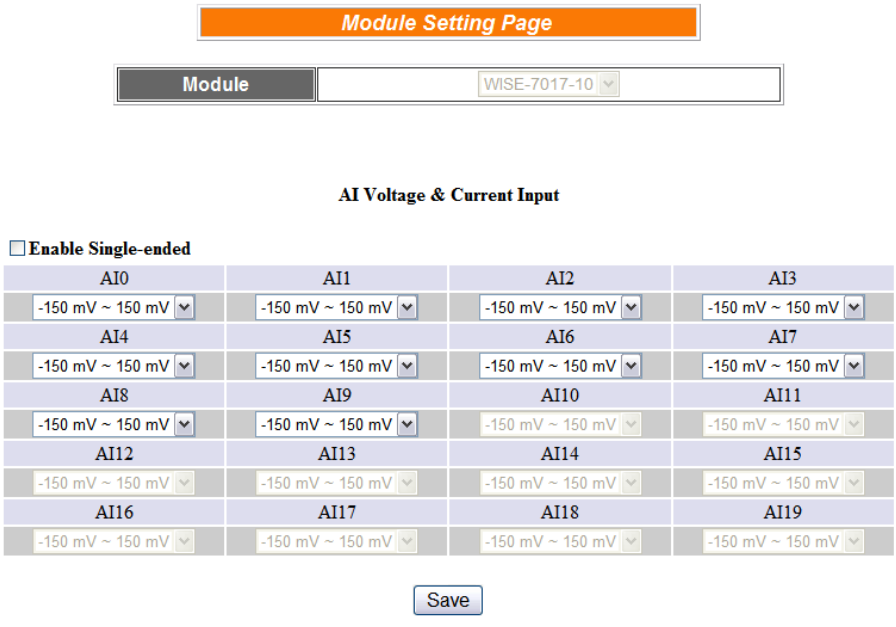

Figure 4-3：WISE-70xx/71xx AI/DO module setting page

- AI / AO Module (Analog I/O module): WISE-7026/7126 module. These modules equip with both AI and AO channel, therefore the voltage range or current range for each AI /AO channel must be defined. The setting page is shown as below:

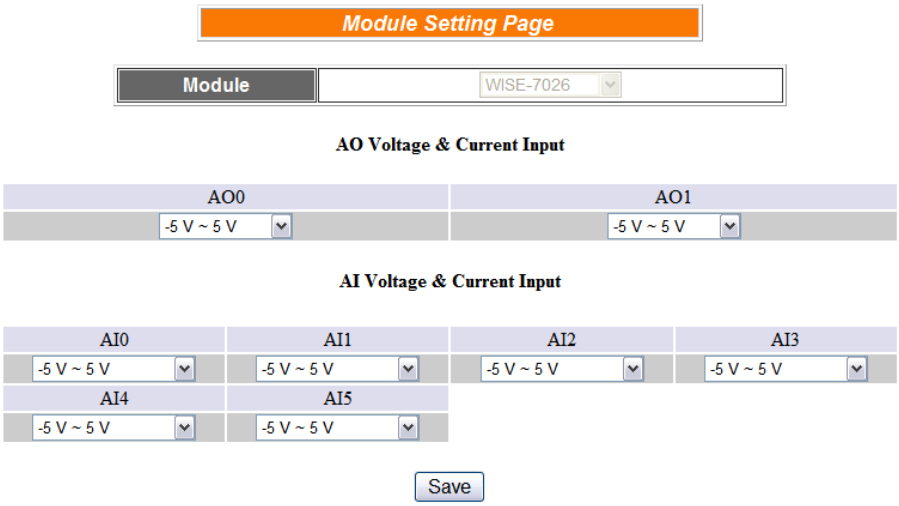

Figure 4-4：WISE-70xx/71xx AI/AO module setting page

4.3 Password Setting

Password Setting allows users to change the password and password hint for upload access control of logic rules. The Password Setting page is as follow:

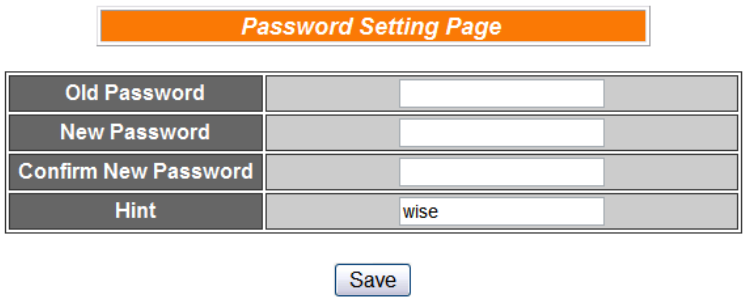

Figure 4-5：Password setting page

The default password for upload access control is set as “wise”. To avoid unauthorized access and altering of data; it is required for users to input password before they start to upload control logic to the controllers. Password Setting page allows users to modify the password and password hint. Password length is limited to 16 characters and the password hint length is limited to 20 characters.

5 Advanced Setting

Advanced Setting provides additional features and allows you to perform channel configuration on hardware devices. Click the Advanced Setting button, a row of buttons will appear on the left of the page:

- Timer Setting
- DI Attribute Setting
- DO Attribute Setting
- AO Attribute Setting
- Internal Register Setting
- Email Setting

Please note: In order to avoid possible error when performing rule definition (IF-THEN-ELSE), please always finish configuration in Advanced Setting before start to define Rules. Also avoid unnecessary change in Advanced Setting after you finish rule definition. Unexpected errors might occur if you violate this sequence: Advanced Setting→ Rule Setting; please double check your settings and Rules definition if you make any modification.

In addition, because each module may carry different I/O channels, if the related DI Attribute Setting、DO Attribute Setting and AO Attribute Setting does not apply to the selected module, the corresponding buttons will appear “Disable”. The following sections will describe more detail information for these configurations.

5.1 Timer Setting

WISE provides 12 groups Timer for timing functions. The Timer setting interface is shown as below:

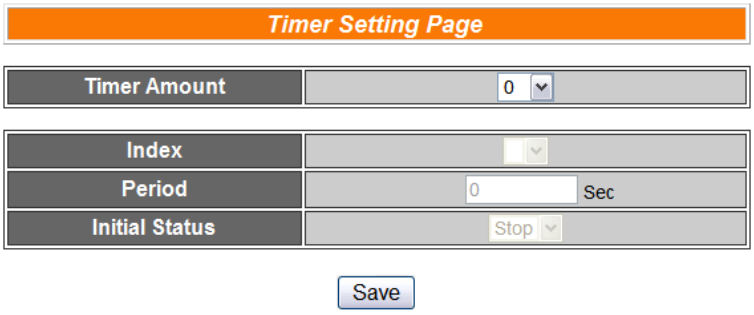

Figure 5-1：Timer setting page

Follow the following steps:

i. "Timer Amount" field is required. Select the total number of timer you are going to use from the dropdown list.

ii. Assign an index number to the time from the dropdown list of the "Index" field.

iii. "Period" field is required for each timer; please input the period interval in units of seconds.

iv. You can specify the initial status of each timer from the dropdown list of the "Initial Status" field. Select "Start" indicates the timer will start to count as soon as the hardware device is power up. "Stop" indicates the Timer will remain off when the hardware device is power up; it will not be activated until being triggered under certain conditions. The default setting of initial Status is "Stop".

v. Repeat steps ii ~ iv. After all timer settings are completed, click "Save" button to save the changes.

5.2 DI attribute Setting

DI Attribute setting page allows to set up detail DI channel counter configuration. The configuration page is shown as below:

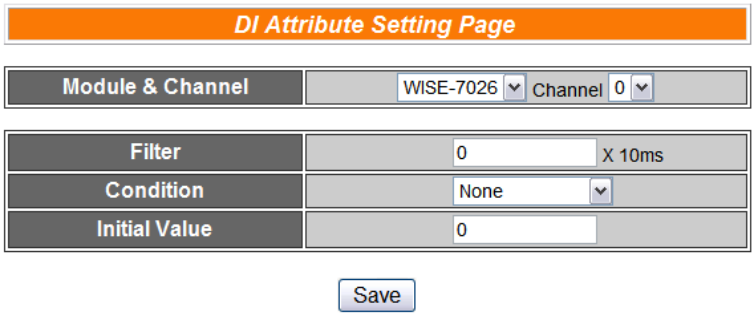

Figure 5-2：DI Attribute setting page

Follow the following steps:

i. Specify the channel you are going to configure by selecting channel index from the dropdown list of channel field in "Module & Channel" section.

ii. Input the time interval in the "Filter" field if you want to implement counter function of this channel. The time interval for filter is the minimum duration a signal has to present to make a change to the counter. The value must be multiples of 10ms, for example, a setting

of 20 would mean a 200 ms filter (20 x10 ms).

iii. Please set the trigger criteria for triggering the counter to count. There are three criteria: HI to LOW, LOW to HI and Status Change. This field cannot be “None” if you want to run the counter of this channel.

iv. You can set the initial value of the counter in the “Initial Value” field. This counter will start counting from the initial count value. The default initial value is 0.

v. Repeat steps i ~ iv. After all DI counter settings are completed, click “Save” button to save the changes.

5.3 DO attribute Setting

DO Attribute Setting page allows to set up detail configuration of DO channel, including Power On value, Counter and Pulse Output. You don’t need to finish all configurations; configure the one(s) according to your needs. The configuration page is shown as below:

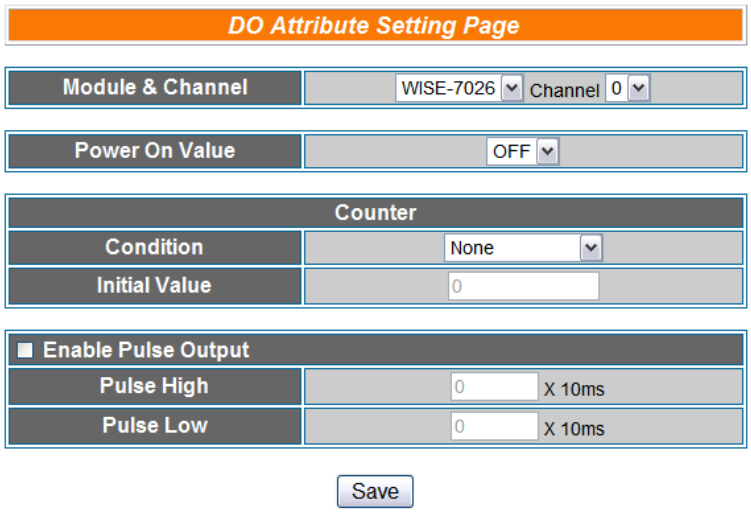

Figure 5-3：DO Attribute setting page

Follow the following steps:

i. Specify the channel you are going to configure by selecting channel index from the dropdown list of channel field in “Module & Channel” section.

ii. You can specify the initial status to be “ON” or to be “OFF” when the hardware device is power on. Select the value from the dropdown list of “Power On Value” field. The default value is “OFF”.

iii. You can set the trigger criteria for triggering the counter to count.

There are three criteria: HI to LOW, LOW to HI and Status Change. This field cannot be “None” if you want to use the counter function of this channel. You can also specify the initial value of the counter in the “Initial Value” field. This counter will start counting from the initial count value. The default initial value is 0.

iv. If you check the Enable pulse output checkbox, it will allow this DO channel to perform pulse output. In Pulse Output mode, the selected DO channel will generate a square wave according to specified parameters (Pulse High and Pulse Low). Pulse High and Pulse Low are required and has to be entered in multiples of 10ms. Pulse High indicates the “ON” time duration and Pulse Low indicates the “OFF” time duration in a periodic Pulse cycle.

v. Repeat steps i ~ iv. After all DO Channel settings are completed, click “Save” button to save the changes.

5.4 AO attribute Setting

AO Attribute Setting page allows to set up initial value of the AO channel. The configuration page is shown as below:

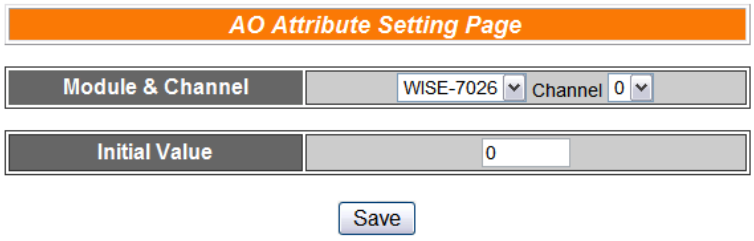

Figure 5-4：AO Attribute setting page

Follow the following steps:

i. Specify the channel you are going to configure by selecting channel index from the dropdown list of channel field in “Module & Channel” section.

ii. You can set the initial value of the AO channel in the “Initial Value” field. The hardware device will output this value when is power on. The default initial value is 0.

iii. Repeat steps i ~ ii. After all AO Channel settings are completed, click “Save” button to save the changes.

5.5 Internal Register Setting

WISE provides 48 Internal Registers; they can be used to hold temporary variables and to read/write data via Modbus address. The configuration page is shown as below:

Figure 5-5：Internal Register setting page

Follow the following steps:

i. A checkbox appears for each Internal Register; check the checkbox to enable the Internal Register. You can also enter a default value for the Internal Register.

ii. After you finish selecting the Internal Registers you want to use, click “Save” button to save the settings.

5.6 Email Setting

WISE supports up to 12 Email messages. This function allows sending pre-input Email message(s) to pre-set Email receiver(s) under certain conditions. The configuration page is shown as below:

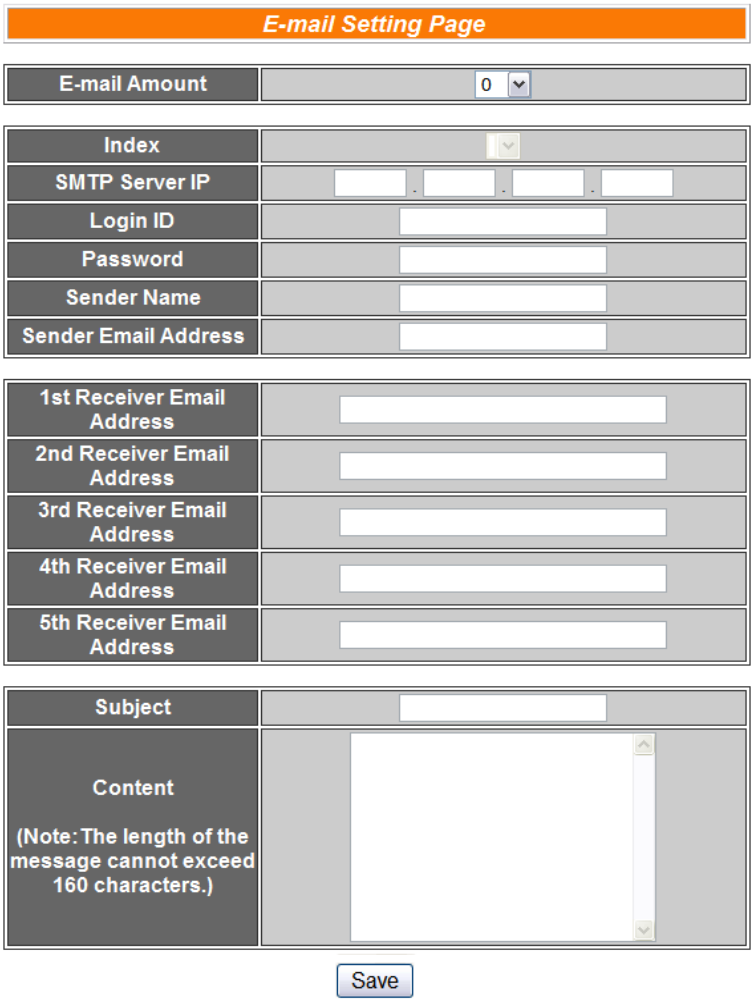

Figure 5-6：Email setting page

Follow the following steps:

i. Specify the numbers of email messages you want to set up from the dropdown list of the “E-mail Amount” field.

ii. Specify the email group number from the dropdown list of the “Index” field.

iii. Enter the SMTP server IP in the “SMTP Server IP” field.

iv. Enter the SMTP server login ID in the “Login ID” field.

v. Enter the SMTP server password in the “Password” field.

vi. Enter the sender’s name in the “Sender Name” field.

vii. Enter the sender’s email address in the “Sender Email Address” field.

viii. Enter the receiver’s email address in the “1st ~5th Receiver Email address” field. Please note: you can input up to 5 receivers, at least one email address has to be entered. Please enter the email address in sequence to avoid possible error.

ix. Enter the email subject in the “Subject” field.

x. Enter the content in the “Content” field.

xi. Repeat steps ii ~ x. After all email groups settings are completed, click “Save” button to save the changes.

6 Rules Setting

After finish all Advanced Setting configuration, the user can start to edit IF-THEN-ELSE rules. Click the “Rules Setting” button, a Rule Manager table will appear, and the list of rules will be displayed on the left side of the page. At the left side of the page, the status of each rule will be displayed. And at the right side of the page will show detail content of each rule that was previously defined by the users. The rule setting page is shown as below:

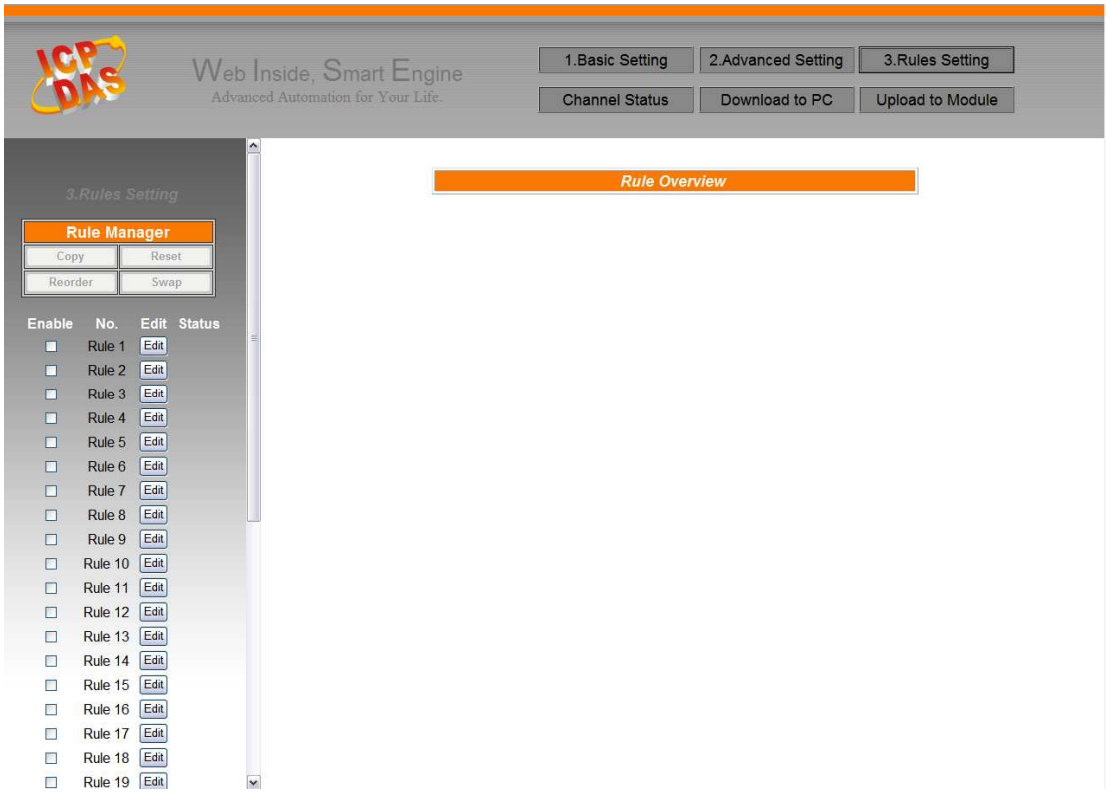

Figure 6-1：Rules setting page

On the left side of the page, a Rule Manager table will appear at the top of the page. (More detail information for Rule Manager will follow.) Below the Rule Manager table, the list of rule contains four items:

Figure 6-2：Enable rules, edit rules and status display

- **Enable**: A checkbox appears before each rule; check the checkbox to enable the rule and this rule will be executed after being uploaded, otherwise it will only be stored temporarily.
- **No**: Indicates the identification number of the rule. To avoid possible error, it is recommended to assign the identification number in sequence.
- **Edit**: Click the Edit button to edit detail logic content of the rule.
- **Status**: "OK" indicates this rule is successfully defined. "Error" indicates there is error occurs. Please note: if you make modification in Advanced Setting after finish defining the rules, it might cause unexpected error due to the changes, some variables may no longer exist.

Click the "Edit" button, the Rules Setting page will appear:

Figure 6-3：Rule setting page

The rule number will be displayed at the top of the page. The Description field provides a space for users to make a brief description of this Rule. An IF-THEN-ELSE Rule setting table will appear. Each Rule offer 3 IF conditions. The user could dynamically create IF(condition) statements by selecting appropriate operator (AND, OR) from the dropdown list. In order to avoid possible errors, the design of this table is foolproof: The user has to finish setting up Condition1 before moving on Condition2, and so on. Each Rule also offers 3 THEN actions, and 3 ELSE actions. More detail information will follow.

6.1 IF Condition

You may use the following values or their status as evaluation criteria in IF Condition statement:

- AI
- DI
- DI counter
- DO counter
- Internal Register
- Timer

From the list above, AI and DI channel will automatically appear if there is a corresponding hardware. The other subjects have to be pre-defined in Advanced Setting first. The subjects that already being defined in Advanced Setting will appear in the dropdown list of IF Condition. Select the subject you want to define, and then click right side button, a window will pop up for you to edit detail information.

6.1.1 AI

AI channel value can be used as evaluation criteria for IF condition statement; the editing page for AI Condition Setting is shown as below:

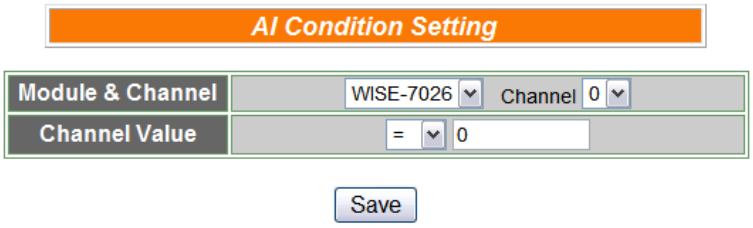

Figure 6-4：AI condition setting page

Follow the following steps:

i. Select the channel that you are going to use the value as evaluation criteria for IF condition statement. Specify the channel from the dropdown list of channel field in “Module & Channel” section.

ii. Set up the expression statement for this channel value. Select an operator from “=”,”>”,”<”,”>=” or “<=”, and then specify the evaluation value. If this AI channel value match the evaluation criteria, the result of this condition evaluation will be “true”.

iii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.1.2 DI

DI channel value can be used as evaluation criteria for IF condition statement; the editing page for DI Condition Setting is shown as below:

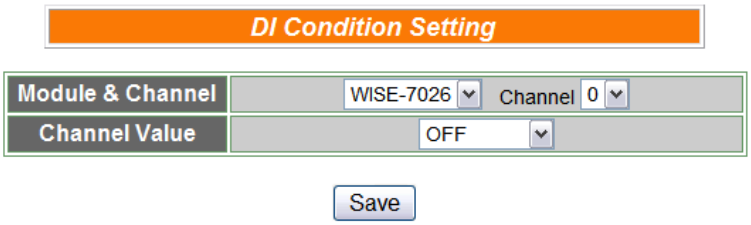

Figure 6-5：DI condition setting page

Follow the following steps:

i. Select the channel that you are going to use the value as evaluation criteria for IF condition statement. Specify the channel from the dropdown list of channel field in “Module & Channel” section.

ii. Define the evaluation criteria of the status in IF statement to be “OFF” “ON” “ON to OFF” “OFF to ON” or “Change”. If the change of DI channel value matches the evaluation criteria, the result of this condition evaluation will be “true”. Please note: If the statement involves state transitions: “ON to OFF”, “OFF to ON” and “Change”, the action will be executed only once and only at the moment when the state transition occurs.

iii. Click “Save” button to save the settings. This popup window will be closed and return to Rule settings page.

6.1.3 DI counter

DI counter value can be used as evaluation criteria for IF condition statement; the editing page for DI counter Condition Setting is shown as follow:

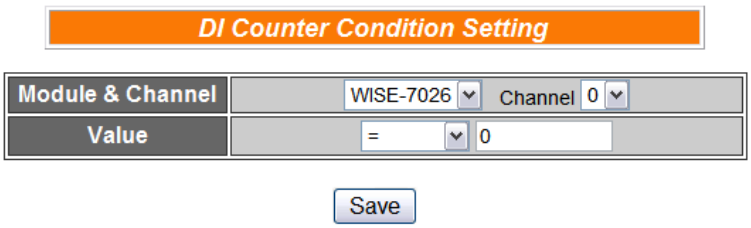

Figure 6-6：DI counter condition setting page

Follow the following steps:

i. Select the channel that you are going to use the value as evaluation criteria for IF condition statement. Specify the channel from the dropdown list of channel field in “Module & Channel” section.

ii. Set up the expression statement for this counter value. Select an operator from “=”,”>”,”<”,”>=”,“<=” or “Change”. If the operator is “=”,”>”,”<”,”>=” or “<=”, an evaluation value has to be specified; if the DI counter value match the evaluation criteria, the result of this condition evaluation will be “true”. If the operator is “Change”, the condition will be “true” when there is a change in the counter value. The action will be executed only once and only at the moment when DO Counter experience a change.

iii. Click “Save” button to save the settings. This popup window will be closed and return to Rule settings page.

6.1.4 DO counter

DO counter value can be used as evaluation criteria for IF condition statement; the editing page for DO counter Condition Setting is shown as follow:

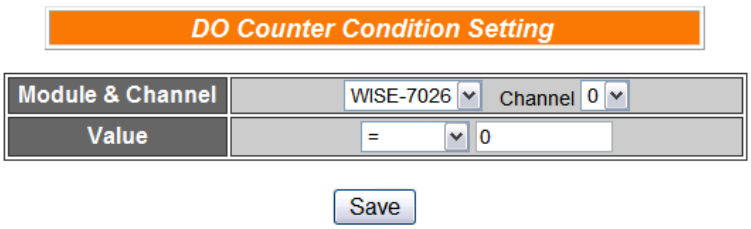

Figure 6-7：DO counter condition setting page

Follow the following steps:

i. Select the channel that you are going to use the value as evaluation criteria for IF condition statement. Specify the channel from the dropdown list of channel field in “Module & Channel” section.

ii. Set up the expression statement for this counter value. Select an operator from “=”,”>”,”<”,”>=”,“<=” or “change”. If the operator is “=”,”>”,”<”,”>=” or “<=”, an evaluation value has to be specified; if this DO counter value match the evaluation criteria, the result of this condition evaluation will be “true”. If the operator is “Change”, the condition will be true when there is a change of the counter value. The action will be executed only once and only at the moment when

DO Counter experience a change.

iii. Click “Save” button to save the settings. This popup window will be closed and return to Rule settings page.

6.1.5 Internal Register

Internal Register value can be used as evaluation criteria for IF condition statement; the editing page for Internal Register Condition Setting is shown as follow:

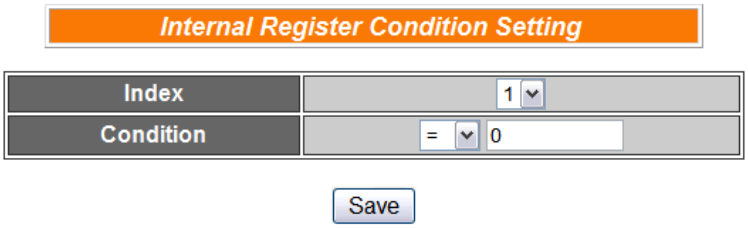

Figure 6-8：Internal register condition setting page

Follow the following steps:

i. Select the Internal Register that you are going to use the value as evaluation criteria for IF condition statement. Specify the Internal Register Index from the dropdown list of “Index” field.

ii. Set up the expression statement for this Internal Register value. Select an operator from “=”,”>”,”<”,”>=” or “<=”, and then specify the evaluation value. If this Internal Register value match the evaluation criteria, the result of this condition evaluation will be “true”.

iii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.1.6 Timer

Timer condition can be used as evaluation criteria for IF condition statement; the editing page for timer condition setting is shown as follow:

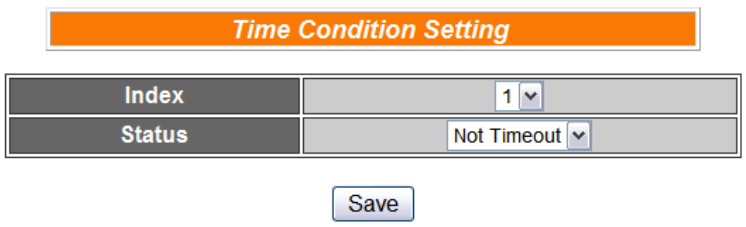

Figure 6-9：Timer condition setting page

Follow the following steps:

i. Select the timer that you are going to use its status as evaluation criteria for IF condition statement. Specify the timer index from the dropdown list of “Index” field.

ii. Define the evaluation criteria of the timer status in IF statement to be “Not timeout” or “Timeout”. If the timer status match the evaluation criteria, the result of this condition evaluation will be “true”.

iii. Click “Save” button to save the settings. The popup window will be closed and return to the Rule settings page.

6.2 THEN/ELSE Action

You may use the following values or status as evaluation criteria in THEN/ELSE Action statement:

- AO
- DO
- DI counter
- DO counter
- Internal Register
- Timer
- Email

Select the component for Action statement from the combo box, and then click the right side button, a window will pop up for you to edit detail information. The THEN Action statement will be executed only when the result of IF condition statement is found “true”; otherwise the ELSE Action statement will be executed. The Actions involve with AO、DO(ON and OFF) or Internal Register will be executed over and over again as long as the conditions remain unchanged. On the other hand, other Actions will be executed only once and only at the moment when their corresponding IF Conditions are satisfied.

6.2.1 AO

You can execute an action in AO channel in THEN/ELSE Action statement; the editing page for AO Action is shown as follow:

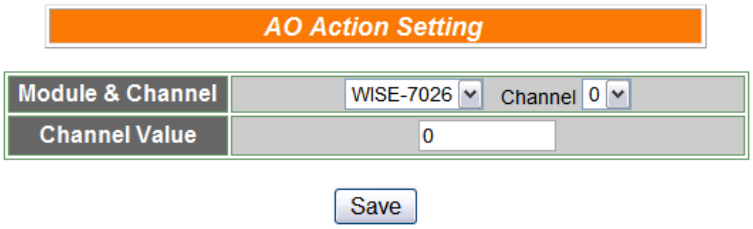

Figure 6-10：AO action page

Follow the following steps:

i. From the dropdown list of the “Module & Channel” field, select the AO channel index to execute actions.

ii. Specify the AO channel value in “Channel Value” field. The AO

channel value will be changed into this value when executing Action under specific condition.

iii. Click “Save” button to save the settings. The popup window will be closed and will return to the rule setting page.

6.2.2 DO

You can execute an action in DO channel in THEN/ELSE Action statement; the editing page for DO Action is shown as follow:

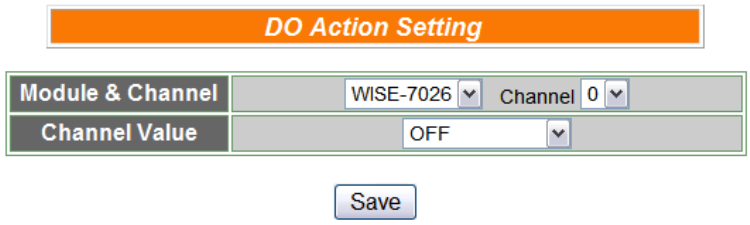

Figure 6-11：DO action page

Follow the following steps:

i. Select the DO channel to execute actions from the dropdown list of channel field in “Module & Channel” section.

ii. Specify the output value of DO Channel from the dropdown list of the “Channel Value” field. The output value can be “OFF”, “ON” or “Pulse Output”. Please note: to make “Pulse Output” option available here, you have to enable “Pulse Output” in Advanced Setting before editing Rules Setting.

iii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.2.3 DI counter

You can reset DI counter in THEN/ELSE Action statement; the editing page for DI counter Action is shown as follow:

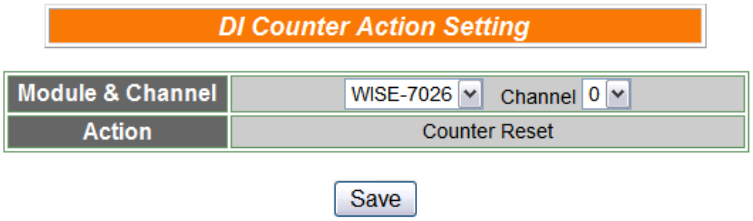

Figure 6-12：DI counter action page

Follow the following steps:

i. Select the DI channel to reset DI counter from the dropdown list of channel field in “Module & Channel” section.

ii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.2.4 DO counter

You can reset DO counter in THEN/ELSE Action statement; the editing page for DO counter Action is shown as below:

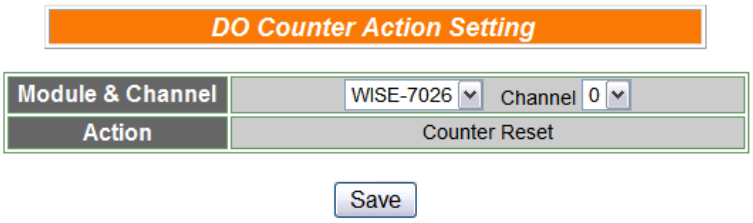

Figure 6-13：DO counter action page

Follow the following steps:

i. Select the DO channel to reset DO counter from the dropdown list of channel field in “Module & Channel” section.

ii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.2.5 Internal Register

You can modify the value of Internal Register in THEN/ELSE Action statement; the editing page for Internal Register Action Setting is shown as below:

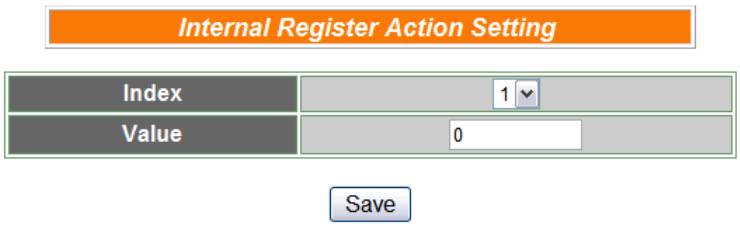

Figure 6-14：Internal Register action page

Follow the following steps:

i. Select the pre-defined Internal Register from the dropdown list of “Index” field. Please note: the Internal Register you select has to be

enabled in Advanced Setting.

ii. Input the value you want to set to this Internal Register when the THEN/ELSE Action is executed.

iii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.2.6 Timer

You can change Timer status (to stop or to start the Timer) in the THEN/ELSE Action statement; the editing page for Timer Action Setting is shown as below:

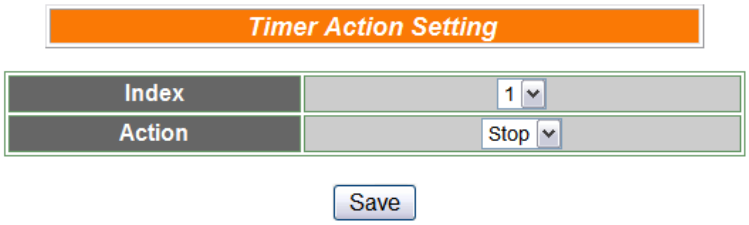

Figure 6-15：Timer action page

Follow the following steps:

i. Select the pre-defined Timer from the dropdown list of “Index” field. Please note: the Timer you select has to be enabled in Advanced Setting.

ii. Specify you want to “Stop” or “Start” this Timer when this THEN/ELSE Action statement is executed.

iii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.2.7 Email

You can send a message to an Email group when executing a THEN/ELSE Action statement; the editing page is shown as below:

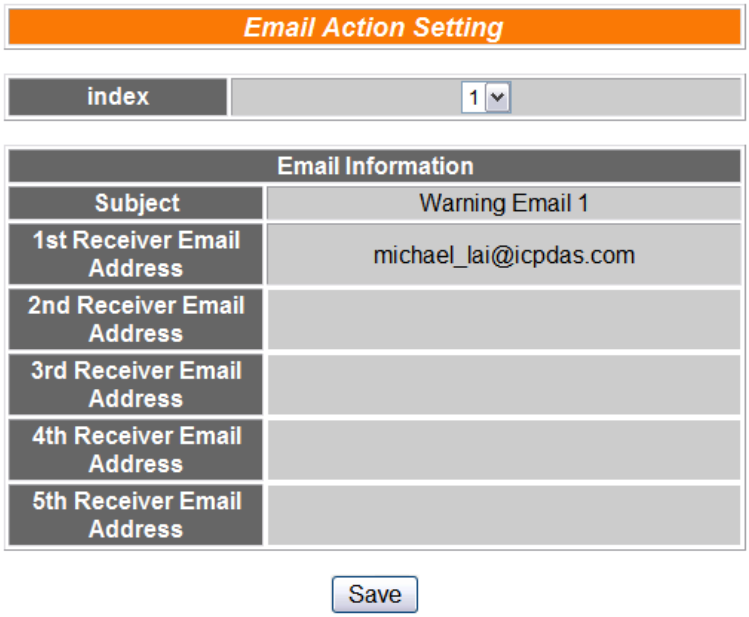

Figure 6-16：Email action page

Follow the following steps:

i. Select the pre-set Email group from the dropdown list of “Index” field. The Email group information will be displayed for you to verify if this is the Email group you are going to send the message to.

ii. Click “Save” button to save the settings. The popup window will be closed and return to Rule settings page.

6.3 Summary of the Rules

After you finish editing all IF condition and THEN / ELSE action statements for a rule, return to the Rules Setting page and click “Save” to save all settings of this rule. Please note: if you want to clear previous settings, after you click “Clear” button, you have to click “Save” to make sure this “Clear” status is saved. Rules Setting page is shown as below:

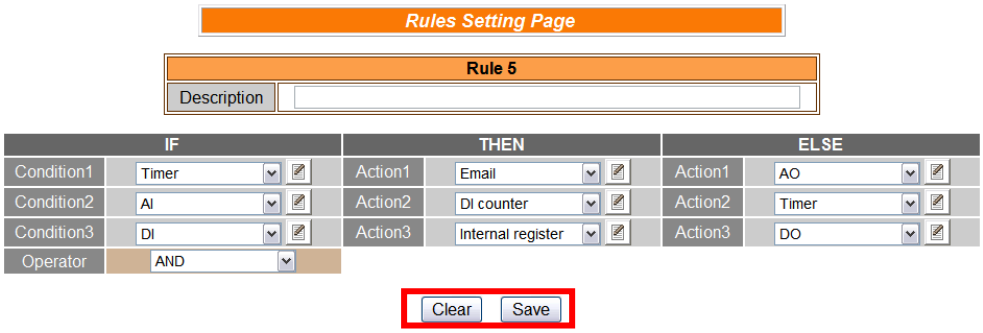

Figure 6-17：Clear/Save Rules

Each time you finish editing a Rule will go back to the Rules Setting main page. All statements of edited Rules will be displayed. Rules Setting main page is shown as below:

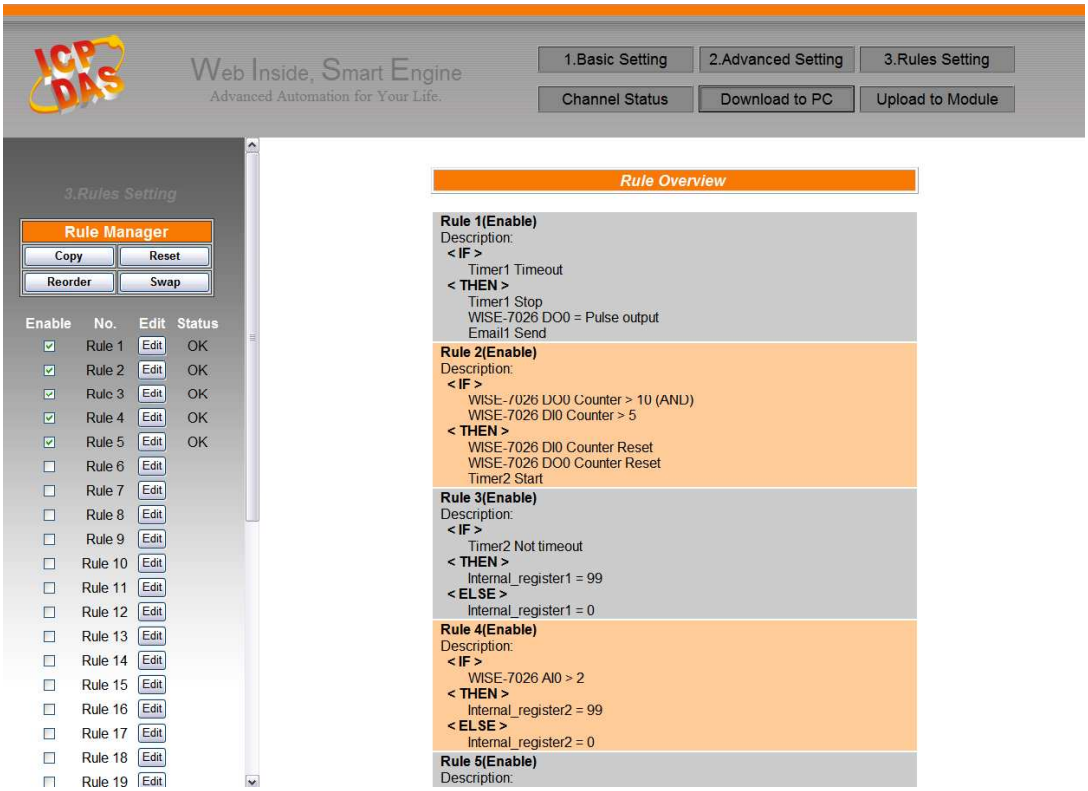

Figure 6-18：Rule setting main page

Click “Rules Setting” button to display detail rules description. Rules can be uploaded to the hardware device immediately after you successfully set up one or more rule(s).

6.4 Rule Manager

The Rule Manager allows easy modification and deployment with existing rules. By a few simple steps, users can easily change the rule orders or make modification with previously edited rules. The Rule Manager table is shown as below:

Figure 6-19：Rule Manager setting page

Rule Manager offers 4 functions:

- **Copy**: Copy the content of previously edited rule to another rule. Click "Copy" button, a window as shown below will pop up:

Figure 6-20：Rule Copy setting page

Select the source rule from the first field, and then select the destination(s) from the second fields (multiple rule destinations is allowed). Click "Save" button to copy the content of the source rule to all destination rules.

- **Reset**: allows to clear rule content of previously edited rules. Click "Reset" button, a window as shown below will pop up:

Figure 6-21：Rule Reset setting page

Rules that are previously edited will be listed on the page, select the rule to be cleared and then click "Save" button, the rule you select will be reset.

- **Reorder**: reorder existing rules. Click "Reorder" button, a window as shown below will pop up:

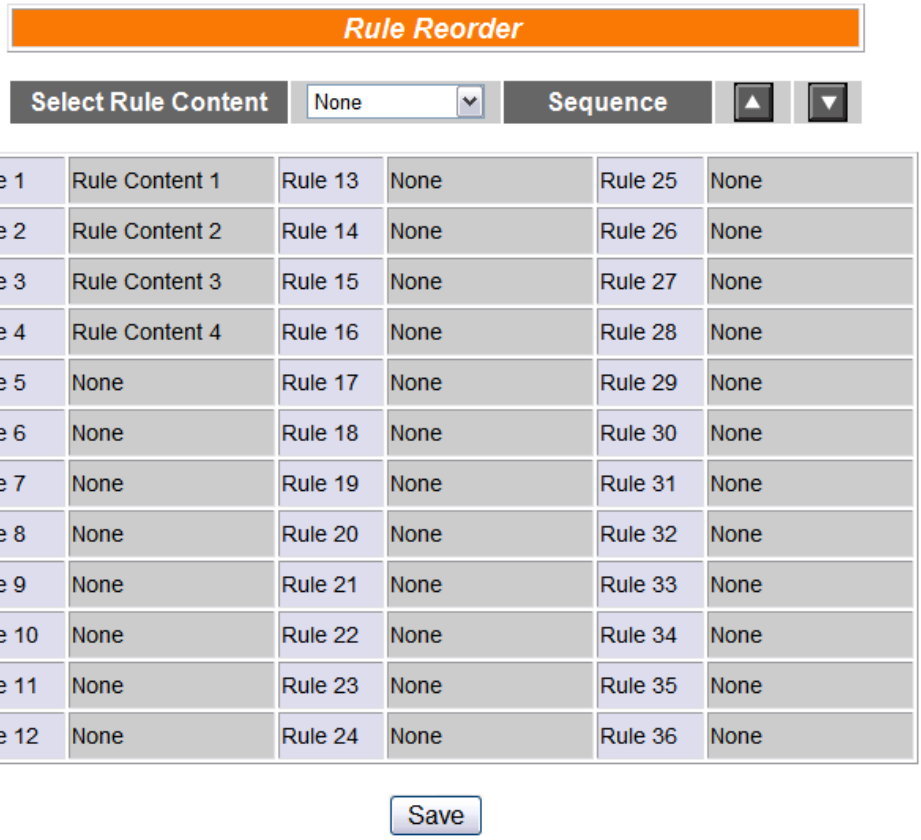

Figure 6-22：Rule Reorder setting page

A menu will appear at the top of the page, it contains a drop down list for selecting the target rule, and a pair of "Move Up"/"Move Down" buttons to move target rule to the desired location. All rule locations will be listed

in sequence (currently support 36 rule locations). If the rule content of a specific rule location has been previously edited, “Rule Content X” (X : rule sequence index) will appear. If the rule content of the rule location is blank, it will be specified as “None”. To reorder a rule, select the target rule from the dropdown list, the corresponding “Rule content X” font will turn to blue from its usual black. Click on “Move Up”/“Move Down” buttons to move the selected rule to the desired location and then click “Save” to save the settings.

- **Swap**: Exchange the Rule content of a pair of rules. Click Swap button, a window as shown below will pop up:

Figure 6-23：Rule Swap setting page

From the left side drop down list, select the first rule (has to be previously edited), and select the second rule from the right side drop down list (the rule content can be blank), click “Save” to swap the rule content.

7 Upload to Module

Upload button allows you to upload edited rules from Web UI to hardware devices. Click the “Upload to Module” button, a popup window will appear for user to input the password:

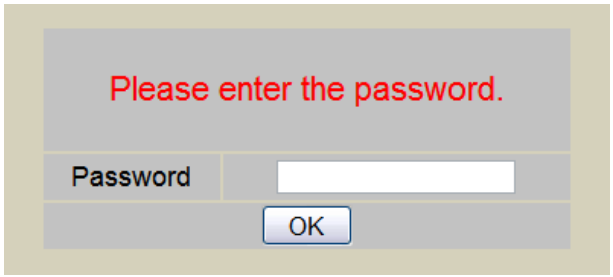

Figure 7-1：Please enter the password

If the password is incorrect, the upload will not be processed, the upload process will be started only when the correct password is entered. Current upload progress will be displayed as below:

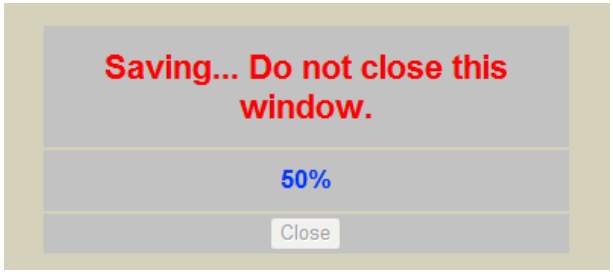

Figure 7-2：”Upload to Module” status page

When the upload is finished, the popup window will notify the saving process is completed:

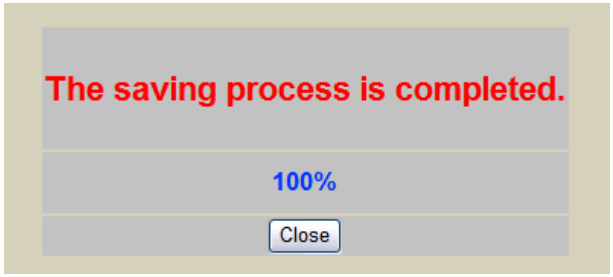

Figure 7-3：The informing message when successfully Upload to Module

Close the popup window and go back to the Rules Setting window. About 3 seconds after the upload is completed, the hardware device will automatically reboot and start to run the rules that have been uploaded. At this time, you can still edit or modify the content of the rules.

8 Download to PC

Download button allows you to retrieve Rules Setting information from the hardware devices and edit them at this Rules Setting page. Click “Download to PC”, the following window showing the download progress will pop up:

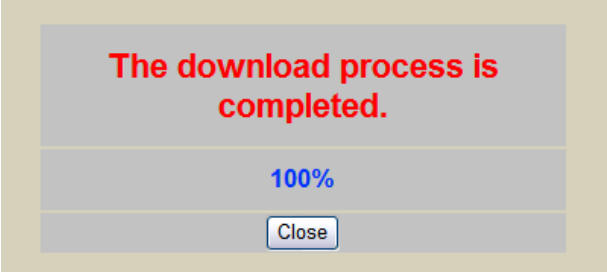

Figure 8-1：The informing message when successfully download to PC

Click “close” to close the download process window to finish download. Now the rules have been downloaded from hardware devices to Web page, you can modify and upload the edited rules to hardware devices later again.

9 Channel Status

Channel Status function offers an easy to view monitoring page that allows users to view important controller information in real time without SCADA software. The Channel Status page is shown as below:

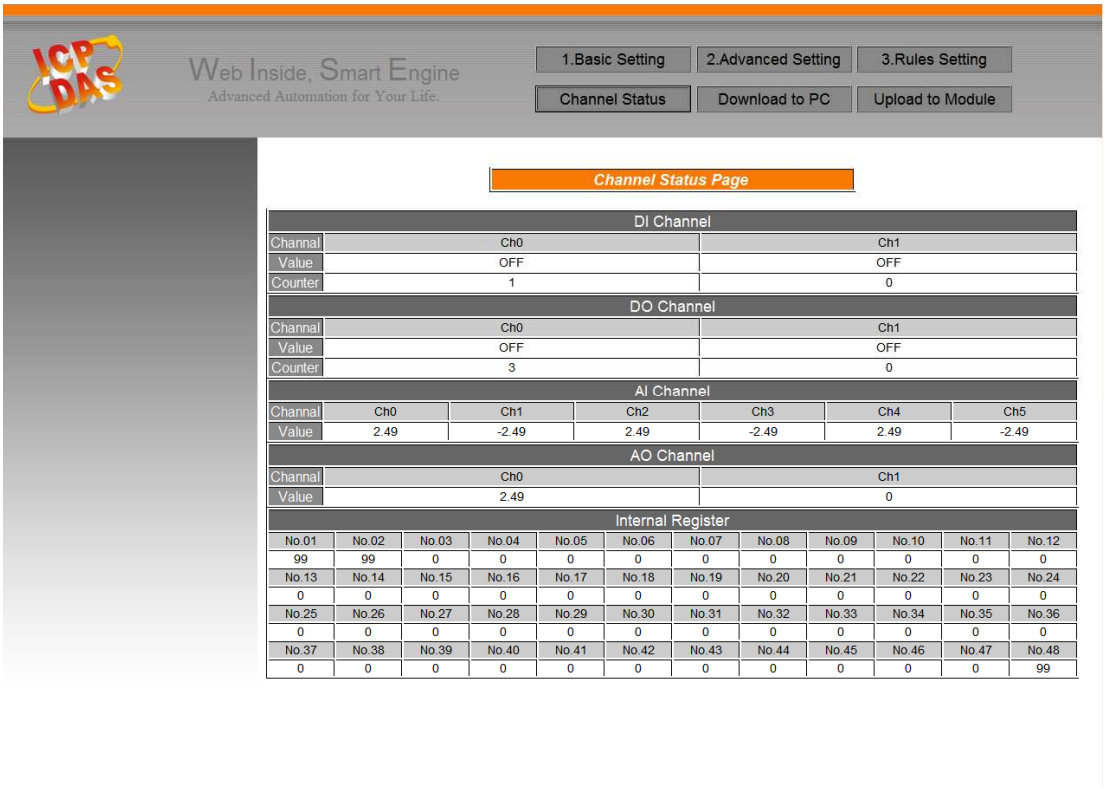

Figure 9-1：Channel Status page

The Channel Status page will show the values of DI / DO / AI / AO channel, DI/DI counter, and the Internal Register. This page will be updated once every 10 seconds, showing the latest data of the controllers.

10 Firmware Update

10.1 Introduction

WISE Firmware Uploader is a software tool provides a user friendly interface to easily update WISE firmware that runs on WISE hardware devices. With a few clicks, users could upload the latest WISE firmware to the hardware.

System Requirements:

- Operating System: Windows Server 2003, Windows Server 2008, Windows Vista, Windows XP.
- Make sure you have installed Microsoft .NET Framework Version 2.0 (or later)
  - You can download Microsoft .Net Framework Version 2.0 from the link below: http://www.microsoft.com/downloads/details.aspx?FamilyID=0856eacb-4362-4b0d-8edd-aab15c5e04f5&DisplayLang=en
  - You can download Microsoft .Net Framework Version 3.5 from the link below: http://www.microsoft.com/downloads/details.aspx?familyid=333325FD-AE52-4E35-B531-508D977D32A6&displaylang=en]

10.2 Install / Uninstall WISE Firmware Uploader

10.2.1 Install WISE Firmware Uploader

Follow the steps below to install WISE Firmware Uploader:

- Obtain the WISE Firmware Uploader setup file (WISE Firmware Uploader Setup.exe).
- Double click the setup file to install the file, you will see a window pop up as below, click [Next] to continue.

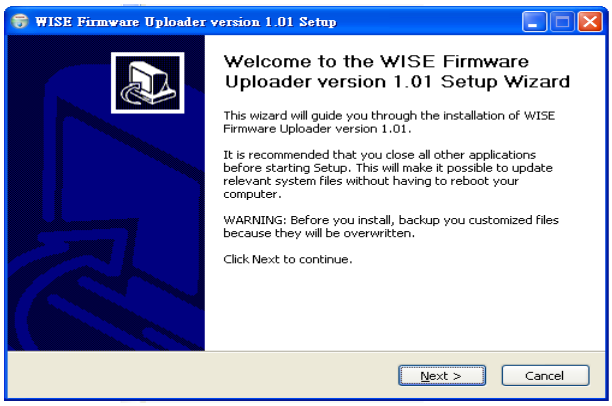

Figure 10-1：Install WISE Firmware Uploader

- Choose the installation location to install WISE Firmware Uploader. Click [Install] to start the installation.

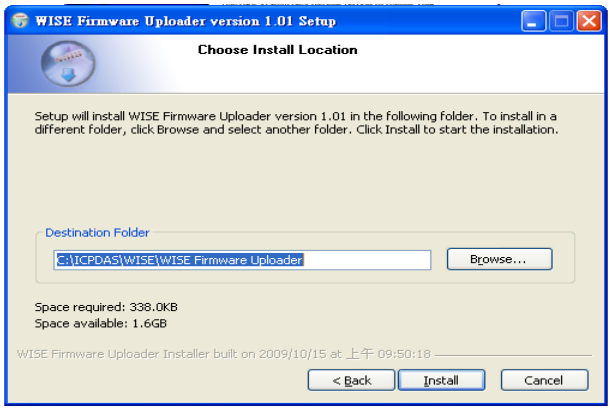

Figure 10-2：Select installation directory

- The installation progress will be shown as below; please wait till the installation is completed.

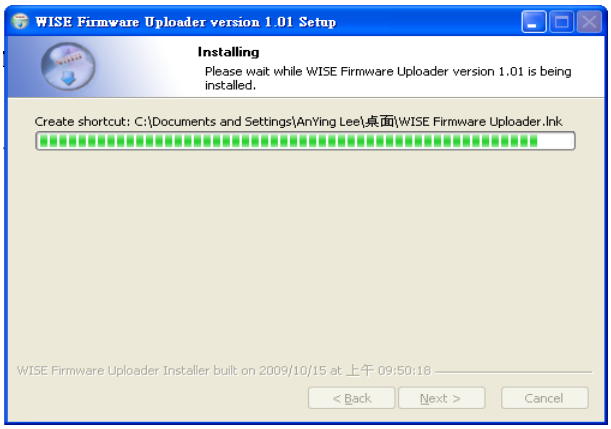

Figure 10-3：Display installation progress

- When the installation is completed, click [Finish] to close the process.

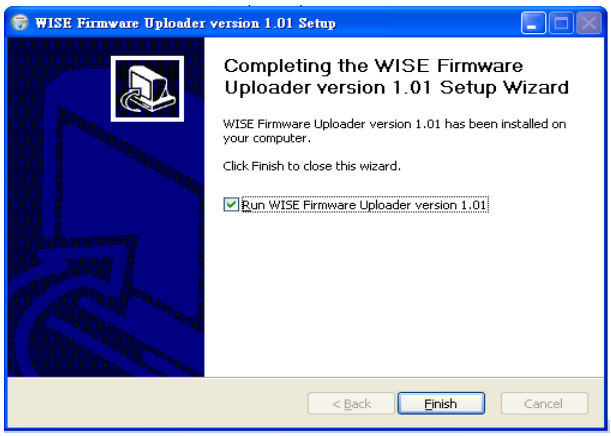

Figure 10-4：Complete the installation

10.2.2 Uninstall WISE Firmware Uploader

Follow the steps below to uninstall WISE Firmware Uploader:

- Click [Start]→ [All Programs]→[ICPDAS]→[WISE], and then click [Uninstall] under the [WISE] category.

Figure 10-5：Start to remove WISE Firmware Uploader

- You will see a window pop up as below, click [Next] to continue.

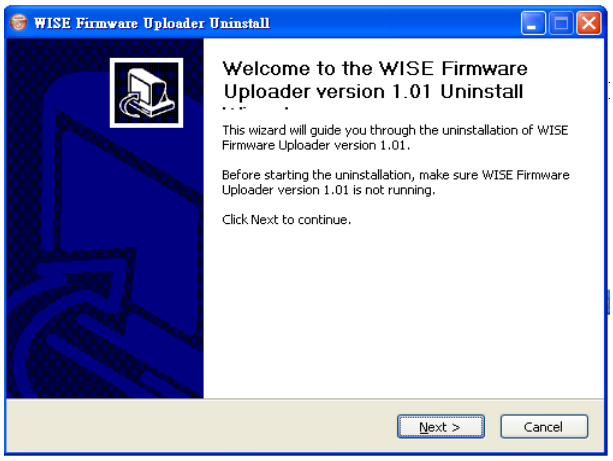

Figure 10-6：Remove WISE Firmware Uploader (1)

- Click [Uninstall] to uninstall the program.

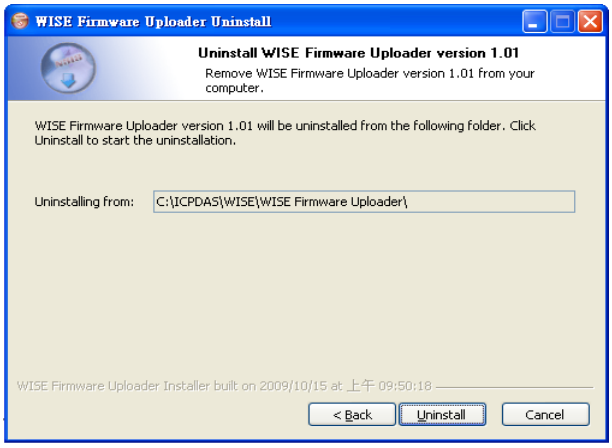

Figure 10-7：Remove WISE Firmware Uploader (2)

- When the uninstall process is completed, click [Finish] to finish the uninstallation.

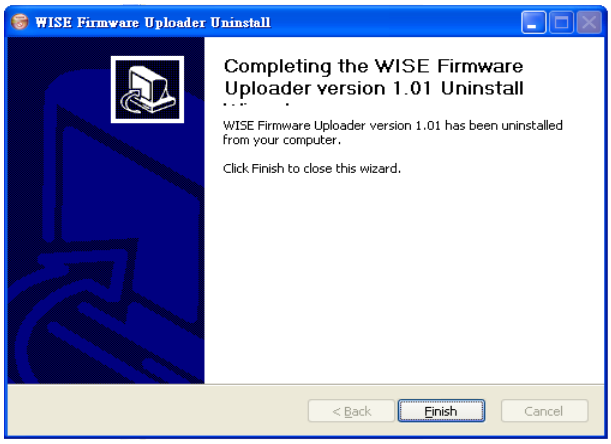

Figure 10-8：Complete uninstalling WISE Firmware Uploader

10.3 Update WISE firmware

Please follow the six steps below to update the WISE firmware program on the hardware devices:

10.3.1 Before update

- Please visit ICP DAS product web site or contact ICP DAS service to obtain the latest version of the WISE firmware program. Copy the file to the computer that you previously installed WISE Firmware Uploader.
- Connect the hardware device that you are going to update WISE firmware to the network. Please verify and make a note of the hardware device IP address, you will need it later in the process.

10.3.2 Execute WISE Firmware Uploader

- Taking Windows XP as an example: click [Start]→[All Programs]→[ICPDAS]→[WISE], and then click [WISE Firmware Uploader] under the [WISE] category to start the program.

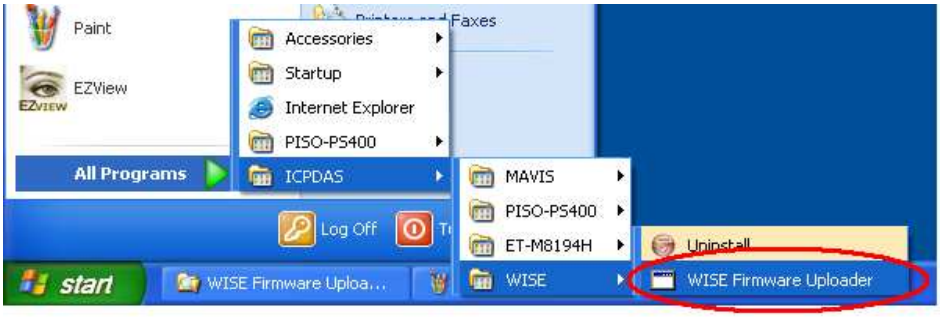

Figure 10-9：Launch WISE Firmware Uploader

10.3.3 Set up Hardware IP

Enter the IP address of the hardware device that you are going to update WISE firmware, as shown in the following figure.

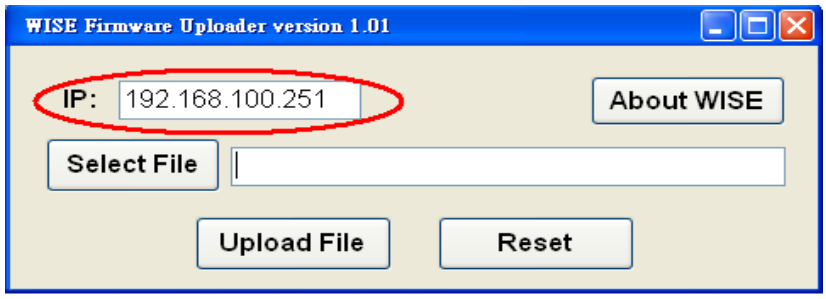

Figure 10-10：Assign IP address

10.3.4 Select WISE firmware file

Click “Select File” button; browse the file through File Dialog Box to select the appropriate WISE firmware version. As shown in the following figure:

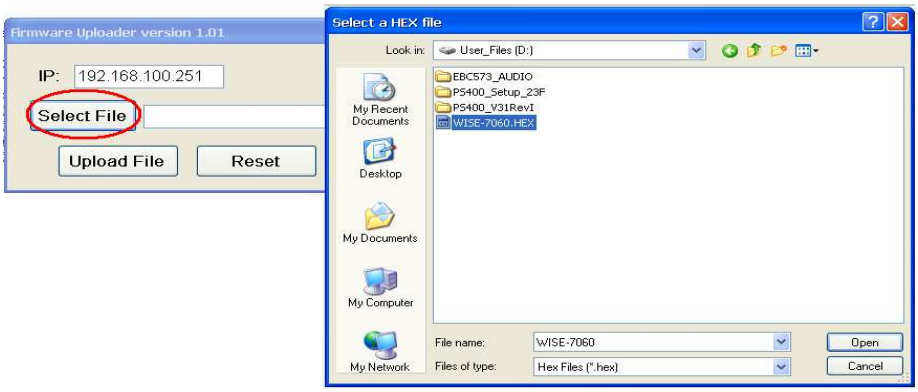

Figure 10-11：Select the WISE firmware

10.3.5 Upload WISE firmware program

Click ”Upload File” button to start update WISE firmware to the hardware device.

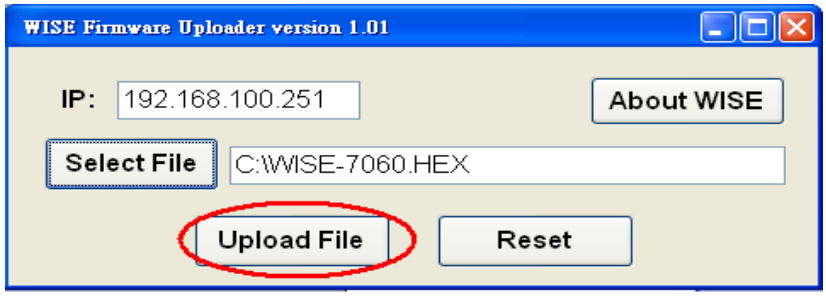

Figure 10-12：Upload firmware

The status of WISE firmware update progress will be shown as below:

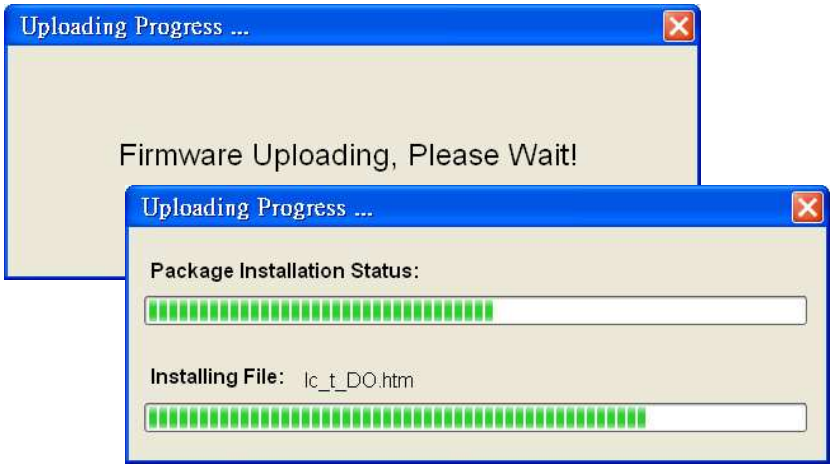

Figure 10-13：Display firmware update progress

When completing update of the WISE firmware, a pop-up window will appear to inform the user. Close the window to finish firmware upload.

Figure 10-14：Complete firmware update

10.3.6 Reset hardware

Click “Reset” button to reset the hardware device. The new updated firmware will take effect after resetting the hardware.

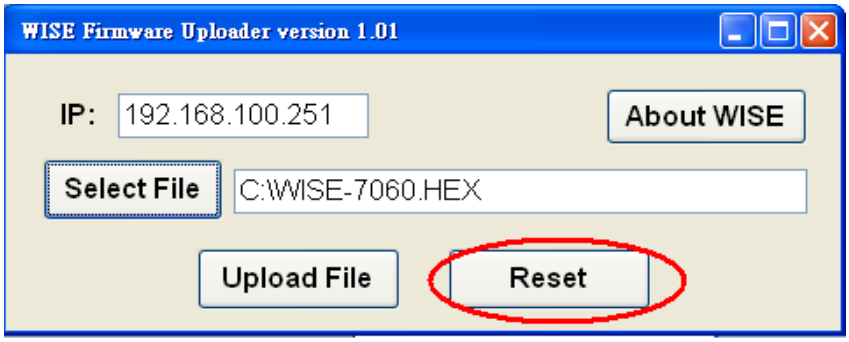

Figure 10-15：Reset the device

Appendix I：Modbus Address Table

WISE allows you to retrieve data on hardware devices via Modbus TCP.
Register addresses are specified according to Modbus register mapping tables as follows:

◆ 00000

Begin address	Points/ Channels	Description	Registers per Point/Channel	Range	Access type
1	1	Reboot switch	1	0=off 1=reboot	R/W
21	0~20	DO channel value	1	0=off 1=on	R/W

◆ 10000

Begin address	Channels	Description	Registers per Channel	Range	Access type
21	0~20	DI channel value	1	0=off 1=on	R

◆ 30000

Begin address	Points/ Channels	Description	Registers per Point/Channel	Range	Access type
1	1	Module Name	1	0~65535	R
3	1	Firmware Version	2	-65535~65535 (float)	R
5	1	Alive Counter	1	0~65535	R
6	1	Cycle Time	1	0~65535	R
21	0~20	AI channel value	2	-65535~65535 (float)	R
61	0~20	DI Counter	1	0~65535	R
81	0~20	DO Counter	1	0~65535	R

◆ 40000

Begin address	Points/ Channels	Description	Registers per Point/Channel	Range	Access type
1	4	IP	1	0~65535	R/W
5	4	Mask	1	0~65535	R/W
9	4	Gateway	1	0~65535	R/W
21	0~10	AO channel value	2	-65535~65535 (float)	R/W
41	48	Internal Register	2	-65535~65535 (float)	R/W