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 Online Motoring and Control and also Offline 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, ...

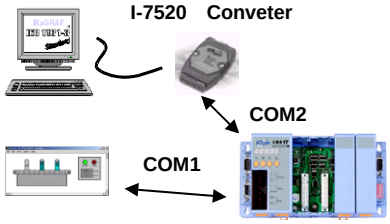
The I-8417 / 8817 default has 4 serial ports including 2 RS-232, 1 RS-485 and 1 RS-232/485. COM1:RS232 and COM2:RS485 both support Modbus RTU slave protocol. The PC/HMI/OPC Server and Touch panel can communicate to COM1 and COM2 easily by Modbus RTU protocol. I-8417 / 8817 also support up to 2 COM ports 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.

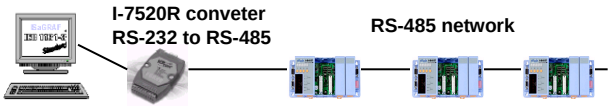
With an optional S-256 / S-512 battery backup SRAM plug in the back-plane of the controller, the I-8417 / 8817 can support up to 1024 retain variables and can use up to 244/500 K bytes retain memory for storing application data and parameter.

Features

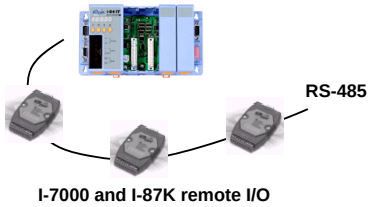
- Support Modbus RTU slave protocol. PC/HMI & Touch panel can connect to COM1 & COM2 at the same time.



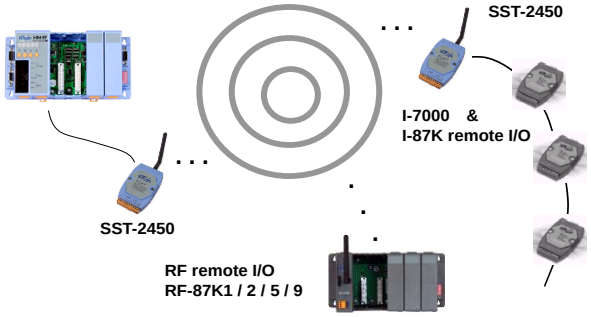
- COM2 supports Modbus RS485 network, up to 255 multi-drop, it is better not using more than 32 nodes.



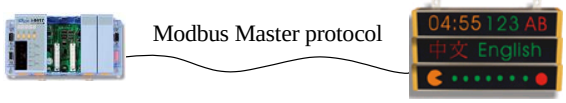
- Supports remote download program via Modem
- Supports auto-scan I/O in slot 0 to 7
- I-8K & I-87K D/I/O boards have LEDs to display I/O state.
- Supports I-7000 remote IO & I-87K expansion IO



- 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
- Support floating point calculation & String format
- Support retain variables & battery backup memory
- SMS: support Short Message Service when integrated with a M1206 or GM29 GSM Modem to send / receive Short Message to / from cellular phone
- Support EKAN Modbus LED



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

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	ISaGRAF Workbench Ver.3 (256 I/O Tags) with One USB Dongle		
ISaGRAF-32	ISaGRAF Workbench Ver.3 (256 I/O Tags)		

Note: No upgrade service from ISaGRAF-32 to ISaGRAF-256 is available.
(ISaGRAF-32 can be used to control more than 32 I/O tags. Please refer to Ch. 3.4 of the ISaGRAF User Manual.)

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 second, minute, hour, date, day of week, month, year
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. 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 wave: 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 wave)
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