ICP DAS

Features

- Cortex A8, 1 GHz CPU
- 512 MB SDRAM and 256 MB Flash
- Windows CE 7.0 Professional
- Embedded Win-GRAF SoftLogic (IEC 61131-3)
- Hard Real-Time Capability
- 64-bit Hardware Serial Number for Software Protection
- I/O Expansion Bus
- 10/100/1000M Ethernet Port
- 4 Serial Ports (RS-232/485)
- Operating Temperature: -25 ~ +75° C

WP-5238-CE7
Win-GRAF based WinPAC-5000

■ Introduction

The Win-GRAF WinPAC-5000 Series (WP-5238-CE7) is the new generation WinCE 7.0 based Win-GRAF PAC (Programmable Automation Controller) from ICP DAS. This series PAC is equipped an Cortex A8 CPU (1 GHz) and running a windows CE.NET 7.0 operating system. The optional I/O expansion board, XV-board, provides high-protection I/O. Using the built-in microSD, the Win-GRAF WP-5000 series can save application program, image file and data.
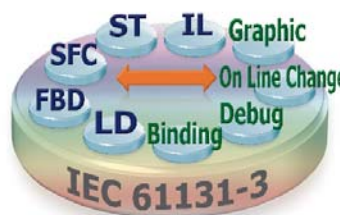
The benefits of running Windows CE on a WinPAC device include hard real-time capability, achievable deterministic control and allowing PAC can have a PC-like window displays and operating environment. The PACs are capable of running Win-GRAF (IEC 61131-3 Standard) software to develop logic control applications, 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 PAC only)

■ PAC Specifications

Models	WP-5238-CE7
System Software	
OS	Windows CE 7.0 Core
.Net Compact Framework	3.5
Embedded Service	FTP Server, Web Server (Supports VB script, JAVA script), Embedded SQL Server
SDK Provided	Dll for Visual Studio.Net 2008
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Korean, Simplified Chinese, Traditional Chinese
Development Software	

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 GHz
DDR3 SDRAM	512 MB
Flash	256 MB
FRAM	64 KB (for retain variables)
Expansion Flash Memory	4 GB microSD card (up to 32 GB)
RTC (Real Time Clock)	Provides seconds, minutes, hours, date, day of week, month, year
64-bit Hardware Serial Number	Yes, for Software Copy Protection
Dual Watchdog Timers	Yes
LED Indicators	1 x System/Power, 2 x Programmable
Rotary Switch	Yes (0 ~ 9)
VGA & Communication Ports	
VGA	Yes. Resolution: 640 × 480, 800 × 480, 800 × 600, 1024 × 768
Ethernet	RJ-45 x 1, 10/100/1000 Base-T (Auto-negotiating, Auto MDI/MDI-X, LED indicators)
USB 2.0 (host)	1
COM 1	RS-232 (RxD, TxD and GND); Non-isolated
COM 2	RS-232 (RxD, TxD and GND); Non-isolated
COM 3	RS-485 (Data+, Data-); Non-isolated
COM 4	RS-485 (Data+, Data-); 2500 VDC isolated
I/O Expansion Slot	
I/O Expansion Bus	Yes, one optional XV-board
Mechanical	
Dimensions (W x L x H)	91 mm x 132 mm x 52 mm
Installation	DIN-Rail Mounting
Environmental	
Operating Temperature	-25 ~ +75 ° C
Storage Temperature	-40 ~ +80 ° C
Ambient Relative Humidity	10 ~ 90% RH (non-condensing)
Power	
Input Range	+12 ~ 48 VDC
Consumption	4.8 W

Win-GRAF Specifications

Models	WP-5238-CE7
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 4 ports: COM1 ~ 4 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 4 ports: COM1 ~ 4 for connecting SCADA/HMI.
Modbus TCP/IP Slave	One Ethernet ports (LAN1) 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 ~ 4 by using Serial communication functions or function blocks.
DCON Remote I/O	A max. of 4 RS-485 ports: COM1 ~ 4. 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 one I/O XV-board. (Refer Optional I/O XV-board List) (*)
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 port (LAN1). The data transmission is event triggered. It is much efficient than polling way.
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 expansion I/O is located in the optional XV-board series if it is installed inside the WP-5xx8-CE7.	

📁 Appearance

Connector for Optional XV-board

VGA Port

microSD Socket

Optional XV-board

LED Indicators

Rotary Switch

LAN1

USB Host

Pin Assignment

COM4			COM3		COM2			COM1			+10~30V DC		
D+	D-	GND.ISO	D+	D-	GND	RxD	TxD	GND	RxD	TxD	PWR	P.GND	F.G.

📁 Ordering Information

WP-5238-CE7 CR	Win-GRAF based WP-5000 PAC with WinCE 7.0 and one LAN port (RoHS)

📁 Related Products

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

📁 Accessories

XV-board	Add-on I/O Expansion Board