



WISE (Web Inside, Smart Engine)



Analog Input & Digital Output

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: 8 Differential (mV, V, mA)
- DO Type: 4 Open Collector Outputs
- Over Voltage Protection is up to 240 V_{ins}
- 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 effort and cost spent on system development.

WISE-7117 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-7117 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This multi-function module WISE-7117 supports Modbus/TCP protocol to make seamless integration with SCADA software available. It features 16-bit, 8-channel differential analog inputs and 4-channel digital outputs. Each analog channel is allowed to configure an individual range and has 240Vrms high over voltage protection. Jumper selectable for voltage or current input.

Applications

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

I/O Specifications

Analog Input	
Input Channels	8 (Differential)
Input Type	+/-150 mV, +/-500 mV, +/-1V, +/-5V, +/-10V +/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA (jumper selectable)
Resolution	Normal Mode 16-bit
	Fast Mode 12-bit
Sampling Rate	Normal Mode 10 Samples/Sec. (Total)
	Fast Mode 60 Samples/Sec. (Total)
Accuracy	Normal Mode +/-0.1%
	Fast Mode +/-0.5% or better
Bandwidth	Normal Mode 15.7 Hz
	Fast Mode 78.7 Hz
Zero Drift	+/-10 µV/°C
Span Drift	+/-25 ppm/°C
Input Impedance	Voltage 2 MΩ
	Current 125 Ω
Common Mode Rejection	86 dB Min.
Normal Mode Rejection	100 dB
Individual Channel Configuration	Yes
Over Voltage Protection	240 V _{ins}
ESD Protection	+/-4 kV (Contact for each channel) +/-8 kV air for random point
EFT Protection	+/-4 kV for Power
Digital Output	
Output Channels	4 (Sink)
Output Type	Isolated Open-Collector
Max. Load Current	700 mA/Channel
Load Voltage	5 V _{oc} ~ 50 V _{oc}

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 _{oc}
AI and DO	2500 V _{ins}
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 _{oc} ~ +48 V _{oc} (non-regulated)
LED Indicator	Yes
Power Consumption	0.12 A @ 24 V _{oc} 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.

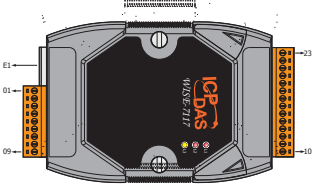
IF Conditions	
AI Channel	= > < >= <= (value)
Internal Register	= > < >= <= (value)
DO Counter	= > < >= <= (value) - Change
Timer	Timeout - Not Timeout
P2P	DI - AI - DI counter - DO counter - IR
Rule Status	Enable - Disable



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

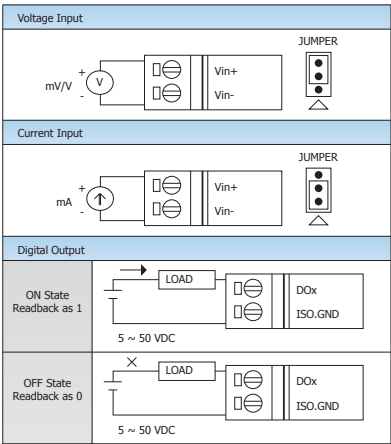
Pin Assignment

Terminal No.	Pin Assignment
E1	RJ-45
01	Vin7+
02	Vin7-
03	DO0
04	DO1
05	DO2
06	DO3
07	ISO_GND
08	(R) ₃ +Vs
09	(B)GND

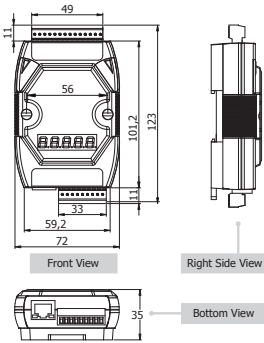


Terminal No.	Pin Assignment
23	Vin6-
22	Vin6+
21	Vin5-
20	Vin5+
19	Vin4-
18	Vin4+
17	Vin3-
16	Vin3+
15	Vin2-
14	Vin2+
13	Vin1-
12	Vin1+
11	Vin0-
10	Vin0+

Wire Connection



Dimensions (Unit: mm)



Ordering Information

WISE-7117	8-channel Analog Input with High Voltage Protection and 4-channel Isolated Output PoE Module (RoHS)
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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)