
Getting Started : The WinPAC ISaGRAF PAC

The WinPAC-8xx7/WP-8xx7 is the abbreviation of the WP-8147/ 8447/ 8847/ 8137/ 8437/ 8837.
The WinPAC-8xx6/WP-8xx6 is the abbreviation of the WP-8146/ 8446/ 8846/ 8136/ 8436/ 8836.

Important Notice

1. **WP-8xx7/8xx6 supports only High profile I-8K and I-87K I/O cards in its slot 0 to 7.**

Refer to WP-8xx7 CD: \napdos\isagraf\wp-8xx7\english_manu\wp-8xx7_datasheet.pdf

2. Please always set a fixed IP address to the WinPAC-8xx7. (No DHCP)

3. Please always set WP-*ç ç ï q • Á Š Œ Þ G Á æ • Á å ã • æ à | ^ å Á ã ~ Á } [c Á ˇ • ã*

4. Recommend to use the NS-205 or NS-208 Industrial Ethernet Switch for WP-8xx7 / 8xx6.

Legal Liability

ICP DAS CO., LTD. assumes no liability for any and all damages that may be incurred by the user as a consequence of this product. ICP DAS CO., LTD. reserves the right to change this manual at any time without notice.

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Trademark & Copyright Notice

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Development Software

Two options:

- ISaGRAF: Ver. 3.4x (or Ver. 3.5x), IEC 61131-3 standard. LD, ST, FBD, SFC, IL & FC or
- Non-ISaGRAF: Microsoft EVC++4.0 or VS.NET 2008/2005/2003 (VB.net, C#.net)

Reference Guide

- **GU; F5: English Manual:**

WP-8xx7 CD: \napdos\isagraf\wp-8xx7\english_manu\ "user_manual_i_8xx7.pdf" & "user_manual_i_8xx7_appendix.pdf"

- **ISaGRAF (Chinese Manual):**

WP-8xx7 CD: \napdos\isagraf\wp-8xx7\chinese_manu\ "chinese_user_manual_i_8xx7.pdf" & "chinese_user_manual_i_8xx7_appendix.pdf"

- **More from the Internet:**

<http://www.icpdas.com/products/PAC/i-8000/isagraf.htm>

Technical Service:

Please contact local agent or email problem-report to service@icpdas.com .

FAQ : <http://www.icpdas.com/faq/isagraf.htm>

Written by Chun Tsai; Edited by Eva Li.

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Reference Guide

= G U ; F 5 : ' I g Y f (English Manual):`

WinPAC-8xx7 CD: \napdos\isagraf\wp-8xx7\english_manu\ "user_manual_i_8xx7.pdf" & "user_manual_i_8xx7_Appendix.pdf"

http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm

ISaGRAF (Chinese Manual):

WinPAC-8xx7 CD: \napdos\isagraf\wp-8xx7\chinese_manu\ "chinese_user_manual_i_8xx7.pdf" & "chinese_user_manual_i_8xx7_Appendix.pdf"

http://www.icpdas.com/products/PAC/i-8000/getting_started_manual.htm

Industrial Ethernet Switch : NS-205/NS-208

http://www.icpdas.com/products/Switch/switch_list.htm



Model: NS-205



Model: NS-208

Power Supply:

http://www.icpdas.com/products/Accessories/power_supply/power_list.htm

DP-660 : 24 V / 2.5 A , 5 V / 0.5 A power supply (DIN-Rail mounting)

DP-665 : 24 V / 2.5 A , 5 V / 0.5 A power supply

DP-1200 : 24 V / 5 A power supply



Model: DP-660



Model: DP-1200



Model: DP-665

FAQ:

www.icpdas.com > FAQ > Software > ISaGRAF for Frequently Asked Questions.

<http://www.icpdas.com/fag/isagraf.htm>

I/O Modules Selection Guide for WP-8xx7 Series

WP-8xx7 supports the **I-8K/I-87K High Profile** I/O modules and RS-485 / FRnet remote I/O modules listed in the [ISaGRAF Data Sheet](#) . Please refer to the list in the next page or follow the below steps to get the newest list.

1. www.icpdas.com

The screenshot shows the ICP DAS website homepage. A red callout box highlights the address bar containing 'http://www.icpdas.com/'. The website features a navigation menu with 'Home', 'About Company', 'Products', 'Download', 'Distributors', 'Partners', 'Training', 'Activity', 'Certification', 'Application Stories', 'FAQ', and 'News & Events'. The main content area displays the 'ViewPAC Family' as 'The All-in-One Control Unit' with features like 'Touch Screen', 'Programmable Keypads', and 'Optional Operation System'. Below this, the 'PPDS-700 Series' is highlighted as a 'Programmable Device Server' and 'Intelligent Serial-Ethernet Gateway'. A vertical list of product models is shown: RS-200P-SE, G-4500, I-8088W, WP-8446, PET-7060, and PPDS-700. The left sidebar contains links for 'Subscribe', 'Programable Automation Controller', 'Remote I/O Modules / Units', 'PROFIBUS', 'CAN CANopen DeviceNet', 'PC Based I/O Boards', and 'ISaGRAF SoftLogic PAC'.

3. Data Sheet

The screenshot shows the 'ISaGRAF PAC' Data Sheet page. A red callout box highlights the title '3. Data Sheet'. The page features a central diagram with 'ISaGRAF PAC' at the center, surrounded by various modules and protocols. The diagram includes 'WinPAC', 'IPAC', 'ViewPAC', 'µPAC', 'HMI & SCADA Software', 'Modbus RTU Slave Protocol', 'DICON Protocol', 'Modbus Devices', 'EKAN', 'M-7000 Remote I/O', 'I-7000 Remote I/O', 'RU-87Pn/I-87Kn & I-87K Remote I/O', 'SMS Short Message service', 'PC/HMI', 'RS-232', 'RS-485', 'Serial Port', 'ATA', and 'EXCHANGE'. The left sidebar contains a 'Language' dropdown (set to '中文'), 'Topics' (What is ISaGRAF, Hot Features, Ordering Information, Selection Guide, Related Products), and a list of 'ISaGRAF PACs' including models like XP-8xx7-CE6, WP-8x37/8x47, VP-25W7/23W7, VP-2117, iP-8x47, I-8xx7 & I-8x37-80, µPAC-7186EG, I-7188EG, and I-7188XG. The right sidebar contains a 'Data Sheet' icon and other resources like 'Driver', 'Manual', 'Demo Files', 'Download All', and 'FAQ'.

High Speed Local I/O Modules: Parallel Bus

I-8K High Profile Modules: More at www.icpdas.com > Products > PAC - 8K & 87K I/O Modules

I-8K Analog I/O Modules	
I-8014W	16-bit 250K sampling rate 8/16-ch. analog input module (The scan rate cannot reach 250K when using in the ISaGRAF PAC)
I-8017HW	8-ch. Differential or 16-ch. Single-ended, 14-bit, High Speed Analog Input Module. (current input require external 125 K resistor) (The scan rate cannot reach 100K when using in the ISaGRAF PAC)
I-8024W	4-ch. Isolated Analog Output Module (+/-10 V, 0 ~ +20 mA)
I-8K Digital I/O Modules	
I-8037W	16-ch. Isolated Open Collector Output Module
I-8040W	32-ch. Isolated Digital Input Module
I-8040PW	32-ch. Isolated Digital Input with Low Pass Filter Module
I-8041W	32-ch. Isolated Open Collector Digital Output Module (Sink)
I-8041AW	32-ch. Isolated Open Collector Digital Output Module (Source)
I-8042W	16-ch. Isolated Digital Input & 16-ch. Isolated Open Collector Digital Output Module
I-8046W	16-ch. Isolated Digital Input Module
I-8050W	16-ch. Universal Digital I/O Module
I-8051W	16-ch. Non-isolated Digital Input Module
I-8052W	8-ch. Differential Isolated Digital Input Module
I-8053W	16-ch. Isolated Digital Input Module
I-8053PW	16-ch. Isolated Digital Input with Low Pass Filter Module
I-8054W	8-ch. Isolated Digital Input Module & 8-ch. Isolated Open Collector Digital Output Module
I-8055W	Non-isolated 8-ch. Digital Logic Input Module & 8-ch. Open Collector Digital Output Module
I-8056W	16-ch. Non-isolated Open Collector Output Module
I-8057W	16-ch. Isolated Open Collector Output Module
I-8058W	8-ch. Differential Isolated Digital Input Module, Max. AC/DC Input : 250V
I-8060W	6-ch. Relay Output Module, AC: 0.6 A @ 125 V , 0.3 A @ 250 V; DC: 2 A @ 30 V
I-8063W	4-ch. Differential Isolated digital input & 4-ch. Relay output module, AC : 0.6 A @ 125 V ; 0.3 A @ 250 V
I-8064W	8-ch. Power Relay Output Module, AC: 5 A @ 250 V, DC: 5 A @ 30 V
I-8068W	4-ch. Form-A, 5 A @ 250 V _{AC} /28 V _{DC} & 4-ch. Form-C, 5 A (NO) /3 A (NC) @ 277 V _{AC} /30 V _{DC} Relay Output Module
I-8069W	8-ch. PhotoMOS Relay Output Module, Max. AC/DC: 1 A @ 60 V
I-8K Counter/Frequency Modules	
I-8084W	4-ch. Encoder, can be dir/pulse, or up/down or A/B phase (Quad. mode), Not support Encoder Z-index
I-8088W	8-ch. PWM Output and 8-ch. isolated DI Module, software support 1 Hz ~ 100 kHz (non-continuous).
I-8K Motion Modules	

I-8093W	3-axis Encoder Module, max. 1M Hz for quadrant input mode, max. 4M Hz for pulse/direction and cw/ccw input model
I-8090W	3-axis Encoder Module
I-8091W	2-axis Stepping/Servo Motor Control Card without encoder input
I-8092F	High Speed 2-axis Motion Control Module, with FRnet Master (For XP-8xx7-CE6 only)
I-8094	High Speed 4-axis Motion Control Module (For XP-8xx7-CE6 only)
I-8094F	High Speed 4-axis Motion Control Module, with FRnet Master (For XP-8xx7-CE6 only)
I-8K Communication Modules	
I-8112iW	2-ch. Isolated RS-232 Expansion Module
I-8114W	4-ch. non-isolated RS-232 Expansion Module
I-8114iW	4-ch. Isolated RS-232 Expansion Module
I-8142iW	2-ch. Isolated RS-422/485 Expansion Module
I-8144iW	4-ch. Isolated RS-422/485 Expansion Module
I-8172W	2-port FRnet Module
I-8K CAN Bus Modules	
I-8123W	1 Port High Performance CANopen Master Module

RS-485 Remote I/O Modules: Serial Interface; HOT-SWAP

I-87K High Profile Modules: More at www.icpdas.com > Products > PAC - 8K & 87K I/O Modules

I-87K Analog I/O Modules	
I-87005W	8-ch. Thermistor input and 8-ch. digital output module
I-87013W	4-ch., 16-bit, 10 Hz (Total), 2/3/4 Wire RTD Input Module with Open Wire Detection
I-87015W	7-ch., 16-bit, 12 Hz (Total), RTD Input Module with Open Wire Detection (for short sensor distance)
I-87015PW	7-ch. RTD Input Module with 3-wire RTD lead resistance elimination and with Open Wire Detection (for long sensor distance)
I-87017RW	8-ch. Differential , 16/12-bit, 10/60 Hz (Total) Analog Input Module with 240 V _{rms} Over Voltage Protection, Range of -20 ~ +20 mA Requires Optional External
I-87017RCW	8-ch. Differential , 16/12-bit, 10/60 Hz(Total) Current Input Module
I-87017W	8-ch. Analog Input Module
I-87017W-A5	8-ch. High Voltage Input Module
I-87017DW	8-ch. Analog Input Module (Gray Cover) (RoHS)
I-87017ZW	10/20-ch. Analog Input Module with High Voltage Protection (RoHS)
I-87018PW	8-ch. Thermocouple Input Module (Gray Cover) (RoHS)
I-87018RW	8-ch. Thermocouple Input Module. Recommend to use the better I-87018Z.
I-87018W	8-ch. Thermocouple Input Module. Recommend to use the better I-87018Z.
I-87018ZW	10-ch. Differential , 16-bit, 10 Hz (Total), Thermocouple Input Module with 240 V _{rms} Over Voltage Protection, Open Wire Detection, Range of +/-20 mA, 0~20 mA, 4~20 mA requires Optional External 125 Resistor
I-87019PW	8-ch. Universal Analog Input Module (RoHS) (With a CN-1824 Daughter Board)
I-87019RW	8-ch. Diff. , 16-bit, 8 Hz (Total), Universal Analog Input Module with 240 V _{rms}

	Over Voltage Protection, Open Wire Detection (V, mA, Thermocouple; Range of -20 ~ +20 mA need to set Jumper on board)
I-87019ZW	10-ch. Universal Analog Input Module (Gray Cover) (RoHS), Includes the I-87019ZW Module and a DB-1820 Daughter Board
I-87024CW	4-ch. 12-bit channel to channel isolated current output module with open-wire detection
I-87024DW	4-ch. 14-bit analog output module
I-87024RW	4-ch. 14-bit analog output module
I-87024W	4-ch. 14-bit analog output module (0 ~ +5 V, +/-5 V, 0 ~ +10 V, +/-10 V, 0 ~ +20 mA, +4 ~ +20 mA)
I-87028CW	8-ch. 12-bit current output module
I-87H17W	8-ch. analog input module and HART master module.
I-87K Multifunction I/O Modules	
I-87026PW	6-ch. Analog Input, 2-ch. Analog Output, 2-ch. Digital Input and 2-ch. Digital Output Module (RoHS)
I-87K Digital I/O Modules	
I-87037W	16-ch. source type Isolated Digital Output Module(RoHS)
I-87040W	32-ch. Isolated Digital Input Module
I-87040PW	32-ch. Isolated Digital Input Module with 16-bit Counters (RoHS)
I-87041W	32-ch. Sink Type Open Collector Isolated Digital Output Module
I-87046W	16-ch. Non-Isolated Digital Input Module for Long Distance Measurement
I-87051W	16-ch. Non-Isolated Digital Input Module
I-87052W	8-ch. Differential , Isolated Digital Input Module
I-87053PW	16-ch. Isolated Digital Input Module with 16-bit Counters
I-87053W	16-ch. Isolated Digital Input Module
I-87053W-A5	16-ch. 68 ~ 150 V _{DC} Isolated Digital Input Module
I-87053W-AC1	16-ch. AC Isolated Digital Input Module with 16-bit Counters
I-87053W-E5	16-channel 68-150 V _{DC} Isolated Digital Input Module with 16-bit Counters
I-87054W	Isolated 8-ch. DI and 8-ch. Open Collector DO Module
I-87055W	Non-Isolated 8-ch. DI and 8-ch. Open Collector DO Module
I-87057W	16-ch. Open Collector Isolated Digital Output Module
I-87057PW	16-ch. Open Collector Isolated Digital Output Module
I-87058W	8-ch. 80~250 V _{AC} Isolated Digital Input Module
I-87059W	8-ch. Differential 10-80 V _{AC} Isolated Digital Input Module
I-87061W	16-ch. Relay Output Module (RoHS)
I-87063W	4-ch. Differential Isolated Digital Input and 4-ch. Relay Output Module 5 A (NO) / 3 A(NC) @ 5 ~ 24 V _{DC} ; 5 A(NO) / 3 A(NC) @ 0 ~ 250 V _{AC}
I-87064W	8-ch. Relay Output Module, 5 A (47~63 Hz) @ 0~ 250 V _{AC} ; 5 A @ 0~ 30 V _{DC}
I-87065W	8-ch. AC SSR Output Module, AC: 1.0 A _{rms} @ 24 ~ 265 V _{rms}
I-87066W	8-ch. DC SSR Output Module , DC: 1.0 A _{rms} @ 3 ~ 30 V _{DC}
I-87068W	4-ch. Form-A Relay Output and 4-ch. Form-C Relay Output Module ; Form-A: 8 A @ 250 V _{AC} ; 8 A @ 28 V _{DC} ; Form-C: 5 A (NO) / 3 A (NC) @ 277 V _{AC} ; 5 A(NO) / 3 A(NC) @ 30 V _{AC}
I-87069W	8-ch. PhotoMOS Relay Output Module, Max. AC/DC: 0.13 A @ 350 V
I-87K Counter/Frequency Modules	
I-87082W	2-ch. Counter/Frequency Module, Isolated or Non-isolated Inputs
I-87K PWMS Modules	

I-87088W	8-ch. PWM outputs, software support 1 Hz~100 kHz, (non-continuous), duty: 0.1 ~ 99.9%
I-87K GPS Modules	
I-87211W	Time-Synchronization and GPS module for getting UTC/local time and local Longitude/Latitude

RS-485 Remote I/O Modules	
I-7000 DCON Protocol	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > RS-485 Remote I/O Modules > I-7000 Modules
M-7000 Modbus RTU and DCON Protocol	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > RS-485 Remote I/O Modules > M-7000 Modules
tM-7000 DCON, Modbus RTU, Modbus ASCII Protocol	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > RS-485 Remote I/O Modules > tM Series Module
RS-485 Remote I/O Expansion Unit	
RU-87P1/2/4/8 Hot-Swap, Auto-Config.	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > Remote I/O Expansion Unit > RS-485 Bus
I-87K1/4/5/8/9	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > Remote I/O Expansion Unit > RS-485 Bus

Ethernet I/O Modules	
ET-7000 Web based	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > Ethernet I/O > ET-7000
PET-7000 PoE Web based	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > Ethernet I/O > PET-7000
tPET/tET-7000 Modbus TCP based (PoE)	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > Ethernet I/O > PETL-7000 & tPET/tET
Ethernet I/O Expansion Unit	
I-8KE4/8-MTCP Modbus/TCP based	www.icpdas.com.tw > Product > Solutions > Remote I/O Modules/Units > Ethernet I/O > I-8KE4/8-MTCP

Performance Comparison Table of ISaGRAF PACs

Please click on the link [ISaGRAF Comparison Table](#) or follow the below steps:

1. www.icpdas.com

2. Click here to go to the ISaGRAF page

The screenshot shows the ICP DAS website homepage. The address bar displays 'http://www.icpdas.com/'. A red circle highlights the address bar with the text '1. www.icpdas.com'. The main content area features the 'ViewPAC Family' banner with the tagline 'The All-in-One Control Unit'. Below this, there is a section for the 'PPDS-700 Series' Programmable Device Server. A red circle highlights a link in the bottom left corner of the page with the text '2. Click here to go to the ISaGRAF page'.

3. Comparison Table

The screenshot shows the ISaGRAF product page on the ICP DAS website. The page features a central diagram illustrating the ISaGRAF PAC architecture, showing connections to various protocols and devices. A red circle highlights a link in the left sidebar with the text '3. Comparison Table'.

Specifications: WP-8137/8437/8837/8147/8447/8847

PAC Specifications:

Available soon!

Models	WP -8137	WP -8437	WP -8837	WP -8147	WP -8447	WP -8847	WP -8057	WP -8357	WP -8757
System Software									
OS	Windows CE 5.0								
.Net Compact Framework	2.0								
Embedded Service	FTP server, Web server								
Multilanguage Support	English, German, French, Spanish, Russian, Italian, Simplified Chinese, Traditional Chinese								
Development Software									
ISaGRAF Software	ISaGRAF Ver.3	IEC 61131 -3 standard.							
	Languages	LD, ST, FBD, SFC, IL & FC; Support Soft -GRAF HMI: XP -8xx7-CE6, WP-8xx7, VP-2xW7 and WP-5xx7 PAC							
	Max. Code Size	1 MB							
	Scan Time	3 ~ 15 ms for normal program; 15 ~ 50 ms for complex or large program							
Non-ISaGRAF	Options: MS eVC++ 4.0 or VS.NET 2005/2008 (VB.NET, C#.NET)								
Web Service									
Web HMI	PC running Internet Explorer can monitor/control PAC via Internet/modem								
Security	Support three levels username and password protection. (high/middle/low)								
CPU Module									
CPU	PXA270, 520 MHz								
SDRAM	128 MB								
Dual Battery Backup SRAM	512 KB; data valid up to 5 years (for retain variables)								
Flash	128 MB			96 MB			128 MB		
EEPROM	16 KB								
Memory Expansion	microSD socket with one 2 GB microSD card (support up to 32 GB microSDHC card)						CF slot with 2 GB CF Card (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								
Programmable LED	1								

Models	WP -8137	WP -8437	WP -8837	WP -8147	WP -8447	WP -8847	WP -8057	WP -8357	WP -8757	
Indicator										
Rotary Switch	Yes (0 ~ 9)									
DIP Switch	-	Yes (8 bits)		-	Yes (8 bits)		-	Yes (8 bits)		
Audio	-						Microphone-In and Earphone -Out			
VGA & Communication Ports										
VGA	Yes 640 x 480, 800 x 600, 1024 x 768			Yes 640 x 480, 800 x 600						
Ethernet	RJ-45 x 2, 10/100 BaseTX (Auto-negotiating, LED indicators)									
USB 1.1 (host)	2			1			2			
USB 1.1 (client)	-						1			
COM 0	Internal communication with the high profile I-87K series modules in slots									
COM 1	RS-232 (to update firmware) (RxD, TxD and GND); non -isolated									
COM 2	RS-485 (Data+, Data-) with internal self-tuner ASIC; 2500 VDC isolated for WP-8131 and WP-8141; 3000 VDC isolated for other models.									
COM 3	-	Yes		-	Yes					
	RS-232/RS485 (RxD, TxD, CTS, RTS and GND for RS -232, Data+ and Data- for RS-485); non-isolated									
COM 4	-	Yes		-	Yes					
	RS-232 (RxD, TxD, CTS, RTS, DSR, DTR, CD, RI and GND); non -isolated									
COM 5	-						Yes	-		
	RS-232 (RxD, TxD, and GND); non -isolated									
I/O Expansion Slots										
Slot Number	1	4	8	1	4	8	0	3	7	
	Note: For High Profile I-8K and I-87K Modules Only									
Mechanical										
Dimensions (W x L x H)	95 mm x 132 mm x 111 mm: WP -8137, WP-8147 137 mm x 132 mm x 111 mm: WP -8057 231 mm x 132 mm x 111 mm: WP -8437, WP-8447, WP-8357 355 mm x 132 mm x 111 mm: WP -8837, WP-8847, WP-8757									
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)									

Models	WP -8137	WP -8437	WP -8837	WP -8147	WP -8447	WP -8847	WP -8057	WP -8357	WP -8757
Power									
Input Range	+10 ~ +30 VDC								
Isolation	1 kV								
Redundant Power Inputs	Yes, with one power relay (1 A @ 24 VDC) for alarm								
Capacity	8 W	25 W	25 W	8 W	30 W	30 W	8 W	30 W	30 W
Consumption	7.3 W	9.1 W	9.6 W	7.3 W	9.1 W	9.6 W	7.3 W	9.1 W	9.6 W

WP-8xx7 ISaGRAF Specifications:

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 (FAQ -113)
Modbus RTU/ASCII Master	Max. 10 ports: COM1 ~ 14 (To connect to other Modbus Slave devices). Support Multiports. (*)
Modbus RTU Slave	Max. 5 ports: COM1, one of COM2/3, COM4 ~ 8(For connecting ISaGRAF, PC/HMI/OPC Server & HMI panels). (*)
Modbus TCP/IP Slave	Ethernet LAN1 & LAN2 support total up to 32 connections. (If WP-8xx7 uses 1 connection to connect each PC/HMI, it can connect up to 32 PC/HMI; If WP-8xx7 uses 2 connections to connect each PC/HMI, it can connect up to 16 PC/HMI; ...) When one Ethernet port is broken, the other one can still connect to PC/HMI.
Web HMI Protocol	Ethernet Ports for connecting PC running Internet Explorer
User-Defined Protocol	COM1 ~ COM14 by Serial communication function blocks (*)
I-7000 & I-87K RS-485 Remote I/O	One of COM2, COM3 supports I7000 I/O modules, I-87K base + I-87K Serial I/O boards and RU-87Pn + I-87K High Profile I/O boards as Remote I/O. Max. 255 modules for one controller. (*)
M-7000 Series Modbus I/O	Max. 10 RS-485 ports (COM1 ~ 14) can support M7000 I/O. Each port can connect up to 32 M7000 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.
FRnet I/O	Support max 8 pcs. I-8172W boards in slot 0 to 7 to connect to FRnet I/O modules like FR-2053, FR-2057 FR-32R, FR-32P (FAQ -048). Each I-8172W board can connect up to 256 DI plus 256 DO channels.
Send Email	Support functions to send Email with one attached file via Ethernet port.
Ebus	LAN2 to exchange data between ISaGRAF Ethernet PAC via Ethernet port.
SMS: Short Message Service	WP-, (I + # , , I + Ð g 7 Ç Å%(I #)Ð'gU b7XC'A%Ð 7 C A) ' WU b to support SMS. User can request data/control the controller by cellular phone. H \ Y ' Wc b h f c ` ` Y f ' WU b ' U ` g c ` g Y b X ` X U) U ' /

		Optional GSM Modem: GTM-201-RS232 (850/900/1800/1900 GSM/GPRS External Modem)
MMICON/LCD		7 C A (c f 7 C A) U b X g i d d c f (h)g = 7 D 8 5 G D g
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 (To send/receive message to/from PC/HMI or other devices which support TCP server protocol.) Ex: automatically report data to InduSoft's RXTX driver, or to connect a location camera.
GPRS/SMS		Support the I-8212W (2G/3G) card to receive / send a short message or to dial up to link the Internet by GPRS connection to send an email or communicate with remote stations by using "Ftp Client" (FAQ-151) and "TCP Client" / "UDP Server" / "UDP Client" (FAQ-143).
SQL Client		Support SQL Client function to write data to (or read data from) Microsoft SQL Server (2000 SP3, 2005,2008).
Hot-Swap and Redundant System		H \] g f Y X i b X U b h g m g h Y a \ U g g Y h i d h k c [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 WP-8xx7 is currently active. Moreover, the new redundant system can integrate with the RU87P4/87P8 Expansion Unit plus the I-87K high-profile I/O cards to support the hotswap 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. (FAQ-093)
CAN/CANopen		COM1, COM3 ~ COM14 can connect one I-7530 (converter: RS-232 to CAN) to support CAN/CANopen devices and sensors. One WP -8xx7 supports max.10 RS-232 ports to connect max.10 I7530. (*) (FAQ -086)
CANopen Master		Support the I-8123W CANopen Master card to connect other CANopen slave devices. (FAQ-145)
HART Solutions		Support I-87H17W modules in slot 0 to 7 to communicate with other HART devices.
FTP Client		Support FTP client to upload files in the PAC to a remote FTP server on PC. (FAQ-151)
Soft-GRAF HMI		Support the SoftGRAF HMI . User can use the Soft-GRAF Studio on the PC to design the HMI screen and then download it to the PAC to display the HMI on the PAC. (FAQ-146)
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 1Hz~100KHz (non-continuous), duty: 0.1~99.9%
	DO Module as	8-ch max. 250 Hz max. For Off=2 & On=2 ms. Output square wave: Off: 2~32766

	PWM	ms, On: 2 ~ 32766 ms. Optional DO Boards: I -8037W, 8041W, 8041AW, 8042W, 8050W, 8054W, 8055W, 8056W, 8057W, 8060W, 8063W, 8064W, 8068W, 8069W. (Relay Output boards cannot 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, 8046W, 8048W, 8050W, 8051W, 8052W, 8053W, 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, 87053WA5, 87054W, 87055W, 87058W, 87059W, 87063W.
	Remote DI Counter	All remote I-7K/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	<u>I-8093W</u> : 3-axis Encoder Module, max. 1M Hz for quadrant input mode, max. 4 MHz for pulse/direction and cw/ccw input mode. (FAQ112) <u>I-8084W</u> : 250 kHz max., 4-ch encoder, can be dir/pulse, or up/down or A/B phase (Quad. mode), Not support Encoder Z -index. (FAQ -100)
	Frequency	I-87082W: 2-ch, 1 Hz ~ 100 kHz; I-87088W: 8-ch, 0.1 Hz ~ 500 kHz; I-8084W: 8-ch, 1 Hz ~ 250 kHz
Motion	Motion Control	Integrate with one I-8091W (2-axis) or two I-8091W (4-axis)
<p>* Note: COM5 ~ COM14 are resided at the expansion boards if they are plugged on slot 0~7 of WP -8xx7. WP -8137/8147 has no COM3 & COM4.</p> <p>* ISaGRAF FAQ: http://www.icpdas.com/faq/isagraf.htm</p> <p>* Recommend to use NS -205/NS -208 Industrial Ethernet Switch.</p>		

Chapter 1 Typical Application

The website for the applications supporting list of all ISaGRAF PACs :
http://www.icpdas.com/products/PAC/common_file/application-notes.htm

1.1 Soft-GRAF HMI Application: Colorful HMI

- ' Soft-GRAF Studio:
 - Ø Simplify HMI screen editing (Mouse drag and drop)
 - Ø HMI without writing programming language
- ' Support various and colorful HMI objects:
 - Ø Page (Max. 200, password security)
 - Ø Numeric (Input, input security, display)
 - Ø Text (Dynamic/static text display)
 - Ø Picture (Animated/static picture display)
 - Ø Moving Trace (1-axis or 2-axis)
 - Ø Bar-meter
 - Ø Button displayed as picture
 - Ø Button displayed as text
 - Ø Built-in various objects
- ' Multi-language: English, Traditional Chinese, Simplify Chinese, Russian, etc.
- ' HMI behave smoothly
- ' More at Ch.2.5 and FAQ www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 - 146

Design the Control logic and HMI by one single ISaGRAF Software



1.2 eLogger HMI Application

- ICP DAS eLogger is an easy and useful HMI development tool which helps user to create user-friendly pictures and control items.
- More at: www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 . FAQ-115

ISaGRAF
Software Development Tool

- Simulate without PAC
- Debug / Control / Monitor On-Line
- Six Open SoftLogic Languages(LD, ST, ..)

eLogger
HMI Development Tool

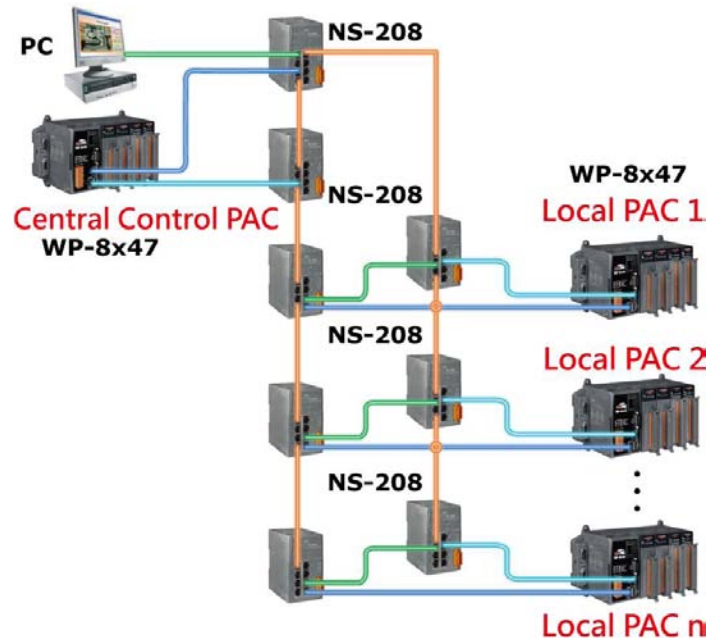
- Free HMI Toolkit
- Easy & Useful HMI

ICP DAS

WP-8x47 / 8x37 XP-8xx7-CE6 VP-25W7 / 23W7

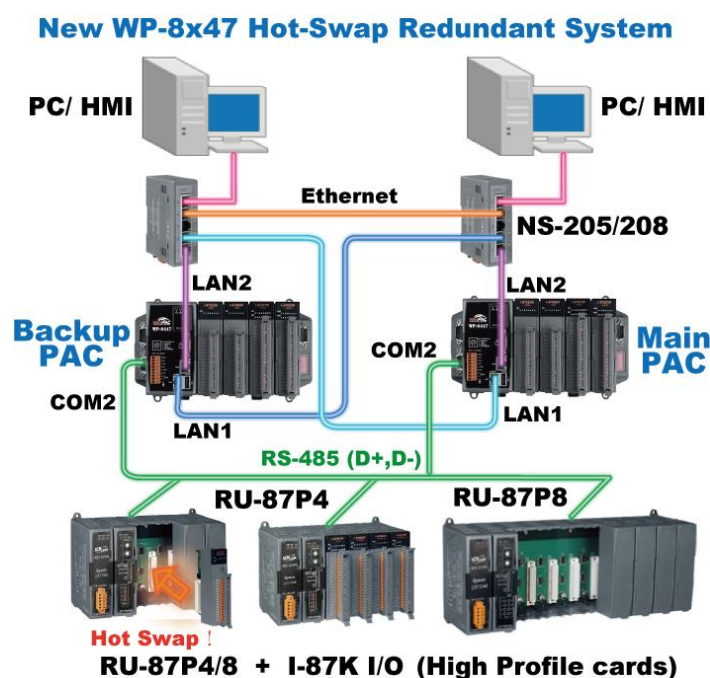
1.3 Redundant Communication System

- More at www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 - 119
- RS-485 or Ethernet redundant communication mechanism/applications.
- For XP-8xx7-CE6 WP-8xx7 & VP-2xW7 series.



1.4 Redundant System with Hot-Swap RS-485 I/O

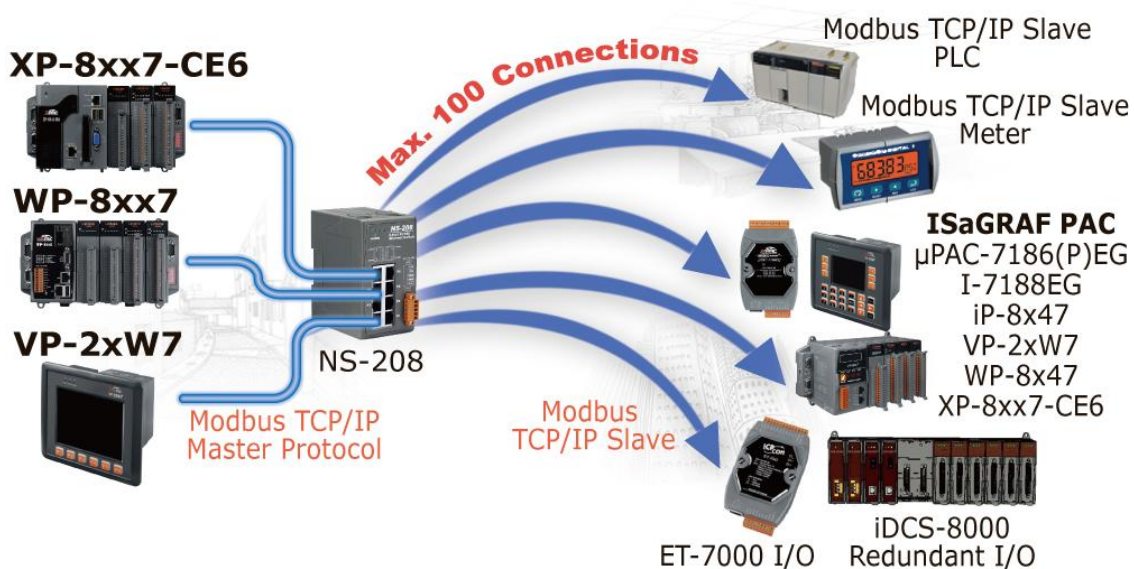
- If one Ethernet cable of WP-8x47 is broken or damaged, the other one will still work.
- If one controller is dead, the other one will take over the control of the RS-485 I/O.
- PC/HMI can connect to this redundant system by one or two active IP.
- More at www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 - 093



1.5 Modbus Master: TCP/IP

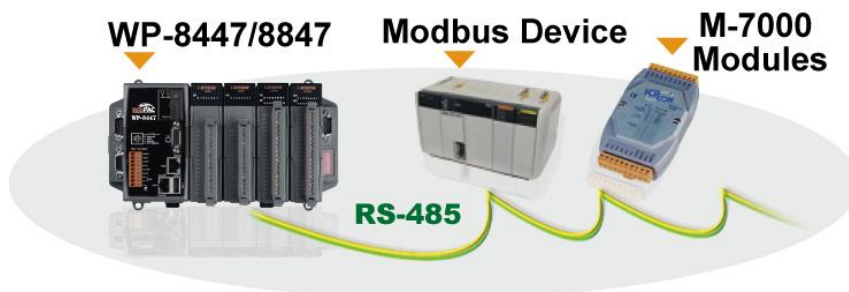
- ' Each WP-8xx7 or VP-25W7/23W7 supports to link to max. 100 Modbus TCP/IP slave devices.
- ' Support various Standard Modbus TCP/IP Slave devices.
- ' Please refer to www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 > 113

Modbus TCP/IP Master Application



1.6 Modbus Master: RTU, ASCII, RS-232/485/422

- ' Support up to 10 ports: COM1~COM4 & COM5~COM14 (if I-8112iW/ 14W/ 14iW/ 42iW/ 44iW in Slot0~2)
- ' Can link to Modbus PLC or M-7000 I/O or Modbus devices (Power meter, temperature controller, inverter etc.)



1.7 Modbus Slave: RTU/TCP

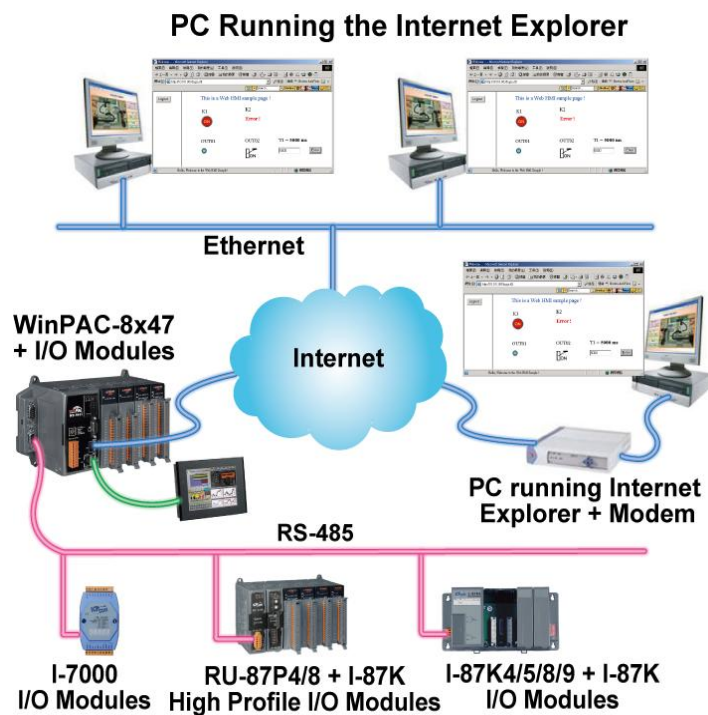
- ' Modbus RTU (RS-232/485/422): max. 5 ports
- ' Modbus TCP/IP: max. 32 connections



1.8 Communicate With Other TCP/IP Server or UDP Client/Server Devices

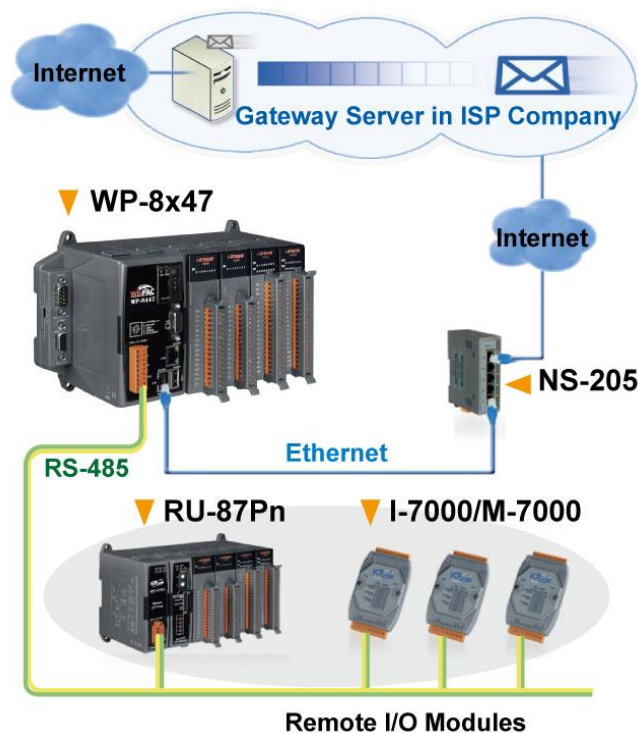


1.9 Multiple Web HMI Monitor & Control Everywhere!

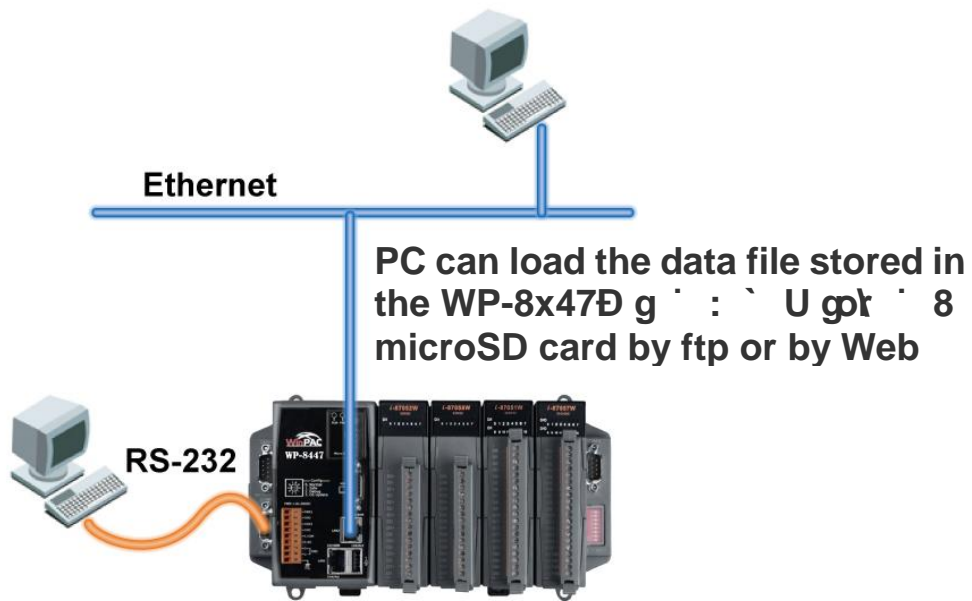


1.10 Send Email with One Attached File

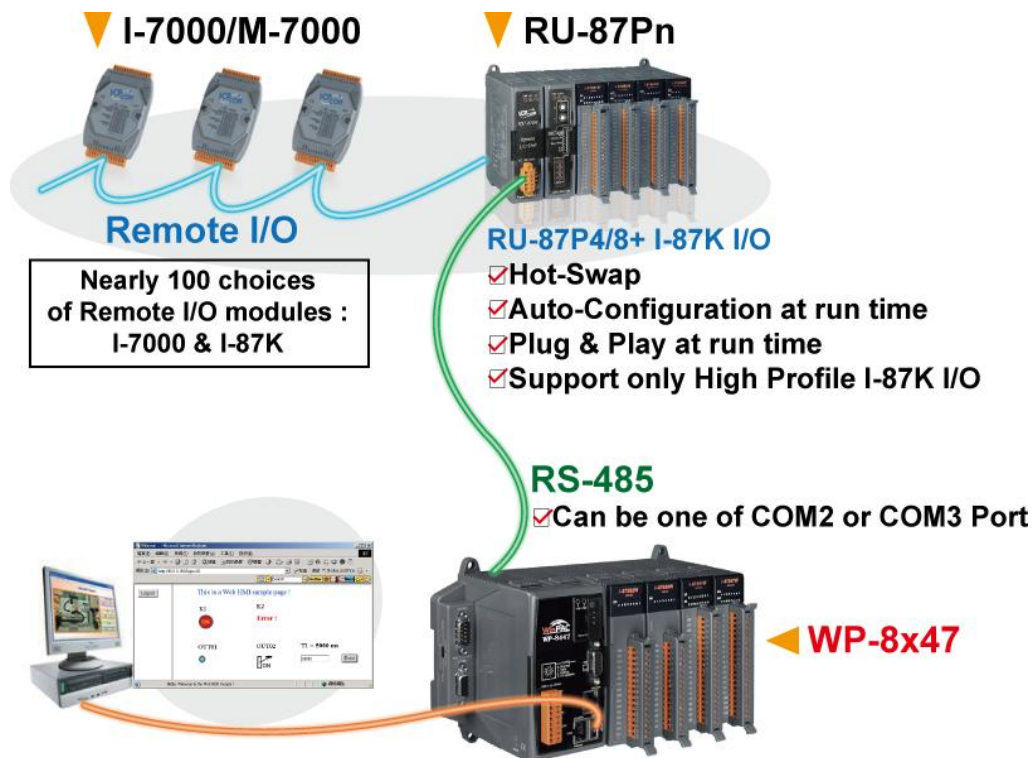
More at www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 (English) - 067



1.11 Data-Recorder & Data-Logger

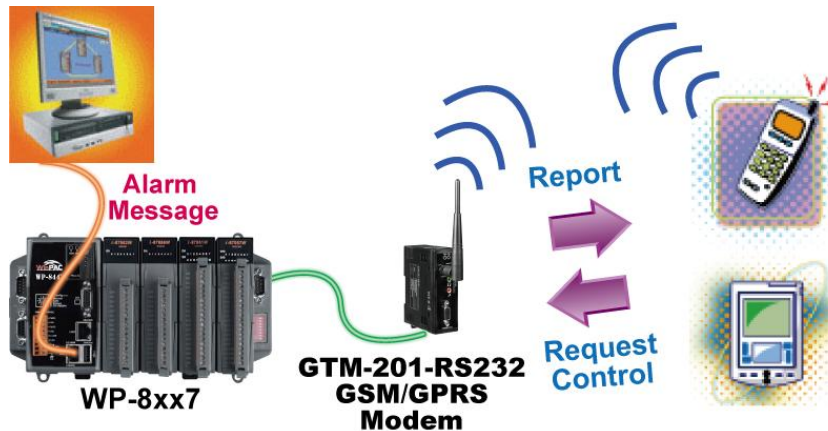


1.12 Remote I/O Application



1.13 SMS: Short Message Service

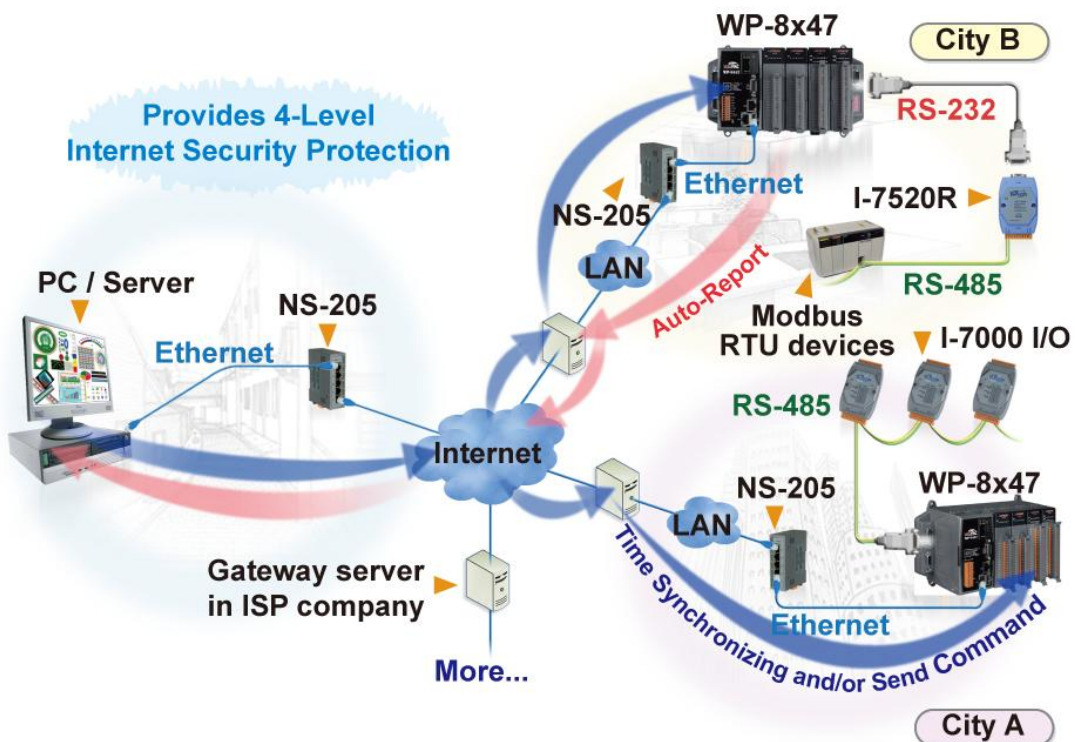
- ' Short message can be sent in multiple language format (like Chinese, English... others)
- ' More at www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 (English) - 111



1.14 Auto-report Acquisition & Control Data

- ' WP-8447/8847 can use UDP IP Client to auto-report acquisition data & control data to local or remote internet PC/Server.
- ' Advantage: Every PAC in the different location doesn't need a fixed Internet IP
- ' More at www.icpdas.com > FAQ > Software > ISaGRAF Ver. 3 - 065

Stable and Cost-effective Data Acquisition Auto-Report System



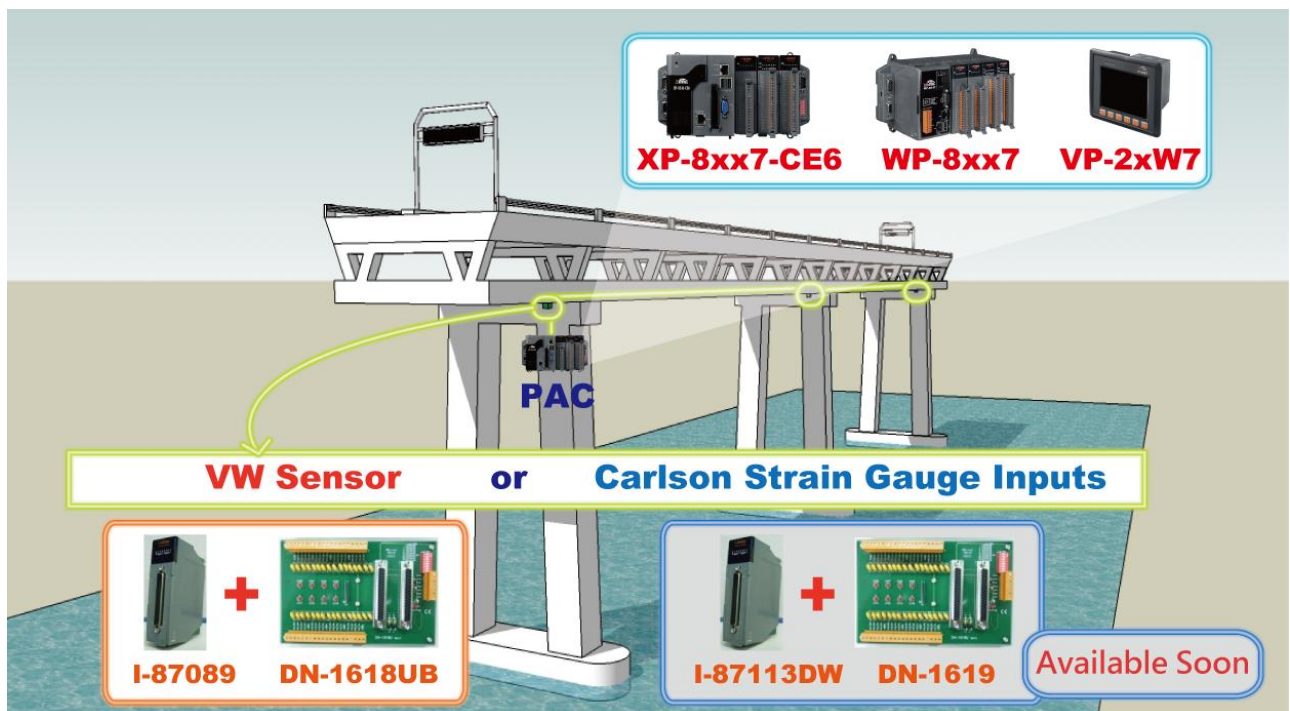
1.15 Motion Control

- ' One **I-8091W** can control 2 axes: X-Y plane, or 2 axes independent
- ' Two **I-8091W** can control 4 axes: X-Y plane + 2 axes independent, or 4 axes independent
- ' Encoder Modules:
 - I-8084W**: 4-axis, without Z-index
 - I-8090W**: 3-axis
 - I-8093W**: 3-axis



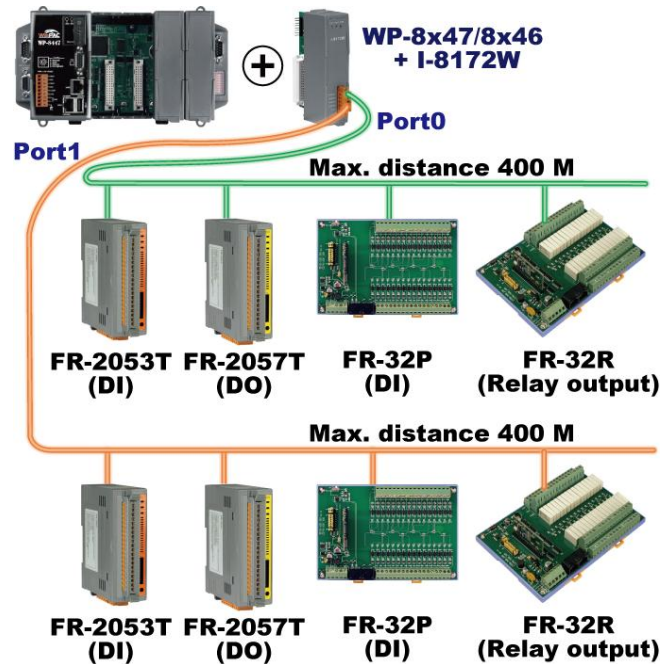
1.16 Stress Monitoring Application of Constructions

More at www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 (English) - 091



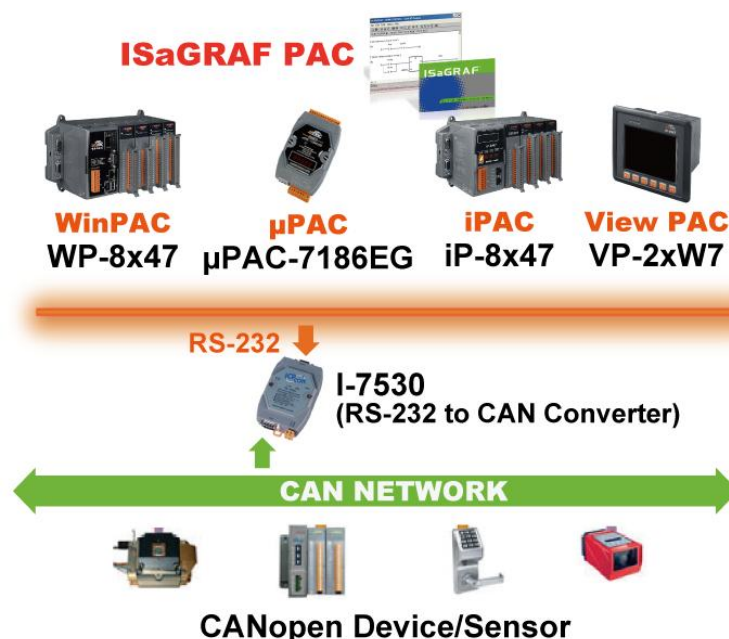
1.17 Fast FRnet Remote I/O

- ' **Advantage of FRnet I/O:** Fast I/O scan: About 3 ms/scan.
(It depends on your program's PLC scan time. Ex: If the ISaGRAF program's PLC scan time is about 9 ms, then the scan time for all will be 9 ms, not 3 ms)
- ' Support FRnet AI/AO I/O modules yet.
- ' More at www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 - 082



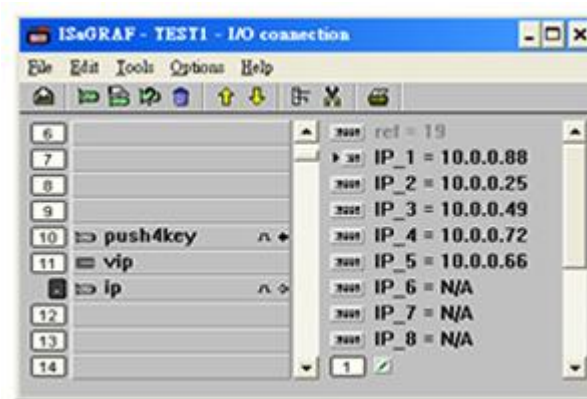
1.18 Integrate with CAN/CANopen Devices & Sensors

- ' WP-8xx7 supports max. 10 I-7530 (RS-232 to CAN Converter)
- ' More at www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 > 086



1.19 VIP Communication Security

- ' Set VIP (Very Important IP No.) for Modbus TCP/IP security.



1.20 ISaGRAF PAC Connects the Smart Power Meter

- ' Support standard Modbus protocol, support multiple RS-485 ports to connect to multiple PM-2133/2134 Smart meters
- ' PM-2133/2134 is a series of 3 Phase/4 Loops 1 Phase Compact Smart Meter with true RMS energy and power parameters measurement in compact size. The ISaGRAF PACs combining with PM-213x can apply to various control/monitor systems about intelligent electric power measurement.
- ' More at www.icpdas.com > [FAQ](#) > [Software](#) > [ISaGRAF Ver.3](#) > [129](#)

