WISE-7901/WISE-7901D
User-defined I/O Expansion 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. Click and get done!
- Support I/O, Counter, Timer, Email, Recipe operations
- Modbus TCP Protocol for SCADA Software Seamless Integration
- IEEE 802.3af-compliant Power over Ethernet (PoE)
- 10/100 Base-TX Ethernet
- I/O Expansion Bus
- Support DI/DO X-Boards: X107, X109, X110, X111
- Support Multi-Function X-Boards: X202, X203, X303, X304, X305, X308, X310, X324

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-7901 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-7901 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This module WISE-7901 supports Modbus/TCP protocol to make seamless integration with SCADA software available. It supports an I/O expansion bus to implement various I/O functions such as D/I, D/O, A/D, D/A based on the selected X-Board.

Applications

Building Automation, Factory Automation, Machine Automation, Remote Maintenance, Remote Diagnosis, Testing Equipment, etc.

System Specifications

Models	WISE-7901	WISE-7901D
System		
CPU	16-bit CPU	
SRAM	512KB	
Flash Memory	512KB	
EEPROM	16KB	
NVRAM	31 Bytes	
OS	MiniOS7	
RTC (Real Time Clock)	Provide second, minute, hour, date of week, month and year	
64-bit Hardware Serial Number	Yes	
Watchdog	Yes	
Communication		
Ethernet	RJ-45 x 1, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)	
COM 1	Reserved	
COM 2	Reserved	
LED Indicators		
System LED	Yes (Red)	
LED Display	-	5-digit 7-segment LED display
Special Indicator	PoE LED (Green)	
Hardware Expansion		
I/O Expansion Bus	Yes	
Power Requirements		
Protection	Power Reverse Polarity Protection	
Frame Ground	Yes (for ESD Protection)	
Input Range	12 ~ 48 V$_{DC}$	
Power over Ethernet (PoE)	IEEE 802.3af Class 1	
Power Consumption	1.5 W	2.5 W
Mechanical		
Dimensions (W x H x D)	72 mm x 123 mm x 35 mm	
Installation	DIN-Rail or Wall Mounting	
Environmental		
Operating Temperature	-25 °C ~ +75 °C	
Storage Temperature	-40 °C ~ +80 °C	
Humidity	5 ~ 90% RH, non-condensing	

■ Software Specifications

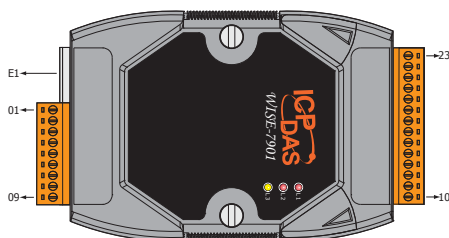| Functions	
Rule Configuration Website	Access Web server on WISE controllers to edit and upload logic rules through web browser.
36 IF-THEN-ELSE Logic Rules	3 IF conditions with AND or OR operators 3 THEN actions and 3 ELSE actions
48 Internal Registers	Hold temporary variables and read/write data via Modbus/TCP address.
12 Timers	Delay / Timing functions.
12 Schedules	Setup prescheduled routine tasks.
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
AI Channel	=, >, <, >=, <= (value)
Internal Register	
DI Counter	=, >, <, >=, <= (value), Change
DO Counter	
Timer	Timeout, Not Timeout
Schedule	In Range, Out of Range
P2P	DI, AI, DI counter, DO counter, IR
Rule Status	Enable, Disable

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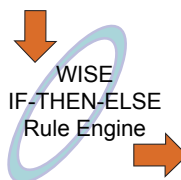
THEN / ELSE Actions	
DO Channel	ON, OFF, Pulse Output
AO Channel	Change the value
Internal Register	
DI Counter	Reset
DO Counter	
Timer	Start, Reset
Schedule	Enable, Disable
Email	Send
CGI Commands	
Recipe	Execute
P2P	DO(On/OFF), AO, IR
Rule Status	Enable, Disable

■ Pin Assignments

Terminal No.		Pin Assignment
E1		Link/Act 10/100M
COM1	01	CTS1
	02	RTS1
	03	RxD1
	04	TxD1
	05	INIT*
COM2	06	D2+
	07	D2-
	08	(R)+Vs
	09	(B)GND

Terminal No.	Pin Assignment
23	-
22	-
21	-
20	-
19	-
18	-
17	-
16	-
15	-
14	-
13	-
12	-
11	-
10	-

■ Wiring & Boarding

Ethernet
Internet
Intranet

RS-232
Device

RS-485
Network

GND
10 ~ 30 Vᴅᴄ

X-Board

■ Dimensions (Unit:mm)

Front View

Left Side View

Bottom View
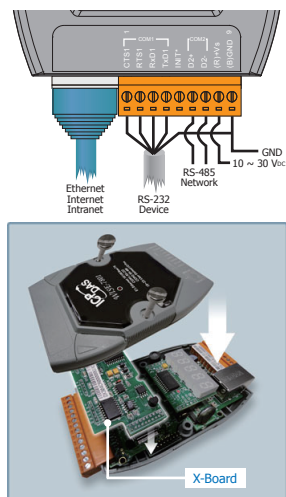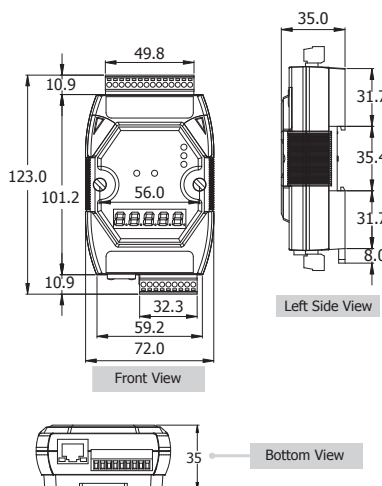
■ Ordering Information

WISE-7901 CR	User-defined I/O Expansion PoE Module (RoHS)
WISE-7901D CR	User-defined I/O Expansion PoE Module with LED Display (RoHS)

■ Accessories

GPSU06U-6	24V/0.25A, 6W Power Supply
MDR-20-24	24V/1A, 24W 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)
I/O Expansion Boards	Other add-on expansion boards: X107, X109, X110, X111, X202, X203, X303, X304, X305, X308, X310, X324