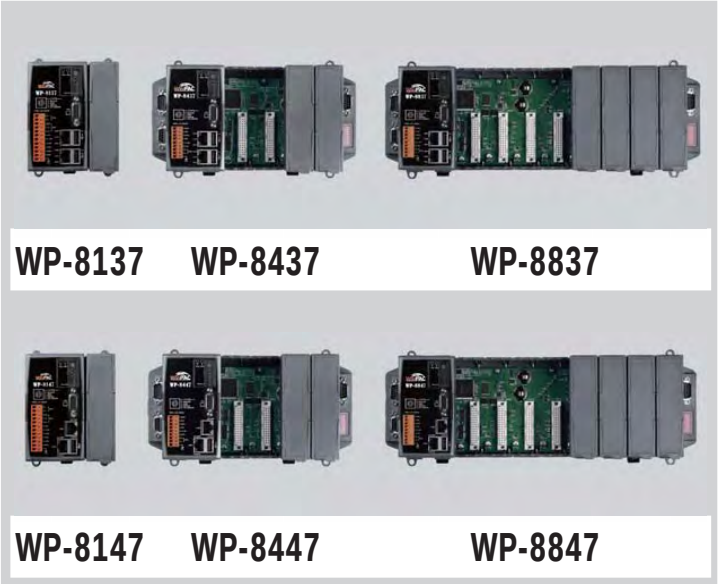
ISaGRAF Based WinPAC



Highlight Information

- Windows CE 5.0
- Hard Real-Time Capability
- Fast Boot Speed
- ISaGRAF Ver.3 SoftLogic Inside (IEC 61131-3)
- PLC Feel
- PXA270 CPU (32-bit & 520 MHz)
- VGA Port Output
- Modbus RTU/TCP (Master, Slave)
- Support Soft-GRAF HMI
- Open System
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C

Introduction

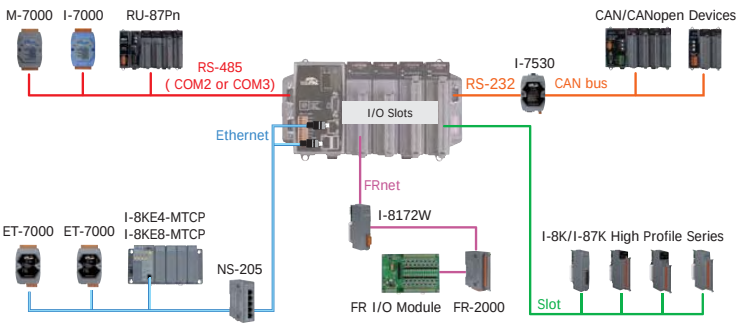
WP-8x37 and WP-8x47 Series are the new generation ISaGRAF based PACs of ICP DAS. It is equipped with a PXA270 CPU (520 MHz), various connectivity (VGA, USB, Ethernet, RS-232/485) and 1/4/8 I/O slots for high performance parallel I/O modules (high profile I-8K Series) and serial I/O modules (high profile I-87K series). The benefits of running Windows CE 5.0 on WinPAC include hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level and achievable deterministic control. WinPAC is also capable of running ISaGRAF and PC-based control software such as Visual Basic .NET, Visual C#,.... etc. It has all of the best features of both traditional PLCs and Windows capable PCs.

ISaGRAF is the most powerful SoftLogic package on the market. ISaGRAF is a PLC-like software and it supports IEC 61131-3 standard PLC programming languages (LD, FBD, SFC, ST, IL, FC), and can run the application generated by the workbench on any ISaGRAF PACs. The ISaGRAF workbench Ver. 3.x features

- IEC 61131-3 Standard Open PLC Programming Languages (LD, FBD, SFC, ST, IL, FC) + Flow Chart (FC)
- Auto-Scan I/O
- On-Line Debug/Control/Monitor, Off-Line Simulation
- Simple Graphic HMI
- Support Soft-GRAF HMI

Applications

Rich I/O Expansion Ability



Features

Software

- Windows CE.NET 5.0 Operating System
- Development Softwre: ISaGRAF Ver.3
  - Windows 95/98/NT/2000/XP/Vista/7
  - All-in-one design environment
  - Easy to integrating with HMI/SCADA/MMI
- Support Modbus Master & Slave Protocols
  - Modbus TCP Master (Max. 100 devices)
  - Modbus RTU, ASCII, RS-232/485/422 Master (Max. 10 ports)
  - Modbus RTU (RS-232/485/422) Slave (Max. 5 ports)
  - Modbus TCP/IP Slave (Max. 32 connections)
- Support GPS/ZigBee/Radio Wireless & SMS
- Support Ebus/Fbus Data Exchange
- Support CAN/CANopen
- Support FRnet I/O (Via I-8172W)
- Support Data-Recorder & Data-Logger
- Support Motion Control & VW Solutions
- Support Soft-GRAF HMI
- Support Microsoft SQL Server communication

Hardware

- Powerful CPU Module
- VGA Port: 640 x 480 ~ 1024 x 768 (for WP-8x37)
- VGA Port: 640 x 480 ~ 800 x 600 (for WP-8x47)
- Rich I/O Expansion Ability
- High Profile I-87K I/O Modules Hot Swap Ability
- Built-in 2 USB Ports (for WP-8x37)
- Built-in 1 USB Ports (for WP-8x47)
- Built-in 128 MB Flash (for WP-8x37)
- Built-in 96 MB Flash (for WP-8x47)
- 64-bit Hardware Serial Number
- Dual Watchdog Timers
- Dual Battery-Backup SRAM (512 KB)
- Dual Ethernet Ports
- Redundant Power Input
- DIN-Rail or Wall Mounting
- Operating Temperature: -25 ~ +75 °C

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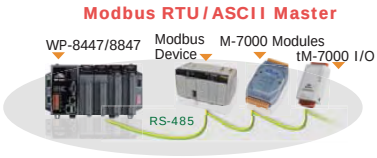
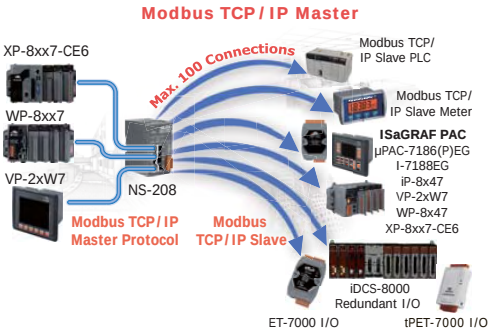
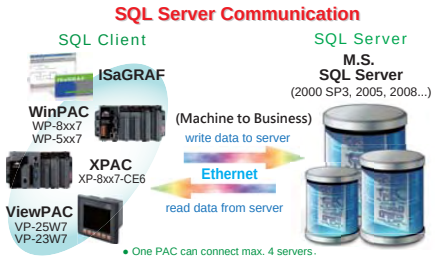
Soft-GRAF: Create A Colorful HMI in the ISaGRAF PAC

Modbus Master Ports

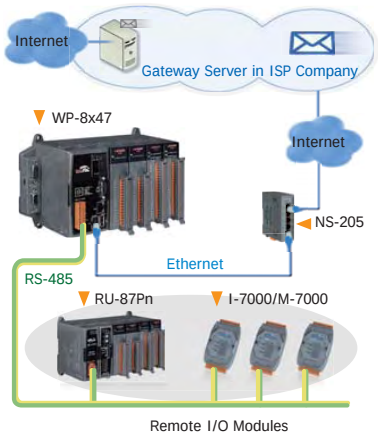




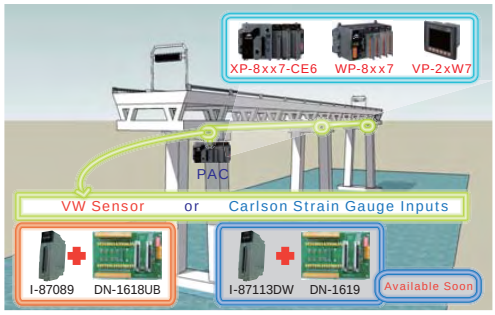
Database Application



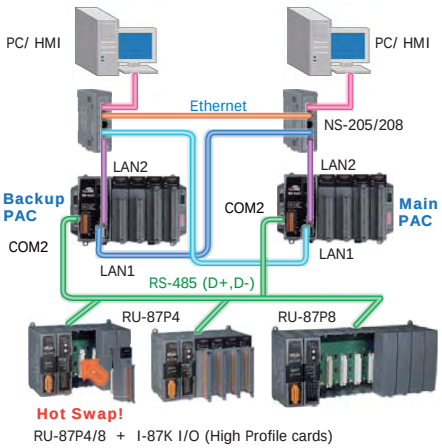
Send Email with one Attached File



Stress Monitoring of Constructions

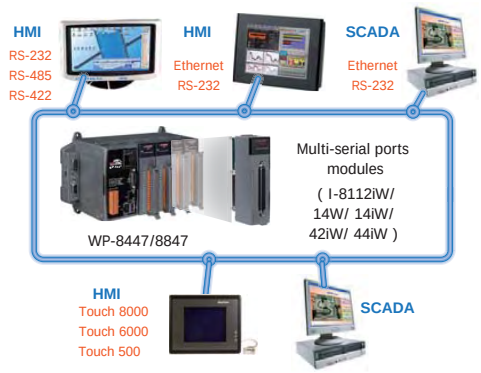


New Hot-Swap Redundant System



RU-87P4/8 + I-87K I/O (High Profile cards)

Modbus RTU/TCP Slave Ports



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ISaGRAF Based WinPAC

PAC Specifications

Models		WP-8137	WP-8147	WP-8437	WP-8447	WP-8837	WP-8847
System Software							
OS		Windows CE 5.0					
.Net Compact Framework		2.0					
Embedded Service		FTP server, Web server					
Multilanguage Support		English, German, French, Spanish, Russian, Italian, Simplified Chinese, Traditional Chinese (OS version: WP-8x3x v1.2.0.1 or later version; WP-8x4x v1.5.0.2 or later version)					
Development Software							
ISaGRAF Software	ISaGRAF Ver.3	IEC 61131-3 standard.					
	Languages	LD, ST, FBD, SFC, IL & FC; support Soft-GRAF HMI.					
	Max. Code Size	1 MB					
	Scan Time	3 ~ 15 ms for normal program 15 ~ 50 ms for complex or large program					
Non-ISaGRAF		Options: MS eVC++ 4.0 or VS.NET 2005/2008 (VB.NET, C#.NET)					
Web Service							
Web HMI		PC running Internet Explorer can monitor/control PAC via Internet/modem					
Security		Support three levels username and password protection. (high/middle/low)					
CPU Module							
CPU		PXA270 or compatible (32-bit and 520 MHz)					
SDRAM		128 MB					
Dual Battery Backup SRAM		512 KB (for 5 years data retain while power off)					
Flash	Total size	128 MB	96 MB	128 MB	96 MB	128 MB	96 MB
	OS image	64 MB		64 MB		64 MB	
	Built-in Flash disk	63 MB	31 MB	63 MB	31 MB	63 MB	31 MB
	Registry	1 MB		1 MB		1 MB	
EEPROM		16 KB					
		Data Retention: 40 years; 1,000,000 erase/write cycles					
microSD		microSD socket with one 2 GB microSD card (support up to 16 GB microSDHC card)					
RTC (Real Time Clock)		Provide second, minute, hour, date, day of week, month, year					
64-bit Hardware Serial Number		Yes, for Software Copy Protection					
Dual Watchdog Timers		Yes					
Programmable LED Indicator		1					
Rotary Switch		Yes (0 ~ 9)					
DIP Switch		-		Yes (8 bits)			
VGA & Communication Ports							
VGA	Extra GPU	Yes	-	Yes	-	Yes	-
	Resolution	1024 x 768, 800 x 600, 640 x 480	800 x 600, 640 x 480	1024 x 768, 800 x 600, 640 x 480	800 x 600, 640 x 480	1024 x 768, 800 x 600, 640 x 480	800 x 600, 640 x 480
Ethernet		RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, LED indicators)					
USB 1.1 (host)		2	1	2	1	2	1
COM 0		Internal communication with the high profile I-87K series modules in slots					
COM 1		RS-232 (to update firmware) (RxD, TxD and GND); non-isolated					
COM 2	RS-485	D2+, D2-; self-tuner ASIC inside					
	Isolation	2500 Vdc		3000 Vdc			
COM 3		-		RS-232/RS-485 (RxD, TxD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated			
COM 4		-		RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated			
I/O Expansion Slots							
Slot Number		1		4		8	
		(For High Profile I-8K and I-87K Modules Only)					
Hot Swap * Will be available		For High Profile I-87K Modules Only					
Mechanical							
Dimensions (W x L x H)		95 mm x 132 mm x 111 mm		231 mm x 132 mm x 111 mm		355 mm x 132 mm x 111 mm	
Installation		DIN-Rail or Wall Mounting					
Environmental							
Operating Temperature		-25 ~ +75 °C					
Storage Temperature		-30 ~ +80 °C					
Ambient Relative Humidity		10 ~ 90% RH (non-condensing)					
Power							
Input Range		+10 ~ +30 Vdc					
Isolation		1 kV					
Redundant Power Inputs		Yes, with one power relay (1 A @ 24 Vdc) for alarm					
Capacity		1.0 A, 5 V supply to CPU and backplane, 0.6 A, 5 V supply to I/O expansion slots, 8 W in total		1.1 A, 5 V supply to CPU and backplane, 4.9 A, 5 V supply to I/O expansion slots, 30 W in total for WP-8447 25 W in total for WP-8437		1.2 A, 5 V supply to CPU and backplane, 4.8 A, 5 V supply to I/O expansion slots, 30 W in total for WP-8847 25 W in total for WP-8837	
Consumption		7.3 W (0.3 A @ 24 Vdc)		9.1 W (0.38 A @ 24 Vdc)		9.6 W (0.4 A @ 24 Vdc)	

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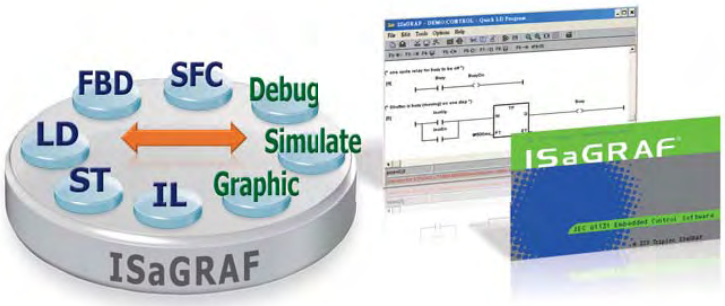
ISaGRAF Specifications



Protocols (some protocols need optional devices)		
NET ID		1~255, user-assigned by software
Modbus TCP/IP Master		Link to max. 100 devices that support Standard Modbus TCP/IP Slave protocol
Modbus RTU/ASCII Master		Max. 10 ports: COM1 ~ 14 (To connect to other Modbus Slave devices). Support Multi-ports. (*)
Modbus RTU Slave		Max. 5 ports: COM1, one of COM2/3, COM4 ~ 8 (For connecting ISaGRAF, PC/HMI/OPC Server & HMI panels). (*)
Modbus TCP/IP Slave		Ethernet LAN1 & LAN2 support total up to 32 connections. When one port is broken, the other one can still connect to PC/HMI.
Web HMI Protocol		Ethernet Ports for connecting PC running Internet Explorer
I-7000 & I-87K RS-485 Remote I/O		One of COM2, COM3 supports I-7000 I/O modules, I-87K base + I-87K Serial I/O boards and RU-87Pn + I-87K High Profile I/O boards as Remote I/O. Max. 255 modules for one controller. (*)
M-7000 Series Modbus I/O		Max. 10 RS-485 ports (COM1 ~ 14) can support M-7000 I/O. Each port can connect up to 32 M-7000 Modules.
Modbus TCP/IP I/O		LAN2 supports ICP DAS Ethernet I/O: I-8KE4-MTCP and I-8KE8-MTCP. If LAN2 is broken, it will switch to LAN1 automatically to continuously work. (LAN1 & LAN2's IP are requested set in the same IP domain)
FRnet I/O		Max. 8 pcs. I-8172W boards in slot 0 ~ 7 to connect to FRnet I/O modules
Send Email		Supports functions to send email with one attached file via Ethernet port.
Ebus		LAN2 to exchange data between ISaGRAF Ethernet PAC via Ethernet port.
SMS: Short Message Service		WP-84x7/88x7's COM4/5 and WP-81x7's COM1/COM5 can link to a GSM Modem to support SMS. User can request data/control the controller by cellular phone. The controller can also send data & alarms to user's cellular phone. (*)
User-Defined Protocol		COM1 ~ COM14 by Serial communication function blocks (*)
MMICON/LCD		COM4 or COM5 and supports ICP DAS's MMICON. (*)
UDP Server & UDP Client : Exchange Message & Auto-Report		LAN1 or LAN2 (To send/receive message to/from PC/HMI or other devices.)
TCP Client : Exchange Message & Auto-Report		LAN1 or LAN2 (To send/receive message to/from PC/HMI or other devices which support TCP server protocol.) Ex: automatically report data to InduSoft's RXTX driver, or to connect a location camera.
SQL Server		Support SQL Client function to write data to (or read data from) Microsoft SQL Server (2000 SP3, 2005, 2008).
New Hot-Swap and Redundant System		This redundant system has setup two "Active IP" address point to the active LAN1 and LAN2 ports always. One or more PC/HMI/SCADA can communicate with this redundant system via one of the two given active IP. So the PC/HMI/SCADA can access to the system easily without any notice about which WP-8xx7 is currently active. Moreover, the new redundant system can integrate with the RU-87P4/87P8 Expansion Unit plus the I-87K high-profile I/O cards to support the hot-swap application. If the I/O card is damaged, the maintenance person just takes one good-card with same model number to hot-swap the damaged one without stopping this redundant system.
CAN/CANopen		COM1, COM3 ~ COM14 can connect one I-7530 (converter: RS-232 to CAN) to support CAN/CANopen devices and sensors. One WP-8xx7 supports max.10 RS-232 ports to connect max.10 I-7530. (*)
HART Solutions		Support I-87H17W modules in slot 0 to 7 to communicate with other HART devices.
Optional I/O Functions (Refer to ISaGRAF PAC I/O Selection Guide for I/O Module list)		
PWM Output	High Speed PWM Module	I-7088, I-8088W, I-87088W: 8-ch. PWM outputs, software support 1Hz~100KHz (non-continuous), duty: 0.1~99.9%
	DO Module as PWM	8-ch max. 250 Hz max. For Off=2 & On=2 ms. Output square wave: Off: 2~32766 ms, On: 2 ~ 32766 ms. Optional DO Boards: I-8037W, 8041W, 8041AW, 8042W, 8050W... (Relay Output boards can not generate fast square wave)
Counter, Encoder, Frequency	Parallel DI Counter	8 ch. max. for 1 controller. Counter val: 32 bit. 250 Hz max. Min. ON & OFF width must > 2 ms. Optional DI Boards: I-8040W, 8040PW, 8042W, 8046W, 8048W, 8050W, 8051W, 8052W, 8053W, 8053PW, 8054W, 8055W...
	Serial DI Counter	Counter input: 100 Hz max. Counter value: 0 ~ 65535 (16 bit) Optional Serial I-87K DI Boards: I-87040W, 87046W, 87051W, 87052W, 87053W, 87053W-A5, 87054W, 87055W, 87058W...
	Remote DI Counter	All I-7K/I-87K DI modules support counters. 100 Hz max. value: 0 ~ 65535
	High Speed Counter	I-87082W: 100 kHz max.; I-8084W: 250 kHz max.
	Encoder	I-8093W: 3-axis Encoder Module, max. 1M Hz for quadrant input mode, max. 4 MHz for pulse/direction and cw/ccw input mode. I-8084W: 250 kHz max., 4-ch encoder, can be dir/pulse, or up/down or A/B phase (Quad. mode), Not support Encoder Z-index.
	Frequency	I-87082W: 2-ch, 1 Hz ~ 100 kHz; I-8084W: 8-ch, 1 Hz ~ 250 kHz
Motion	Motion Control	With one I-8091W (2-axis) or two I-8091W (4-axis)

***Note: COM5 ~ COM14 are resided at the expansion boards if they are plugged on slot0~7 of WP-8xx7.**
WP-8137/8147 has no COM3 & COM4.

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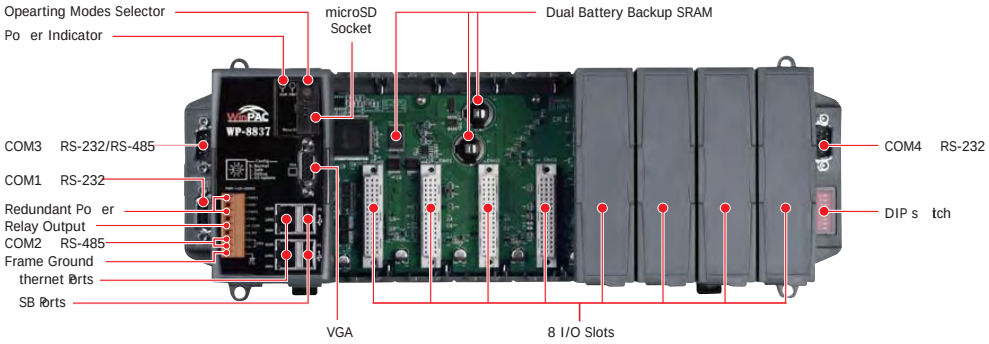
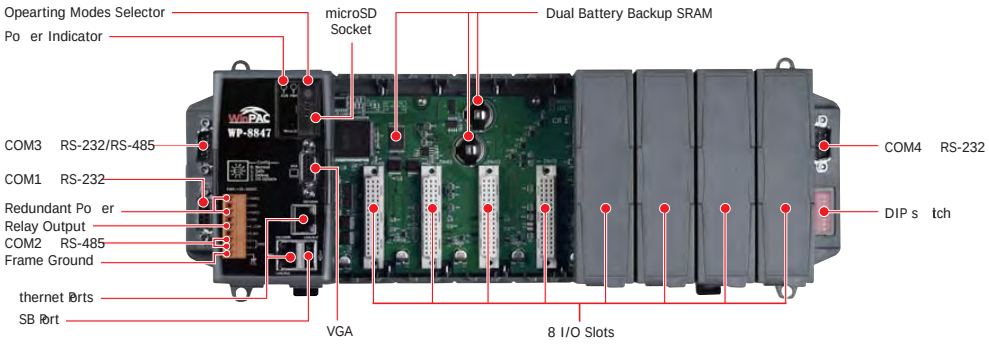
ISaGRAF Based WinPAC

Appearance

WP-8837



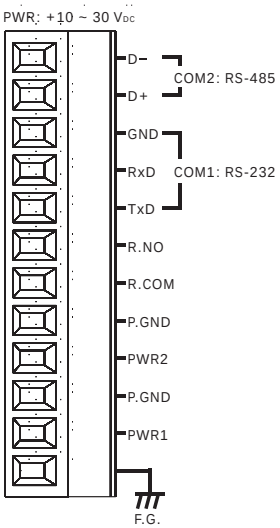
WP-8847



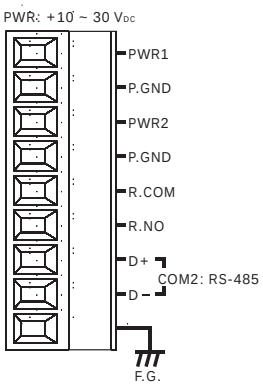
Pin Assignments

Terminal Block

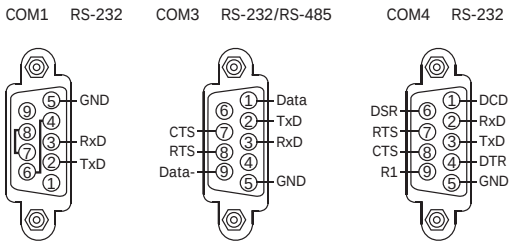
WP-81x7



WP-84x1/88x7



WP-84x7/88x7 COM Port



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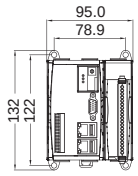
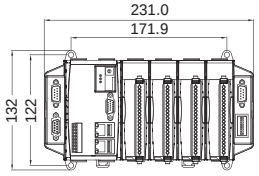
Dimensions (Unit: mm)

WP-8137



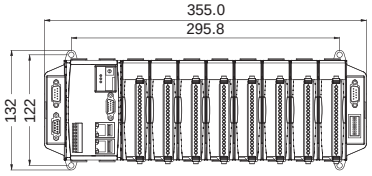
Front View

WP-8437



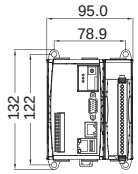
Front View

WP-8837



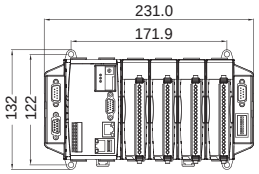
Front View

WP-8147



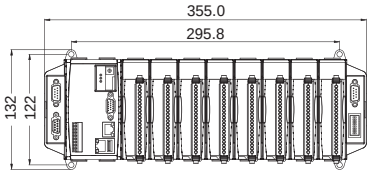
Front View

WP-8447



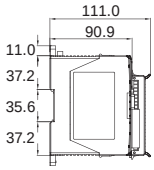
Front View

WP-8847



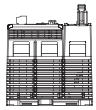
Front View

WP-8x37/8x47



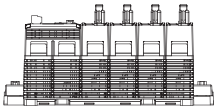
Left Side View

WP-81x7



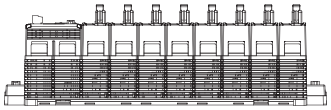
Bottom View

WP-84x7



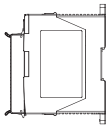
Bottom View

WP-88x7



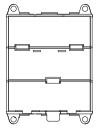
Bottom View

WP-8x37/8x47



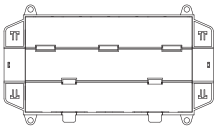
Right Side View

WP-81x7



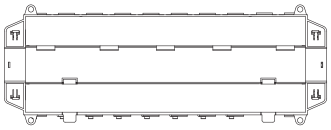
Rear View

WP-84x7



Rear View

WP-88x7



Rear View

Ordering Information

WP-8137-EN	WP-8147-EN	ISaGRAF based WinPAC-8000 with 1 I/O Slot (Multilanguage Version of OS)
WP-8437-EN	WP-8447-EN	ISaGRAF based WinPAC-8000 with 4 I/O Slots (Multilanguage Version of OS)
WP-8837-EN	WP-8847-EN	ISaGRAF based WinPAC-8000 with 8 I/O Slots (Multilanguage Version of OS)
WP-8137-TC	WP-8147-TC	ISaGRAF based WinPAC-8000 with 1 I/O Slot (Traditional Chinese Version of OS)
WP-8437-TC	WP-8447-TC	ISaGRAF based WinPAC-8000 with 4 I/O Slots (Traditional Chinese Version of OS)
WP-8837-TC	WP-8847-TC	ISaGRAF based WinPAC-8000 with 8 I/O Slots (Traditional Chinese Version of OS)
WP-8137-SC	WP-8147-SC	ISaGRAF based WinPAC-8000 with 1 I/O Slot (Simplified Chinese Version of OS)
WP-8437-SC	WP-8447-SC	ISaGRAF based WinPAC-8000 with 4 I/O Slots (Simplified Chinese Version of OS)
WP-8837-SC	WP-8847-SC	ISaGRAF based WinPAC-8000 with 8 I/O Slots (Simplified Chinese Version of OS)

Accessories

ISaGRAF Development Software	
ISaGRAF-256-E	ISaGRAF Workbench Software Ver.3 (256 I/O Tags) with One Application Book (English version) and one USB Dongle
ISaGRAF-256-C	ISaGRAF Workbench Software Ver.3 (256 I/O Tags) with One Application Book (Chinese version) and one USB Dongle
ISaGRAF-32-E	ISaGRAF Workbench Software Ver.3 (32 I/O Tags) with One Application Book (English version) Note: No upgrade service from ISaGRAF-32 to ISaGRAF-256. (Using ISaGRAF-32 can control more than 32 I/O tags. Please refer to ISaGRAF User's Manual Ch. 3.4)
ISaGRAF-32-C	ISaGRAF Workbench Software Ver.3 (32 I/O Tags) with One Application Book (Chinese version) Note: No upgrade service from ISaGRAF-32 to ISaGRAF-256. (Using ISaGRAF-32 can control more than 32 I/O tags. Please refer to ISaGRAF User's Manual Ch. 3.4)
Power Supply	
DP-660	24 VDC/2.5 A, 60 W and 5 VDC/0.5 A, 2.5 W Power Supply with DIN-Rail Mounting
DP-1200 CR	24 VDC/5.0 A, 120 W Power Supply with DIN-Rail Mounting (RoHS)
MDR-60-24 CR	24 VDC/2.5 A, 60 W Power Supply with DIN-Rail Mounting (RoHS)

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