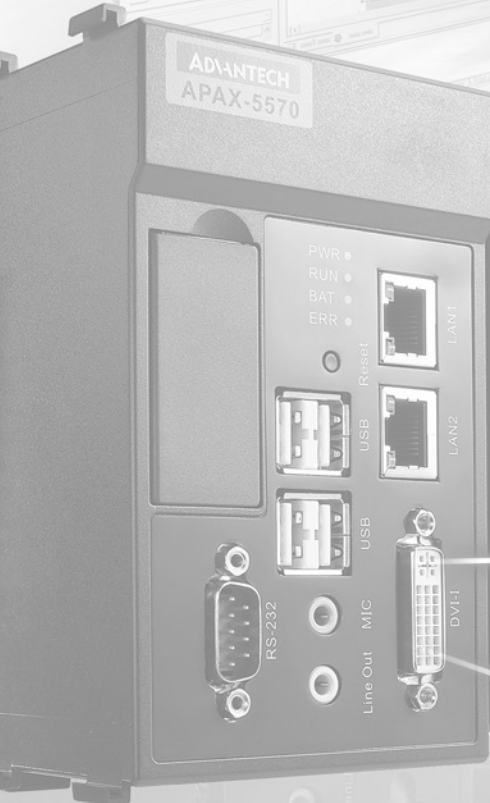
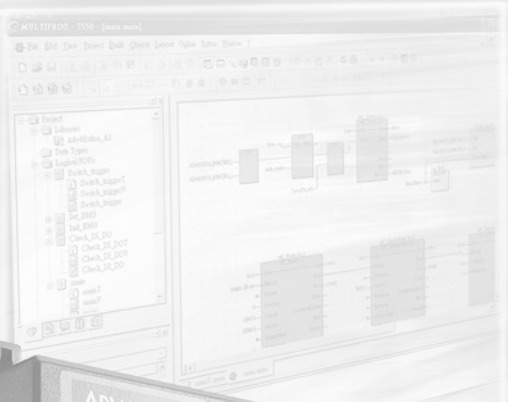
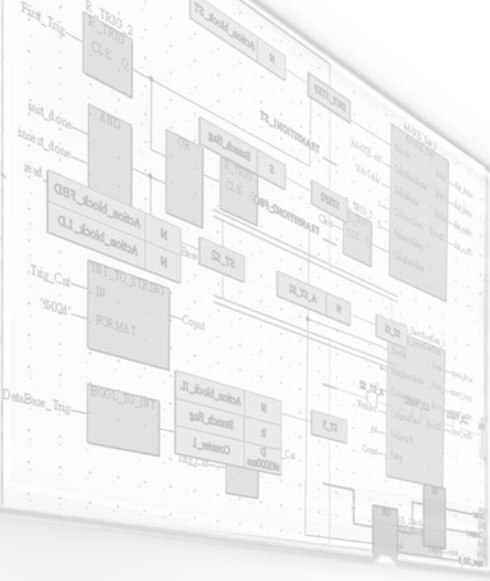


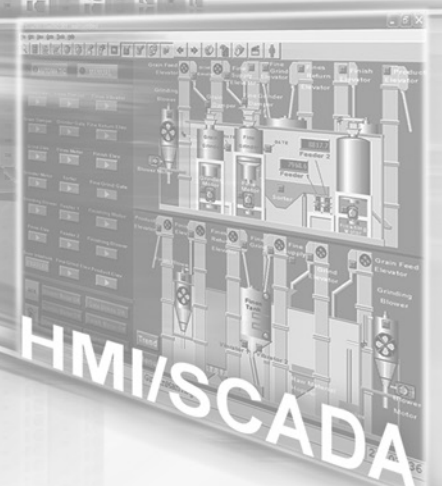
Programmable Automation Controllers

PAC Overview

Programmable Automation Controllers		14-2
KW MULTIPROG	IEC-61131-3 SoftLogic Control Software	14-3
APAX-5000 Series		
APAX-5000 Controller Selection Guide		14-4
APAX-5000 I/O Module Selection Guide		14-5
APAX-5570KW (New)	Proto PAC with Celeron M CPU	14-6
APAX-5571KW (New)		14-6
APAX-5520KW (New)	Micro PAC with XScale CPU	14-7
ADAM-5000 Series		
ADAM-5000 Controller Selection Guide		14-8
ADAM-5000 I/O Module Selection Guide		14-9
ADAM-5550KW	8-slot Micro PAC with GX2 CPU	14-10
ADAM-5510KW	4-slot SoftLogic Controller with RS-485	14-11
ADAM-5510KW/TCP	4-slot SoftLogic Controller with Ethernet	14-12
ADAM-5510EKW/TP	8-slot SoftLogic Controller with Ethernet	14-12



SoftLogic I/O Control



HMI/SCADA

Programmable Automation Controllers

Advantech PAC Solutions

Advantech provides complete PAC solutions for different industrial applications. The Proto PAC system is an ideal solution for medium control tasks with 128 – 512 I/O number. For smaller control applications, the cost-effective Micro PAC system is suitable when the I/O number is less than 128. If the I/O number is more than 512, the Macro PAC system with its higher CPU would be more suitable.

Proto PAC System - APAX-5570XPE/5571XPE with APAX-5520KW

APAX-5570XPE/5571XPE features Celeron M CPU, and the built-in Windows XP Embedded makes it an open development platform. Combining APAX-5520KW (offering IEC 61131-3 compliant programming environment) with APAX-5570XPE/5571XPE provides a dual CPU architecture. APAX-5520KW concentrates on I/O control processing, while APAX-5570XPE/5571XPE executes other tasks such as HMI/SCADA, database, recipe, communication, etc. The first dual CPU architecture in PAC market helps the control system more reliable, and benefits from APAX-5000 I/O modular design and flexible expansion topology. For applications that don't need to separate HMI/SCADA from I/O control, APAX-5570KW/5571KW is the ideal alternative solution with IEC 61131-3 programming environment.

Micro PAC System - ADAM-5550KW Series

ADAM-5550KW, with AMD Geode GX533 CPU, provides the same PAC features through built-in IEC 61131-3 programming language. It is an ideal cost-effective solution for control applications which have less I/O and don't require high computing ability. With the built-in VGA port and HMI/SCADA software, there is no need to build separate control and HMI/SCADA system. In addition, using APAX-5520KW as a standalone controller with APAX-5000 I/O modules is an alternative cost-effective solution. Users can benefit from modular design and flexible expansion.

PAC Characteristics

Multi-domain Functionality on a Single Platform

- PAC's will play a major role in different application domains by adhering to open industry standards and providing multidiscipline programming and functionality

Single Developing Tool for Various Form Factors

- A single programming tool provides transparent access for all parameters and functions within the entire system. A single platform can combine PLC, SoftLogic, remote input/output (I/O), motion control, PID control and data handling
- Requires only a one-time design, and then can easily leverage the control know-how into different control platforms to meet versatile automation projects needs

Supports IEC-61131-3 Programming Languages

- Includes: Ladder Diagram, Function Block, Sequential Function Chart, Structure Text and Instruction List which covers almost all PLC programming languages
- Cross language support for three graphical languages to simplify control programs

Multiple Speeds with Deterministic I/O

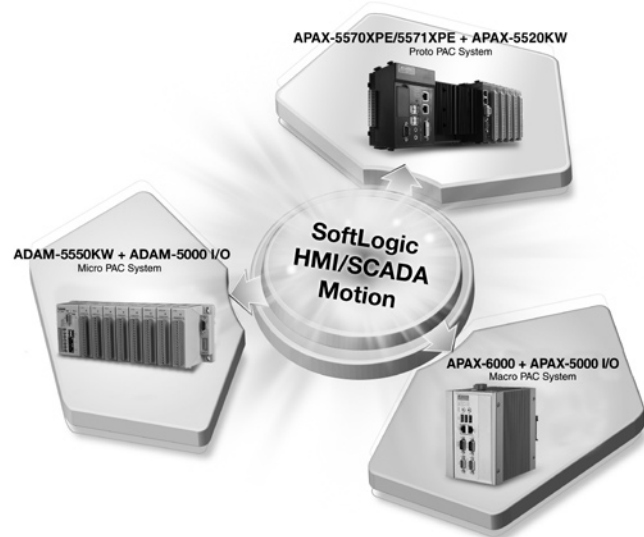
- Cyclic tasks allow user to configure interval and priority, and different cyclic tasks can have different interval
- Guaranteed I/O update time

VGA Port

- No need additional Human Machine Interface, the system can connect directly to display to save lots of cost

Seamless Integration between SoftLogic and HMI Software

- SoftLogic creates single tagging database and HMI software shares the same tagging database



Transfer Data and Information via Ethernet and IT Standard Technology

- Utilization of Ethernet, Internet and IT standards such as FTP, Web Server, Email Alarm, SQL, and OPC

Standard Communication

- Multi-vendor data exchange by utilizing de-facto standard such as Modbus

Open and Modular Architecture

- Flexible for upgrade and maintenance
- Easy to expand local and remote I/O modules

Storage Function

- PAC storage function can be set for your assigned time and conditions

Complex Control Functions

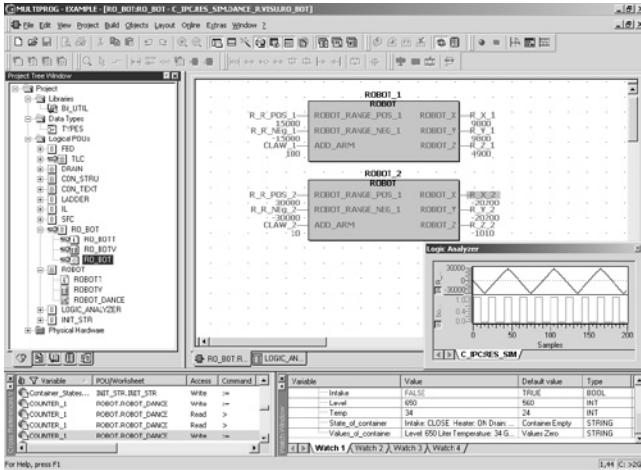
- Complex control algorithms need powerful floating point calculations and large memory capacity
- The software development tool provides PID Function Block and allows users to develop custom function blocks with proprietary complex controls, such as Fuzzy Logic Control and Neural Network Control

Remote Maintenance

- Operators can access the supplier's Web site, allowing technicians to diagnose and troubleshoot problems directly from the plant floor by PAC's Web-based monitoring and maintenance function

KW MULTIPROG®

IEC-61131-3 SoftLogic Control Software



Features

- IEC-61131-3 programming languages
- Intuitive programming with a clear project structure
- Cross-compiling: FBD, LD and IL can be cross-compiled to each other
- Multi user functionality shortens programming time
- Management of distributed controls
- Network variables: Easy and powerful configuration of distributed communication
- Powerful debugging tools: Online changes, PLC simulation, overwriting & forcing, breakpoints, watch windows & recipes, logic analyzer, and cross reference
- Online program download

Introduction

Advantech's Programmable Automation Controllers (PAC) leverage KW-Software's Multiprog and ProConOS as a single development tool with the SoftLogic control kernel. Requiring only a one-time design, users can easily leverage the control know-how into different control platforms to meet versatile automation projects needs. KW SoftLogic also creates single tagging database and HMI Software, such as Advantech Studio, shares the same tagging database by OPC server under Windows CE operating system. All the features can help users to save the visible and invisible cost.

MULTIPROG supports all IEC 61131-3 programming languages. Depending on the task to be handled, your experience and company standards, you may choose one of the five standardized programming languages. The use of MULTIPROG offers you many advantages. Our long-term experience in the automation industry guarantees you a sophisticated software product.

Specifications

Hardware Requirements

Device	Minimum	Recommended
IBM compatible PC with Pentium Processor	200 MHz	350 MHz
System RAM	64 MB	128 MB
Hard Disk	60 MB free memory space	
CD-ROM drive		
VGA Monitor Color Settings	256 colors	True color
Resolution	800 x 600	1024 x 768
RS-232 interface	Optional	
Mouse	Recommended	

Advantech Hardware Supported

- APAX-5000 Series
- ADAM-5550KW Series
- ADAM-5510KW Series

Software Requirements

- Microsoft® Windows NT 4.0 SP5 or Windows 2000/XP
- Microsoft Internet Explorer 5.02 or above

IEC-61131-3 Programming Languages

- Instruction List (IL)
- Structured Text (ST)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Sequential Function Chart (SFC)
- All programming languages can be mixed within one project

Ordering Information

- **MPROG-ADV46E** KW Multiprog Advanced v4.6 (64 kbyte I/O)
- **MPROG-BAS46E** KW Multiprog Basic v4.6 (128 bytes I/O)

- 1 Automation Software
- 2 Touch Panel PC
- 3 Industrial Panel PC
- 4 Industrial Monitor
- 5 Fanless Box PC
- 6 Ethernet Switch
- 7 Device Server
- 8 Serial Comm. Card
- 9 DAQ
- 10 Signal Conditioning
- 11 USB DAQ
- 12 Motion Control I/O
- 13 PC-based Controller
- 14 PAC
- 15 RS-485 I/O
- 16 Ethernet I/O
- 17 Building Automation
- 18 Video Surveillance

APAX-5000 Controller Selection Guide

System	APAX-5520KW	APAX-5570KW	APAX-5571KW
CPU	XScale PXA270	Celeron M 1 GHz	Celeron M 1.5 GHz
Memory	Flash 32 MB, SDRAM 64MB	512 MB DDR2 DRAM	512 MB DDR2 DRAM
Battery Backup RAM	512 KB	1 MB	1 MB
Storage	1 x CompactFlash Slot (Internal)	1 x SD Slot	1 x SD Slot
USB Ports	1 x USB 1.1	4 x USB 2.0	4 x USB 2.0
Local Display	VGA	DVI-I	DVI-I
Audio	-	Mic-in, Line-out	Mic-in, Line-out
Cooling System	Fanless	Fanless	With Fan
OS	Windows CE	Windows XP Embedded	Windows XP Embedded
Real-time Clock	Yes	Yes	Yes
Watchdog Timer	Yes	Yes	Yes
COM1	RS-485	RS-232	RS-232
COM2	-	RS-422/485	RS-422/485
Max. I/O Modules	DI/DO: 32, AI/AO: 16	DI/DO: 32, AI/AO: 16	DI/DO: 32, AI/AO: 16
Power Input	18 ~ 30 V _{DC}	18 ~ 30 V _{DC}	18 ~ 30 V _{DC}
Power Consumption	4.5 W @ 24 V _{DC}	30 W @ 24 V _{DC}	45 W @ 24 V _{DC}
Isolation			
Communication	2,500 V _{DC}	2,500 V _{DC} (RS-422/485)	2,500 V _{DC} (RS-422/485)
I/O Module	2,500 V _{DC}	2,500 V _{DC}	2,500 V _{DC}
Communication			
Network	Ethernet (2 x RJ-45)	Ethernet (2 x RJ-45)	Ethernet (2 x RJ-45)
Speeds	10/100 Mbps	10/100/1000 Mbps	10/100/1000 Mbps
Max. Distance	100 m	100 m	100 m
Protocol	Modbus/TCP	Modbus/TCP	Modbus/TCP
Remote I/O	Modbus Device	Modbus Device	Modbus Device
Environment			
Operating Temperature	0 ~ 60° C	0 ~ 55° C	0 ~ 55° C
Storage Temperature	-25 ~ 75° C	-25 ~ 75° C	-25 ~ 75° C
Humidity	5 ~ 95%	5 ~ 95%	5 ~ 95%
Page	14-7	14-6	14-6

APAX-5000 I/O Module Selection Guide

Module Name	APAX-5013	APAX-5017	APAX-5017H	APAX-5018	APAX-5028	APAX-5040	APAX-5045	APAX-5046	APAX-5060	APAX-5080
Description	8-ch RTD Module	12-ch AI Module	12-ch High Speed AI Module	12-ch Thermocouple Input Module	8-ch AO Module	24-ch DI Module	24-ch DI/O Module	24-ch DO Module	12-ch Relay Module	4-ch High Speed Counter Module
Analog Input	Number of inputs	8	12	12	12	-	-	-	-	-
	Resolution	16-bit	16-bit	12-bit	16-bit	-	-	-	-	-
	Sampling Rate (samples/second)	10 (Total)	10 (Total)	1,000 (per channel)	10 (Total)	-	-	-	-	-
	Voltage Input	-	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V	±500 mV, ±10 V, 0 ~ 10 V	±50 mV, ±100 mV, ±500 mV, ±1 V, ±2.5 V	-	-	-	-	-
	Current Input	-	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA	0 ~ 20 mA, 4 ~ 20 mA	±20 mA, 0 ~ 20 mA, 4 ~ 20 mA	-	-	-	-	-
	Direct Sensor Input	RTD (Pt 100, Pt 200, Pt 500, Pt 1,000, Balco, Ni 518)	-	-	Thermocouple (Type J, K, T, E, R, S, B)	-	-	-	-	-
Analog Output	Number of outputs	-	-	-	-	8	-	-	-	-
	Resolution	-	-	-	-	14-bit	-	-	-	-
	Voltage Output	-	-	-	-	±2.5 V, ±5 V, ±10 V, 0 ~ 2.5 V, 0 ~ 5 V, 0 ~ 10 V	-	-	-	-
	Current Output	-	-	-	-	0 ~ 20 mA, 4 ~ 20 mA	-	-	-	-
Digital Input	Number of inputs	-	-	-	-	24	12	-	-	4
	For signal "0"	-	-	-	-	0 ~ ±5 V	0 ~ ±5 V	-	-	0 ~ 3 V
	For signal "1"	-	-	-	-	±13 ~ ±30 V	±13 ~ ±30 V	-	-	10 ~ 30 V
Counter Input	Number of inputs	-	-	-	-	-	-	-	-	4
	Counting Range	-	-	-	-	-	-	-	-	32-bit + 1-bit overflow
	Counter Frequency (max.)	-	-	-	-	-	-	-	-	1 MHz
	For signal "0"	-	-	-	-	-	-	-	-	0 ~ 3 V
	For signal "1"	-	-	-	-	-	-	-	-	10 ~ 30 V
Digital Output	Number of outputs	-	-	-	-	-	12	24	12	4
	Type	-	-	-	-	-	Sink	Sink	Relay (Form A)	Sink
	Rated Load Voltage	-	-	-	-	-	24 V _{DC}	24 V _{DC}	250 V _{AC} , 30 V _{DC}	24 V _{DC}
Isolation between Channels and Backplane	2,500 V _{DC}									
Page	13-9		13-10	13-9	13-10	13-11		13-12		

- 1 Automation Software
- 2 Touch Panel PC
- 3 Industrial Panel PC
- 4 Industrial Monitor
- 5 Fanless Box PC
- 6 Ethernet Switch
- 7 Device Server
- 8 Serial Comm. Card
- 9 DAQ
- 10 Signal Conditioning
- 11 USB DAQ
- 12 Motion Control I/O
- 13 PC-based Controller
- 14 PAC
- 15 RS-485 I/O
- 16 Ethernet I/O
- 17 Building Automation
- 18 Video Surveillance

APAX-5570KW APAX-5571KW

Proto PAC with Celeron M CPU

NEW







Features

- Intel® Celeron® M 1 GHz or 1.5 GHz CPU processor
- Expands I/O by connecting with APAX-5000 I/O modules
- DVI-I supports dual display
- Dual power input for redundancy with power-fail relay
- 1 x RS-232 and 1 x isolated RS-422/485 port
- Easy to develop local HMI software under Windows® XP Embedded
- Supports real-time control tasks under Windows XP Embedded through ProConOS
- Supports IEC-61131-3 programming languages through Multprog

Introduction

APAX-5570KW/5571KW is a Programmable Automation Controller designed for control tasks which require Industrial PC computing performance with a PLC's robustness. APAX-5570KW/5571KW features a high performance Intel Celeron M grade CPU with built-in Windows XP Embedded operating system, which allows developing local HMI software under popular programming environments like Microsoft Visual Studio.NET or using standard HMI software like WebAccess. With the local DVI or VGA display, no longer will users be required to develop additional SCADA PC's in their applications. APAX-5570KW/5571KW also bundled KW-Software ProConOS which can prove the deterministic performance of control tasks under Windows XP Embedded. The KW-Software Multiprog programming tool can support 5 standard IEC - 61131-3 programming languages so PLC users can develop control tasks with their own familiar programming languages. This powerful PAC is ideal for a variety of applications ranging from machine automation to SCADA applications.

Specifications

General

- **Cooling System** APAX-5570KW: Fanless, heatsink only
APAX-5571KW: Heatsink with fan
- **Mounting** DIN-rail, wall
- **Dimensions (W x H x D)** 270 x 142 x 126 mm (Refer to Page 13-5 for detail)
- **Weight** APAX-5570KW: 2.42 kg
APAX-5571KW: 2.46 kg
- **Power Consumption** APAX-5570KW: 30 W @ 24 V_{DC}
(Typical, without inserted module) APAX-5571KW: 45 W @ 24 V_{DC}
- **Power Input** 18 ~ 30 V_{DC}
- **Dual Power Input** Yes
- **Power Reversal** Yes
- **Real-time Clock** Yes

Software

- **Operating System** Windows XP Embedded
- **Control software** KW Multiprog (development tool) and ProConOS (control kernel)
- **Watchdog Timer** Yes

System Hardware

- **CPU** APAX-5570KW: Intel Celeron M 1 GHz (non-cache)
APAX-5571KW: Intel Celeron M 1.5 GHz (1 MB L2 cache)
- **System Chipset** Intel 915 GME
- **BIOS** Flash 4 MB
- **Memory** 512 MB DDR2 DRAM on board (Dual channel mode)
- **Battery Backup RAM** 1 MB
- **LED Indicators** Power, Run, Error, Battery

- **Display** DVI-I supports DVI and VGA for dual display
- **Audio** Mic-in, Line-out
- **Storage** 1 x SD card slot
- **Reset Button** Yes

Communication

- **Serial Ports** 1 x RS-232, 1 x Isolated RS-422/485
- **Serial Port Isolation Protection** 2,500 V_{DC} (RS-422/485 only)
- **Baud Rate** RS-232: 50 bps ~ 115.2 kbps
RS-422/485: 50 ~ 230400 bps
- **LAN** 2 x RJ-45 Port, 10/100/1000 Mbps
- **USB Ports** 4 x USB 2.0

Environment

- **Operating Temperature** 0 ~ 55° C
- **Storage Temperature** -25 ~ 75° C
- **Relative Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5570KW** Proto PAC w/ Celeron M 1 GHz, KW
- **APAX-5571KW** Proto PAC w/ Celeron M 1.5 GHz, KW
- **APAX-5343** Power Supply for APAX-5570 Series
- **MPROG-ADV46E** KW Multiprog Advanced v4.6 (64K bytes I/O)
- **MPROG-BAS46E** KW Multiprog Basic v4.6 (128 bytes I/O)

APAX-5520KW

Micro PAC with XScale CPU

NEW



RoHS
 COMPLIANT
 2002/95/EC

CE FCC

Features

- Onboard XScale® PXA270 520 MHz processor
- 64 MB SDRAM on board, 32 MB Flash
- Control ability for APAX-5000 I/O modules
- Combines with APAX-5570XPE/5571XPE to deliver dual CPU functionality
- IEC-61131-3 programming languages
- 1 x CompactFlash slot for data storage
- 2 x 10/100 Mbps LAN and 1 x RS-485

Introduction

APAX-5520KW can operate in two different ways. APAX-5520KW can be inserted on the backplane, and control I/O modules which are stacked together. In this way, the APAX-5520KW performs as standalone controller since it can run process program by itself. The second way is to combine APAX-5520KW and APAX-5570XPE/5571XPE to form dual CPU architecture. Installing APAX-5520KW on the expansion slot of APAX-5570XPE/5571XPE or on the expansion backplane, the CPU of APAX-5520KW can concentrate on the I/O control process. Since there is no other tasks bothering CPU of APAX-5520KW, its control ability can deliver the best performance, providing the real-time execution. The CPU of the APAX-5570XPE/5571XPE controller can execute other tasks such as HMI/SCADA, recipe, database, communication with other system, data logging, etc. This architecture can deliver more reliability to system when HMI software makes XP Embedded system hang on the the APAX-5570XPE/5571XPE controller, since APAX-5520KW will still continuously execute its task. APAX-5520KW with industrial standard IEC 61131-3 programming tool, Multiprog KW software and stable ProConOS, makes engineers develop their applications in shortest time and save their time-to-market.

Specifications

Control System

- **CPU** XScale PXA270 520 MHz
- **Memory** Flash 32M bytes, SDRAM 64M bytes
- **Battery Backup Memory** 512 KB
- **Operating System** Windows CE.NET
- **Real-time Clock** Yes
- **Watchdog Timer** Yes
- **Control Software** KW Multiprog (development tool)
ProConOS (control kernel)
- **VGA** DB15 connector
- **USB Ports** 1 x USB 1.1
- **Storage** 1 x Type II CompactFlash card slot (internal)

Communication (Ethernet)

- **LAN** 2 x RJ-45 Port, 10/100 Mbps
- **Protocol** Modbus/TCP Server and Client

Communication (Serial)

- **Medium** RS-485 (2-wire)
- **Maximum Nodes** 32 (in RS-485 daisy-chain network)
- **Protocol** Modbus/RTU Master and Slave

General

- **Dimensions (W x H x D)** 30 x 139 x 100 mm
- **Weight** 210 g
- **Power Consumption** 4.5 W @ 24 V_{DC} (typical)

Environment

- **Operating Temperature** 0 ~ 60° C
- **Storage Temperature** -25 ~ 75° C
- **Relative Humidity** 5 ~ 95% (non-condensing)

Ordering Information

- **APAX-5520KW** Micro PAC with XScale CPU, KW
- **MProg-ADV46E** KW Multiprog Advanced v4.6 (64K bytes I/O)
- **MProg-BAS46E** KW Multiprog Basic v4.6 (128 bytes I/O)
- **APAX-5002** 2-slot Backplane Module
- **APAX-5343E** Power Supply for APAX Expansion Module

1	Automation Software
2	Touch Panel PC
3	Industrial Panel PC
4	Industrial Monitor
5	Fanless Box PC
6	Ethernet Switch
7	Device Server
8	Serial Comm. Card
9	DAQ
10	Signal Conditioning
11	USB DAQ
12	Motion Control I/O
13	PC-based Controller
14	PAC
15	RS-485 I/O
16	Ethernet I/O
17	Building Automation
18	Video Surveillance

ADAM-5000 Controller Selection Guide

System	ADAM-5510KW	ADAM-5510KW/TCP	ADAM-5510EKW/TP	ADAM-5550KW
CPU	80188	80188	80188	AMD Geode GX533 (GX2)
RAM	640 KB	768KB	768KB	128 MB DDR SDRAM
Flash ROM	256 KB	256 KB	256 KB	-
Flash Memory	768 KB	768 KB	768 KB	-
Flash Disk	512 KB	512 KB	512 KB	-
OS	ROM-DOS	ROM-DOS	ROM-DOS	WinCE 5.0
Real-time Clock	Yes	Yes	Yes	Yes
Watchdog Timer	Yes	Yes	Yes	Yes
COM1	RS-232	RS-232/485	RS-232/485	RS-232/485
COM2	RS-485	RS-485	RS-485	RS-485
COM3 (Programming)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)	RS-232 (TX, RX, GND)	RS-232
COM4	RS-232/485	RS-232/485	RS-232/485	RS-232/485
I/O Slots	4	4	8	8
Power Consumption	4 W	4 W	4 W	12 W
Isolation				
Communication	2,500 V _{DC} (COM2 RS-485)	2,500 V _{DC} (COM2 RS-485)	2,500 V _{DC} (COM2 RS-485)	2,500 V _{DC} (COM2 RS-485) 1,000 V _{DC} (COM4 RS-485)
Communication Power				3,000 V _{DC}
I/O Module				3,000 V _{DC}
Diagnosis				
Status Display	Power, CPU, Communication, Battery			Power, User define
Self Test	Yes, while ON			
Software Diagnosis	Yes			
Communication				
Network	RS-232/485	Ethernet (RJ-45)	Ethernet (RJ-45)	Ethernet (2 x RJ-45)
Speeds	9,600, 38,400, 57,600 bps and 115.2 kbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
Max. Distance	4,000 feet (1.2 km)	150 m	150 m	150 m
Data Format	N, 8, 1, 1	-	-	-
Max. Nodes	32	32	32	-
Protocol	Modbus/RTU	Modbus/RTU, Modbus/TCP	Modbus/RTU, Modbus/TCP	Modbus/RTU, Modbus/TCP
Remote I/O	Modbus Device	Modbus Device	Modbus Device	Modbus Device
Power Requirements	+10 ~ +30 V _{DC}	+10 ~ +30 V _{DC}	+10 ~ +30 V _{DC}	+10 ~ +30 V _{DC}
Environment				
Operating Temperature	-10 ~ 70° C (14 ~ 158° F)	-10 ~ 70° C (14 ~ 158° F)	-10 ~ 70° C (14 ~ 158° F)	0 ~ 55° C (32 ~ 131° F)
Storage Temperature	-25 ~ 85° C (-13 ~ 185° F)	-25 ~ 85° C (-13 ~ 185° F)	-25 ~ 85° C (-13 ~ 185° F)	-25 ~ 85° C (-13 ~ 185° F)
Humidity	5 ~ 95%	5 ~ 95%	5 ~ 95%	5 ~ 95%
Page	14-11	14-12	14-12	14-10

Model		ADAM-5202	ADAM-5240	ADAM-5030
Axes	Number of Axes	-	4	-
	Linear Interpolation	-	v	-
	2-Axis Circle Interpolation	-	v	-
Advanced Functions	Encoder Channels	-	4	-
	Limit switch Input Channel	-	8	-
	Home Input Channel	-	4	-
	Emergency stop Input Channel	-	1	-
	Slow Down Limit Switch	-	8	-
	General Purpose DI Channel	-	-	-
	Servo On Output Channel	-	4	-
	General Purpose DO Channel	-	4	-
	Position Compare Event	-	v	-
	Remote Motion	v	-	-
	Remote I/O	v	-	-
Board ID	-	-	-	
Connectors		2 x RJ-45,	100-Pin SCSI-II	-
Wiring Board		-	ADAM-3952	-
Remote Slave Module		AMAX-2752SY/2754SY/2756SY AMAX-2241/2242/2243	-	-
Storage	Type	-	-	SD (Secure Digital Card)
	Channel	-	-	2
	Size	-	-	2 GB (Max)
USB	Type	-	-	V2.0 (compliant)
	Channel	-	-	2
Supported Controller		ADAM-5550KW		
Page		13-36	13-36	13-36

ADAM-5000 I/O Module Selection Guide

Module	ADAM-5013	ADAM-5017	ADAM-5017P	ADAM-5017UH	ADAM-5018	ADAM-5018P	ADAM-5024	ADAM-5050	ADAM-5051/ ADAM-5051D/ ADAM-5051S	ADAM-5052	ADAM-5053S
Analog Input	Resolution	16 bit	16 bit	16 bit	12 bit	16 bit	16 bit	-	-	-	-
	Input Channel	3	8	8	8	7	7	-	-	-	-
	Sampling Rate	10	10	10	200K	10	10	-	-	-	-
	Voltage Input	-	±150 mV ±500 mV ±1 V ±5 V ±10 V	±150 mV ±500 mV ±15V ±10V ±5 V ±1 V 0 ~ 150mV 0 ~ 500mV 0 ~ 1V 0 ~ 5V 0 ~ 10V 0 ~ 15V	±10 V 0 ~ 10 V	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	±15 mV ±50 mV ±100 mV ±500 mV ±1 V ±2.5 V	-	-	-	-
	Current Input	-	±20 mA	±20 mA, 4 ~ 20mA	0 ~ 20 mA 4 ~ 20 mA	±20 mA	4 ~ 20 mA	-	-	-	-
	Direct Sensor Input	Pt or Ni RTD	-	-	-	J, K, T, E, R, S, B	J, K, T, E, R, S, B	-	-	-	-
Analog Output	Resolution	-	-	-	-	-	12 bit	-	-	-	-
	Voltage Output	-	-	-	-	-	0 ~ 10 V	-	-	-	-
	Current Output	-	-	-	-	-	0 ~ 20 mA 4 ~ 20 mA	-	-	-	-
Digital Input and Digital Output	Digital Input Channels	-	-	-	-	-	-	16 DIO (bit-wise selectable)	16 16w/LED (5051D/5051S)	-	32
	Digital Output Channels	-	-	-	-	-	-	-	-	8	-
Isolation	3,000 V _{DC}	3,000 V _{DC}	3,000 V _{DC}	3,000 V _{DC}	3,000 V _{DC}	3,000 V _{DC}	3,000 V _{DC}	-	2,500 V _{DC} (5051S)	5,000 V _{RMS}	2,500 V _{DC}
Page	13-29			13-30			13-31		13-32		

Module	ADAM-5055S	ADAM-5056/ ADAM-5056D	ADAM-5056S/ ADAM-5056SO	ADAM-5057S	ADAM-5060	ADAM-5068	ADAM-5069	ADAM-5080	ADAM-5081	ADAM-5090/ ADAM-5091	ADAM-5095
Digital Input and Digital Output	Digital Input Channels	8 w/LED	-	-	-	-	-	-	-	-	-
	Digital Output Channels	8 w/LED	16 16 w/LED (5056D)	16 w/LED	32	6 relay (2 form A/4 form C)	8 relay (8 form A)	8 power relay (form A)	-	-	-
Counter (32-bit)	Channels	-	-	-	-	-	-	4	8	-	2
	Input Frequency	-	-	-	-	-	-	5,000 Hz (max)	5 Hz ~ 1 MHz max. (frequency mode) 1 MHz max. (countermode)	-	-
	Mode	-	-	-	-	-	-	Frequency, up/down, Bi-direction Counter	Frequency, up/down, Bi-direction, up, A/B Phase, Counter	-	-
COMM	Channels	-	-	-	-	-	-	-	-	4	-
	Type	-	-	-	-	-	-	-	-	RS-232	CAN
Isolation	2,500 V _{DC}	-	2,500 V _{DC}	2,500 V _{DC}	-	-	4,000 V _{RMS}	1,000 V _{RMS}	2,500 V _{DC}	-	1,000 V _{DC}
Page	13-32	13-33			13-34			13-35		13-28	

- 1 Automation Software
- 2 Touch Panel PC
- 3 Industrial Panel PC
- 4 Industrial Monitor
- 5 Fanless Box PC
- 6 Ethernet Switch
- 7 Device Server
- 8 Serial Comm. Card
- 9 DAQ
- 10 Signal Conditioning
- 11 USB DAQ
- 12 Motion Control I/O
- 13 PC-based Controller
- 14 PAC
- 15 RS-485 I/O
- 16 Ethernet I/O
- 17 Building Automation
- 18 Video Surveillance

ADAM-5550KW

8-slot Micro PAC with GX2 CPU



Features

- SoftLogic support in Win CE 5.0
- Can be operated with or without display/keyboard/mouse
- Remote monitoring through Web Server and Email Alarm
- Remote maintenance via FTP Server
- Supports Modbus/RTU Master and Modbus/TCP (Server/Client) Protocol
- Supports OPC Server (Built in ADAM-5550KWAS only)
- Supports SQL database
- Supports SD Storage I/O Module
- Supports AMONet Master Module
- Supports Motion Control Module
- Deterministic I/O at 1 ms
- Remote I/O expansibility
- Rich support to ADAM-5000 I/O Modules

Introduction

ADAM-5550KW is a Programmable Automation Controller designed for control tasks which require Industrial PC computing performance with the PLC's robustness. ADAM-5550KW offers an AMD Geode GX533 CPU along with control specific features such as watchdog timer, battery backup RAM and deterministic I/O. ADAM-5550KW features 5 standard IEC - 61131-3 programming languages in CE 5.0, so PLC users can develop control strategies with their own familiar programming languages. The powerful Multiprog KW Software and stable ProConOS have allowed ADAM-5550KW to become the best choice for a Programmable Automation Controller on the market today. With the optional HMI Software and built-in VGA port, no longer will users be required to build up additional SCADA PC's in their applications. This compact and powerful PAC is ideal for a variety of applications ranging from machine automation to SCADA applications.

Specifications

Control System

- **CPU** AMD Geode GX533 (GX2)
- **I/O Capacity** 8 slots
- **LED Indicators** Power, User define
- **Memory** 128 MB DDR SDRAM with 1 MB Battery Backup
1 x CompactFlash® Card (Internal)
- **Operating System** Windows® CE 5.0
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

Communications

- **Comm. Protocol** Modbus/RTU and Modbus/TCP
- **Medium** 2 x 10/100 Base-T Ethernet Interface with RJ-45 connectors

Protection

- **Communication** 2,500 V_{DC} (COM2 RS-485)/1,000 V_{DC} (COM4 RS-485)
- **Power Reversal Protection** Yes

Power

- **Power Consumption** 12 W @ 24 Vdc (not including I/O modules)
- **Power Input** Unregulated +10 to +30 V_{DC}

General

- **Certificate** CE
- **Connectors** 1 x RS-232/485 (COM1)
1 x RS-485 (COM2)
1 x RS-232 (COM3)
1 x RS-232/485 (COM4)
2 x USB 1.1 ports (KB/Mouse via USB Ports)
1 x VGA (1024 X 768 Resolution)
- **Dimensions** 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Plug-in Screw Terminal** Accepts 0.5 mm² to 2.5 mm², 1 - #12 or 2 - #14 to #22 AWG

Environment

- **Humidity** 5% to 95%, non-condensing
- **Operating Temperature** 0 ~ 55° C (32 ~ 131° F)
- **Storage Temperature** - 25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5550KW** Micro PAC w/ GX2, KW, 8-slot
- **ADAM-5550KWAS** Micro PAC w/ GX2, KW, AStudio HMI S/W, 8-slot
- **MPROG-BAS33** KW Multiprog v3.3 for WinNT/2K/XP (128-byte I/O)
- **MPROG-ADV33** KW Multiprog v3.3 for WinNT/2K/XP (64k-byte I/O)

ADAM-5510KW

4-slot SoftLogic Controller with RS-485



Features

- IEC-61131-3 standard package
- Supports LD/FB/SFC/IL/ST language
- Graphical programming interface
- Cross programming language compiling capability
- Supports floating point calculation
- Supports AI/AO/DI/DO/Counter Function Blocks
- Powerful debug tool
- Built-in Modbus/RTU Master and Slave
- Supports up to 128 Local I/O Points
- Handles typical 32 Modbus/RTU remote I/O modules
- Supports more than 9000 coils in LD language
- Supports 3 serial ports including 1 RS-485 and 2 RS-232/485 ports

Introduction

ADAM-5510KW is PC-based Soft-Logic Controllers. It features 5 standard IEC61131-3 programming languages so PLC users can develop control strategies in their familiar programming languages. The strong MULTIPROG software and stable ProConOS make ADAM-5510KW the best choice for PC-based SoftLogic controllers in the market. ProConOS, (Programmable Controller Operating System), has over 250,000+ installations, and is a pre-emptive, multi-tasking run-time software providing deterministic operation down to one millisecond and runs applications developed with MULTIPROG, a fully-featured IEC 61131-3 development environment. With this KW Software distribution agreement, Advantech has bundled the ProConOS run-time software on ADAM-5510KW Controllers creating a SoftLogic Solution. It will greatly benefit PLC users to enjoy the PC-based advantage of ADAM-5510KW.

Different from the original ADAM-5510 hardware, the ADAM-5510KW includes more memory to raise system efficiency and users' programming flexibility. The ADAM-5510KW include a 1.5 MB flash memory and 640 KB SRAM which includes battery backup RAM up to 32 KB. In addition, 4 COM ports enrich the communication capacity of ADAM-5510KW to integrate with remote I/O or other 3rd party devices based on the Modbus/RTU protocol.

Specifications

Control System

- **CPU** 16-bit microprocessor
- **I/O Capacity** 4 slots (ADAM-5510KW)
- **LED Indicators** Power, CPU, communication and battery
- **Memory** Flash disk: 512 KB
Flash memory: 768 KB
Flash ROM: 256 KB
RAM: 640 KB SRAM, 32 KB with battery backup
- **Operating System** ROM-DOS
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

Communications

- **Comm. Protocol** Modbus/RTU
- **Max. Nodes** 32 (in RS-485 daisy-chain network)
- **Medium** RS-485 (2-wire)
- **Transmission Distance** 1.2 km (4000 feet)
- **Transmission Speed** 9600, 19200 and 38400 bps

Protection

- **Power Input** 3,000 V_{DC}
- **Communication** 2,500 V_{DC} (COM2 only)
- **Power Reversal Protection** Yes

Power

- **Power Consumption** 4 W @ 24 Vdc (not including I/O modules)
- **Power Input** Unregulated 10 ~ 30 V_{DC}

General

- **Certifications** CE
- **Connectors** ADAM-5510KW: 1 x DB9-M for RS-232 (COM1)
1 x Screw terminal for RS-485 (COM2)
1 x DB9-F for RS-232/Programming (COM3)
1 x DB9-M for RS-232/485 (COM4)
1 x Screw-terminal for power input
- **Dimensions** 4-slot: 231 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall

Environment

- **Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** -10 ~ 70° C (14 ~ 158° F)
- **Storage Temperature** -25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5510KW** 4-slot PC-based SoftLogic Controller
- **MPROG-BAS33** KW Multiprog v3.3 for Win. NT/2K/XP(128-byte I/O)

1	Automation Software
2	Touch Panel PC
3	Industrial Panel PC
4	Industrial Monitor
5	Fanless Box PC
6	Ethernet Switch
7	Device Server
8	Serial Comm. Card
9	DAQ
10	Signal Conditioning
11	USB DAQ
12	Motion Control I/O
13	PC-based Controller
14	PAC
15	RS-485 I/O
16	Ethernet I/O
17	Building Automation
18	Video Surveillance

ADAM-5510KW/TCP

ADAM-5510EKW/TP

4-slot SoftLogic Controller with Ethernet

8-slot SoftLogic Controller with Ethernet



RoHS
COMPLIANT
2002/95/EC

CE FCC

Features

- 10/100Base-T Ethernet interface
- Built-in Modbus/TCP server
- Supports Modbus/TCP client
- Supports Modbus/RTU Master
- Supports Modbus/RTU Slave
- Supports Multiprog via Ethernet
- IEC-61131-3 standard package
- Supports LD/FB/SFC/IL/ST languages
- Cross-language compiling program
- 8 I/O slots base and handles up to 128 local I/O points
- Supports AI/AO/DI/DO/Counter function blocks

Introduction

The ADAM-5510EKW/TP is an Ethernet-enabled SoftLogic Controller. In addition to the features of ADAM-5510KW and ADAM-5510EKW, the ADAM-5510EKW/TP has Ethernet features including Modbus/TCP Server, Modbus/TCP Client and Multiprog via Ethernet functions. Therefore, users can easily and quickly complete their programming based on Ethernet architecture.

Standard Modbus Interface

For advanced system integration, the ADAM-5510EKW/TP supports not only Modbus/RTU Master and Slave functions via serial ports, but also the Modbus/TCP Client to retrieve data from remote I/O, and Modbus/TCP Server to send data back to the HMI/SCADA Software via Ethernet port. Furthermore, the ADAM-5510EKW/TP allows users to remotely maintain multiple ADAM-5510EKW/TP controllers by running Multiprog programming software via Ethernet.

Specifications

Control System

- **CPU** 16-bit microprocessor
- **I/O Capacity** 4 slots (ADAM-5510KW/TCP)
8 slots (ADAM-5510EKW/TP)
- **LED Indicators** Power, CPU, communication, and battery
- **Memory** Flash disk: 512 KB
Flash memory: 768 KB
Flash ROM: 256 KB
RAM: 768 KB SRAM, 17 KB with battery backup
- **Operating System** ROM-DOS
- **Real-time Clock** Yes
- **Watchdog Timer** Yes

Communications (Ethernet)

- **Medium** Cat.5 cable with RJ-45 connectors
- **Transmission Speed** 100 Mbps (10/100Base-T)

Communications (Serial)

- **Max. Nodes** 32 (in RS-485 daisy-chain network)
- **Medium** RS-485 (2-wire)
- **Protocols** Modbus/RTU, Modbus/TCP (Max. 8 Connection with Modbus/TCP)
- **Transmission Speed** 9,600, 19,200 and 38,400 bps

Protection

- **Power Input** 3,000 V_{DC}
- **Communication Line Isolation** 2,500 V_{DC} (COM2 only)
- **Power Reversal Protection** Yes

Power

- **Power Consumption** 4 W @ 24 Vdc (not including I/O modules)
Unregulated 10 ~ 30 V
- **Power Input** Unregulated 10 ~ 30 V_{DC}

General

- **Certifications** CE, FCC class A
- **Connectors** 1 x DB9-M for RS-232/485 (COM1)
1 x Screw terminal for RS-485 (COM2)
1 x DB9-F for RS-232/Programming (COM3)
1 x DB9-M for RS-232/485 (COM4)
1 x Screw-terminal for power input
1 x RJ-45 for LAN
- **Dimensions** 4-slot: 231 x 110 x 75 mm
8-slot: 355 x 110 x 75 mm
- **Enclosure** ABS+PC
- **Mounting** DIN 35 rail, stack, wall

Environment

- **Humidity** 5 ~ 95%, non-condensing
- **Operating Temperature** - 10 ~ 70° C (14 ~ 158° F)
- **Storage Temperature** - 25 ~ 85° C (-13 ~ 185° F)

Ordering Information

- **ADAM-5510KW/TCP** 4-slot Ethernet-enabled SoftLogic Controller
- **ADAM-5510EKW/TP** 8-slot Ethernet-enabled SoftLogic Controller
- **MPROG-BAS33** KW Multiprog v3.3 for WinNT/2K/XP (128-byte I/O)

