ICP DAS

WISE-7126

WISE-4000D

1.Basic Setting 2.Advanced Setting 3.Rules Setting

Channel Status Download to PC Upload to Module

Web Inside, Smart Engine
Advanced Automation for Your Life.

Rules Setting Page

Rule 1

Description

| IF | | THEN | | ELSE | |
|---|---|---|---|---|---|
| Condition1 | | Action1 | None | Action1 | None |
| Condition2 | | Action2 | | Action2 | |
| Condition3 | | Action3 | | Action3 | |
| Operator | None | | | | |

Clear Save

Vol. WISE 1.1.02 (2011.MAR.24)

**Web Inside, Smart Engine**

# WISE

## A Web-based Intelligent Industrial Controller

WISE-71xx Intelligent I/O Controller
WISE-790x Extensible I/O Intelligent Controller
WISE-4000 SMS Intelligent Controller

ICP DAS

## WISE Introduction

WISE (**W**eb **I**nside, **S**mart **E**ngine) 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 web site interface that allows users to implement IF-THEN-ELSE control logic on controllers just a few clicks away; no programming is required. With its powerful and easy-to-use features, it will minimize the learning curve, shorten time to market and dramatically reduce the labor and cost spent on system development.



▲WISE System Architecture

Through Web browser, users can access Web Server on WISE controllers to perform tasks such as logic rule edition and download. A Rule Engine will be set up to manage and deploy logic 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/SMS message or sending CGI command under a specific condition. With WISE Advanced P2P function, all WISE controllers in network can freely share their status such as AIO value, DIO value, DIO Counter value or Internal Register value to each others. This function greatly enhances the flexibility and boosts accuracy to the logic rule design and makes it easy to enable the interactions between the controllers. In addition, through Modbus TCP Protocol, SCADA package enables to control and monitor I/O channel or system status on WISE controller in real time.

## Applications

- Building Automation
- Factory Automation
- Machine Automation

- Remote Maintenance
- Remote diagnosis
- Equipment Monitoring

## Application Story

- ### Greenhouse Automation Solution

  Greenhouse cultivation plays a very important role in modern agriculture. As the greenhouse usually equips with various high-tech equipments, management tend to be very complex. An automated greenhouse control system powered by WISE brings obvious benefit such as labor saving, but far more importantly, it enables improved quality of produce and information gathering that will make significant differences in profit earning.

- ### Parking Area Guiding System

  ICP DAS WISE-7902 controller, together with the high-speed FR-2054 FRnet modules distributed all over the parking facility, offer a total solution that is perfect for large-scale parking facilities. With help of sensors and lights installed on each space, the system will guide drivers directly to the vacant parking spaces signified by auto-lighting flashing light. WISE supports seamless integration with SCADA software that makes it easy to achieve real time monitoring and remote management for entire parking facility.

- ### Environment Management System

  WISE is perfect for building an Environment Management System for it provides a variety of I/O modules to choose from to meet your specific requirements for your applications. WISE allows to sending Email/SMS to related personals for immediately response. In addition, through CGI command sending, WISE can communicate with Surveillance system and perform real time video recording for you to easily identify real-time emergency events and facilities status in the remote locations.

- ### Production Line Management System

  Eliminating unnecessary machine downtime, ensuring maximum productivity and maintaining appropriate stock are keys to successful product line management. ICP DAS offers full-range I/O module that works with WISE controller, the system developer can easily set up logic rule for a single controller or interaction between controllers with Advanced P2P. WISE also provides seamless integration with the control center management system to makes real time monitoring the overall production line status more efficiently.

## 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 downloading rules to the WISE controller, the Rule Engine will loop execute the rules in accordance with the execute order under specific conditions.


▲WISE Web Page User Interface

### No extra software tool is required

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.

### No more programming

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.

### Recipe function for grouping a series of Actions

In addition to 3 THEN Actions and 3 ELSE Actions settings WISE provides for each Rule, Recipe function is provided for easily grouping a series of Actions. A series of actions can be stored and saved in a Recipe action and will be executed when the IF-THEN-ELSE condition is matched.


▲Click and get done!
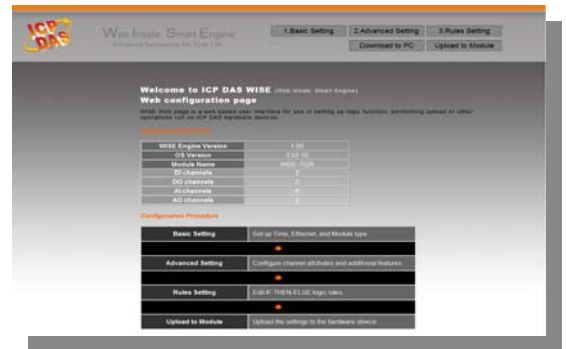
### Provide Timer and Schedule operation

WISE features Timer and Schedule functions: It allows user to schedule specific date or time for control logic execution, or perform specific tasks such as time delay. With Calendar user interface provided, Schedule setting can be more efficient and flexible.
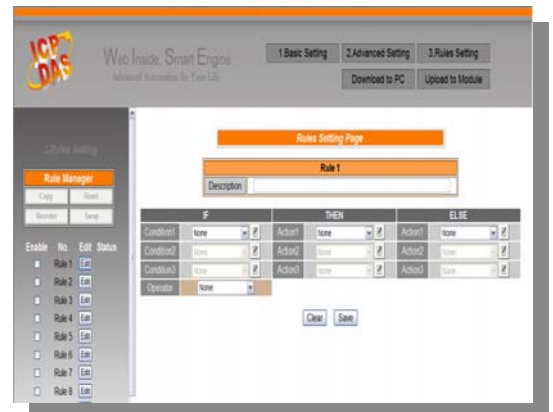
### Remote monitoring and alarm via SMS or Email

WISE supports SMS and Email 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.


▲WISE Schedule setting page

### CGI Command Sending for Surveillance system integration
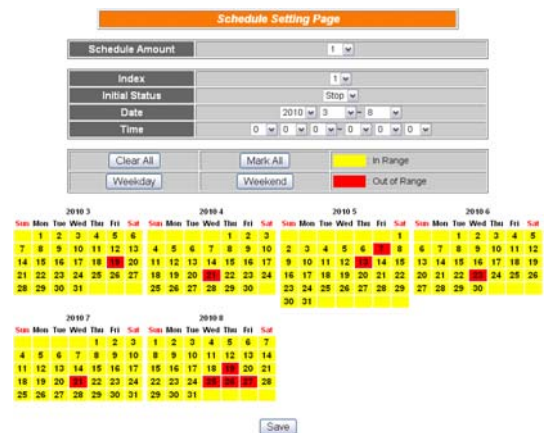
WISE provides CGI commands sending function. It provides integrated access to a wide variety of Web devices and Surveillance systems.

### Advanced P2P for Controller's Resource Sharing

Each WISE controller can communicate with 8 remote WISE controllers. The Advanced P2P function provided by WISE is far more superior than the traditional P2P (DI-DO mapping) function, all WISE controllers can freely share their status such as AIO channel value, DIO channel value, DI/DO Counter value or Internal Register value to each others, therefore, greatly enhances the flexibility and boosts accuracy to the logic rule design and makes it easy to enable the interactions between the controllers.
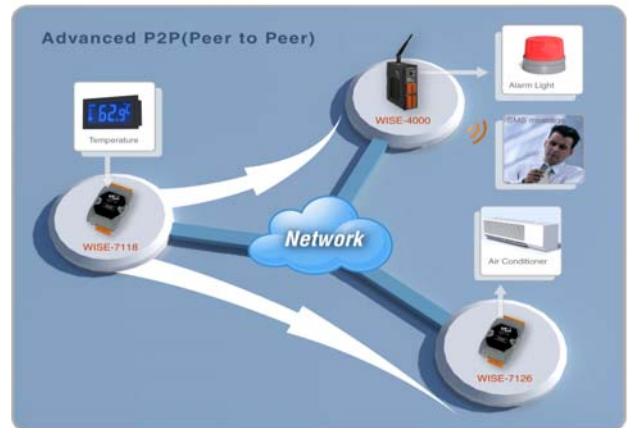


▲WISE Advanced P2P operation

### Offer various options for channel settings

WISE offers various options for channel settings; for example: noise filter for DI signals, deadband setting for AI signals, linear scale setting, temperature degree in Celsius or Fahrenheit setting, power on value setting for DO channel, pulse output setting and DI/DO counter setting, etc.

### Seamless integration with SCADA

WISE supports Modbus TCP Protocol for users to perform real-time monitoring and control of the controllers. Through Modbus TCP, it allows SCADA package seamlessly integrate with WISE and enables total solutions for remote monitoring and control.

| IF Conditions | |
|---|---|
| DI Channel | ON、OFF、ON to OFF、OFF to ON、Change |
| AI Channel | = 、 > 、 < 、 >= 、 <=(value) |
| Internal Register | |
| DI Counter | = 、 > 、 < 、 >= 、 <=(value) 、Change |
| DO Counter | |
| Timer | Timeout、Not Timeout |
| Schedule | In Range、Out of Range |
| P2P | DI、AI、DI counter、DO counter、IR |
| Rule Status | Enable、Disable |

| THEN / ELSE Actions | |
|---|---|
| DO Channel | ON 、 OFF 、 Pulse Output |
| AO Channel | Change the value |
| Internal Register | |
| DI Counter | Reset |
| DO Counter | |
| Timer | Start 、 Stop |
| Schedule | |
| SMS | Send |
| Email | |
| CGI Commands | |
| Recipe | Execute |
| P2P | DO(On/Off) 、 AO 、 IR |
| Rule Status | Enable 、 Disable |

WISE
IF-THEN-ELSE
Rule Engine
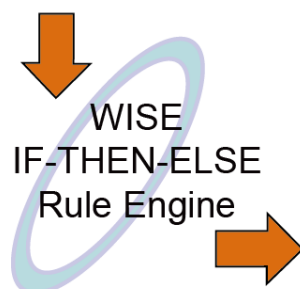
▲ IF-THEN-ELSE Rule Engine

## Specification

ICP DAS provides various WISE controllers for users to choose from to meet their demands for use in various industrial applications:

## Hardware

- **WISE-71xx Intelligent I/O Controller**

| Model | | WISE-7105 | WISE-7115 | WISE-7117 | WISE-7118Z | WISE-7119 | WISE-7126 |
|---|---|---|---|---|---|---|---|
| OS | | MiniOS7 | | | | | |
| Built-in Software | | WISE Firmware | | | | | |
| CPU | | 16-bit CPU | | | | | |
| Ethernet Port | | 10/100 Base-TX with PoE (Power over Ethernet) | | | | | |
| I/O Channel | DI | - | - | - | - | - | 2 |
| | DO | 4 | - | 4 | 6 | 4 | 2 |
| | AI | 8 | 7 | 8 | 10 | 8 | 6 |
| | AO | - | - | - | - | - | 2 |
| Over Voltage Protection | | 110 $V_{DC}/V_{AC}$ | - | 240 Vrms | 240 Vrms | 240 Vrms | 240 Vrms |
| Note | | * Support Thermistor | * Support RTD | - | * Also Support Thermocouple Input | | - |

| Model | | WISE-7144 | WISE-7151 | WISE-7152 | WISE-7160 | WISE-7167 |
|---|---|---|---|---|---|---|
| OS | | MiniOS7 | | | | |
| Built-in Software | | WISE Firmware | | | | |
| CPU | | 16-bit CPU | | | | |
| Ethernet Port | | 10/100 Base-TX With PoE (Power over Ethernet) | | | | |
| I/O Channel | DI | 8 | 16 | 8 | 6 | - |
| | DO | 8 (Sink Type) | - | 8 (Source Type) | 6 (Power Relay) | 8 (Power Relay) |
| Note | | * DI for Sink & Source Type | | | | - |

- **WISE-790x Extensible I/O Intelligent Controller**
- **WISE-4000 SMS Intelligent Controller**

| Model | WISE-7901(D) | WISE-7902(D) | WISE-4000(D) |
|---|---|---|---|
| OS | MiniOS7 | | |
| Built-in Software | WISE Firmware | | |
| CPU | 16-bit CPU | | |
| Ethernet Port | 10/100 Base-TX with PoE (Power over Ethernet) | | 10/100 Base-TX |
| GPRS/GSM | - | | GPRS/GSM Quad-band 850/900/1800/1900 MHz |
| I/O Function | **Support ICP DAS I/O expansion board (X-Board)**：X107、X109、X110、X111、X202、X203、X303、X304、X305、X308、X310、X324 | **Support ICP DAS FRnet remote I/O modules:** FR-2053T、FR-2054T、FR-2057T | 3 Digital inputs、3 Digital outputs & 8 Analog inputs |
| Note | * WISE-790xD is WISE-790x with LED Display | | * WISE-4000D is WISE-4000 with LCD Display |

## Software

| Model | WISE-71xx | WISE-790x(D) | WISE-4000(D) |
|---|---|---|---|
| Rule Configuration Website | Yes | Yes | Yes |
| I/O Function Supported | Built-in | 7901 With X-Board、7902 With FRnet | Built-in |
| 36 IF-THEN-ELSE Logic Rule Supported | Yes | Yes | Yes |
| 48 Internal Register Supported | Yes | Yes | Yes |
| 12 Timer Supported | Yes | Yes | Yes |
| 12 Email Supported | Yes | Yes | Yes |
| 12 CGI Commands Supported | Yes | Yes | Yes |
| 12 Recipe Supported | Yes | Yes | Yes |
| 8 P2P Supported | Yes | Yes | Yes |
| Modbus TCP Protocol | Yes | Yes | Yes |
| 12 Schedule Supported | - | Yes | Yes |
| 12 SMS Supported | - | - | Yes |

WISE-71xx    WISE-790x    WISE-4000

## Why WISE ?

- ✓ No programming is required. Dramatically reduce the labor and cost spent on system development.
- ✓ No extra software tool is required; all operations can be done through the Web browser.
- ✓ IF-THEN-ELSE logic rules execution ability.
- ✓ Extra Timer and Schedule function for periodic operation.
- ✓ Real Time message sending via SMS and Email.
- ✓ CGI command sending for interaction with Surveillance systems
- ✓ Recipe function provided for easy operations of Group Actions
- ✓ Advanced P2P function provided, all WISE controllers in network can freely share their I/O status.
- ✓ Modbus TCP Protocol provided for seamlessly integration with SCADA package.
- ✓ Wide range of I/O modules provided allows users to find best solutions.
- ✓ PoE(Power over Ethernet) for simplifying system design, reducing cable and saving space..

---

**Contact   Information**          website：http://wise.icpdas.com **or** www.icpdas.com   **e-mail**：service@icpdas.com

**Taiwan (Headquarter)**

Hsinchu No. 111, Guangfu N. Rd., Hukou Township, Hsinchu County, Taiwan 30351
TEL：886-3-597-3366   FAX：886-3-597-3733

**Taiwan (Hsintien office)**

7 Fl.-2, No. 137, Lane 235, Baociao Rd., Sindian City, Taipei County, Taiwan 23145
TEL：886-2-8919-2220 FAX： 886-2-8919-2221

**Europe**

ICP DAS-EUROPE GmbH (http://www.icpdas-europe.com/)
TEL：+49 (0) 7121-14324-0
FAX：+49 (0) 7121-14324-90

**Shanghai**

Suite B, Floor 6, Xin'an Building, 200 Zhenning Rd. , Shanghai
TEL：86-21-6247-1722     FAX：86-21-6247-1725

**Beijing**

Suite 6512, Floor 5, Kangde Building, 17 Shangdiliu St., Haidian District , Beijing
TEL：86-10-6298-0933     FAX：86-10-6296-2890

**USA**

ICP DAS USA, Inc. (http://www.icpdas-usa.com)
TEL：1-310-517-9888 x101
FAX：1-310-517-0998