WP-9228-CE7 **WP-9428-CE7**

WP-9828-CE7

Win-GRAF based WinPAC-9000-CE7

Features

- Cortex-A8, 1GHz CPU
- 512 MB SDRAM and 256 MB Flash
- Windows CE 7.0 Professional
- Embedded Win-GRAF SoftLogic (IEC 61131-3)
- VGA Port Output
- Modbus RTU/TCP (Master, Slave)
- Support eLogger HMI
- Redundant Power Inputs

Introduction

The Win-GRAF WinPAC-9000-CE7 Series (WP-9228-CE7/9428-CE7/9828-CE7) is the new generation Windows CE 7.0 based PAC (Programmable Automation Controller) of ICP DAS. Each WP-9000-CE7 is equipped with a Cortex-A8 (1.0 GHz) CPU running a Windows CE 7.0 operating system, a variant of input/output ports (VGA, USB, Ethernet, RS-232/485), and 2/4/8 expansion I/O slots that can be used to integrate high performance I-9K (parallel-type) and I-97K (serial-type) series I/O modules.

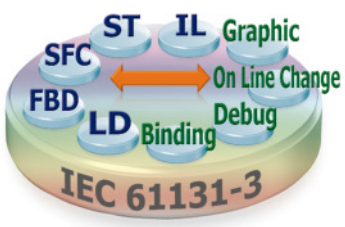
The benefits of running Windows CE 7.0 on a WinPAC device include hard real-time capability, achievable deterministic control and allowing PAC can have a PC-like window displays and operating environment. The WP-9x28-CE7 series PACs are capable of running Win-GRAF (IEC 61131-3 Standard) software to develop 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

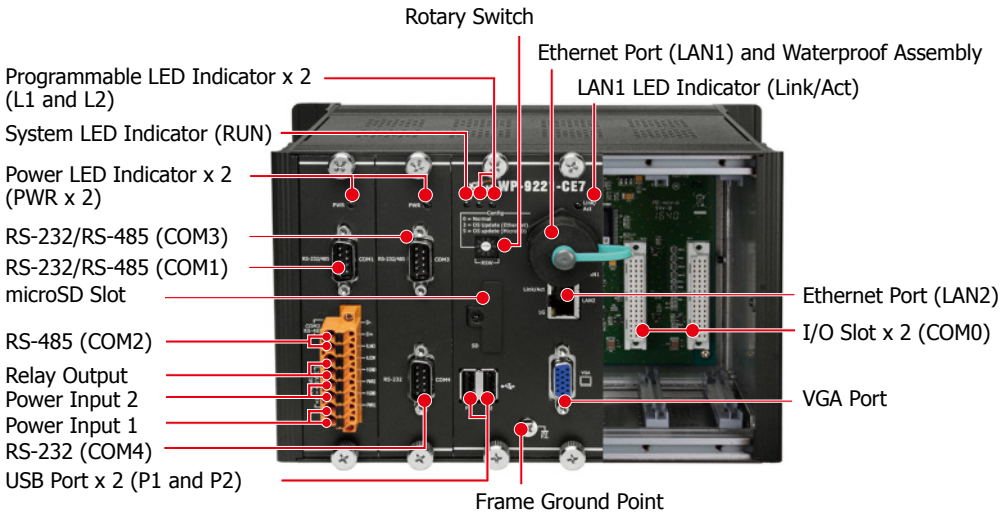
Models		WP-9228-CE7	WP-9428-CE7	WP-9828-CE7
System Software				
OS		Windows CE 7.0		
.Net Compact Framework		3.5		
Embedded Service		FTP server, Web server (support VB script, JAVA script), Embedded SQL server		
Multilanguage Support		English, German, French, Spanish, Russian, Italian, Korean, Simplified Chinese, Traditional Chinese		
Development Software				
Win-GRAF Software	Win-GRAF	IEC 61131-3 standard		
	Languages	LD, ST, FBD, SFC, IL		
	Max. Code Size	2 MB		
	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		Cortex-A8 (1.0 GHz)		
DDR3 SDRAM		512 MB		
MRAM		128 KB		
Flash		256 MB		
EEPROM		16 KB		
Expansion Flash Memory		4 GB SD card (up to 32 GB)		
RTC (Real Time Clock)		Provides seconds, minutes, hours, dates, day of week, month, year		
64-bit Hardware Serial Number		Yes, for Software Copy Protection		
Watchdog Timer		Yes		
Programmable LED Indicator		1		
Rotary Switch		1 x 10 Position (0 ~ 9)		
Buzzer		Yes		
VGA & Communication Ports				
VGA		800 x 600, 1024 x 768		
LED Indicators		1 x System, 2 x Power, 2 x Programmable		
Ethernet		RJ-45 x 2, 10/100/1000 Base-T (Auto-negotiating, Auto MDI/MDI-X, LED indicators)		
USB 2.0		2		
COM0		Internal communication with the I-97K series modules in slots		
COM1		RS-232/485 (RxD, TxD and GND for RS-232; Data+, Data- for RS-485); 3000 VDC isolated		
COM2		RS-485 (Data+, Data-); 3000 VDC isolated		
COM3		RS-232/485 (RxD, TxD, CTS, RTS and GND for RS-232; Data+, Data- for RS-485); 3000 VDC isolated		
COM4		RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); 3000 VDC isolated		
I/O Expansion Slot				
Slot Number		2	4	8
		Note: For High Profile I-9K and I-97K Modules Only		
Mechanical				
Dimensions (W x L x H)		239 mm x 133 mm x 164 mm	300 mm x 133 mm x 164 mm	422 mm x 133 mm x 164 mm
Installation		DIN-Rail or Wall Mounting		
Environmental				
Operating Temperature		-25 ~ +75° C		
Storage Temperature		-30 ~ +80° C		
Ambient Relative Humidity		10 ~ 90% RH (non-condensing)		
Power				
Input Range		+10 ~ +30 VDC		
Isolation		1 kV		
Redundant Power Inputs		Yes, with one power relay (1 A @ 24 VDC) for alarm		
Capacity		3.7A, 5V supply to CPU and backplane, 3.3A, 5V supply to I/O expansion slots, total 8 W	3.8A, 5V supply to CPU and backplane, 3.2A, 5V supply to I/O expansion slots, total 30 W	4.0A, 5V supply to CPU and backplane, 3.0A, 5V supply to I/O expansion slots, total 30 W
Consumption		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

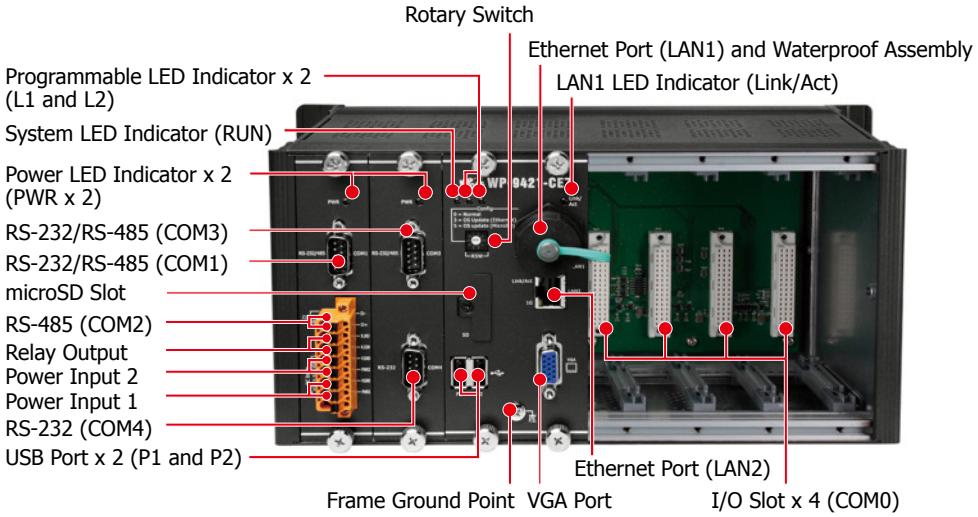
Protocols (Note that certain protocols require optional devices)	
NET ID	1~255, for Modbus TCP/RTU Slave, user-assigned
Modbus TCP/IP Master	A max. of 32 IP links to access/control the devices supporting Standard Modbus TCP/IP Slave protocol.
Modbus RTU/ASCII Master	A max. of 36 ports: COM1 ~ 37 to connect 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 ~ 37 for connecting SCADA/HMI/OPC Server. (*)
Modbus TCP/IP Slave	Two Ethernet ports (LAN1 & LAN2) support up to 32 connections. If the PAC uses 1 connection to connect each PC/HMI, it can connect up to 32 PCs/HMIs; If the PAC uses 2 connections to connect each PC/HMI, it can connect up to 16 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 COM1~37 by using Serial communication functions or function blocks. (*)
DCON Remote I/O	A max. of 16 RS-485 ports: COM1 ~ 37. 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 0~7 supports I-9xxx parallel I/O modules and I-97xxx 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.
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.
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 ~ COM37 ports are located in the expansion boards if they are installed in slot 0~7 of WP-9x28-CE7.**	

Appearance

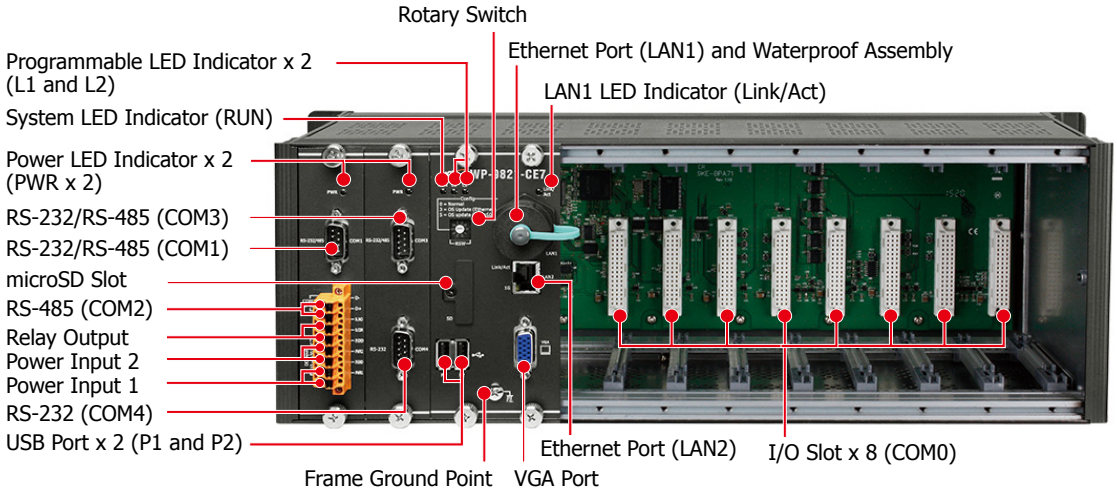
WP-9228-CE7



WP-9428-CE7

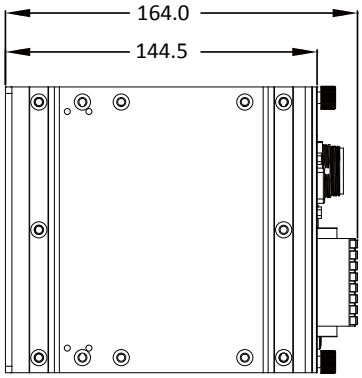


WP-9828-CE7



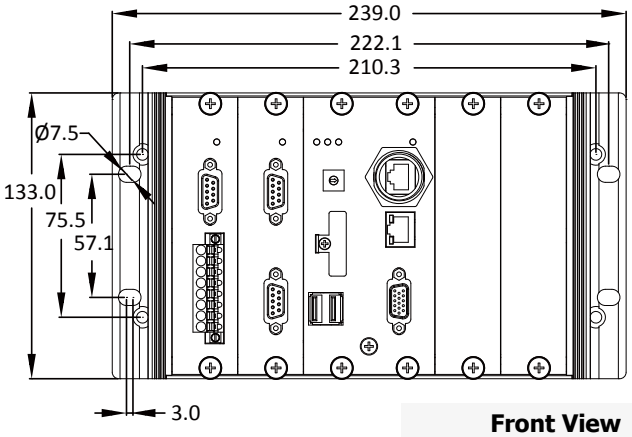
Dimensions

WP-9228-CE7/9428-CE7/9828-CE7



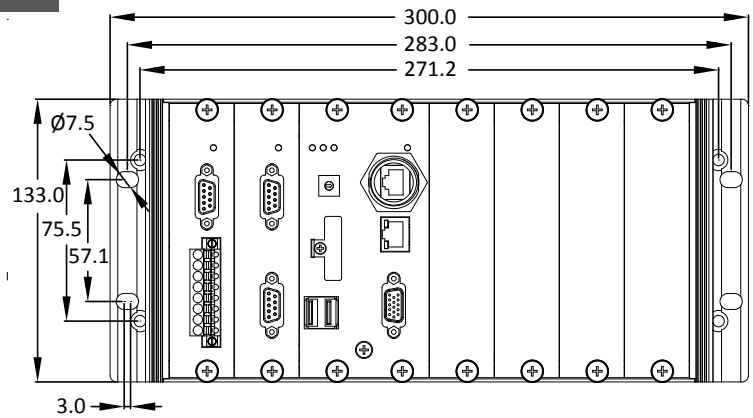
Left View

WP-9228-CE7

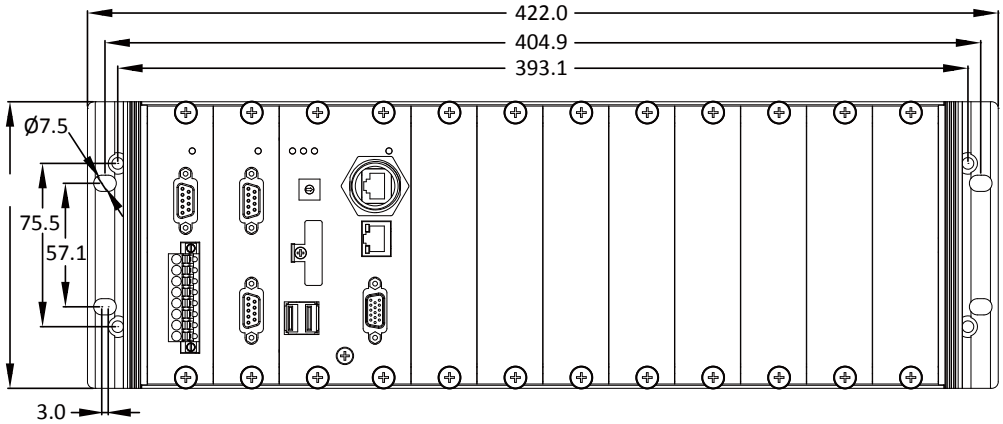


Front View

WP-9428-CE7



WP-9828-CE7



Ordering Information

WP-9228-CE7 CR	2-slot Win-GRAF Based PAC with Cortex-A8 CPU and WinCE 7.0
WP-9428-CE7 CR	4-slot Win-GRAF Based PAC with Cortex-A8 CPU and WinCE 7.0
WP-9828-CE7 CR	8-slot Win-GRAF Based PAC with Cortex-A8 CPU and WinCE 7.0

Related Products

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