

ISaGRAF® μ PAC

I-7188XG series Embedded Controller with ISaGRAF Inside

80188 40MHz, or compatible CPU

Build-in **ISaGRAF** Ver.3 SoftLogic

Supports **6** PLC automation languages: IEC 61131-3 Standard Languages (**5**) + Flow Chart (**1**)

I-7188XG/XGD ISaGRAF μ PAC



I-7188XG

I-7188XGD (with display)

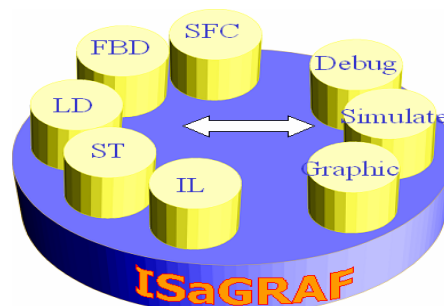


I-7188XG/7188XGD (ISaGRAF μ PAC) is a palm-size ISaGRAF SoftLogic μ PAC, supporting popular & easy programming software: ISaGRAF Ver.3. It default has 2 serial ports (COM1:RS232/RS485 & COM2:RS485) and supports to plug one X-board to add more ports or I/O channels!

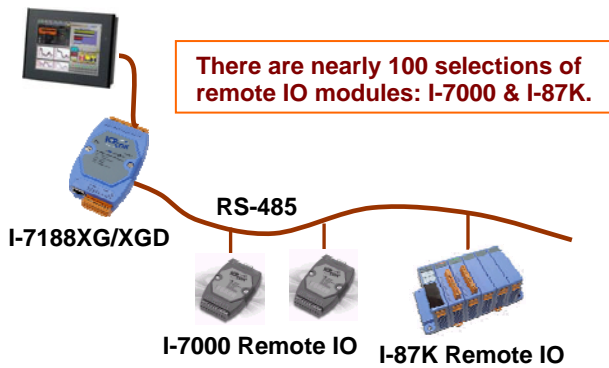
The ISaGRAF μ PAC supports: Modbus serial protocol, Modbus master protocol, Fbus:RS485, remote I/O, SMS: Short Message Service, modem link, MMICON / LCD and user defined protocol.

The ISaGRAF μ PAC supports ISaGRAF Ver.3 Workbench :

- IEC61131-3 Standard Open PLC Programming Languages: Ladder, Function Block, SFC, ST, IL and Flow Chart.
- Auto-scan I/O
- Simulate program even without controller beside
- Debug on-line
- Control on-line
- Simple graphic HMI



● Remote I/O Application



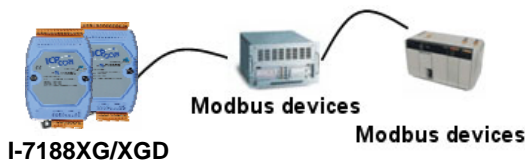
● Data Exchange: Fbus (RS485)

- Through RS485: Fbus
- PAC to PAC



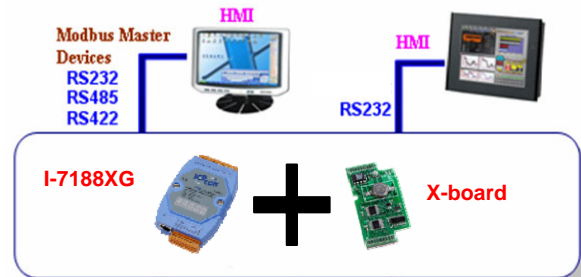
● Modbus Master (RTU, ASCII, RS232/485/422)

- COM2:RS485
- COM3: if X-board is plugged in
- Link to Modbus PLC & M-7000 I/O & Modbus devices (Power meter, temperature controller, inverter...)



● Modbus RTU Slave Ports

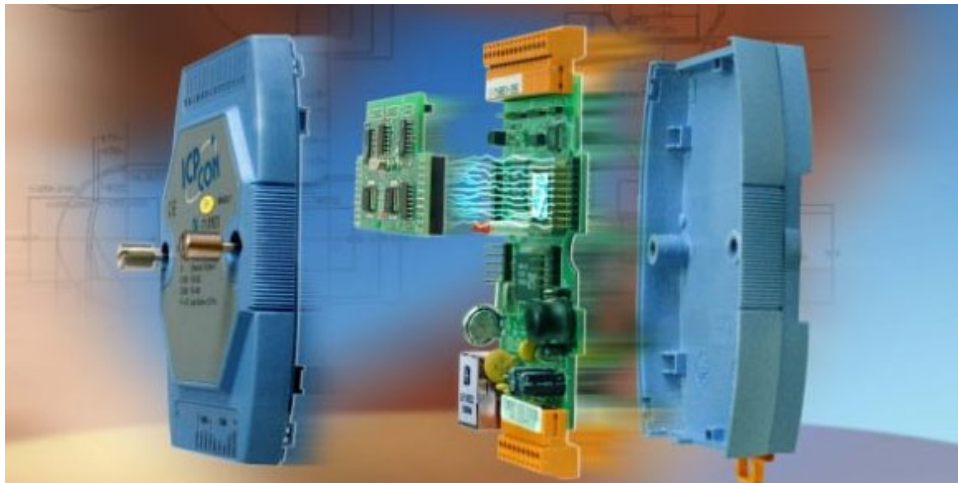
- Modbus RTU(RS232/485/422): max. 2 PC/HMI/SCADA connection



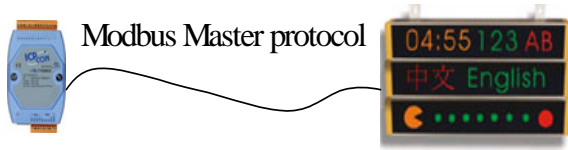
● Support I/O Expansion Board: X-Board series

Inserting one I/O expansion board in I-7188 μ PAC can add :

- More I/O channels: X107, X109, X110, X111, X116, X119, X202, X203, X303, X304, X305, X308, X310
- More COM ports: X503, X504, X505, X506, X507, X508, X509, X510, X510-128, X511, X518, X560
- More NV-SRAM: X607, X608
- 24-bit encoders: X702 (2-axis), X703 (3-axis)

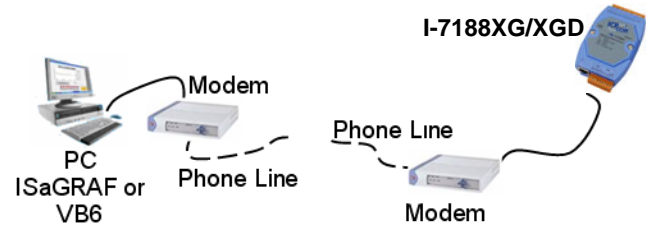


● Support EKAN Modbus LED



● Modem_Link download & monitor

- Using COM4 of X504 to do the modem_link.



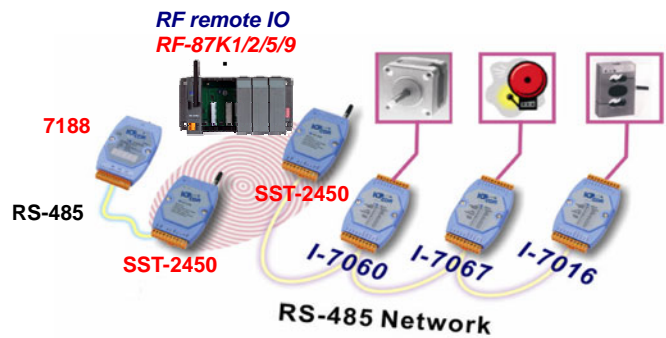
● SMS: Short Message Service

M1206 GSM Modem

1. Easy getting GPS info. -- You can get whole NMEA Messages via a function.
2. You also can get port of NMEA Messages via a function.
3. Get more accuracy system time.
4. Simple HMI -- You can the GPS info. get I-7188 such as latitude, longitude etc. And no need extra display.
5. Support fixed or mobile Application.

1. Send GPS info. (UTC time, Latitude etc.) to remote Host automatically via SMS.
2. Remote Host can dial in for getting the GPS info (UTC Time, Latitude etc.).
3. Easy Wiring -- only using 3 wire (TX, RX, GND) to connect I-7188.
4. Easy programming -- provide C Library.
5. Support fixed or mobile Application.

● Wireless communication



Ordering Information

ISaGRAF μPAC		I-7188XG	ISaGRAF μPAC
		I-7188XGD	ISaGRAF μPAC with 7-segment display
X-Board SRAM		X607 / X608	128K / 512K bytes battery backup SRAM
Application Software		ISaGRAF-256-E	ISaGRAF Workbench Software Ver.3 + one English application book
		ISaGRAF-256-C	ISaGRAF Workbench Software Ver.3 + one Chinese application book
Application Book		ISaGRAF Book-E	ISaGRAF application book (English)
		ISaGRAF Book-C	ISaGRAF application book (Traditional Chinese)
Wireless Product		SST-2450	Wireless Modem Module RS-232/RS-485 Interface
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

Specifications of I-7188XG & I-7188XGD



Power supply	
Power requirements	10 to 30VDC (unregulated), I-7188XG:2W , I-7188XGD: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-7188XGD	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-7188XG / 7188XGD.
NET ID	Set by software, 1 to 255
Serial ports	
COM1	Can be used as RS232 or RS485 , Speed: 115200 bps max. RS232 TXD,RXD,RTS,CTS,GND RS485: D+, D-, self-tuner inside Program downloads port.
COM2	RS485: D+, D-, 115200 bps max. Self-tuner ASIC inside
Development software	
ISaGRAF Version 3	IEC61131-3 standard. Languages: LD, ST, FBD, SFC, IL & FC
Max. code size	I-7188XG/7188XGD 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.
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 (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.
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 LBGSMModem31
User defined protocol	User can write his own protocol applied at 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.
Battery backup SRAM	
	I-7188XG / 7188XGD can support up to 1024 retain variables with a 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. PC can also download pre-defined data to the X607/X608 Optional: X607: 128kbytes, X608: 512kbytes