



Quad-band Automation Controller

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
- Support GPRS/GSM: Quad-band 850/900/1800/1900 MHz
- I/O: 3 channels DI, 3 channels DO, 8 channels AI
- Support SD storage card
- 128*64 dots LCM display (only for WISE-4000D)



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.

The WISE-4000 is a M2M (Machine to Machine) embedded controller equips with a cellular transceiver that enables integrated monitoring of industrial equipments or environments and allows updated status information being sent to the backend monitoring system. WISE-4000 supports Modbus/TCP protocol that allows seamless integration with SCADA software available. It features 3 digital inputs, 3 digital outputs and 8 analog inputs. WISE-4000 also features GPRS/GSM & Ethernet that provide a highly-flexible solution for transferring monitoring data by GPRS, SMS or Ethernet interface. Integrate with IF-THEN-ELSE rule engine, WISE-4000 even provides more powerful functions such as Schedule · Send SMS · Send e-mail · Timer & I/O operation for use in various industrial applications.

Applications

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

I/O Specifications

Digital Input		
Input Channels	3	
Input Type	Source(Dry Type), Common Ground	
On Voltage Level	+3.5 V _{DC} ~ +30 V _{DC}	
Off Voltage Level	+1 V _{DC} Max.	
Isolated Voltage	Non-isolated	
Counters	Max. Count	65535 (16 bits)
	Max. Input Frequency	50 Hz
	Min. Pulse Width	10 ms
Digital Output		
Output Channels	3	
Output Type	Open Collector (Sink/NPN)	
Load Voltage	+30 V _{DC} Max.	
Load Current	100 mA Max.	
Isolated Voltage	Non-isolated	
Counters	Max. Count	65535 (16 bits)
	Max. Input Frequency	50 Hz
	Min. Pulse Width	10 ms
Analog Input		
Input Channels	8	
Input Range/Type	0~20 mA	
Resolution	12-bit	
Sampling Rate	1 KHz max. (Read one channel)	

System Specifications

Item	WISE-4000	WISE-4000D
CPU	80 MHz internal microprocessor	
SRAM/Flash	512K/512K, real time clock, watchdog timer	
NVRAM	31 bytes, battery backup, data valid up to 10 years	
EEPROM	16 KB	
Communication Interface		
COM ports	COM1:5-wire RS-232; COM2: RS-485; COM3:3-wire RS-232	
Ethernet	10/100 Base-TX Ethernet controller	
GPRS Interface		
Frequency Band	Quad-band 850/900/1800/1900 MHz	
GPRS connectivity	GPRS class 10/8; GPRS station class B	
DATA GPRS	Downlink transfer: Max. 85.6 kbps; Uplink transfer: Max 42.8kbps	
SMS	MT, MO, CB, Text and PDU mode	
LCD Interface		
General	Effective display area	80.61 mm x 14.37 mm (W x H)
	Module Dimension	93 mm x 70 mm x 1.6 mm (W x H x T)
Life Time	-	Expected life is more than 100,000 hours under normal operation
Power		
Protection	Power reverse polarity protection	
Frame Ground Protection	ESD, Surge, EFT, Hi-Pot	
Power Requirement	15W; Unregulated +10 Vdc ~ +30 Vdc	
Power Consumption	Idle: 75 mA @ 24 Vdc; Data Link: 150 ~ 400 mA (peak) @ 24 Vdc	
LED Indicators		
System	Red	
GPRS	Yellow	
Mechanical		
Dimensions	72 mm x 123 mm x 35 mm (W x H x D)	
Installation	DIN-Rail or Wall mounting	
Environment		
Operating Temperature	-20 °C ~ +70 °C	-15 °C ~ +55 °C
Storage Temperature	-40 °C ~ +80 °C	-20 °C ~ +70 °C
Humidity	5~90% RH, non-condensing	

Software Specifications

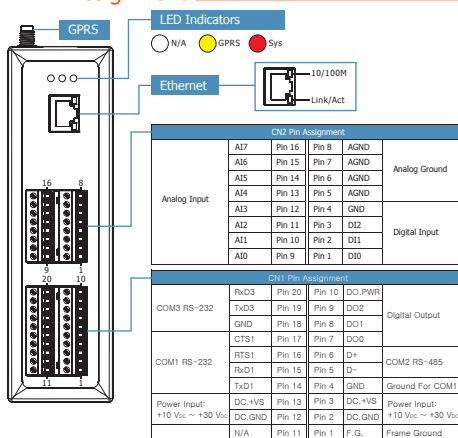
Functions	
36 IF-THEN-ELSE Logic Rules	3 IF conditions with AND or OR operators 3 THEN actions 3 ELSE actions
48 Internal Registers	Hold temporary variables and read/write data via Modbus/TCP address.
12 Timers	Delay / Timing functions.
12 Schedules	Setup prescheduled routine tasks.
12 Emails	Send Email messages to pre-set Email receivers.
12 SMS	Send SMS to pre-set mobile phone numbers.
Rule Configuration Website	Access Web server on WISE controllers to edit and upload logic rules through web browser.
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
Schedule	In Range - Out Range

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 - Stop
Schedule	
Email	Send
SMS	

Pin Assignment



Wire Connection

Digital Input Wire Connection

Input Type	DI Value as 0	DI Value as 1
Relay Contact	Relay On 	Relay Off
TTL/CMOS Logic	Voltage < 1V 	Voltage < 3.5V
Open Collector	Open Collector On 	Open Collector Off

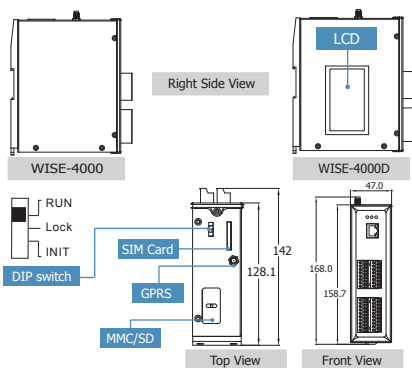
Digital Output Wire Connection

Output Type	DO Command as 0	DO Command as 1
Drive Relay	Relay ON 	Relay Off
Resistance Load		

Current Input Wire Connection

Input Type	
mV/V	

Dimensions (Unit: mm)



Ordering Information

WISE-4000	3-channel DI, 3-channel DO, and 8-channel AI WISE Controller with GPRS/GSM Module (RoHS)
WISE-4000D	3-channel DI, 3-channel DO, and 8-channel AI WISE Controller with GPRS/GSM Module and LCD Display (RoHS)

Accessories

ANT-421-01	3m external GPRS/GSM antenna
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