

# I-7188XG ISaGRAF Embedded Controller Specifications

<b>Power supply</b>		<b>Counters</b>	
Power requirements	10 to 30VDC (unregulated)	Parallel D/I counter	All Xxxx series D/I boards support D/I counter. 8 ch. max. for one controller. Counter value: 32 bit 1kHz max. Min. pulse width > 0.5ms
Power consumption	7188XG:2W 7188XGD: 3W	Remote D/I counter	All remote I-7000 & I-87K D/I modules support counters. 100Hz max. Counter value: 0 to 65535 (16 bit)
Protection	Built-in power protection & network protection circuit	Remote high speed counter	Optional I-87082:100kHz max. 32 bit
<b>General environment</b>		<b>Protocols</b>	
Operating temperature	-25°C to +75°C	Modbus serial protocol	COM1 supports Modbus serial protocol for connecting PC/HMI & MMI panels.
Storage temperature	-40°C to +85°C	Remote I/O	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
Humidity	0 to 95 % (non-condensed)	Modbus slave I/O devices	COM2 (or COM3 if found) supports Modbus master protocol to connect to other Modbus slave I/O devices
<b>System</b>		Fbus	A software mechanism built in COM2 port to exchange data between ICP DAS's ISaGRAF controllers.
CPU	Am188™ES,40MHz, or compatible	SMS: Short Message Service	(COM3:RS232 or COM4:RS232 if found) can link to a GSM modem to support SMS. User can request data or control the controller by cellular phone. The controller can also send data & alarms to user's cell. phone. Optional GSM modems: M1203A: GSM 900/1800 MHz M1213A: GSM 900/1900 MHz
Watchdog timer	1.6 second	User defined protocol	User can write his own protocol applied at COM2 & (COM3 to COM8 if found).
Real time clock	Year-2000 compliance. Gives hour, minute, sec, date of week, date of month, month & year (1980 to 2079)	MMICON / LCD	(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.
SRAM	512Kbytes	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.
FLASH ROM	512Kbytes Erase unit is 64K bytes 100,000 erase/write cycles	<b>Battery backup SRAM</b>	
NVSRAM	31 bytes, battery backup data valid up to 10 years	Data, date & time can be stored at 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	
EEPROM	2048 bytes data 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 I-7188XG/D.		
NET ID	Set by software		
<b>Serial ports</b>			
COM1	Can be used as RS232 or RS485 RS232: TXD,RXD,RTS,CTS,GND RS485: D+, D-, self-tuner inside Speed: 115200 bps max. Program download port.		
COM2	RS485: D+, D- Self-tuner ASIC inside Speed: 115200 bps max.		
<b>Development software</b>			
ISaGRAF	Supports IEC61131-3 standard. Programming languages: LD, ST, FBD, SFC, IL & FC		
<b>PWM output</b>			
Pulse Width Modulation output	All Xxxx series D/O boards support PWM output. 8 channels max. for one controller. 1kHz max. for Off=0.5 & On=0.5ms Output square curve: Off: 0.5 to 32767 ms On: 0.5 to 32767 ms		

# Selection Guide

<b>Power supply</b>	
ACE-540A	24V/1.7A power supply(panel Mount)
DIN-540A	24V/1.7A power supply(DIN-Rail mount)
KA-52F	24V/1A power supply(no mounting)
DIN-KA52F	24V/1A power supply(DIN-Rail mountong)
KWM020-1824F	24V/0.75A power supply (No-mounting)
<b>Development tools</b>	
ISaGRAF-256	ISaGRAF Workbench Software, up to 256 I/O tags.
ISaGRAF Book-E	User's manual of ISaGRAF controllers (English)
ISaGRAF Book-C	User's manual of ISaGRAF controllers (Chinese, traditional)
<b>ISaGRAF controller</b>	
I-8417	ISaGRAF I-8000 controller, 4 empty slots
I-8817	ISaGRAF I-8000 controller, 8 empty slots
I-8437	ISaGRAF I-8000 ethernet controller, 4 empty slots
I-8837	ISaGRAF I-8000 ethernet controller, 8 empty slots
I-7188XG	ISaGRAF I-7188 controller
I-7188XGD	ISaGRAF I-7188 controller with display
I-7188EG	ISaGRAF I-7188 ethernet controller
I-7188EGD	ISaGRAF I-7188 ethernet controller with display
IVIEW-100-ISaGRAF	ISaGRAF IVIEW-100 controller
<b>Battery backup SRAM</b>	
S256	256Kbytes battery backup SRAM for I-8417 /8817/8437/8837 & IVIEW-100-ISaGRAF
S512	512Kbytes battery backup SRAM for I-8417 /8817/8437/8837 & IVIEW-100-ISaGRAF
X607	128Kbytes battery backup SRAM for I-7188XG/7188EG
X608	512Kbytes battery backup SRAM for I-7188XG/7188EG
<b>MMICON / LCD</b>	
	MMICON + 240x64 Graphic LCD
<b>GSM modem</b>	
M1203A	900/1800 GSM/GPRS External Modem
M1213A	900/1900 GSM/GPRS External Modem
<b>I-87K expansion base</b>	
I-87K4	Remote I-87K I/O base, 4 empty slots
I-87K5	Remote I-87K I/O base, 5 empty slots
I-87K8	Remote I-87K I/O base, 8 empty slots
I-87K9	Remote I-87K I/O base, 9 empty slots
<b>Motion control board</b>	
I-8091	2-axes stepping/servo motor control card
I-8090	3-axes encoder card
<b>Timer/Counter board</b>	
I-8080	4-ch. counter/frequency, 32 bit
I-87082	2 channel counter/Frequency, 32 bit
<b>Multi-serial board</b>	
I-8112	2 port RS232
I-8114	4 port RS232
I-8142	2 port RS485/422
I-8144	4 port RS485/422
<b>Parallel analog I/O board</b>	
I-8017H	8-ch. 14-bit analog input, each ch. can be different input type (V, mA) & range
I-8024	4-ch. 14-bit analog output, each ch. can be different output type (V,mA) & range

<b>Parallel digital I/O board</b>	
I-8037	16-ch. isolated open-drain output
I-8040	32-ch. isolated digital input
I-8041	32-ch. isolated digital output
I-8042	Isolated digital 16-ch. input & 16-ch. output
I-8051	16-ch. non-isolated digital input
I-8052	8-ch. isolated digital input (differential)
I-8053	16-ch. isolated digital input (single ended)
I-8054	Isolated digital 8-ch. input & 8-ch. output
I-8055	Non-isolated digital 8ch. input & 8ch. output
I-8056	16-ch. non-isolated O.C. output
I-8057	16-ch. isolated O.C. output
I-8058	8-ch. isolated digital input, AC/DC
I-8060	6-ch. relay output
I-8063	Isolated digital 4-ch. input & 4-ch. relay
I-8064	8-ch. power relay output
I-8065	8-ch. SSR-AC output
I-8066	8-ch. SSR-DC output
I-8068	8-ch. relay output
I-8069	8-ch. Photo Mos relay output
I-8077	8-ch. digital input & 8-ch. output simulator
<b>Serial analog I/O board</b>	
I-87013	4-ch. RTD input
I-87017	8-ch. analog input
I-87018	8-ch. thermocouple input
I-87022	2-ch. 12-bit analog output, each ch. can be different output type (V,mA) & range
I-87024	4-ch. 14-bit analog output
I-87026	2-ch. 16-bit analog output, each ch. can be different output type (V,mA) & range
<b>Serial digital I/O board</b>	
I-87051	16-ch. non-isolated digital input
I-87052	8-ch. isolated digital input (differential)
I-87053	16-ch. isolated digital input (single ended)
I-87054	Isolated digital 8-ch. input & 8-ch. output
I-87055	Non-isolated digital 8ch. input & 8ch. output
I-87057	16-ch. isolated O.C. output
I-87058	8-ch. isolated digital input, AC/DC
I-87063	Isolated digital 4-ch. input & 4-ch. relay
I-87064	8-ch. power relay output
I-87065	8-ch. SSR-AC output
I-87066	8-ch. SSR-DC output
I-87068	8-ch. relay output
<b>Conveter &amp; Repeater</b>	
PCISA-7520R	PCI/ISA bus RS-232 to RS-485/422 card
PCISA-7520AR	RS-232 to RS-422/RS-485 card with D-sub 9-pin cable
I-7520	RS-232 to RS-485 converter
I-7520R	I-7520 with 3000V DC isolation at RS-485 side
I-7520A	RS-232 to RS-422/RS-485 converter
I-7520AR	I-7520A with 3000V DC isolation at RS-485 side
I-7061	USB to RS-232/422/485 Converter
I-7510	RS-485 isolated high speed repeater
I-7510R	RS485/RS422 isolated high speed repeater
I-7510AR	Three way Isolated RS-422/485 Repeater
<b>RS485 Hub</b>	
	3-way isolated RS485 to 3 ports RS485 hub
<b>Man Machine Interface</b>	
Touch506S	5.7" Color STN Panel display with touch
Touch510S	10.4" Color STN Panel Display With Touch
Touch510T	10.4" Color TFT Panel Display With Touch

<b>I-7000 analog I/O module</b>	
I-7011	1-ch. thermo-couple input (16-bit), 1-ch. D/I & 2-ch. D/O
I-7011D	I-7011 with display
I-7011P	1-ch. thermo-couple input (16-bit), 1-ch. D/I & 2-ch. D/O
I-7011PD	I-7011P with display
I-7012	1-ch. analog input (16-bit), 1-ch. D/I & 2-ch. D/O
I-7012D	I-7012D with display
I-7012F	Fast mode I-7012 (12-bit), normal 16-bit
I-7012FD	I-7012F with display
I-7013	1-ch. RTD input (16-bit)
I-7013D	I-7013 with display
I-7033	3-ch. RTD input (16-bit)
I-7033D	I-7033 with display
I-7014D	1-ch. analog/transmitter input (16-bit) with display, 1-ch. D/I & 2-ch. D/O
I-7016	1-ch. strained gauge input (16-bit), 1-ch. D/I & 4-ch. D/O
I-7016D	I-7016 with display
I-7016P	1-ch. strained gauge input (16-bit), 1-ch. D/I & 4-ch. D/O
I-7016PD	I-7016 with display
I-7017	8-ch. analog input (16-bit)
I-7017F	Fast mode I-7017 (12-bit), normal (16-bit)
I-7018	8-ch. thermocouple input (16-bit)
I-7018P	8-ch. thermocouple input (16-bit)
I-7021	1-ch. analog output (12-bit)
I-7021P	1-ch. analog output (16-bit)
I-7022	2-ch. analog output (12-bit), each ch. can be different output type (V, mA) & range
I-7024	4-ch. analog output (14-bit)
<b>I-7000 counter module</b>	
I-7080	2 high speed counter/frequency input
I-7080D	I-7080 with display
<b>RS232/422/485 board</b>	
<b>For I-7188XG &amp; I-7188EG</b>	
X503	1-Port RS-232 (5-Pin)
X504	2-Port RS-232 (5-Pin ) and (9-Pin)
X505	3-Port RS-232 (5-Pin)
X506	6-Port RS-232 (3-Pin)
X507	1-Port RS-422/485, 4-ch. D/I, 4-ch. D/O
X508	1-Port RS-232 (5-Pin), 4-ch. D/I, 4-ch. D/O
X509	2-Port RS-232 (3-Pin), 4-ch. D/I, 4-ch. D/O
X510	1-Port RS-232 (3-Pin ) , 5-ch. D/I, 5-ch. D/O, EEPROM 128K x2
X511	3-Port RS-485
X512	4-Port RS-232 (3-Pin) , 1-ch. RS-485 (will be available)

<b>I-7000 digital I/O module</b>	
I-7041	14-ch. isolated digital input
I-7041D	I-7041 with LED display
I-7042	13-ch. isolated O.C. output
I-7042D	I-7042 with LED display
I-7043	16-ch. non-isolated O.C. output
I-7043D	I-7043 with LED display
I-7044	Isolated digital 4-ch. input & 8-ch. output
I-7044D	I-7044 with LED display
I-7050	7-ch. digital input & 8-ch. output
I-7050D	I-7050 with LED display
I-7050A	7 digital input & 8 output (current source)
I-7050AD	I-7050A with LED display
I-7052	8-ch. isolated digital input (6 differential + 2 single end)
I-7052D	I-7052 with LED display
I-7053	16-ch. digital input
I-7053D	I-7053 with LED display
I-7060	4-ch. isolated input & 4-ch. relay output
I-7060D	I-7060 with LED display
I-7063	8-ch. isolated input & 3ch. power relay
I-7063D	I-7063D with LED display
I-7063A	8-ch. isolated input & 3ch. AC-SSR output
I-7063AD	I-7063A with LED display
I-7063B	8-ch. isolated input & 3ch. DC-SSR output
I-7063BD	I-7063B with LED display
I-7065	4-ch. isolated input & 5ch. power relay
I-7065D	I-7065 with LED display
I-7065A	4-ch. isolated input & 5ch. AC-SSR relay
I-7065AD	I-7065A with LED display
I-7065B	4-ch. isolated input & 5ch. DC-SSR relay
I-7065BD	I-7065B with LED display
I-7066	7-ch. Photo Mos relay output
I-7066D	I-7066 with LED display
I-7067	7-ch. relay output
I-7067D	I-7067 with LED display

<b>Parallel I/O board</b>	
<b>For I-7188XG &amp; I-7188EG</b>	
X107	6-ch. D/I and 7-ch. D/O
X109	7-ch. PhotoMos Relay
X110	14-ch. D/I
X111	13-ch. D/O
X119	7-ch. D/O and 7-ch. D/I
X202	7-ch. A/D (0~20mA)
X203	2-ch. A/D (0~20mA), 2-ch. D/I, 6-ch. D/O
X303	1-ch. A/D (+/-5V), 1-ch. D/A (+/-5V), 4-ch. D/I, 6-ch. D/O
X304	3-ch. A/D (+/-5V), 1-ch. D/A (+/-5V), 4-ch. D/I, 4-ch. D/O
X305	7-ch. A/D (+/-5V), 1-ch. D/A (+/-5V), 2-ch. D/I, 2-ch. D/O
X307	8-ch. A/D (+/-10V), 2-ch. D/I, 2-ch. D/O (will be available)
X308	4-ch. A/D (+/-10V), 6-ch. D/O (will be available)
X310	1-ch. A/D (0~10V), 1-ch. A/D (0~20mA), 2-ch. D/A (0~10V), 3-ch. D/I, 3-ch. D/O

### I-7188XGD

