

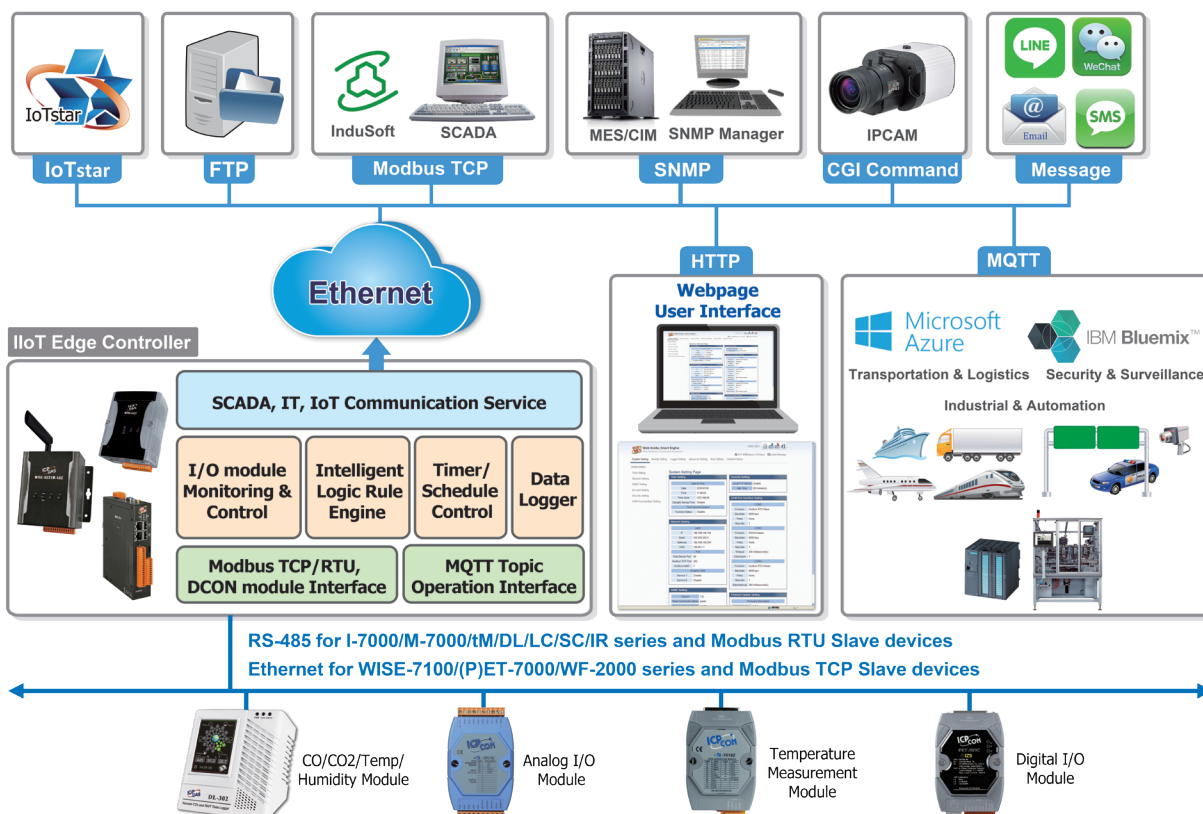


IIoT Edge Controller: WISE-523x & WISE-224xM Series

Features

- No more programming, Web pages provided for system and logic rule setting
- IF-THEN-ELSE logic rules execution ability
- Support XV-board, DCON, Modbus TCP/RTU Slave modules
- Timer and Schedule functions supported
- Data logger and data files send back function supported
- Active I/O sending function for real-time data transfer
- Support math formula editing function
- CGI Command sending and receiving function supported for IP Camera and Network device
- Support Modbus TCP/RTU, SNMP, FTP and MQTT protocols
- Support Line, WeChat, SMS and Email message notification
- Support connection with IoT Cloud Platform (Microsoft Azure and IBM Bluemix) and IoTstar Cloud Management Software
- Support 4G/3G wireless data communication

System Architecture



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 the built-in IF-THEN-ELSE logic engine, WISE can execute the automation logic in a stable and efficient way, and it also provides mathematic operation, Schedule and Email alarm message sending functions.

WISE provides more supports in I/O module connection, I/O data logging and IoT platform integration. It allows connection to XV-board, DCON I/O modules, and Modbus TCP/RTU Slave modules all together. The wide range of selection options enables flexibility in I/O module integration to meet the requirements from various applications. WISE provides the MQTT client, it can directly connect to the major public IoT Cloud platform (such as: Microsoft Azure or IBM Bluemix) and MQTT Broker. WISE also provide well thought-out CGI command functions to integrate with IP camera for the Access Control applications. Based on the ability as I/O module connection ability, Intelligent logic control, Data logging, and various communication protocols supported (SNMP, MQTT and Modbus TCP/RTU), WISE can help the IT/MIS/MES/SCADA system to manage the field side I/O modules and sensors efficiently in the application such as Unmanned Facility Room Monitoring, Intelligent Factory and Environment Monitoring. WISE is not just a Concentrator of I/O modules and Sensors; it is also a Gateway to transfer the sensor data to IoT Cloud platform. All of these make WISE the best choice in the IoT Age.

Software Specifications

Function		Description
Easy to use	Web Page Interface	● No more programming/extra software tool ! Runs on browsers for system and logic rule setting.
	Local Side	● Support XV-board(XV107, XV107A, XV110, XV111, XV111A, XV116, XV306, XV307, XV308, XV310).
Options for Sensor Integration	Remote Side (RS-485)	● Support ICP DAS I-7000/M-7000/tM/DL/LC/SC/IR and Modbus RTU Slave module.
	Remote Side (Ethernet)	● Support ICP DAS WISE-7100/(P)ET-7000/WF-2000 and Modbus TCP Slave module.
	IF-THEN-ELSE Logic Operation	● Built-in advanced IF-THEN-ELSE logic engine provides for the execution of logic rules.
Edge Computing Ability at Field Sites	I/O Channel Monitoring & Control	● Provides real-time monitoring and setting of I/O channel of sensor.
	Timer	● Perform the timing function. The status of Timer can be included in IF condition statements to trigger the THEN/ELSE actions.
	Schedule	● Perform the prescheduled tasks. The status of Schedule can be included in IF condition statements to trigger the THEN/ELSE actions. "Calendar" and "Weekly repeat" setting UI are provided.
	Instant Message Sending	● Support LINE, Email and SMS for instant message sending. WISE-5236 & WISE-2x46M support WeChat message sending function.
	CGI Command	● Perform CGI command sending and receiving functions. The content of CGI command receiving can be used in IF condition statements to trigger the THEN/ELSE actions.
	Data Logger	● Perform Data Logger function to real-time record the sensor data by Period or Event Trigger operation.
	Internal Register	● Work as a variable to hold the temporary value, and provide the basic mathematical operation.
	Real-Time Sensor Data	● Support Modbus TCP/RTU, CGI, SNMP and MQTT protocols for the integration with SCADA/IT/IoT systems. Active I/O sending mechanism supported.
Seamless Integration with SCADA/IT/IoT Systems	Historical Sensor Data Files	● FTP Server/Client ability for the maintenance of data log files and the data files automatically send back & recovery when disconnected network is resumed. ● Provide alarm notification mechanism so that when microSD card is damaged, the data log file will be stored in WISE to prevent data loss.
	Communication Service	● DDNS (Dynamic DNS) service supported. ● WISE-523xM-4GE/4GC for 4G Wireless data communication; WISE-5231M-3GWA for 3G Wireless data communication
	IoT Gateway Capability	● Support connection with IoT Cloud Platform (Microsoft Azure and IBM Bluemix) and IoTstar Cloud Management Software.

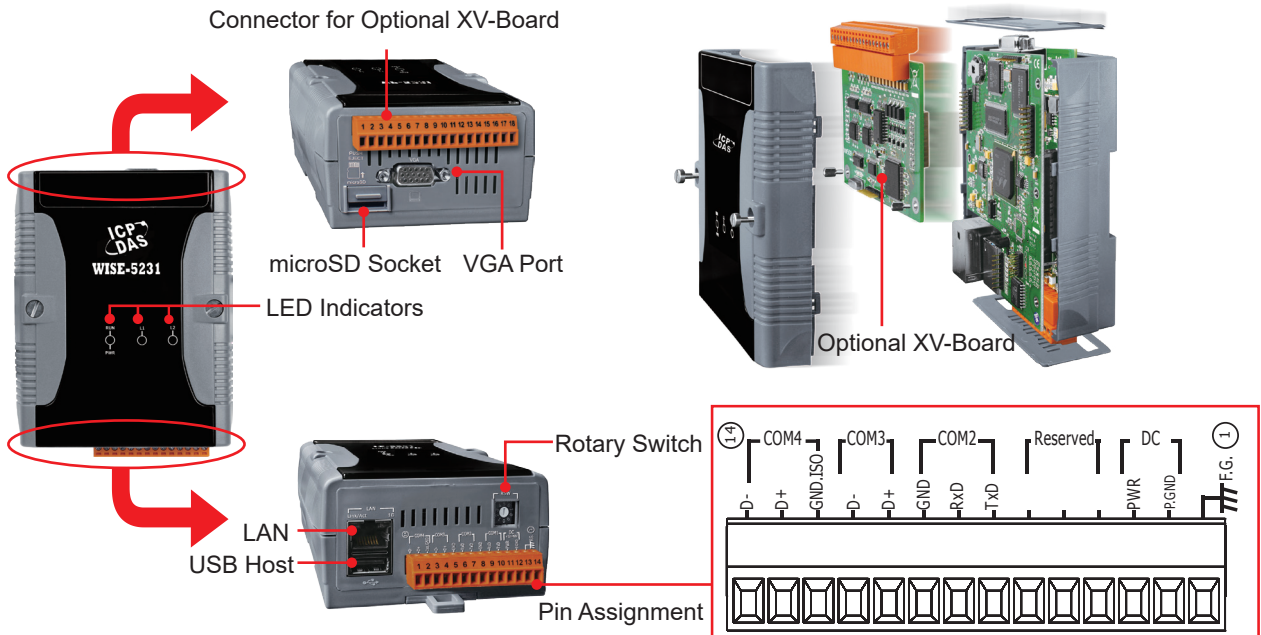
Hardware Specifications

Model	WISE-523x	WISE-523xM	WISE-5231M-3GWA	WISE-523xM-4GE/4GC
System				
CPU	32-bit ARM CPU			
microSD Expansion	Built-in one 4 GB microSD card (support up to 32 GB microSDHC card)			
Communication				
Ethernet	RJ-45 x 1, 10/100/1000 Base-TX (Auto-negotiating, Auto MDI/MDI-X)			
COM 2	RS-232 (TxD, RxD, GND), non-isolated, Speed: 115200 bps max.			
COM 3/COM 4	RS-485 (Data+, Data-), Speed: 115200 bps max. COM 4 provides 2500 VDC isolation			
I/O Module Support				
Local I/O Module	Yes, one XV-board			
Remote I/O Module	COM3 can connect to Max.16 DCON or Modbus RTU Slave modules; COM4 can connect to Max.16 DCON or Modbus RTU Slave modules; LAN interface can connect to Max. 16 Modbus TCP Slave modules.			
Power Requirements				
Input Range	12 to 48 VDC			
Power Consumption	4.8 W		6.5W	
Mechanical				
Casing	Plastic		Metal	
Dimensions/Installation (W x L x H)	91 mm x 132 mm x 52 mm/ DIN-Rail Installation		117 mm x 126 mm x 58 mm / Wall Mounting / DIN-Rail Installation	
Environmental				
Temperature/Humidity	Operating Temperature: -25 °C to +75 °C; Storage Temperature: -40 °C to +80 °C; 10 to 90% RH, Non-condensing			
3G System				
Frequency Band	-		WCDMA 850/900/1800/1900 MHz	4GE : WCDMA 850/900/2100 MHz 4GC : WCDMA 900/2100 MHz;TD- SCDMA 1900/2100 MHz; CDMA2000 (BC0) 800 MHz
4G System				
Frequency Band	-			4GE : FDD LTE: B1/B3/B5/B7/B8/B20 MHz. 4GC : FDD LTE: B1/B3/B8 MHz; TDD LTE: B38/B39/B40/B41 MHz.

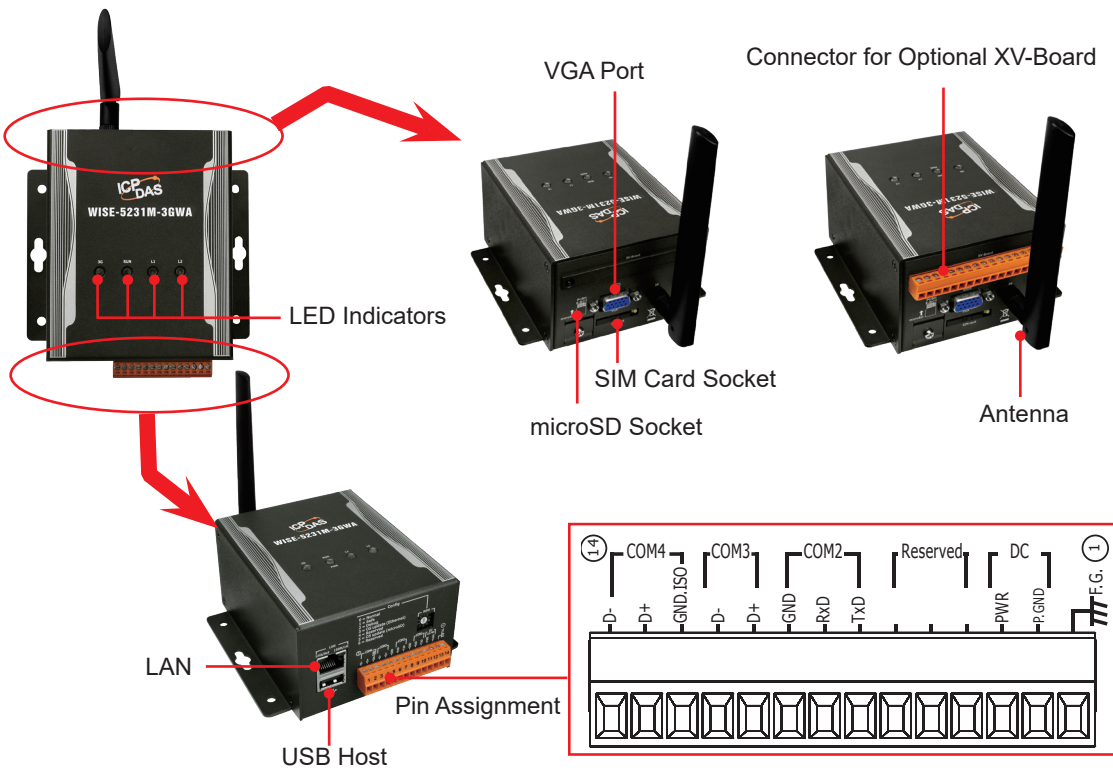
Model	WISE-224xM			
System				
CPU	32-bit ARM CPU			
microSD Expansion	Built-in one 4 GB microSD card (support up to 32 GB microSDHC card)			
Communication				
Ethernet	RJ-45 x 2, 10/100/1000 Base-TX (Auto-negotiating, Auto MDI/MDI-X)			
COM 2	RS-232 (TxD, RxD, GND), non-isolated, Speed: 115200 bps max.			
COM 3/COM 4	RS-485 (Data+, Data-), Speed: 115200 bps max. Provides 2500 VDC isolation			
I/O Module Support				
Local I/O Module	Yes, one XV-board			
Remote I/O Module	COM3 can connect to Max.16 DCON or Modbus RTU Slave modules; COM4 can connect to Max.16 DCON or Modbus RTU Slave modules; LAN interface can connect to Max. 16 Modbus TCP Slave modules.			
Power Requirements				
Input Range	12 to 48 VDC			
Power Consumption	4.8W			
Mechanical				
Casing	Metal			
Dimensions/Installation (W x L x H)	33 mm x 160 mm x 129mm DIN-Rail Installation			
Environmental				
Temperature/Humidity	Operating Temperature: -25 °C to +75 °C; Storage Temperature: -40 °C to +80 °C; 10 to 90% RH, Non-condensing			

Appearance

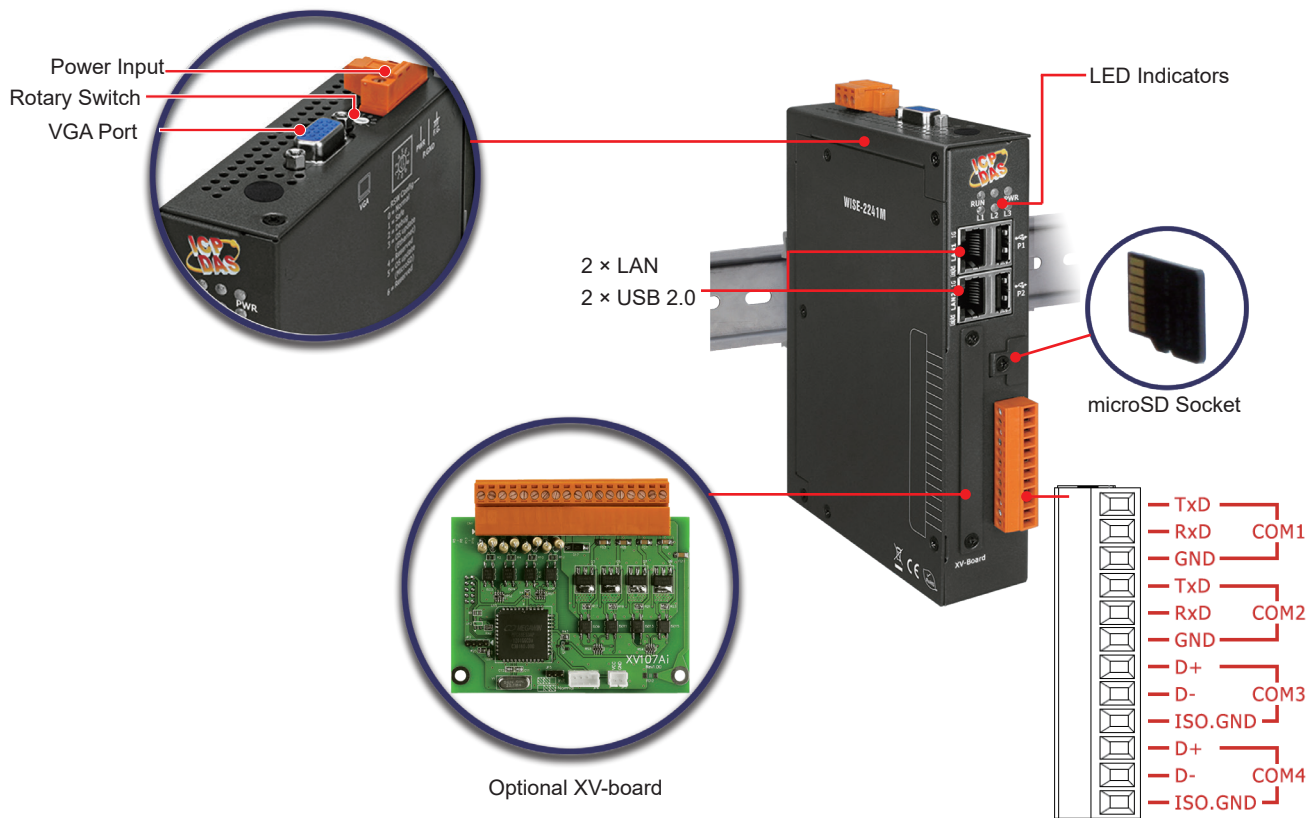
WISE-523x



WISE-523xM-4GE/4GC & WISE-5231M-3GWA



WISE-224xM



Ordering Information

Module	Description
Standard Function	
WISE-5231 CR	IIoT Edge Controller (Plastic casing)
WISE-5231M CR	IIoT Edge Controller (Metal casing)
WISE-5231M-3GWA CR	IIoT Edge Controller (Metal casing) (Support 3G Wireless data communication)
WISE-5231M-4GE CR	IIoT Edge Controller (Metal casing) (Support 4G Wireless data communication; Frequency Band for EMEA, Korea, Thailand, India and Taiwan)
WISE-5231M-4GC CR	IIoT Edge Controller (Metal casing) (Support 4G Wireless data communication; Frequency Band for China)
WISE-2241M CR	IIoT Edge Controller (Metal casing)

Module	Description
Standard Function + Support WeChat Message Sending	
WISE-5236 CR	IIoT Edge Controller (Plastic casing) (For China only)
WISE-5236M CR	IIoT Edge Controller (Metal casing) (For China only)
WISE-5236M-4GC CR	IIoT Edge Controller (Metal casing) (Support 4G Wireless data communication; For China only)
WISE-2246M CR	IIoT Edge Controller (Metal casing) (For China only)

Please note: An Enterprise WeChat account in China is required for WISE to send the messages to the members under the enterprise WeChat account.

Accessories

MDR-20-24 CR	24V/1A, 24 W Power Supply with DIN-Rail Mounting (RoHS)
ANT-Base-01	5 dBi 4G External Antenna Base (1.5 Meter)
3S001-2	RG58A/U (1 Meter; SMA male to SMA Female)