I-7188EG / 7188EGD Palm-size ISaGRAF Ethernet SoftLogic Controller

Introduction

ICP DAS I-7188EG and I-7188EGD are Palm-size 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-7188EG and I-7188EGD for various Industrial Applications including PID, remote IO, serial communication, SMS, retain variable, scaling...

The I-7188EG / 7188EGD default has 2 serial ports including 1 RS-232, 1 RS-485 plus one Ethernet port. COM1:RS232 and COM3 (in X-board) 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-7188EG / 7188EGD also support up to 2 COM ports of Modbus RTU / ASCII master protocol to integrate with other Modbus devices. For non-Modbus devices, I-7188EG / 7188EGD can use many serial communication function blocks to communicate to them. I-7188EG / 7188EGD can also add extra RS232 or RS422 or RS485 ports by adding one X5xx multi-serial board in its expansion IO slot.

I-7188EG / 7188EGD supports one X-board in its expansion I/O slot. There are more than 20 X-boards available. The X board supports up to 14 local I/O points. More I/O can be expanded by remote I-7000 serial I/O modules and I-87K I/O boards via RS485 communication port.
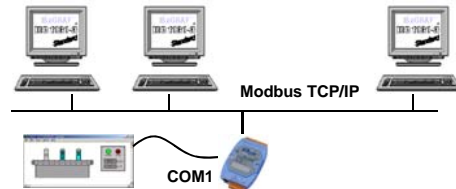
With an optional X-607 / X-608 battery backup SRAM plug in the expansion IO slot, the I-7188EG / 7188EGD can support up to 1024 retain variables and can use up to 116/500 K bytes retain memory for storing application data and parameter.

Features

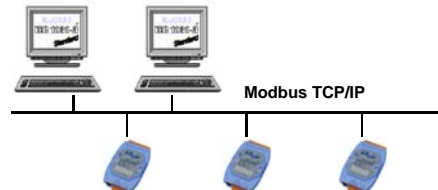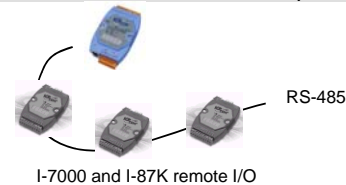- Support Modbus TCP/IP slave and Modbus RTU slave protocol. PC/HMI/OPC Server & Touch panel can connect to Ethernet port & COM1 & COM3 at the same time. Up to 3 PC/HMI can be connected via Modbus TCP/IP.
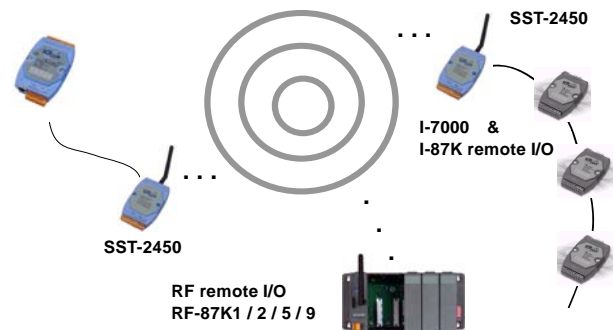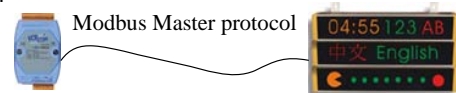

- Support Modbus TCP/IP network.

- Support I-7000 remote IO & I-87K expansion IO

I-7000 and I-87K remote I/O

- Support wireless communication when integrating with SST-2450 wireless 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: supports 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-7188EG	Palm-size ISaGRAF Ethernet controller	I-7188EGD	Palm-size ISaGRAF Ethernet controller with display
X-607	128K bytes battery backup SRAM	X-608	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

CE approved

Specifications of I-7188EG & I-7188EGD

Power supply	
Power requirements	10 to 30VDC (unregulated), I-7188EG:2W , I-7188EGD:3W
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 40MHz, 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
Display for I-7188EGD	Five 7-Seg. Led on the front. It can display message & value.
Expansion I/O bus	One optional Xxxx series I/O board can be plugged inside the I-7188EG / 7188EGD.
NET ID	Set by software, 1 to 255
Serial ports	
COM1	RS232: TXD, RXD, GND, Speed: 115200 bps max. Program downloads port.
COM2	RS485: D+, D-, 115200 bps max. Self-tuner ASIC inside
Ethernet	10M bps, NE2000 compatible, 10 BaseT. Program download port
Development software	
ISaGRAF Version 3	IEC61131-3 standard. Languages: LD, ST, FBD, SFC, IL & FC
Max. code size	I-7188EG/7188EGD accepts max. 64K byte ISaGRAF code size (Appli.x8m must < 64K)
PWM output	
Pulse Width Modulation output	All Xxxx series D/O boards support PWM 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
Counters	
Parallel D/I counter	All Xxxx series D/I boards support D/I counter. 8 ch. max. for one controller. Counter value: 32 bit 500Hz max. Min. ON & OFF width must > 1ms
Remote D/I counter	All remote I-7000 & I-87K D/I modules support counters. 100Hz max. value: 0 to 65535
Remote high speed counter	Optional i-87082:100kHz max. , 32 bit
Protocols	
Modbus serial protocol	Up to 2 COM ports (COM1 and COM3-in-X-board) can support Modbus RTU slave protocol for connecting ISaGRAF, PC/HMI/OPC Server & MMI panels.
Modbus TCP/IP protocol	Ethernet port supports Modbus TCP/IP slave protocol for connecting ISaGRAF & PC/HMI.
Remote I/O	One of COM2 (or COM3:RS485 if found) supports I-7000 I/O modules & (I-87K base + I-87K serial I/O boards) as remote I/O. Max. 64 I/O modules for one controller
Modbus master protocol	Up to 2 COM ports (COM1 ,COM2 and COM3-in-X-board) support Modbus RTU / ASCII master protocol to connect to other Modbus slave I/O devices
Fbus	Built in COM2 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 (COM3:RS232 or COM4:RS232 if found) 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, COM2 & (COM3 to COM8 if found) by serial communication function blocks.
Modem Link	Supports PC remotely download & monitor the controller through COM4 of X504.
MMICON / LCD	One of (COM3:RS232 if found) 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-7188EG / 7188EGD can support up to 1024 retain variables with an X607 / X608 plug in the only expansion I/O slot. Data can be stored in X607/X608, and then PC can load these data via COM1 or Ethernet. PC can also download pre-defined data to the X607/X608 Optional: X607: 128kbytes, X608: 512kbytes