EBox-AIO-002 Compact Multi-I/O control Computer

- ☑ **ATMEL400Mhz ARM9 32-bit RISC low power consumption core**
- ☑ **Built-in embedded Linux Operating System**
- ☑ **2-Channel standard TCP/IP Network communication interface**
- ☑ **3-Channel RS-232 / RS-485 remote equipment data transmission communication**
- ☑ **1-Channel relay output control (Relay DO)**
- ☑ **2-Channel optically isolated digital output control interface (DO)**
- ☑ **3-Channel optically isolated digital input control interface(DI)**
- ☑ **1-Channel Analog input control interface (AI)**
- ☑ **USB / SD expandable interface**
- ☑ **Built-in Web Server/ MySQL Database**
- ☑ **Linux and Windows specific Software Development Kit**

Product features

☒ ARM9 RISC low power consumption architecture, high stability

EBox-AIO-002 adopts ATMEL AT9G20 400MHz ARM9 RISC processor, with 64MB SDRAM and 128 MB Flash, as system core. With built-in 2.6.29embedded Linux operating system, it is suitable for low power consumption and high communication performance requirements for industrial automation applications.

☒ UBI file system and Failover mechanism

Aiming at EBox-AIO-002NAND Flash, it is equipped with UBI file system to access files efficiently and has more secure and reliable data protection function than JFFS2.

The extra 2MB data protection function allows reboot from this block when NANDFlash system fails and the repair of NAND Flash data block by users. Such a Failover mechanism allows EBox-AIO-002 to use minimal space for system repair and to improve system operation efficiency.

☒ Standard system development environment

Through open GNU software development tools, built-in C/C++Compiler and Library allow developers to conduct system development and obtain related technical support at no cost.

☒ Suitable for database and webpage monitoring applications

EBox-AIO-002 has built-in MySQL Database for users to set up, record and exchange status message via database framework, It can also work with common PHP/Java Script to easily accomplish remote monitoring system development.

☒ Common analog acquisition and control interface (Analog Input)

EBox-AIO-002 has 1-channel common 4~20mA or 0~10VDCanalog input(AI) interface, suitable for data acquisition for various kinds of temperature or pressure sensors. With AI function, EBox-AIO-002 can easily meet the application requirements for environmental monitoring or building automation.

☒ Complete digital signal control interface(Digital I/O)

EBox-AIO-002has 3 kinds of digital control signal interface. Optically isolated digital control signal can connect to various kinds of switches, press buttons and sensors for real time monitoring; besides general switch control, relay output control can have direct switch control over equipment or instrumentation. Digital output for Open Collector can drive various kinds of relay to satisfy different switch controls.
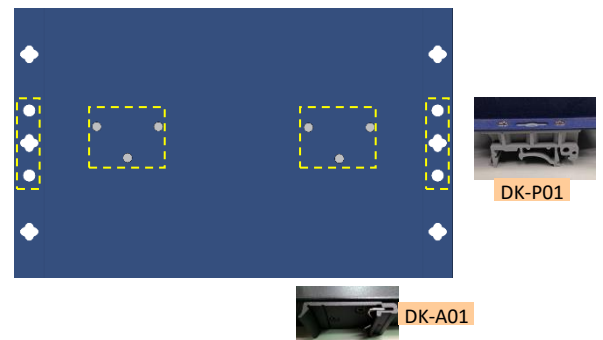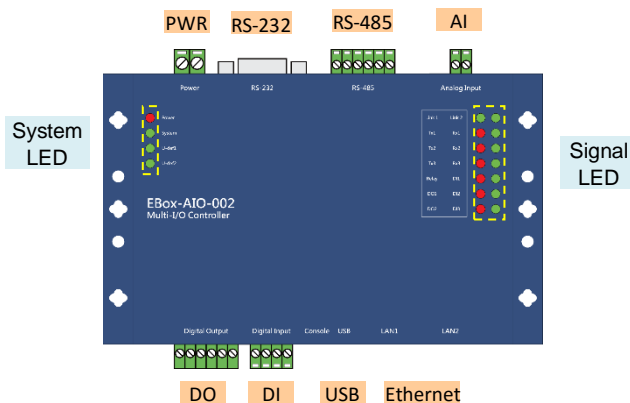
☒ Simple and easy human machine interface

EBox-AIO-002 has 1 set of 2-point DIP Switch and 2 program controlled LEDs, allowing developers to easily set system operating mode (default/running) and display system operating status(normal/error).

☒ Multifunctional communication function

EBox-AIO-002 has 2 sets of Ethernet interfaces and 802.11 Wi-Fi or 3Gwireless network interface expandable via USB interface to make network communication seamless.

EBox-AIO-002 has 3 sets of 921.6Kbps high-speed serial ports, with RS-232for complete signals or RS-485 interface with ability to connect 400 multi-drop modes, allowing EBox-AIO-002 to easily connect all kinds of monitoring equipment.

Exterior schematic diagram

Embedded Automation & Cloud Application

Product specifications

Hardware

System Core
▷ CPU：ATMEL AT9G20 32-bit ARM9 RISC @400MHz
▷ Memory：64MB SDRAM, 128MB NAND FLASH

Network Interface
▷ Quantity：2 sets
▷ Type：10/100BaseT Ethernet
▷ Connector：RJ45

Analog Input
▷ Quantity：1 set
▷ Signal type：0~20mA or 0-10VDC(by switch)
▷ Resolution：12-bit
▷ Frequency：10Hz
▷ Connector：3.5mm terminal block

Relay Output
▷ Quantity：1set
▷ Signal type：SPDT relay, N.O./ N.C./ COM
▷ Input voltage：120VAC@2A / 24VDC@2A
▷ Protection：2000Vrms optically isolated protection
▷ Connector：3.5mmpluggable terminal block

Digital Output
▷ Quantity：2 sets
▷ Signal type：Open Collector
▷ Drive ability：200mA
▷ Protection：2000Vrms optically isolated protection
▷ Connector：3.5mm pluggable terminal block

Digital Input
▷ Quantity：3 sets
▷ Input voltage：5~24VDC
▷ Signal type：sink mode
▷ Protection：2000Vrms optically isolated protection
▷ Connector：3.5mmpluggable terminal block

RS-232 Serial Port Interface
▷ Quantity：1 set
▷ Signal：TxD, RxD, RTS, CTS, DTR, DSR, DCD,GND
▷ Protection：15KV ESD static,400W surge protection
▷ Connector：DB9 male

RS-485 Serial Port Interface
▷ Quantity：2 sets
▷ RS-485 signal：Data+, Data-, GND
  (support Auto Data Direction Control)
▷ Multi-Drop Nodes：400
▷ Built-in Terminal Resistor：120Ω, set up by Jumper
▷ Protection：2KV isolation protection,2KV ESD static
  protection, 400Wsurge protection
▷ Connector：3.5mm pluggable terminal block

Serial Port Communication Parameters
▷ Baud Rate：300 ~ 921,600 bps
▷ Parity：None, Even, Odd, Mark, Space
▷ Data Bits：5, 6, 7, 8
▷ Stop Bit：1, 1.5, 2 bits
▷ Flow Control(RS-232 only)：RTS/CTS, XON/XOFF, None

USB Interface
▷ Quantity/Type：1 set/ USB2.0 compatible
▷ Connector：Single (Type A)

SD Expansion Interface
▷ Quantity：1set (need to open the case)
▷ Connector：Micro SD slot

Console Serial Port
▷ Quantity/Signal：1 set/ RS-232 (TxD, RxD, GND)
▷ Terminal type：115,200 bps, VT-100
▷ Connector：2.54mm PIN block

Material
▷ Material/Dimensions：galvanized steel sheet /
  145 x 93 x 35mm

Power
▷ Working voltage：DC 9~24VDC
▷ Power Connector：5.00mmterminal block
▷ Power Consumption：<24W (not include USB device)

Others
▷ Real Time Clock : 1 set
▷ Buzzer : 1 set
▷ LED indicator：power, network, serial port, control signal,
  user defined (DO * 2 more)
▷ DIP Switch : 1 set 2 points (DI * 2 more)
▷ Applicable temperature：0~50℃
▷ Applicable humidity：20%~80% RHG
▷ Certification：CE, FCC

Software

Core
▷ OS: Linux kernel 2.6.29
▷ Boot Loader: U-Boot 1.1.2
▷ File Systems: JFFS2, ETX2/ETX3, VFAT/FAT, NFS

Pre-installed Utilities
▷ bash, busybox, sysvinit, wget, ipkg, procps, psmics,
  lighttpd, vsftpd, iptable, ppp, ssh, wireless_tools, usbutils
  util-linux-mount/umount

Protocol stack
▷ IPv4, ICMP, ARP, DHCP, NTP, TCP, UDP, FTP, Telnet,
  HTTP, PPPoE, CHAP, PAP, SMTP, SSL, SSH

Daemons
▷ ssh, syslog/klogd, telnet server, ftp server, MySQL,PHP,
  Web server(lighttpd)

Application Development Tool (Tool Chain)
▷ Linux/Windows operating system
▷ GCC: C/C++ PC cross compiler for Linux
▷ GLIBC: POSIX Library
▷ Examples
▷ Integrated Developing Environment (IDE) for Windows

USB expansion interface support driver
▷ Flash thumb disk
▷ IEEE-802.11b/g/n WiFi adapter
▷ 3G adapter
▷ Web CAM

Purchase information **EBox-AIO-002** Compact Multi-signal control Computer
Optional Accessories **CB-AIOCON-10** RS-232 Console Cable - 10 CM
CD12V-MW 100~240V AC to 12VDC Power Adapter (US Type)