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 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: 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_{AC} or 5 A @ 30 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

Relay Output		
Output Channels		6
Output Type		Power Relay, Form A (SPST N.O.)
Operating Voltage Range		250 V_{AC}/30 V_{DC}
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_{AC} 30,000 ops (10 ops/minute) at 75 °C
		5A 30 V_{DC} 70,000 ops (10 ops/minute) at 75 °C
	UL	5A 250 V_{AC}/30 V_{DC} 6,000 ops.
		3A 250 V_{AC}/30 V_{DC} 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_{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}

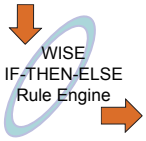
System Specifications

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	DI	3750 V_{rms}
	Relay Output	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		0.12 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 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.

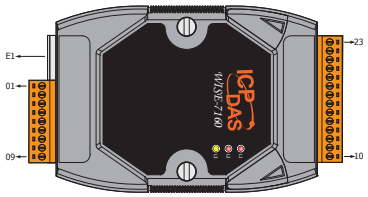
IF Conditions	
DI Channel	ON、OFF、ON to OFF、OFF to ON、Change
Internal Register	=、>、<、>=、<=(value)
DI Counter DO Counter	=、>、<、>=、<=(value)、Change
Timer	Timeout、Not Timeout
P2P	DI、AI、DI counter、DO counter、IR
Rule Status	Enable、Disable



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

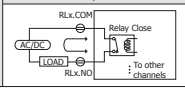
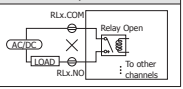
Pin Assignment

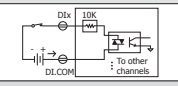
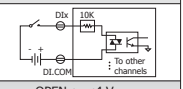
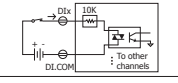
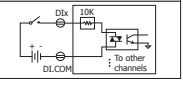
Terminal No.	Pin Assignment
E1	RJ-45
01	IN5
02	IN4
03	IN3
04	IN2
05	IN1
06	IN0
07	IN.COM
08	(R)+Vs
09	(B)GND



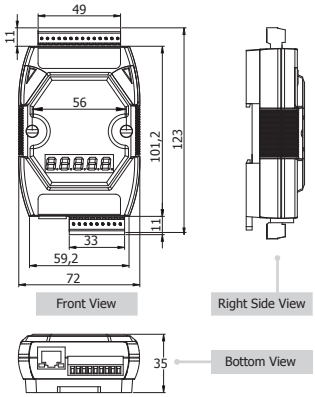
Terminal No.	Pin Assignment
23	RL5 COM
22	RL5 NO
21	RL4 COM
20	RL4 NO
19	RL3 COM
18	RL3 NO
17	RL2 COM
16	RL2 NO
15	RL1 COM
14	RL1 NO
13	RL0 COM
12	RL0 NO
11	N/A
10	N/A

Wire Connection

Digital Output	Readback as 1	Readback as 0
Relay Output	Relay On	Relay Off
		

Digital Input	Readback as 0	Readback as 1
Sink	+10 ~ +50 V_{DC}	OPEN or <4 V_{DC}
		
Source	+10 ~ +50 V_{DC}	OPEN or <4 V_{DC}
		

Dimensions (Unit: mm)



Ordering Information

WISE-7160	6-channel Power Relay Output and 6-channel Isolation 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)