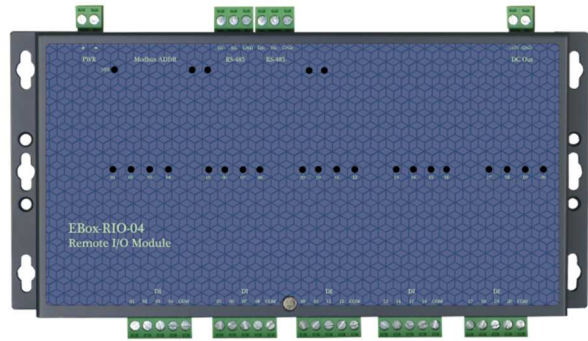


## EBox-RIO Series Remote I/O Modules

- ✓ Compound I / O combination · Suitable for various monitoring applications
- ✓ Dual RS-485 Communication Interface
- ✓ Standard Modbus-RTU 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



### ☒ Diverse I/O Configurations

EBox-RIO Remote I/O Modules configure 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 ·

### ☒ Diverse Power Configuration

EBox-RIO Remote I/O Modules working voltage could be 24V AC or 24V DC ·

We have designed a set of 15V@200mA DC Output for EBox-RIO · 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 could save part of the planning and configuration cost of power adapter for those sensors · such as central air conditioning monitoring applications ·

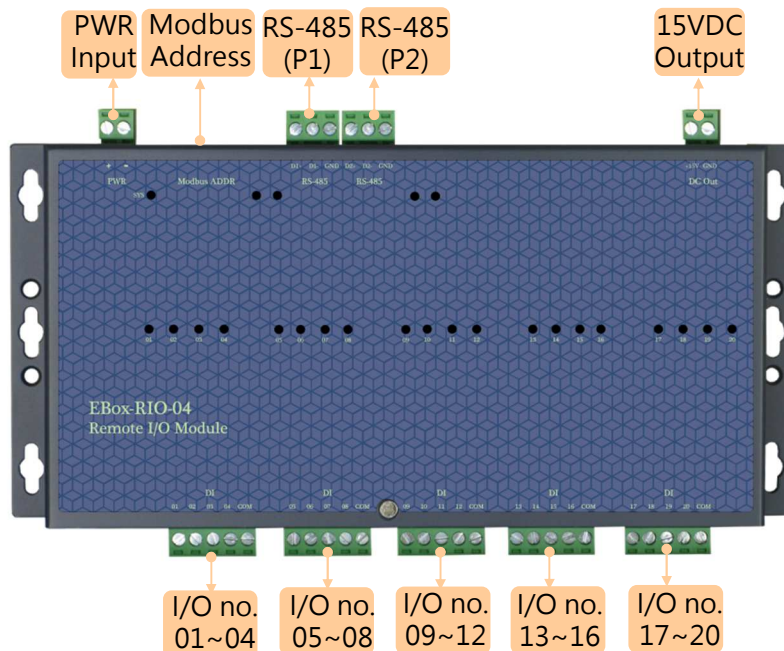
### ☒ Dual RS-485 Communication Interface

EBox-RIO is equipped two RS-485 communication interface, to let EBox-RIO series can not only communicate with remote monitoring host via one RS-485 port · but also communicate with proximal end host (such as small HMI panel) or old host via another RS-485 to make system configuration more flexible ·

### ☒ Expandable DDC Function (Direct Digital Control)

EBox-RIO series could expand DDC function for input reading · output control · math operations · comparison · time · HVAC · PID...ect. over 50 common functions · allowing the user to directly develop and debug DDC program with the online menu from the management tool · You can also define an 8-digit password to protect the on-site operating DDC program when you process the upload/download and debug program.

## EBox-RIO Exterior Description



### System Core

- ▶ MCU : ST STM8L15xR8
- ▶ Memory : 64KB FLASH, 4KB SRAM, 2KB EEPROM

### RS-485 Serial Port Interface

- ▶ Quantity : 2
- ▶ RS-485 Signal : Data+, Data-, GND
- ▶ Protection : 15KV ESD and 400W Surge Protection, 2KVrms isolation protection(RS-485 P1 only, 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
- ▶ Function : DI / DO / AI / AO / Relay (per Model no.)
- ▶ Connector : 5 \* 5-pin 5.00mm terminal block

### 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

### Power Spec.

- ▶ Working Voltage : 24V AC/DC
- ▶ Power connector : 2-pin 5.00mm Terminal Block
- ▶ Protection : 1A fuse (Open enclosure)
- ▶ Power Consumption : 0.5 ~ 11W(15VDC Output excluded) (vary depending on different models)
- ▶ VDC Output : 15V DC @ 200mA
- ▶ Power connector : 2-pin 5.00mm Terminal Block

### Others

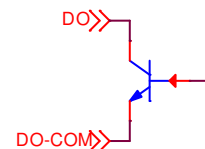
- ▶ LED Indicator : Power · Serial Port
- ▶ DIP Switch : MODBUS Slave Address
- ▶ Size : 228 x109 x 33mm (incl. mounting ear)
- ▶ Applicable temperature : 0~50°C
- ▶ Applicable humidity : 20%~80% RHG
- ▶ Certification : CE/FCC

### Isolated Digital Input Control

- ▶ Mode : Wet Contact / sink mode
- ▶ Input voltage range : 5~24VDC
- ▶ Input protection : 2000Vrms optically isolation protection
- ▶ LED indicator : DI status

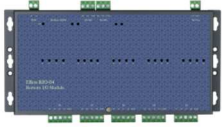
### Isolated Digital Output Control

- ▶ Signal Type : Open Collector
- ▶ Load capacity : 5~30 VDC @ 200mA
- ▶ Signal protection : 2000Vrms optically isolation protection
- ▶ LED indicator : DO status



## EBox-RIO Series Model No. Description:

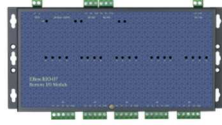
### EBox-RIO-04



#### Modbus Remote I/O with 2 RS-485, 20DI

- ▶ 20DI : Coil 0x00~0x13

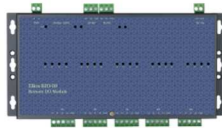
### EBox-RIO-07



#### Modbus Remote I/O with 2 RS-485, 20AI

- ▶ 20AI : Register 0x00~0x1F

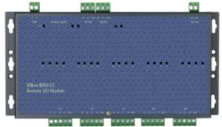
### EBox-RIO-09



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

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

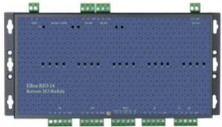
### EBox-RIO-11



#### Modbus Remote I/O with 2 RS-485, 12AI+8AO

- ▶ 12AI : Register 0x00~0x0b
- ▶ 8AO : Register 0x0c~0x13

### EBox-RIO-14



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

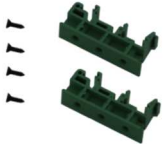
- ▶ 4DI : Coil 0x00~0x03
- ▶ 4DO : Coil 0x04~0x07
- ▶ 2Relay : Coil 0x0a~0x0b
- ▶ 6AI : Register 0x0c~0x11
- ▶ 2AO : Register 0x12~0x13

## Optional Accessories

### LLD-DDC8

EBox-RIO DDC SW License

### DK-P01



DIN-Rail Kit

- ▶ Quantity : 2
- ▶ Screw : 4