Ethernet I/O Modules

WISE-7xxx Series (Web based PoE)

WISE-7255

WISE-7255

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

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: 8 Isolated Open Collectors (Source Type)
- DI Type: 8 Dry/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 labor and cost spent on system development.

WISE-7255 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-7255 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This module WISE-7255 supports Modbus/TCP protocol to make seamless integration with SCADA software available. It features 8-channel isolated open collector outputs and 8-channel Dry/Wet contact digital inputs. Each output channel supports 650 mA currnet driving 10 ~ 40 VDC.

Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote Diagnosis, Testing Equipment, etc.
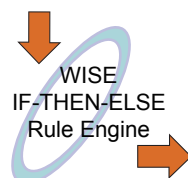
I/O Specifications

Digital Input		
Channels		8
Contact		Dry +Wet
Sink/Source (NPN/PNP)		Dry: Source Wet: Sink/Source
Wet Contact	On Voltage Level	+10 V_{DC} ~ +50 V_{DC}
	Off Voltage Level	+4 V_{DC} Max.
Dry Contact	On Voltage Level	Close to GND
	Off Voltage Level	Open
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}
Effective Distance		500 M Max.

Digital Output	
Output Channels	8
Output Type	Open Collector (Source)
Max. Load Current	650 mA/channel at 25 °C
Load Voltage	+10 V_{DC} ~ +40 V_{DC}
Overvoltage Protection	47 V_{DC}
Overload Protection	-
Short-circuit Protection	Yes

System Specifications

System	
CPU	16-bit CPU
SRAM	512KB
Flash Memory	512KB
EEPROM	16KB
Watchdog	Yes

Communication	
Ethernet Port	2 x RJ-45, 10/100 Base-TX, Swtich Ports

2-Way Isolation	
I/O	2500 V_{DC}

EMS Protection	
ESD (IEC 61000-4-2)	±4 kV Contact for each terminal and ±8 kV Air for random point
EFT (IEC 61000-4-4)	±2 kV for Power Line
Surge (IEC 61000-4-5)	±2 kV for Power Line

LED Indicators	
for System Running	Yes
for Ethernet Link/Act	Yes
for DI/DO status	Yes
for PoE Power	Yes

Power Requirements	
Reverse Polarity Protection	Yes
Powered from Terminal Block	Yes, 12 ~ 48 V_{DC}
Powered from PoE	Yes, IEEE 802.3af, Class1
Consumption	4.0 W

Mechanical	
Dimensions (L x W x H)	120 mm x 76 mm x 38 mm
Installation	DIN-Rail or Wall mounting

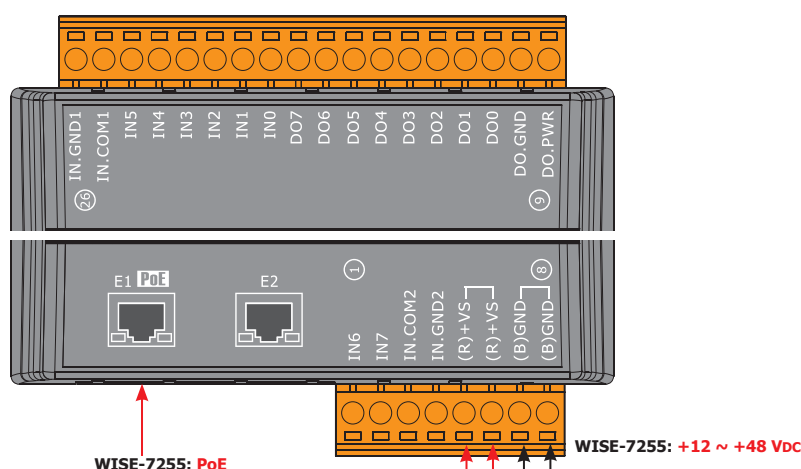| Environment	
Operating Temperature	-25 °C ~ +75 °C
Storage Temperature	-30 °C ~ +80 °C
Humidity	10 ~ 90% RH, non-condensing

■ 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 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, Reset
Email	Send
CGI Commands	
Recipe	Execute
P2P	DO(On/Off), AO, IR
Rule Status	Enable, Disable

■ Pin Assignments

WISE-7255: PoE

WISE-7255: +12 ~ +48 VDC

■ Wire Connections

Digital Input	Readback as 1	Readback as 0
	+10 ~ +50 VDC	OPEN or <4 VDC
Wet Contact (Sink)		
	+10 ~ +50 VDC	OPEN or <4 VDC
Wet Contact (Source)		

Digital Output	ON State Readback as 1	
Source		
	OFF State Readback as 0	

Digital Input	ON State Readback as 1	OFF State Readback as 0
Dry Contact	Relay Close	Relay Open

■ Ordering Information

WISE-7255	8-channel Isolated Source Type Open Collector Output and 8-channel 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)