





- ISaGRAF Ver.3 SoftLogic
- Support IEC 61131-3 + Flow Chart
- MiniOS7 Inside
- 80186, 80 MHz CPU
- 10/100 Base-TX Ethernet
- With GPS or GPRS
- μPAC-5x07P with PoE



## μPAC-5007(P) / 5107(P) / 5207 / 5307

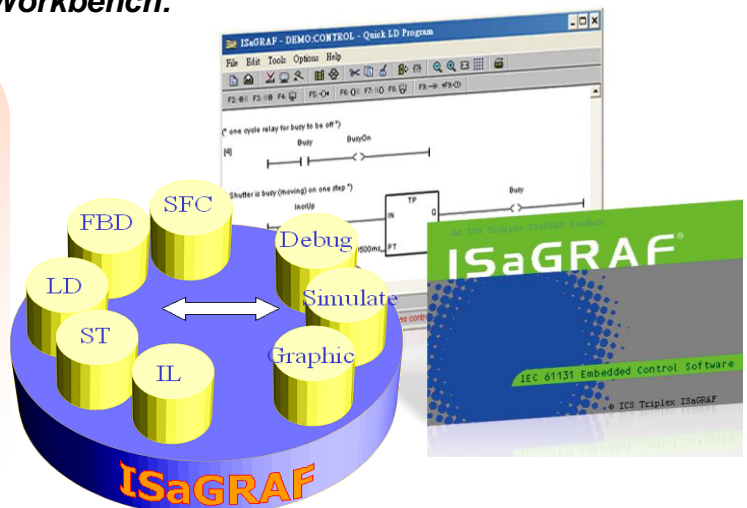
**μPAC-5x07(P) Series** is a palm-size **Programmable Automation Controller**. It has an 80186 CPU, SRAM, Flash, Ethernet port, RS-232 and RS-485 port. With a DOS-like OS (MiniOS7) and a developed firmware running inside, it can act like a small PC.

For hardware expansion, it also supports an I/O expansion bus. The I/O expansion bus can be used to implement various I/O functions such as DI, DO, A/D, D/A, Timer/Counter, UART, and other I/O functions. Nearly all kinds of I/O functions can be implemented by this bus. But the bus can support only one board. There are more than 10 boards available for μPAC-5x07(P) series; you can choose one of them to expand hardware features.

**μPAC-5x07P** is the model of μPAC-5x07 with **PoE** (Power-over-Ethernet). PoE allows power and data to be carried over a single Ethernet cable, so a device can operate solely from the power that receives through the data cable. This innovation allows greater flexibility in office design, higher efficiency in systems design, and faster turnaround time in set-up and implementation.

### ISaGRAF μPAC supports ISaGRAF Ver.3 Workbench:

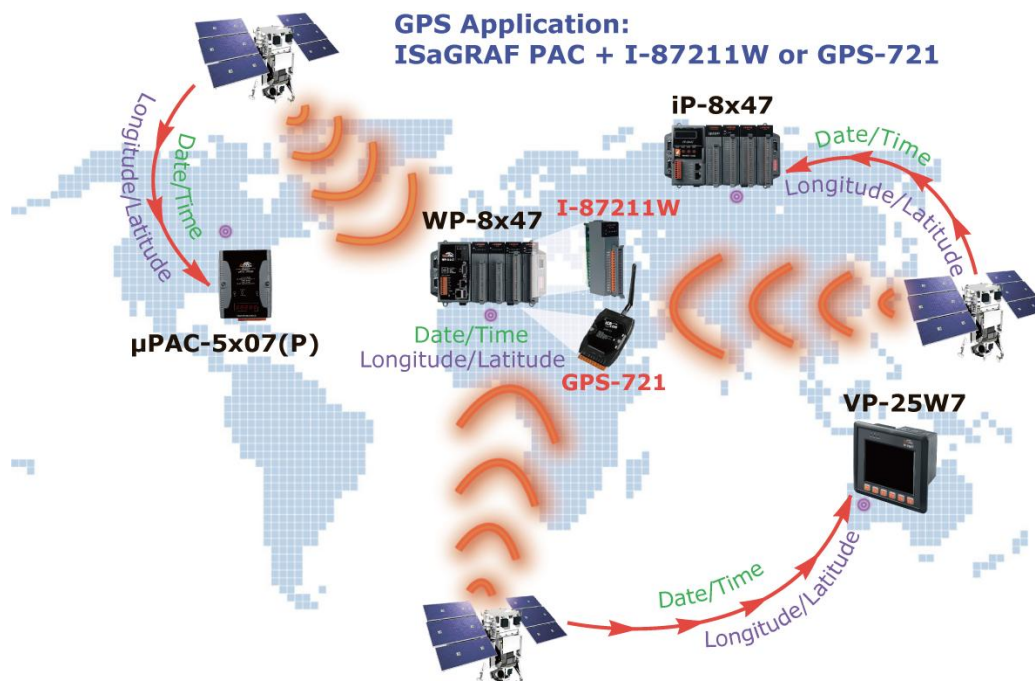
- Support **IEC 61131-3** Standard Open PLC Programming Languages + Flow Chart :
  1. **LD**: Quick Ladder Diagram
  2. **FBD**: Function Block Diagram
  3. **SFC**: Sequential Function Chart
  4. **ST**: Structured Text
  5. **IL**: Instruction List
  6. **FC**: Flow Chart
- On-line debugging/control/monitoring
- Off-line simulation
- Simple graphic HMI



## ● GPS Applications: ISaGRAF PAC plus I-87211W or GPS-721

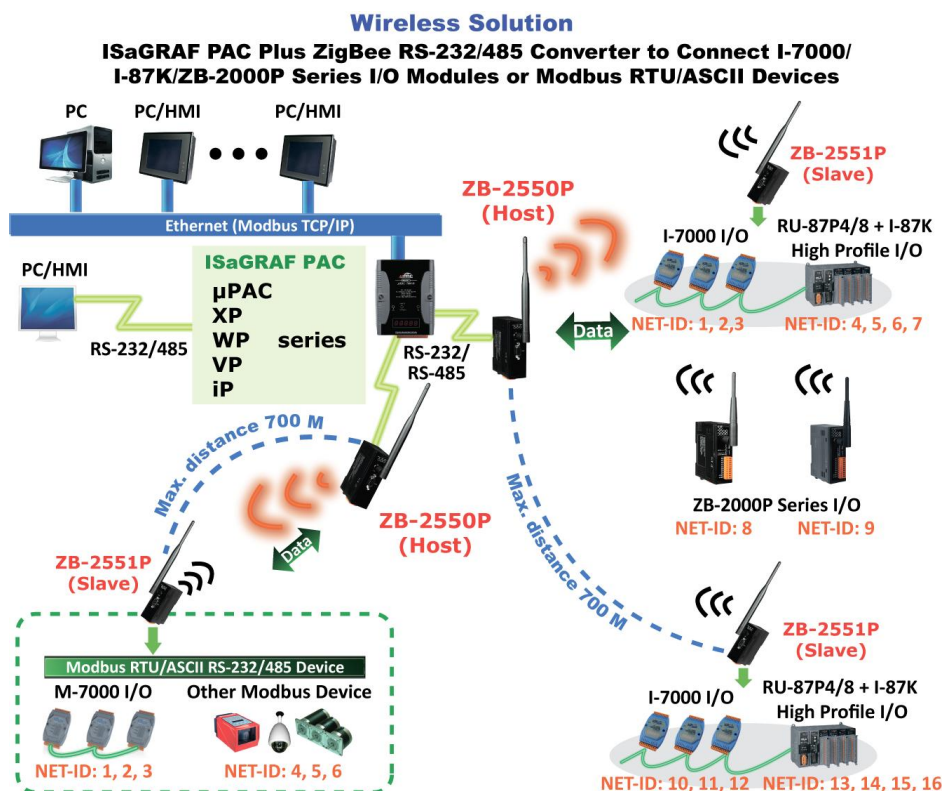
- $\mu$ PAC-5007(P)/5207 can support one I-87211W via COM1 (RS-232) or I-87211W/GPS-721 as RS-485 remote GPS I/O.
- For doing auto-time-synchronization and getting local Longitude and Latitude.
- Please refer to [www.icpdas.com](http://www.icpdas.com) > FAQ > Software > ISaGRAF Ver.3 (English) - 107 for more information
- More GPS receivers at [www.icpdas.com](http://www.icpdas.com) > Products > Wireless..... > GPS receiver

Note:  $\mu$ PAC-5107(P),  $\mu$ PAC-5307 has built-in GPS function.

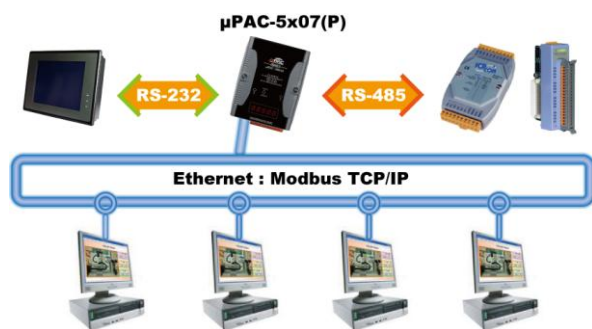


## ● ZigBee Wireless Solution

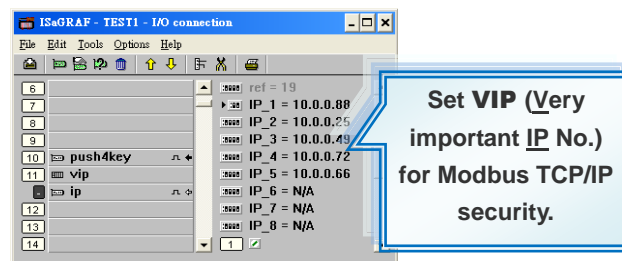
- ISaGRAF PAC plus ZB-2550P and ZB-2551P (ZigBee to RS-232/485 converters) can apply wireless communication, reduce the wiring cost, and achieve the mission of remote I/O control and data acquisition.
- Please refer to [www.icpdas.com](http://www.icpdas.com) > FAQ > Software > ISaGRAF Ver.3 (English) - 110 for more information



## ● Multi-Client Connection

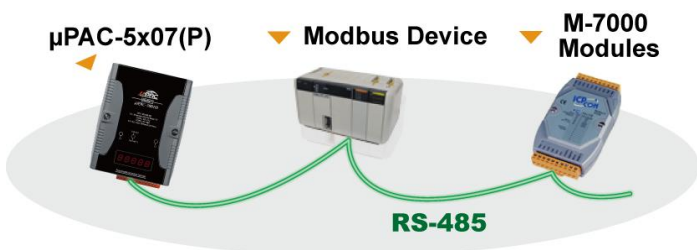


## ● VIP Communication Security



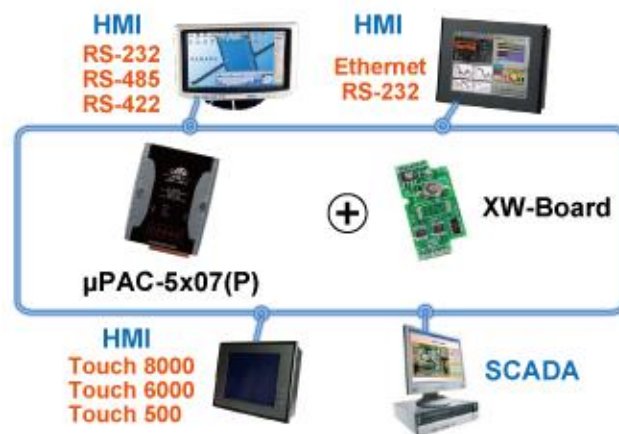
## ● Modbus Master (RTU, ASCII, RS-232/485/422)

- It supports max. **2** COM Ports (COM1:RS-232 or COM2:RS-485 or COM3 if XW-board is plugged in)
- It can link to Modbus PLC, M-7000 I/O or Modbus devices (ex: Power meter, temperature controller, inverter...)



## ● Modbus RTU/TCP Slave Ports

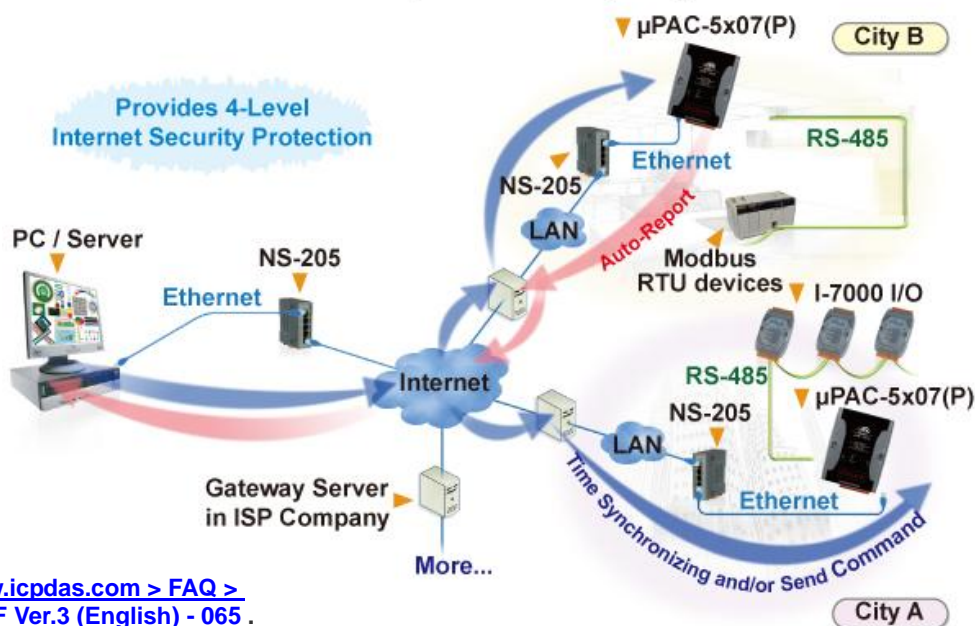
- Modbus RTU (RS-232/485/422) : Max. **2** COM Ports
- Modbus TCP/IP: Max. **6** PC/HMI/SCADA connections



## ● Data Acquisition Auto-report System

- μPAC-5x07(P) can use UDP/IP to auto-report acquisition data & control data to local or remote internet PC/Server.
- VC++ 6.0, VB 6.0 and ISaGRAF demo programs are available.
- Advantage: Each ISaGRAF PAC in the different location doesn't require a fixed Internet IP.

### Stable and Cost-effective Data Acquisition Auto-Report System



Please refer to [www.icpdas.com](http://www.icpdas.com) > FAQ > Software > ISaGRAF Ver.3 (English) - 065 .

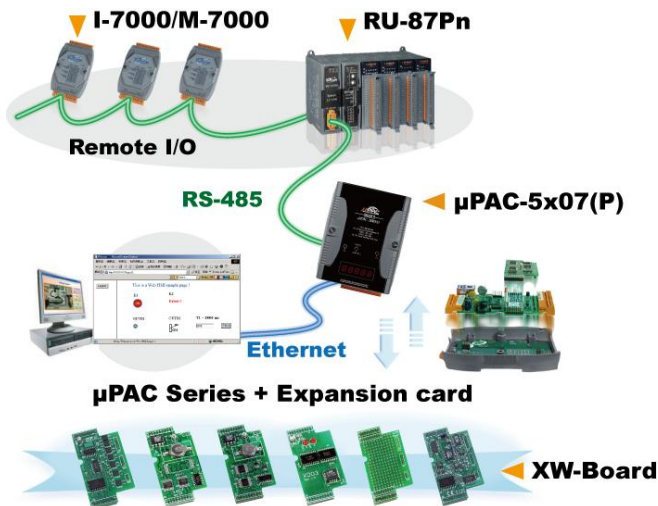


## Local & Remote I/O Application

Advantage of using RU-87P4/P8 + I-87K I/O modules :

- Hot-Swap
- Auto-Configuration at run time
- Plug & Play at run time

**NOTE :** RU-87Pn support only High profile I-87K I/O modules.



## SMS: Short Message Service

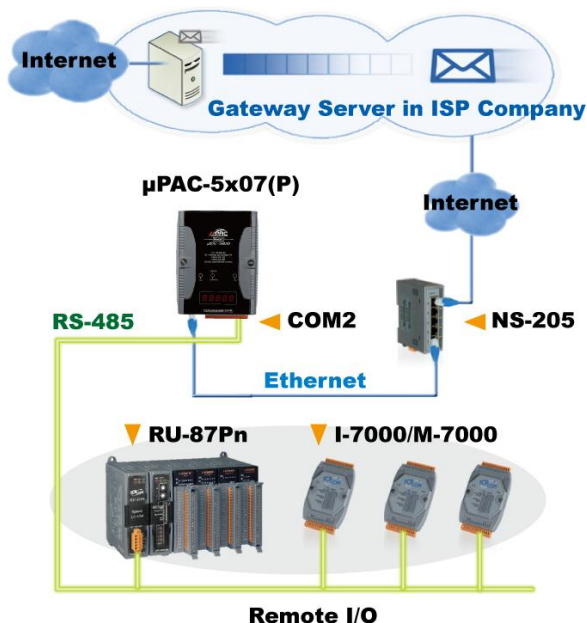
- Allow user to request information or perform control tasks for the ISaGRAF PAC via personal cellular phone. In addition, the controller can also send information and alarms to user's cellular phone
- Short message can be sent in multiple language format (like Chinese, English... others)
- More at [www.icpdas.com](http://www.icpdas.com) > FAQ > Software > ISaGRAF Ver.3 (English) - 111

**Note:**  $\mu$ PAC-5207/5307 has built-in GPRS, no external GSM/GPRS modem required.



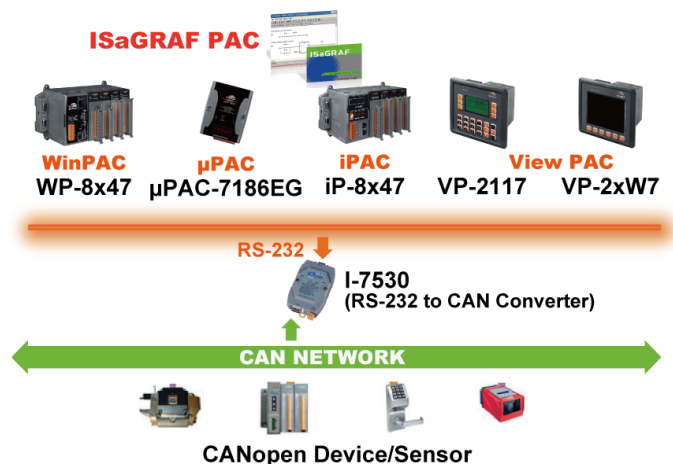
## Send E-mail with One Attached File

- $\mu$ PAC-5x07(P) can send Email with one attached file via Ethernet Port. The maximum file size is about 488K bytes.
- One Email can send to **10** receivers at one sending.
- Please refer to [www.icpdas.com](http://www.icpdas.com) > FAQ > Software > ISaGRAF Ver.3 (English) > 067 & 077



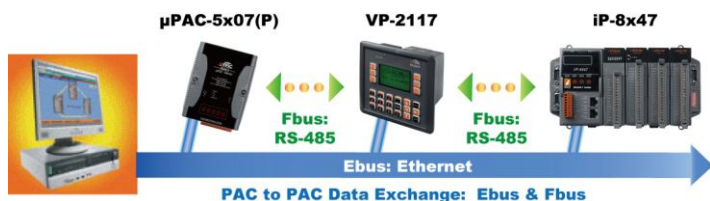
## Integrate with CAN / CANopen Devices and Sensors

- $\mu$ PAC-5x07(P) supports max. **3** I-7530 (RS-232 to CAN) Converters.
- Please refer to [www.icpdas.com](http://www.icpdas.com) > FAQ > Software > ISaGRAF Ver.3 (English) - 086

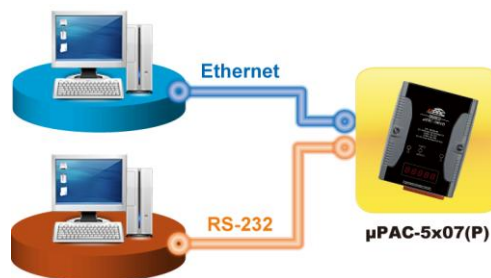


## ● Data Exchange: Ethernet & RS-485

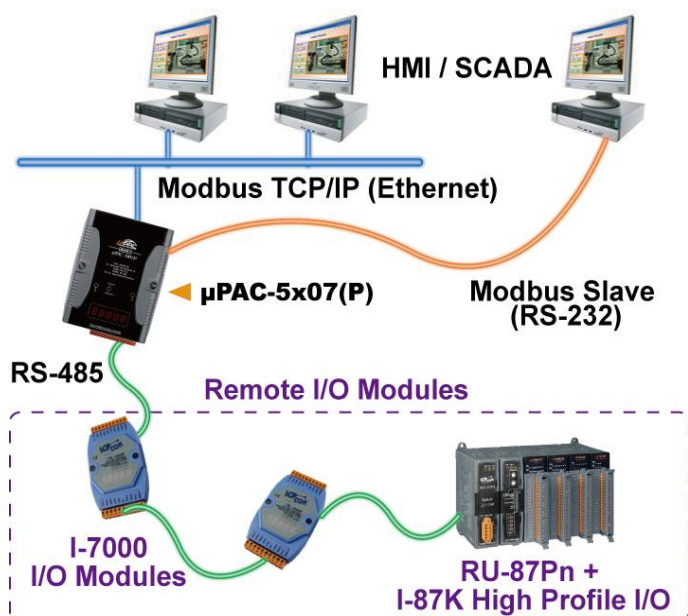
- Through Ethernet: Ebus
- Through RS-485: Fbus
- PAC to PAC



## ● Data Recorder and Data Log



## ● Communication Interface



## Hardware & Pin Assignment:

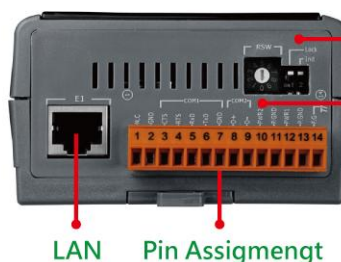
μPAC-5x07(P)(D)



Programmable LED

LAN LED

7-Segment LED Display



Lock and Init\*

Rotary Switch

①	COM1	COM2	⑭
N.C	GND	CTS	RTS
	RxD	TxD	GND
	D+	D-	PWR2
	P.GND	PWR1	P.GND
			F.G

## Specifications: $\mu$ PAC-5x07(D)/5x07P(D)

Model	μPAC-5007(D) μPAC-5007P(D)	μPAC-5107(D) μPAC-5107P(D)	μPAC-5207(D)	μPAC-5307(D)
System Software				
OS	MiniOS7 (DOS-like embedded operating system)			
Development Software				
ISaGRAF Version 3	IEC 61131-3 standard. Languages: LD, ST, FBD, SFC, IL & FC			
Max. Code Size	Accepts max. 64 KB ISaGRAF code size (Appli.x8m must < 64 KB)			
Power Supply				
Protection	Power reverse polarity protection			
Frame Ground	Yes (for ESD Protection)			
Redundant Power Inputs	Yes			
Input Range	+12 ~ +48 VDC			
PoE	IEEE 802.3af, Class 1		-	
Power Consumption	2 W ; μPAC-5x07D/5x07PD: 2.5 W			
General				
Temperature	Operating: -25°C ~ +75°C, Storage : -30°C ~ +80°C			
Humidity	10 % ~ 90 % RH (non-condensing).			
System				
CPU	80186 (80 MHz, 16 bit) or compatible.			
SRAM	768 KB			
Battery Backup SRAM	512 KB (Data valid up to 5 years, max. 1024 retain variables).			
FLASH	512 KB (100,000 erase/write cycles).			
microSD Expansion	Yes (ISaGRAF doesn't support).			
NVRAM	31 bytes (Battery backup, data valid up to 10 years).			
EEPROM	16 KB (Retention > 100 years; 1,000,000 erase/write cycles).			
7-Seg. LED Display	5-Digit 7-Seg. LED on the front of μPAC-5x07(D)/5x07P(D). It can display message and value.			
RTC (Real Time Clock)	Provide second, minute, hour, date, day of week, month, year.			
Watchdog Timers	Yes (Default: 0.8 s).			
NET ID	User-assigned by software, 1 ~ 255.			
Hardware Serial Number	Yes, 64-bit hardware unique serial number.			
Communication Interface				
COM1	RS-232: TxD, RxD, RTS, CTS, GND, Non-Isolated. Baudrate: Max. 115200 bps, Program downloads port.			
COM2	RS-485: D2+, D2-, Non-Isolated, self-tuner ASIC inside. Baudrate: Max. 115200 bps.			
Ethernet	RJ-45 x 1, <b>10/100 Base-TX</b> , Program downloads port. (Auto-negotiating, Auto MDI/MDI-X, LED indicator)			
LED Indicator				
Programmable LED	2 (for User-Defined)			
Hardware Expansion				
I/O Expansion Bus	Yes (for one XW-board).			

Dimensions	
W x H x D	91 mm x 123 mm x 52 mm
PWM Output	
Pulse Width Modulation Output	All XW-Board series DO boards support PWM output. Max. 8 channels for one controller. 500 Hz max. for Off=1 & On=1 ms Output square curve: Off: 1 ~ 32767 ms, On: 1 ~ 32767 ms
Counters	
Parallel DI Counter	All XW-Board series DI boards support DI counter. Max. 8 channels for one controller. Counter value: 32 bit; 500 Hz max. Min. ON & OFF width must > 1 ms
Remote DI Counter	All remote I-7000 & I-87K DI modules support counters. 100 Hz max. value: 0 ~ 65535
Remote High Speed Counter	Optional I-87082: 100 kHz max. , 32 bit
Protocols	
Modbus RTU/ASCII Master Protocol	Up to <b>2 COM</b> Ports (COM1, COM2 and COM3-in-XW-Board) support Modbus RTU/ASCII Master protocol to connect to other Modbus Slave I/O devices. Max. Mbus_xxx Function Block amount: <b>128</b> .
Modbus RTU Slave Protocol	Up to <b>2 COM</b> Ports (COM1 and one of COM2/COM3-in-XW-Board) can support Modbus RTU Slave protocol for connecting ISaGRAF, PC/HMI/OPC Server & MMI panels.
Modbus TCP/IP Slave Protocol	Ethernet port supports Modbus TCP/IP Slave protocol for connecting ISaGRAF & PC/HMI. Max. <b>6</b> connections.
Remote I/O	One of COM2 or (COM3:RS-485 in-XW-Board) supports I-7K, I-87K I/O modules as Remote I/O. I-87K series must plug on RU-87P(High profile) or I-87K(Low profile) I/O Unit. Max. <b>64</b> I/O modules for one PAC.
Fbus	Built-in COM2 Port to exchange data between ICP DAS's ISaGRAF PACs.
Ebus	To exchange data between ICP DAS's ISaGRAF Ethernet PACs via Ethernet port.
Send E-mail	Actively or passively sending E-mail via Ethernet port through internet. Max.10 receivers for each sending and can send E-mail with an attached file. (Max. file size is about 488 KB)
SMS: Short Message Service	One of (COM1 or COM3: RS-232 in-XW-Board) can link to a GSM modem to support SMS. User can request data/control the controller by cellular phone. The controller can also send data & alarms to user's cellular phone. Optional GSM modem: GTM-201-RS232 (GSM/GPRS 850/900/1800/1900) <b>Note: <math>\mu</math>PAC-5207, 5307 has built-in GPRS, no external GSM modem required.</b>
User-defined Protocol	User can write his own protocol applied at COM1, COM2 & (COM3 ~ COM8 -in-XW-Board) by serial communication function blocks.
MMICON/LCD	One of (COM3: RS-232 in-XW-Board) supports ICP DAS's MMICON. The MMICON is featured with a 240 x 64 dot LCD and a 4 x 4 Keyboard. User can use it to display picture, string, integer, float, and input a character, string, integer and float.
Redundant Solution	Two PACs plug with <b>XW107</b> in slot0. One is Master, one is Slave. Master handles all inputs & outputs at run time. If Master is damaged (or power off), Slave will take over the control of Bus7000b. If Master is alive from damaged (or power up again), it takes the control of Bus7000b again. The change over time is about 5 seconds. Control data is exchanging via Ebus (if using a cross cable, no require any Ethernet Switch). All I/O should be RS-485 I/O except the status I/O in the slot 0: XW107.
CAN/CANopen	Use COM1 or COM3 ~ COM8 (at the XW5xx RS-232 X-board) to connect one I-7530: the RS-232 to CAN converter to support CAN/CANopen devices and sensors. One PAC supports max. <b>3</b> RS-232 ports to connect max. <b>3 I-7530</b> modules. Please refer to: <a href="http://www.icpdas.com &gt; FAQ &gt; Software &gt; ISaGRAF Ver.3 (English) - 086">www.icpdas.com &gt; FAQ &gt; Software &gt; ISaGRAF Ver.3 (English) - 086</a>



Expansion Boards (DI, DO, AI, AO or RS-232/422/485 Port)	
XW-Boards	<a href="http://www.icpdas.com &gt; Products &gt; µPAC-5000 &gt; XW-Board">www.icpdas.com &gt; Products &gt; µPAC-5000 &gt; XW-Board</a>

## Remote I/O Modules Selection Guide

RS-485 Remote I/O Modules	
I-7000	<a href="http://www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; I-7000 Modules &gt; Selection Guide">www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; I-7000 Modules &gt; Selection Guide</a>
M-7000	<a href="http://www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; M-7000 Modules &gt; Selection Guide">www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; M-7000 Modules &gt; Selection Guide</a>
RS-485 Remote Hot-Swap Expansion Unit + I-87K High Profile I/O Modules	
RU-87P1/2/4/8	<a href="http://www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; Remote I/O Expansion Unit &gt; Selection Guide">www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; Remote I/O Expansion Unit &gt; Selection Guide</a>
High Profile I-87K I/O Modules	<a href="http://www.icpdas.com &gt; Products &gt; PAC - 8K &amp; 87K I/O Modules">www.icpdas.com &gt; Products &gt; PAC - 8K &amp; 87K I/O Modules</a>
RS-485 Remote Expansion Unit + I-87K I/O Modules	
I-87K1/4/5/8/9	<a href="http://www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; Remote I/O Expansion Unit &gt; Selection Guide">www.icpdas.com &gt; Products &gt; Remote I/O Modules/Units &gt; Remote I/O Expansion Unit &gt; Selection Guide</a>
I-87K I/O Modules	<a href="http://www.icpdas.com &gt; Products &gt; PAC - 8K &amp; 87K I/O Modules">www.icpdas.com &gt; Products &gt; PAC - 8K &amp; 87K I/O Modules</a>

## Ordering Information

µPAC-5007(D) CR	Ethernet ISaGRAF Palm-Size Programmable Automation Controller (RoHS)
µPAC-5007P(D) CR	µPAC-5007 with PoE (RoHS)
µPAC-5107(D) CR	µPAC-5007 with GPS (RoHS)
µPAC-5107P(D) CR	µPAC-5107 with PoE (RoHS)
µPAC-5207(D) CR	µPAC-5007 with GPRS (RoHS)
µPAC-5307(D) CR	µPAC-5007 with GPS, GPRS (RoHS)

## Optional

\* Using ISaGRAF-32 can control more than 32 I/O tags. (Please refer to ISaGRAF User's Manual Ch. 3.4).  
 Note: No upgrade service from ISaGRAF-32 to ISaGRAF-256.

Development Software	
ISaGRAF-256-E ISaGRAF-256-C	ISaGRAF Workbench Software Ver.3 ( <a href="#">256 I/O Tags</a> ) with USB Dongle and <a href="#">English/Chinese</a> application book (-E: English, -C: Chinese)
ISaGRAF-32-E ISaGRAF-32-C	ISaGRAF Workbench Software Ver.3 ( <a href="#">32 I/O Tags</a> ) with <a href="#">English/Chinese</a> application book. (-E: English, -C: Chinese)
Application Book	
ISaGRAF Book-E ISaGRAF Book-C	ISaGRAF application book (-E: English version, -C: Chinese version)
Ethernet Switch	
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-208 CR	Unmanaged 8-port Industrial 10/100 Base-T Ethernet Switch (RoHS)
NS-205PSE CR	Industrial 5-Port PoE Ethernet Switch
Power Supply	
ACE-540A (DIN-540A)	24 V/1.7 A Output Power Supply (DIN-540A: ACE-540A with DIN-Rail Mount)
MDR-60-48	48V/1.25A, 60 W Power Supply with DIN-Rail Mounting