FRnet Remote I/O Modules

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
- Support FRnet Modules: FR-2053T, FR-2054T, FR-2057T

WISE-7902/WISE-7902D

FRnet Remote I/O 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-7902 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-7902 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This module WISE-7902 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 and D/O according to the using FRnet modules: FR-2053T, FR-2054T, and FR-2057T.

Applications

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

Specifications

Models	WISE-7902	WISE-7902D
CPU Module		
CPU	16-bit CPU	
SRAM	512 KB	
Flash	512 KB; Erase unit is one sector (64 K bytes); 100,000 erase/write cycles	
EEPROM	16 KB	
NVRAM	31 Bytes (battery backup, data valid up to 10 year)	
OS	MiniOS7	
RTC (Real Time Clock)	RTC Provide seconds, minutes, hours, date of week/month; month and year, valid from 1980 to 2079	
64-bit Hardware Serial Number	Yes	
Watchdog Timers	Yes (0.8 second)	
Communication Ports		
Ethernet	RJ-45 x 1, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)	
COM 1	RS-232 (TxD, RxD, RTS, CTS, GND), non-isolated, Speed: 115200 bps max.	
COM 2	RS-485 (D2+, D2-), self-tuner ASIC inside, non-isolated, Speed: 115200 bps max.	
FRnet	Max. 1 M	
LED Indicator		
System LED	Yes	
LED Display	-	5-digit 7-segment LED display
Special Indicator	PoE LED	
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 ~ +75 °C	
Storage Temperature	-30 ~ +80 °C	
Ambient Relative Humidity	10 ~ 90% RH (non-condensing)	
Power		
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	2.0 W	3.0 W

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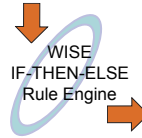
THEN / ELSE Actions	
DO Channel	ON、OFF、Pulse Output
Internal Register	Change the value
DI Counter	Reset
DO Counter	
Timer	Start、Stop
Schedule	
Email	Send
CGI Commands	
Recipe	Execute
P2P	DO(On/Off)、AO、IR
Rule Status	Enable、Disable

Pin Assignment

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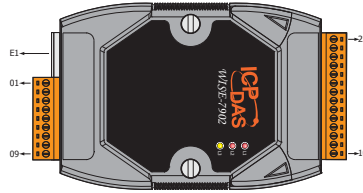
Terminal No.	Pin Assignment
23	-
22	-
21	-
20	-
19	-
18	-
17	FRnet Port A
16	FRnet Port A
15	FRnet Port B
14	FRnet Port B
13	-
12	-
11	-
10	-

Wiring

WISE-7902

Dimensions (Unit: mm)

Front View

Left Side View

Bottom View
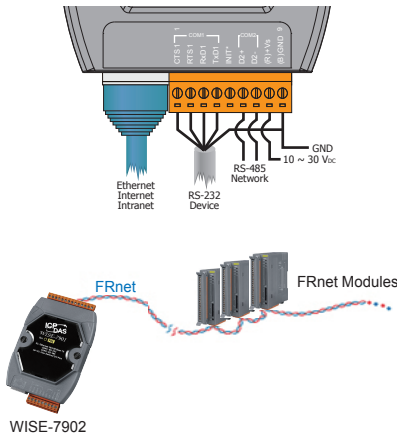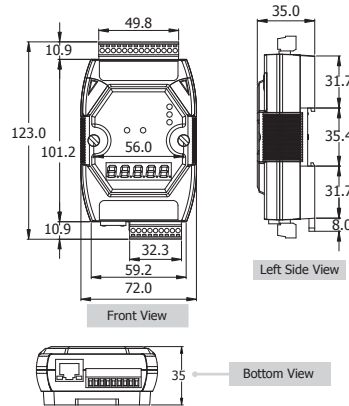
Ordering Information

WISE-7902	FRnet Remote I/O PoE Module
WISE-7902D	FRnet Remote I/O PoE Module with LED Display

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)
FR-2053T	16-channel Isolated Sink Digital Input Distributed I/O Module
FR-2054T	8-Channel Digital Output and 8-Channel Digital Input Module
FR-2057T	16-Channel Isolated Sink Digital Output Distributed I/O Module