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
- AI: 3 (mV, V, mA)
- DO: 3 (Power Relay, Form A)
- DI: 6 (Wet Contact)

CE FC RoHS PoE

WISE-7102

3-Channel Analog Inputs, 6-Channel Digital Inputs and 3-Channel Power Relay Outputs 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 labor and cost spent on system development.

WISE-7102 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-7102 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This multi-function module WISE-7102 supports Modbus/TCP protocol to make seamless integration with SCADA software available. It features 3-channel analog inputs, 6-channel digital inputs and 3-channel Power Relay outputs. Each analog input channel provides 240 Vrms high over voltage protection.

Applications

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

I/O Specifications

Analog Input		
Input Channels	3 (Differential)	
Input Type (jumper selectable)	+/-150mv, +/-500mv, +/-1 V, +/-5 V, +/-10 V	
	+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA	
Resolution	16-bit	
Sampling Rate	10 Sample/Sec. (Total)	
Accuracy	+/-0.1%	
Zero Drift	+/-20 µV/°C	
Span Drift	+/-25 ppm/°C	
Overvoltage Protection	240 Vrms	
Overcurrent Protection	50 mA max. at 110 V_{DC}/V_{AC} max.	
Input Impedance	Voltage	2 MΩ
	Current	125 Ω
Common Mode Rejection	86 dB Min.	
Normal Mode Rejection	100 dB	
Individual Channel Configuration	Yes	
Open Wire Detection	Yes, for 4 ~ 20 mA only	
Digital Input		
Channels	6	
Contact	Wet Contact	
Sink/Source (NPN/PNP)	Sink/Source	
On Voltage Level	+10 V_{DC} ~ +50 V_{DC}	
Off Voltage Level	+4 V_{DC} Max.	
Input Impedance	10 KΩ, 0.5W	
Counters	Channels	6
	Max. Counts	16-bit (65535)
	Max. Input Frequency	50 Hz
	Min. Pulse Width	10 ms
Overvoltage Protection	+50 V_{DC}	
Power Relay		
Channels	3	
Type	Power Relay, Form A (SPST N.O.)	
Operating Voltage Range	250 V_{AC}/30 V_{DC}	
Max. Load Current	5.0A/channel at 25°C	
Operate Time	6 ms (Typical)	
Release Time	3 ms (Typical)	
Electrical Life (Resistive load)	VDE:	5 A @ 250 V_{AC} 30,000 ops (10 ops/minute) at 75°C.
		5 A @ 30 V_{DC} 70,000 ops (10 ops/minute) at 75°C.
	UL:	5 A @ 250 V_{AC}/30 V_{DC} 6,000 ops.
		3 A @ 250 V_{AC}/30 V_{DC} 100,000 ops.
Mechanical Life	20,000,000 ops. at no load (300 ops./minute).	
Intra-module Isolation, Field to Logic	3750 V_{DC}	

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
LED Indicators	
PoE Power	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	1.7W
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	
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
P2P	DI, AI, DI counter, DO counter, IR
Rule Status	Enable, Disable

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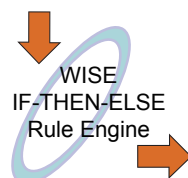
THEN / ELSE Actions	
DO Channel	ON, OFF, Pulse Output
Internal Register	Change the value
DI Counter	Reset
DO Counter	
Timer	Start, Reset
Email	Send
CGI Commands	
Recipe	Execute
P2P	DO(On/Off), AO, IR
Rule Status	Enable, Disable

Pin Assignments

Terminal No.	Pin Assignment
E1	RJ-45
01	Vin 0+
02	Vin 0-
03	Vin 1+
04	Vin 1-
05	Vin 2+
06	Vin 2-
07	N/A
08	(R)+Vs
09	(B)GND
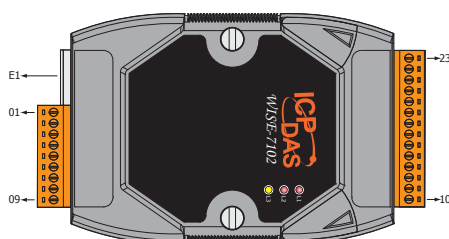
Terminal No.	Pin Assignment
23	IN 5
22	IN 4
21	IN 3
20	IN 2
19	IN 1
18	IN 0
17	IN.COM
16	IN.COM
15	RL2 COM
14	RL2 NO
13	RL1 COM
12	RL1 NO
11	RL0 COM
10	RL0 NO

Wire Connections

Voltage Input	Current Input
mV/V JUMPER Default Vin+ Vin-	mA JUMPER Vin+ Vin-

Digital Input/ Counter	Readback as 1	Readback as 0
	+10 ~ +50 VDC	OPEN or <4 VDC
Sink	DIx 10K DI.COM To other channels	DIx 10K DI.COM To other channels
	+10 ~ +50 VDC	OPEN or <4 VDC
Source	DIx 10K DI.COM To other channels	DIx 10K DI.COM To other channels

Power Relay	ON State Readback as 1	OFF State Readback as 0
Relay Output	RLx.COM Relay Close AC/DC LOAD RLx.NO To other channels	RLx.COM Relay Open AC/DC LOAD RLx.NO To other channels

Dimensions (Unit:mm)

Front View

Right Side View

Bottom View
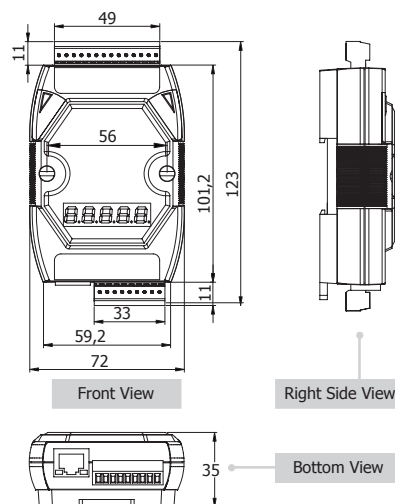
Ordering Information

WISE-7102	3-Channel Analog Inputs, 6-Channel Digital Inputs and 3-Channel Power Relay Outputs 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)