



## WISE-7160

6-channel Power Relay Output and  
6-channel Isolation Digital Input PoE Module

## Relay Output & Digital Input

### 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: 6 Power Relay (Form A)
- DI Type: 6 Wet Contact (Sink, Source)



### 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-7160 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-7160 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This module WISE-7160 supports Modbus/TCP protocol to make seamless integration with SCADA software available. It features 6 power relay outputs and 6 isolated wet contact digital inputs. Each power relay supports contact rating as 5 A @ 250 V<sub>ac</sub> or 5 A @ 30 V<sub>dc</sub> and each channel supports the counter function.

### Applications

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

### 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 <sub>dc</sub>
I/O	DI 3750 V <sub>rms</sub>
	Relay Output 3000 V <sub>rms</sub>
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 <sub>dc</sub> ~ +48 V <sub>dc</sub> (non-regulated)
LED Indicator	Yes
Power Consumption	0.12 A @ 24 V <sub>dc</sub> 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

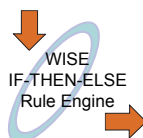
### I/O Specifications

Relay Output		
Output Channels		6
Output Type		Power Relay, Form A (SPST N.O.)
Operating Voltage Range		250 V <sub>ac</sub> /30 V <sub>dc</sub>
Max. Load Current		5.0A/channel at 25 °C
Operate Time		6 ms
Release Time		3 ms
Electrical Life (Resistive Load)	VDE	5A 250 V <sub>ac</sub> 30,000 ops (10 ops/minute) at 75 °C
		5A 30 V <sub>dc</sub> 70,000 ops (10 ops/minute) at 75 °C
	UL	5A 250 V <sub>ac</sub> /30 V <sub>dc</sub> 6,000 ops.
		3A 250 V <sub>ac</sub> /30 V <sub>dc</sub> 100,000 ops.
Mechanical Life		20,000,000 ops. at no load (300 ops./minute)
Digital Input		
Input Channels		6
Input Type		Wet Contact (Sink, Source)
On Voltage Level		+10 V <sub>dc</sub> ~ +50 V <sub>dc</sub>
Off Voltage Level		+4 V <sub>dc</sub> 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 <sub>dc</sub>

## 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 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.

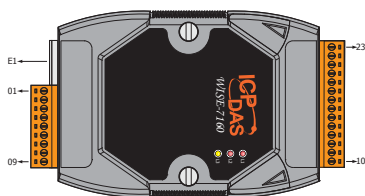
IF Conditions	
DI Channel	ON · OFF · ON to OFF · OFF to ON · Change
Internal Register	= > < >= <= (value) · Change
DI Counter	= > < >= <= (value) · Change
DO Counter	= > < >= <= (value) · Change
Timer	Timeout · Not Timeout
P2P	DI · AI · DI counter · DO counter · IR
Rule Status	Enable · Disable



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

## Pin Assignment

Terminal No.	Pin Assignment
E1	RJ-45
01	IN5
02	IN4
03	IN3
04	IN2
05	IN1
06	IN0
07	IN.COM
08	(R) +Vs
09	(B) GND

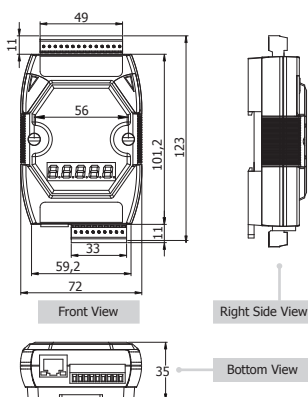


Terminal No.	Pin Assignment
23	RL5 COM
22	RL5 NO
21	RL4 COM
20	RL4 NO
19	RL3 COM
18	RL3 NO
17	RL2 COM
16	RL2 NO
15	RL1 COM
14	RL1 NO
13	RL0 COM
12	RL0 NO
11	N/A
10	N/A

## Wire Connection

Digital Output	Readback as 1	Readback as 0
Relay Output	<p>Relay On</p>	<p>Relay Off</p>
Digital Input	Readback as 0	Readback as 1
Sink	<p>+10 ~ +50 V<sub>DC</sub></p>	<p>OPEN or &lt;4 V<sub>DC</sub></p>
Source	<p>+10 ~ +50 V<sub>DC</sub></p>	<p>OPEN or &lt;4 V<sub>DC</sub></p>

## Dimensions (Unit: mm)



## Ordering Information

WISE-7160	6-channel Power Relay Output and 6-channel Isolation Digital Input PoE Module (RoHS)
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## Accessories

GPS06U-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)