

# ISaGRAF® PAC

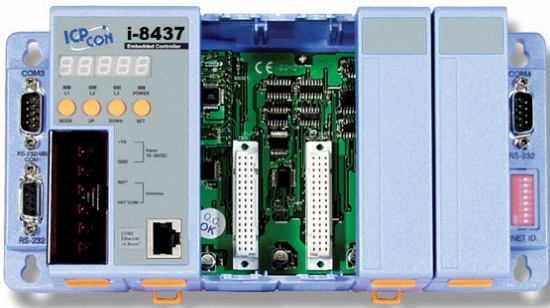
I-8X37-80 series Embedded Controller with ISaGRAF Inside

80188 **80MHz**, or compatible CPU: 2 to 4 times faster than I-8x37

Build-in **ISaGRAF** Ver.3 SoftLogic

Supports **6** PLC automation languages: IEC 61131-3 Standard Languages ( **5** ) + Flow Chart ( **1** )

## I-8437-80 / 8837-80 Ethernet ISaGRAF PAC

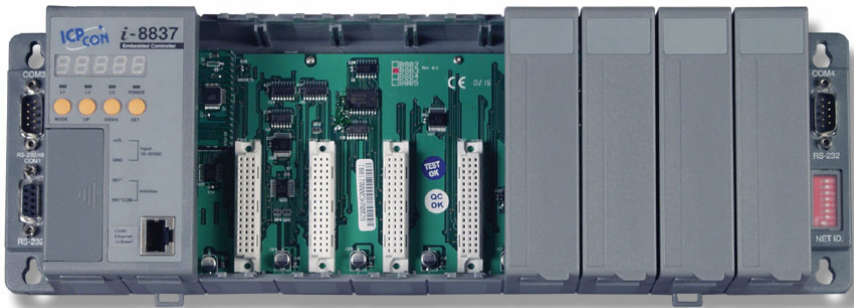


**I-8437-80** (4 slots)

**I-8837-80** (8 slots)

80MHz CPU (Faster)

100/10M Ethernet port

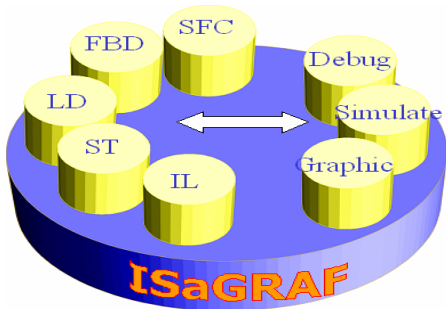


**I-8437-80 / 8837-80 (Ethernet ISaGRAF PAC)** is an Ethernet ISaGRAF SoftLogic PAC, supporting popular programming software: ISaGRAF Ver.3. Its 80188-80M Hz CPU is faster than the CPU of i-8437/8837 PAC. The speed of ISaGRAF program running in the i-8437-80 / 8837-80 is about **2 ~ 4 times faster** than running in the i-8437/8837!

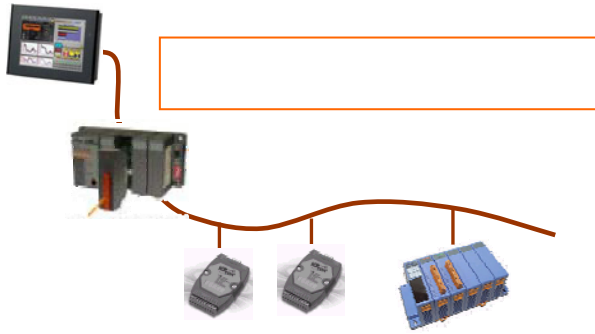
I-8437-80 / 8837-80 default has one 100/10M Ethernet port and 3 serial ports (1 RS232/485 & 2 RS232). I-8437-80 / i-8837-80 with 4 / 8 slots supports I-8K & I-87K I/O boards and supports I-7000 / I-87K I/O modules via RS485. There are about 100 selections of I/O boards or remote I/O modules!

The ISaGRAF PAC supports ISaGRAF Ver.3 Workbench :

- IEC61131-3 Standard Open PLC Programming Languages: Ladder, Function Block, SFC, ST, IL and Flow Chart.
- Auto-scan I/O
- Simulate program even without controller beside
- Debug on-line
- Control on-line
- Simple graphic HMI

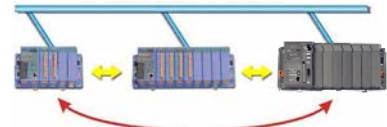


## Local/remote I/O application

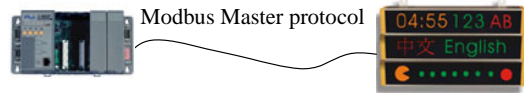


## Data Exchange: Ethernet & RS485

- Through Ethernet: Ebus
- Through RS485: Fbus
- PAC to PAC



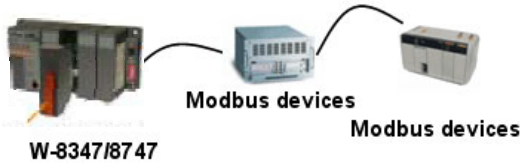
## Support EKAN Modbus LED



## Modbus Master

(RTU, ASCII, RS232/485/422)

- Support **2** Modbus Master ports at the same time
- COM1, COM3, COM4 or **COM5**(if plugged one i-81XX board)
- Link to Modbus PLC & M-7000 I/O & Modbus devices (Power meter, temperature controller, inverter...)



## Modbus RTU/TCP Slave Ports

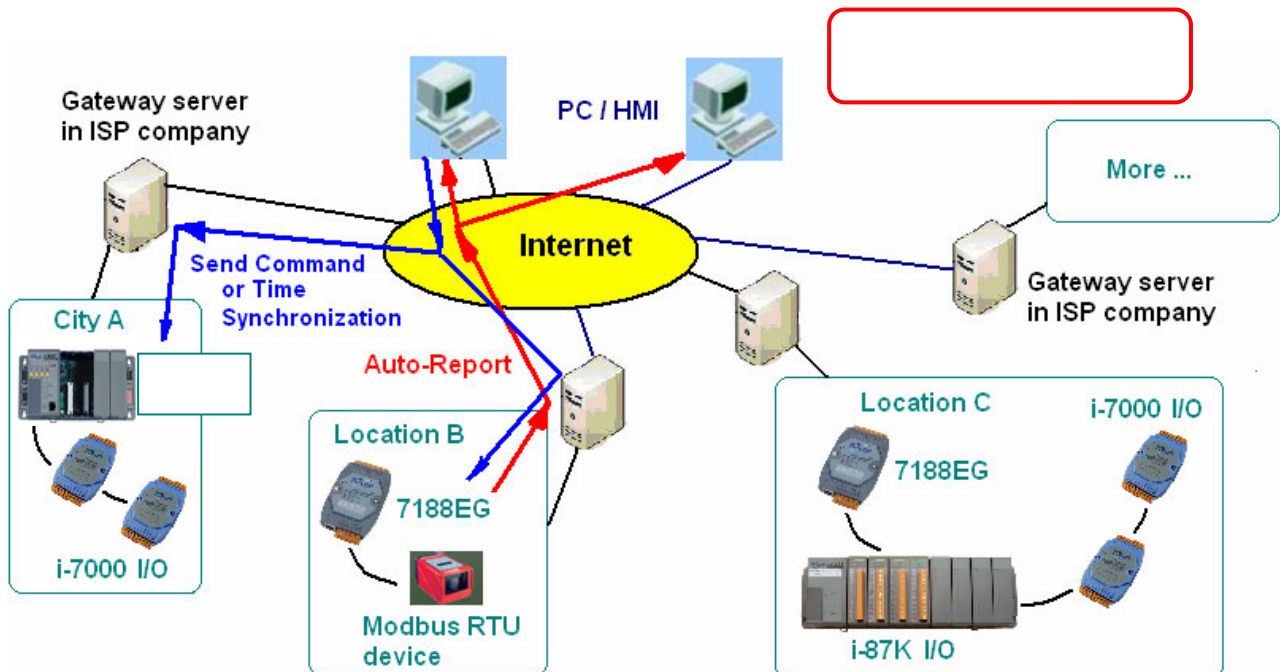
Provide 4-level internet Security Protection

- Modbus RTU: max. **2** PC/HMI/SCADA connection
- Modbus TCP/IP: max. **4** PC/HMI/SCADA connection



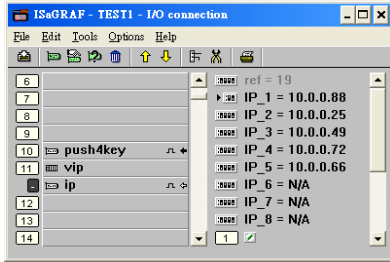
## Auto-report acquisition data & control data

I-8X37-80 PAC can use UDP IP to auto-report acquisition data & control data to local or remote internet PC/Server.  
**Advantage: Every I-8X37-80 in the different location doesn't need a fixed IP.**

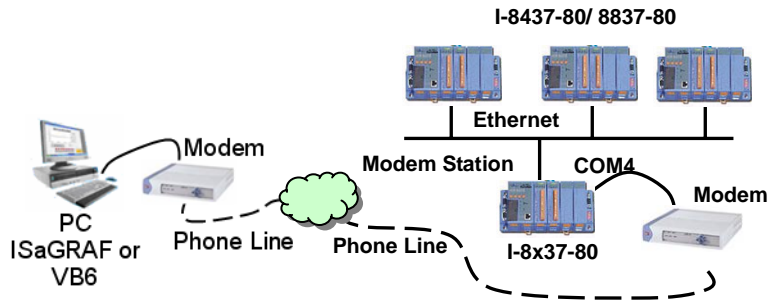


## ● VIP communication security

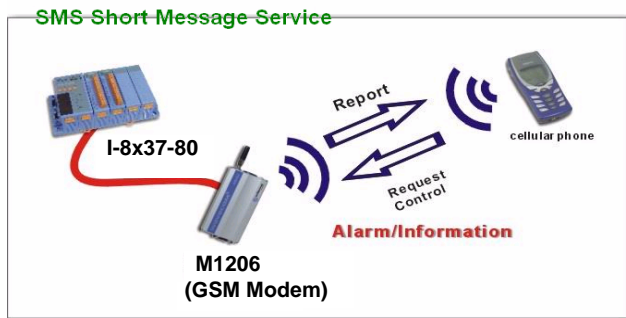
Set VIP (Very Important IP No.) for Modbus TCP/IP security.



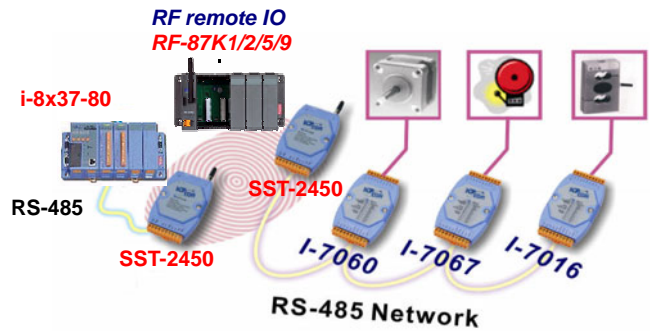
## ● Modem\_Link download & monitor











## ● SMS: Short Message Service



## ● Wireless communication



## Ordering Information

<b>Ethernet ISaGRAF μPAC</b>		I-8437-80 (blue) I-8437-80G (gray)	<b>4 slots Faster CPU (80M Hz) Ethernet ISaGRAF PAC</b>
		I-8837-80 (blue) I-8837-80G (gray)	<b>8 slots Faster CPU (80M Hz) Ethernet ISaGRAF PAC</b>
<b>SRAM</b>		S-256 / S-512	256K / 512K bytes battery backup SRAM
<b>Application Software</b>		ISaGRAF-256-E	ISaGRAF Workbench Software Ver.3 + one English application book
		ISaGRAF-256-C	ISaGRAF Workbench Software Ver.3 + one Chinese application book
<b>Application Book</b>		ISaGRAF Book-E	ISaGRAF application book (English)
		ISaGRAF Book-C	ISaGRAF application book (Traditional Chinese)
<b>Ethernet Switch</b>		NS-205 / NS-208	Unmanaged 5-port / 8-Port Industrial 10/100 Base-T Ethernet Switch with Plastic Case (RoHS)
<b>LED Display</b>		EKAN-ME122M	16x96 pixel, 64x384mm, 48W@24VDC char size: 8x6 or 16x8 pixel
		EKAN-ME124M	16x192 pixel, 64x768mm, 90W@24VDC char size: 8x6 or 16x8 pixel

# Specifications of I-8437-80 & I-8837-80 **ISaGRAF PAC**

<b>Power supply</b>	
Power requirements	10 to 30VDC (unregulated), 20W (when I/O slots are empty )
Protection	Built-in power protection & network protection circuit
<b>General environment</b>	
temperature	Operating: -25°C to +75°C , Storage : -30°C to +85°C
Humidity	5 to 95 % (non-condensed)
<b>System</b>	
CPU	80188 80M Hz, or compatible
Watchdog timer	Yes
Real time clock	Gives hour, minute, sec, date of week, date of month, month & year (1980 to 2079)
SRAM	512Kbytes
FLASH Memory	512Kbytes, Erase unit is 64K bytes, 100,000 erase/write cycles
NVSRAM	31 bytes, battery backup, data valid up to 10 years
EEPROM	2048 bytes, retention > 100 years. 1,000,000 erase/write cycles
SMMI	Five 7-Seg. Led, four push buttons & three Led on the front panel. It can display message, value, input value, simulate input & output.
I/O slots	4 empty slots for I-8437-80, 8 empty slots for I-8837-80. Accept parallel & serial I/O boards
NET ID	8 dip switch to set NET ID as 1 to 255
<b>Serial ports</b>	
COM1	RS232: TXD, RXD, GND, Speed: 115200 bps max. Program downloads port.
Ethernet	10M bps, NE2000 compatible, 10 BaseT, Program download port.
COM3	Can be configured as RS-232 or RS485, Speed: 115200 bps max. Program downloads port. RS232: TXD,RXD,RTS,CTS,GND, RS485: Data+, Data-,
COM4	RS232: Full modem signals, 115200 bps max. TXD,RXD,RTS,CTS,DSR,DTR,CD,RI,GND.
<b>Development software</b>	
ISaGRAF Version 3	IEC61131-3 standard. Languages: LD, ST, FBD, SFC, IL & FC
Max. code size	Accept max. 64K byte ISaGRAF code size (Appli.x8m must < 64K)
<b>Motion control</b>	
	Integrate with one I-8091(2-axes) or two I-8091(4-axes) to do motion control. When doing motion control, the Ethernet communication is not available.
<b>PWM output</b>	
Pulse Width Modulation output	8 channels max. for one controller. 500Hz max. for Off=1 & On=1 ms Output square curve: Off: 1 to 32767 ms, On: 1 to 32767 ms Optional D/O boards: i-8037, 8041, 8042, 8054, 8055, 8056, 8057, 8060, 8063, 8064, 8065, 8066,8068, 8069 (Relay Output boards can not generate fast square curve)
<b>Counters</b>	
Parallel D/I counter	8 ch. max. for 1 controller. Counter val:32 bit. 500Hz max. Min. ON & OFF width must >1ms Optional D/I boards: i-8040, 8042, 8051, 8052, 8053, 8054, 8055, 8058, 8063, 8077
Serial D/I counter	Counter input: 100Hz max. Counter value: 0 to 65535 (16 bit) Optional serial I-87K D/I boards: i-87051, 87052, 87053, 87054, 87055, 87058, 87063
Remote D/I counter	All remote I-7000 & I-87K D/I modules support counters. 100Hz max. value: 0 to 65535
High speed counter	i-87082: 100kHz max. 32 bit, i-8080: 450kHz max. 32 bit
<b>Protocols</b>	
Modbus serial protocol	Up to 2 COM ports (COM1 and COM3) can support Modbus RTU slave protocol for connecting ISaGRAF, PC/HMI/OPC Server & MMI panels.
Modbus TCP/IP protocol	Ethernet port support Modbus TCP/IP slave protocol for connecting ISaGRAF & PC/HMI.
Remote I/O	One of COM3 or COM4 supports I-7000 I/O modules & (I-87K base + I-87K serial I/O boards) as remote I/O. Max. 64 remote I/O module for one controller
Modbus master protocol	Up to 2 COM ports (COM1,COM3,COM4 and COM5 in multi serial port board) can support Modbus RTU/ASCII master protocol to connect to other Modbus slave devices
Fbus	Built in COM3 port to exchange data between ICP DAS's ISaGRAF controllers.
Ebus	To exchange data between ICP DAS's ISaGRAF Ethernet controllers via Ethernet port.
SMS: Short Message Service	One of COM4 or COM5 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 modems: M1206 or LBGSMModem31
User defined protocol	User can write his own protocol applied at COM1, COM3, COM4 (& COM5 to COM20 if multi-serial port boards are plugged) by serial communication function blocks.
Modem_Link	Supports PC remotely download & monitor the controller through a normal modem.
MMICON / LCD	One of COM3 or COM4 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 Bus7000	Two ISaGRAF controllers can link to remote I-7000 & I-87K I/O modules at the same time. Only one controller is active to control these remote I/Os. If one is dead, the other one will take over the control of remote I/Os.
<b>Battery backup SRAM</b>	
	I-8437/8837 can support up to 1024 retain variables with a S256/S512 plug in the socket of the back-plane. Data can also be stored in the S256/S512, and then PC can load these data via COM1 or Ethernet. PC can also download pre-defined data to the S256/S512. Optional: S256: 256kbytes, S512: 512kbytes