CONOTEC
USB RS485 Converter
FOX-485U   www.conotec.co.kr

INSTRUCTION MANUAL

<FOX-485U>

Thank you for purchasing CONOTEC's product.

1 Precautions for your safety

Please read precautions carefully for the correct use before using the product.
※ The specifications, outer dimension, etc stated in this manual are subject to change for the upgrade of the product.

⚠ Warning

1. This product is not intended for safety device. If the product is used for controlling any devices that may cause life accident or any devices that may damage to their surrounding devices and cause any serious property damage, you must install the double -barreled safety device before using.
2. Don't carry out wiring, inspection or repair with the power supplied.
3. Make sure you identify the terminal number when you connect the power.
4. Never take this product apart or process, modify or repair it.

⚠ Caution

- Understand instructions, safety regulations or warnings before installing this equipment.
- Don't wire or install this equipment on the motor or solenoid with heavy inductive load.
- When extending the sensor, use the same cable and don't extend longer than necessary.
- Don't use the potential arcing parts in case of direct switching on or near the same power source.
- Keep the power cable away from high-voltage cable and don't install this product on the place of too much water, oil or dust.
- Avoid installing this product on the place of direct sunlight or the place exposed to rain.
- Avoid installing the product on the place of strong magnetic field, vibration or shock.
- Keep this product away from the place where strong alkaline or acidic substance releases directly.
- If installing this product, don't spray water directly for cleaning.
- Avoid installing on the place exceeding the rating of temperature/humidity.
- Ensure the sensor cable will not break or be scratched.
- Keep the sensor cable away from signal line, power source, energy and load line, and use the independent wiring.
- Please understand after service cannot be provided if this product is disassembled or altered privately.
- ⚠ as shown in terminal wiring diagram means the safety word stating warning or caution.
- Avoid using the product near the equipment generating strong high frequency noise (e.g. high frequency welding M/C, high frequency sewing M/C, high frequency wireless set, high-capacity SCR controller).
- Other use than purpose specified by the manufacturer may cause the personal injury or the loss of the property.
- Keep out of reach of children because this product is not a toy.
- The installation must be operated by the related specialist or qualified person.
- We don't take any responsibility for non-compliance with the instructions stated in above words of warning and caution and damage arisen from the negligence of consumers.

⚠ Danger
■ Attention, Danger of electric shock

- Electric shock-Don't contact AC terminal while the electric current is carrying.
- Make sure you shut off the input power when checking the input power.
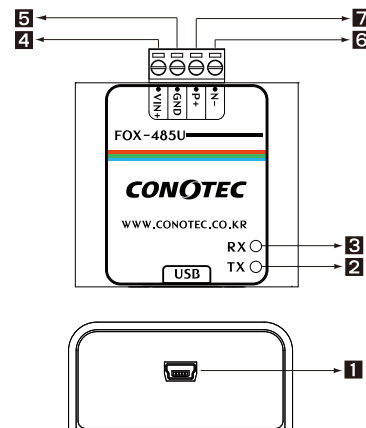
2 Models and Specifications

Model	FOX-485U
Type	USB
External power	5~7VDC
Outer Dimension	W54 X H59mm
Operating distance	≤ 1.2Km
Data transfer rate	Max 1,200~115,200bps (Recommended :9600bps)
Connection by	USB extention cable
Insulation type	Non-insulation
Multi-drop Number	Max 32 MULTI - DROP
Weight	88g
Package	User manual, USB extension cable, USB driver, bracket, set screws

※ For USB driver, download it from data room in our website (http://www.conotec.co.kr).

3 Product Features

- FOX-485U: USB type (USB converter)
- Wire/wireless converter (available up to 5~7 VDC)
- TX Enable automatic generation(Operates irrespective of control signal condition)
- Data transfer rate (1200~115200 BPS)
- Internal terminating resistance (120Ω)
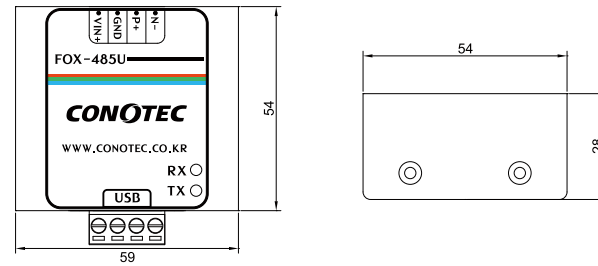※ The communication is available with data transfer rate between 1200 and 115200 BPS without control signal.
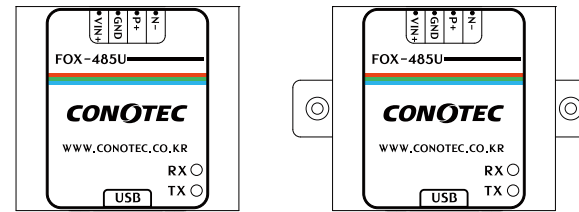
4 General Description

1 Mini USB Connector
2 Sending LED
3 Receiving LED
4 5~7 VDC input section
5 GROUND
6 RS485 signal line(N-)
7 RS485 signal line (P+)
8 Internal terminating resistance (120Ω)

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5 Outer dimension and assembling the bracket

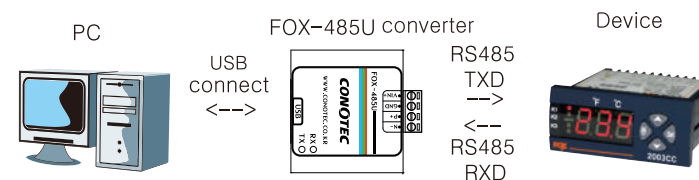▶ Outer dimension(59x54x28mm)

▶ Assembling the bracket

1. Screw the square bracket with flat head screw on the screwing location on the rear side.
2. The same method of bracket mounting is used for FOX-485U converter.
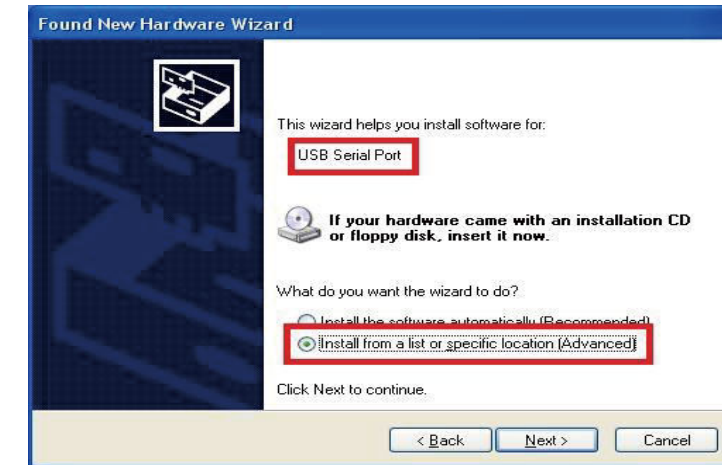
6 How to use FOX-485U

PC   FOX-485U converter   Device

USB connect <-->   RS485 TXD --->   <-- RS485 RXD

1. Download USB driver for FOX-485U from data room in our website (http://www.conotec.co.kr).

2. It is available with/without power and it available without power if RS 232C connected port is on general PC. (If external power is applied, it is available up to 5~7VDC).

3. Connect USB cable on the converter to USB extension cable and then connect it to PC.

4. If new hardware is found, install the downloaded driver.

5. Go to Window Start->control panel->system->hardware-> device manager->port and LPT and then identify the virtual serial port.

6. Connect the communication signal line on the communication terminal to the same RS485 signal line.

Ex). On the communication terminal, P+<->P+, N- <->N-

7. Set the serial COM port virtually received from the client terminal to match with program specification and then communicate.
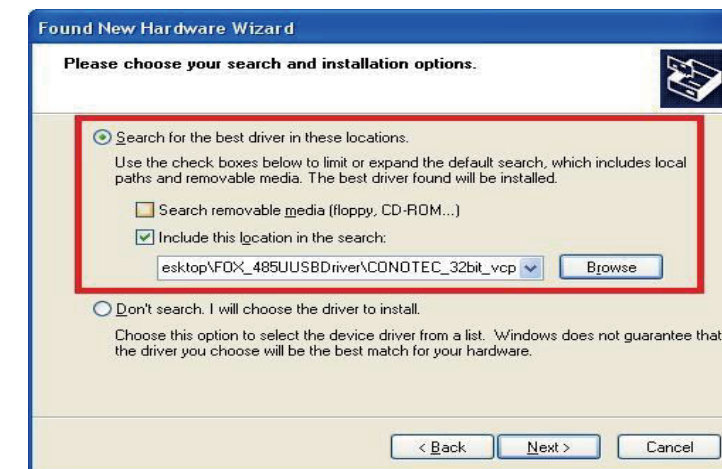
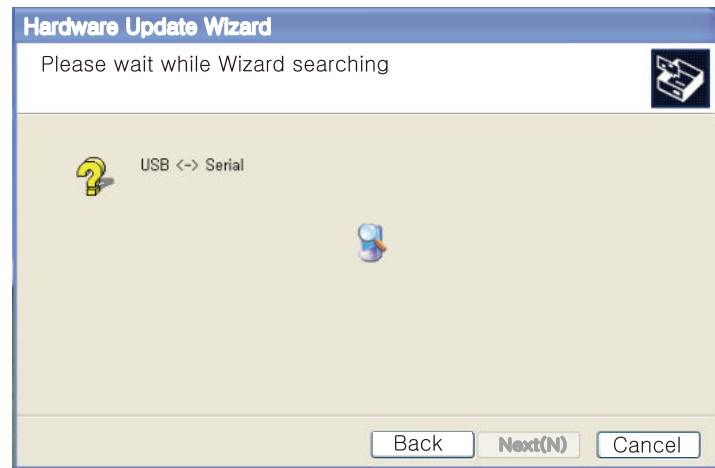---

7 How to install driver (FOX-485U)

▶ Installing USB driver

1. Download USB driver for FOX-485U from data room in our website (http://www.conotec.co.kr).

2. Unzip the downloaded driver.

3. If connecting the product to USB port on PC, 'new hardware search wizard' automatically run.

- As illustrated in below figure, new window to select the installation of the driver appears.
- After selecting 'install (advanced)(S)' in list or specific location' on select option, click 'next (N)'.

4. Select 'the most suitable driver search in this location (S)' in search and install option window, select 'include following location when searching' on the subcategory and then click 'find'.

5. If 'find folder' window appears, select 'FOX-485U USB Driver' in the directory you unzipped and then click 'enter'.
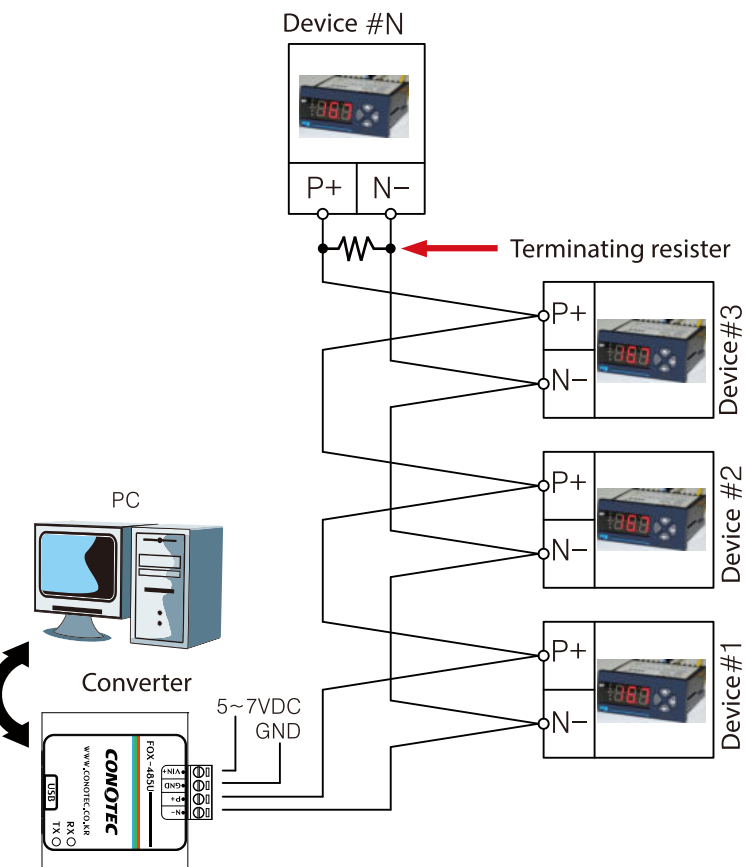
6. The USB Driver will be installed after wizard search.

Hardware Update Wizard

Please wait while Wizard searching

USB <-> Serial

Back   Next(N)   Cancel

7. When the "New hardware search wizard complete" pops up, the USB Driver installation is completed. Click "Finish".

Hardware Update Wizard

Completing the Hardware Update Wizard

The wizard has finished installing the software for:

USB Serial Converter

Click Finish to close the wizard.

< Back   Finish   Cancel

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8   Installation and terminating resister handling

Device #N

P+ N−

Terminating resister

Device #3
P+
N−

Device #2
P+
N−

PC

Device#1
P+
N−

Converter

5~7VDC
GND

FOX-485U
CONOTEC
WWW.CONOTEC.CO.KR
RX
TX

※ Turn On the internal terminating resister switch.
　▶ Connect 100Ω-120Ω terminating resisters at the end of both lines.
- If power of the computer is 5V or blow or insufficient, connect to 5-7VDC external adaptor.
　(Adaptor is not included)

※ Efficiency of terminating resister

In the case of terminating resister, you may experience efficiency of signal transmission and external noise by binding the internal RS485 to 120Ω. Therefore, in the case of 1:1, it is recommended that the host and client are terminated; in the case of 1:N, only the host and the final client modules should be terminated.

※ Product Testing

Download "communication using the SerialWorks program in computer" in the database at the webpage (http://www.conotec.co.kr) and test products and converters.

※ If you purchased our communication-type controller, you may use the communication program. Please download "[Program] DSFox communication program" in our database at the webpage (http://www.conotec.co.kr).

9   Handling Precautions

■ IF RX green Led continue to blink in the converter

● N-circuit should be connected to N-circuit, and P+ circuit to P+ circuit. If they are connected opposite, communication connection will not be established; also, internal IC load will cause damage. Therefore, correct connection of circuits is necessary.

■ Communication converter circuit recommendation

● We recommend that you use 50Ω twist pair circuit impedance for RS485. If twist circuit is not used, we recommend that you use shielded circuit of N- and P+ in the same length.

■ Reference for terminating resisters

● Terminating resister uses resistance at 100 - 120Ω in general but it may be increased/decreased depending on the line state. If communication is unstable by using 100-120Ω terminating resister, resistance value may be adjusted manually.

❋ The product specification is subject to change without prior notice for product improvement.
　Please be familiar with precautions necessary for handling the product.

◈ Handling Precautions
※ The instrument is suitable for the following environment:
■ Ambient temperature: 0℃-60℃　■ Ambient humidity: 80%RH or below
■ For indoor use only　　　　　　■ Pollution grade 2(Pollution Degree 2)
■ Height 2000m or below ■ Installation category II (Installation Category II)
■ Avoid allocation of equipment with difficult to control power code.
■ The product protection can be damaged if the product is used for purposes intended by the manufacturer.
■ External power: 5-7VDC

MEMO