dPAC

Distributed Programmable Automation Controller

Trends in Automation Controllers

A programmable automation controller (PAC) combines the features and capabilities of a PC-based control system as well as the reliability of a programmable logic controller (PLC). To achieve the high level of development needs for machine and industrial control systems, PAC's combine the ruggedness of a PLC with PC functionality under an open and flexible software architecture. This trend is quite obvious for industrial applications which increasingly require:

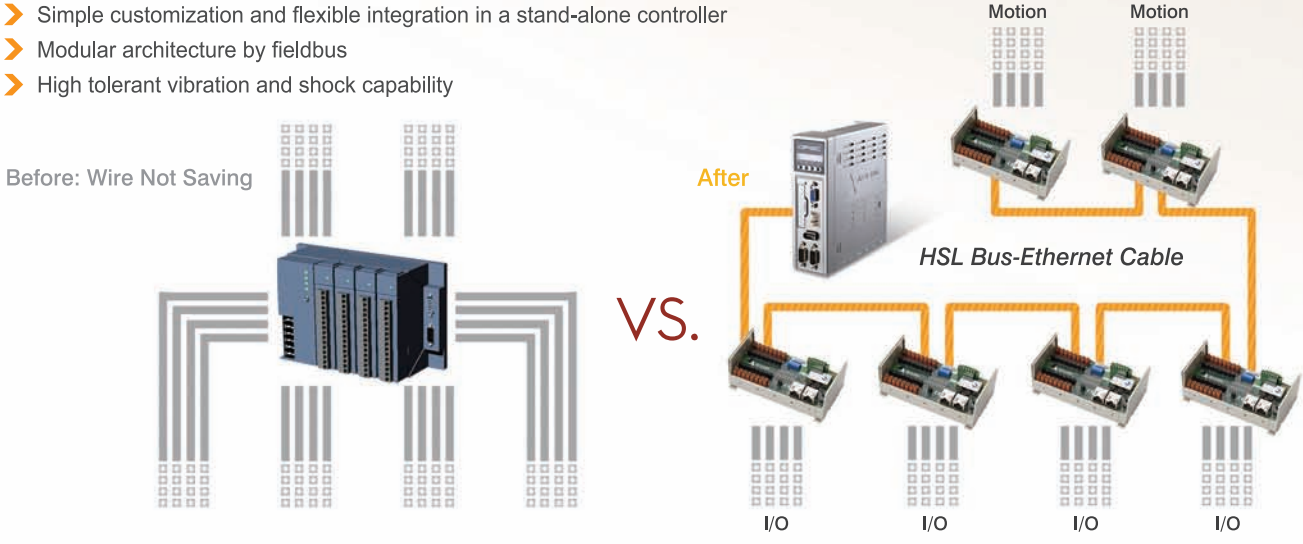
- A cost-effective platform to integrate vision, except logic, motion control, and process control.
- A better platform can offer more than PLC's - cost-effective interfaces, like Ethernet connectivity, and cost-effective storage, like CompactFlash.
- An embedded, compact and rugged controller.
- A functional control blocks can be distributed via a fieldbus, unlike typical industrial PC configurations. With either the PCI slots in a PC or the functional slots in a PLC, the wiring setup is very cumbersome and costly. Using distribution, the functional blocks can be placed near the sensors, actuators, or servo motors. Ethernet cable can then be used for wiring, thus greatly reducing costs.

Distributed Programmable Automation Controller

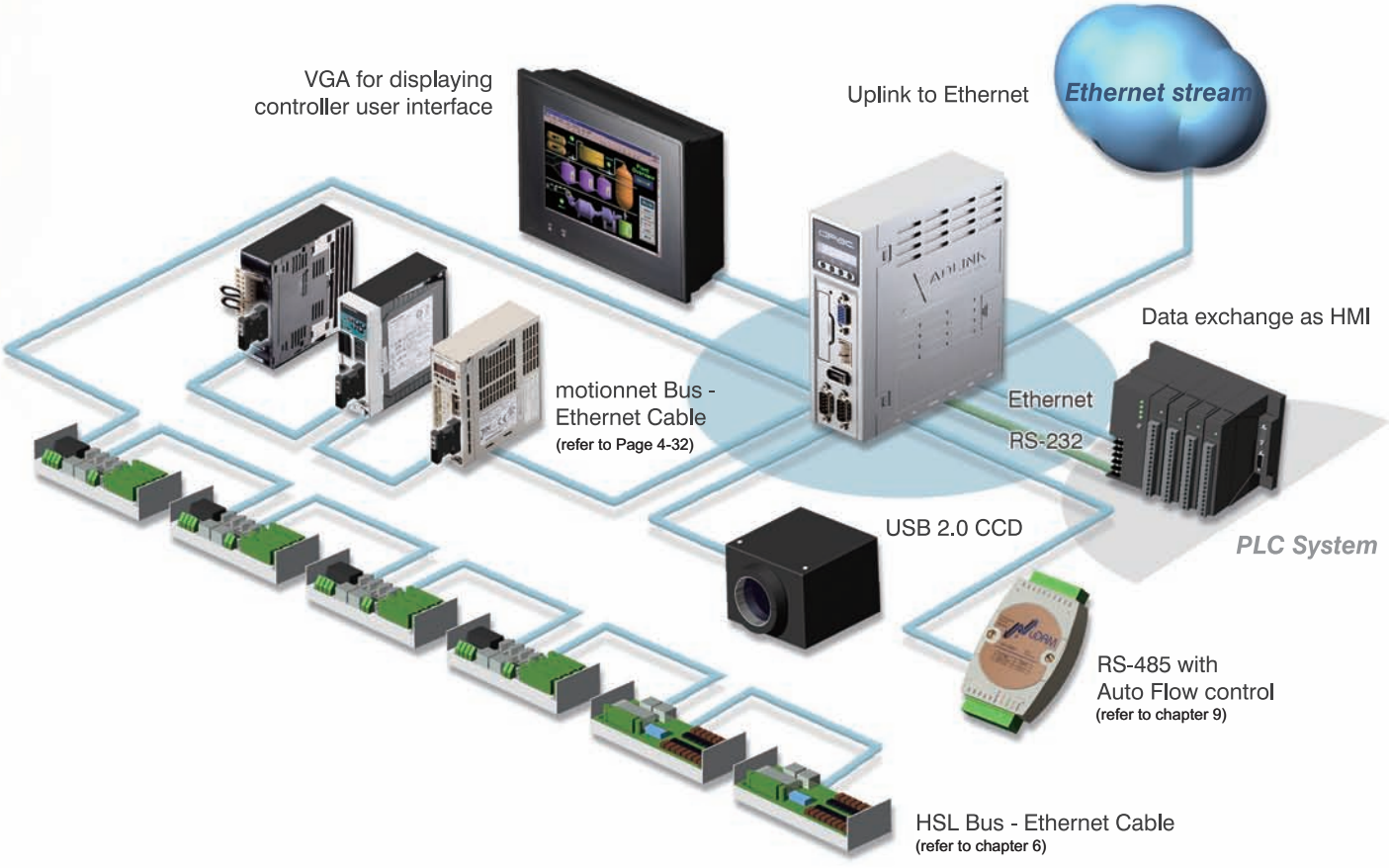
ADLINK's solution for this trend is the introduction of the PAC in distribution form, or **DPAC (Distributed Programming Automation Controller).**

DPAC's provide a solution to the requirements mentioned above and offer the following advantages:

- Multi-domain functionality, including logic, motion control, vision inspection, process control and HMI
- Standard programming language for developing platform
- Simple customization and flexible integration in a stand-alone controller
- Modular architecture by fieldbus
- High tolerant vibration and shock capability



ADLINK DPAC's in Industrial Automation



ADLINK DPAC Features

Compact size: 160 x 160 x 55mm ▶

Compact & Fanless Design

The DPAC is positioned as a small (160 x 160 x 55 mm) distributed PC-based controller platform. The DPAC system incorporates a fanless design to increase MTBF and reliability, and includes thermal heat sink dissipation calculation and simulation to ensure operational stability.

High Tolerant Vibration and Shock Capability

Designed for industrial automation applications, harsh vibration and shock tests were performed on DPAC during its design phase to ensure its durability. While in operating, the DPAC can tolerate up to 100 G shock and up to 5 G vibration.

Programmable digital display and button to meet flexible design ▼

Programmable Button and Digital Display as Smart UI

One key feature of a DPAC system is the digital display and programmable button design. Compact PC-based computers can be easily found, but finding a PC-based controller platform that is both compact and reliable is another story. ADLINK's DPAC can meet application requirement and build up the application solution more so than PC-based computers. Information can be programmed to appear on an end–user's system using the digital display and controller tasks/jobs can be assigned with selectable buttons.

Function Extension by Distribution

Functional control blocks can be distributed via fieldbus or serial communication ports to complying with the DPAC configuration, which is quite different than typical industrial PC configurations with expensive wiring.

Flexible Integrated Development Platform

Such as digital inputs/outputs, AD/DA device, relay switch control, thermocouple inputs, and motion controller can be connected together and communicated by fieldbus or serial communication ports. If fast-speed & time-deterministic response is needed, the ADLINK DPAC provides the HSL filedbus to achieve such performance requirements. Distributed configuration means that all the functional blocks can be installed near the sensors, actuators, or servo motors.

Standard Programming Environment

ADLINK DPAC supports IEC 61131-3 languages which are LD (Ladder Diagram), FBD (Function Block Diagram), ST (Structural Text), IL (Instructional Language) and SFC (Sequential Flow Chart). By using this standard languages, engineers can easily build up the software program based on PC-based controller platform.

External GPIO as Trigger Signal

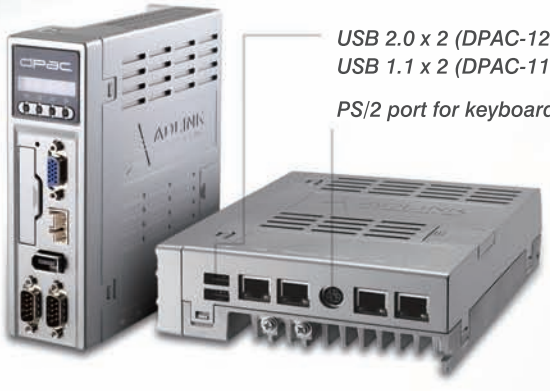
The DPAC is equipped with external 4-CH GPIO. GPIO signals can be used as trigger to synchronously control other devices.

160mm

Vertical and wallmount designs

Vibration tolerance
up to 5 G (operational)

Shock tolerance
up to 100G (operational)



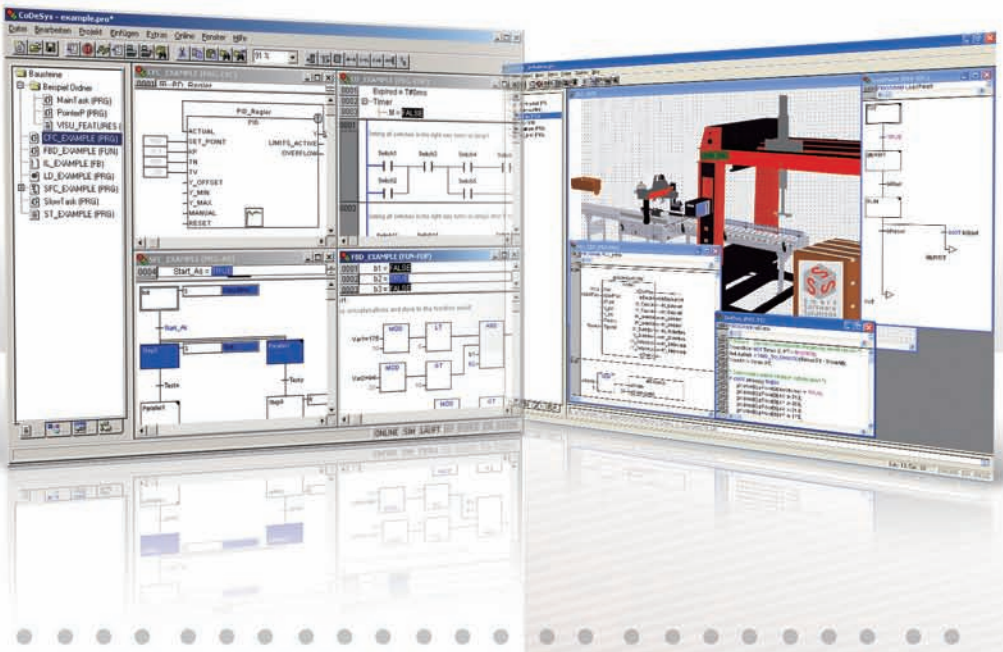
USB 2.0 x 2 (DPAC-1200 and DPAC-3200)
USB 1.1 x 2 (DPAC-1100 and DPAC-3100)

PS/2 port for keyboard/mouse

Comprehensive Programming Language Support

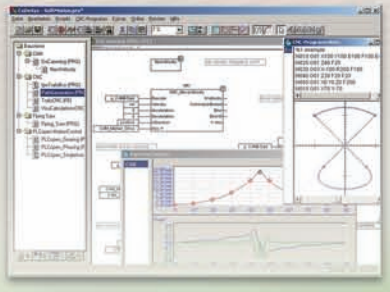
CoDeSys is one of the most common IEC 61131-3 programming systems for PLCs and industrial controllers. Far more than 200 manufacturers of hardware components for the automation industry rely on it.

CoDeSys



CoDeSys supports all five languages of the IEC 61131-3. In addition, CoDeSys offers a sixth editor which is a variation of the Function Block Diagram called Continuous Function Chart:

- Instruction List (IL)
- Function Block Diagram (FBD)
- Ladder Diagram (LD)
- Structured Text (ST)
- Sequential Function Chart (SFC)
- Continuous Function Chart (CFC)



- *Anti Blue-Screen runtime*
- *All PLC Languages in IEC 61131-3 supported*
- *World-wide used kernel*
- *Integrated OPC Server*
- *Integrated IEC 61131-3 Visualization*

DPAC-1000 Series

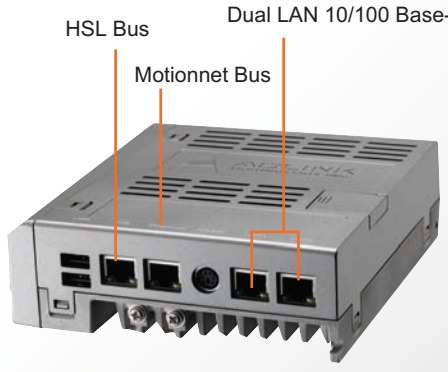
Distributed Programmable Automation Controller with Four COM Ports (AMD® Geode LX800 / Ultra LowVoltage Intel® Celeron® M 1.0GHz)

Specifications

Model Name		DPAC-1100-1N	DPAC-1100-11	DPAC-1200-1N	DPAC-1200-11
System	CPU	AMD Geode LX800		Ultra Low Voltage Intel® Celeron® M 1.0GHz	
Hardware	Cache	128KB L2 Cache		512KB on-die Advanced Transfer Cache	
	System Memory	512MB DDR SDRAM			
	Battery Backup SRAM	512Kbit, Battery model: CR2032 (Recommendation)			
	BIOS	Award BIOS, support PnP, Customized by ADLINK			
	Programmable Button	Four (Specifc function can be programmed by users)			
	Digital Display	5 Digits, can be programmed by users			
	Internal Storage	Compact Flash, 2GB			
	External Storage	CompactFlash Type I, optional for users			
	VGA	CRT: 1920 x 1440 resolution at 32-bit @85Hz or 1600 x 1200 resolution 32-bit @100Hz LCD: 1280 x 1024 resolution at 24-bit color		CRT: 1600 x 1200@32bpp LCD: 1280 x 1024 resolution at 24-bit color	
	Watchdog Timer	Time-out timing selectable 1-255 seconds			
	Keyboard/ Mouse	Combined PS/2 type min-DIN connectors			
Communication	USB	2 x USB, Rev 1.1 compliant 2 x USB, Rev 2.0 compliant			
	Ethernet	Dual LAN, 10/100 Base-T RJ-45 ports			
	COM Port	COM1 supports RS-232; COM2 supports RS-232/422/485 with DB-9 connectors (RS-485 with auto data flow control) COM3 and COM4 supports RS-232/422/485 with RJ-45 connectors (RS-485 with auto data flow control)			
Environment	Humidity	95% @ 60˚C		95% @ 50˚C	
	Operating Temperature	0-60˚C @ 5-85% RH		0-50˚C @ 5-85% RH	
	Vibration Protection (In Operation Test)	IEC 68 2-64 (Random 3 axes, 30min/axis)CompactFlsh: 5Grms@5-500Hz			
	Shock Protection (In Operation Test)	IEC 68 2-27CompactFlsh: 100G@ wall mount, half sine, 11ms			
General	Certification	CE/FCC Class A, UL, CCC			
	Mounting	Wall mounting, vertical placement			
	Power Input	10VDC to 30VDC with 3-pin connector			
	Power Consumption	30W (Typical), Isolation			
	Dimensions	160 mm (H) x 160 mm (D) x 55mm (W) (Vertical Placement)			
	Embedded OS	Windows XP embedded (English version)			
	CoDeSys (SoftPLC) Run Time	No	Yes	No	Yes

DPAC-3000 Series

Distributed Programmable Automation Controller with HSL and Motionnet Bus (AMD® Geode LX800 / Ultra LowVoltage Intel® Celeron® M 1.0GHz)



Specifications

Model Name		DPAC-3100-1N	DPAC-3100-11	DPAC-3200-1N	DPAC-3200-11
System	CPU	AMD Geode LX800		Ultra Low Voltage Intel® Celeron® M 1.0GHz	
Hardware	Cache	128KB L2 Cache		512KB on-die Advanced Transfer Cache	
	System Memory	512MB DDR SDRAM			
	Battery Backup SRAM	512Kbit, Battery model: CR2032 (Recommendation)			
	BIOS	Award BIOS, support PnP, Customized by ADLINK			
	Programmable Button	Four (Specifc function can be programmed by users)			
	Digital Display	5 Digits, can be programmed by users			
	Internal Storage	Compact Flash, 2GB			
	External Storage	CompactFlash Type I, optional for users			
	VGA	CRT: 1920 x 1440 resolution at 32-bit @85Hz or 1600 x 1200 resolution 32-bit @100Hz		CRT: 1600 x 1200 x 32bppL LCD: 1280 x 1024 solution at 24-bit color	
	Watchdog Timer	Time-out timing selectable 1-255 seconds			
	HSL (StepTechnica)	One port support 12M/6M/3M bps full duplex			
	Motionnet (NPM)	One port support 20M bps (Maximum)			
	Keyboard/ Mouse	Combined PS/2 type min-DIN connectors			
Communication	USB	2 x USB, Rev 1.1 compliant		2 x USB, Rev 2.0 compliant	
	Ethernet	Dual LAN, 10/100 Base-T RJ-45 ports			
	COM Port	COM1 supports RS-232; COM2 supports RS-232/422/485 with DB-9 connectors; RS-485 with auto data flow control			
Environment	Humidity	95% @ 60˚C		95% @ 50˚C	
	Operating Temperature	0-60˚C @ 5-85% RH		0-50˚C @ 5-85% RH	
	Vibration Protection (In Operation Test)	IEC 68 2-64 (Random 3 axes, 30min/axis) CompactFlsh : 5Grms@5-500Hz			
	Shock Protection (In Operation Test)	IEC 68 2-27 CompactFlsh : 100G@ wall mount, half sine, 11ms			
General	Certification	CE/FCC Class A, UL, CCC			
	Mounting	Wall mounting, vertical placement			
	Power Input	10VDC to 30VDC with 3-pin connector			
	Power Consumption	30W (Typical), Isolation			
	Dimensions	160 mm (H) x 160 mm (D) x 55mm (W) (Vertical Placement)			
	Embedded OS	Windows XP embedded (English version)			
	CoDeSys (SoftPLC) Run Time	No	Yes	No	Yes