ICP DAS

XP-8038-CE6   XP-8338-CE6
XP-8138-CE6   XP-8738-CE6
Win-GRAF based XPAC-8000-CE6

Features
- x86 CPU, 1.0 GHz, dual-core
- Windows CE 6.0
- Embedded Win-GRAF SoftLogic (IEC 61131-3)
- Hard Real-Time Capability
- VGA Port Output
- Modbus RTU/TCP (Master, Slave)
- Support eLogger HMI
- Redundant Power Inputs
- Support Dual PAC Redundant System
- Operating Temperature: -25 ~ +75° C

■ Introduction

The Win-GRAF XPAC-8000-CE6 Series (XP-8038-CE6/XP-8138-CE6/XP-8338-CE6/XP-8738-CE6) is the new generation WinCE 6.0 based Win-GRAF XPAC (Programmable Automation Controller) from ICP DAS. Each is equipped with an x86 CPU (1 GHz) dual-core running a Windows CE 6.0 operating system, a variety of input/output ports (VGA, USB, Ethernet, RS-232/485), and a range of I/O slots (0/1/3/7) that can be used to integrate high performance parallel I/O modules (high profile I-8K Series) or serial I/O modules (high profile I-87K series).
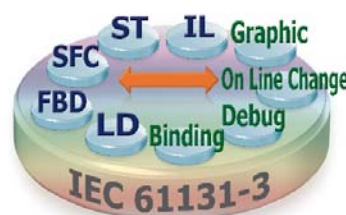
The benefits of running Windows CE 6.0 on a XPAC device include hard real-time capability, achievable deterministic control and allowing PAC can have a PC-like window displays and operating environment. The PACs are capable of running Win-GRAF (IEC 61131-3 Standard) software to develop logic control applications, and also supporting M.S. VS 2008 software (VB .NET, C#) to develop HMI and data management applications that can exchange data with Win-GRAF applications. So the application's design is more convenient and more practical.

■ Win-GRAF

Win-GRAF is a powerful, PLC-like, softlogic development software. It is installed on PC with Windows 7/8 (or later version). It supports the international PLC language standard - IEC 61131-3 - Ladder Diagram (LD), Function Block Diagram (FBD), Sequential Function Chart (SFC), Structured Text (ST), Instruction Set (IL), suitable to develop applications for the full range of Win-GRAF PACs from ICP DAS.

The features of the Win-GRAF:
- IEC 61131-3 Standard Open PLC Syntax (LD, FBD, SFC, ST, IL)
- Using ST Syntax in the FBD or LD Program
- Event Triggered Data Binding (Exchange Data between PACs)
- Online Debugging/Control/Monitoring, Offline Simulation
- On Line Change
- Various Protocols:
    - Modbus TCP/UDP, Modbus RTU/ASCII Master
    - Modbus TCP, RTU Slave
    - DCON ...
- Plenty of Functions, Function Blocks, I/O Boards
- Redundancy
   - For XP-8xx8-CE6 and RPAC-2658M

■ PAC Specifications

Models	XP-8038-CE6	XP-8138-CE6	XP-8338-CE6	XP-8738-CE6
System Software				
OS	Windows CE 6.0			
.Net Compact Framework	3.5			
Embedded Service	FTP Server, ASP (support Java Script, VB Script), SQL Compact Edition 3.5			
SDK Provided	Dll for Visual Studio .Net 2005/2008			
Multilanguage Support	English, German, French, Spanish, Portuguese, Russian, Italian, Japanese, Simplified Chinese, Traditional Chinese			
Development Software				
Win-GRAF Software — Win-GRAF	IEC 61131-3 standard			
Win-GRAF Software — Languages	LD, ST, FBD, SFC, IL			
Win-GRAF Software — Max. Code Size	2 MB			
Win-GRAF Software — Scan Time	3 ~ 15 ms for normal program; 15 ~ 50 ms for complex or large program			
Non-Win-GRAF	Options: VS.NET 2008 (VB.NET, C#.NET, C)			
CPU Module				
CPU	x86 CPU, 1.0 GHz, dual-core			
System Memory	2 GB DDR3			
Non-volatile Memory, MRAM	512 KB (retain memory without battery support)			
Flash	32 GB			
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)	Provides seconds, minutes, hours, date, day of the week, month, year			
Programmable LED Indicator	2			
64-bit Hardware Serial Number	Yes, for Software Copy Protection			
Watchdog Timer	Yes			
Rotary Switch	1 x 10 Position (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, 10/100/1000 Base-T (Auto-negotiating, Auto MDI/MDI-X, LED indicators)			
USB 2.0	4			
COM 1	RS-232 (RxD, TxD, GND); non-isolated	Internal communication with the high profile I-87K series modules in slots		
COM 2	RS-232 (RxD, TxD, GND); non-isolated			
COM 3	RS-485 (D2+, D2-) self-tuner ASIC inside; 3000 VDC Isolation			
COM 4	RS-232/RS-485 (RS-232: RxD, TxD, CTS, RTS, GND; RS-485: Data+, Data-); non-isolated			
COM 5	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI, GND); non-isolated			
I/O Expansion Slot				
Slot Number	0	1	3	7
	Note: For High Profile I-8K and I-87K Modules Only			
Mechanical				
Dimensions (W x L x H)	137 x 132 x 125 (mm)	169 x 132 x 125 (mm)	231 x 132 x 125 (mm)	355 x 132 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 VDC) for alarm			
Capacity	20 W	20 W	35 W	35 W
Consumption	12 W (0.5 A @ 24 VDC)	16.6 W (0.69 A @ 24 VDC)	16.8 W (0.7 A @ 24 VDC)	18 W (0.75 A @ 24 VDC)

■ Win-GRAF Specifications

| Protocols (Note that certain protocols require optional devices)	
NET ID	1~255, for Modbus TCP/RTU Slave, user-assigned
Modbus TCP/IP Master	A max. of 200 IP links to access/control the devices supporting Standard Modbus TCP/IP Slave protocol.
Modbus RTU/ASCII Master	A max. of 32 ports: COM1 ~ 33 to connect other Modbus Slave devices (Like M-7000). Recommend connecting no more than 32 devices in each port for better scan rate. (*)
Modbus RTU Slave	A max. of 16 ports: COM1 ~ 33 for connecting SCADA/HMI/OPC Server. (*)
Modbus TCP/IP Slave	Two Ethernet ports (LAN1 & LAN2) support up to 64 connections. If the PAC uses 1 connection to connect each PC/HMI, it can connect up to 64 PCs/HMIs; If the PAC uses 2 connections to connect each PC/HMI, it can connect up to 32 PCs/HMIs; If one of the Ethernet port malfunctions, the other one can still be used to connect the PC/HMI.
User-defined Protocol	Custom protocols can be applied at COM1~33 by using Serial communication functions or function blocks. (*)
DCON Remote I/O	A max. of 16 RS-485 ports: COM1 ~ 33. Each port can connect max. 50 nos I-7000 series modules or 50 nos I-87xxxW I/O modules in expansion units (I-87K4, I-87K8, I-87K9, RU-87P8, RU-87P4). Recommend connecting no more than 32 modules in each port for better scan rate.
Local I/O Modules	Supports only high profile I/O modules. Slot 1~7 supports I-8xxxW parallel I/O modules and I-87xxxW serial I/O modules.
App Protection	Using the unique 64-bit (8 bytes) PAC serial number to generate a protection password by your own algorithm to protect your Win-GRAF application. Then, if someone intend to copy your application in the PAC to another new PAC with the same PAC model, this application will not work properly in that new PAC.
Redundancy	2 XP-8x38-CE6 can set a redundant system, when one is damaged or crashes, the other can still take up and continue the work. The system offers 3-line communication redundancy, LAN1, LAN2 and Alive Port, as long as one of the three communication lines still connects normally, this redundant system can normally control the process. The redundant system provides a public IP address that allows SCADA/HMI software to access it without needing to determine which one is the Active IP.
Data Binding	Exchange data between ICP DAS Win-GRAF PAC via Ethernet ports (LAN1 and LAN2). The data transmission is event triggered. It is much efficient than polling way. Beside, user can setup the Redundant Binding in two ethernet ports by Software, then if one Ethernet port fail, it can switch to use the other port.
On Line Change	For application field that not allowed to stop the Win-GRAF program and wish to run a new program modified a little from the original program.
Modbus RTU I/O	When software enables Modbus RTU Master function, the PAC can connect ICP DAS M-7000 and tM series and LC series I/O modules which support Modbus RTU protocol.
Modbus TCP I/O	When software enable Modbus TCP Master function, the PAC can connect ET-7000, I-8KE4/8-MTCP and tPET/tET series I/O modules of ICP DAS which support Modbus TCP protocol.
Hart Master	Support I-87H17W modules in slot 1 to 7 to communicate with other HART devices.
Schedule Control	Supports the "Schedule-Control Utility" (free) to implement schedule control. Each PAC can control max. 10 Targets (devices) with different schedule settings in each day / holiday / special day / season / year.
Retain Variables	Built-in the fast retain memory that can retain up to 12,000 Win-GRAF variables.
File Access & Data Log	The Win-GRAF supports file operation functions to read/write files in the PAC's micro_SD or flash memory to do data log or file access.
eLogger HMI	Support to run HMI program (developed by the eLogger) together with the Win-GRAF logic-control program in the same PAC.
* Note: The COM6 ~ COM33 ports are located in the expansion boards if they are installed in slot 1~7 of XP-8x38-CE6.	

■ Dimensions

XP-8038-CE6	XP-8038-CE6	XP-8138-CE6
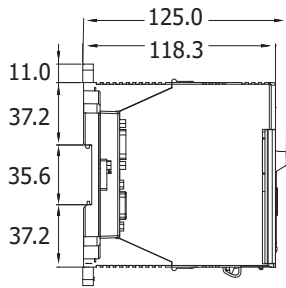
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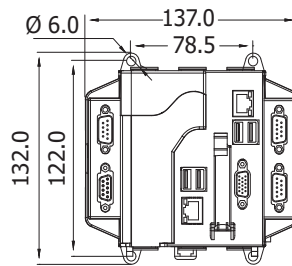
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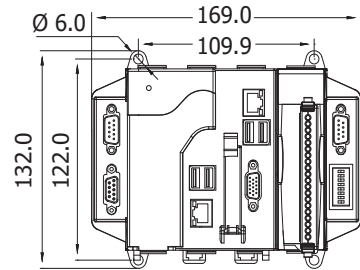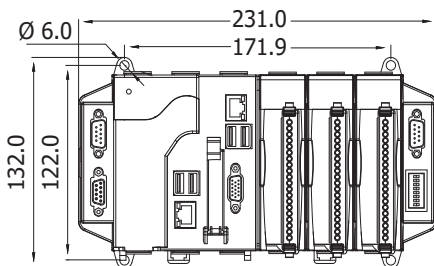
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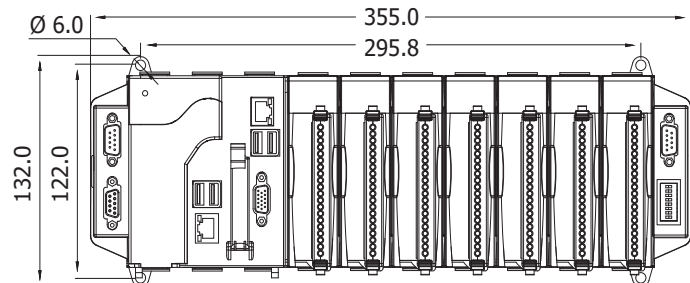
■ Pin Assignment

XP-8038-CE6	XP-8038-CE6/XP-8138-CE6/XP-8338-CE6/XP-8738-CE6			
COM1: RS-232	**COM2: RS-232**	**COM3: RS-485**	**COM4: RS-232/485**	**COM5: RS-232**
① ② RxD ③ TxD ④ ⑤ GND	⑤ GND ④ ③ RxD ② TxD ①	PWR1 GND D+ D- F.G. COM3: RS-485	CTS ⑥ ① Data+ ⑦ ② TxD RTS ⑧ ③ RxD Data- ⑨ ④ ⑤ GND	DSR ⑥ ① DCD RTS ⑦ ② RxD CTS ⑧ ③ TxD RI ⑨ ④ DTR ⑤ GND

* Except for XP-8038-CE6, COM1 on other Win-GRAF XPAC is for internal communication with I-87K modules installed in slots only

■ Ordering Information

XP-8038-CE6 CR	0 I/O slot WinCE 6.0 Based Win-GRAF XPAC (OS: Multi-Language version) (RoHS)
XP-8138-CE6 CR	1 I/O slot WinCE 6.0 Based Win-GRAF XPAC (OS: Multi-Language version) (RoHS)
XP-8338-CE6 CR	3 I/O slots WinCE 6.0 Based Win-GRAF XPAC (OS: Multi-Language version) (RoHS)
XP-8738-CE6 CR	7 I/O slots WinCE 6.0 Based Win-GRAF XPAC (OS: Multi-Language version) (RoHS)
XPCE6-GUP-18000	Upgrade XP-8x31-CE6 to XP-8x38-CE6 to support Win-GRAF

■ Related Products

Win-GRAF Development Software	
Win-GRAF Workbench	Win-GRAF Workbench Software (Large I/O Tags) with one USB Dongle