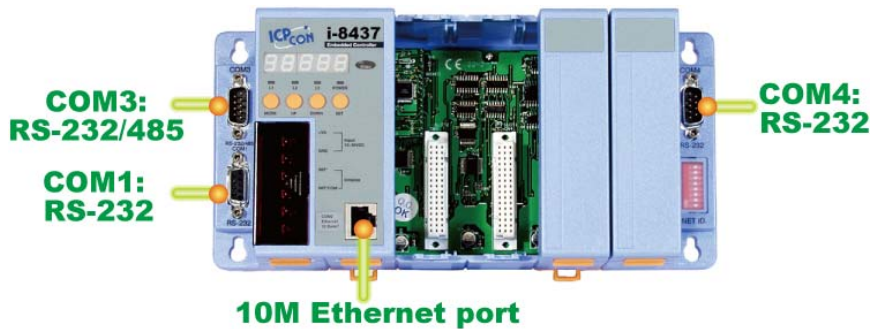


I-8437-80 / 8837-80 Ethernet ISaGRAF PAC



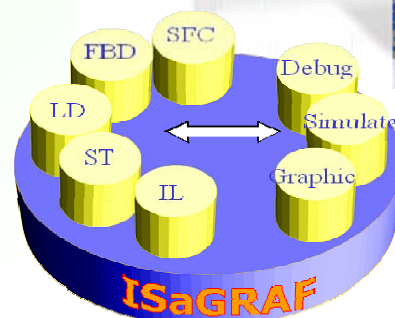
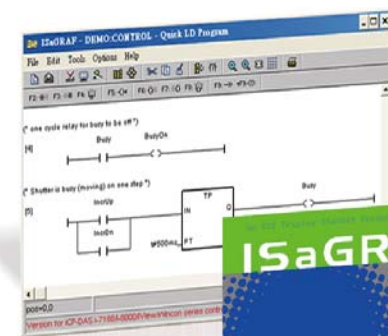
- **ISaGRAF Ver. 3 SoftLogic Inside**
- **Support IEC 61131-3 + Flow Chart**
- **MiniOS7 Inside**
- **80186-80 MHz CPU**



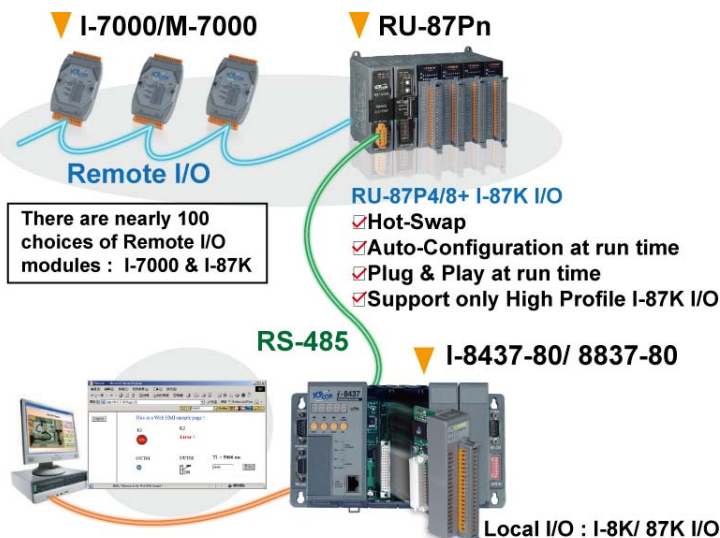
The I-8437-80 / 8837-80 is an Ethernet ISaGRAF PAC and includes ISaGRAF SoftLogic, It has one 10M Ethernet port, one RS-232/485 port and two RS-232 ports. The user can choose *Local I/O modules* : I-8K/ I-87K I/O modules and *RS-485 Remote I/O modules* : I-7000 or expansion units (I-87Kn or RU-87Pn) plugged with I-87K serial I/O modules. Compared to I-8437/8837, I-8x37-80 is **2 ~ 4 times faster!**

The ISaGRAF PAC supports ISaGRAF Workbench Ver.3 :

- **IEC 61131-3 Standard Open PLC Programming Languages + Flow Chart:**
 1. Ladder
 2. Function Block
 3. SFC
 4. ST
 5. IL
 6. Flow Chart.
- **Auto-Scan I/O**
- **Simulate program even without controller**
- **Debug on-line**
- **Control on-line**
- **Simple graphic HMI**



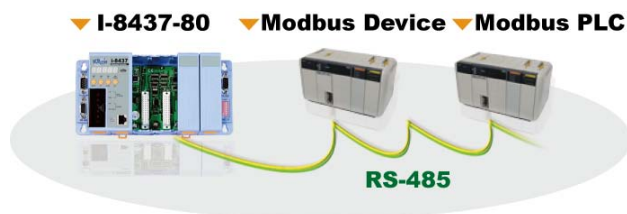
● Local/ Remote I/O Application



● Modbus Master

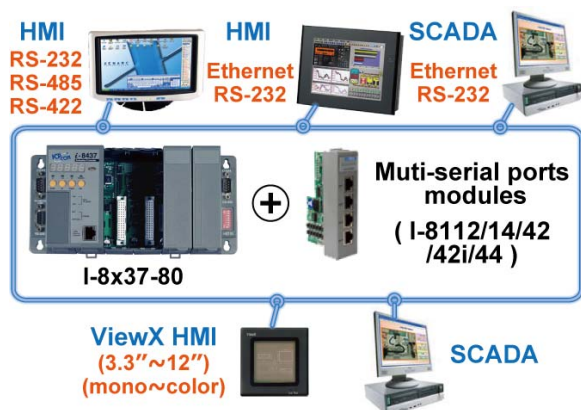
(RTU, ASCII, RS-232/485/422)

- Support **2** Modbus Master ports at the same time
- COM1, COM3, COM4 or **COM5** (if plugged one **I-8112/ 8114/ 8142/ 8144/ 8142i** board)
- Can link to Modbus PLC or M-7000 I/O or Modbus devices (Power meter, temperature controller, inverter...)



● Modbus RTU/TCP Slave Ports

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

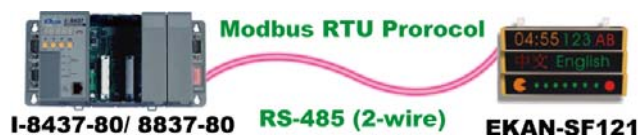


● Data Exchange: Ethernet & RS-485

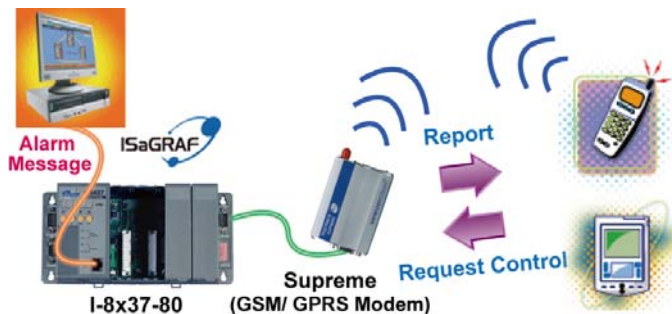
- Through Ethernet: Ebus
- Through RS-485: Fbus
- PAC to PAC



● Support EKAN Modbus LED

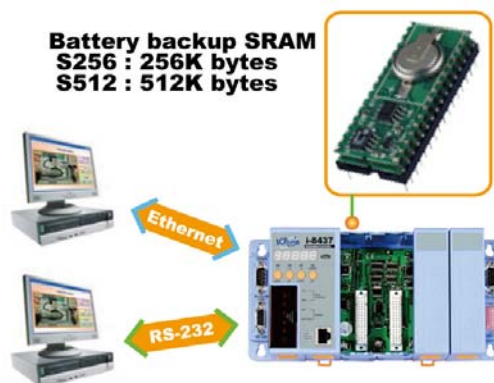


● SMS: Short Message Service



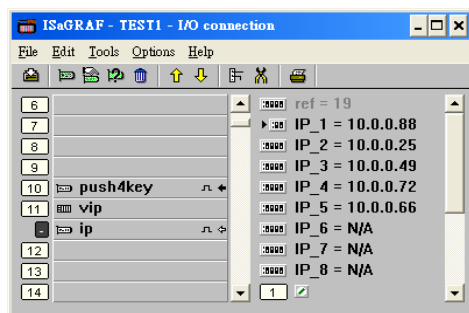
● Data-Recorder & Data-Logger

ICP DAS provides a freeware "UDLoader.exe" to load the data stored in I-8x37-80 + S256/ S512 via RS-232 or Ethernet.



● VIP Communication Security

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

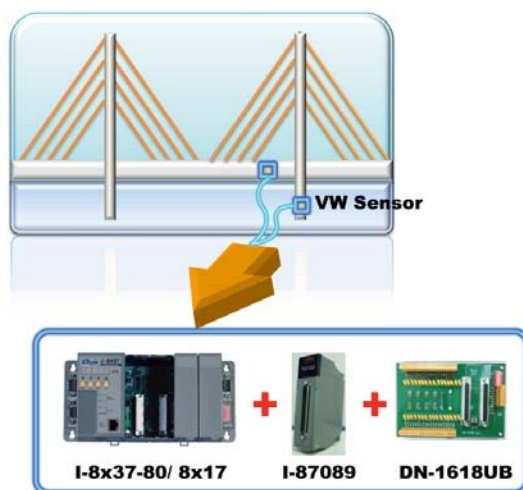


● Wireless Communication



● Constructions Monitoring Application

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

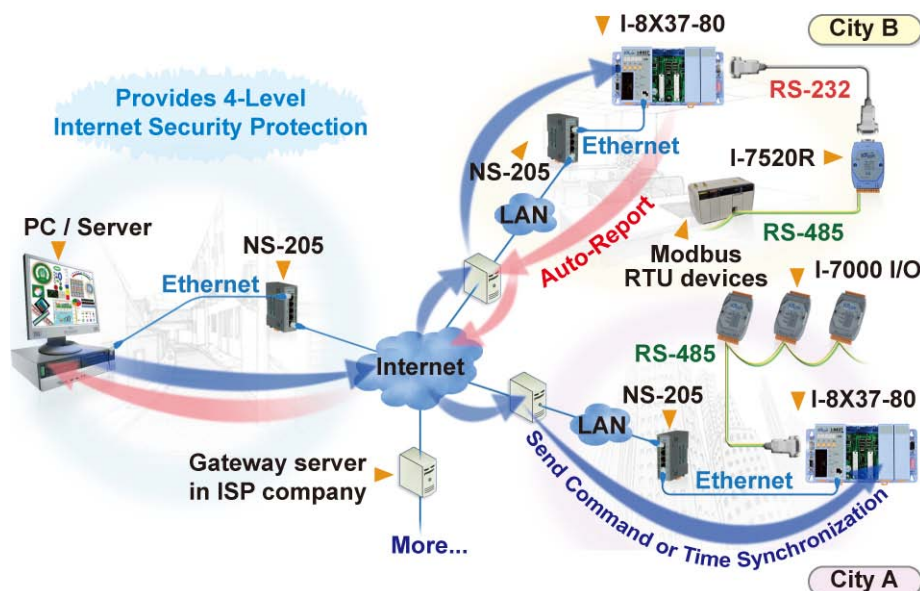


● Auto-Report Acquisition Data & Control Data

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.

Stable and Cost-effective Data Acquisition Auto-Report System



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

Power supply	
Power requirements	10 to 30VDC (unregulated), 20W (when I/O slots are empty)
Protection	Built-in power protection & network protection circuit
General environment	
Temperature	Operating: -25°C to +75°C (-13° F to +167° F), Storage : -30°C to +85°C (-40° F to +176° F)
Humidity	5 % to 95 % (non-condensed)
System	
CPU	80186 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	512K bytes
FLASH Memory	512K bytes, Erase unit is 64K bytes, 100,000 erase/write cycles
NVRAM	31 bytes, battery backup, data valid up to 10 years
EEPROM	2048 bytes, retention > 100 years. 1,000,000 erase/write cycles
SMMI	5-digit 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
Serial ports	
COM1	RS-232: 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 RS-485, Speed: 115200 bps max. Program downloads port. RS-232: TXD, RXD, RTS, CTS, GND, RS-485: Data+, Data-,
COM4	RS-232: Full modem signals, 115200 bps max. TXD, RXD, RTS, CTS, DSR, DTR, CD, RI, GND.
Development software	
ISaGRAF Version 3	IEC 61131-3 standard. Languages: LD, ST, FBD, SFC, IL & FC
Max. code size	Accept max. 64K byte ISaGRAF code size (Appli.x8m must < 64K)
Motion control	
	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.
PWM output	
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)
Counters	
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
Protocols	
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-87Kn base or RU-87P4 or RU-87P8+ 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 PACs
Ebus	To exchange data between ICP DAS's ISaGRAF Ethernet PACs 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: Supreme (850/900/1800/1900 GSM/ GPRS External Modem)
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 System	Two ISaGRAF PACs 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. Please refer to www.icpdas.com > FAQ > Software > ISaGRAF Ver.3 (English) FAQ. 084.
Battery backup SRAM	
	I-8437-80/ 8837-80 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: 256K bytes, S512: 512K bytes



I/O Modules Selection Guide **ISaGRAF® PAC**

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

Parallel I/O Modules : I-8K (Low Profile) (I-8xxx-G : "G" means gray cover)

I-8K Analog I/O Modules	
I-8017HS	8-ch. Diff. or 16-ch. Single-ended, 14-bit, High Speed Analog Input Module (current input require external 125 Ohm resistor)
I-8024	4-ch. Isolated Analog Output Module (+/- 10V, 0 ~ +20mA)
I-8K Digital I/O Modules	
I-8037	16-ch. Isolated Open Collector Output Module
I-8040	32-ch. Isolated Digital Input Module
I-8041	32-ch. Isolated Open Collector Digital Output Module
I-8042	16-ch. Isolated Digital Input & 16-ch. Isolated Open Collector Digital Output Module
I-8051	16-ch. Non-isolated Digital Input Module
I-8052	8-ch. Differential Isolated Digital Input Module
I-8053	16-ch. Isolated Digital Input Module
I-8054	8-ch. Isolated Digital Input Module & 8-ch. Isolated Open Collector Digital Output Module
I-8055	Non-isolated 8-ch. Digital Logic Input Module & 8-ch. Open Collector Digital Output Module
I-8056	16-ch. Non-isolated Open Collector Output Module
I-8057	16-ch. Isolated Open Collector Output Module
I-8058	8-ch. Differential Isolated Digital Input Module, Max. AC/DC Input : 250V
I-8060	6-ch. Relay Output Module, AC: 125V @ 0.6A ; 250V @ 0.3A, DC: 30V @ 2A
I-8063	4-ch. Diff. Isolated digital input & 4-ch. Relay output module, AC : 125V @ 0.6A ; 250V @ 0.3A
I-8064	8-ch. Power Relay Output Module, AC: 250V @ 0.3A, DC: 30V @ 2A
I-8065	8-ch. SSR-AC Output Module, AC: 24 to 265Vrms @ 1.0Arms
I-8066	8-ch. SSR-DC Output Module, DC: 3 to 30VDC @ 1.0Arms
I-8068	8-ch. Relay Output Module, AC: 120V @ 0.5A, DC:30V @ 1A
I-8069	8-ch. PhotoMOS Relay Output Module, Max. AC/DC: 350V @ 0.13A
I-8077	8-ch. DI (Toggle switch) & 8-ch. (Programmable) DO Simulator Module
I-8K Counter/ Frequency Modules	
I-8080	4/8-ch. Counter/Frequency Module, Isolated or TTL level
I-8K Communication Modules	
I-8112	2-port RS-232 Module, 10-Pin RJ-45
I-8114	4-port RS-232 Module, 10-Pin RJ-45
I-8142	2-port RS-422/485 Module (The RS-422/485 couldn't be used simultaneously), 8-Pin RJ-45
I-8144	4-port RS-422/485 Module(The RS-422/485 couldn't be used simultaneously), 10-Pin RJ-45
I-8142i	2-port Isolated RS-422/485 Module(The RS-422/485 couldn't be used simultaneously), Isolation:3000V, 10-Pin RJ-45

RS-485 Remote I-87K I/O modules : More at www.icpdas.com > Products > PAC - 8K & 87K I/O Modules

Serial I/O Modules : I-87K (High Profile)

I-87K Analog I/O Modules	
I-87005W	8-ch. thermistor input, 16-bit, 8Hz (Total) and 8-ch. digital output module with Open Wire Detection
I-87013W	4-ch. , 16-bit, 10Hz (Total), 2/3/4 Wire RTD Input Module with Open Wire Detection
I-87015	7-ch. , 16-bit, 12Hz (Total), RTD Input Module with Open Wire Detection (for short sensor distance)
I-87015P	7-ch. RTD Input Module with 3-wire RTD lead resistance elimination and with Open Wire Detection (for long sensor distance)
I-87017R	8-ch. Diff. , 16/12-bit, 10/60Hz (Total) Analog Input Module with 240VRMS Over Voltage Protection, Range of -20mA ~ +20mA Requires Optional External 125 Ohm Resistor
I-87017RC	8-ch. Diff. , 16/12-bit, 10/60Hz(Total) Current Input Module
I-87018Z	10-ch. Diff. , 16-bit, 10Hz (Total), Thermocouple Input Module with 240VRMS Over Voltage Protection, Open Wire Detection, Range of +/-20mA, 0~20mA, 4~20mA requires Optional External 125 Ohm Resistor
I-87019R	8-ch. Diff. , 16-bit, 8Hz (Total), Universal Analog Input Module with 240VRMS Over Voltage Protection, Open Wire Detection (V, mA, Thermocouple; Range of -20mA ~ +20mA need to set Jumper on board)
I-87024W	4-ch. 14-bit analog output module (0 ~ +5V, +/- 5V, 0 ~ +10V, +/- 10V, 0 ~ +20mA, +4 ~ +20mA)
I-87028C	8-ch. 12-bit current output module
I-87K Digital I/O Modules	
I-87040W	32-ch. Isolated Digital Input Module
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. Diff. , Isolated Digital Input Module
I-87053W	16-ch. Isolated Digital Input Module
I-87053W-A5	16-ch. 68 to 150VDC Isolated Digital Input Module
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-87058W	8-ch. 80-250VAC Isolated Digital Input Module
I-87059W	8-ch. Differential 10-80VAC Isolated Digital Input Module
I-87063W	4-ch. Diff. Isolated Digital Input and 4-ch. Relay Output Module. 5 ~ 24VDC @ 5A (NO) / 3A(NC) ; 0 ~ 250VAC @ 5A(NO) / 3A(NC)
I-87064W	8-ch. Relay Output Module, 0~ 250VAC @ 5A (47~63Hz); 0~ 30VDC @ 5A
I-87065W	8-ch. AC SSR Output Module, AC: 24 to 265Vrms @1.0Arms
I-87066W	8-ch. DC SSR Output Module , DC: 3 to 30VDC @1.0Arms
I-87068W	4-ch. Form A Relay Output and 4-ch. Form C Relay Output Module Form A: 250VAC @ 8A ; 28VDC @ 8A Form C: 277VAC @ 5A(NO) / 3A(NC) ; 30VAC @ 5A(NO) / 3A(NC)
I-87069W	8-ch. Photo-Mos Relay Output Module, Max. AC/DC: 350V @ 0.13A
I-87K Counter/ Frequency Modules	
I-87082W	2-ch. Counter/Frequency Module, Isolated or Non-isolated Inputs

More RS-485 Remote I/O Modules at

I-7000 : www.icpdas.com > Products > Remote I/O Modules/Units > I-7000 Modules > Selection Guide

M-7000 : www.icpdas.com > Products > Remote I/O Modules/Units > M-7000 Modules > Selection Guide

More FRnet Remote I/O Modules at

FRnet I/O: www.icpdas.com > Products > Remote I/O Modules/Units > FRnet Remote I/O Modules > Selection Guide

More RS-485 Remote Hot-Swap Expansion Unit at

RU-87P1/2/4/8 : www.icpdas.com > Products > Remote I/O Modules/Units > RS-485 Remote I/O Unit > Selection Guide

More RS-485 Remote Expansion Unit at

I-87K1/4/5/8/9: www.icpdas.com > Products > Remote I/O Modules/Units > RS-485 Remote I/O Unit > Selection Guide

Ordering Information

Ethernet ISaGRAF iPAC	I-8437-80 (blue) I-8437-80-G (gray)	4 slots Faster CPU (80M Hz) Ethernet ISaGRAF PAC
	I-8837-80 (blue) I-8837-80-G (gray)	8 slots Faster CPU (80M Hz) Ethernet ISaGRAF PAC

Optional Accessories

SRAM	S256 / S512	256K / 512K bytes battery backup SRAM
Application Software	ISaGRAF-256-E ISaGRAF-256-C	ISaGRAF Workbench Software Ver.3 + one English/ Chinese application book (256 I/O Tags)
	ISaGRAF-32-E ISaGRAF-32-C	ISaGRAF Workbench Software Ver.3 + one English/ Chinese application book (32 I/O Tags)
Application Book	ISaGRAF Book-E	ISaGRAF application book (English)
	ISaGRAF Book-C	ISaGRAF application book (Traditional Chinese)
Ethernet Switch	NS-205 / NS-208	Unmanaged 5-port / 8-port Industrial 10/100 Base-T Ethernet Switch with Plastic Case (RoHS)
LED Display	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

Note: ISaGRAF-32-E, ISaGRAF-32-C can't upgrade to 256 I/O tags anymore!