



## WISE-7102

3-Channel Analog Inputs, 6-Channel Digital Inputs and 3-Channel Power Relay Outputs 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: 3 (mV, V, mA)
- DO: 3 (Power Relay, Form A)
- DI: 6 (Wet Contact)



## 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.

## System Specifications

### I/O Specifications

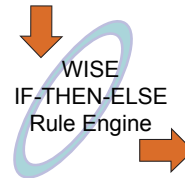
Analog Input		
Input Channels	3 (Differential)	
Input Type (jumper selectable)	+/-150mv, +/-500mv, +/-1 V, +/-5 V, +/-10 V	
	+/-20 mA, 0 ~ 20 mA, 4 ~ 20 mA	
Resolution	16-bit	
Sampling Rate	10 Sample/Sec. (Total)	
Accuracy	+/-0.1%	
Zero Drift	+/-20 $\mu$ V/ $^{\circ}$ C	
Span Drift	+/-25 ppm/ $^{\circ}$ C	
Overvoltage Protection	240 Vrms	
Overcurrent Protection	50 mA max. at 110 V <sub>DC</sub> /V <sub>AC</sub> max.	
Input Impedance	Voltage	2 M $\Omega$
	Current	125 $\Omega$
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 <sub>DC</sub> ~ +50 V <sub>DC</sub>	
Off Voltage Level	+4 V <sub>DC</sub> Max.	
Input Impedance	10 K $\Omega$ , 0.5W	
Counters	Channels	6
	Max. Counts	16-bit (65535)
	Max. Input Frequency	50 Hz
	Min. Pulse Width	10 ms
Overvoltage Protection	+50 V <sub>DC</sub>	
Power Relay		
Channels	3	
Type	Power Relay, Form A (SPST N.O.)	
Operating Voltage Range	250 V <sub>AC</sub> /30 V <sub>DC</sub>	
Max. Load Current	5.0A/channel at 25 $^{\circ}$ C	
Operate Time	6 ms (Typical)	
Release Time	3 ms (Typical)	
Electrical Life ( Resistive load )	VDE:	5 A @ 250 V <sub>AC</sub> 30,000 ops (10 ops/minute) at 75 $^{\circ}$ C.
		5 A @ 30 V <sub>DC</sub> 70,000 ops (10 ops/minute) at 75 $^{\circ}$ C.
	UL:	5 A @ 250 V <sub>AC</sub> /30 V <sub>DC</sub> 6,000 ops. 3 A @ 250 V <sub>AC</sub> /30 V <sub>DC</sub> 100,000 ops.
Mechanical Life	20,000,000 ops. at no load (300 ops./minute).	
Intra-module Isolation, Field to Logic	3750 V <sub>DC</sub>	

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 <sub>DC</sub>
EMS Protection	
ESD (IEC 61000-4-2)	$\pm$ 4 kV Contact for each terminal and $\pm$ 8 kV Air for random point
EFT (IEC 61000-4-4)	$\pm$ 4 kV for Power Line
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 <sub>DC</sub>
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 $^{\circ}$ C ~ +75 $^{\circ}$ C
Storage Temperature	-30 $^{\circ}$ C ~ +80 $^{\circ}$ 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.

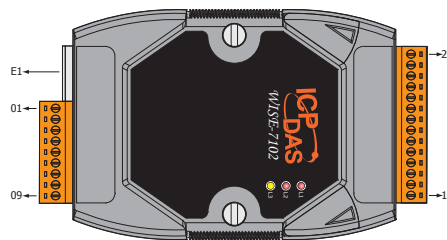
IF Conditions	
DI Channel	ON, OFF, ON to OFF, OFF to ON, Change
AI Channel	=, >, <, >=, <= (value)
Internal Register	=, >, <, >=, <= (value)
DI Counter	=, >, <, >=, <= (value), Change
DO Counter	=, >, <, >=, <= (value), Change
Timer	Timeout, Not Timeout
P2P	DI, AI, DI counter, DO counter, IR
Rule Status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



THEN / ELSE Actions	
DO Channel	ON, OFF, Pulse Output
Internal Register	Change the value
DI Counter	Reset
DO Counter	Reset
Timer	Start, Reset
Email	Send
CGI Commands	Send
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

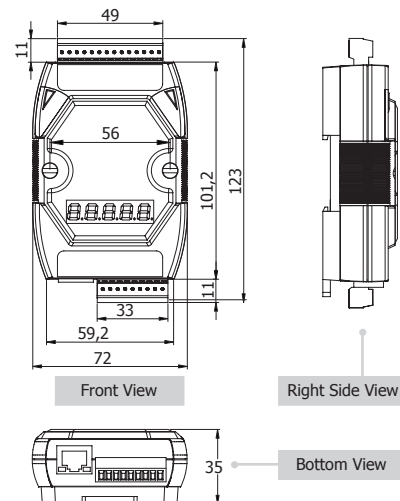


Terminal No.	Pin Assignment
23	IN 5
22	IN 4
21	IN 3
20	IN 2
19	IN 1
18	IN 0
17	IN.COM
16	IN.COM
15	RL2 COM
14	RL2 NO
13	RL1 COM
12	RL1 NO
11	RL0 COM
10	RL0 NO

## Wire Connections

Voltage Input		Current Input	
Digital Input/Counter	Readback as 1	Readback as 0	
	+10 ~ +50 Vdc	OPEN or <4 Vdc	
Sink			
Source			
Power Relay	ON State Readback as 1	OFF State Readback as 0	
Relay Output			

## Dimensions (Unit:mm)



## Ordering Information

<b>WISE-7102</b>	3-Channel Analog Inputs, 6-Channel Digital Inputs and 3-Channel Power Relay Outputs PoE Module (RoHS)	Art. No. 131546
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## Accessories

<b>GPSU06U-6</b>	24V/0.25A, 6 W Power Supply
<b>MDR-20-24</b>	24V/1A, 24 W Power Supply with DIN-Rail Mounting
<b>NS-205 CR</b>	Unmanaged 5-Port Industrial Ethernet Switch (RoHS)
<b>NS-205PSE CR</b>	Unmanaged 5-Port Industrial PoE Ethernet Switch (RoHS)