Embedded Automation & Cloud Application

EBox-AIO-005 Multi-I/O IoT-Application Controller

ver. 1.2

- ARM® Cortex®-A7 64-bit multi-core RISC low power consumption
- 9~24VDC Working Power Input
- 1-ch 100Mbps Ethernet Communication Interface
- 4-ch RS-485 serial equipment data transmission communication
- RS-485 2KV Isolation protection
- 10 Digital Input/ Output Control Points (GPIO)
- With Simple Human Control Interface
- Expandable 4G / Wi-Fi / NB-IoT function
- Embedded Linux Operating System

Product Features

ARM® Cortex®-A7 RISC low power consumption architecture, high stability

EBox-AIO-005 adopts 1.2-GHz ARM Cortex®-A7 64-Bit 4-core RISC Processor, with 512MB DDR3 SDRAM、8GB eMMC as system core，With built-in 4.14.x embedded Linux operating system，it is suitable for low power consumption and high communication performance requirements for industrial automation applications。

Multifunctional communication

EBox-AIO-005 has 1 set of Ethernet interface and 802.11 Wi-Fi or 4G wireless network interface expandable via built-in mini-PCIe interface to make network communication seamless。

Fully protected RS-485 communication interface

EBox-AIO-005 has 4 sets of 115.2Kbps high-speed RS-485 serial port interface with ability to connect 128 multi-drop nodes, allowing EBox-AIO-005 to easily connect all kinds of monitoring equipment and meters。

EBox-AIO-005's RS-485 communication interface, with 2KV signal isolation protection and 400W surge protection, which is suitable for long-distance communication needs.

Complete digital signal control interface(Digital I/O)

EBox-AIO-005 has 10-point GPIO digital control signal interface which could be set as Digital Input or Digital Output through the program to be used with a variety of I / O adapter board, easy to reach the proximal control applications。

Simple and easy human machine interface

EBox-AIO-005 includes a DIP Switch, Tack Button etc. input determining function, and simple sound and light effects such as LED and Beeper that can be controlled by process, allowing developers to set system operation mode and display system operation in the simplest way.

Suitable for database and webpage monitoring applications

EBox-AIO-005 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。

Suitable for various High-level programming language

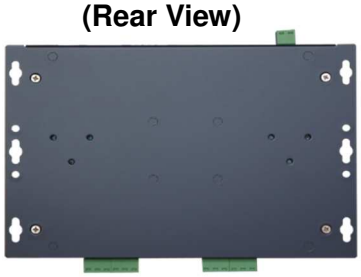
With built-in Linux 4.14.x embedded Linux operating system，EBox-AIO-005 supports the most recent popular High-level programming language, such as Python，Java，Scratch，Node J…etc.， allowing developers to set up or porting applications in EBox-AIO-005 rapidly。

It also supports traditional C/C++ programs for those applications need to process lower level and higher speed I/O action or response。

Exterior schematic diagram

(Top View)

(Rear View)



(DK-P01)

(DK-A01)

(Lateral View)

30x30 mm DC-5V FAN

Product specifications

Hardware

Core

- CPU：Allwinner H3 1.2GHz (Cortex®-A7)
- Memory：512MB DDR3 SDRAM、8GMB eMMC Flash

Network Interface

- Quantity：1 Set
- Type：10/100BaseT Ethernet
- Connector：RJ45

RS-485 Serial interface

- Quantity：4
- RS-485 Signal：Data+, Data-, GND
- Multi-Drop Nodes : 128 (1/4 Load)
- Built-in Terminal Resistor : 120/600Ω，By DIP Switch
- Pull High/Low Resistor : 1K/10KΩ，By DIP Switch
- Protection：2KV isolation protection, 2KV ESD static protection, 400W Surge protection
- Connector：5.00mm 3-pin pluggable Terminal block x 4

Serial Port communication parameters

- Baud Rate：300 ~115,200 bps
- Parity：None, Even, Odd, Mark, Space
- Data Bits：5, 6, 7, 8
- Stop Bit：1, 1.5, 2 bits

4G/Wireless network expansion interface

- Quantity：1 (need to open the case)
- Connector：mini-PCIe socket x1, SIM Card x1
- Function：4G、Wi-Fi Network communication module

USB

- Quantity：1
- Type：USB 2.0
- Connector：USB Host Type A x 1

Debug Console interface (need to open the case)

- Quantity：1
- Signal : UART (TxD, RxD, GND)
- Connector：3-pin 2.54 mm contact

Digital Control (GPIO)

- Points：17
- Signal Type：3.3V CMOS
- 2x10 2.54mm simple box header x 10 GPIO
- DIP Switch x 2 GPIO
- Tack Button x 1 GPIO
- Beeper x 1 GPIO
- LED x 3 GPIO

SD expansion interface

- Quantity：1 (need to open the case)
- Connector：Micro SD slot

Human Interface

- LED indicator：power, network, serial port, user defined
- Buzzer：1

Mechanism

- Size：192 x 131 x 35 mm (terminal block excl.)
- Material：galvanized steel sheet

Power

- Working Voltage：DC 9-24VDC
- Power Connector：5.00mm pluggable terminal block
- Power Consumption：< 10W (not include USB device)
- DC Output for FAN：5V (0.1A max.) 2.54 mm 3-pin contact

Others

- Real Time Clock (RTC) : 1
- Real Time Clock Battery Holder : CR1220
- Applicable temperature：-20~70℃
- Applicable humidity：20%~80% RHG
- Certification : CE, FCC

Software

Core

- OS: Linux kernel 4.14.x

Pre-Installed Services

- SSH terminal server, ftp server, python, gcc, g++, apt-get, lld-IP searched

Purchasing information

- **EBox-AIO-005** Multi-I/O IoT-Application Controller
  Content： EBOX-AIO-005 ， QIG x1

Optional Accessories

- **LLD-M13** 5-ch Isolated Digital Input (4-ch Dry +1-ch Wet)，4-ch C-Type Relay Output I/O Expanding Module
- **CD12V** 100~240V AC to 12VDC Power Adapter (US Type)
- **DK-A01** 3-fix points aluminum DIN-Rail Kit
- **DK-P01** Plastic DIN-Rail Kit

(LLD-M13)