EBox-RIO-E Series Ethernet I/O Modules

☑ **Compound I / O combination，Suitable for various monitoring applications**

☑ **10/100Mbp Ethernet interface**

☑ **Standard Modbus-TCP/Modbus-RTU communication protocol**

☑ **Relay digital output control(Relay DO)**

☑ **Open collector digital output control (Open Collector DO)**

☑ **Optically isolated digital input control interface (Isolated DI)**

☑ **Analog input control interface (AI)**

☑ **Analog output control interface (AO)**

☑ **24V DC/AC power supply model**

☑ **RS-485possess Modbus-RTU Client/Server Function**
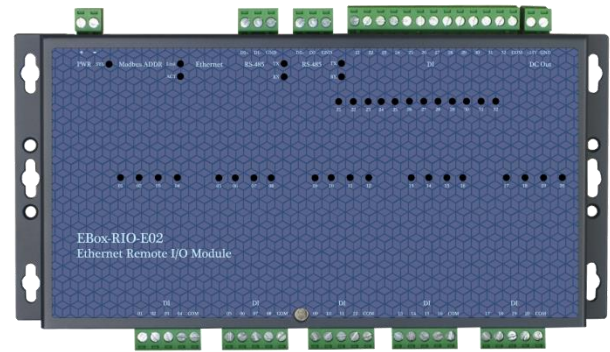
Product Introduction

EBox-RIO-E is a series of Ethernet I/O control modules，each EBox-RIO-E model is provided with 20 or 32 I/O points。EBox-RIO-E series provide different model number depending on various Digital Input / Output or Analog Input / Output configurations，so that allow users to find the most suitable product according to a variety of different application requirements。

EBox-RIO-E series play the best role as the information transmission equipment with the remote host or device by standard Modbus communication protocol，Modbus-TCP is mainly used in a standard 100Mbps network interface and Modbus-RTU in 2RS-485 communication ports，to meet the most needs of remote monitoring through TCP / IP and RS-485。

☒Diverse I/O Configurations

EBox-RIO-E Ethernet I/O Modules configure 32-20 different monitoring points according to different models，i.e. one EBox-RIO-E can also have the Digital Input，Digital Output，Analog Input、Analog Output etc. multiple monitoring points。

☒Standard Modbus Communication Interface

EBox-RIO-E Ethernet Interface with Modbus-TCP Protocol ， RS-485 Interface with Modbus-RTU Protocol。All digital control points could be monitored via standard coil and all analog signals could be conducted data access via register。

☒TCP/IP Ethernet plus dual RS-485 Interface

EBox-RIO-E in addition to a standard 10/100MbpsEthernet interface，is also equipped two RS-485 communication interface。That is EBox-RIO-E series can not only communicate with remote monitoring host via internet，but also communicate with proximal end host (such as small HMI panel) or old host via RS-485，let system configuration more flexible。

☒Diverse Power Configuration

EBox-RIO-E Ethernet I/O Modules working voltage could be 24VAC or 24VDC。

We have designed a set of 15V@200mA DC Output for EBox-RIO-E，Mainly used as various types of sensors and sensing power supply。

The combination characteristic of 15V DC Output and available with 24V AC input power designed in EBox-RIO-E could save part of the planning and configuration cost of power adapter for those sensors，such as central air conditioning monitoring applications。

☒RS-485 possess Modbus-RTU Master/Salve Function

The 2 RS-485 Modbus-RTU interface in EBox-RIO-E could be set to Slave or Master mode independently。When set to Slave mode，it is mainly used for connecting with monitoring host or HMI to receive host commands。When set to Master mode，it can be used to connect RS-485 of EBox-RIO Remote I/O Modules to expand more control points。Just let the system through one EBox-RIO-E can obtain complete control over the host software to simplify the complexity 。

EBox-RIO-EExterior Description
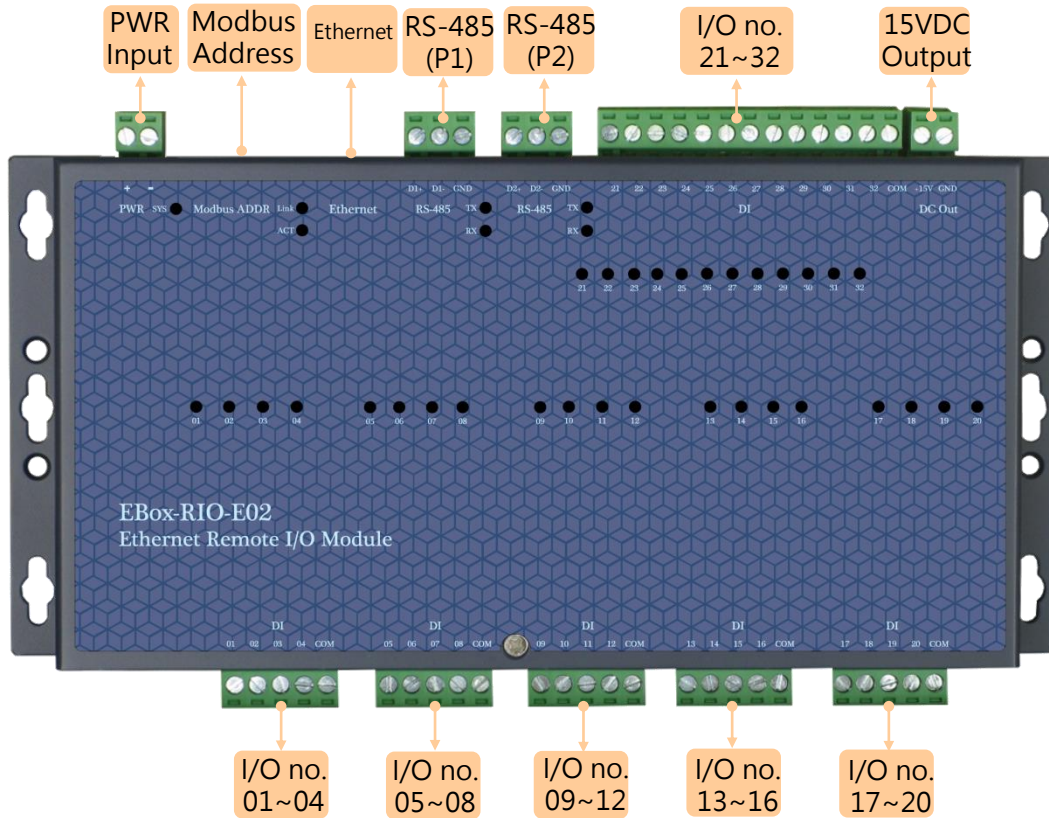
Product Basic Specifications

System Core

▷ MCU：ST STM32F207VE (Cortex™-M3 32-bit)

▷ Memory：512KB FLASH, 128KB SRAM, 8KB FRAM, 2048KB SPI FLASH

Network Interface

▷ Quantity：1

▷ Type：10/100BaseTEthernet

▷ Connector：RJ45

RS-485 Serial Port interface

▷ Quantity：2

▷ RS-485 Signal：Data+, Data-, GND

▷ Protection：15KV ESD and 400W Surge Protection, 2KVrms isolation protection (**Optional**)

▷ Connector：5.00mm 3-pin terminal block

▷ Baud Rate：4,800 ~ 115,200 bps

▷ Parity：None, Even, Odd

▷ Data Bits：8

▷ Stop Bit：1, 2 bits

▷ Terminal resistance：Built-in 120Ω(Need to open enclosure and insert Jumper)

I/O points

▷ No. of points：20 or 32(Depending on models)

▷ Function：DI / DO / AI / AO / Relay(per model no.)

▷ Connectors：I/O no. 1~20 – 5-pin 5.00mm Terminal Block, I/O no. 21~32 – 13-pin 5.00mm Terminal Block

Power Spec.

▷ Working Voltage：24V AC/DC

▷ Power connector：2-pin 5.00mm Terminal Block

▷ Protection：1A fuse (Open enclosure)

▷ Power Consumption：1~11W(15VDC Output excluded)(vary depending on different models)

▷ VDC Output：15V DC @ 200mA

▷ Power connector：2-pin 5.00mm Terminal Block

Others

▷ LED Indicator：Power · Serial Port

▷ DIP Switch：MODBUS Slave Address & RS-485 type

▷ Size：228 x109 x 33mm (incl. mounting ear)

▷ Applicable temperature：0~50℃

▷ Applicable humidity：20%~80% RHG

▷ Certification：CE/FCC

I/O points specifications

Analog Input Control

▷ Signal Type：4~20mA / 0-10VDC / NTC (Open enclosure to setup by jumper)

▷ Resolution：12-bit

▷ Protection：OP input buffer

Analog Output Control

▷ Signal Type：4~20mA or 0-10VDC(Open enclosure to setup by jumper)

▷ Resolution：12-bit

▷ Protection：OP output buffer

Relay Output Control

▷ Signal Type：SPDT Relay

Ch-A：N.O. / COM

Ch-B：N.O./ N.C. / COM

▷ Control Mode：Automatic / Manual Control(Open enclosure to setup by jumper)

▷ Contact capacity：1A@120VAC, 2A@24VDC

▷ Signal protection: 2000Vrms optically isolation protection

▷ LED indicator：DO status

Isolated Digital Input Control

▷ Mode：Wet Contact / sink mode

▷ Input voltage range：5~24VDC

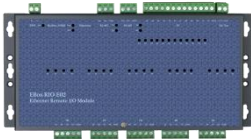▷ Input protection：2000Vrms optically isolation protection

▷ LED indicator：DI status

Isolated Digital Output Control

▷ Signal Type：Open Collector

▷ Load capacity：5~30 VDC @ 200mA

▷ Signal protection：2000Vrms optically isolation protection

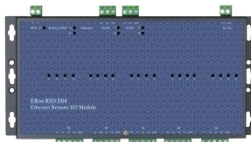▷ LED indicator：DO status
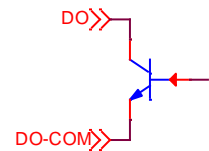
EBox-RIO-E Series Model No. Description:

EBox-RIO-E02

Ethernet Modbus Remote I/O with 2 RS-485, 32DI
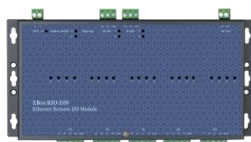
▷ 32DI : Coil 0x00~0x1F

EBox-RIO-E04

Ethernet Modbus Remote I/O with 2 RS-485, 20DI
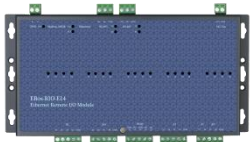
▷ 20DI : Coil 0x00~0x13

EBox-RIO-E09

Ethernet Modbus Remote I/O with 2 RS-485, 12DI+8DO

▷ 12DI : Coil 0x00~0x0b
▷ 8DO : Coil 0x0c~0x13

EBox-RIO-E14

Ethernet Modbus Remote I/O with 2 RS-485, 4DI+4DO+6AI+2AO+2Relay

▷ 4DI : Coil 0x00~0x03
▷ 4DO : Coil 0x04~0x07
▷ 2Relay : Coil 0x0a~0x0b
▷ 6AI : Register 0x0c~0x11
▷ 2AO : Register 0x12~0x13