

2.2. XP-8000 Series

2

• Overview

Compact PAC



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XP-8000 Series

The XP-8000 combines the functionality and openness of PC, the reliability of a programmable logic controller (PLC), and the intelligence of I/O modules. Compared to PC, PLC, the price/performance of PAC is the best. Adding a module-PLC, the XP-8000 can be used for deterministic operation. Therefore XP-8000 can be widely used in Factory Automation, Building Automation, Machine Automation, Laboratory Automation, chemical industry, environmental monitoring, M2M...etc.

XP-8000 is the new generation PAC of ICP DAS. It is equipped a AMD LX 800 CPU (500 MHz) running a Windows Embedded Standard WES 2009 or Windows Embedded CE6/FreeDOS Operating System, various connectivity (VGA, USB, Ethernet, RS-232/RS-485) and 3/7 slots for high performance Parallel I/O modules Compared with the first generation WinCon-8000 of ICP DAS, it not only improves the CPU performance and upgrading OS (Windows Embedded Standard 2009), but also adds many reliability features, such as dual LAN, redundant power input, dual battery backup SRAM, etc.

XP-8000 supports Windows Embedded Standard WES 2009, and Windows CE6 R3.

Windows Embedded Standard 2009 has the same Win32 API as Windows XP Professional. Most popular applications on desktop can be easily ported to Windows Embedded Standard 2009. It's also compatible with rich Windows IDEs, such as Visual studio, Delphi, Borland C++ Builder, etc. These points effectively reduce the efforts of developments and shorten the time to market.

Windows Embedded CE is a componentized, real-time, high performance, and highly reliable operating system. Windows CE 6 R3 delivers rich user experiences and a unique connection to Windows PCs, servers, services, and devices. XP-8000 also supports SoftPLC such as ISaGRAF and K.W..

XP-8000 ≅ IPC + I/O Cards



Main Components:

1 Main Control Unit (MCU)

The MCU is the powerhouse of the XP-8000. Each MCU comprises a Central Processor Module (CPM), a power supply, and a 0, 3, 7-slot backplane for 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, RS-232, CAN bus and FRnet.

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 XP-8000. 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

XP-8000 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, XP-8000 expands the I/O very easily. Using CAN or FRnet communication module, XP-8000 can connect CAN bus devices, remote I/O units or FRnet I/O modules for deterministic control system.

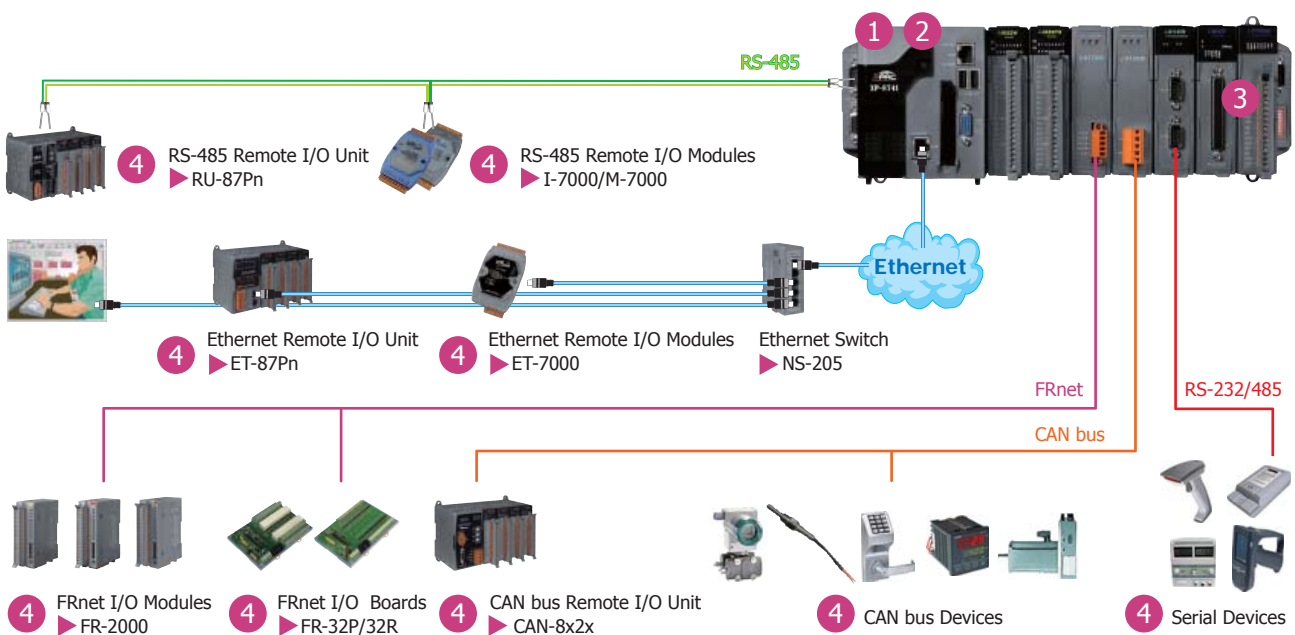
2 Embedded OS

• Windows Embedded Standard WES 2009

Windows Embedded Standard 2009 has the same Win32 API as Windows XP Professional, that is, almost every desktop program can be easily ported to Windows Embedded Standard 2009. This effectively reduces the efforts of developments and shortens time to market.

• Windows CE6

With Windows CE 6, users can use familiar tools and innovative technologies to develop software for applications. Windows CE6 operating system kernel architecture supports significantly more simultaneously running processes, from 32 up to 32,000 simultaneous processes, each of which run in a 2GB virtual memory address space. This allows developers to incorporate larger numbers of more complex applications into XP-8000 .



• Selection Guide

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Compact PAC

XP-8



NO. of I/O Slot



Hardware
4: VGA 1600 x 1200



Software
1: Standard

-



Language
EN: Multilingual
TC: Traditional Chinese



Standard XP-8000 (Windows Embedded Standard 2009)

Model Name	OS	Pre-installed Software	CPU	Flash	DDR SDRAM	VGA Resolution	Ethernet Port	RS-232/RS-485	I/O Slot	Page
XP-8041	WES 2009	None	LX 800, 500 MHz	4 GB	1 GB	1600 x 1200	2	5	0	2-2-5
XP-8341								4	3	
XP-8741								4	7	

The controller supports following software development tools:

1. DLLs of I/O modules for VS.NET 2005/2008
2. OPC server for SCADA softw

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XP-8000 Series

XP-8



NO. of I/O Slot



Hardware
4: VGA 1024 x 768 OR above



Software
1: Standard
7: ISaGRAF
9: InduSoft

-CE6



Standard XP-8000-CE6 (Windows CE .NET 6.0 Inside)

Model Name	OS	Pre-installed Software	CPU	Flash	DDR SDRAM	VGA Resolution	Ethernet Port	RS-232/RS-485	I/O Slot	Page
XP-8041-CE6	CE 6.0	None	LX 800, 500 MHz	4 GB	512 MB	1024 x 768	2	5	0	2-2-9
XP-8341-CE6								4	3	
XP-8741-CE6								7		

The controller supports 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 XP-8000-CE6 (Windows CE .NET 6.0 Inside)

Model Name	OS	Pre-installed Software	CPU	Flash	DDR SDRAM	VGA Resolution	Ethernet Port	RS-232/RS-485	I/O Slot	Page
XP-8047-CE6	CE 6.0	ISaGRAF	LX 800, 500 MHz	4 GB	512 MB	1024 x 768	2	5	0	2-2-13
XP-8347-CE6								4	3	
XP-8747-CE6								7		

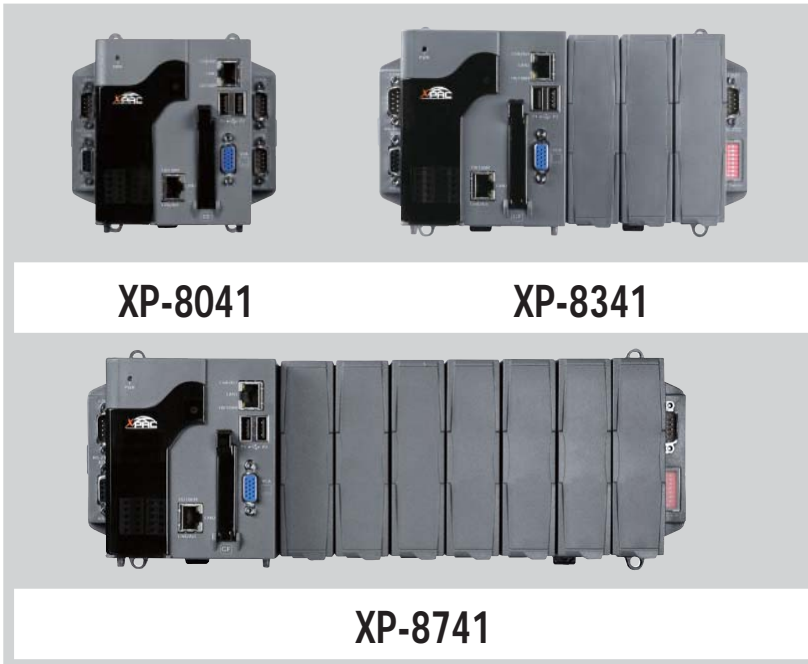
The controller fully supports all five of the IEC61131-3 standard PLC languages:
 1. Ladder diagram,
 2. Function block diagram,
 3. Sequential function chart,
 4. Structured text,
 5. Instruction List plus flow chart.
 It supports Modbus protocol and can link to distributed I/O modules with Modbus or DCON protocol via the RS-232/485 or Ethernet.



InduSoft Based XP-8000-CE6 (Windows CE .NET 6.0 Inside)

Model Name	OS	Pre-installed Software	CPU	Flash	DDR SDRAM	VGA Resolution	Ethernet Port	RS-232/RS-485	I/O Slot	Page
XP-8049-CE6	CE 6.0	InduSoft	LX 800, 500 MHz	4 GB	512 MB	1024 x 768	2	5	0	2-2-19
XP-8349-CE6								4	3	
XP-8749-CE6								7		

The controller can be used to develop following applications:
 1. Human Machine Interfaces (HMI)
 2. Supervisory Control and Data Acquisition System (SCADA)
 3. Web server



Highlight Information

- Windows Embedded Standard 2009
- SQL Server 2005 Express Edition
- AMD LX 800 CPU (32-bit and 500 MHz)
- VGA Port Output
- Support eLogger HMI
- PC Power, Open System
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C



Introduction

XP-8x41-Atom Series is the new generation Windows Embedded Standard 2009 based PACs of XP-8x41 Series is the new generation Windows Embedded Standard 2009 based PACs of ICP DAS. It is equipped with an AMD LX800 CPU (500 MHz), various connectivity (VGA, USB, Ethernet, RS-232/485) and 0/3/7 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 Embedded Standard 2009 include

- Enhanced Write Filter (EWF): Protects disk against improper disk write operations.
- Same Win32 API: Makes developing applications just like Windows XP Professional developers do.

This makes almost every PC-based program can be easily ported to XPAC and effectively reduces the efforts of developing and shortens the time to market.

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

Features

Software

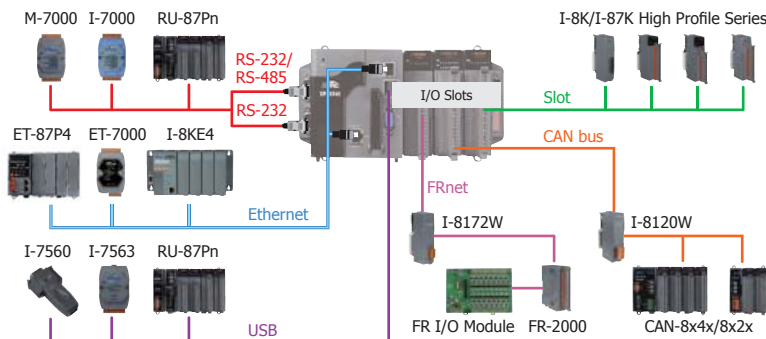
- Windows Embedded Standard 2009
- Internet Information Services
 - FTP server and web server
- ASP.NET
- SQL Server 2005 Express Edition
- .NET Framework 3.5
- Remote Desktop Connection
- Built-in OPC Server
- Rich Software Solutions
 - SDK for Microsoft Visual Studio.NET 2005/2008 and Visual Studio 6.0
 - Borland C++ Builder and Delphi

Hardware

- Powerful CPU Module
 - AMD LX 800 CPU (32-bit and 500 MHz)
- Memory size:
 - DDR SDRAM (1 GB), Built-in Flash Disk (4 GB)
 - EEPROM (16 KB), CF Card (8 GB)
 - Dual Battery Backup SRAM (512 KB)
- VGA Port x 1, USB 2.0 Ports x 2
- 64-bit Hardware Serial Number
- Dual Watchdog Timers
- 4/5 Serial Ports (RS-232/RS-485)
- Dual Ethernet Ports (10/100M)
- Redundant Power Input
- DIN-Rail or Wall Mounting
- Operating Temperature: -25 ~ +75 °C

Applications

Rich I/O Expansion Ability



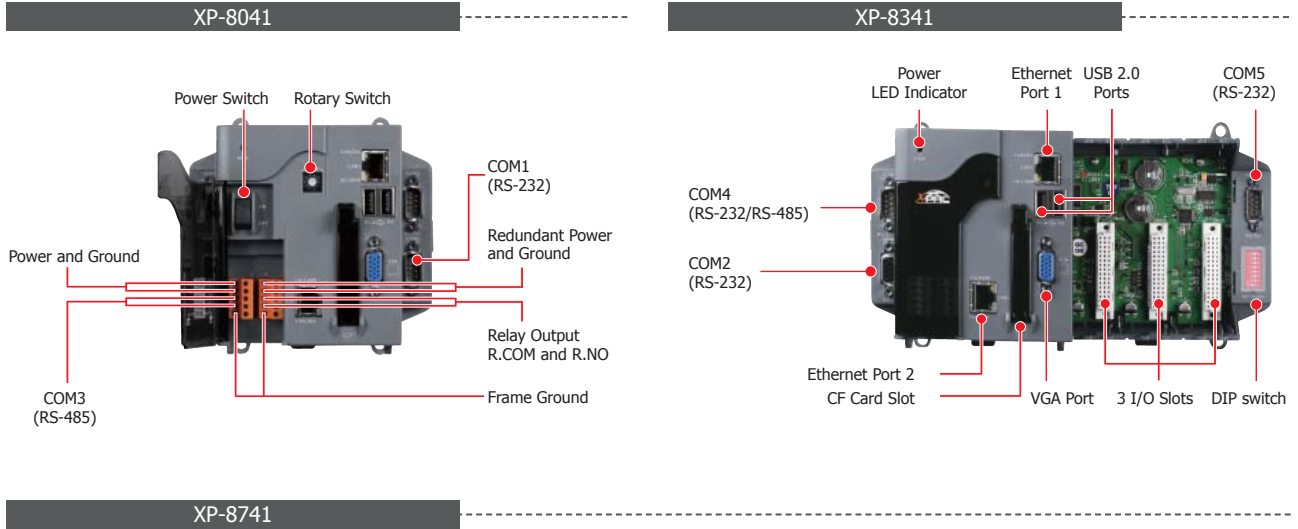
Specifications

Models	XP-8041	XP-8341	XP-8741
System Software			
OS	Microsoft Windows Embedded Standard 2009		
.Net Compact Framework	3.5		
Embedded Service	FTP Server, Internet Information Service 5.1, ASP (Java Script, VB Script), SQL Server 2005 Express		
SDK Provided	DLL for VC, VB, Delphi, BCB, Visual Studio .NET 2005/2008		
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Czech, Japanese, Simplified Chinese, Traditional Chinese		
CPU Module			
CPU	AMD LX 800 processor (32-bit and 500 MHz)		
System Memory	1 GB		
Dual Battery Backup SRAM	512 KB (for 5 years data retain while power off)		
Flash	4 GB as IDE Master		
EEPROM	16 KB Data Retention: 40 years; 1,000,000 erase/write cycles		
CF Card	8 GB (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		
Rotary Switch	Yes (0 ~ 9)		
DIP Switch	-	Yes (8 bits)	
VGA & Communication Ports			
VGA	Yes, (resolution: 1600 x 1200, 1024 x 768, 800 x 600, 640 x 480)		
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)		
USB 2.0	2		
COM 1	RS-232 (Rx/D, Tx/D and GND); non-isolated	Internal communication with the high profile I-87K series modules in slots	
COM 2	RS-232 (Rx/D, Tx/D and GND); non-isolated		
COM 3	RS-485	D2+, D2-; self-tuner ASIC inside	
	Isolation	3000 Vbc	
COM 4	RS-232/RS-485 (Rx/D, Tx/D, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		
COM 5	RS-232 (Rx/D, Tx/D, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated		
I/O Expansion Slots			
Slot Number	0	3	7
Hot Swap * Will be available	-	For High Profile I-87K Modules Only	
Mechanical			
Dimensions (W x L x H)	137 mm x 132 mm x 125 mm	231 mm x 132 mm x 125 mm	355 mm x 132 mm x 125 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 Vbc		
Isolation	1 kV		
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 Vbc) for alarm		
Capacity	1.8 A, 5 V supply to CPU and backplane, 15 W in total	1.8 A, 5 V supply to CPU and backplane, 5.2 A, 5 V supply to I/O expansion slots, 35 W in total	2.0 A, 5 V supply to CPU and backplane, 5.0 A, 5 V supply to I/O expansion slots, 35 W in total
Consumption	14.4 W (0.6 A @ 24 Vbc)	14.4 W (0.6 A @ 24 Vbc)	16.8 W (0.7 A @ 24 Vbc)

Appearance

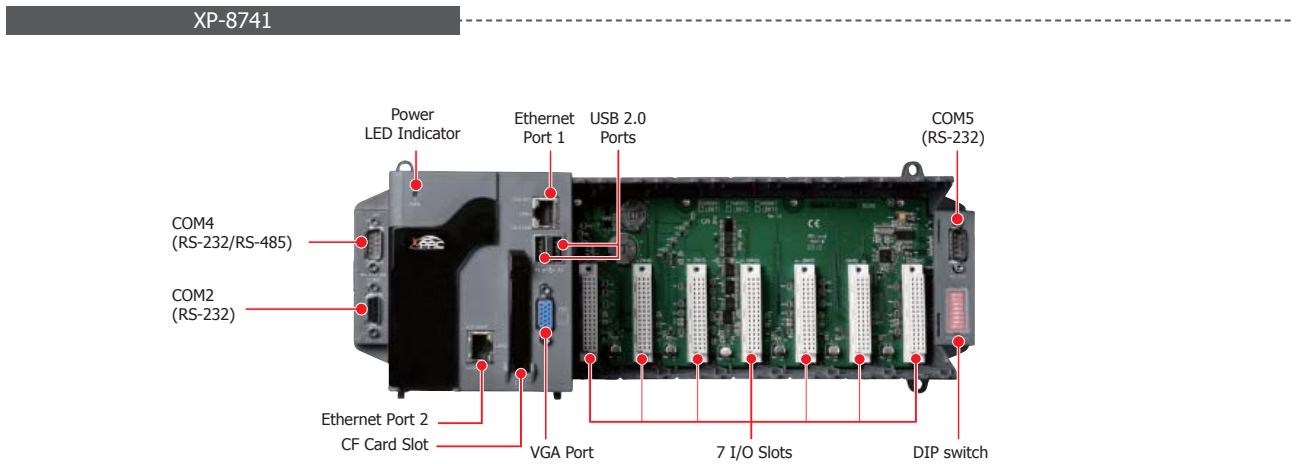
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Compact PAC

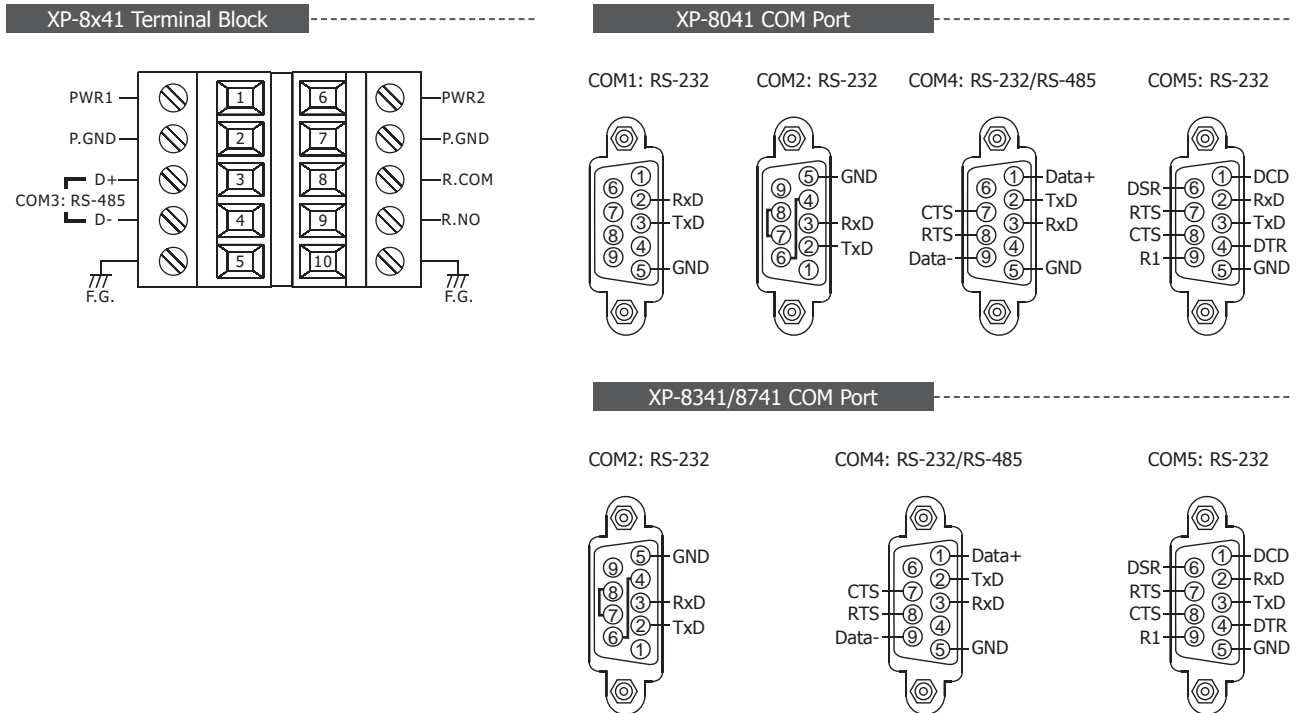


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XP-8000 Series

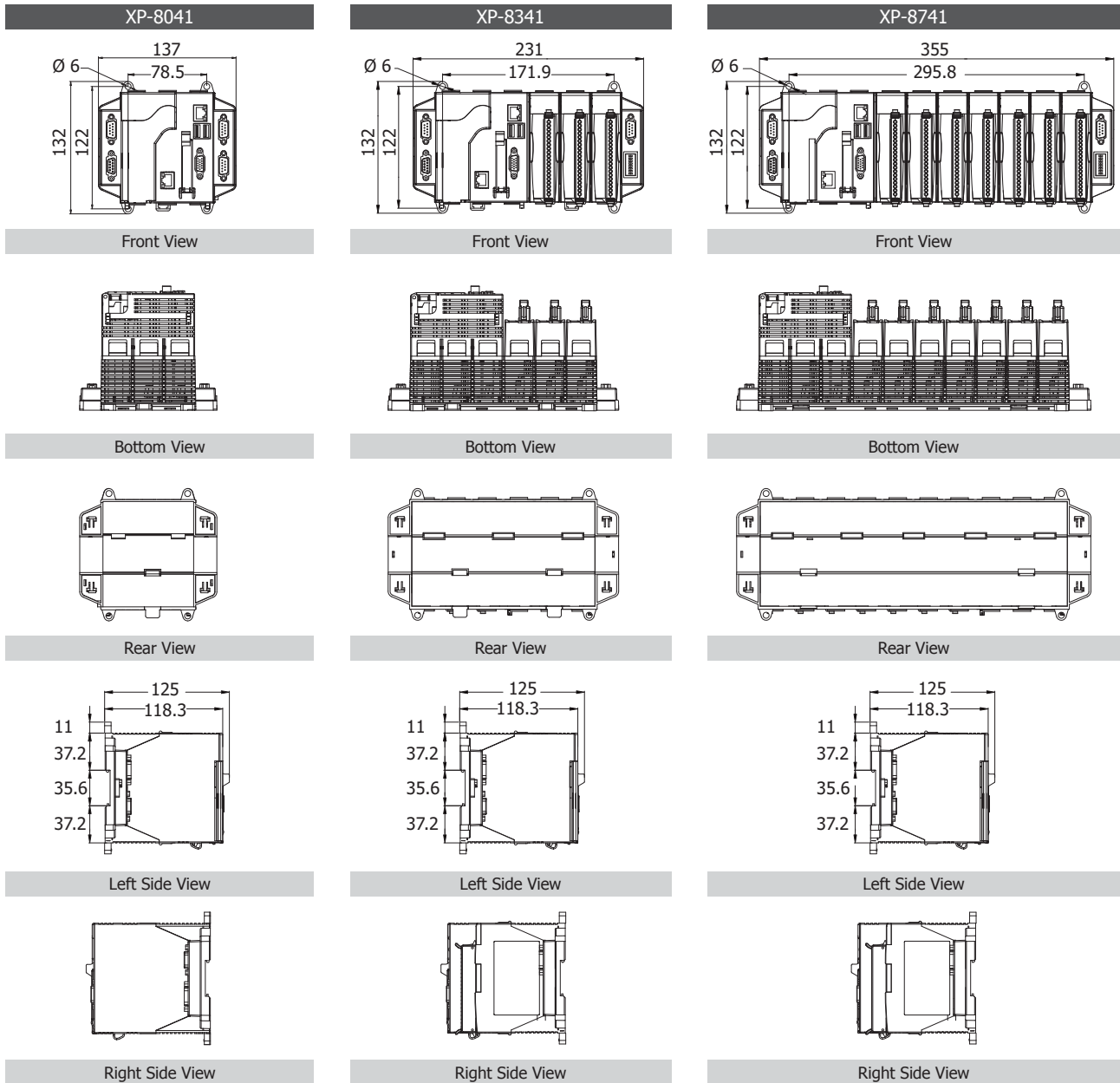


Pin Assignments



XP-8041/8341/8741

Dimensions (Units: mm)



Ordering Information

XP-8041-EN CR	Standard XP-8000 without I/O Slot (Multilingual Version of OS) (RoHS)
XP-8341-EN CR	Standard XP-8000 with 3 I/O Slots (Multilingual Version of OS) (RoHS)
XP-8741-EN CR	Standard XP-8000 with 7 I/O Slots (Multilingual Version of OS) (RoHS)
XP-8041-TC CR	Standard XP-8000 without I/O Slot (Traditional Chinese Version of OS) (RoHS)
XP-8341-TC CR	Standard XP-8000 with 3 I/O Slots (Traditional Chinese Version of OS) (RoHS)
XP-8741-TC CR	Standard XP-8000 with 7 I/O Slots (Traditional Chinese Version of OS) (RoHS)

Accessories

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)
NS-205 CR	Unmanaged 5-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)
NS-208 CR	Unmanaged 8-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)



XP-8041-CE6

XP-8341-CE6

XP-8741-CE6

Highlight Information

- Windows CE 6.0
- Hard Real-Time Capability
- SQL Compact Edition 3.5
- Support eLogger HMI
- VGA Port Output
- PC Power, Open System
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C



Introduction

XP-8x41-CE6 Series is the new generation Windows CE 6.0 based PACs of ICP DAS. It is equipped with an AMD LX800 CPU (500 MHz), various connectivity (VGA, USB, Ethernet, RS-232/485) and 0/3/7 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 6.0 on XPAC include hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level and achievable deterministic control. XPAC is also capable of running 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.

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

Features

Software

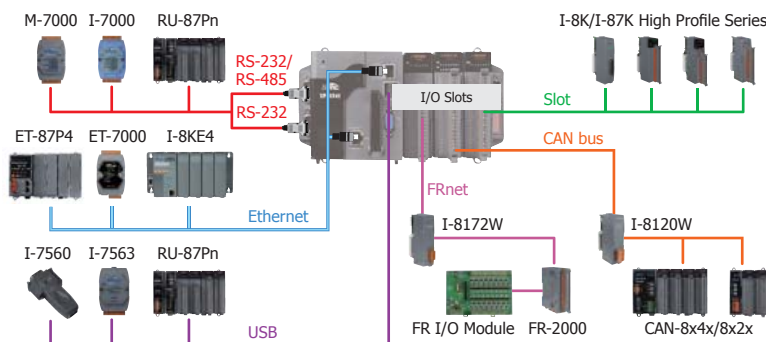
- Windows Compact Edition 6.0
- System Rescue Mechanism
- ASP (JavaScript & VBScript)
- SQL Compact Edition 3.5
- .NET Compact Framework 3.5
- Remote Display
- Built-In OPC Server (Quicker)
- InduSoft
 - HMI and SCADA development tool
- ISaGRAF
- Rich Software Solutions
 - SDK for Microsoft Visual Studio.NET 2005/2008

Hardware

- Powerful CPU module
- AMD LX 800 CPU (32-bit and 500 MHz)
- Memory size:
 - RAM (512 MB), Built-In Flash Disk (4 GB)
 - EEPROM (16 KB)
 - Dual Battery-Backup SRAM (512 KB)
 - CF Card (support up to 32 GB)
- VGA Port x 1, USB 2.0 Ports x 2
- 64-bit Hardware Serial Number
- Dual Watchdog Timers
- 4/5 Serial Ports (RS-232/RS-485)
- Dual Ethernet Ports (10/100M)
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C

Applications

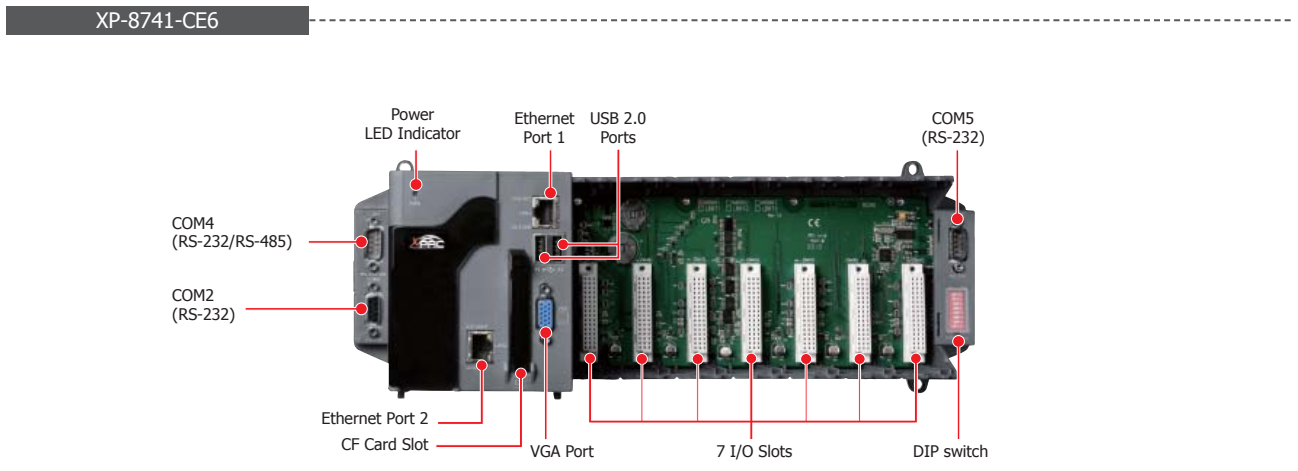
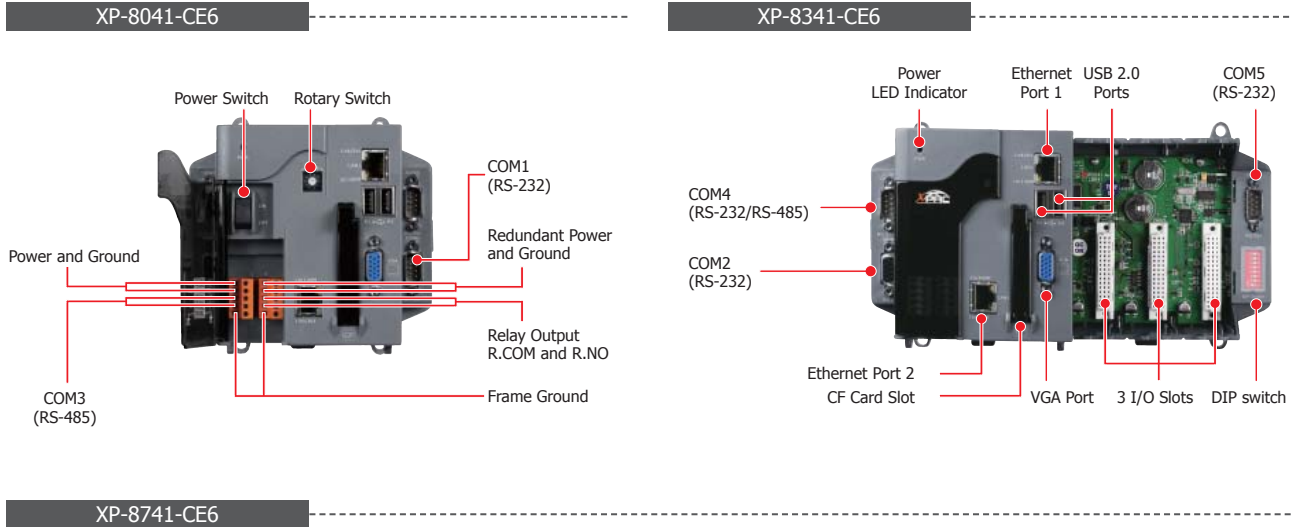
Rich I/O Expansion Ability



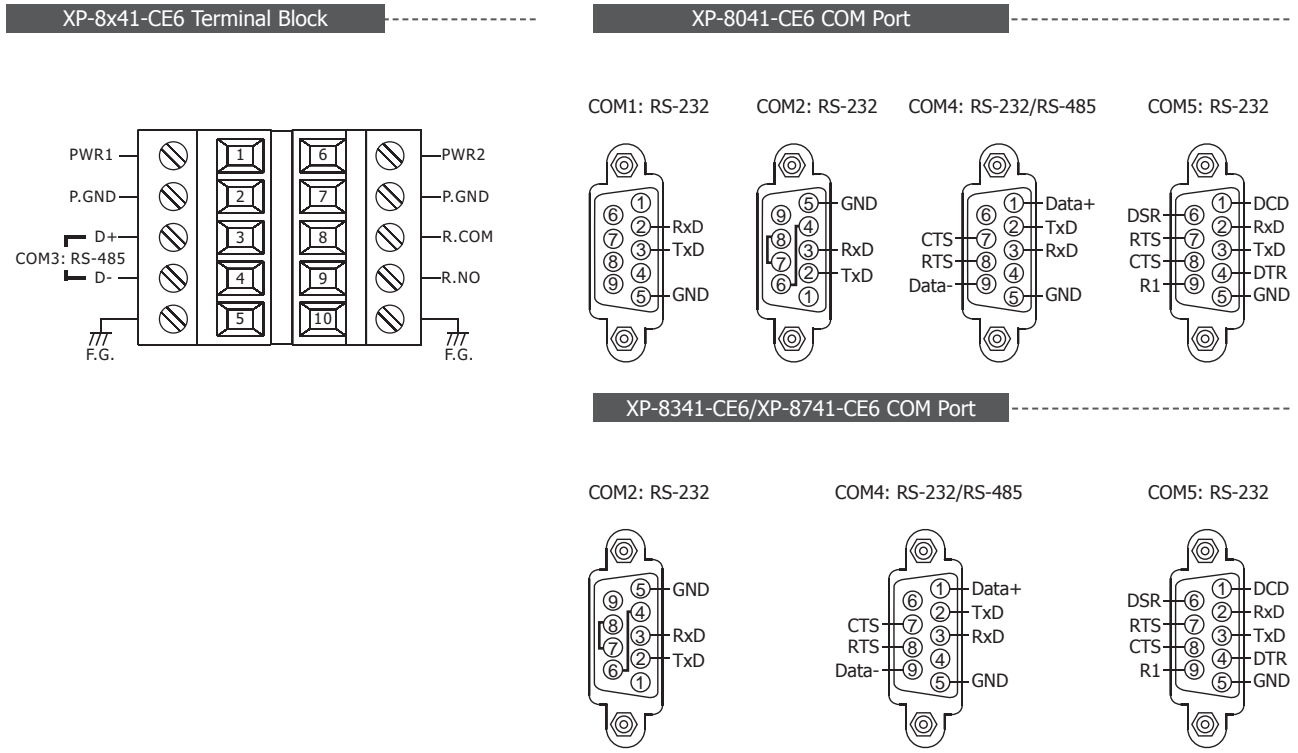
Specifications

Models	XP-8041-CE6	XP-8341-CE6	XP-8741-CE6
System Software			
OS	Windows CE 6.0 core version		
.Net Compact Framework	3.5		
Embedded Service	FTP Server, ASP (Java Script, VB Script), SQL Compact Edition 3.5		
SDK Provided	DII for Visual Studio .Net 2005/2008		
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Japanese, Simplified Chinese, Traditional Chinese		
CPU Module			
CPU	AMD LX 800 processor (32-bit and 500 MHz)		
System Memory	512 MB DDR SDRAM		
Dual Battery Backup SRAM	512 KB (for 5 years data retain while power off)		
Flash	4 GB as IDE Master		
EEPROM	16 KB		
	Data Retention: 40 years; 1,000,000 erase/write cycles		
CF Card	1 GB (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		
Rotary Switch	Yes (0 ~ 9)		
DIP Switch	-	Yes (8 bits)	
VGA & Communication Ports			
VGA	Yes, (resolution: 1024 x 768, 800 x 600 , 640 x 480)		
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)		
USB 2.0	2		
COM 1	RS-232 (Rx/D, Tx/D and GND); non-isolated	Internal communication with the high profile I-87K series modules in slots	
COM 2	RS-232 (Rx/D, Tx/D and GND); non-isolated		
COM 3	RS-485	D2+, D2-; self-tuner ASIC inside	
	Isolation	3000 V _{dc}	
COM 4	RS-232/RS-485 (Rx/D, Tx/D, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		
COM 5	RS-232 (Rx/D, Tx/D, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated		
I/O Expansion Slots			
Slot Number	0	3	7
Hot Swap * Will be available	-	For High Profile I-87K Modules Only	
Mechanical			
Dimensions (W x L x H)	137 mm x 132 mm x 125 mm	231 mm x 132 mm x 125 mm	355 mm x 132 mm x 125 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 V _{dc}		
Isolation	1 kV		
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 V _{dc}) for alarm		
Capacity	1.8 A, 5 V supply to CPU and backplane, 15 W in total	1.8 A, 5 V supply to CPU and backplane, 5.2 A, 5 V supply to I/O expansion slots, 35 W in total	2.0 A, 5 V supply to CPU and backplane, 5.0 A, 5 V supply to I/O expansion slots, 35 W in total
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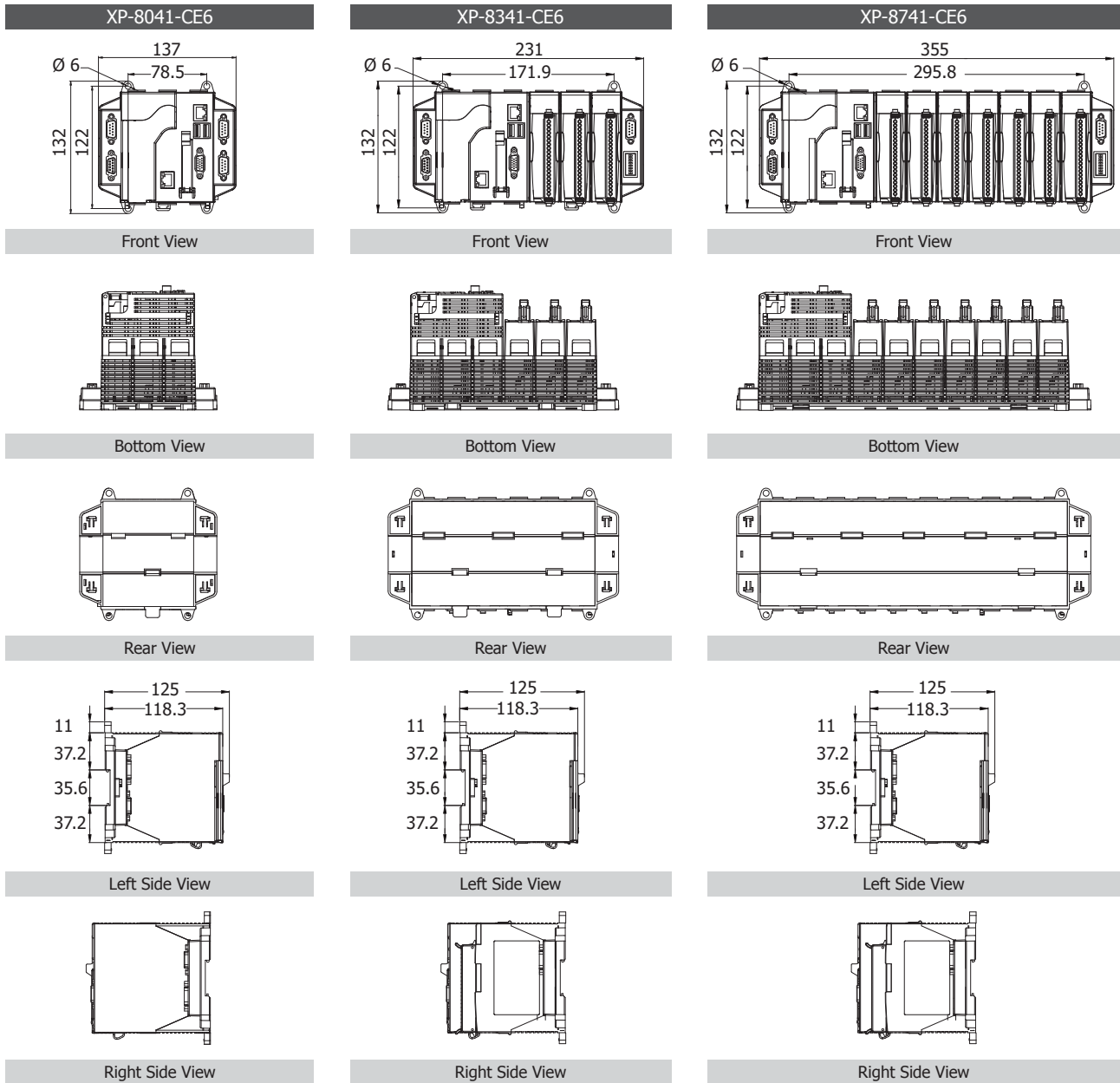
Appearance



Pin Assignments



Dimensions (Units: mm)



Ordering Information

XP-8041-CE6 CR	0 I/O slot WinCE 6.0 Based Standard XPAC (OS: Multi-Language version) (RoHS)
XP-8341-CE6 CR	3 I/O slot WinCE 6.0 Based Standard XPAC (OS: Multi-Language version) (RoHS)
XP-8741-CE6 CR	7 I/O slot WinCE 6.0 Based Standard XPAC (OS: Multi-Language version) (RoHS)

Accessories

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)
NS-205 CR	Unmanaged 5-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)
NS-208 CR	Unmanaged 8-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)

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Compact PAC

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XP-8000 Series

XP-8041-CE6/8341-CE6/8741-CE6



Highlight Information

- Windows CE 6.0
- Hard Real-Time Capability
- ISaGRAF Ver.3 SoftLogic Inside (IEC 61131-3)
- PLC Feel
- AMD LX 800 CPU (32-bit and 500MHz)
- VGA Port Output
- Simple graphic HMI
- Support eLogger HMI
- PC Power, Open System
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C

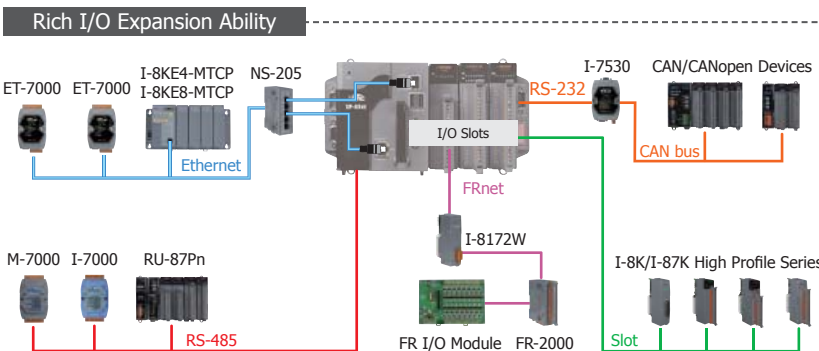
Introduction

XP-8x47-CE6 Series is the new generation ISaGRAF based PACs of ICP DAS. It is equipped with an AMD LX800 CPU (500 MHz), various connectivity (VGA, USB, Ethernet, RS-232/485) and 0/3/7 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 6.0 on XPAC include hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level and achievable deterministic control. XPAC 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 eLogger HMI

Applications



Features

Software

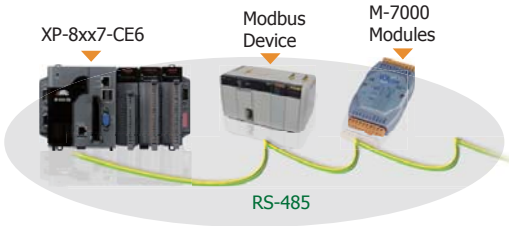
- Windows CE.NET 6.0 Operating System
- Development Software: ISaGRAF Ver.3
 - Running on Windows 95/98/NT/2000/XP/Vista/7
 - All-in-one design environment
 - Easy to integrating with HMI/SCADA/MMI
- Support Modbus Master & Slave Protocols
 - Modbus TCP Master (Max. 100 devices)
 - RTU, ASCII, RS-232/485/422 Master (Max. 33 ports)
 - Modbus RTU (RS-232/485/422) Slave (Max. 9 ports)
 - Modbus TCP/IP Slave (Max. 64 connections)
- Support GPS/ZigBee/Radio Wireless & SMS
- Support Data Exchange
- Support CAN/CANopen
- Support FRnet I/O (Via I-8172W)
- Support Data-Recorder & Data-Logger
- Support Motion Control & VW Solutions
- Support eLogger HMI

Hardware

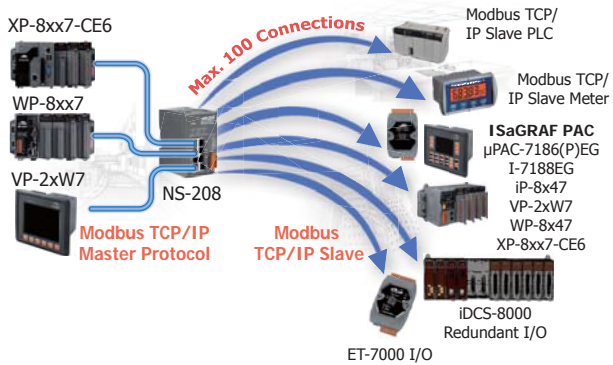
- Powerful CPU module
AMD LX 800 CPU (32-bit and 500 MHz)
- Memory size:
 - RAM (512 MB), Built-In Flash Disk (4 GB)
 - EEPROM (16 KB)
 - Dual Battery-Backup SRAM (512 KB)
 - CF Card (1 GB, support up to 32 GB)
- VGA Port x 1, USB 2.0 Ports x 2
- 64-bit Hardware Serial Number
- Dual Watchdog Timers
- 4/5 Serial Ports (RS-232/RS-485)
- Dual Ethernet Ports (10/100M)
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C

Modbus Master Ports

Modbus RTU/ASCII Master



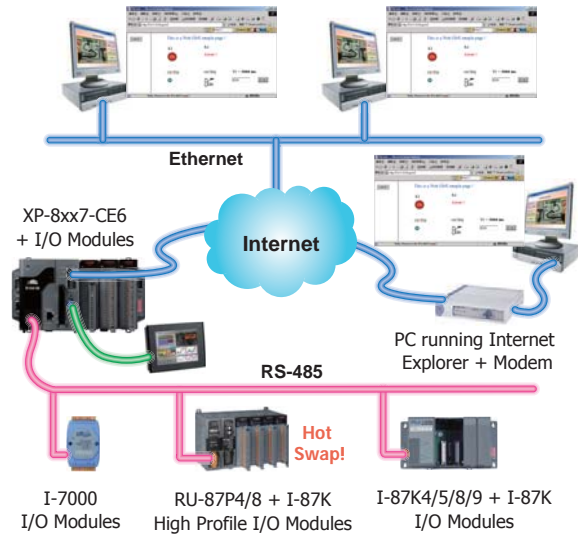
Modbus TCP/IP Master



Multiple Web HMI

- The XP-8xx7-CE6-PRO can run its own Internet Explorer to monitor itself, but the XP-8xx7-CE6 requires running Internet Explorer in PC to monitor it.

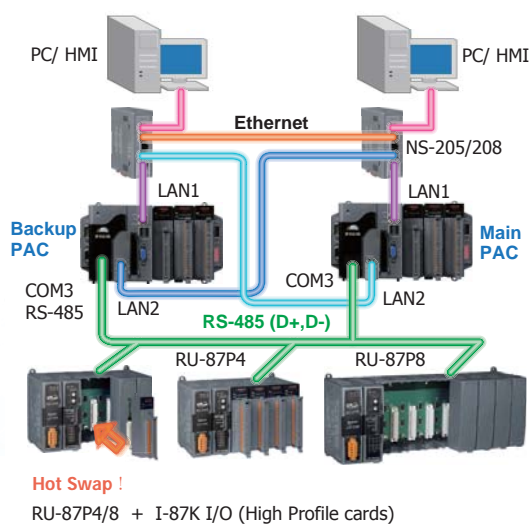
PC running the Internet Explorer



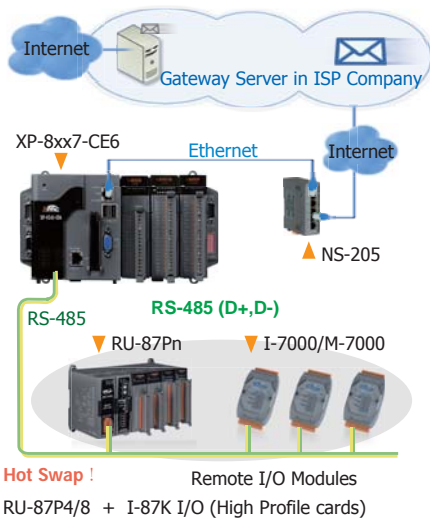
Motion Control: Using I-8094F/8092F/8094



Hot-Swap Redundant System

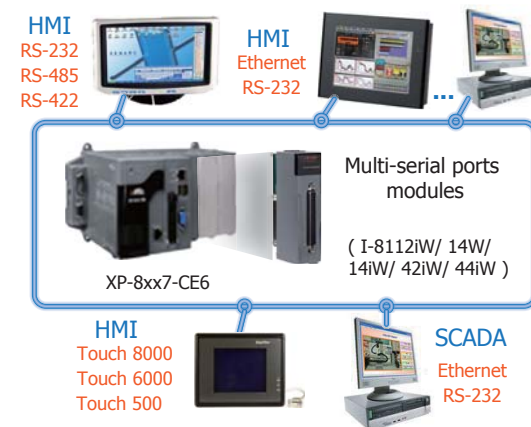


Send Email with one Attached File



Modbus Slave : RTU / TCP

- Modbus RTU (RS-232/485/422) Slave: max. 9 ports
- Modbus TCP/IP Slave: max. 64 connections



Specifications

2

Compact PAC

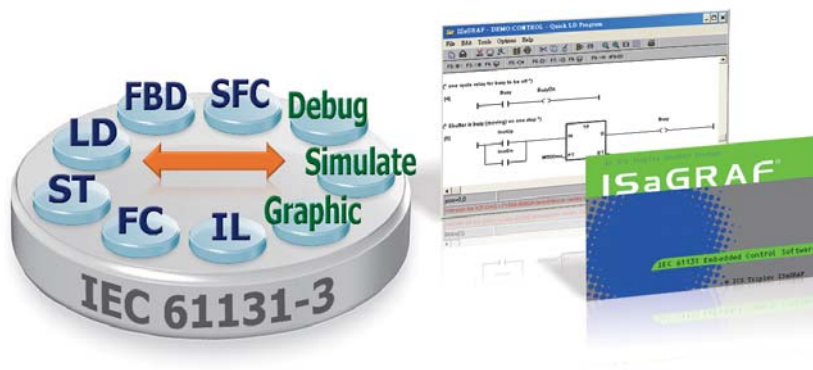
2

XP-8000-CE6 Series

XP-8047-CE6/8347-CE6/8747-CE6

Models	XP-8047-CE6	XP-8347-CE6	XP-8747-CE6
System Software			
OS	Windows CE 6.0 core version		
.Net Compact Framework	3.5		
Embedded Service	FTP Server, ASP (Java Script, VB Script), SQL Compact Edition 3.5		
SDK Provided	DII for Visual Studio .Net 2005/2008		
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Japanese, Simplified Chinese, Traditional Chinese		
Development Software			
ISaGRAF Software	ISaGRAF Ver.3	IEC 61131-3 standard.	
	Languages	LD, ST, FBD, SFC, IL & FC	
	Max. Code Size	2 MB	
	Scan Time	3 ~ 15 ms for normal program 15 ~ 50 ms (or more) for complex or large program	
Non-ISaGRAF	Options: VS.NET 2005/2008 (VB.NET, C#.NET)		
Web Service			
Web HMI	PC running Internet Explorer can monitor/control PAC via Internet/modem The XP-8xx7-CE6-PRO can run its own Internet Explorer to monitor itself.		
Security	Web HMI supports three levels username and password protection. (high/middle/low)		
CPU Module			
CPU	AMD LX 800 processor (32-bit & 500 MHz) or compatible		
System Memory	512 MB DDR SDRAM		
Dual Battery Backup SRAM	512 KB (for 5 years data retain while power off)		
Flash	4 GB as IDE Master		
EEPROM	16 KB		
	Data Retention: 40 years; 1,000,000 erase/write cycles		
CF Card	1 GB (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		
Rotary Switch	Yes (0 ~ 9)		
DIP Switch	-	Yes (8 bits)	
VGA & Communication Ports			
VGA	Yes, (resolution: 1024 x 768, 800 x 600, 640 x 480)		
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators). Please use NS-205/NS-208 Industrial Ethernet Switch.		
USB 2.0	2		
COM 1	RS-232 (Rx/D, Tx/D and GND); non-isolated	Internal communication with the high profile I-87K series modules in slots	
COM 2	RS-232 (Rx/D, Tx/D and GND); non-isolated		
COM 3	RS-485	D2+, D2-; self-tuner ASIC inside	
	Isolation	3000 V _{dc}	
COM 4	RS-232/RS-485 (Rx/D, Tx/D, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		
COM 5	RS-232 (Rx/D, Tx/D, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated		
I/O Expansion Slots			
Slot Number	0	3	7
Hot Swap * Will be available	-	For High Profile I-87K Modules Only	
Mechanical			
Dimensions (W x L x H)	137 mm x 132 mm x 125 mm	231 mm x 132 mm x 125 mm	355 mm x 132 mm x 125 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 V _{dc}		
Isolation	1 kV		
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 V _{dc}) for alarm		
Capacity	1.8 A, 5 V supply to CPU and backplane, 15 W in total	1.8 A, 5 V supply to CPU and backplane, 5.2 A, 5 V supply to I/O expansion slots, 35 W in total	2.0 A, 5 V supply to CPU and backplane, 5.0 A, 5 V supply to I/O expansion slots, 35 W in total
Consumption	14.4 W (0.6 A @ 24 V _{dc})	14.4 W (0.6 A @ 24 V _{dc})	16.8 W (0.7 A @ 24 V _{dc})

ISaGRAF Specifications



2

Compact PAC

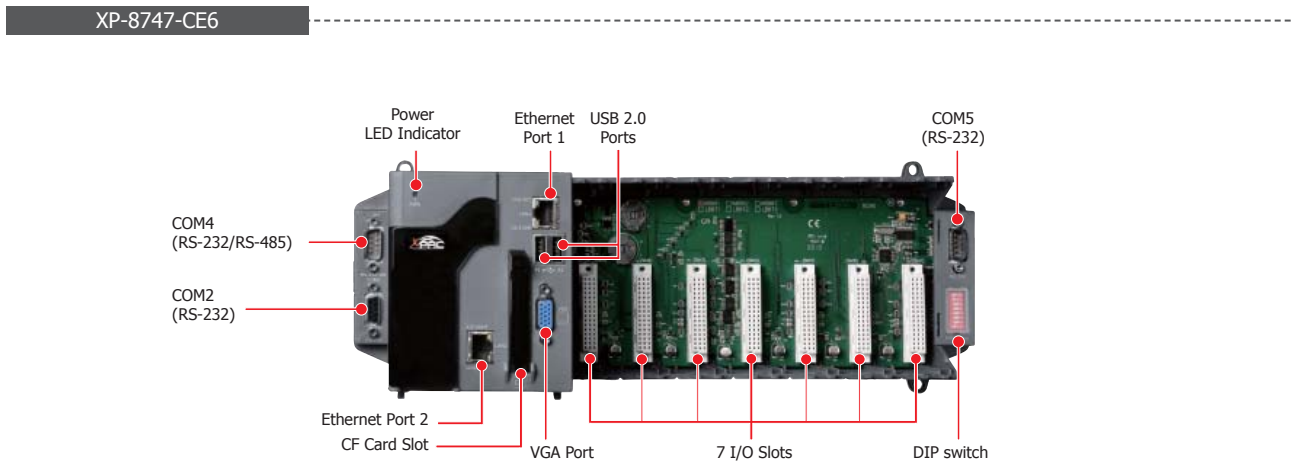
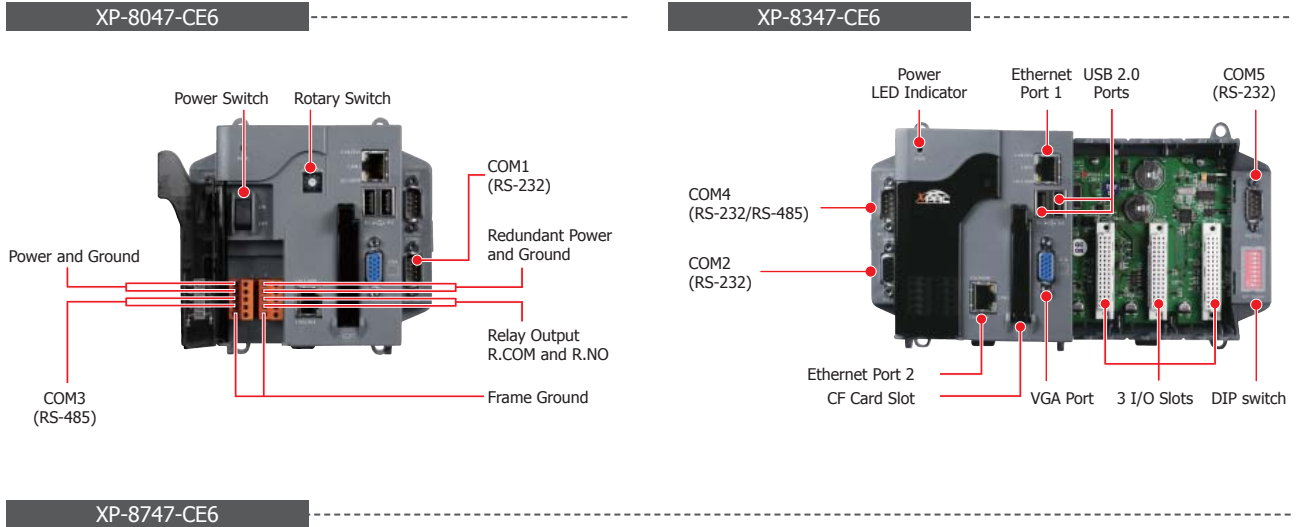
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XP-8000-CE6 Series

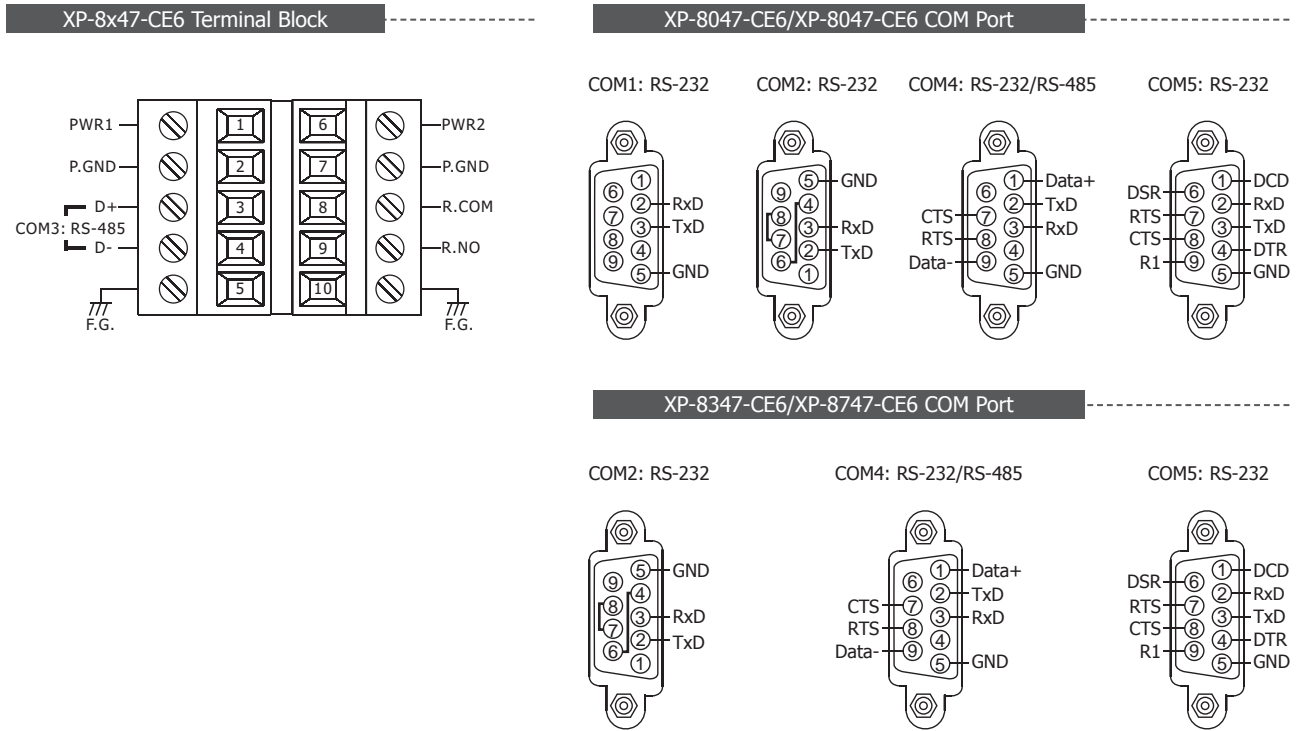
XP-8047-CE6/8347-CE6/8747-CE6

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. 33 Ports : COM1 ~ 33 (To connect to other Modbus Slave devices). (*)	
Modbus RTU Slave	Max. 9 Ports : COM1 ~ 33 (For connecting ISaGRAF, PC/HMI/OPC Server & HMI panels). (*)	
Modbus TCP/IP Slave	2 Ethernet Ports all support Modbus TCP/IP Slave protocol for connecting ISaGRAF & PC/HMI. 2 Ports support up to 64 connections.	
Web HMI Protocol	Ethernet Ports for connecting PC running Internet Explorer. (*)	
I-7000 & I-87K RS-485 Remote I/O	One of COM3~4 supports I-7000 I/O modules, I-87K base + I-87K Serial I/O boards or RU-87Pn + I-87K High Profile I/O boards as remote I/O. Max. 255 modules of I-7000/87K Remote I/O for one PAC.	
M-7000 Series Modbus I/O	Max. 33 RS-485 ports. 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. (This need LAN1 & LAN2's IP are set in the same IP domain)	
FRnet I/O	Support max 7 pcs. I-8172W boards in slot 1 ~ 7 to connect to FRnet I/O modules, like FR-2053, FR-2057, FR-32R, FR-32P. Each I-8172W board can link max. 256 DI plus 256 DO ch.	
Send Email	Supports mail_snd and mail_set functions to send email with one attached file via Ethernet port.	
Ebus	To exchange data between ICP DAS's ISaGRAF Ethernet PACs via Ethernet port. (LAN2 Port only)	
SMS: Short Message Service	COM4 or 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	User can write his own protocol applied at COM1~COM5 & COM6~COM33(if multi-serial port boards are plugged in) by Serial communication function blocks. (*)	
MMICON/LCD	COM4 or COM5 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 support TCP Client protocol to send / receive message to / from PC/HMI or other devices which support TCP server protocol.	
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 PAC 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, 2, 4, 5 or COM6~COM33 to connect one I-7530 (converter: RS-232 to CAN) to support CAN/CANopen devices and sensors. One PAC supports max.32 RS-232 ports to connect max.32 I-7530. (*)	
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 1 Hz ~ 100 kHz (non-continuous), duty: 0.1 ~ 99.9%
	DO Module as PWM	88-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, 8048W, 8050W, 8051W, 8052W, 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, 87063W...
	Remote DI Counter	All remote I-7000 & I-87K DI modules support counters. 100 Hz max. value: 0 ~ 65535
	High Speed Counter	I-87082W: 100 kHz max. 32 bit; I-8084W: 250 kHz max. 32 bit
	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, pulse/direction or up/down or A/B phase (Quad. mode). Not support Encoder Z-index.
Motion	Frequency	I-87082W: 2-ch, 1 Hz ~ 100 kHz; I-8084W: 8-ch, 1 Hz ~ 250 kHz;
	Motion Control	With one or several I-8092F (2-axis) or I-8094F/I-8094 (4-axis)
*Note: COM6 ~ COM33 are resided at the expansion boards if they are plugged on slot1 ~ 7 of XP-8xx7-CE6. XP-8347-CE6/8747-CE6's COM1 is for internal communication with I-87K modules in slots only.		

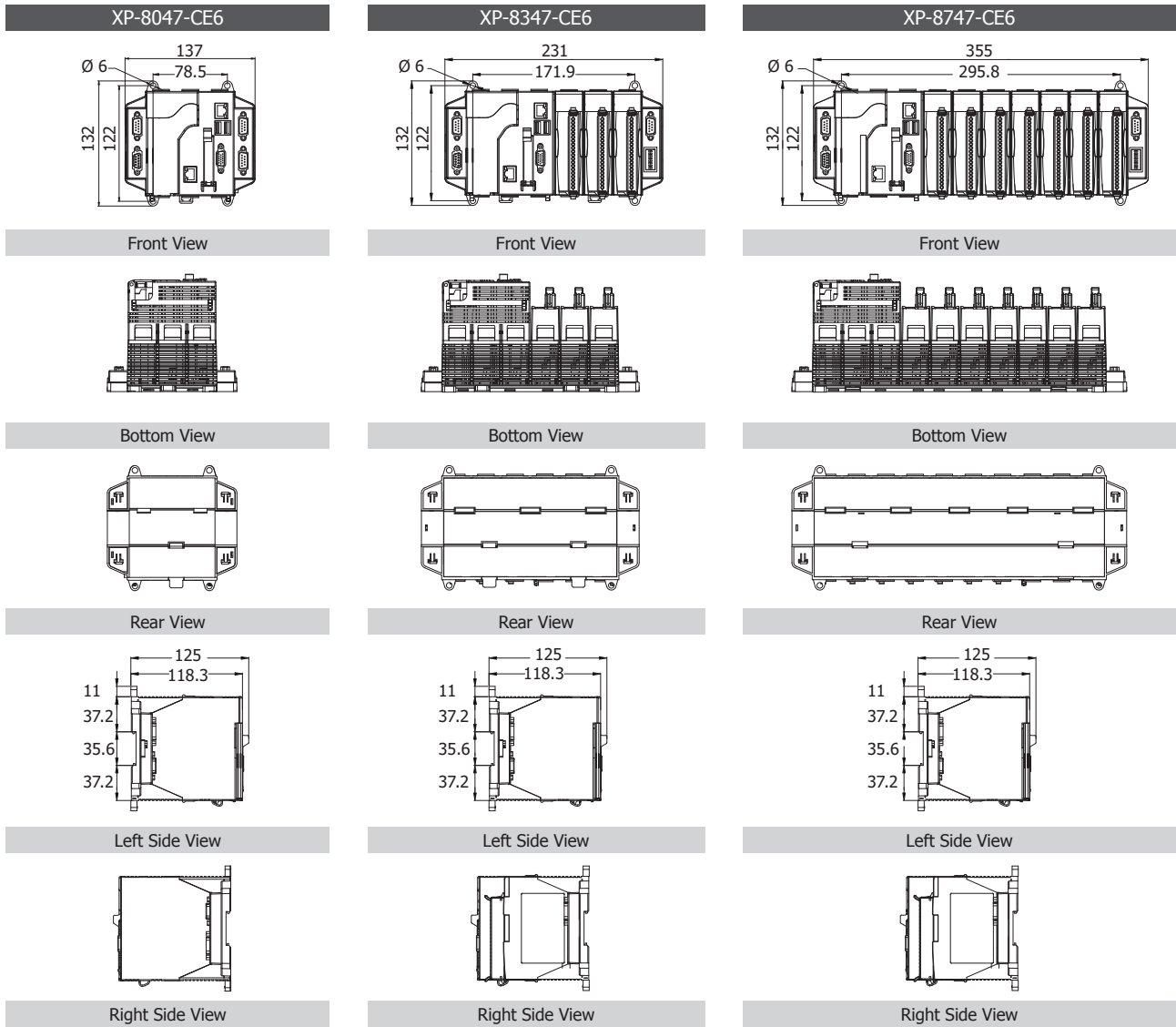
Appearance



Pin Assignments



Dimensions (Units: mm)



2

Compact PAC

2

XP-8000-CE6 Series

Ordering Information

XP-8047-CE6 CR	0 I/O slot WinCE 6.0 Based ISaGRAF PAC (OS: Multi-Language version) (RoHS)
XP-8347-CE6 CR	3 I/O slots WinCE 6.0 Based ISaGRAF PAC (OS: Multi-Language version) (RoHS)
XP-8747-CE6 CR	7 I/O slots WinCE 6.0 Based ISaGRAF PAC (OS: Multi-Language version) (RoHS)

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)
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)
NS-205 CR	Unmanaged 5-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)
NS-208 CR	Unmanaged 8-port Industrial 10/100 Ethernet Switch with Plastic Case (RoHS)

XP-8047-CE6/8347-CE6/8747-CE6



Highlight Information

- Windows CE 6.0
- Hard Real-Time Capability
- InduSoft Web Studio v6.1
- AMD LX 800 CPU (32-bit and 500 MHz)
- VGA Port Output
- PC Power, Open System
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C



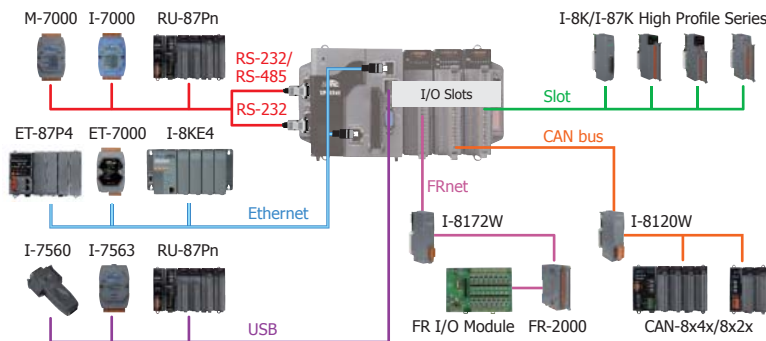
Introduction

XP-8x49-CE6 Series is the new generation InduSoft based PACs of ICP DAS. It is equipped with an AMD LX800 CPU (500 MHz), various connectivity (VGA, USB, Ethernet, RS-232/485) and 0/3/7 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 6.0 on XPAC include hard real-time capability, small core size, fast boot speed, interrupt handling at a deeper level and achievable deterministic control. XPAC 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



Features

Software

- Windows Embedded CE 6.0
- FTP Server, Web Server, ASP
- SQL Compact Edition 3.5
- .NET Framework 3.5
- Runtime InduSoft Web Studio v6.1
 - DCON Bundled Driver Provided
 - Support OPC/Modbus/OPC/DDE Protocol
 - Support Third-party SQL relational database
- Remote Display
- DCON Utility (with DCON_CE.exe run on the device)
- Built-in OPC Server

Hardware

- Powerful CPU Module
 - AMD LX 800 CPU (32-bit and 500 MHz)
- Memory Size
 - DDR SDRAM (512 MB), Built-in Flash Disk (4 GB)
 - EEPROM (16KB), Compact Flash Card (1 GB)
 - Dual Battery Backup SRAM (512 KB)
- VGA Port x 1, USB 2.0 Ports x 2
- 64-bit Hardware Serial Number
- Powerful CPU Module
- 4/5 Serial Ports (RS-232/RS-485)
- Dual Ethernet Ports (10/100M)
- Redundant Power Input
- Operating Temperature: -25 ~ +75 °C

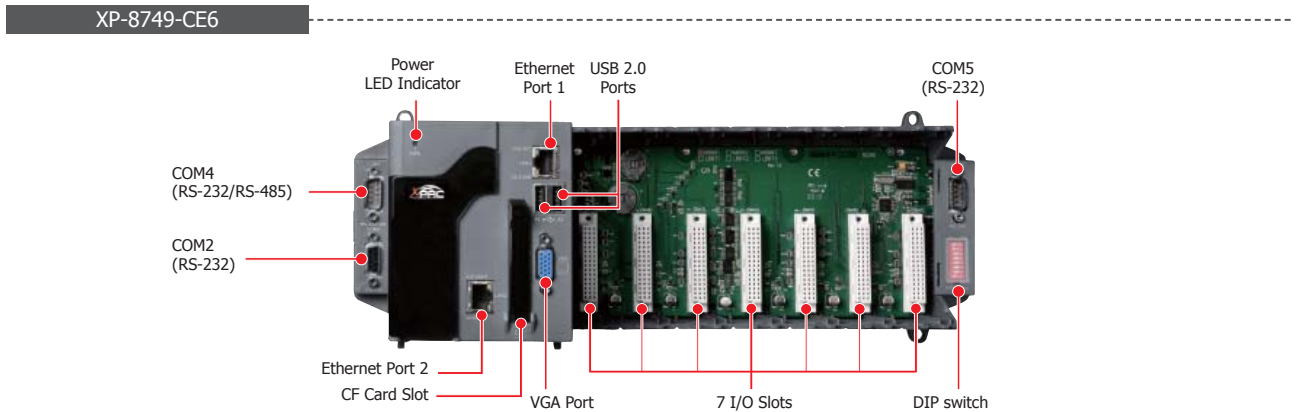
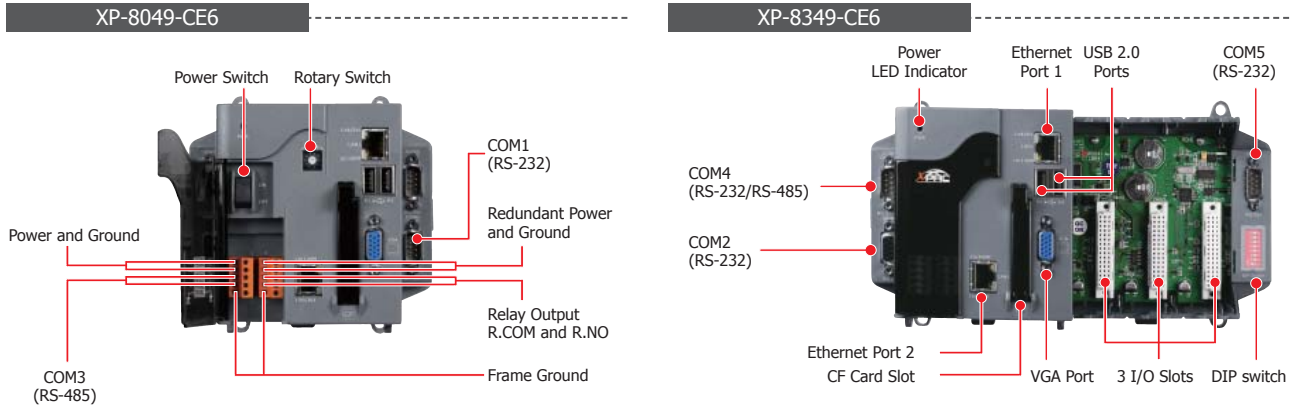
Specifications

Models	XP-8049-CE6	XP-8349-CE6	XP-8749-CE6
System Software			
OS	Windows CE 6.0 core version		
.Net Compact Framework	3.5		
Embedded Service	FTP Server, ASP (Java Script, VB Script), SQL Compact Edition 3.5		
SDK Provided	DII for Visual Studio .Net 2005/2008		
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Japanese, Simplified Chinese, Traditional Chinese		
Development Software			
InduSoft Software	InduSoft Web Studio v6.1 Service Pack 6		
Non-ISaGRAF	Options: .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 XP-8x49 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	AMD LX 800 processor		
System Memory	512 MB DDR SDRAM		
Dual Battery Backup SRAM	512 KB (for 5 years data retain while power off)		
Flash	4 GB as IDE Master		
EEPROM	16 KB		
	Data Retention: 40 years; 1,000,000 erase/write cycles		
CF Card	1 GB (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		
Rotary Switch	Yes (0 ~ 9)		
DIP Switch	-	Yes (8 bits)	
VGA & Communication Ports			
VGA	Yes, (resolution: 1024 x 768, 800 x 600 , 640 x 480)		
Ethernet	RJ-45 x 2, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)		
USB 2.0	2		
COM 1	RS-232 (Rx/D, Tx/D and GND); non-isolated	Internal communication with the high profile I-87K series modules in slots	
COM 2	RS-232 (Rx/D, Tx/D and GND); non-isolated		
COM 3	RS-485	D2+, D2-; self-tuner ASIC inside	
	Isolation	3000 V _{bc}	
COM 4	RS-232/RS-485 (Rx/D, Tx/D, CTS, RTS and GND for RS-232, Data+ and Data- for RS-485); non-isolated		
COM 5	RS-232 (Rx/D, Tx/D, CTS, RTS, DSR, DTR, CD, RI and GND); non-isolated		
I/O Expansion Slots			
Slot Number	0	3	7
Hot Swap * Will be available	-	For High Profile I-87K Modules Only	
Mechanical			
Dimensions (W x L x H)	137 mm x 132 mm x 125 mm	231 mm x 132 mm x 125 mm	355 mm x 132 mm x 125 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 V _{bc}		
Isolation	1 kV		
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 V _{bc}) for alarm		
Capacity	1.8 A, 5 V supply to CPU and backplane, 15 W in total	1.8 A, 5 V supply to CPU and backplane, 5.2 A, 5 V supply to I/O expansion slots, 35 W in total	2.0 A, 5 V supply to CPU and backplane, 5.0 A, 5 V supply to I/O expansion slots, 35 W in total
Consumption	14.4 W (0.6 A @ 24 V _{bc})	14.4 W (0.6 A @ 24 V _{bc})	16.8 W (0.7 A @ 24 V _{bc})

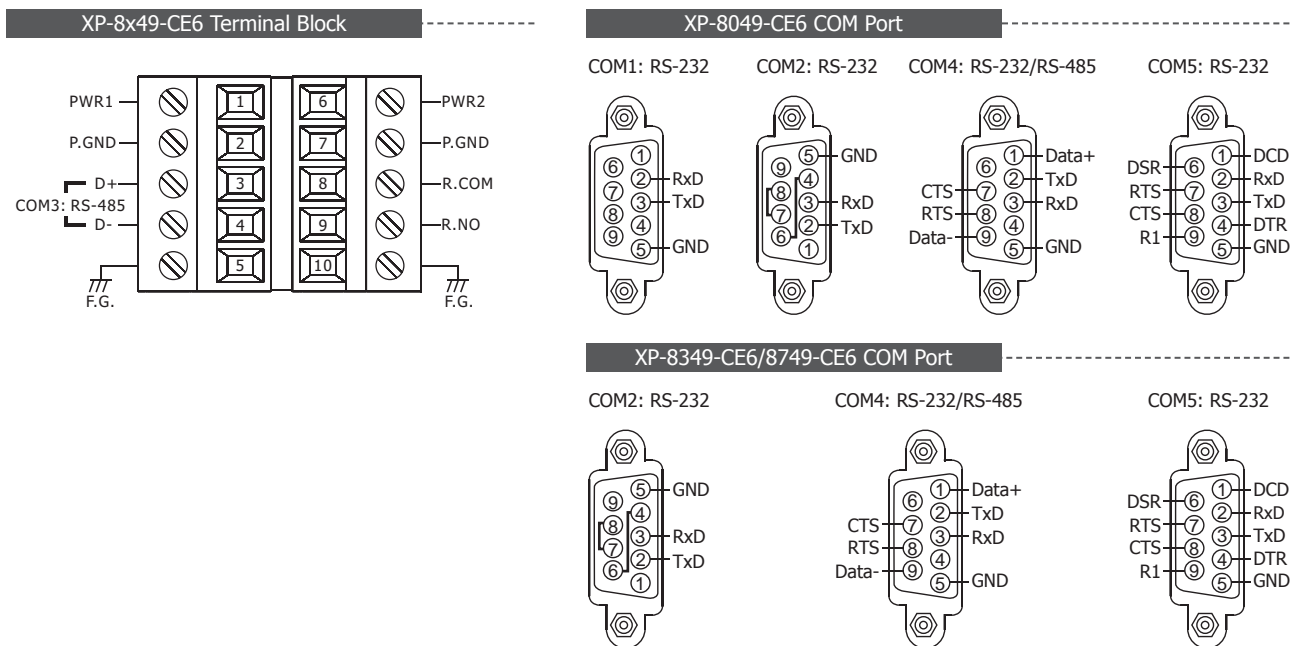
InduSoft Features

- Elegant Graphics
- Multi-Language
- Database (Access, Excel, SQL, Oracle...)
- 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)
- System Redundancy
- Online Configuration and debugging
- Others (VBScript, E-mail, FTP, SNMP...)

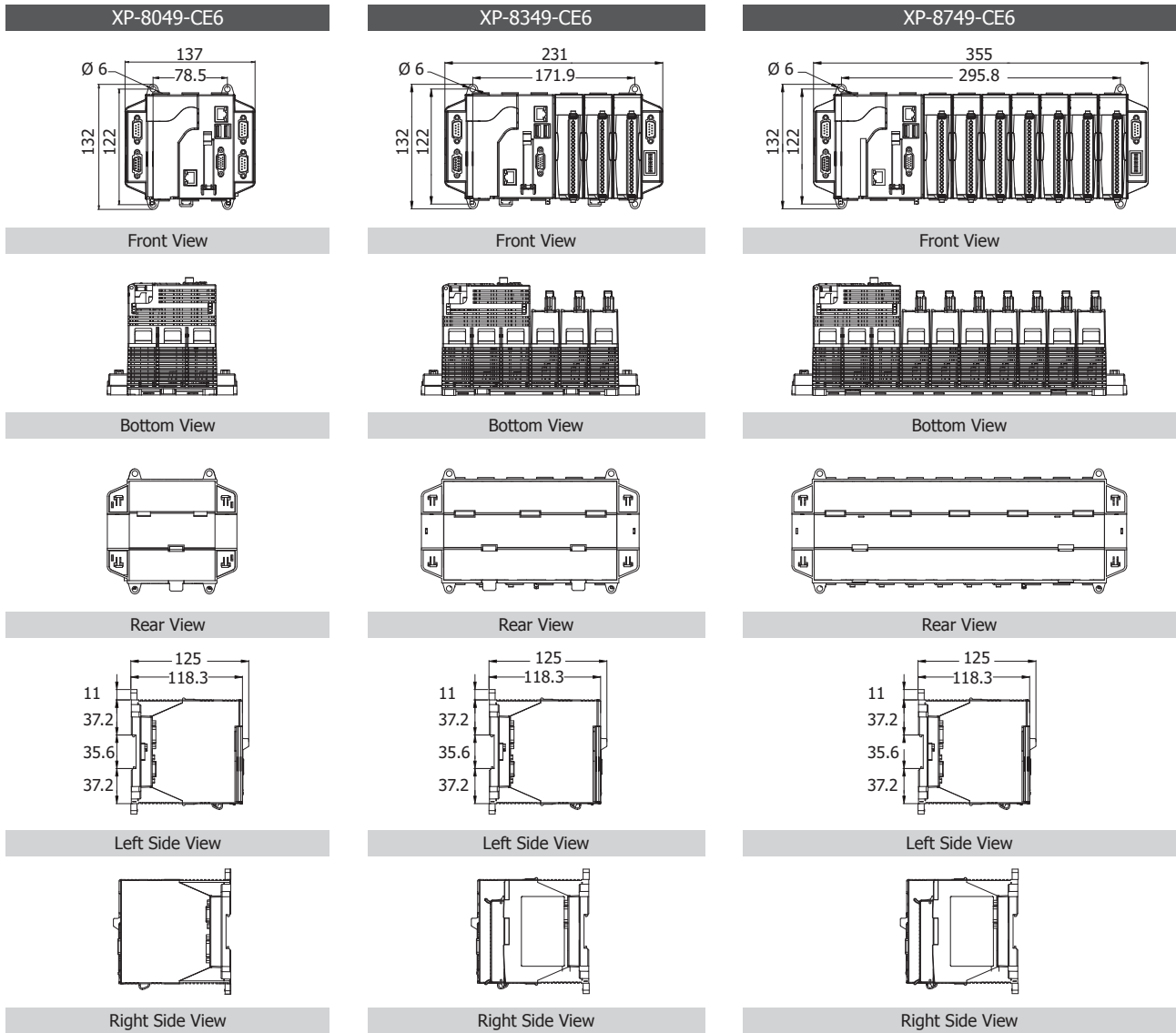
Appearance



Pin Assignments



Dimensions (Units: mm)



2
Compact PAC

2
XP-8000-CE6 Series

Ordering Information

XP-8049-CE6 CR	0 I/O slot WinCE 6.0 Based InduSoft PAC (OS: Multi-Language version) (RoHS)
XP-8349-CE6 CR	3 I/O slots WinCE 6.0 Based InduSoft PAC (OS: Multi-Language version) (RoHS)
XP-8749-CE6 CR	7 I/O slots WinCE 6.0 Based InduSoft PAC (OS: Multi-Language version) (RoHS)
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 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)

XP-8049-CE6/8349-CE6/8749-CE6