



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
- 2-way Isolation/ESD Protection
- DO Type: 6 Power Relay (Form A)
- DI Type: 6 Wet Contact (Sink/Source)



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-7160 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-7160 will still be able to receive power from auxiliary power sources like AC adapters or battery, etc.

This module WISE-7160 supports Modbus/TCP protocol to make seamless integration with SCADA software available. It features 6 power relay outputs and 6 isolated wet contact digital inputs. Each power relay supports contact rating as 5 A @ 250 VAC or 5 A @ 30 VDC and each channel supports the counter function.

Applications

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

System Specifications

I/O Specifications

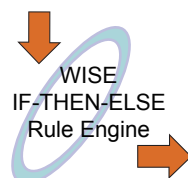
| Digital Input | | |
|-------------------------------------|----------------------|--|
| Input Channels | | 6 |
| Input Type | | Wet Contact (Sink, Source) |
| On Voltage Level | | +10 V _{DC} ~ +50 V _{DC} |
| Off Voltage Level | | +4 V _{DC} Max. |
| Input Impedance | | 10 kΩ |
| Counters | Max. Count | 65535 (16 bits) |
| | Max. Input Frequency | 50 Hz |
| | Min. Pulse Width | 10 ms |
| Overvoltabe Protection | | +70 V _{DC} |
| Power Relay | | |
| Output Channels | | 6 |
| Output 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 | 5A 250 V _{AC} 30,000 ops (10 ops/minute) at 75 °C |
| | | 5A 30 V _{DC} 70,000 ops (10 ops/minute) at 75 °C |
| | UL | 5A 250 V _{AC} /30 V _{DC} 6,000 ops |
| | | 3A 250 V _{AC} /30 V _{DC} 100,000 ops. |
| Mechanical Life | | 20,000,000 ops. at no load (300 ops./minute) |

| 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) | ±2 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 _{DC} |
| Powered from PoE | Yes, IEEE 802.3af, Class1 |
| Consumption | 4.8 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. |

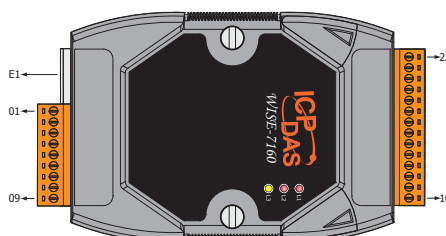
| IF Conditions | |
|-------------------|---------------------------------------|
| DI Channel | ON, OFF, ON to OFF, OFF to ON, Change |
| Internal Register | =, >, <, >=, <= (value) |
| DI Counter | =, >, <, >=, <= (value), Change |
| DO Counter | =, >, <, >=, <= (value), Change |
| Timer | Timeout, 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 | IN5 |
| 02 | IN4 |
| 03 | IN3 |
| 04 | IN2 |
| 05 | IN1 |
| 06 | IN0 |
| 07 | IN.COM |
| 08 | (R)+Vs |
| 09 | (B)GND |

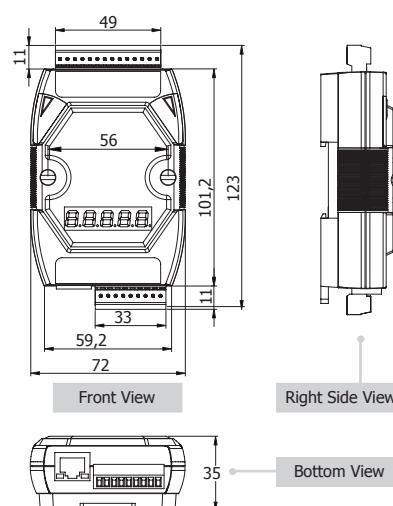


| Terminal No. | Pin Assignment |
|--------------|----------------|
| 23 | RL5 COM |
| 22 | RL5 NO |
| 21 | RL4 COM |
| 20 | RL4 NO |
| 19 | RL3 COM |
| 18 | RL3 NO |
| 17 | RL2 COM |
| 16 | RL2 NO |
| 15 | RL1 COM |
| 14 | RL1 NO |
| 13 | RL0 COM |
| 12 | RL0 NO |
| 11 | N/A |
| 10 | N/A |

Wire Connections

| Digital Input | Readback as 1 +10 ~ +50 V _{DC} | Readback as 0 OPEN or <4 V _{DC} |
|---------------|--|---|
| | | |
| Source | Readback as 1 +10 ~ +50 V _{DC} | Readback as 0 OPEN or <4 V _{DC} |
| | | |
| Power Relay | ON State Readback as 1 | OFF State Readback as 0 |
| Relay Output | | |

Dimensions (Unit:mm)



Ordering Information

| | |
|--------------|--|
| WISE-7160 CR | 6-channel Power Relay Output and 6-channel Isolation Digital Input 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) |