WISE-7115

7-channel RTD Input with 3-wire RTD lead resistance elimination 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
- AI Type: 7 RTD (Pt100, Pt1000, Ni120, Cu100, Cu1000)
- Individual Channel Configuration
- 3-wire RTD Input with Lead Resistance Elimination
- 2-way Isolation/ESD Protection

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-7115 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-7115 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This WISE-7115 module supports Modbus/TCP protocol to make seamless integration with SCADA software available. It features 16-bit, 7-channel RTD inputs. Each channel is allowed to configure an individual range that supports 3-wire RTD lead resistance elimination and open wire detection for RTD measurement.

Applications

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

I/O Specifications

RTD Input	
Input Channels	7 (Differential)
Sensor Type	Pt100, Pt1000, Ni120, Cu100, Cu1000
Wire Connection	2/3 Wire
Resolution	16-bit
Sampling Rate	12 Sample/Sec. (Total)
Accuracy	+/-0.05%
Zero Drift	+/-0.5 μV/°C
Span Drift	+/-20 μV/°C
Common Mode Rejection	150 dB
Normal Mode Rejection	100 dB
Input Impedance	>1M Ω
Open Wire Detection	Yes
Individual Channel Configuration	Yes
3-wire RTD Lead Resistance Elimination	Yes

System Specifications

System	
CPU	16-bit CPU
SRAM	512KB
Flash Memory	512KB
EEPROM	16KB
Watchdog	Yes
Communication	
PoE Ethernet Port	10/100 Base-TX and automatic MDI/MDI-X
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)	±4 kV for Power Line
LED Indicators	
PoE	PoE On
L1	System Running
L2	Ethernet Link/Act
L3	Ethernet 10/100 M Speed
Power Requirements	
Reverse Polarity Protection	Yes
Powered from Terminal Block	Yes, 12 ~ 48 V_{DC}
Powered from PoE	Yes, IEEE 802.3af, Class1
Consumption	2.6 W
Mechanical	
Dimensions (W x L 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	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	
AI Channel	=, >, <, >=, <= (value)
Internal Register	
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	
Internal Register	Change the value
Timer	Start, Reset
Email	Send
CGI Commands	
Recipe	Execute
P2P	DO(On/Off), AO, IR
Rule Status	Enable, Disable

■ Pin Assignments

Terminal No.	Pin Assignment
E1	RJ-45
01	RTD5+
02	RTD5-
03	AGND
04	RTD6+
05	RTD6-
06	AGND
07	N.C.
08	(R)+Vs
09	(B)GND
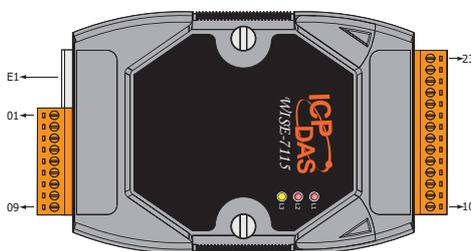
Terminal No.	Pin Assignment
23	RTD4+
22	RTD4-
21	AGND
20	RTD3-
19	RTD3+
18	AGND
17	RTD2-
16	RTD2+
15	AGND
14	RTD1-
13	RTD1+
12	AGND
11	RTD0-
10	RTD0+

■ Wire Connections

	CH0, 1, 2, 5 and 6	CH3 and CH4
2-Wire of RTD	RTDx+ / RTDx- / AGND	RTD3+ / RTD3- / AGND / RTD4- / RTD4+
3-Wire of RTD	RTDx+ / RTDx- / AGND	RTD3+ / RTD3- / AGND / RTD4- / RTD4+

■ Dimensions (Unit:mm)

49
11
56
101,2
123
33
11
59,2
72
35

Front View

Right Side View

Bottom View
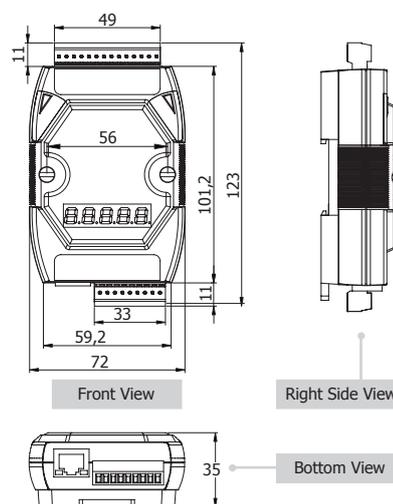
■ Ordering Information

WISE-7115 CR	7-channel RTD Input with 3-wire RTD lead resistance elimination 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)