

PAC Products

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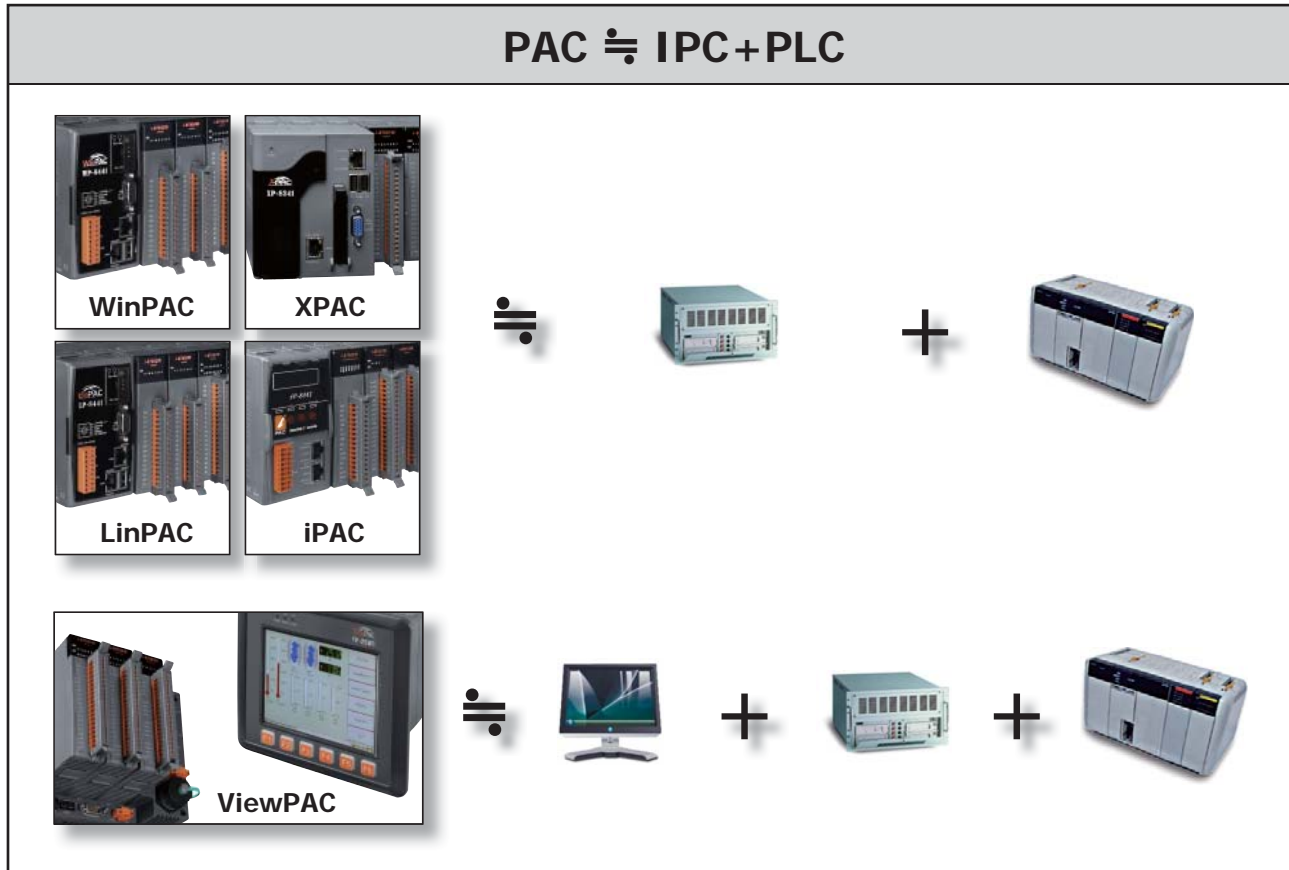


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• Features

1. General Description

The PAC family comprises a central processor (CPU), power supply, I/O bus, communication interfaces, front panel control facilities and connectors to plug in various I/O modules.



Key Features of the PAC

- Powerful embedded OS

PAC	Operating System
WinPAC	WinCE 5.0
XPAC	WES2009, WinCE 6.0
LinPAC	Linux kernel 2.6
iPAC	MiniOS7
ViewPAC	MiniOS7, WinCE 5.0, Android 1.6

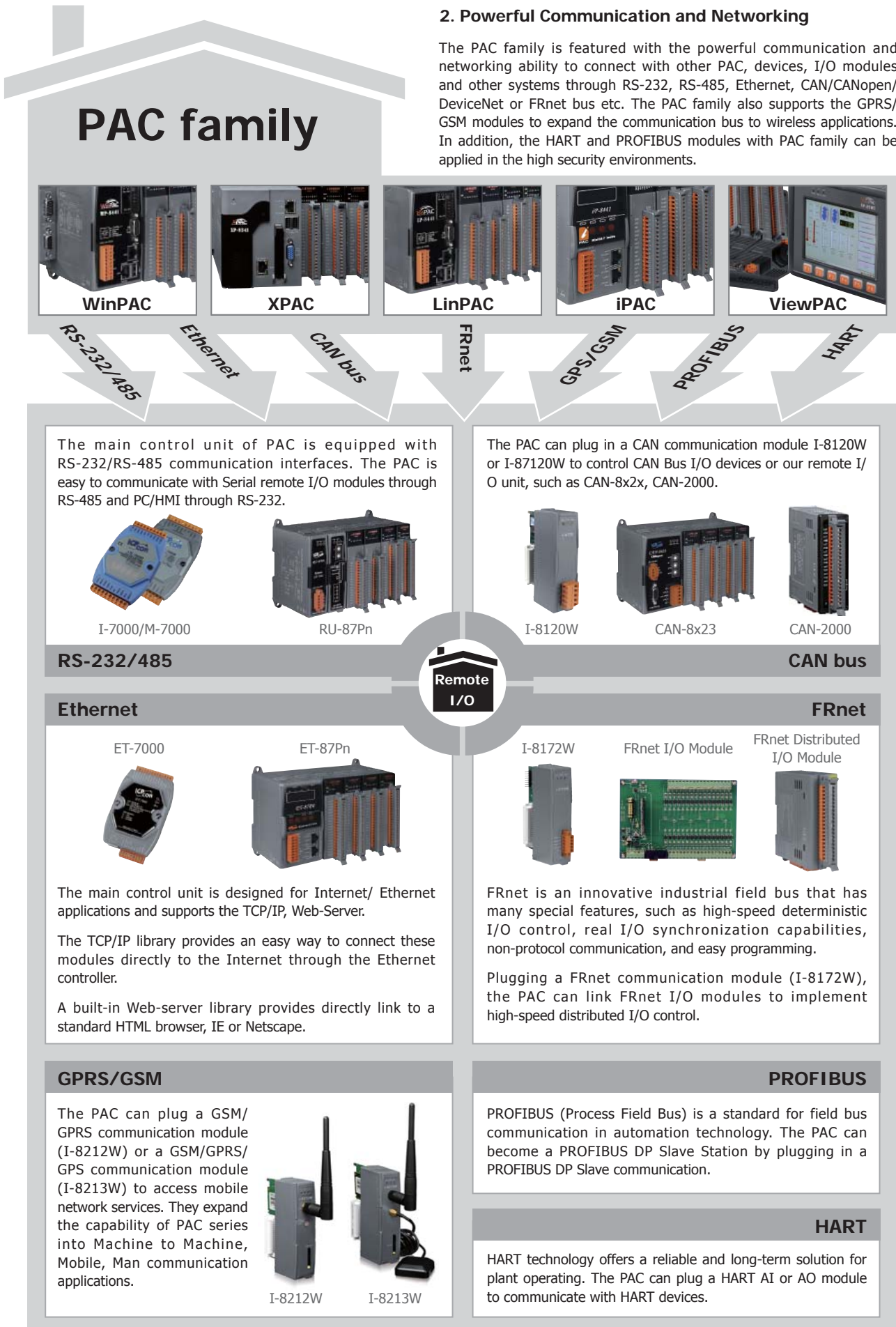
- Various networking & communication
- Integrated display and control panel
- Comprehensive range of Software Support
- I/O Module can be auto-configurable:
For both Serial (High profile I-87KW Series) and Parallel (High profile I-8K Series) I/O modules
- I/O Module can be hot-swap:
For Serial I/O (High profile I-87KW Series)
- Support removable microSD, internal SRAM or Flash disk (for different PAC)

Advantages of the PAC

- PAC=IPC+PLC, buy one get more
- Intelligent management controller
- Cost effective
- best price/ performance
- Versatile I/O expansion
- More reliability (VS. IPC)
Fan-less design
Wide temperature range
WinCE/Linux OS support
- Compact size (VS. IPC)
Din-Rail support.
PLC look-like
- More peripherals support (VS. PLC)
Support Ethernet, USB, VGA
- Flexible programming support (VS. PLC)
Support C/C++/C#, .Net, BASIC/VB,...etc.

2. Powerful Communication and Networking

The PAC family is featured with the powerful communication and networking ability to connect with other PAC, devices, I/O modules and other systems through RS-232, RS-485, Ethernet, CAN/CANopen/ DeviceNet or FRnet bus etc. The PAC family also supports the GPRS/ GSM modules to expand the communication bus to wireless applications. In addition, the HART and PROFIBUS modules with PAC family can be applied in the high security environments.



3. Powerful Hardware Design

The PAC family of ICP DAS with powerful hardware design can operate in harsh, electrically noisy environments and provide faster & more professional performance. This has been achieved through attention to the following:

Built-in Dual Watchdog Timers

The integrated watchdog circuit will reset the CPU module if there is a failure in either the hardware or software.

Wide Operating Temperature

The PAC product is designed to operate over a very wide temperature range from -25 °C ~ +75 °C.

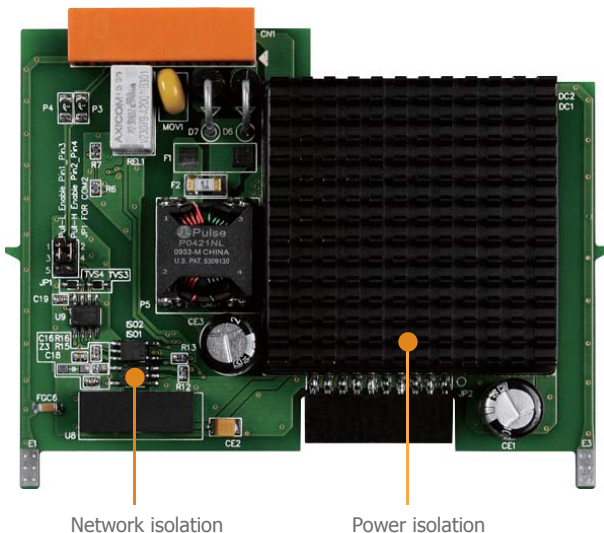


High performance integrated power supply

The built-in isolated power supply is rated to perform linearly up to full loading.

Input Protection circuitry

The protection circuitry on both the network and power supply protects the system from external signals such as main spikes and ambient electrical noise. In addition the central processing modules are isolated three ways from external signals. This is through I/O isolation of 3 kV, network isolation to 3 kV and power isolation to 1000 V.



Easy-to-Install

The PAC family is easy-to-installed by either DIN-rail mounted or Rack mounting. Input signals can be connected to the unit with easy using plug in signal connectors.



Din-Rail



Rack Mount

Support Flash, SRAM/SDRAM/DDR SDRAM, Battery-backup SRAM or microSD

PAC family provides various memory storages, such as Flash, SRAM/SDRAM/DDR SDRAM, battery-backup SRAM disk or microSD.

VGA Port for high-end PAC

The high-end PAC provides a VGA port to connect to a regular LCD monitor.

This makes following major advantages

- flexible to choose different size of LCD monitors
- easy to design user interface
- no complex communication between the HMI and the PAC



• Operating System

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Overview



WES 2009

Advantages:

- Has same Win32 API as Windows XP Professional does.
- Enhanced Write Filter (WES) to protect the system disk (C:\) from write access and unpredictable power lost.

Features:

- FTP server
- HTTP server
- SQL express
- .NET framework 3.5
- Win32 APIs

Software development tools:

- Visual Studio 2005/2008
- VC++ 6.0
- VB 6.0
- Delphi
- BCB Builder
- and most development tools available on Windows XP

Note: ISaGRAF is not available on this platform.



WinCE 5.0/6.0

Advantages:

- Hard real-time capability
- Small core size
- Short boot time
- Interrupt handling at a deeper level
- Achievable deterministic control
- Low cost

Features:

- FTP server
- HTTP server
- SQL server embedded
- .NET compact framework 2.0/3.5

Software development tools:

- Visual Studio 2005/2008
- ISaGRAF (Soft PLC)
- InduSoft (SCADA)
- eLogger (HMI and data logger)



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LinPAC



ViewPAC



iPAC



ViewPAC



Linux Kernel 2.6/Android 1.6

Advantages:

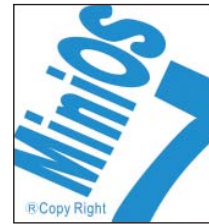
- Stability
- Flexibility
- Low cost
- Free of charge
- Powerful software and development tools
- Open and standard programming environments

Features:

- Open source
- Small core size
- Support for XWindows
- Support for service: Web, FTP, Telnet and SSH server
- GNU Toolchain for Windows and Linux operating systems

Support programming:

- GNU C
- JAVA
- GUI



MiniOS7

Advantages:

- Stability
- short boot time period (<1 second)
- Less memory resource required
- Faster watchdog response time
- Free IDE development: MiniOS7 Studio

Features:

- DOS-like embedded OS
- Antivirus ability
- Internet connectivity
- Rich libraries & demo programs

Support Programming:

- C Language
- SoftPLC Logic (ISaGRAF)



• Software

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Overview

1. ISaGRAF (SoftPLC Solution)

ISaGRAF is a powerful SoftLogic package on the industrial market. **ISaGRAF Workbench** is a PLC-like development software running on Windows 95/98/NT/2000/XP/Vista/7 and its **ISaGRAF Runtime** application programs can run on any **ISaGRAF PACs** such as WP-8xx7, VP-2xx7, XP-8xx7-CE6, iP-8xx7, μPAC-7186(P)EG etc. Using ISaGRAF PACs, the control/monitor systems can easily implement industrial level of real-time data acquisition and data/devices control via wiring or wireless network in various industries.

Application area: data acquisition system, distributed control system, factory and building automation, motor control, remote I/O system, wireless control system...

ISaGRAF Workbench Features:

- Support IEC 61131-3 Standard Open PLC Languages
 - + Flow Chart (FC) :
 1. Quick Ladder (LD)
 2. Function Block Diagram (FBD)
 3. Sequential Function Chart (SFC)
 4. Structured Text (ST)
 5. Instruction List (IL)
 6. Flow Chart (FC)
- On-line debugging/control/monitor
- Off-line simulation
- On-line change (For WP-8xx7, VP-2xxW7, XP-8xx7 only)
- Spotlight: Simple graphic HMI
- Auto-Scan I/O
- Lock & unlock I/O
- Uploading the program in the PAC



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ISaGRAF Solution Features:

- Support eLogger HMI
 - A free HMI software on the WinPAC, XPAC and ViewPAC
 - Easy to design HMI + SoftLogic application
- Modbus Master Protocol
 - Modbus RTU, ASCII, RS-232/485/422 Master
 - Modbus TCP Master
 - For connecting other Modbus PLCs, meters, I/Os and devices
- Modbus Slave Protocol
 - Modbus RTU (RS-232/485/422) Slave
 - Modbus TCP/IP Slave
 - For connecting other PC/HMI/SCADA (Ex. InduSoft) and touch HMI (Ex. Touch-506T)
- Data-Recorder & Data-Logger
- Data Exchange
 - Ebus: Through Ethernet
 - Fbus: Through RS-485
 - PAC to PAC
- CAN/CANopen
 - Via I-7530 to connect CAN/CANopen devices
 - For connecting other CAN/CANopen meters, I/Os, devices
- FRnet I/O
- Motion Control
 - For controlling server motors (P-command)
- PAC can send e-mail to the internet
- SMS: Short Message Service: GSM modem
 - For reporting data and alarms to the operators
- Wireless Communication: GPS, ZigBee & Radio
- Auto-report Acquisition/Control Data
- Redundant Solution : Hot-swap/Ethernet
- Construction Stress Monitoring: VW sensor and Carlson strain gauge inputs solutions (Bridge/dam/building...)



Software Development: ISaGRAF V.S. C++ and VS.net 2008

Item	ISaGRAF Ver. 3.xx	C++	VS.net 2008
Programming	Easy	Hard	Middle hard
Debug	Easy	Hard	Middle hard
SoftLogic	Yes	No	No
Program I/O	Just connect and play	Hard coding	Hard coding
Communication	Already built-in Modbus TCP, Modbus RTU, Modbus ASCII, DCON, SMS, e-mail, TCP, UDP, ...	Hard coding	Hard coding

2. InduSoft (SCADA Solution)



Introduction :

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 embedded instrumentation and control 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. We provide the InduSoft bundled driver to integrate InduSoft software into ICP DAS products (IO Modules: I-7000, I-8000, I-87K ; PACs: WinPAC, WinPAC, XPAC) for SCADA system.

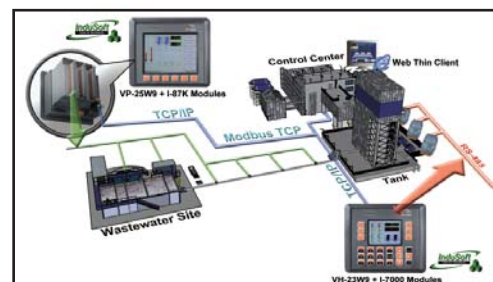
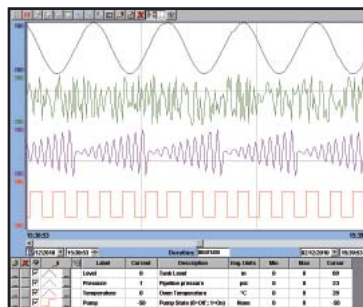
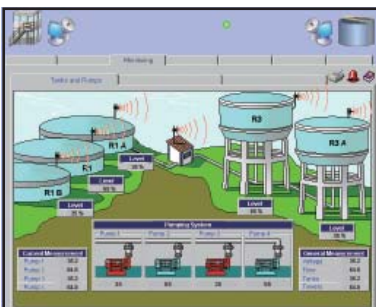
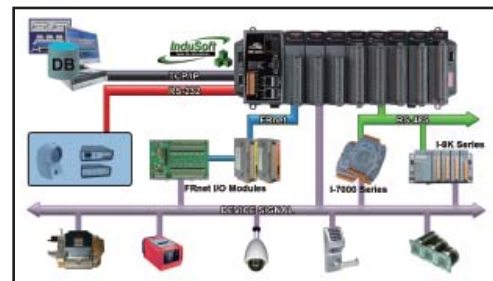
Integrated with ICP DAS PACs :

InduSoft has been integrated into ICP DAS various PACs including WinPAC, ViewPAC, XPAC and XPAC-CE6. The following is the advantages when using InduSoft with ICP DAS PACs.

	Features
WinPAC	<ul style="list-style-type: none"> Stable and high performance-to-price ratio small SCADA system Rapidly and easily develop I/O integrated graphic supervisory control system
ViewPAC	<ul style="list-style-type: none"> Provide integrated touch HMI/SCADA system solution Suitable for spatial narrow and small machine control system
XPAC	<ul style="list-style-type: none"> High performance and various Win32 API and Tool integrated SCADA system Easily integrate third party software for multi-purpose application
XPAC-CE6	<ul style="list-style-type: none"> Provide the best choice for high efficiency real time embedded system Suitable for massive data acquisition and processing centralized system

Features:

- Elegant Graphics
- Multi-Language
- Database (Access, Excel, SQL, Oracle...)
- Recipes and Reports
- Online and History Alarm / 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
- Others (VBScript, E-mail, FTP, SNMP...)



3. EZ Data Logger

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Overview

EZ Data Logger DCON Modbus TCP Modbus Serial

★Virtual Channel Definition ★Control Logic (VB Script)

★Alarm Notifier

High/Low Alarm

★IP Camera Viewer

Data Trend

Layout

Database and Report

EZ Data Logger is the software that ICP DAS provides for users to easily build a SCADA system on Windows 2000/XP/Vista. It comes with two versions, "Lite" & "Professional". The Lite version is not only full-functioned but free to all ICP DAS users!

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EZ Data Logger is a small data logger software. It can be applied to small remote I/O system. With its user-friendly interface, users can quickly and easily build a data logger software without any programming skill.

Features:

- Support DCON, Modbus RTU, Modbus ASCII, Modbus TCP protocols
- Support multiple COM Ports and TCP/IP connections
- Support Virtual Channel definition
- Support Control Logic (VB Script)
- Support Alarm Notifier (by sending SMS to cell phone or E-Mail)
- Flexible module configuration (different description and color)
- Flexible workgroup configuration
- Real time data trend (with zoom in and zoom out)
- Each trend line can store more than 86400 records.
- Provide Layout view
- Provide IP Camera Viewer
- Access database supported (can be exported to Excel file or CVS file)
- Provide Reporter to print trend line or data
- Provide High/Low alarm with audio warning
- Can search for DCON (I-7000/8000/87K) modules and Modbus (M-7000) serial modules
- Provide Value scaling
- All operations are done by click mouse and enter value.

EZ DATA LOGGER Lite

Build your SCADA system with ICP DAS modules in 5 minutes.

Watch the video & Download the "Lite" Version **FOR FREE** now!

62.603

AI0 30 40 50 60 70 80 90 100

AI2 49.047

AI1 20.996

Time1 1.000

ON Safe On

D10 D13 D15 D12 D17 D00

D14 D16 D11

AI3 100 80 60 40 20 0

AI4 30.434 %

AI5 49.667 %

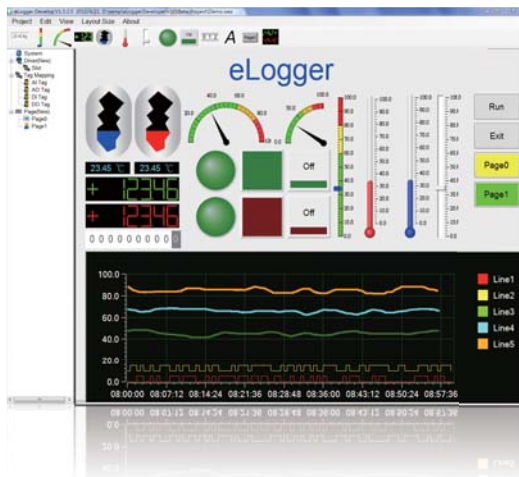
AI01 10 9 8 7 6 5 4 3 2 1 0

AI7 25,230

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4. eLogger



eLogger is an easy-to-use software to implement HMI and data logger on our Windows CE.NET 5.0/6.0 based PACs (XPAC, WinPAC and ViewPAC) for simple I/O monitoring and controlling systems. It can save your money and shorten time-to-market. eLogger can quickly and easily develop an application with flexible I/O configuration. The developing can be completed in just 5 simple steps:

- Step 1: configuring I/O modules
- Step 2: configuring data logger
- Step 3: designing HMI layout pages,
- Step 4: uploading the project to WinPAC/ViewPAC,
- Step 5: running it.

In the simple steps, there is no need of software programming knowledge. And if you want to add more powerful functions, eLogger also provides a flexible "shared memory" interface to allow your VS.NET and ISaGRAF programs co-work with it. eLogger currently supports I-87K series I/O modules on local slots. In the future, it will support I-8K series I/O modules on local slots and remote I/O modules over RS-485, Ethernet with DCON and Modbus protocols. With the various I/O module series, you can find I/O modules to suit various configurations.

Features:

1. PAC Support:

- Developer: Windows 2K, Windows XP, Windows Vista, Windows 7
- Run time target: Windows CE.NET 5.0/6.0 platform, such as XP-8x4x-CE6 series, WP-8x3x series, WP-8x4x series, VP-23W1, VP-25W1

2. I/O Module Support:

- High speed local I/O (not available): I-8K series
- Low speed local I/O: I-87K series
- RS-485 remote I/O (not available): I-7000, M-7000, RU-87Pn, Modbus/RTU/ASCII devices
- Ethernet remote I/O (not available): ET-7000, ET-87Pn, Modbus/TCP devices

3. Signal Type of I/O Modules:

- DI, DO, AI, AO, counter, frequency, DI with latch function.

4. Communication (not available)

- RS-485: DCON master, Modbus/RTU master, Modbus/ASCII master
- Ethernet: DCON master, Modbus/TCP master

5. HMI

- Elements: button, text box, linear gauge, angular gauge, LED numeral, LED indicator, tank, label, trend line.



6. Real Time Data Trend

- Zoom in and zoom out
- Max. of 5 trend lines in one page.

7. Value Scaling

8. Account Management

9. Remote Maintenance (not available)

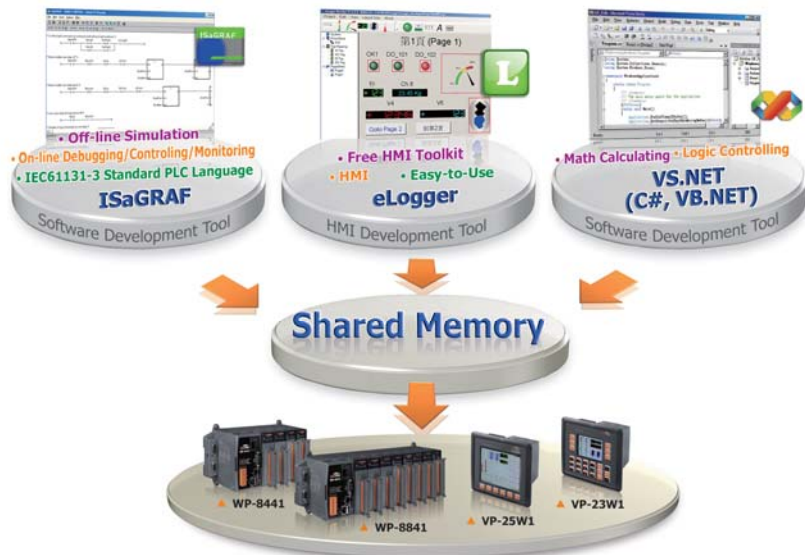
10. Data Base

- Local data base: SQL embedded.
- Remote data base(not available): SQL 2005 on Windows platform.

11. Logic Control Programming

Via the " shared memory " , you can choose ISaGRAF or VS.Net to develop a logic control program and co-work with the eLogger. Your programs can access the data of I/O module and exchange other temporary data through the "shared memory". You can focus on the logic control programming.

- ISaGRAF (IEC61131-3 standard PLC languages) (Refer to ISaGRAF FAQ-115)
- Visual Studio .NET (C#, VB.NET) for Window CE.NET 5.0/6.0



5. NAPOPC DA Server

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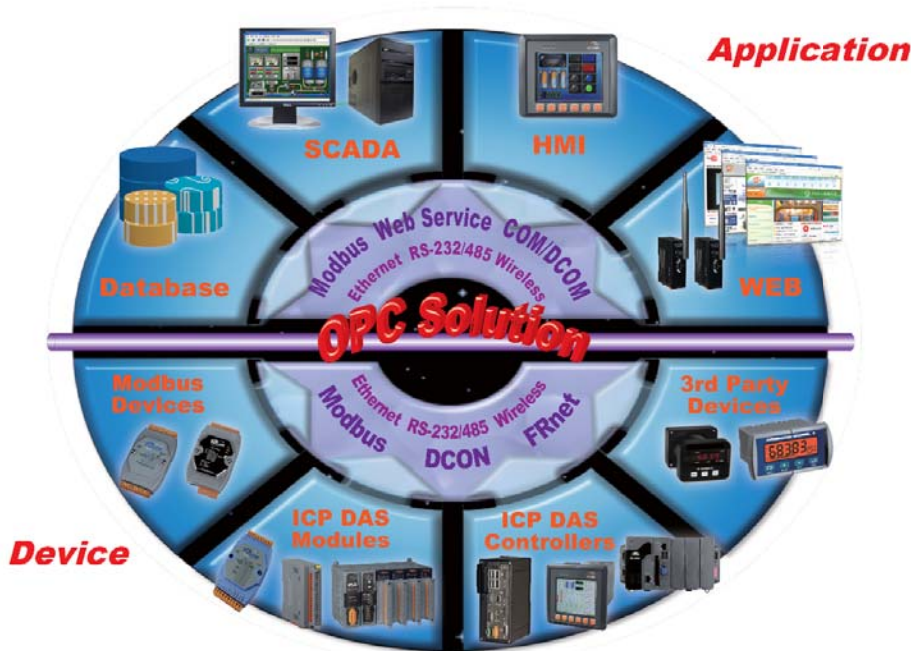
Overview

NAPOPC DA Server is a free OPC DA Server (The "OPC" stands for "OLE for Process Control" and the "DA" stands for "Data Access") provided by ICP DAS running on WinPAC, ViewPAC, XPAC, WinCon and PC with Windows 95/98/ME/2000/NT/XP operating systems. **NAPOPC DA Server** provides many benefits to users such as reduce time through lower system integration costs, integrate easily with plug-and-play SCADA/HMI/Database, connect and interoperate easily to custom applications, access to data by anyone in the automation hierarchy, reduce troubleshooting and maintenance cost, write to devices synchronously and asynchronously (not possible before OPC).

Using SCADA/HMI/Database software program, system contacts and obtains data from NAPOPC DA Server either on the same computer or on another computer. SCADA/HMI/Database makes a request and NAPOPC DA Server fulfills the request by gathering the data of ICP DAS modules and third-party devices to SCADA/HMI/Database.

For different OS of PAC products, ICP DAS provides several professional DA Servers, such as:

- NAPOPC_ST DA Server : For Windows 95/98/ME/2000/NT/XP OS
- NAPOPC_XPE DA Server : For Windows XP Embedded OS
- NAPOPC_CE5 DA Server : For Windows CE 5.0 OS
- NAPOPC_CE6 DA Server. : For Windows CE 6.0 OS



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Features:

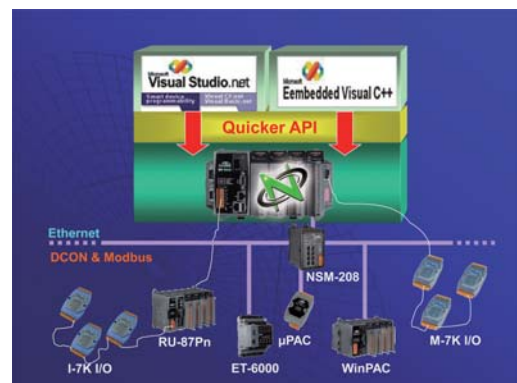
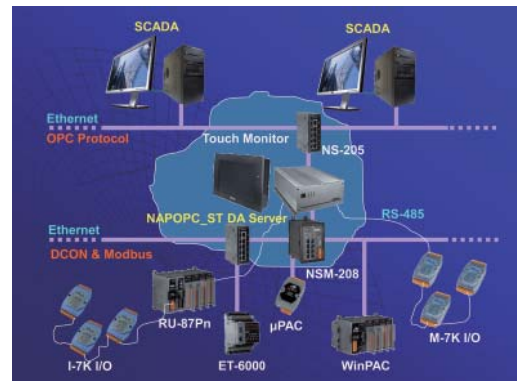
- Easy-to-use explorer-style user interface
- Multi-thread communication
- Auto search & Auto generate
- Support Modbus devices
- Provide "OPC to Modbus" service
- Support Host Watchdog
- Unique design:
 - Active data transmission mechanism
 - OPC Client can select the document in the DA Server during runtime
 - Open application programming interface

Support :

- ICP DAS I-7K/I-8K/I-87K I/O modules
- ICP DAS Ethernet I/O
- ICP DAS FRnet Remote I/O
- Support third party Modbus devices
- ICP DAS PACs which support Modbus protocol
- Compatible with most development platforms (Visual C++, Visual Studio .Net)
- Compatible with all local and remote OPC Client (Remote Accessing using DCOM technique)
- Compliant with OPC specification V2.0

Applications :

- Protocol Conversion Application
- VxComm Application
- Wireless I/O Application
- Active Server to Client Communication Application
- Direct Cross-Process I/O Access Application



• Redundant System

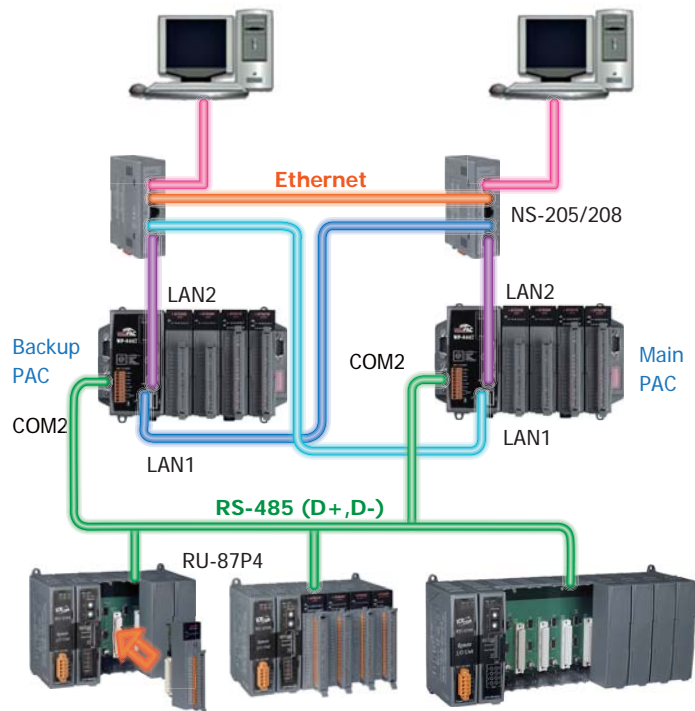
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Overview

1. Redundant PACs with RS-485 I/O

Features:

- Redundant PACs
- ISaGRAF based PAC
- Modbus/TCP protocol for connecting PCs and PACs
- Redundancy switchover time less than 0.5 second
- RS-485 network for connecting PACs and I/O modules
- Hot Swap and Auto Configuration I/O modules



Hot Swap!

RU-87P4/8 + I-87K I/O (High Profile Modules)

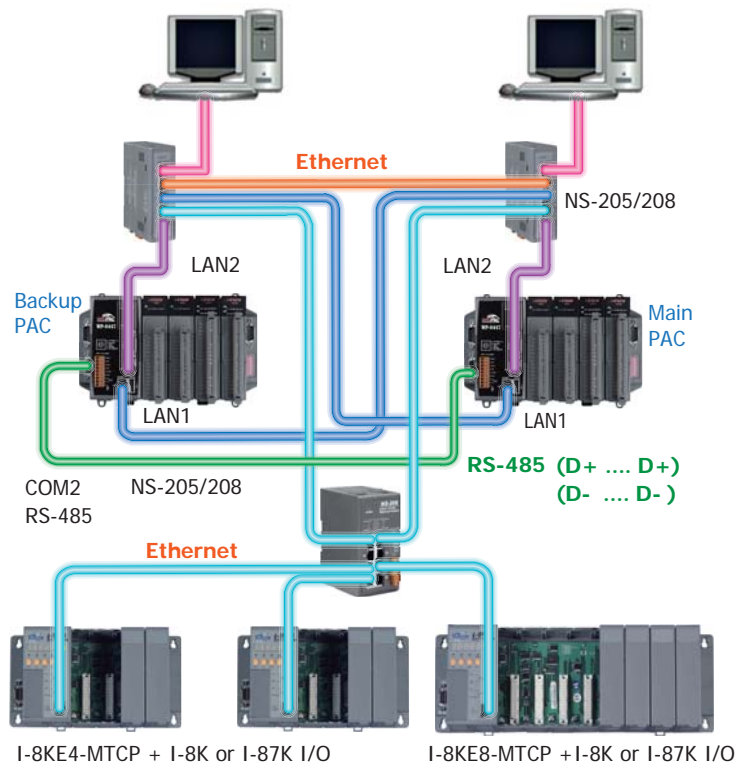
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2. Redundant PACs with Ethernet I/O

Features:

- Redundant PACs
- ISaGRAF based PAC
- Modbus/TCP protocol for connecting PCs and PACs
- Redundancy switchover time less than 0.5 second
- Ethernet network for connecting PACs and I/O modules
- Hot Swap and Auto Configuration I/O modules



• Redundant System

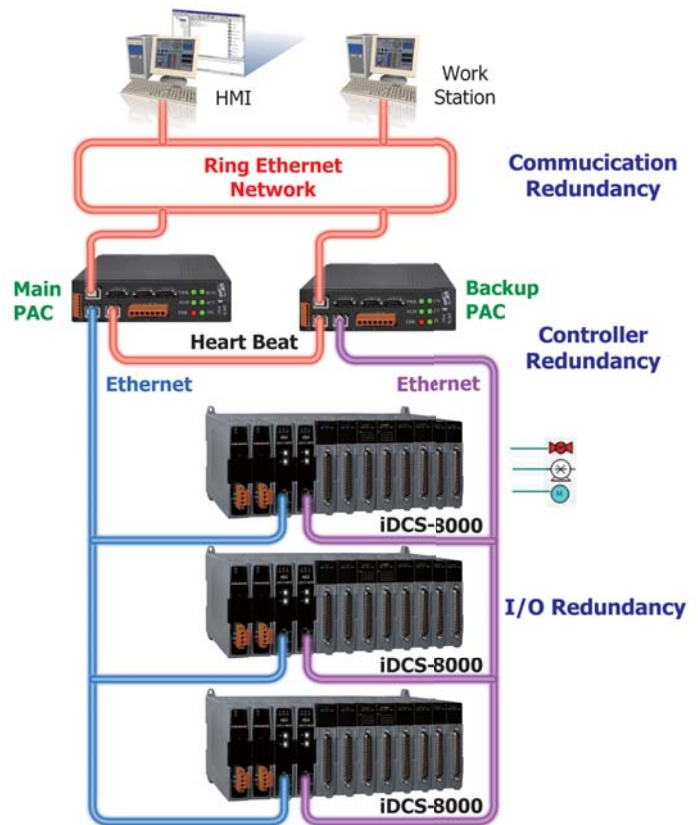
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Overview

3. Redundant PACs with DCS I/O

Features:

- Redundant PACs
- Redundant Ethernet network for connecting PACs and DCS I/O modules
- Redundant power supply for DCS I/O modules
- Redundant DCS I/O modules
- ISaGRAF based PAC
- Modbus/TCP protocol for connecting PCs and PACs
- Redundancy switchover time less than 0.5 second
- Ethernet network for connecting PACs and DCS I/O modules
- Hot Swap and Auto Configuration DCS I/O modules



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PAC Products

iDCS-8000 Features:

- Redundant
- Hot Swap
- Auto Configuration

