



## Features

- Built-in Web Server for IF-THEN-ELSE rule setting
- Built-in IF-THEN-ELSE rule engine for logic operation
- No more programming. Just click and get done!
- Support IO, Counter, Timer, Email operations
- Modbus/TCP Protocol for SCADA Software Seamless Integration
- IEEE 802.3af-compliant Power over Ethernet (PoE)
- 10/100 Base-TX Ethernet
- 2-way Isolation/ESD Protection
- DO Type: 16 Isolated Open Collectors (Sink Type)



## 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 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-7142 follows IEEE 802.3af-compliant (classification, Class 1) Power over Ethernet (PoE) specification. It allows receiving power from PoE enabled network by Ethernet pairs (Category 5 Ethernet cable). This feature provides greater flexibility and higher efficiency therefore simplifying systems design, saving space, reducing cables and eliminating the requirement for dedicated electrical outlets. Meanwhile, in case under a non-PoE environment, WISE-7142 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This WISE-7142 module supports Modbus/TCP protocol to make seamless integration with SCADA software available. It provides 16 sink-type digital output channels and features optical isolation for 3750 V<sub>rms</sub> of transient overvoltage protection.

## Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote Diagnosis, Testing Equipment, etc.

## I/O Specifications

| Digital Output           |  |
|--------------------------|--|
| Output Channels          | 16   |
| Output Type              | Isolated Open Collector (Sink)                             |
| Max. Load Current        | 100 mA/channel at 25 °C<br>Direct drive power relay module |
| Load Voltage             | +5 V <sub>DC</sub> ~ +30 V <sub>DC</sub>                   |
| Overvoltage Protection   | 60 V <sub>DC</sub>   |
| Overload Protection      | 1.3 A  |
| Short-circuit Protection | Yes  |

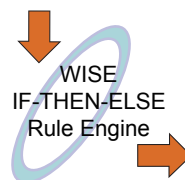
## System Specifications

| System                      |  |
|-----------------------------|--|
| CPU                         | 16-bit CPU                             |
| SRAM                        | 512KB                                  |
| Flash Memory                | 512KB                                  |
| EEPROM                      | 16KB                                   |
| Watchdog                    | Yes                                    |
| Communication               |  |
| PoE Ethernet Port           | 10/100 Base-TX and automatic MDI/MDI-X |
| 2-Way Isolation             |  |
| I/O                         | 3750 V <sub>rms</sub>                  |
| EMS Protection              |  |
| ESD (IEC 61000-4-2)         | 4 kV Contact for each terminal         |
| EFT (IEC 61000-4-4)         | +/-2 kV for Power                      |
| LED Indicators              |  |
| PoE Power                   | PoE On                                 |
| L1                          | System Running                         |
| L2                          | Ethernet Link/Act                      |
| L3                          | Ethernet 10/100 M Speed                |
| Power Requirements          |  |
| Reverse Polarity Protection | Yes                                    |
| Powered from Terminal Block | Yes, 12 ~ 48 V <sub>DC</sub>           |
| Powered from PoE            | Yes, IEEE 802.3af, Class1              |
| Consumption                 | 4.3 W                                  |
| Mechanical                  |  |
| Dimensions (W x L x D)      | 72 mm x 123 mm x 35 mm                 |
| Installation                | DIN-Rail or Wall mounting              |
| Environment                 |  |
| Operating Temperature       | -25 °C ~ +75 °C                        |
| Storage Temperature         | -30 °C ~ +80 °C                        |
| Humidity                    | 10 ~ 90% RH, non-condensing            |

## Software Specifications

| Functions                   |  |
|-----------------------------|--|
| Rule Configuration Website  | Access Web server on WISE controllers to edit and upload logic rules through web browser.          |
| 36 IF-THEN-ELSE Logic Rules | 3 IF conditions with AND or OR operators<br>3 THEN actions and 3 ELSE actions                      |
| 48 Internal Registers       | Hold temporary variables and read/write data via Modbus/TCP address.                               |
| 12 Timers                   | Delay / Timing functions.  |
| 12 Emails                   | Send Email messages to pre-set Email receivers.  |
| 12 CGI Commands             | Send pre-set CGI commands.   |
| 12 Recipes                  | Set up THEN/ELSE action groups.  |
| 8 P2P remote modules        | Set up the connection information for the remote WISE modules.                                     |
| Modbus/TCP Protocol         | Real time control and monitoring I/O channels and system status of controllers via SCADA software. |

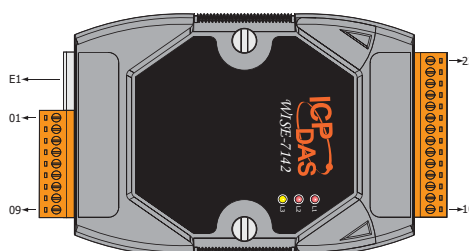
| IF Conditions     |                                    |
|-------------------|------------------------------------|
| Internal Register | =, >, <, >=, <= (value)            |
| DO Counter        | =, >, <, >=, <= (value), Change    |
| Timer             | Timeout, Not Timeout               |
| P2P               | DI, AI, DI counter, DO counter, IR |
| Rule Status       | Enable, Disable                    |



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

## Pin Assignments

| Terminal No. | Pin Assignment |
|--------------|----------------|
| E1           | RJ-45          |
| 01           | DO12           |
| 02           | DO13           |
| 03           | DO14           |
| 04           | DO15           |
| 05           | DO.PWR2        |
| 06           | DO.GND2        |
| 07           | N/A            |
| 08           | (R)+Vs         |
| 09           | (B)GND         |

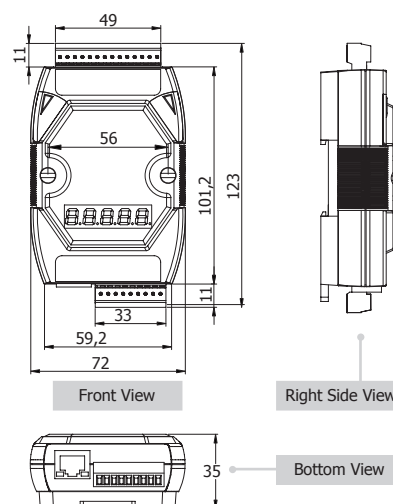


| Terminal No. | Pin Assignment |
|--------------|----------------|
| 23           | DO11           |
| 22           | DO10           |
| 21           | DO9            |
| 20           | DO8            |
| 19           | DO7            |
| 18           | DO6            |
| 17           | DO5            |
| 16           | DO4            |
| 15           | DO3            |
| 14           | DO2            |
| 13           | DO1            |
| 12           | DO0            |
| 11           | DO.GND1        |
| 10           | DO.PWR1        |

## Wire Connections

| Output Type     | ON State Readback as 1 | OFF State Readback as 0 |
|-----------------|------------------------|-------------------------|
| Drive Relay     |                        |                         |
| Resistance Load |                        |                         |

## Dimensions (Unit:mm)



## Ordering Information

|           |  |
|-----------|--|
| WISE-7142 | 16-channel Isolated Digital Output PoE Module (RoHS) |
|-----------|--|

## Accessories

|              |  |
|--------------|--|
| GPSU06U-6    | 24V/0.25A, 6 W Power Supply                            |
| MDR-20-24    | 24V/1A, 24 W Power Supply with DIN-Rail Mounting       |
| NS-205 CR    | Unmanaged 5-Port Industrial Ethernet Switch (RoHS)     |
| NS-205PSE CR | Unmanaged 5-Port Industrial PoE Ethernet Switch (RoHS) |