I-8437 / 8837
I-8437-80 / 8837-80

ISaGRAF Ethernet SoftLogic Controller

Introduction

ICP DAS I-8437 and I-8837 are Ethernet SoftLogic Controllers. They support ISaGRAF which is based on the IEC61131-3 standard, to fully support all five of the PLC languages: Ladder Diagram (LD), FBD, SFC, ST, and IL plus Flow Chart (FC). ISaGRAF is a Windows programming tools and also provides powerful debugging tools including On-line Motoring and Control and also Off-line Simulation.

There are more than 300 function blocks built-in the I-8437 and I-8837 for various Industrial Applications including PID, motion, remote IO, serial communication, SMS, retain variable, scaling, ...

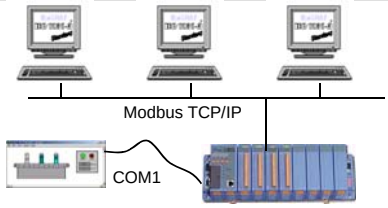
The I-8437/8837 default has 3 serial ports including 2 RS-232, 1 RS-232/485 plus one Ethernet port. COM1: RS-232 and COM3: RS-232/RS-485 support Modbus RTU slave protocol. The Ethernet port supports Modbus TCP/IP slave protocol. The PC/HMI/OPC Server and Touch panel can communicate to COM1 and Ethernet port easily by Modbus RTU and TCP/IP protocol. I-8437 / 8837 also support up to 2 COM ports of Modbus RTU / ASCII master protocol to integrate with other Modbus devices. For non-Modbus devices, I-8437 / 8837 can use many serial communication function blocks to communicate to them. I-8437 / 8837 can also add extra RS232 or RS422 or RS485 ports by adding the I-8112/8114/8142/8144 multi-serial boards.

I-8437 / 8837 supports I-8K & I-87K I/O boards. There are more than 50 I/O boards available including DI, DO, AI, AO, Relay, Counter, frequency, Thermo-couple, RTD, Thermistor, Motion, … Up to 256 local I/O points can be used in slot 0 to slot 7. More I/O can be expanded by remote I-7000 serial I/O modules and I-87K I/O boards via RS485 communication port.

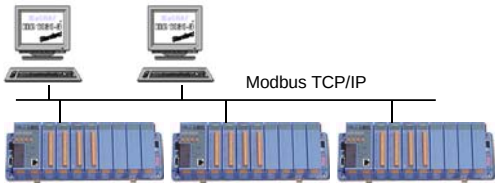
With an optional S-256 / S-512 battery backup SRAM plug in the back-plane of the controller, the I-8437 / 8837 can support up to 1024 retain variables and can use up to 244/500 K bytes retain memory for storing application data and parameter.

Features

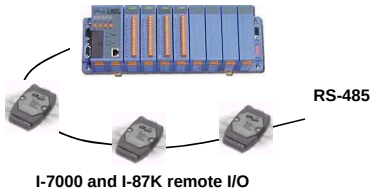
- Support Modbus TCP/IP slave and Modbus RTU slave protocol. PC/HMI/OPC Server & Touch panel can connect to Ethernet port, COM1 & COM3 at the same time. Up to 3 PC/HMI can be connected via Modbus TCP/IP.



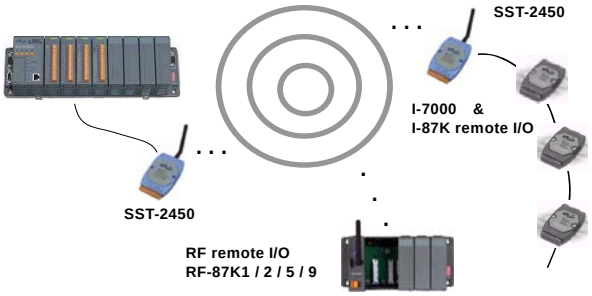
- Support Modbus TCP/IP network.



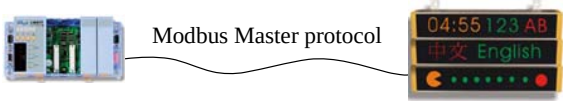
- Support remote download program via Modem
- Support auto-scan I/O in slot 0 to 7
- I-8K & I-87K D/I/O boards have LEDs to display I/O state.
- Supports I-7000 remote IO & I-87K expansion IO



- Supports SST-2450 wireless communication Modems



- Support up to 2 Modbus RTU / ASCII master COM ports
- Support serial port Read/Write function blocks to communicate to various serial devices
- Supports floating point calculation & String format
- Supports retain variables & battery backup memory
- SMS: supports Short Message Service when integrated with a M1206 or GM29 GSM Modem to send / receive Short Message to / from cellular phone
- Supports EKAN Modbus LED



- Software: IEC61131-3: ISaGRAF Version 3
- Supports ISaGRAF variable array, for ex, Ain[0..15],…

Ordering Information

I-8437	4 slot ISaGRAF Ethernet controller	**I-8837**	8 slot ISaGRAF Ethernet controller
I-8437-G	I-8437 gray color version	**I-8837-G**	I-8837 gray color version
I-8437-80	I-8437 with faster CPU (80M Hz)	**I-8837-80**	I-8837 with faster CPU (80M Hz)
I-8437-80-G	I-8437-80 gray color version	**I-8837-80-G**	I-8837-80 gray color version
S-256	256K bytes battery backup SRAM	**S-512**	512K bytes battery backup SRAM
ISaGRAF-256-E	ISaGRAF Ver.3 + one English book	**ISaGRAF-256-C**	ISaGRAF Ver.3 + one Chinese book
EKAN-ME122M LED Display	16x96 pixel, 64x384mm, 48W@24VDC char size: 8x6 or 16x8 pixel	**EKAN-ME124M LED Display**	16x192 pixel, 64x768mm, 90W@24VDC char size: 8x6 or 16x8 pixel

Specifications of I-8437 / 8837

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 , Storage : -30°C to +85°C
Humidity	5 to 95 % (non-condensed)
System	
CPU	80188, or compatible, I-8437/8837: 40M Hz , I-8437-80 / 8837-80: 80M Hz
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, 8 empty slots for I-8837. Accept parallel & serial I/O boards
NET ID	8 dip switch to set NET ID as 1 to 255
Serial ports	
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.
Development software	
ISaGRAF Version 3	IEC61131-3 standard. Languages: LD, ST, FBD, SFC, IL & FC
Max. code size	I-8437/8837 accepts max. 64K byte ISaGRAF code size (Appli.x8m must < 64K)
Motion control	
	I-8437/8837 can integrate with one I-8091(2-axes) or two I-8091(4-axes) to do motion control. When doing motion control, I-8437 / 8837's 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-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 GM29 (GSM 900/1800)
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.
Battery backup SRAM	
	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