



μPAC-5207(D) μPAC-5007(D)/μPAC-5107(D)/μPAC-5307(D)

ISaGRAF based μPAC-5000(D) Series

Features

- 80186, 80 MHz CPU
- MiniOS7 Inside
- Embedded ISaGRAF Ver.3 SoftLogic (IEC 61131-3)
- Various Storage Media
 - 512 KB Flash
 - 16 KB EEPROM
 - 512 KB Battery Backup SRAM
- Various Communication Interface Options
 - 10/100 Base-TX Ethernet
 - RS-232/485
 - GPS
 - 2G (GPRS) / 3G (WCDMA)
- 64-bit Hardware Serial Number
- I/O Expansion Bus
- Redundant Power Inputs
- Operating Temperature: -25 ~ +75°C



Introduction

The **ISaGRAF μPAC-5000 series (μPAC-5xx7, μPAC-5xx7D)** is an enhanced version of palm-sized μPAC. It provides ISaGRAF workbench for PLC users. Owing to the bigger and special form factor design, the μPAC-5xx7(D) can add an internal wireless module, such as 2G, 3G, ZigBee, GPS for different wireless applications. The optional I/O expansion board, XW-board, is two times larger than the X-board of μPAC-7186 and provides high-protection I/O.

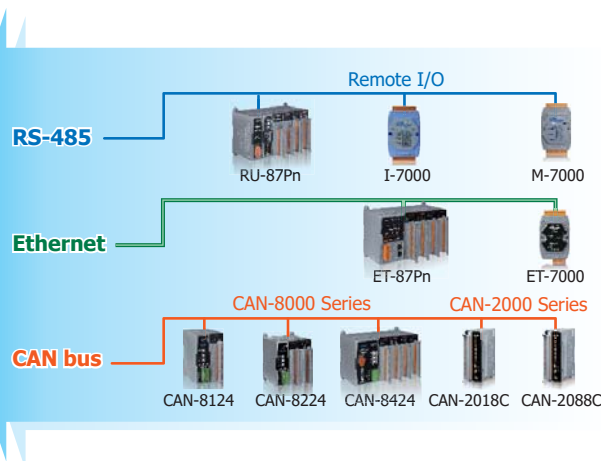
For hardware expansion, it also supports an I/O expansion bus. The I/O expansion bus can be used to implement various I/O functions such as DI, DO, A/D, D/A, Timer/Counter, UART, and other I/O functions. Nearly all kinds of I/O functions can be implemented by this bus. But the bus can support only one board. There are more than 10 boards available for μPAC-5xx7(D) series, you can choose one of them to expand hardware features.

The features of the ISaGRAF workbench Ver. 3.x include:

- IEC 61131-3 Standard Open PLC Programming Languages (LD, FBD, SFC, ST, IL) + Flow Chart (FC)
- Auto-scan I/O
- Online Debugging/Control/Monitoring, Offline Simulation
- Simple Graphic HMI



Applications



Exploded View



PAC Specifications

Models		μPAC-5007(D)	μPAC-5107(D)	μPAC-5207(D)	μPAC-5307(D)
System Software					
OS		MiniOS7 (DOS-like embedded operating system)			
Development Software					
ISaGRAF Software	ISaGRAF Ver.3	IEC 61131-3 standard			
	Languages	LD, ST, FBD, SFC, IL & FC			
	Max. Code Size	64 KB			
	Scan Time	2 ~ 25 ms for normal program; 10 ~ 125 ms (or more) for complex or large program			
CPU Module					
CPU		80186, 80 MHz			
SRAM		768 KB			
Flash		512 KB			
microSD Expansion		Yes (but ISaGRAF doesn't support)			
Battery Backup SRAM		512KB ; data valid up to 5 years (for retain variables)			
EEPROM		16 KB			
NVRAM		31 Bytes (battery backup, data valid up to 10 years)			
RTC (Real Time Clock)		Provides seconds, minutes, hours, date, day of the week, month, year			
64-bit Hardware Serial Number		Yes, for Software Copy Protection			
Watchdog Timers		Yes (0.8 second)			
Communication Ports					
Ethernet		RJ-45 x 1, 10/100 Base-TX (Auto-negotiating, Auto MDI/MDI-X, LED indicators)			
COM 1		RS-232 (TxD, RxD, RTS, CTS, GND), non-isolated, Speed: 115200 bps max.			
COM 2		RS-485 (Data+, Data-) with internal self-tuner ASIC; non-isolated, Speed: 115200 bps max.			
LED Indicator					
Programmable LED Indicators		2			
LED Display		5-digit 7-segment LED display for (D) versions			
Hardware Expansion					
I/O Expansion Bus		Yes (for one XW-Board only)			
Mechanical					
Dimensions (W x H x D)		91 mm x 123 mm x 52 mm			
Installation		DIN-Rail Mounting			
Environmental					
Operating Temperature		-25 ~ +75°C			
Storage Temperature		-30 ~ +80°C			
Ambient Relative Humidity		10 ~ 90% RH (non-condensing)			
Power					
Input Range		+12 ~ +48 VDC			
Isolation		-			
Redundant Power Inputs		Yes			
Protection		Power reverse polarity protection			
Frame Ground		Yes (for ESD Protection)			
Power Consumption		2 W; 2.5 W for (D) version			

ISaGRAF Specifications

Protocols (Note that certain protocols require optional devices)	
NET ID	1 ~ 255, user-assigned by software
Modbus RTU/ASCII Master Protocol	A max. of 2 COM ports: COM1, COM2 and COM3 (*). (To connect to other Modbus Slave devices) Max. Modbus_XXX Function Block amount for 2 ports: 128.
Modbus RTU Slave Protocol	A max. of 2 COM ports: COM1 and one of (COM2, COM3) (*). (For connecting ISaGRAF, PC/HMI/OPC Server and HMI panels.)
Modbus TCP/IP Protocol	Ethernet port supports Modbus TCP/IP Slave Protocol for connecting ISaGRAF & PC/HMI up to 6 connections.
User-defined Protocol	Custom protocols can be applied at COM1, COM2 and COM3~8 using Serial communication function blocks. (*)
Remote I/O	One of COM2 or COM3:RS-485 supports I-7000 I/O modules, I-87K base + I-87K Serial I/O boards, or RU-87Pn + I-87K High Profile I/O boards as remote I/O. A max. of 64 I-7000/87K remote I/O modules can connect to one PAC. (*)
Fbus	Built-in COM2 Port to exchange data between ICP DAS's ISaGRAF PACs.
Ebus	Used to exchange data between ICP DAS ISaGRAF Ethernet PACs via the Ethernet port.
Send Email	Provide functions to send email to a max. of 10 receivers with a single attached file via the Ethernet port through internet. The max. of file size is about 488 KB.
SMS: Short Message Service	One of COM1 or COM3 or COM4 (RS-232) can link to a GSM Modem to support SMS. The user can request data or control the controller via a cellular phone. The controller can also send data and alarms to the user's cellular phone. (*) Optional GSM Modem: GTM-201-RS232 (850/900/1800/1900 GSM/GPRS External Modem) Note: μPAC-5207, 5307 has built-in GPRS, no external GSM/GPRS modem required.
Redundant Solution	Two PACs plug with XW107 in slot0. One is Master, one is Slave. Master handles all inputs & outputs at run time. If Master is damaged (or power off), Slave will take over the control of Bus7000b. If Master is alive from damaged (or power up again), it takes the control of Bus7000b again. The change over time is about 5 seconds. Control data is exchanging via Ebus (if using a cross cable, no require any Ethernet Switch). All I/O should be RS-485 I/O except the status I/O in the slot 0: XW107.
CAN/CANopen	COM1 or COM3~8 can connect to one I-7530 (converter: RS-232 to CAN) to support CAN/CANopen devices and sensors. One iP-8xx7 supports a max. of 3 RS-232 ports to connect a max. of 3 I-7530. (*) (FAQ-086)
FTP Client	Enable the FTP Client to upload files from the PAC to a remote FTP server on a PC. (FAQ-151)
Optional I/O Functions (Refer to the ISaGRAF PAC I/O Selection Guide for I/O Module list)	
PWM Output	
Pulse Width Modulation Output	All XW-Board series support PWM output. Support max. 8-ch for one PAC; Max. frequency: 500 Hz max. for OFF = 1 & ON = 1 ms; Output square wave: OFF: 1 ~ 32767 ms, ON: 1 ~ 32767 ms
Counters	
Parallel DI Counter	All XW-Board series support DI counter. Support max. 8-ch for one PAC ; Max. count/frequency: 32-bit, 500 Hz ; Min. pulse width > 1 ms
Remote DI Counter	All remote I-7000 & I-87K DI modules support counters. Max. count/frequency: 16-bit (0~65535), 100 Hz.
Remote High Speed Counter	Max. count/frequency for I-87082: 32-bit, 100 kHz
Note: The COM3 ~ COM8 are located in the optional XW-Board series if it is installed inside the μPAC-5xx7.	

Selection Guide

Model Name	CPU	Flash	SRAM	Battery Backup SRAM	Ethernet	Wireless Communication	RS-232/RS-485
μPAC-5007(D)	80 MHz	512 KB	768 KB	512 KB	10/100 Base-TX	-	1/1
μPAC-5107(D)						GPS	
μPAC-5207(D)						2G (GPRS)	
μPAC-5307(D)						3G (WCDMA)	

Ordering Information

μPAC-5007(D)	ISaGRAF based μPAC-5000 with LAN
μPAC-5107(D)	ISaGRAF based μPAC-5000 with LAN and GPS
μPAC-5207(D)	ISaGRAF based μPAC-5000 with LAN and 2G (GPRS)
μPAC-5307(D)	ISaGRAF based μPAC-5000 with LAN and 3G (WCDMA)

*Note: (D) means with 7-Segment LED Display.

Related Products

ISaGRAF Development Software	
ISaGRAF-256	ISaGRAF Workbench Software Ver.3 (256 I/O Tags) with one USB Dongle
Accessories	
I/O Expansion Boards	Refer to XW-Board series expansion boards on the website