

Advantech DIN-Rail PC Controller

The Next Generation Scalable Control Platform



- ✓ DIN-Rail PC Controller
- ✓ New Design for Industrial IoT Controllers
- ✓ Softlogic and Utility Software
- ✓ PC-based Programmable Software
- ✓ System Architecture
- ✓ Product Selection Table
- ✓ Application Story



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DIN-Rail PC Controller: APAX Series

Advantech's DIN-Rail PC Controller is one a powerful control platform for IoT and other industrial automation applications. Its computing power and different kinds of standard high speed communication interface makes big data processing and decentralized architecture possible. Users can easily add their vertical application software with our platform and implement this system in automation field sites.



Reduce Data Acquisition Loading

- Built-in DSP for I/O access
- Modular APAX I/O module
- Distributed topology and decentralized comport



Scalable Solution

- Various CPU performance from RISC to Core i7
- Softlogic and SCADA S/W compatibly



Boundless Communication

- Internal SIM slot for cellular communication
- Reserve antenna hole
- mPCIe for Wi-Fi, BLE and GPS



Open Develop Environment

- Embedded Microsoft Windows support with EWF, HORM and VS.NET framework
- Free API for WDT, RTC, H/W monitoring and I/O access
- Linux support





Stable Automation Platform

- mSATA as the primary disk for anti-vibration
- UPS to avoid unexpected power shut down
- System backup and one key recover
- H/W status monitoring

Robust Controller Design

- Fanless design
- Compact size for control cabinet
- High accuracy RTC and Multilevel WDT
- 10 years lifetime battery

APAX-5520



APAX Tiny 1-slot DIN-Rail PC Controller

1-slot controller is our smallest one in APAX series. It has same I/O capacity with other controller, and also one built-in RS-485 and one CF slot to use for RTU or data logger.

APAX-5620



APAX Compact DIN-Rail PC Controller

Its bigger size brings the more serial interfaces and Ethernet ports and even two CANBus ports. It means users have more chances to design more complex topologies. Data gateway is one of its applications.

APAX-5580

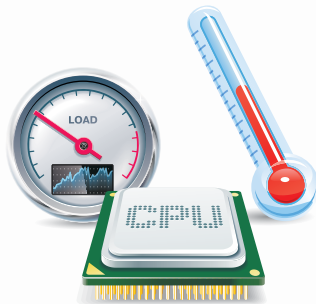


APAX High Performance DIN-Rail PC Controller

By providing the latest Intel CPU inside, the high computing power, rich connectivity and I/O control system can be done by one controller. It brings the new description of the next generation controller platform.

New Design for Industrial IoT Controllers

For the industrial IoT, computing and connectivity are both key feature in the new generation automation controller. Big data processing and capacity to connect with other device or sensor will become the baseline of one quality IoT control platform.



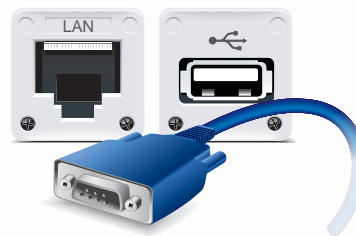
Real Time H/W Monitoring

A stable platform is the most important thing in automation sites. As soon as there's an abnormal situation on the system, we can take action and avoid any unexpected errors at the beginning. Advantech's DIN-Rail PC controller provides hardware monitoring to monitor the CPU load, system voltage and I/O module status. Users can access this data by API or our utility without any complicated programming.



Versatile Connectivity Interface

Connectivity is another major aspect of PC-based control, especially in the Internet of Things (IoT) and Industry 4.0 eras. The standard interface gives our control platform the capacity to connect different kinds of remote devices and become a data gateway through wired or wireless technology. Whether using industrial or IT communication protocols, our control platform is the best solution as a data gateway or data process center.

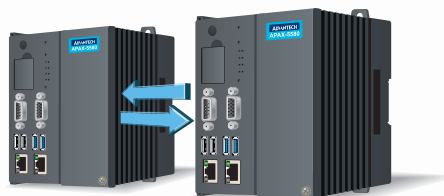


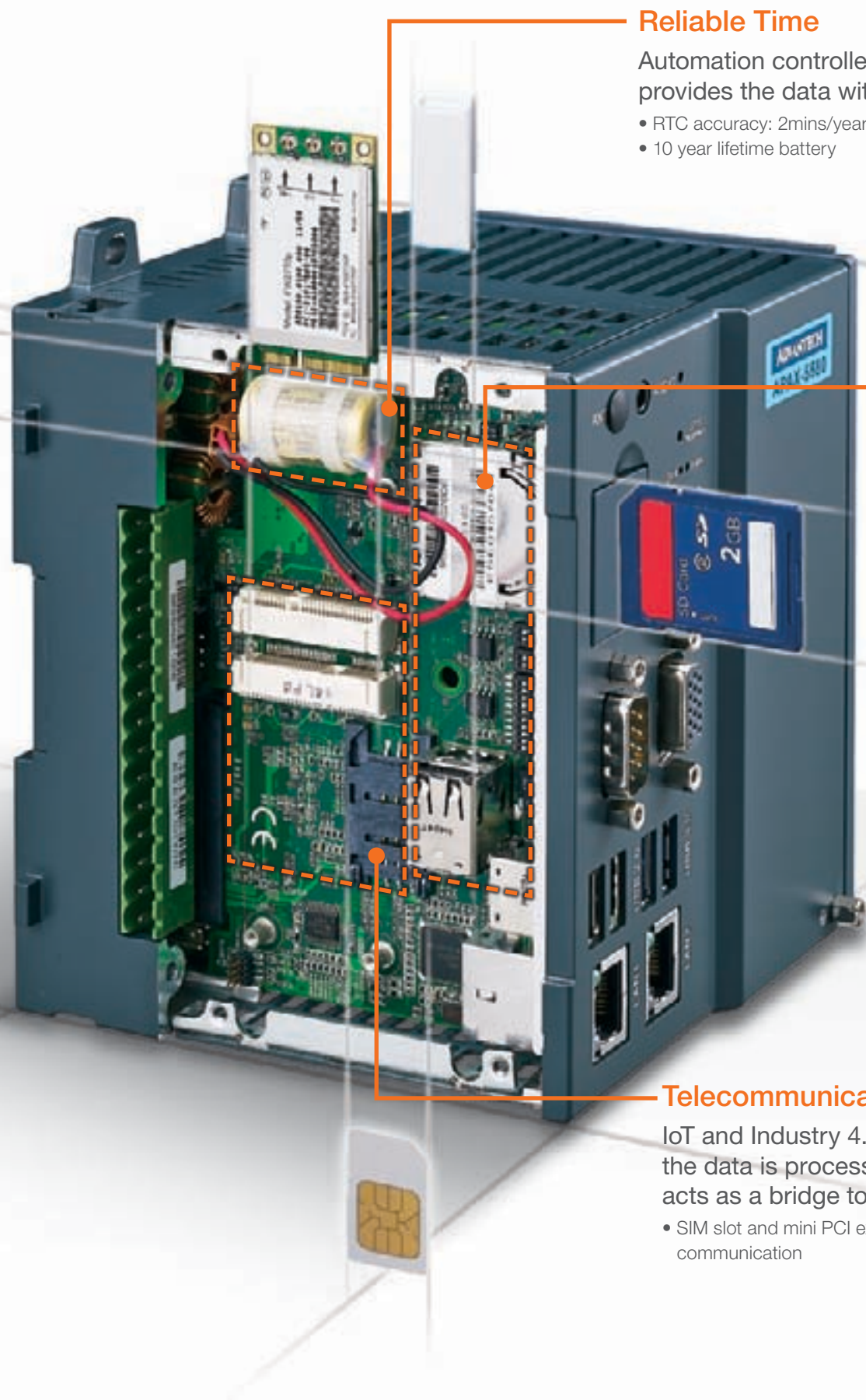
Data Analysis and Storage

Advantech's DIN-Rail PC Controller series not only provide excellent real-time I/O control, but also another key benefit for automation applications: information processing. With the ability to perform field operations, data exchange and valuable information collection, APAX is able to execute efficient decision-making. Information processing includes data logging and analysis with storage devices like SD or CF cards, and database exchanges through SQL and OPC.

Data Synchronization

The APAX series delivers data synchronization functionality for CPU redundancy to significantly decrease the risk that the system will fail when the controller crashes. To leverage this, two controllers with the same control program are installed in one system. After both controllers' redundancy function is enabled, the APAX system will automatically delegate one controller to be the master. If the controller is switched, it means an error occurred on the previous master device. Therefore engineers can repair or swap this without shutting down the whole system.





Reliable Time

Automation controller in Industrial IoT provides the data with time.

- RTC accuracy: 2mins/year
- 10 year lifetime battery

Security

System dependability is assured by using the internal interface.

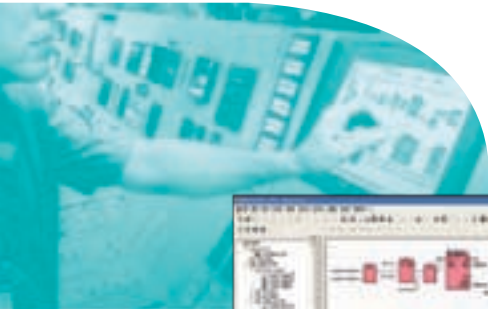
- Inner SD slot for system backup
- Internal USB for S/W Dongle

Telecommunication

IoT and Industry 4.0 not only ensure the data is processed locally but also acts as a bridge to the remote server

- SIM slot and mini PCI express for cellular communication

Softlogic and Utility Software



IEC-61131-3 SoftLogic Control Software

KW MULTIPROG

Introduction:

Advantech's APAX solution leverages KW Multiprog and ProConOS as the development tool and SoftLogic control kernel. Users can easily leverage the control know-how into different control platforms to meet versatile automation projects needs.

Multiprog supports all IEC 61131-3 programming languages. Depending on the task handled, your experience and company standards, you may choose one of the five standardized programming languages. You can easily achieve real-time performance without additional programming. Advantech's long-term experience in the automation industry guarantees you a sophisticated software product.

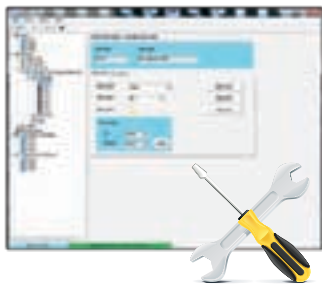
Real Time Remote Diagnosis and Maintenance Software

DiagAnywhere

Introduction:

"DiagAnywhere", an abbreviation of "Diagnose Anywhere", is remote maintenance software for remotely monitoring and controlling Advantech controller platform with Windows-based operating systems. Currently, DiagAnywhere includes the utility on the client side and the server on the target devices. The supported OS's include Windows XP, XP Embedded, Windows 7, WinCE 5.0 and WinCE 6.0. This useful software can help users to achieve major remote maintenance tasks including remote monitoring and control, remote screen snapshot and recording, file upload and download. Windows-based authentication is also supported for security concerns.

DiagAnywhere



I/O System Configuration and Testing Utility

AdamApax .NET Utility

Introduction:

DIN-Rail PC controller provides one free configuration and testing utility in the system. Users can search local and remote I/O module by this utility, and get current value of each channel. This is one very easy way to check the status of each module with our controller without any programming.

AdamApax Utility is based on VS.NET, that means all the functionality in this utility you can find the API in our .NET library. User can integrate those functionality into their own programming.

Remote Management and Hardware Monitoring Software

SUSIAccess

Introduction:

SUSIAccess is a remote management suite exclusively designed for Advantech embedded solutions to perform remote monitoring, active control, failure recovery and connected system protection. SUSIAccess supports both Windows and Linux platforms and works from the very entry level to high-end processors. Ready-to-use, easy-to-integrate.

SUSIAccess

PC-based Programming Software



VS.NET Development Environment C/C++ and .NET library

Key Features:

- Complete PC-based open platform
- Multiple built-in libraries for industrial tasks to shorten development time
- Various C/C++ and .NET examples for reference

Introduction:

APAX-5000 series offers a complete PC-based open platform with Application Programming Interface (API). With C/C++ libraries and .NET class libraries provided by Advantech, programmers can develop their own programs for industrial control and automation tasks, involving I/O control, communication, SQL and scheduling. Plenty of C/C++ and .NET examples save programmer learning time, helping save programmers' development and effort to shorten time to market.

HMI/SCADA Software



Browser-based HMI/SCADA Software Advantech WebAccess

Key Features:

- View, control, configure system remotely over Intranet or Internet using ordinary Web browser
- Supports vector-based graphics
- Uses the open standard programming TCL, JScript or VB script

Introduction:

Advantech WebAccess is a browser-based software package for human-machine interfaces (HMI) and supervisory control and data acquisition (SCADA). All the features found in conventional HMI and SCADA software packages are available in an ordinary browser including Animated Graphics Displays, Real-time Data Control, Trends, Alarms and Logs. WebAccess is based on standard Internet architecture, its basic components include SCADA Node, Project Node, Client and Thin Client.

Web-browser Client to View and Control



Using a standard Web browser, users can view and control automation equipment used in industrial, manufacturing, process and building automation systems. Data is displayed to users in real-time with dynamically updated graphics using full-motion animation.

Historical and Real-time Trending, Data Logging and Centralized Logs



Each tag is logged to a separate file on the SCADA node, and user can view the real-time and historical data from the historical trend. Besides, new tags can be added to a historical trend display without losing history of other tags. Real-time data, alarms and events from all nodes are logged to central ODBC database.

Scheduler and Report



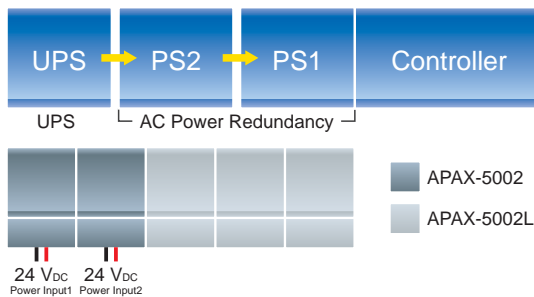
The Scheduler provides control and changes setpoint status based on time and date. Lights, fans, and HVAC equipment are turned on and off based on the time, day of week and date. The Scheduler is also used in process control and manufacturing applications. All these schedule configurations can be modified remotely through Internet.

Flexible System Architectures - Optimized Solutions

To simplify the system configuration, Advantech's APAX series provides an easy and flexible way to setup different functions and configurations. There are multiple APAX series system combinations that can be selected to develop reliable control systems as detailed below.

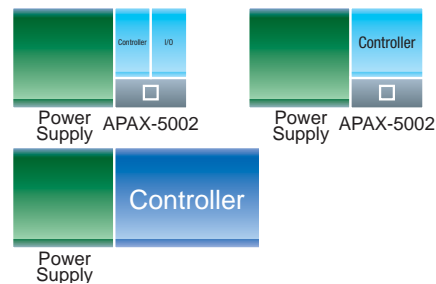
1 Robust Power System

- Not only the single option of the power input, APAX provide the power redundancy and UPS to make our controller have the highest reliability in automation field.



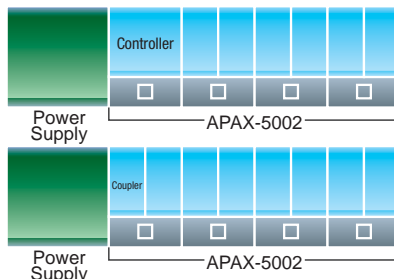
2 Controller Platform

- Deliver fast computing, powerful functionality and rich connectivity like an industrial PC. Three different level controller to make sure the best solution in the different application.



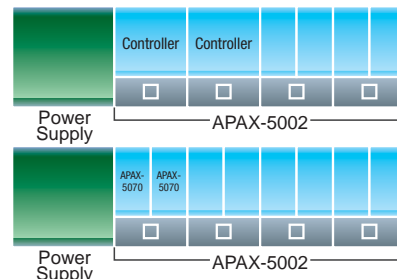
3 I/O System

- APAX real-time I/O system can be working stand alone with APAX controller or linking to other automation system through couplers.



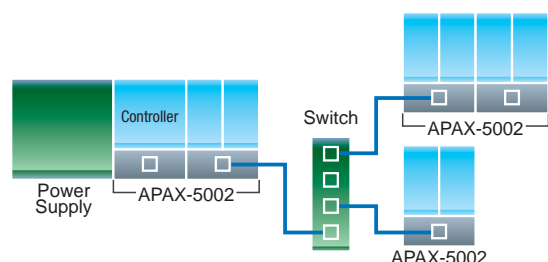
4 Dual CPU

- With the data synchronization, the secondary controller can sync the parameters and take over the control task at the some unexpected condition within a very short time. By APAX dual power architecture, it can increase the availability.



5 Distributed Topology

- The standard physical interface is not only the connection between controller and I/O system, but also provide the more possibility of the topology by switch.



Real-time Local Bus



APAX I/O local bus adopts real-time I/O access methodology to ensure deterministic control with real-time performance. Contributed by the dedicated Digital Signal Processor (DSP) which handles I/O data process without controller's CPU resource, the I/O scan rate can be maintained within 1 ms, offering time deterministic I/O. The I/O processing is running on the back-end, and controller's CPU and DSP can share data through built-in dual port RAM. All these deliver real-time performance regardless of the number of I/O points. Programmers can concentrate on their application program development, and APAX system can perform real-time I/O access automatically.

User-friendly Designs



► Hot Swappable, High Density I/O Modules

APAX I/O modules can communicate and obtain power through backplanes. APAX I/O modules are hot swappable, allowing them removed from or inserted on the backplane, even when the system is powered-on. Operators can replace specific I/O modules without shutting down the whole system. This significantly saves system maintenance costs.



► Clamp Type Terminal Blocks

All APAX I/O modules offer detachable clamp type terminal blocks for I/O wiring. Compared to traditional screw type terminal blocks, clamp type terminal blocks can save installation time (up to 75%), and doesn't require the connection to be checked or retightened. They also have higher resistance to shock and vibration.



► Easily Identifiable Modules

The labeled front-side ID switch enables operator to change the module ID number. The power LED not only displays the module power status, but also performs self diagnostic functions. All digital modules offer channel status LED. Inserting the terminal block on the wrong module may cause module damaged. Matching the terminal block and front label with the same color can prevent this.



► Writable Labels with Wiring Information

For all I/O modules, a detachable label gives operators the ability to write important notes on it, like channel information. The opposite side shows the wiring diagram, so operators can refer to it for wiring. This label provides convenience for maintenance and operation.

APAX-5000 Controllers



System		APAX-5580	APAX-6572	APAX-5520/5620	APAX-5522
CPU		APAX-5580 Intel Core i7 4650U, 1.7 GHz	Intel Atom D510 1.66 GHz	Marvel XScale PXA270 520 MHz	Marvel XScale PXA270 520 MHz
Memory		4G DDR3 DRAM	2 GB DDR2 DRAM	Flash 32 MB, SDRAM 64MB	Flash 32 MB, SDRAM 64MB
Storage		2 x SD card slot	1 x CF slot (internal)	1 x CF slot	1 x CF slot (internal)
Local Display		VGA	VGA	VGA	-
USB Ports		4 x USB 2.0	4 x USB 2.0	1 x USB 1.1	-
Audio		-	Mic in, Line in, Line out	-	-
Cooling System		Fanless	Fanless	Fanless	Fanless
Power Input		18 ~ 30 V _{DC}	9 ~ 36 V _{DC}	18 ~ 30 V _{DC}	18 ~ 30 V _{DC}
Diagnostics LED		Power, Battery, Run, Error	Power, IDE, LAN, Serial	Power, Battery, Run, Error	Power, Battery, Run, Error
Real-time Clock		Yes			
Watchdog Timer		Yes			
Control Software		C/C++ library and .NET class library for C and .NET programming environment	C/C++ library and .NET class library for C and .NET programming environment KW IEC 61131-3 SoftLogic programming tool		C/C++ library and .NET class library for C and .NET programming environment KW IEC 61131-3 SoftLogic programming tool C/C++ library in embedded Linux RT
Local Real-time I/O Modules		32 (max.)*			
Digital I/O Points		768 (max.)			
Analog I/O points		192 (max.)			
Communication (Ethernet)	LAN Ports	2	3	1/2	2
	Speed	10/100/1000 Mbps		10/100 Mbps	10/100 Mbps
	Protocol	Modbus/TCP			
Communication (Serial)	COM 1	RS-232/422/485	RS-232	RS-485	RS-232
	COM 2	-	RS-232/422/485	RS-485 (APAX-5620 only)	RS-232
	COM 3	-	-	-	-
	CAN Bus	-	-	2 (APAX-5620 only)	-
	Protocol	Modbus/RTU, CANopen (APAX-5620 only)			
Isolation	Communication	-	-	2500 V _{DC} (RS-485)/ 2500 V _{DC} (CAN & RS-485)	-
Environment	Operating Temperature (when mounted vertically)	-20 ~ 60°C	-10 ~ 50°C	-10 ~ 55°C	-20 ~ 70°C
	Storage Temperature	-40 ~ 70°C			
	Relative Humidity	0 ~ 95 % (non-condensing)			
	Vibration Protection	IEC 60068-2-64/2-6: 2 Grms @ 5 ~ 500 Hz (Random, operating) 2 G @ 5 ~ 500 Hz (Sine, non-operating)	IEC 60068-2-64: 2 Grms @ 5 ~ 500 Hz (Random, operating)	IEC 60068-2-64/60068-2-6: 1 Grms @ 5 ~ 500 Hz (Random, operating) 2 G @ 5 ~ 500 Hz (Sine, non-operating)	IEC 60068-2-64/60068-2-6: 1 Grms @ 5 ~ 500 Hz (Random, operating) 2 G @ 5 ~ 500 Hz (Sine, non-operating)
	Shock Protection	IEC 60068-2-27: 30 G @ wall mount	IEC 60068-2-27: 50 G @ wall mount	IEC 60068-2-27: 20 G @ wall mount	IEC 60068-2-27: 20 G @ wall mount
Power Supply Module (Optional)		APAX-5343	PWR-244	APAX-5343E	APAX-5343E

*APAX DI/O modules can use ID numbers 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

APAX-5000 I/O Modules



Module Name		APAX-5013	APAX-5017	APAX-5017H	APAX-5018	APAX-5028
Description		8-ch RTD Module	12-ch AI Module	12-ch High Speed AI Module	12-ch Thermocouple Module	8-ch AO Module
Analog Input	AI Channels	8	12	12	12	-
	Input Type*	RTD (2-wire or 3-wire)	V, mV, mA	V, mV, mA	V, mV, mA, Thermocouple	-
	Sampling Rate (Samples/second)	50 Hz filter: 8 (Total**) 60 Hz filter: 10 (Total**)	12/120 (Total**)	1000 (per channel)	12 (Total**)	-
	Input Resolution	16-bit	16-bit (voltage) 14 ~ 15-bit (current)	12-bit	16-bit (voltage) 14 ~ 15-bit (current, thermocouple)	-
	Input Accuracy	±0.1 % of FSR	±0.1 % of FSR (Voltage) ±0.2 % of FSR (Current)	±0.1 % of FSR (Voltage) ±0.2 % of FSR (Current)	±0.1 % of FSR (Voltage) ±0.2 % of FSR (Current)	-
	Voltage Input	-	±150 mV, ±500 mV, ±1 V, ±5 V, ±10 V	0 ~ 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-1000, Balco, Ni 518)	-	-	Thermocouple (Type J, K, T, E, R, S, B)	-
	Wire Burnout Detection	All RTD range	4 ~ 20 mA	4 ~ 20 mA	4 ~ 20 mA and all Thermocouple range	-
Analog Output	AO Channels	-	-	-	-	8
	Output Type*	-	-	-	-	V, mA
	Output Resolution	-	-	-	-	14-bit
	Output Accuracy	-	-	-	-	±0.1 % of FSR
	Output Slew Rate	-	-	-	-	0.7 V _{DC} /μs (per channel)
	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
	Short Circuit Protection	-	-	-	-	Yes
	Fail Safe Value	-	-	-	-	Yes
General	Weight	170 g	170 g	175 g	170 g	175 g
	Operating Temperature	-10 ~ 60°C (when mounted vertically)				
	Storage Temperature	-40 ~ 85°C				
	Relative Humidity (non-condensing)	5 ~ 95%				
	Power Consumption (typical)	2.5 W @ 24 V _{DC}	4 W @ 24 V _{DC}	3.5 W @ 24 V _{DC}	3.5 W @ 24 V _{DC}	3.5 W @ 24 V _{DC}
	Isolation between channels and backplane	2500 V _{DC}				
	Power Supply Module (optional)	APAX-5343E				
user manual		online	online	online	online	online

*Each channel can be configured with different type and range

**Sampling rate value depends on used channel number.

Example: Using 6 channels on APAX-5017, sampling rate for each used channel will be 12/6 = 2 samples/second.

APAX-5000 I/O Modules



Module Name		APAX-5040	APAX-5045	APAX-5046/ APAX-5046SO	APAX-5060	APAX-5080	APAX-5082
Description		24-ch DI Module	24-ch DI/O Module	24-ch/20-ch DO Module	12-ch Relay Module	4/8-ch Counter Module	8-ch Pulse Width Modulation Module
Digital Input	DI Channels	24	12	-	-	4	6
	Input Type	Sink or Source Load	Sink or Source Load	-	-	Source Load	Sink or Source Load (Wet Contact)
	Rated Input Voltage	24 V _{DC}	24 V _{DC}	-	-	24 V _{DC}	-
	Input Voltage Range (signal "0")	-5 ~ 5 V _{DC}	-5 ~ 5 V _{DC}	-	-	0 ~ 3 V _{DC}	-5 ~ 5 V _{DC}
	Input Voltage Range (signal "1")	15 ~ 30 V _{DC} -15 ~ -30 V _{DC}	15 ~ 30 V _{DC} -15 ~ -30 V _{DC}	-	-	10 ~ 30 V _{DC}	15 ~ 30 V _{DC} -15 ~ -30 V _{DC}
	Rated Input Current	4.4 mA (typical)	4.4 mA (typical)	-	-	10 mA (typical)	7.3 mA
	Input Filter	3 ms	3 ms	-	-	3 ms	3 ms
	Over Voltage Protection	Yes	Yes	-	-	Yes	-
Counter Input/ Pulse Width Output	Channels	-	-	-	-	4 or 8 (depends on mode)	8
	Rated Input Voltage	-	-	-	-	24 V _{DC}	Output Voltage Range: 8 ~ 35 V _{DC}
	Input Voltage Range (signal "0")	-	-	-	-	0 ~ 3 V _{DC}	-
	Input Voltage Range (signal "1")	-	-	-	-	10 ~ 30 V _{DC}	-
	Current	-	-	-	-	Rated Input Current (signal *1): 5 ~ 15 mA (typical)	Normal Output Current: 0.5A (per channel)
	Counting Range	-	-	-	-	32-bit + 1-bit overflow/underflow	-
	Counter Frequency	-	-	-	-	Counter Frequency: 1 MHz (max.)	Pulse Frequency: 0 ~ 30kHz
	Counter Gate and Alarm Function	-	-	-	-	Yes	-
Digital Output	DO Channels	-	12	24/20	12	4	6
	Output Type	-	Sink	Sink / Source	Relay (Form A, SPST)	Sink	Sink
	Rated Output Voltage	-	24 V _{DC}	24 V _{DC}	250 V _{AC} , 30 V _{DC}	24 V _{DC}	8 ~ 35 V _{DC}
	Rated Output Current (signal "1")	-	0.5 A	0.5A / 1A	5 A	0.5 A	0.5 A (per channel)
	Short Circuit Protection	-	Yes	Yes	-	Yes	-
	Thermal Shutdown Protection	-	Yes	Yes	-	Yes	-
General	Weight	160 g	165 g	165 g	195 g	170 g	165 g
	Operating Temperature	-10 ~ 60°C (when mounted vertically)					
	Storage Temperature	-40 ~ 85°C					
	Relative Humidity (non-condensing)	5 ~ 95%					
	Power Consumption (typical)	2 W @ 24 V _{DC}	2.5 W @ 24 V _{DC}	2.5 W @ 24 V _{DC}	2 W @ 24 V _{DC}	2.5 W @ 24 V _{DC}	2.5 W @ 24 V _{DC}
	Isolation between channels and backplane	2500 V _{DC}					
	Channel Status LED	Yes (per channel)					
	Fail Safe Value	-	Yes (DO channel)	Yes	Yes	Yes (DO channel)	Yes
	Power Supply Module (optional)	APAX-5343E					

APAX-5000 I/O Modules



Module name		APAX-5070	APAX-5071	APAX-5072	APAX-5073
Description		Modbus/TCP Communication Coupler	PROFINET Communication Coupler	EtherNet/IP Communication Coupler	PROFIBUS Communication Coupler
Communication	Protocol	Modbus/TCP	PROFINET RT	EtherNet/IP	PROFIBUS
	Data Transfer Rates	10/100 Mbps	100 Mbps	10/100 Mbps	12 Mbits/s
	Communication I/O Modules	32 (max.)*			
	Digital Signals	768 (max.)			
	Analog Signals	192 (max.)			
General	Connector	2 x RJ-45 (2-channel switch, share same IP address)			1 x DB-9
	Topology	Line or star wiring			
	Operating Temperature	-10 ~ 60°C (when mounted vertically)			
	Storage Temperature	-40 ~ 85°C			
	Relative Humidity	5 ~ 95% (non-condensing)			

*APAX DI/O modules can use ID number 0 ~ 31, while AI/O modules and counter modules can only use ID numbers 0 ~ 15

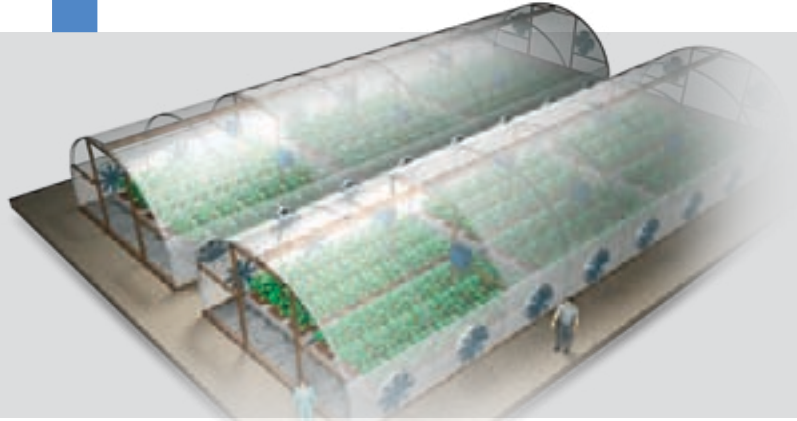


Module name		APAX-5090P	APAX-5095P	APAX-5202P
Description		4-port RS-232/422/485 Communication Module	2-port CANopen Master Module	2-port AMONet Master Module
Serial Communication	Baud Rate	50 bps ~ 230.4 kbps	-	-
	Data Bits	5, 6, 7, 8	-	-
	Stop Bits	1, 1.5, 2	-	-
	Parity	None, even, odd	-	-
CANopen Communication	Data Transfer Rates	-	Max. 1 Mbits/s	-
Motion	Transmission Speed	-	-	2.5, 5, 10 or 20 Mbps
	Slaves Number	-	-	1 Ring: 64 (max.) 2 Rings: 128 (max.)
General	Interface	2 x RS-422/485 2 x RS-232/422/485	2 x CAN Bus	2 x AMONet
	Connector	26-pin clamp-type terminal	DB9	RJ-45
	Operating Temperature	0 ~ 60°C (when mounted vertically)		
	Storage Temperature	-40 ~ 70°C		
	Relative Humidity	5 ~ 95% (non-condensing)		

Note: APAX-5090P, APAX-5095P and APAX-5202P can only be used by controller with a PCI interface

Greenhouse Control Solution

Agricultural Automation



The system integrator adopted Advantech's APAX-5000 series programmable automation controllers to build the control platform, coupled with Advantech WebAccess HMI/SCADA software, to achieve cloud monitoring. The staff of the orchid field can monitor important data anytime via smart phone, iPad, and other handheld devices, and control the growth and flowering conditions.

System Description

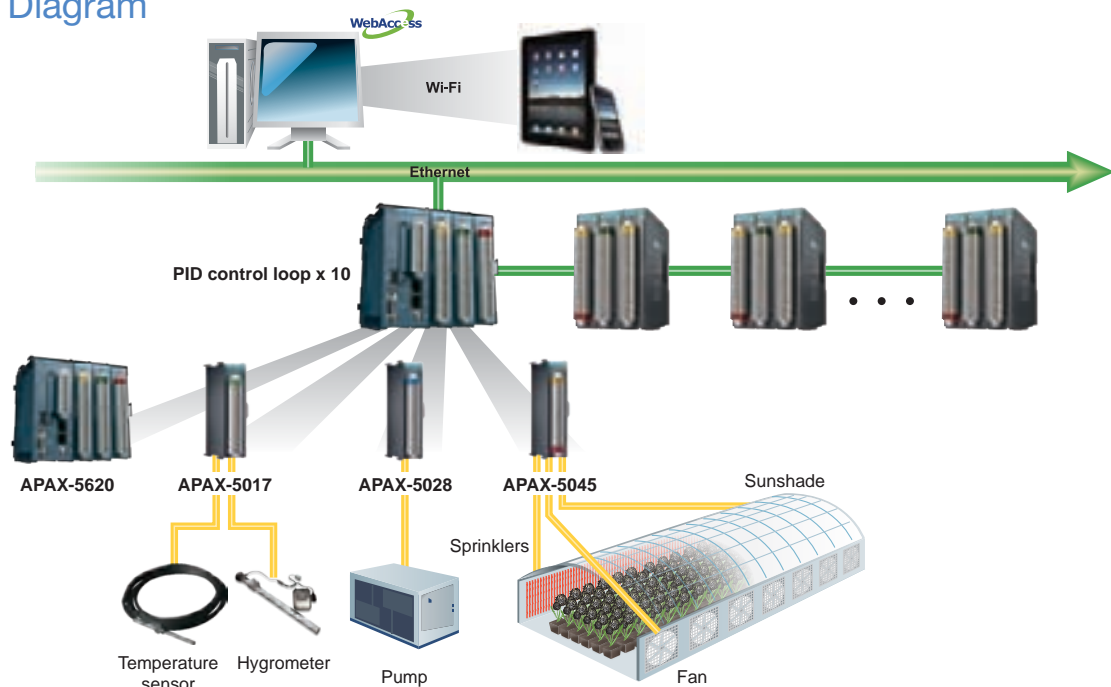
The Forcing Greenhouse uses an Advantech APAX-5620 programmable controller as a control host to connect the APAX-5017, APAX-5028, APAX-5045, and other I/O modules, to attach to the remote sensors and control components via cables, and to connect to expansion modules and electric controllers via a network cable. The above devices form a complete automation and control architecture. With Advantech APAX controllers and WebAccess software, the staff of the orchid farm can set the greenhouse's environment control parameters with an easy-to-use graphical interface in the computer and network environment.

Advantech's APAX-5000 series have the advantage of saving wiring costs and being of a low cost. The APAX-5620 control host connects to the office PC via a network cable, and connects to the cloud via wireless transmission. For monitoring orchid greenhouse conditions and data, the staff only needs to download and install Advantech App on a smart phone or iPad.

Conclusion

The automated greenhouse control system with Advantech APAX controllers and WebAccess software has the advantages of being low cost and high scalability. Users can easily control and monitor through a computer and network environment, and also achieve cloud monitoring. By using an automated greenhouse environmental control system, farmers can effectively control the production period and adjust their yield.

System Diagram



Security Facility Monitoring Solution

Telecom Facility Automation



In less stable parts of the world, air raid siren control systems are an essential part of life. The air raid systems are frequently installed in police stations and are typically sounded to warn of air raids or missile attacks on civilian population. Due to advances in technology, there has been a steady increase in the techniques that can be used to improve the system. But, to ensure that the system is working it needs to be continually monitored and to improve the monitoring of their systems a national defense agency is planning to upgrade its aging system by using LAN, Microware , UHF and VHF communication as well as choosing Advantech's real-time monitoring solution to supervise and manage those vital facilities.

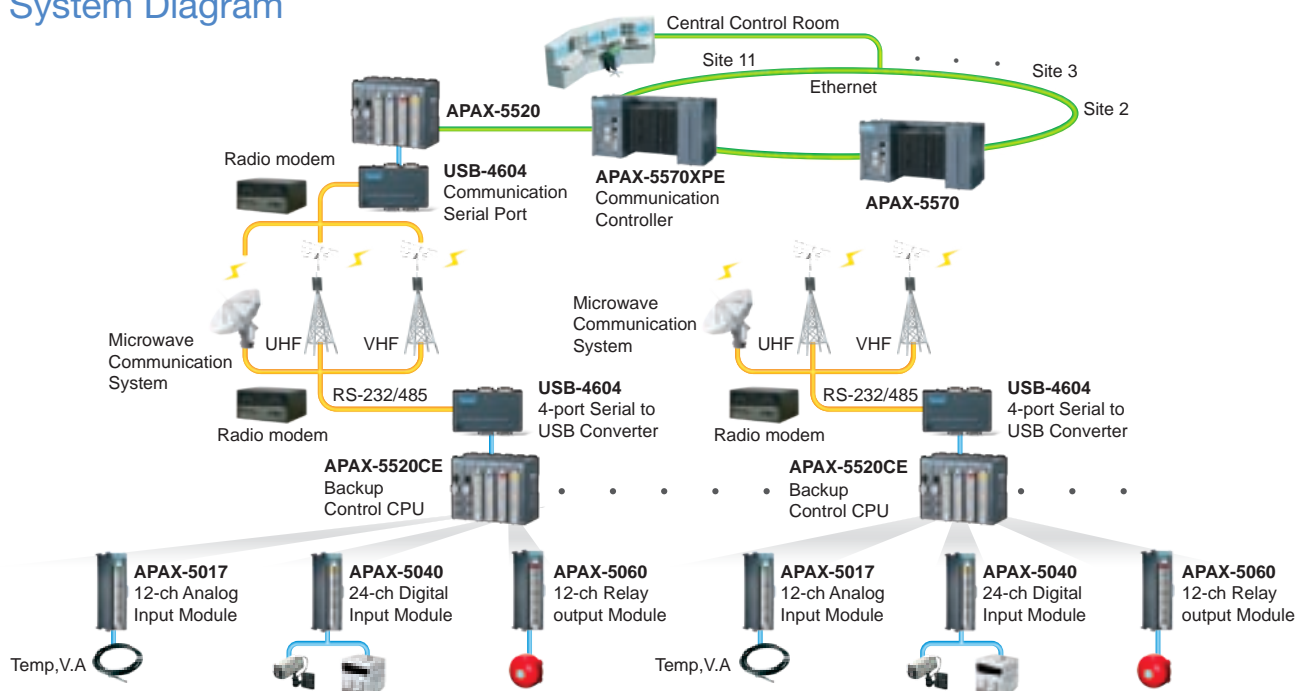
System Description

Advantech implemented a modular design to leverage the functionality of a range of APAX series products. The APAX-5570, PC-based Controller with Intel Celeron M CPU, is used as a compact controller to monitor the conditions of various facilities in the Main Control Center (including temperature, humidity, fire smoke detector, air-conditioning, dehumidifier, UPS, CCTV, and UHF/VHF wireless device) by inserting an APAX-5520 into an APAX-5570 it operates as a Backup controller. In this architecture, the APAX-5520 focuses on the input/output control and monitoring for APAX-5000 IO modules, featuring real-time control performance; the APAX-5570 is in charge of other tasks which needs higher computing ability for databases and communication. Such dual CPU architecture can ensure system reliability so if one of them has anything wrong, the other can take over.

Conclusion

Compared to the old system, without any equipment status monitoring functions, adding Advantech's real-time monitoring system enables proper management for each station and control center by collecting a diverse range of information and remotely controlling numerous devices. For this air-raid siren control system, there are more than a thousand hosts (ACP and APAX) and a variety of modules to be applied. Thanks to Advantech's modular design, the monitoring system can be integrated with any other devices as a powerful backup platform but also can be used for distributed deployment as an independent controller to satisfy the needs

System Diagram



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