PAC-4070

Industrial Linux-based Programmable Automation Controller w/ 4x 16-bit analog inputs, 4x 500mA high-drive digital outputs and 4x isolated digital inputs

- ✓ 4x 16-bit multiplexed differential analog inputs
- ✓ 4x 2500Vrms 500mA high-drive digital outputs
- ✓ 4x 2500Vrms Opto-isolated bipolar digital inputs
- ✓ 2x 10/100Mbps Ethernet ports
- ✓ Up to 4x RS-232 ports, 921.6Kbps max.
- ✓ 2x 2500Vrms isolated RS-485 ports, with automatic hardware flow control
- ✓ 2x USB 2.0 compatible host ports, 1x client port, supporting full speed mode(12Mbps)
- ✓ 1x micro-SD (secure digital) socket
- ✓ Built-in real time clock with backup battery
- ✓ Low power consumption, less than 6.0W
- ✓ 9~40VDC power input
- ✓ Small form factor (WxLxD): 65 x 130 x 102.5mm
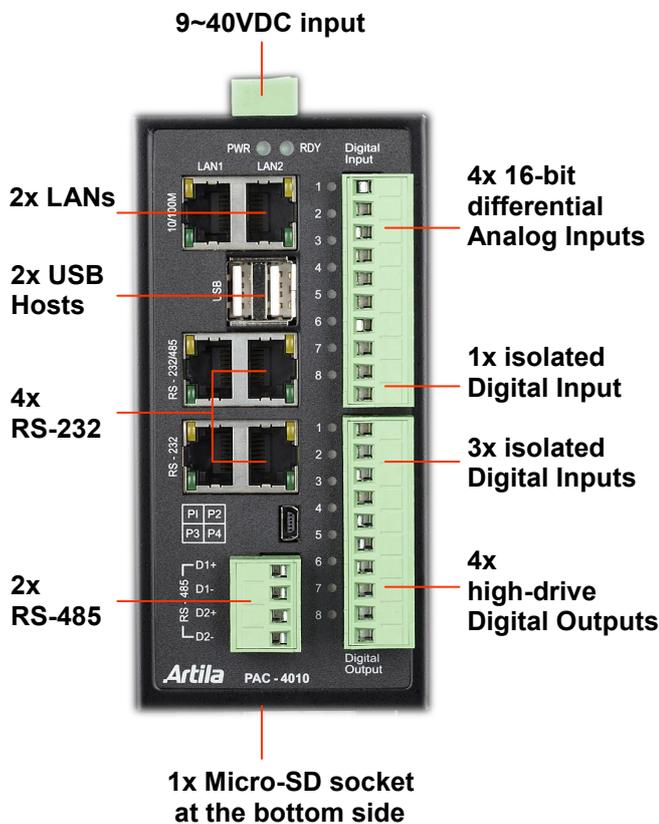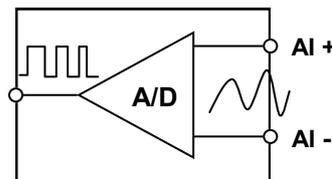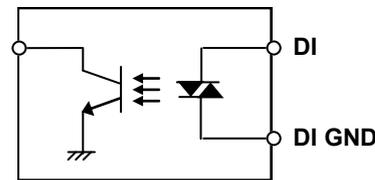- ✓ DIN-rail mountable

- ✓ ATMEL 400MHz AT91SAM9G20 CPU w/ MMU
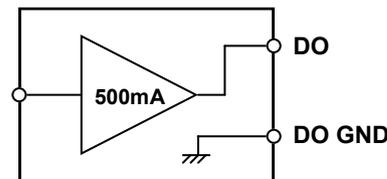- ✓ Linux kernel 2.6.29 with file system
- ✓ 64MB SDRAM, 128MB NAND Flash
- ✓ Free GNU C/C++ tool chain is included

PAC-4070 Front-site View

9~40VDC input

- 2x LANs
- 2x USB Hosts
- 4x RS-232
- 2x RS-485

- 4x 16-bit differential Analog Inputs
- 1x isolated Digital Input
- 3x isolated Digital Inputs
- 4x high-drive Digital Outputs

1x Micro-SD socket at the bottom side

Feature-rich Industial-grade Input and Output Controls

A/D AI + AI -
- ◆ Analog Device AD7712 A/D chip
- ◆ 16-bit resolution
- ◆ Up to 10 readings per second
- ◆ mV, V, 0-20mA

DI **DI GND**
- ◆ Opto-isolation 2500Vrms
- ◆ Response time: 20ms
- ◆ Supporting bipolar input

500mA **DO** **DO GND**
- ◆ Allegro UDN2981A source driver
- ◆ Source voltage: 5~50VDC
- ◆ Output current: up to 500mA total

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Hardware Specifications

CPU/Memory
CPU: ATMEL 400MHz AT91SAM9G20 w/MMU
SDRAM: 64MB
NAND Flash: 128MB
DataFlash®: 2MB, for system backup

Network Interface
Type: Ethernet, 10/100Mbps
No. of ports: two
Connector: RJ-45
Protection: 1.5KV magnetic isolation

TTY (Serial) Ports
Port 1: can be RS-232 or RS-485, software selectable
  RS-232: TX, RX, RTS, CTS, GND
  RS-485: D+, D- (must wiring to terminal block)

Port 2: can be RS-232 or RS-485, software selectable
  RS-232: TX, RX, RTS, CTS, DSR, DTR, DCD, GND
  RS-485: D+, D- (must wiring to termianl block)

Port 3,4: RS-232 only
  RS-232: TX, RX, RTS, CTS, GND

Common UART Parameters
Baud rate: up to 921.6Kbps
Parity: None, Even, Odd, Mark, Space
Data bits: 5, 6, 7, 8
Stop bit: 1, 1.5, 2
Flow control: RTS/CTS, XON/XOFF, None

USB 2.0 Full Speed Interface
Speed: supports 12Mbps full-speed mode
USB Host: two, USB 2.0 compliant
USB Client: one, USB 2.0 compliant

SD Socket (Secure Digital Card)
Type: micro SD
No. of socket: one, at the bottom side
Storage capacity: 32GB max.
Compatibility: SD memory card specification 1.0

Real Time Clock
Chip: ST M41T81
Backup Battery: Lithium, 48mAh, on-board

Watch Dog Timer
CPU built-in watchdog timer, used by Linux kernel

Debug Port
Type: RS-232 serial console, inside the box
Signals: Tx, Rx, GND
Cable: CB-BHDB9-020 (need to order separately)

High-precision Analog Input
A/D converter: AD7712 (Analog Device)
No. of channels: four, multiplexed, differential
Sampling speed: 10 readings per second
Input range (selected by software):
  - 0~150mV, 0~500mV, +/- 150mV, +/- 500mV
  - 0~1V, 0~5V, 0~10V, +/-1V, +/-5V, +/-10V
  - 0~20mA
Resolution: 16-bit
Accuracy: +/- 1%
Voltage input mode: differential, 100db CMR
Voltage input impedance: 20M Ohms
Current input impedance: 120 Ohms
Isolation protection: 1500Vdc
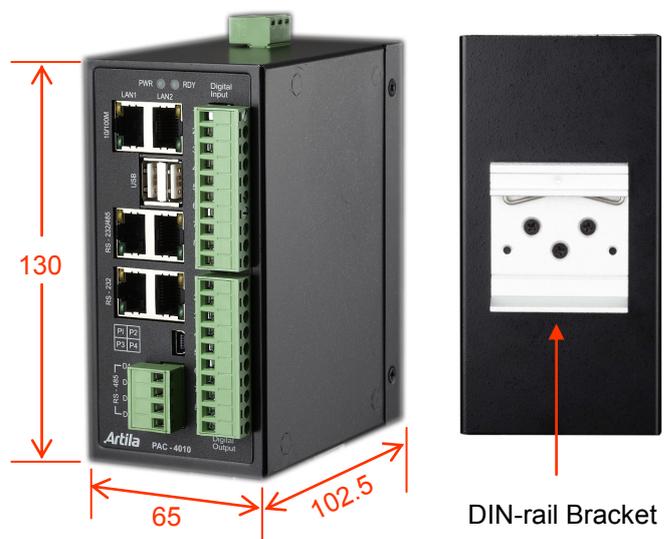
Isolated Digital Input
No. of channels: four, supporting bipolar input
Opto-isolation: 2500Vrms
Logical high: 5 ~ 24VDC
Logical low: 0 ~ 1.5VDC
Response time: 20us
Input resistance: 1.2k ohms@0.5W

High-drive Digital Output
No. of channels: four
Source driver: UDN2981A (Allegro)
Source voltage (VDD): 5~50VDC
Output current: 500mA max.
Isolation: 2500Vrms

Generals
Power input range: 9 to 40VDC
Power consumption: 500mA@12VDC, 6 Watts max.
Operation temperature: 0~70°C (32~158°F)
EMC regulation: CE Class A, FCC Class A
Dimension (WxHxD): 65 x 130 x 102.5mm
Mounting: DIN-rail mountable

DIN-rail Bracket

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Software Specifications

General
OS: Linux, Kernel 2.6.29
Boot Loader: U-Boot

File Systems
UBI, JFFS2, ETX2/ETX3, VFAT/FAT, NFS, NTFS

Pre-installed Utilities
bash, busybox, alsa, madplayer, psplash, sysvinit, wget, ipkg, procps (for webmin), psmics, lighttpd, vsftpd, iptable, ppp, openssh, wireless_tools, util-linux-mount/umount, usbutils, phyton, jamvm, php, mysql, perl, sqlite3, snmp, Artila utility and more

Daemons Started by Default
- ssh (secured shell) with sftp
- syslog/klogd (system and kernel log)
- telnet server (disable root with/etc/security)
- ftp server (vsftp)
- Web server (lighttpd)
- amgrd (Artila broadcast search daemon)

Tool Chain for Linux
GCC: C/C++ PC cross compiler
GLIBC: POSIX Library

IPKG Package Management
Supports ipkg to manage the package installation, upgrade and removal.

Webmin System Administration
Supports webmin for web-based system administration

Standard Device Drivers
LCD, Real Time Clock, SD/MMC, UART, Ethernet, GPIO, Buzzer

Pre-load USB Device Drivers (customizable)
- Flash thumb disk
- IEEE-802.11b/g WiFi adapter
- 10/100Mbps Fast Ethernet adapter (RT8150)
- RS-232 adapter (prolific PL-2303)
- WebCAM
- Keyboard/Mouse
- 3G modem
- ISDN modem (CDC/ACM compatible)
- Bluetooth

Platform Features

Web + PHP5	Database	SNMP	IPKG	JAVA
lighttpd Web server supporting SSL V1/V2 CGI, FastCGI PHP 5 Python 2.6	◆ MySQL 5 server/client ◆ SQLite 3	Supports SNMP V1/V2/V3	◆ Supports ipkg for package management ◆ Supports Webmin	Supports Jamvm 1.5 and Classpath

USB Peripherals

WiFi	3G Modem	Bluetooth	WebCAM
Supports USB WiFI dongles	Supports USB 3G dongles	Supports USB BT dongles	Supports USB WebCAM
◆ rt73usb,rt2500usb ◆ rtl8178, zd1211	◆ Hwawei E169 ◆ Hwqwei E169u ◆ Alcatel x200	◆ BCM2033 ◆ BPA100/105	◆ Generic type (uvcvideo)

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