2.2. WinPAC-8000 Series

• Overview

WinPAC-8000 is the new generation PAC of ICP DAS. It is equipped a PXA270 CPU (520 MHz) running a Windows CE.NET 5.0 operating system, various connectivities (VGA, USB, Ethernet, RS-232/485) and 1/4/8 slots for high performance Parallel I/O modules (high profile I-8K series) and serial I/O modules (high profile I-87K I/O modules).

WinPAC operating system, Windows CE 5.0, has many advantages, including hard real-time capability, small core size, short boot time, interrupt handling at a deeper level, achievable deterministic control, and low cost. Using Windows CE.Net 5.0 in the WinPAC-8000 gives it the ability to run PC-based Control software such as Visual Basic. NET, Visual C#, Embedded Visual C++, SCADA software, SoftPLC … etc.

WinPAC ≒ IPC+PLC

Compared with the first generation WinCon-8000, WinPAC-8000 not only improves the CPU performance (from 206 MHz to 520 MHz) and upgrading OS (from CE 4.1 to CE 5.0), but also adds many reliability features, such as dual LAN, redundant power inputs, dual battery backup SRAM, etc. It gives you all of the best features of both traditional PLCs and Windows capable PCs.

Main Components:

1 Main Control Unit (MCU)

The MCU is the powerhouse of the WinPAC-8000. Each MCU comprises a Central Processor Module (CPM), a power supply, and a 1, 4, 8-slot backplane for 1, 4, 8 I/O modules. The CPM is powerful integrated processing engine comprising a CPU, RAM and ROM, and an option of communication interfaces including Ethernet, RS-485, CAN bus and FRnet.

2 Embedded OS

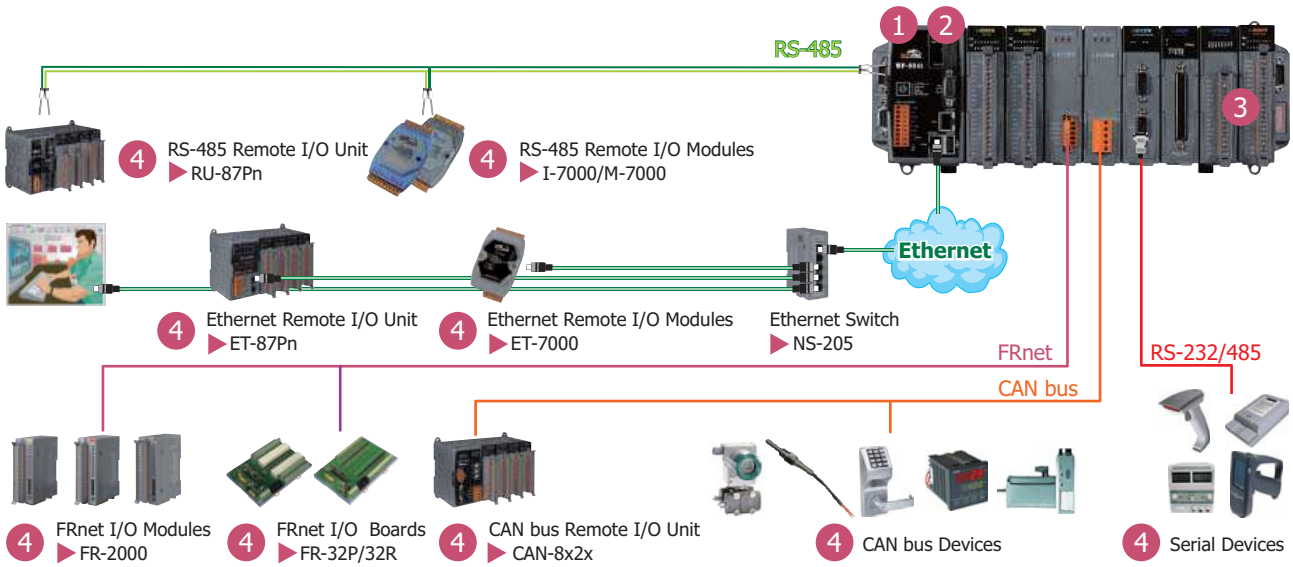
All WinPAC have Windows CE OS inside, and most of the popular features in MS software are included, such as FTP Server, HTTP Server, ASP (Java/VB script), SQL Server embedded 3.5 and compact .NET Framework 2.0. WinPAC supports rich software & development solutions: VB.Net 2005/2008, Visual C#.NET 2005/2008, eVC++ 4.0, ISaGRAF, InduSoft etc.

3 I/O Modules

There are two types of I/O modules, Parallel and Serial. The Parallel I/O modules (I-8K high profile series) are high-speed modules and have to be installed in slots of the WinPAC. The Serial I/O modules (I-87K high profile series) can be installed in slots or Expansion Units (RU-87Pn).

4 Remote I/O Expansion

WinPAC uses built-in RS-485 and Ethernet ports to connect RS-485/Ethernet remote I/O units (Ru-87Pn/ET-87Pn) or modules (I-7000/M-7000/ET-7000). In this configuration, WinPAC expands the I/O very easily. Using CAN or FRnet communication module, WinPAC can connect CAN bus devices, remote I/O units or FRnet I/O modules for deterministic control system.



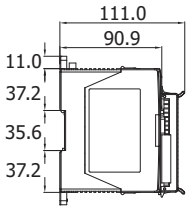
• Hardware

1. Installation

DIN-Rail Mounting

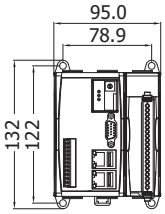
2. Dimensions (Units: mm)

WP-8x31/WP-8x41

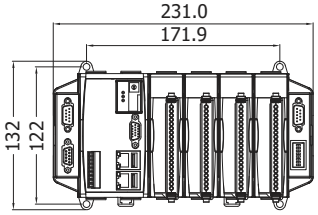


Left View

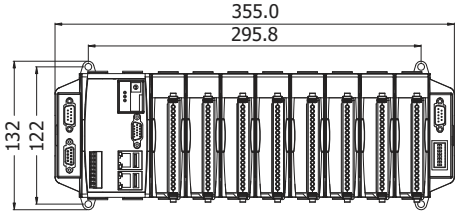
WP-8x31/WP-8x41



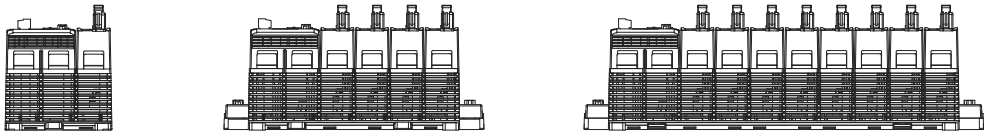
WP-8431/WP-8441



WP-8831/WP-8841

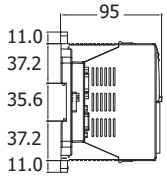


Front View



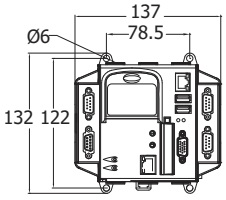
Bottom View

WP-8x51

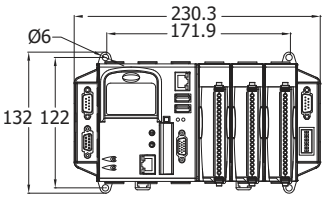


Left View

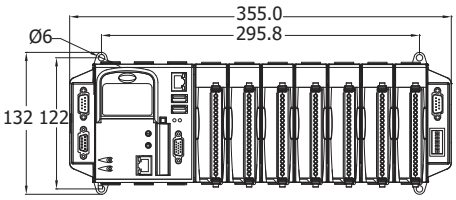
WP-8051



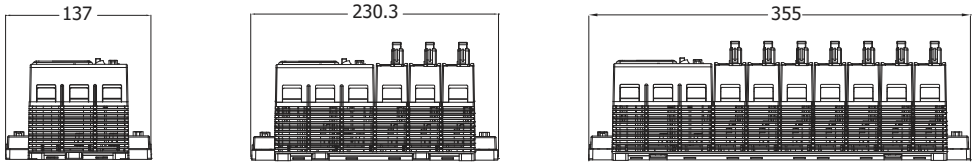
WP-8351



WP-8751



Front View



Bottom View

Selection Guide

WP-8 X X X - XX

- X: NO. of I/O Slot
- X: Hardware
  - 3: PXA270 CPU & VGA 1024 x 768
  - 4: PXA270 CPU & VGA 800 x 600
  - 5: PXA270 CPU & VGA 800 x 600
- X: Software
  - 1: Standard
  - 7: ISaGRAF
  - 9: InduSoft
- XX: Language
  - EN: English
  - TC: Traditional Chinese
  - SC: Simplified Chinese

Standard WinPAC

Model Name	OS	Pre-installed Software	CPU	Flash	SDRAM	VGA Resolution	USB	RS-232/RS-485	I/O Slot	Memory Expansion	Audio
WP-8131	CE 5.0	None	PXA270, 520 MHz	128 MB	128 MB	1024 x 768	2	2	1	microSD	-
WP-8431								4	4		
WP-8831									8		
WP-8141	CE 5.0	None	PXA270, 520 MHz	96 MB	128 MB	800 x 600	1	2	1	microSD	-
WP-8441								4	4		
WP-8841									8		
WP-8051	CE 5.0	None	PXA270, 520 MHz	128 MB	128 MB	800 x 600	2	5	0	CF	Yes
WP-8351								4	3		
WP-8751									7		

The controller supports the following software development tools:
1. DLLs of I/O modules for eVC, VS.Net 2005/2008
2. DLLs of Modbus/RTU and Modbus/TCP for eVC and VS.Net 2005/2008
3. OPC server (Quicker)

ISaGRAF Based WinPAC

Model Name	OS	Pre-installed Software	CPU	Flash	SDRAM	VGA Resolution	USB	RS-232/RS-485	I/O Slot	Memory Expansion	Audio
WP-8137	CE 5.0	ISaGRAF	PXA270, 520 MHz	128 MB	128 MB	1024 x 768	2	2	1	microSD	-
WP-8437								4	4		
WP-8837									8		
WP-8147	CE 5.0	ISaGRAF	PXA270, 520 MHz	96 MB	128 MB	800 x 600	1	2	1	microSD	-
WP-8447								4	4		
WP-8847									8		
WP-8057	CE 5.0	ISaGRAF	PXA270, 520 MHz	128 MB	128 MB	800 x 600	2	5	0	CF	Yes
WP-8357								4	3		
WP-8757									7		

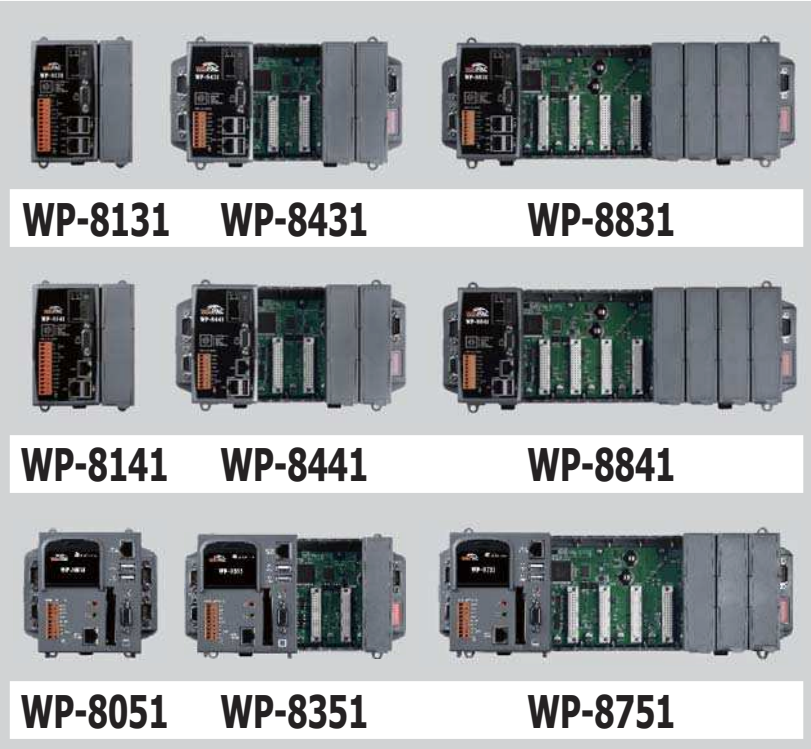
The controller fully supports all five of the IEC61131-3 standard PLC languages:
1. Ladder diagram
2. Function block diagram
3. Sequential function chart
4. Structured text
5. Instruction List plus flow chart

It supports Modbus protocol and can link to distributed I/O modules with Modbus or DCON protocol via the RS-232/485 or Ethernet.

InduSoft Based WinPAC

Model Name	OS	Pre-installed Software	CPU	Flash	SDRAM	VGA Resolution	USB	RS-232/RS-485	I/O Slot	Memory Expansion	Audio
WP-8139	CE 5.0	InduSoft	PXA270, 520 MHz	128 MB	128 MB	1024 x 768	2	2	1	microSD	-
WP-8439								4	4		
WP-8839									8		
WP-8149	CE 5.0	InduSoft	PXA270, 520 MHz	96 MB	128 MB	800 x 600	1	2	1	microSD	-
WP-8449								4	4		
WP-8849									8		
WP-8059	CE 5.0	InduSoft	PXA270, 520 MHz	128 MB	128 MB	800 x 600	2	5	0	CF	Yes
WP-8359								4	3		
WP-8759									7		

The controller supports the following software development tools:
1. DLLs of I/O modules for eVC, VS.Net 2005/2008
2. DLLs of Modbus/RTU and Modbus/TCP for eVC and VS.Net 2005/2008
3. OPC server (Quicker)



Highlight Information

- Windows CE 5.0
- Hard Real-Time Capability
- Fast Boot Speed
- PXA270 CPU (32-bit & 520 MHz)
- VGA Port Output
- Support eLogger HMI
- Open System
- Redundant Power Inputs
- Operating Temperature: -25 ~ +75°C

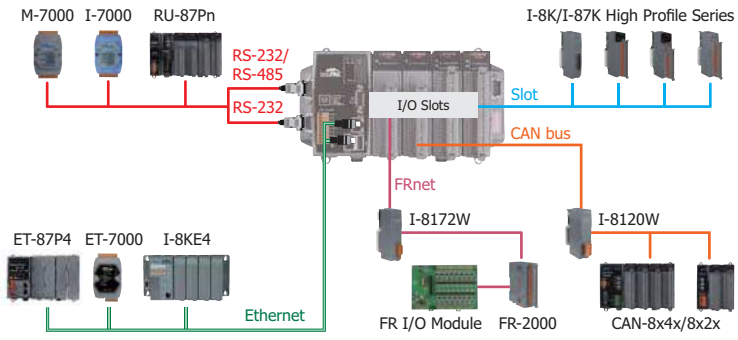
Introduction

WP-8x31, WP-8x41 and WP-8x51 Series are the new generation Windows CE 5.0 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 PC-based control software such as Visual Basic .NET, Visual C#, SCADA software, SoftPLC.... etc. It has all of the best features of both traditional PLCs and Windows capable PCs.

For software copy protection, programmers can design software based on the 64-bit hardware serial number for making software copy protected.

Applications

Rich I/O Expansion Ability

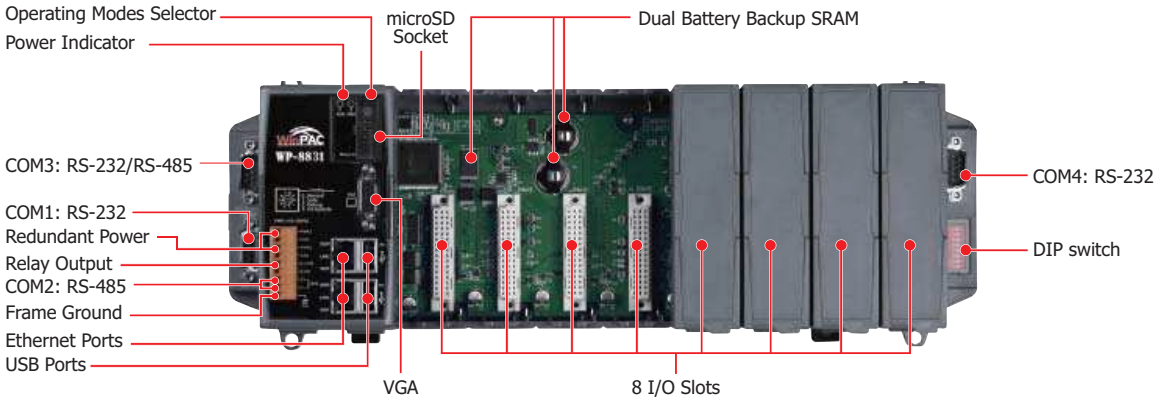


Specifications

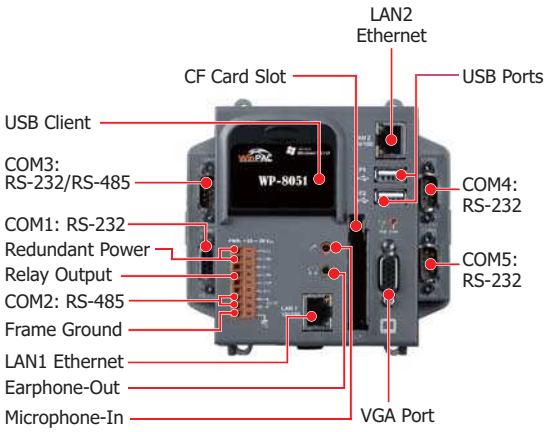
Models	WP-8131	WP-8431	WP-8831	WP-8141	WP-8441	WP-8841	WP-8051	WP-8351	WP-8751
System Software									
OS	Windows CE 5.0								
.Net Compact Framework	2.0								
Embedded Service	FTP server, Web server (supports VB script, JAVA script), Embedded SQL server								
SDK Provided	Dll for eVC, Dll for Visual Studio.Net 2005/2008								
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Simplified Chinese, Traditional Chinese								
CPU Module									
CPU	PXA270 (32-bit and 520 MHz) or compatible								
SDRAM	128 MB								
Dual Battery Backup SRAM	512 KB; data valid up to 5 years								
Flash	128 MB			96 MB			128 MB		
EEPROM	16 KB								
microSD	microSD socket with one 2 GB microSD card (support up to 32 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)		-	Yes (8 bits)		-	Yes (8 bits)	
VGA & Communication Ports									
VGA – Extra GPU	Yes			-					
VGA – Resolution	1024 x 768			800 x 600					
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, 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 (RxD, TxD and GND); non-isolated								
COM 2	RS-485 (Data+, Data-); self-tuner ASIC inside; 2500 V_{DC} isolated	RS-485 (Data+, Data-); self-tuner ASIC inside; 3000 V_{DC} isolated		RS-485 (Data+, Data-); self-tuner ASIC inside; 2500 V_{DC} isolated	RS-485 (Data+, Data-); self-tuner ASIC inside; 3000 V_{DC} isolated				
COM 3	-	RS-232/RS-485 (RxD, TxD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		-	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		-	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated				
COM 5	-						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-8131, WP-8141 137 mm x 132 mm x 111 mm: WP-8051 231 mm x 132 mm x 111 mm: WP-8431, WP-8441, WP-8351 355 mm x 132 mm x 111 mm: WP-8831, WP-8841, WP-8751								
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	15 W	30 W	30 W
Consumption	7.3 W	9.1 W	9.1 W	7.3 W	9.1 W	9.1 W	8.4 W	9.6 W	10 W

Appearance

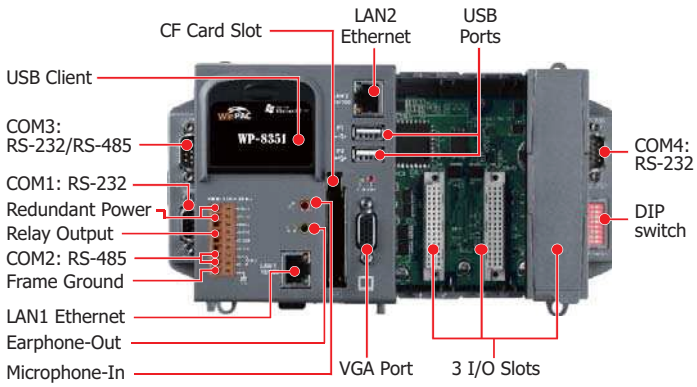
WP-8831



WP-8051



WP-8351

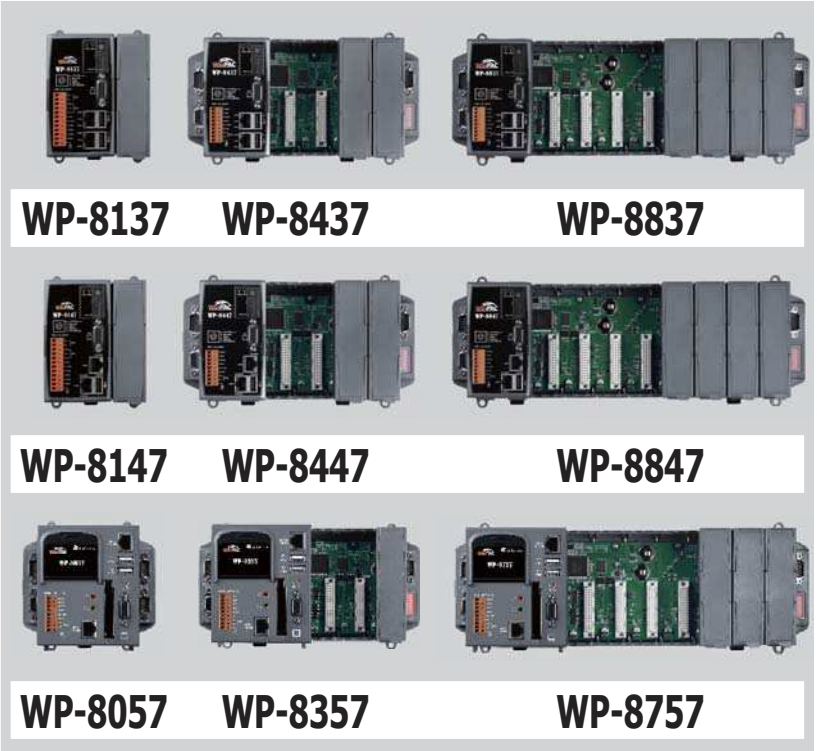


Ordering Information

WP-8131-EN	**WP-8141-EN**	Standard WinPAC-8000 with 1 I/O Slot (Multilanguage Version of OS)
WP-8431-EN	**WP-8441-EN**	Standard WinPAC-8000 with 4 I/O Slots (Multilanguage Version of OS)
WP-8831-EN	**WP-8841-EN**	Standard WinPAC-8000 with 8 I/O Slots (Multilanguage Version of OS)
WP-8131-TC	**WP-8141-TC**	Standard WinPAC-8000 with 1 I/O Slot (Traditional Chinese Version of OS)
WP-8431-TC	**WP-8441-TC**	Standard WinPAC-8000 with 4 I/O Slots (Traditional Chinese Version of OS)
WP-8831-TC	**WP-8841-TC**	Standard WinPAC-8000 with 8 I/O Slots (Traditional Chinese Version of OS)
WP-8131-SC	**WP-8141-SC**	Standard WinPAC-8000 with 1 I/O Slot (Simplified Chinese Version of OS)
WP-8431-SC	**WP-8441-SC**	Standard WinPAC-8000 with 4 I/O Slots (Simplified Chinese Version of OS)
WP-8831-SC	**WP-8841-SC**	Standard WinPAC-8000 with 8 I/O Slots (Simplified Chinese Version of OS)
WP-8051		Standard WinPAC-8000 without I/O Slot (Multilanguage Version of OS)
WP-8351		Standard WinPAC-8000 with 3 I/O Slots (Multilanguage Version of OS)
WP-8751		Standard WinPAC-8000 with 7 I/O Slots (Multilanguage Version of OS)

Accessories

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)



Highlight Information

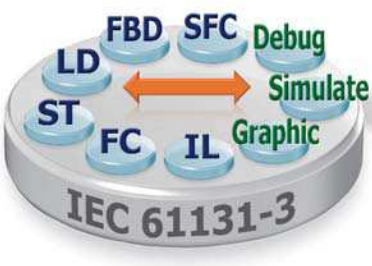
- Windows CE 5.0
- Hard Real-Time Capability
- Fast Boot Speed
- ISaGRAF Ver.3 SoftLogic Inside (IEC 61131-3)
- PLC Feel
- PXA270 CPU (32-bit & 520 MHz)
- VGA Port Output
- Modbus RTU/TCP (Master, Slave)
- Support Soft-GRAF HMI
- Open System
- Redundant Power Inputs
- Operating Temperature: -25 ~ +75°C

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.

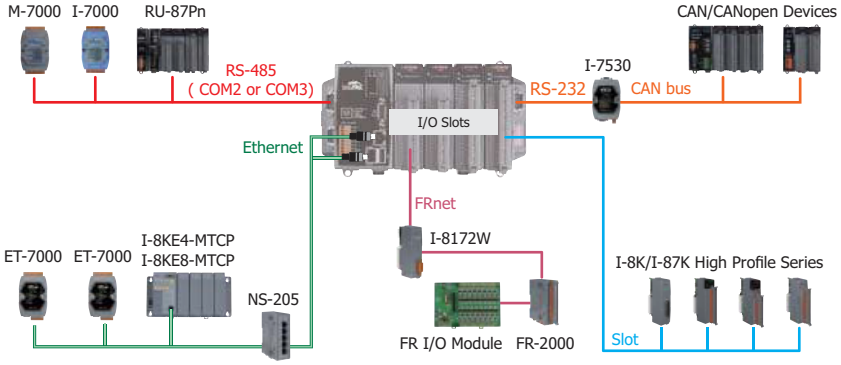
ISaGRAF is the most powerful SoftLogic package on the market. ISaGRAF is a PLC-like software and it supports IEC 61131-3 standard PLC programming languages (LD, FBD, SFC, ST, IL, FC), and can run the application generated by the workbench on any ISaGRAF PACs. The ISaGRAF workbench Ver. 3.x features

- 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

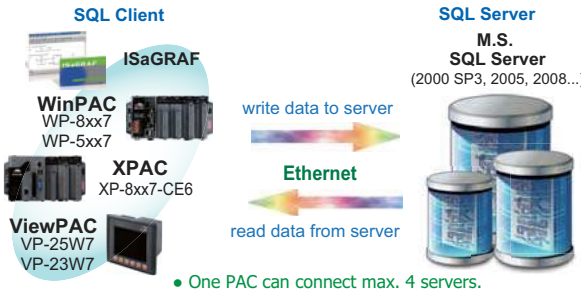
Rich I/O Expansion Ability



Soft-GRAF Studio Colorful HMI

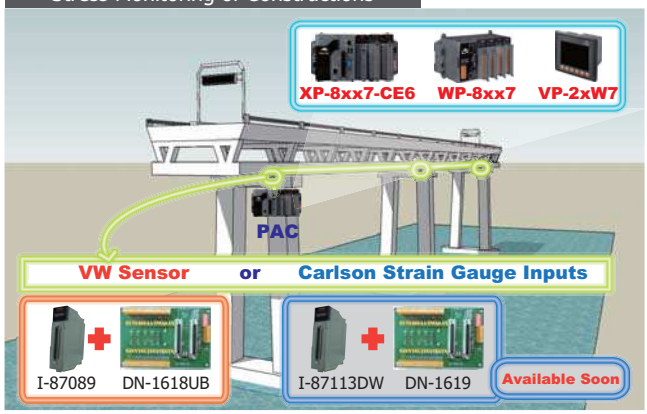
M2B Machine To Business Application

SQL Server Communication

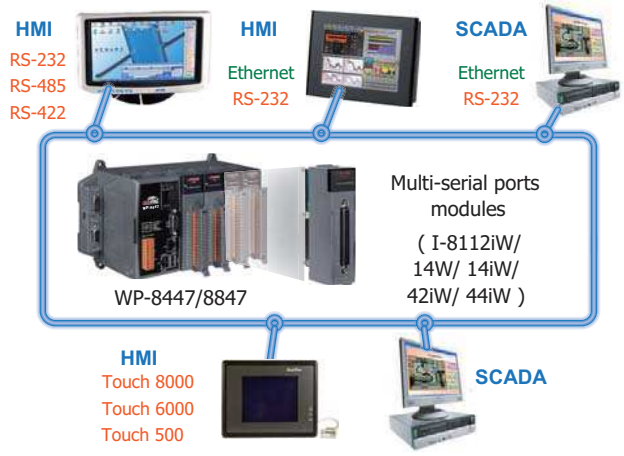


• One PAC can connect max. 4 servers.

Stress Monitoring of Constructions

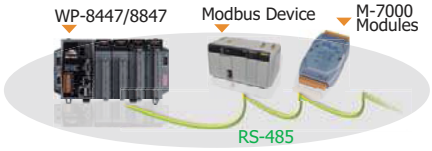


Modbus RTU/TCP Slave Ports

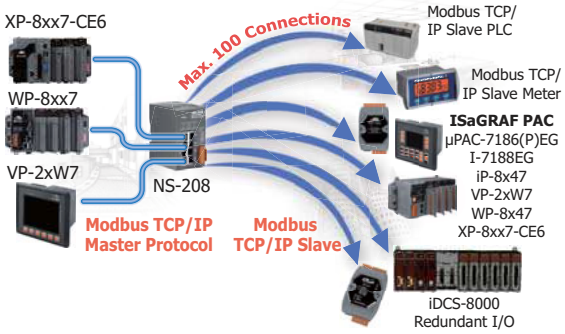


Modbus Master Ports

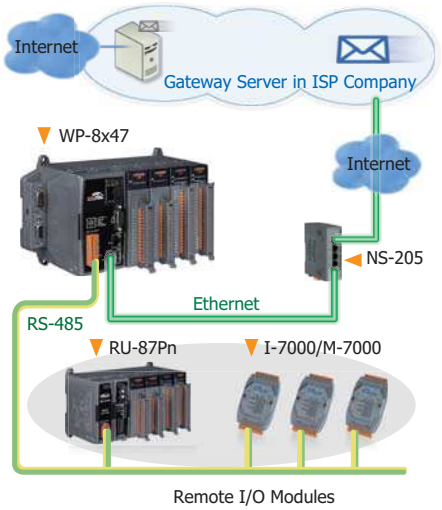
Modbus RTU/ASCII Master



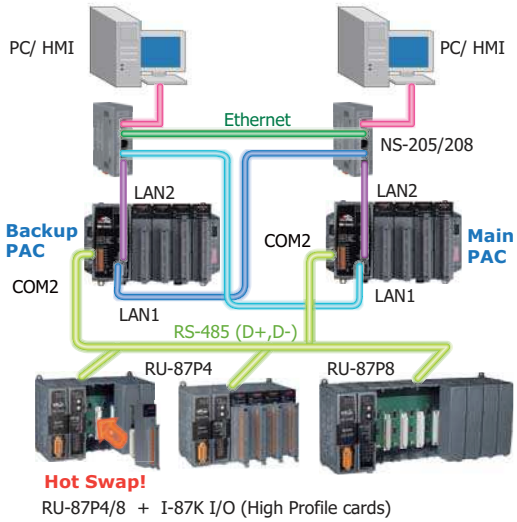
Modbus TCP/IP Master



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		2.0								
Embedded Service		FTP server, Web server								
Multilanguage Support		English, German, French, Spanish, Russian, Italian, Simplifi ed Chinese, Traditional Chinese								
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 (32-bit and 520 MHz) or compatible								
SDRAM		128 MB								
Dual Battery Backup SRAM		512 KB; data valid up to 5 years								
Flash		128 MB			96 MB			128 MB		
EEPROM		16 KB								
microSD		microSD socket with one 2 GB microSD card (support up to 32 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)		-	Yes (8 bits)		-	Yes (8 bits)	
VGA & Communication Ports										
VGA	Extra GPU	Yes	-	Yes	-				Yes	-
	Resolution	1024 x 768	800 x 600	1024 x 768	800 x 600				1024 x 768	800 x 600
Ethernet		RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, 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-); self-tuner ASIC inside; 2500 V_{DC} isolated for WP-8137, WP-8147 RS-485 (Data+, Data-); self-tuner ASIC inside; 3000 V_{DC} isolated for WP-8437, WP-8837, WP-8447, WP-8847, WP-8057, WP-8357, WP-8757								
COM 3		-	RS-232/RS-485 (RxD, TxD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		-	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		-	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated				
COM 5		-						RS-232 (RxD, TxD, and GND); non-isolated	-	
I/O Expansion Slots										
Slot Number		1	3	7	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

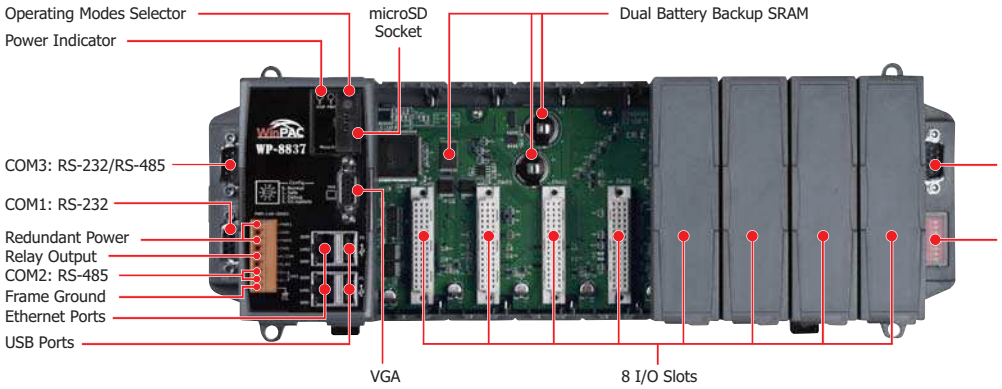
ISaGRAF Specifications

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)
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 Server		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)

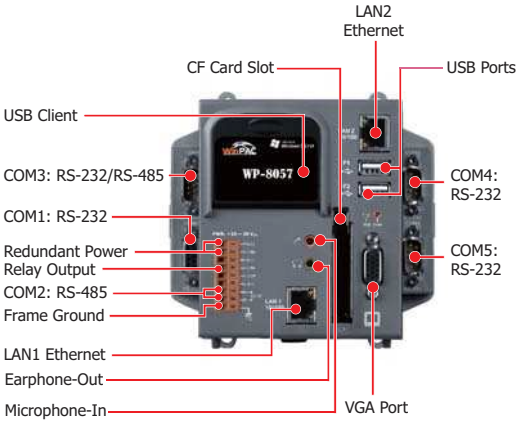
*** Note: COM5 ~ COM14 are resided at the expansion boards if they are plugged on slot 0~7 of WP-8xx7. WP-8137/8147 has no COM3 & COM4.**
*** ISaGRAF FAQ: http://www.icpdas.com/faq/isagraf.htm**

Appearance

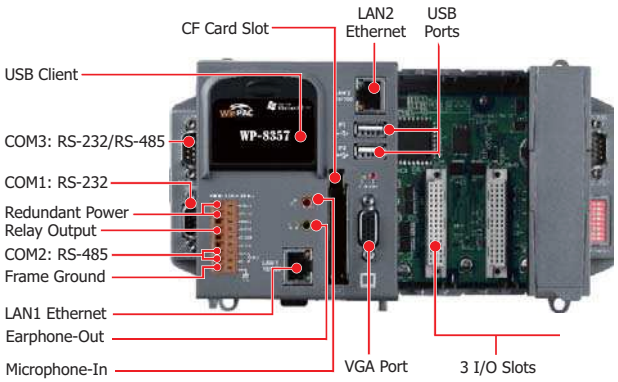
WP-8837



WP-8057



WP-8357

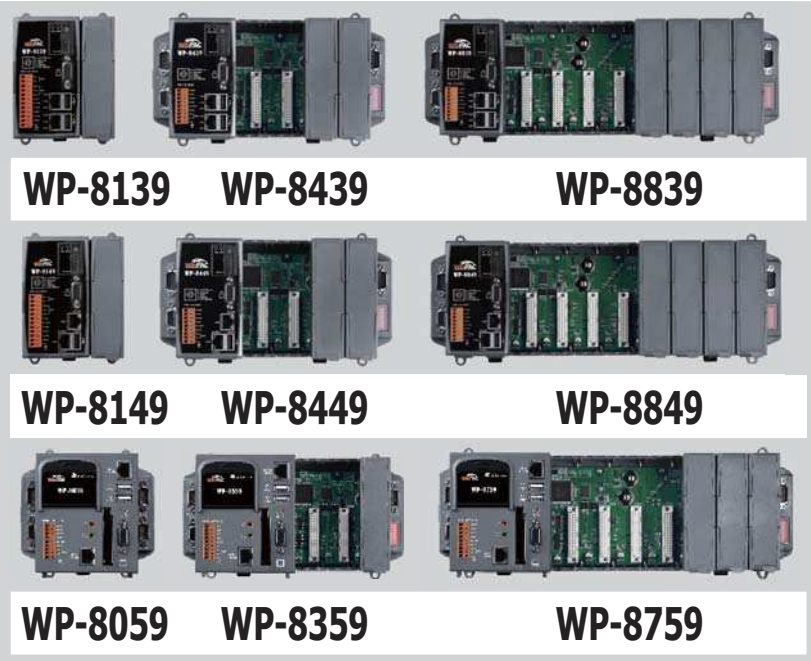


Ordering Information

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 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)



Highlight Information

- Windows CE 5.0
- Hard Real-Time Capability
- Fast Boot Speed
- InduSoft Web Studio v6.1
- PXA270 CPU (32-bit & 520 MHz)
- VGA Port Output
- Open System
- Redundant Power Inputs
- Operating Temperature: -25 ~ +75°C

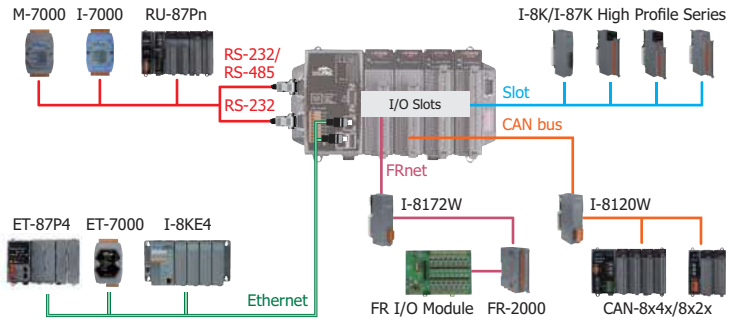
Introduction

WP-8x39, WP-8x49 and WP-8x59 Series are the new generation InduSoft 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 InduSoft 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.

InduSoft Web Studio is a powerful, integrated collection of automation tools that includes all the building blocks needed to develop modern Human Machine Interfaces (HMI), Supervisory Control and Data Acquisition (SCADA) systems, and ViewPAC applications. InduSoft Web Studio's application runs in native Windows NT, 2000, XP, CE and CE .NET environments and conforms to industry standards such as Microsoft .NET, OPC, DDE, ODBC, XML, and ActiveX.

Applications

Rich I/O Expansion Ability

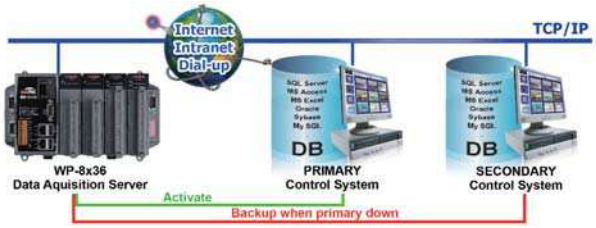


InduSoft Features

- Elegant Graphics
- Multi-Language
- System Redundancy
- Recipes and Reports
- Online and History Alarm / Event / Trend
- Various Communication Driver (DCON, Modbus, OPC, DDE, TCP/IP...)
- Remote Web Client Control & Security
- ActiveX (GSM / SHM / COM /WEB provided by ICP DAS)

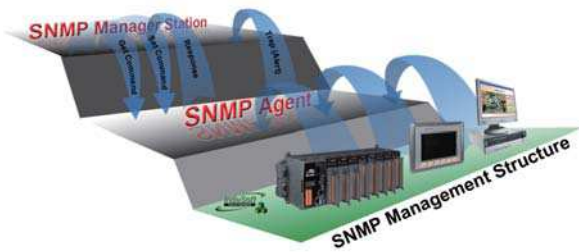
Access Database Easily

- Supports third-party SQL relational databases such as SQL Server, MS Access, Excel, Oracle ...etc.
- Database connectivity from any platform supported by IWS or CEView, through the unique Studio Database Gateway.
- Supports Secondary Database in the modes "Redundancy" or "Store and Forward" to increase the reliability of the system and avoid loss of data.

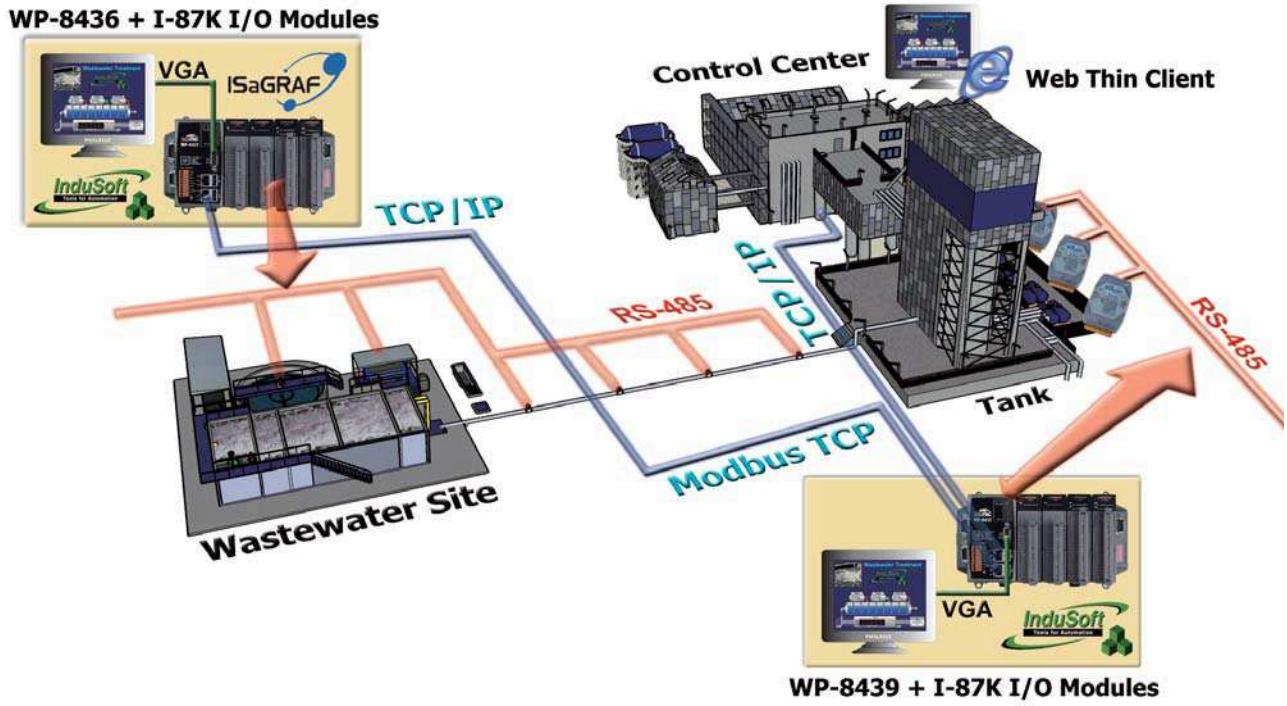


SNMP Protocol Supported

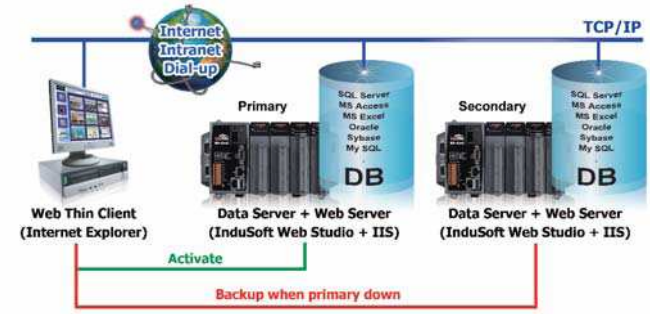
- I/O Status of WinPAC can be gathered via Internet by polling or inform actively (trap) mode to remote SNMP manager station.
- WinPAC controller can be treated as a SNMP gateway to transfer the information including I/O and user-defined data to SNMP manager station.
- Integrating I/O and Network information in SNMP manager station.



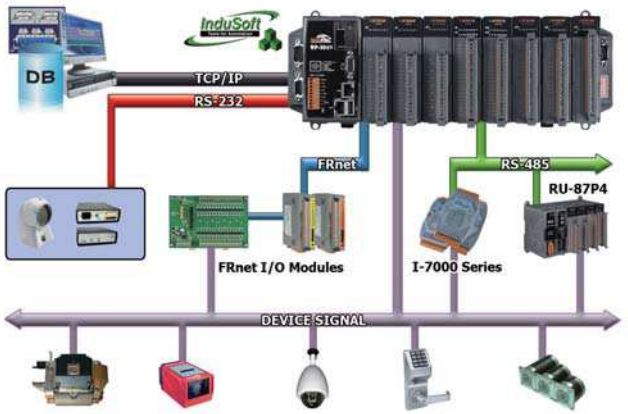
WP-8xx9 Total Solution



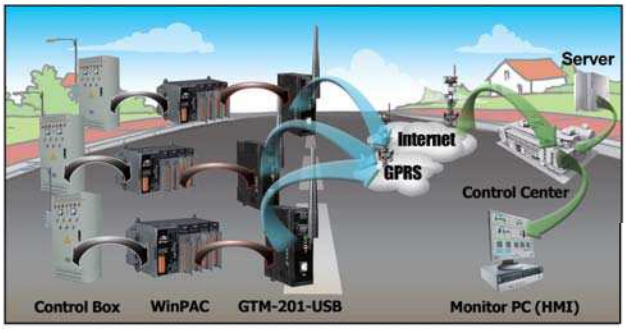
Database & Redundancy



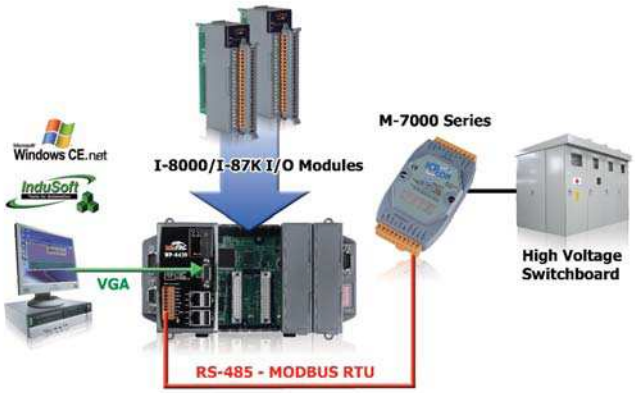
Variety of I/O supported



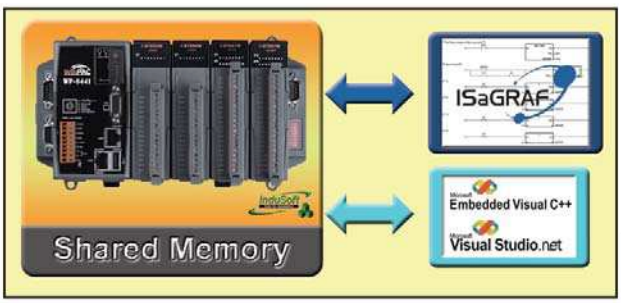
Street lamp monitor and control system



Variety of communication drivers



Share data with 3rd. party application

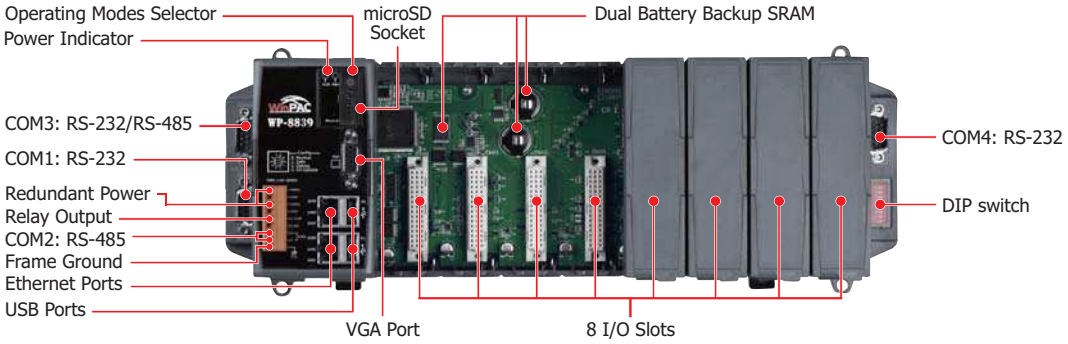


Specifications

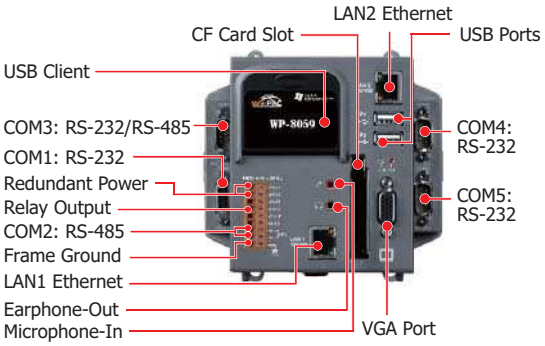
Models	WP-8139	WP-8439	WP-8839	WP-8149	WP-8449	WP-8849	WP-8059	WP-8359	WP-8759
System Software									
OS	Windows CE 5.0								
.Net Compact Framework	2.0								
Embedded Service	FTP server, Web server (supports VB script, JAVA script), Embedded SQL server								
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Simplified Chinese, Traditional Chinese								
Development Software									
InduSoft Software	InduSoft Web Studio v6.1 Service Pack 6								
Non-ISaGRAF	Options: Microsoft EVC++4.0 or VS .NET 2005/2008 (VB .NET 2005/2008, C# .NET 2005/2008)								
Web Service									
Web HMI	Support Web HMI function, PC running Internet Explorer can access to the WP-8x39 via Local Ethernet or Internet or dial Modem, monitoring and control.								
Security	Web HMI supports three levels user name and password protection								
CPU Module									
CPU	PXA270 (32-bit and 520 MHz) or compatible								
SDRAM	128 MB								
Dual Battery Backup SRAM	512 KB; data valid up to 5 years								
Flash	128 MB			96 MB			128 MB		
EEPROM	16 KB								
microSD	microSD socket with one 2 GB microSD card (support up to 32 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)		-	Yes (8 bits)		-	Yes (8 bits)	
VGA & Communication Ports									
VGA – Extra GPU	Yes			-					
VGA – Resolution	1024 x 768			800 x 600					
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, 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-); self-tuner ASIC inside; 2500 V_{DC} isolated for WP-8139, WP-8149 RS-485 (Data+, Data-); self-tuner ASIC inside; 3000 V_{DC} isolated for WP-8439, WP-8839, WP-8449, WP-8849, WP-8059, WP-8359, WP-8759								
COM 3	-	RS-232/RS-485 (RxD, TxD, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		-	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		-	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated				
COM 5	-						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-8139, WP-8149 137 mm x 132 mm x 111 mm: WP-8059 231 mm x 132 mm x 111 mm: WP-8439, WP-8449, WP-8359 355 mm x 132 mm x 111 mm: WP-8839, WP-8849, WP-8759								
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

Appearance

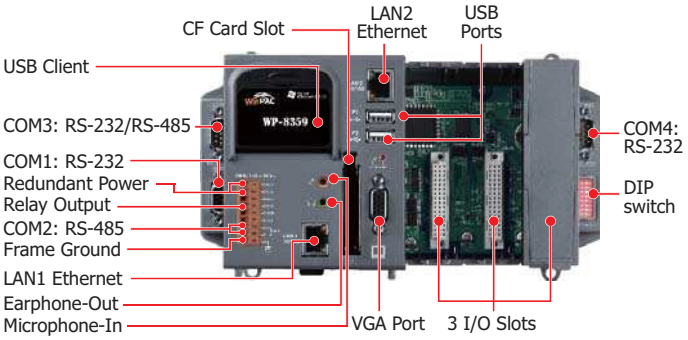
WP-8839



WP-8059



WP-8359



Ordering Information

WP-8139-EN	**WP-8149-EN**	InduSoft based WinPAC-8000 with 1 I/O Slot (Multilanguage Version of OS)
WP-8439-EN	**WP-8449-EN**	InduSoft based WinPAC-8000 with 4 I/O Slots (Multilanguage Version of OS)
WP-8839-EN	**WP-8849-EN**	InduSoft based WinPAC-8000 with 8 I/O Slots (Multilanguage Version of OS)
WP-8139-TC	**WP-8149-TC**	InduSoft based WinPAC-8000 with 1 I/O Slot (Traditional Chinese Version of OS)
WP-8439-TC	**WP-8449-TC**	InduSoft based WinPAC-8000 with 4 I/O Slots (Traditional Chinese Version of OS)
WP-8839-TC	**WP-8847-TC**	InduSoft based WinPAC-8000 with 8 I/O Slots (Traditional Chinese Version of OS)
WP-8139-SC	**WP-8149-SC**	InduSoft based WinPAC-8000 with 1 I/O Slot (Simplified Chinese Version of OS)
WP-8439-SC	**WP-8449-SC**	InduSoft based WinPAC-8000 with 4 I/O Slots (Simplified Chinese Version of OS)
WP-8839-SC	**WP-8849-SC**	InduSoft based WinPAC-8000 with 8 I/O Slots (Simplified Chinese Version of OS)
WP-8059		InduSoft based WinPAC-8000 without I/O Slot (Multilanguage Version of OS)
WP-8359		InduSoft based WinPAC-8000 with 3 I/O Slots (Multilanguage Version of OS)
WP-8759		InduSoft based inPAC-8000 with 7 I/O Slots (Multilanguage Version of OS)
Note: The default runtime license (CEView Lite Plus - 300 tags and 3 driver) is installed.		

Accessories

InduSoft Development Software	
InduSoft-NT512000D	Advanced Server for Windows NT/2000/XP (512,000 Tags, unlimited drivers)
InduSoft-NT64000D	Control Room for Windows NT/2000/XP (64,000 Tags, 8 drivers)
InduSoft-NT4000D	Operator Workstation for Windows NT/2000/XP (4,000 Tags, 5 drivers)
InduSoft-NT1500D	Local Interface for Windows NT/2000/XP (1500 Tags, 3 drivers)
InduSoft-NT300D	NTView PRO for Windows NT/2000/XP (300 Tags, 3 drivers)
InduSoft Runtime License	
InduSoft-CE1500R	CEView standard for Windows CE Run-time (CE View)(1500 Tags, 3 drivers)
InduSoft-CE300R	CEView Lite Plus for Windows CE Run-time (300 Tags, 3 drivers)
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)