WISE (Web Inside, Smart Engine)

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

WISE-7144

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

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 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

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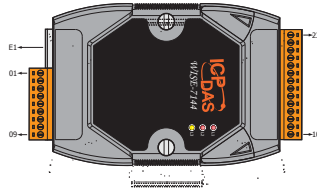
Terminal No.	Pin Assignment
23	IN2
22	IN1
21	IN0
20	IN.COM1
19	DO7
18	DO6
17	DO5
16	DO4
15	DO3
14	DO2
13	DO1
12	DO0
11	DO.GND
10	DO.PWR

☑ Wire Connection

Digital Output	Readback as 1	Readback as 0
	Relay ON	Relay Off
Drive Relay	DO.PWR / DOx / DO.GND	DO.PWR / DOx / DO.GND
Resistance Load	DO.PWR / DOx / DO.GND	DO.PWR / DOx / DO.GND

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)

Front View
Right Side View
Bottom View
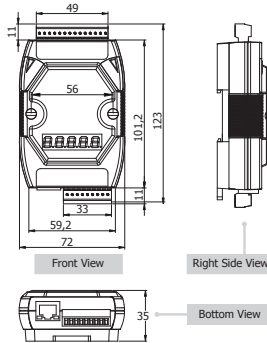
☑ Ordering Information

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)