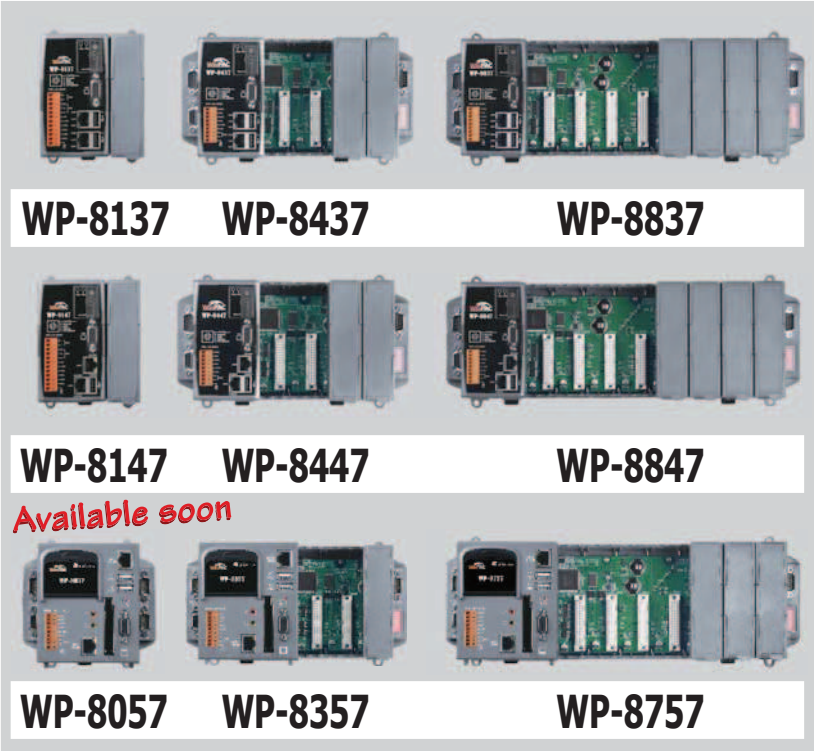


Features

- PXA270, 520 MHz CPU
- Windows CE 5.0
- ISaGRAF Ver.3 SoftLogic Inside (IEC 61131-3)
- Hard Real-Time Capability
- VGA Port Output
- Modbus RTU/TCP (Master, Slave)
- Support Soft-GRAF HMI
- Redundant Power Inputs
- Operating Temperature: -25 ~ +75°C

Introduction

WP-8x37, WP-8x47 and WP-8x57 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 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 Features

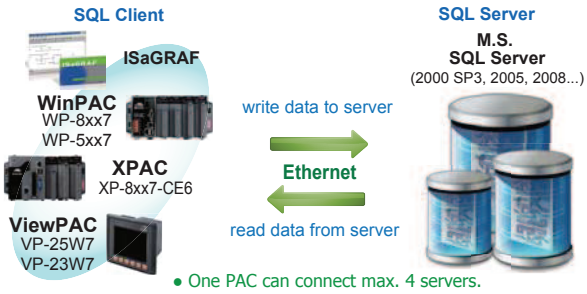
ISaGRAF is the most powerful SoftLogic package on the market. ISaGRAF is a PLC-like software and it supports IEC 61131-3 standard PLC programming languages (LD, FBD, SFC, ST, IL, FC), and can run the application generated by the workbench on any ISaGRAF PACs. The ISaGRAF workbench Ver. 3.x features.

- 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

Soft-GRAF Studio Colorful HMI

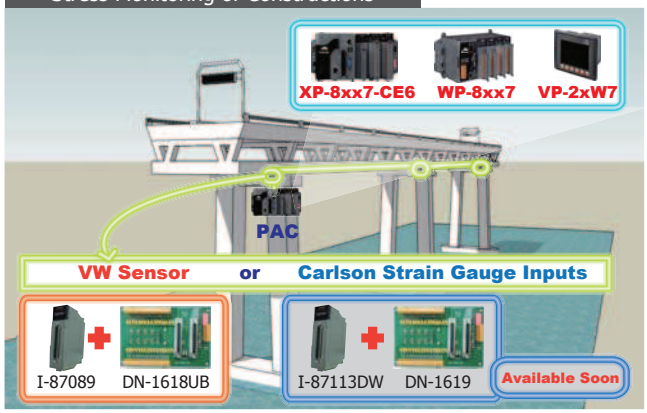
M2B Machine To Business Application

SQL Server Communication

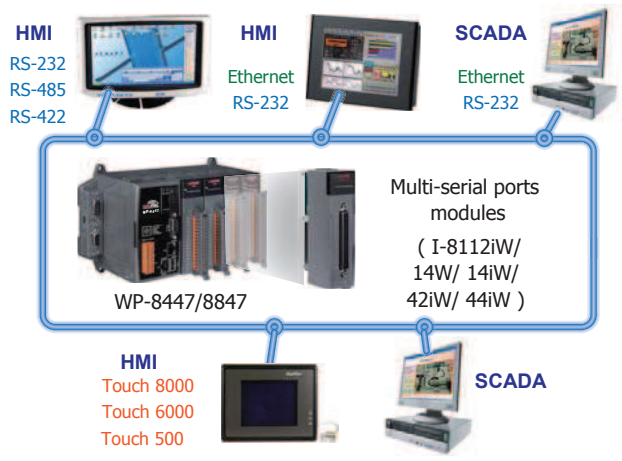


• One PAC can connect max. 4 servers.

Stress Monitoring of Constructions

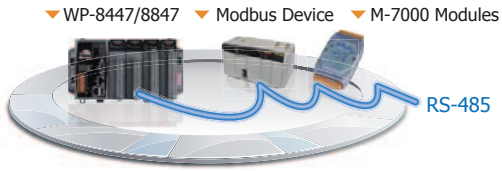


Modbus RTU/TCP Slave Ports

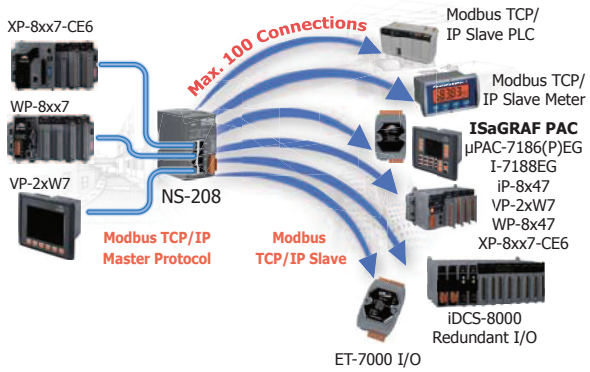


Modbus Master Ports

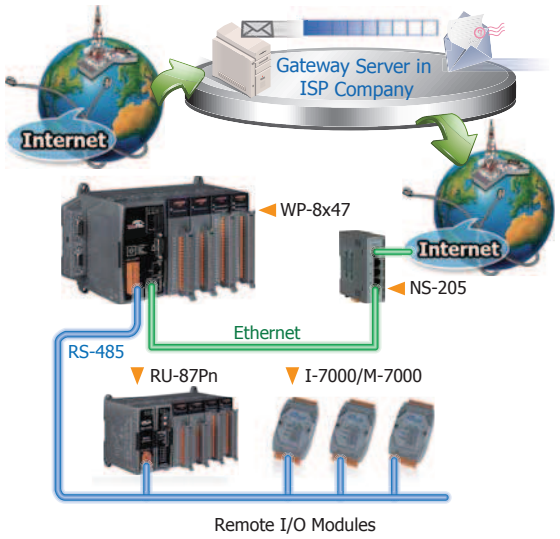
Modbus RTU/ASCII Master



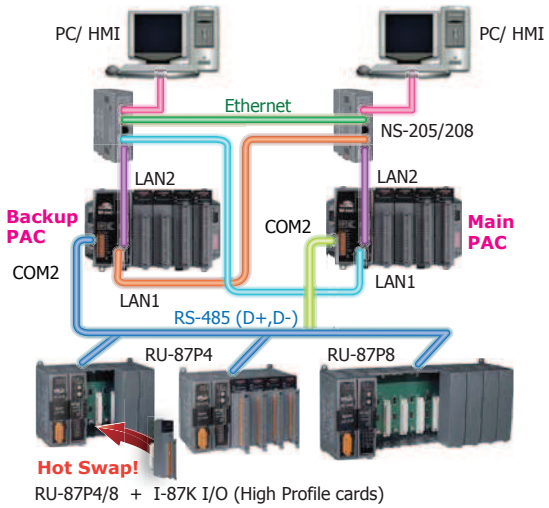
Modbus TCP/IP Master



Send Email with one Attached File



New Hot-Swap Redundant System



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

PAC Specifications

Models	WP-8137	WP-8437	WP-8837	WP-8147	WP-8447	WP-8847	WP-8057	WP-8357	WP-8757
System Software									
OS	Windows CE 5.0								
.Net Compact Framework	3.5								
Embedded Service	FTP server, Web server								
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Korean, Simplified Chinese, Traditional Chinese								
Development Software									
ISaGRAF Software – ISaGRAF Ver.3	IEC 61131-3 standard.								
ISaGRAF Software – Languages	LD, ST, FBD, SFC, IL & FC; Support Soft-GRAF HMI: XP-8xx7-CE6, WP-8xx7, VP-2xW7 and WP-5xx7 PAC								
ISaGRAF Software – Max. Code Size	1 MB								
ISaGRAF Software – 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, 520 MHz								
SDRAM	128 MB								
Dual Battery Backup SRAM	512 KB; data valid up to 5 years (for retain variables)								
Flash	128 MB			96 MB			128 MB		
EEPROM	16 KB								
Memory Expansion	microSD socket with one 2 GB microSD card (support up to 32 GB microSDHC card)						CF slot with 2 GB CF Card (support up to 32 GB)		
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)		-	Yes (8 bits)		-	Yes (8 bits)	
Audio	-						Microphone-In and Earphone-Out		
VGA & Communication Ports									
VGA	Yes 640 x 480, 800 x 600, 1024 x 768			Yes 640 x 480, 800 x 600					
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)								
USB 1.1 (host)	2			1			2		
USB 1.1 (client)	-						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 (Data+, Data-) with internal self-tuner ASIC; 2500 V_{DC} isolated for WP-8131 and WP-8141; 3000 V_{DC} isolated for other models.								
COM 3	-	Yes		-	Yes				
	RS-232/RS-485 (RxD, TxD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated								
COM 4	-	Yes		-	Yes				
	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated								
COM 5	-						Yes	-	
	RS-232 (RxD, TxD, and GND); non-isolated								
I/O Expansion Slots									
Slot Number	1	4	8	1	4	8	0	3	7
	Note: For High Profile I-8K and I-87K Modules Only								
Mechanical									
Dimensions (W x L x H)	95 mm x 132 mm x 111 mm: WP-8137, WP-8147 137 mm x 132 mm x 111 mm: WP-8057 231 mm x 132 mm x 111 mm: WP-8437, WP-8447, WP-8357 355 mm x 132 mm x 111 mm: WP-8837, WP-8847, WP-8757								
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 V_{DC}								
Isolation	1 kV								
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 V_{DC}) for alarm								
Capacity	8 W	25 W	25 W	8 W	30 W	30 W	8 W	30 W	30 W
Consumption	7.3 W	9.1 W	9.6 W	7.3 W	9.1 W	9.6 W	7.3 W	9.1 W	9.6 W

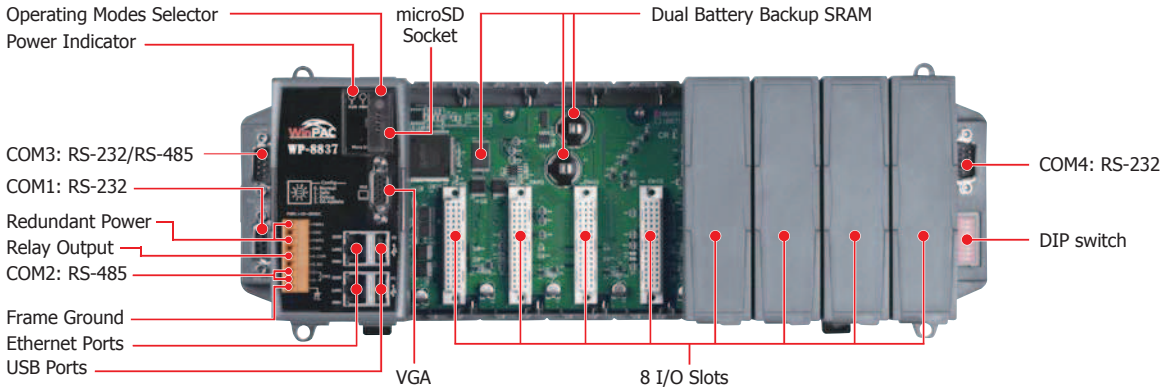
ISaGRAF Specifications

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 (FAQ-113)
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. (If WP-8xx7 uses 1 connection to connect each PC/HMI, it can connect up to 32 PC/HMI; If WP-8xx7 uses 2 connections to connect each PC/HMI, it can connect up to 16 PC/HMI; ...) When one Ethernet 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) (FAQ-042)
FRnet I/O		Support max 8 pcs. I-8172W boards in slot 0 to 7 to connect to FRnet I/O modules, like FR-2053, FR-2057 FR-32R, FR-32P (FAQ-048). Each I-8172W board can connect up to 256 DI plus 256 DO channels.
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. (*) Optional GSM Modem: GTM-201-RS232 (850/900/1800/1900 GSM/GPRS External Modem)
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 support UDP Server and UDP Client protocol to send/receive message to/from PC/HMI or other devices. For example, to automatically report data to InduSoft's RXTX driver.
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.
GPRS/SMS		Support the I-8212W (2G/3G) card to receive / send a short message or to dial up to link the Internet by GPRS connection to send an email or communicate with remote stations by using "Ftp Client" (FAQ-151) and "TCP Client" / "UDP Server" / "UDP Client" (FAQ-143).
SQL Client		Support SQL Client function to write data to (or read data from) Microsoft SQL Server (2000 SP3, 2005, 2008).
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. (FAQ-093)
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. (*) (FAQ-086)
CANopen Master		Support the I-8123W CANopen Master card to connect other CANopen slave devices. (FAQ-145)
HART Solutions		Support I-87H17W modules in slot 0 to 7 to communicate with other HART devices.
FTP Client		Support FTP client to upload files in the PAC to a remote FTP server on PC. (FAQ-151)
Soft-GRAF HMI		Support the Soft-GRAF HMI . User can use the Soft-GRAF Studio on the PC to design the HMI screen and then download it to the PAC to display the HMI on the PAC. (FAQ-146)
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, 8054W, 8055W, 8056W, 8057W, 8060W, 8063W, 8064W, 8068W, 8069W. (Relay Output boards cannot 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, 8058W, 8063W.
	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, 87059W, 87063W.
	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. (FAQ-112) 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. (FAQ-100)
	Frequency	I-87082W: 2-ch, 1 Hz ~ 100 kHz; I-87088W: 8-ch, 0.1 Hz ~ 500 kHz; I-8084W: 8-ch, 1 Hz ~ 250 kHz
Motion	Motion Control	Integrate with one I-8091W (2-axis) or two I-8091W (4-axis)

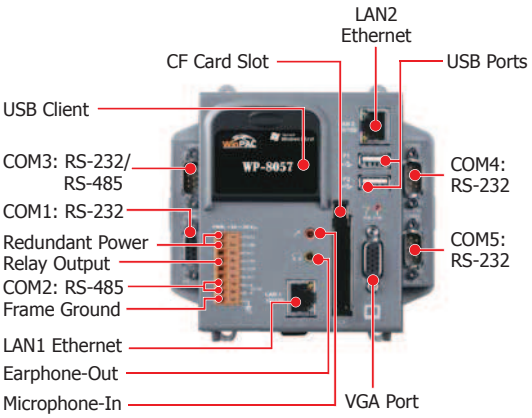
*** Note: COM5 ~ COM14 are resided at the expansion boards if they are plugged on slot 0~7 of WP-8xx7. WP-8137/8147 has no COM3 & COM4.**
*** ISaGRAF FAQ: http://www.icpdas.com/faq/isagraf.htm**

Appearance

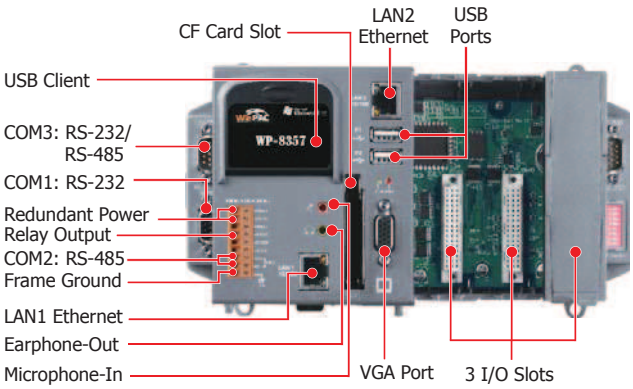
WP-8837



WP-8057



WP-8357



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)
WP-8057		ISaGRAF based WinPAC-8000 without I/O Slot (Multilanguage Version of OS)
WP-8357		ISaGRAF based WinPAC-8000 with 3 I/O Slots (Multilanguage Version of OS)
WP-8757		ISaGRAF based WinPAC-8000 with 7 I/O Slots (Multilanguage 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 V_{DC}/2.5 A, 60 W and 5 V_{DC}/0.5 A, 2.5 W Power Supply with DIN-Rail Mounting
DP-1200 CR	24 V_{DC}/5.0 A, 120 W Power Supply with DIN-Rail Mounting (RoHS)
MDR-60-24 CR	24 V_{DC}/2.5 A, 60 W Power Supply with DIN-Rail Mounting (RoHS)