

I-8417 / 8817

ISaGRAF SoftLogic Controller



Introduction

ICP DAS I-8417 and I-8817 are 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-8417 and I-8817 for various Industrial Applications including PID, motion, remote IO, serial communication, SMS, retain variable, scaling, ...

The I-8417 / 8817 default has 4 serial ports including 2 RS-232, 1 RS-485 and 1 RS-232/485. COM1:RS232 and COM2:RS485 both support Modbus RTU slave protocol. The PC/HMI/OPC Server and Touch panel can communicate to COM1 and COM2 easily by Modbus RTU protocol. I-8417 / 8817 also support up to 2 COM ports of Modbus RTU / ASCII master protocol to integrate with other Modbus devices. For non-Modbus devices, I-8417 / 8817 can use many serial communication function blocks to communicate to them. I-8417 / 8817 can also add extra RS232 or RS422 or RS485 ports by adding the I-8112/8114/8142/8144 multi-serial boards.

I-8417 / 8817 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.

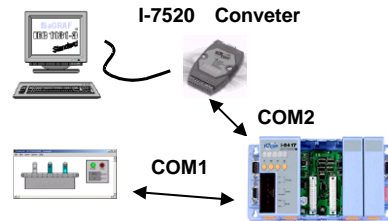
With an optional S-256 / S-512 battery backup SRAM plug in the back-plane of the controller, the I-8417 / 8817 can support up to 1024 retain variables and can use up to 244/500 K bytes retain memory for storing application data and parameter.

Ordering Information

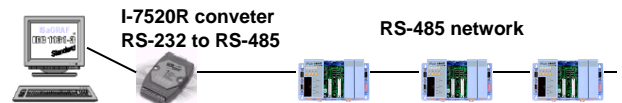
I-8417	4 slots ISaGRAF PAC	I-8817	8 slots ISaGRAF PAC
I-8417-G	I-8417 gray color version	I-8817-G	I-8817 gray color version
S-256	256 KB battery backup SRAM	S-512	512 KB battery backup SRAM
ISaGRAF-256-E	ISaGRAF Workbench Ver.3 (256 I/O Tags) + 1 English Application Book + 1 Dongle	ISaGRAF-256-C	ISaGRAF Workbench Ver.3 (256 I/O Tags) + 1 Chinese Application Book + 1 Dongle
ISaGRAF-32-E	ISaGRAF Workbench Ver.3 (256 I/O Tags) + 1 English Application Book	ISaGRAF-32-C	ISaGRAF Workbench Ver.3 (256 I/O Tags) + 1 Chinese Application Book

Features

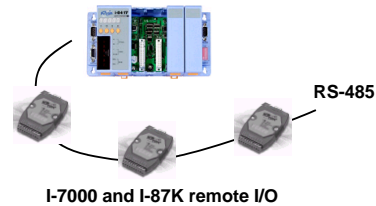
- Support Modbus RTU slave protocol. PC/HMI & Touch panel can connect to COM1 & COM2 at the same time.



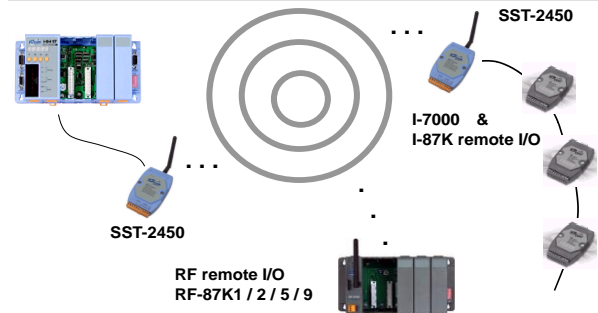
- COM2 supports Modbus RS485 network, up to 255 multi-drop, it is better not using more than 32 nodes.



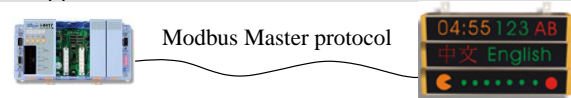
- Supports remote download program via Modem
- Supports auto-scan I/O in slot 0 to 7
- I-8K & I-87K D/I/O boards have LEDs to display I/O state.
- Supports I-7000 remote IO & I-87K expansion IO



- 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],...

Specifications of I-8417 / 8817

Power supply	
Protection	Power reverse polarity protection
Input Range	10 ~ 30 V _{DC}
Power Consumption	20 W (when I/O slots are empty)
General environment	
temperature	Operating: -25°C ~ +75°C , Storage : -30°C ~ +80°C
Humidity	5 ~ 90 % (non-condensing)
System	
CPU	80188,40 MHz, or compatible
Watchdog timer	Yes
RTC (Real Time Clock)	Provide seconds, minutes, hours, day of week/month, month and year (1980 ~ 2079)
SRAM	512 KB
FLASH Memory	512 KB, 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, simulate input & output.
I/O slots	4 empty slots for I-8417, 8 empty slots for I-8817. Accept parallel & serial I/O boards
NET ID	8-pin DIP switch to set NET ID as 1 ~ 255
Serial ports	
COM1	RS-232: TxD, RxD, GND, Speed: 115200 bps max. Programs download port.
COM2	RS-485: D+, D-, 115200 bps max. Self-tuner ASIC inside, Programs download port.
COM3	Can be configured as RS-232 or RS-485, Speed: 115200 bps max.
COM4	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	IEC61131-3 standard. Languages: LD, ST, FBD, SFC, IL & FC
Max. code size	I-8417/8817 accepts max. 64 KB ISaGRAF code size (Appli.x8m must < 64 KB)
Motion	
Motion Control	Can integrate with one I-8091(2-axis) or two I-8091(4-axis) to do motion control. (Please update to motion driver to support it.)
PWM output	
Pulse Width Modulation output	8-ch max. for one controller. 500HZ max. for Off=1 & On=1 ms Output square curve: Off: 1 ~ 32767 ms, On: 1 ~ 32767 ms Optional DO boards: I-8037, 8041, 8042, 8054, 8055, 8056, 8057,8060, 8063, 8064, 8065, 8066, 8068, 8069. (Relay Output boards cannot generate fast square pulse)
Counters	
Parallel DI Counter	8-ch. max. for 1 controller. Counter value: 32-bit. 500hz max. Min. pulse width > 1 ms Optional DI boards: I-8040, 8042, 8051, 8052, 8053, 8054, 8055, 8058, 8063, 8077
Serial DI 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 DI Counter	All remote I-7000 & I-87K DI modules support counters. 100Hz max. value: 0 to 65535
High Speed Counter	I-87082: 100 kHz max. 32 bit; I-8080: 450 kHz max. 32 bit
Protocols	
Modbus Slave Protocol	COM1 & COM2 default support Modbus RTU Slave protocol for connecting ISaGRAF, PC/HMI/OPC Server & MMI panels.
Modbus Master Protocol	Up to 2 COM ports (COM1, 3, 4 or COM5 if multi-serial port boards are plugged) support Modbus master protocol to connect to other Modbus slave devices
Remote I/O	One of COM3 or COM4 supports I-7000 I/O modules & (I-87K base + I-87K serial I/O boards or RU-87P1/2/4/8 + I-87K High Profile I/O cards) as Remote I/O. Max. 64 Remote I/O modules for one controller.
Fbus	Built-in COM3 Port to exchange data between ICP DAS's ISaGRAF PACs
SMS: Short Message Service	One of COM4 or COM5 can link to a GSM modem to support SMS. User can request data/controller by cellular phone. The controller can also send data & alarms to user's cellular phone. Optional GSM modems: GTM-201-RS232 (850/900/1800/1900 GSM/GPRS External Modem).
User-defined Protocol	User can write his own protocol applied at COM1, 3, 4 (& COM5 ~ 20 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	
	Supports 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 COM2. PC can also download pre-defined data to the S256/S512. Optional: S256: 256 KB, S512: 512 KB