**ICP DAS**

# WISE-7144

8-channel Isolated Sink Type Open Collector Output and
8-channel Isolated Digital Input PoE Module

## Digital Input & Digital Output

### Features

- Built-in Web Server for IF-THEN-ELSE rule setting
- Built-in IF-THEN-ELSE rule enigne 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: 8 Isolation Open Collector (Sink Type)
- DI Type: 8 Isolation Wet Contact (Sink/Source)

CE  FC  RoHS  PoE

## 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 effort and cost spent on system development.

WISE-7144 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-7144 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This module WISE-7144 supports Modbus/TCP protocol to make seamless integration with SCADA software available. It features 8-channel isolated open collector outputs and 8-channel isolated wet contact digital inputs. Each output channel supports 300mA current driving +10 ~ 40 $V_{DC}$ and each channel supports the counter function.

## Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote diagnosis and Testing Equipment, etc.

## I/O Specifications

| Digital Output | |
|---|---|
| Output Channels | 8 |
| Output Type | Sink, Open Collector |
| Max. Load Current | 300 mA/channel at 25 °C |
| Output Voltage | +10 $V_{DC}$ ~ +40 $V_{DC}$ |
| Short Circuit Protection | Yes |
| Digital Input | |
| Input Channels | 8 |
| Input Type | Wet Contact (Sink, Source) |
| On Voltage Level | +10 $V_{DC}$ ~ +50 $V_{DC}$ |
| Off Voltage Level | +4 $V_{DC}$ Max. |
| Input Impedance | 10 kΩ |
| Counters | Max. Count | 65535 (16 bits) |
| | Max. Input Frequency | 50 Hz |
| | Min. Pulse Width | 10 ms |
| Overvoltage Protection | +70 $V_{DC}$ |

## System Specifications

| System | |
|---|---|
| CPU | 16-bit CPU |
| SRAM | 512 KB |
| Flash Memory | 512 KB |
| EEPROM | 16 KB |
| Dual Watchdog | Yes |
| Communication | |
| PoE Ethernet Port | 10/100 Base-TX (With Link, Activity LED Indicator) and automatic MDI/MDI-X |
| 2-Way Isolation | |
| Ethernet | 1500 $V_{DC}$ |
| I/O | 3000 $V_{rms}$ |
| LED Indicators | |
| PoE | PoE On |
| L1 | Run |
| L2 | Link/Act |
| L3 | 10/100M |
| Power Requirements | |
| IEEE 802.3af | Class 1 |
| Required Supply Voltage | Powered by Power over Ethernet (PoE) or auxiliary power +12 $V_{DC}$ ~ +48 $V_{DC}$ (non-regulated) |
| LED Indicator | Yes |
| Power Consumption | 0.08 A @ 24 $V_{DC}$ Max. |
| Mechanical | |
| Dimensions (W x H 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 | 5 ~ 90% RH, non-condensing |

## Software Specifications

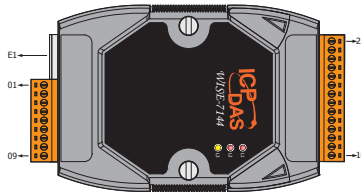| Functions | |
|---|---|
| Rule Configuration Website | Access Web server on WISE controllers to edit and upload logic rules through web browser. |
| 36 IF-THEN-ELSE Logic Rules | 3 IF conditions with AND or OR operators<br>3 THEN actions and 3 ELSE actions |
| 48 Internal Registers | Hold temporary 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 | |
|---|---|
| DI Channel | ON、OFF、ON to OFF、OFF to ON、Change |
| Internal Register | =、>、<、>=、<=(value) |
| DI Counter | =、>、<、>=、<=(value)、Change |
| DO Counter | |
| Timer | Timeout、Not Timeout |
| P2P | DI、AI、DI counter、DO counter、IR |
| Rule Status | Enable、Disable |

WISE
IF-THEN-ELSE
Rule Engine

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

## Pin Assignment

| Terminal No. | Pin Assignment |
|---|---|
| E1 | RJ-45 |
| 01 | IN3 |
| 02 | IN4 |
| 03 | IN5 |
| 04 | IN6 |
| 05 | IN7 |
| 06 | IN.COM2 |
| 07 | N/A |
| 08 | (R)+Vs |
| 09 | (B)GND |

| Terminal No. | Pin Assignment |
|---|---|
| 23 | IN2 |
| 22 | IN1 |
| 21 | IN0 |
| 20 | IN.COM1 |
| 19 | DO7 |
| 18 | DO6 |
| 17 | DO5 |
| 16 | DO4 |
| 15 | DO3 |
| 14 | DO2 |
| 13 | DO1 |
| 12 | DO0 |
| 11 | DO.GND |
| 10 | DO.PWR |

WISE-7144

## Wire Connection

| Digital Output | Readback as 1 | Readback as 0 |
|---|---|---|
| | Relay ON | Relay Off |
| Drive Relay | DO.PWR<br>DOx<br>DO.GND | DO.PWR<br>DOx<br>DO.GND |
| Resistance Load | DO.PWR<br>DOx<br>DO.GND | DO.PWR<br>DOx<br>DO.GND |

| Digital Input | Readback as 0 | Readback as 1 |
|---|---|---|
| | $+10 \sim +50\ V_{DC}$ | OPEN or $<4\ V_{DC}$ |
| Sink | DIx 10K<br>DI.COM / To other channels | DIx 10K<br>DI.COM / To other channels |
| | $+10 \sim +50\ V_{DC}$ | OPEN or $<4\ V_{DC}$ |
| Source | DIx 10K<br>DI.COM / To other channels | DIx 10K<br>DI.COM / To other channels |

## Dimensions (Unit: mm)

49
11
56
123
101.2
33
11
59.2
72

Front View

Right Side View

35

Bottom View
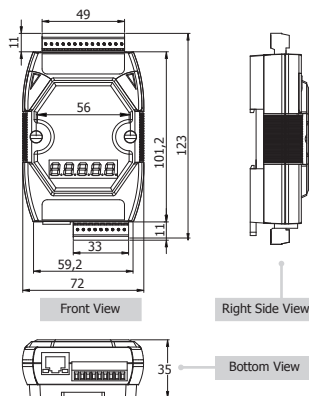
## Ordering Information

| WISE-7144 | 8-channel Isolated Sink Type Open Collector Output and 8-channel Isolated Digital Input 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) |