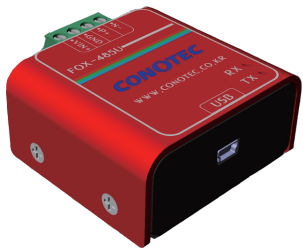


CONOTEC

CONOTEC CO., LTD.
DIGITAL TEMPERATURE CONTROLLER

FOX-485SERIES

Instruction Manual



FOX-485U



FOX-485S

- A user manual for this product is posted on the company website.
- Please download the technical document and communications manual on the company website

01 Safety precautions

Please read the safety precautions carefully for correct operation of the product.

※ The specifications and dimensions specified in this instruction manual may be changed without any notice for performance enhancement.

⚠ Warning

1. This product was not made as a safe device. Therefore, this product should be attached with dual safety devices if it is used for the control purposes (e.g. a device vulnerable to accident and property damage, etc.).
2. Do not wire, inspect or service this product while the power is being supplied.
3. You must attach this product to a panel. Otherwise, it may cause an electric shock.
4. When connecting the power, you must check the terminal number.
5. Do not ever disassemble, process, modify or repair this product.

⚠ Caution

1. Please make yourself familiar with all the operation instructions, safety precautions and warnings before using this product. Comply with related specifications and capacity requirements
2. Do not wire or install this product to any unit with high inductive load (e.g. motor, solenoid, etc.).
3. Use a shielded cable with a proper length when extending a sensor.
4. Do not use any part that generates an arc when used in the same power or directly switched in close proximity.
5. Keep the power cable away from a high-voltage cable and do not install this product in any place that is full of water, oil and dust.
6. Do not install this product in any place that is exposed to direct sunlight or rain.
7. Do not install this product in any place that is subject to strong magnetic power, noise, vibration or shock.

8. Keep this product away from any place that generates strong alkaline or acid substances. Use a separate pipe.
9. Do not sprinkle water onto this product for cleaning when installing it in the kitchen.
10. Do not install this product in any place where the temperature/humidity ratings are exceeded
11. The sensor cable should not be cut or cracked..
12. Keep the sensor cable away from a signal cable, a power cable or a load cable. Use a separate pipe.
13. Keep in mind that the follow-up service will not be available if this product has been arbitrarily disassembled and modified
14. ⚠ symbol on the terminal wiring diagram indicates a safety statement that alerts a warning or caution.
15. Do not use this product near any device generating strong high-frequency noise (e.g. high-frequency welding machine, high-frequency sewing machine, high-frequency radio, large-capacity SCR controller, etc.).
16. Using this product in any method other than those specified by the manufacturer may lead an injury or a property damage
17. The product is not a toy. Keep it away from children.
18. The product should be installed only by an expert or a qualified person.
19. The company will not be liable for any damage caused by the violation of the above warnings and cautions or by a consumer's fault

⚠ Danger

Caution: Risk of electric shock

- Electric shock - Do not touch the AC terminal while the current is flowing. It may cause an electric shock.
- You must disconnect the input power when servicing it.

02 Model Types

Model	FOX-485S	FOX-485U
Type	RS232C	USB
Power Supply	5~7VDC	
Dimensions	W54 X H59mm	
Comm. Distance	Up to 1.2Km	
Baud Rate	1,200~115,200bps (Recommended: 9600bps)	
Connection Type	RS232 Extension Cable	USB Extension Cable
Isolation Type	Non-isolated	
MULTI-DROP Support	Up to 32 Multi-Drop	
Weight	92g	88g
Included Components	User Manual, RS232 Extension Cable, Bracket, Fixing Bolts	User Manual, USB Extension Cable, USB Driver, Bracket, Fixing Bolts

03 FOX-485S / FOX-485U Product Features

1) FOX-485S (Serial Type RS232C)

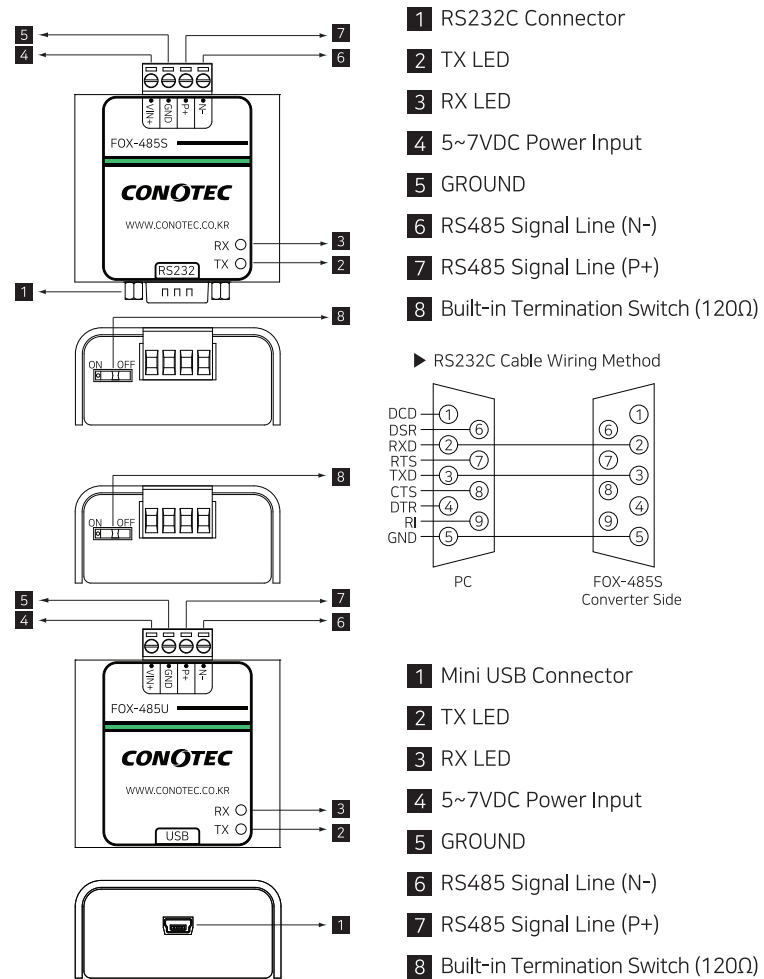
- FOX-485S: Serial Type (RS232C Converter)
- Powered via wired/wireless adapter (supports 5~7V)
- Automatic TX Enable (operates regardless of control signal state)
- Data transmission speed: 1,200 ~ 115,200 BPS
- Built-in termination resistor (120Ω)

2) FOX-485U (USB Type)

- FOX-485U: USB Type (USB Converter)
- Powered via wired/wireless adapter (supports 5~7V)
- Automatic TX Enable (operates regardless of control signal state)
- Data transmission speed: 1,200 ~ 115,200 BPS
- Built-in termination resistor (120Ω)

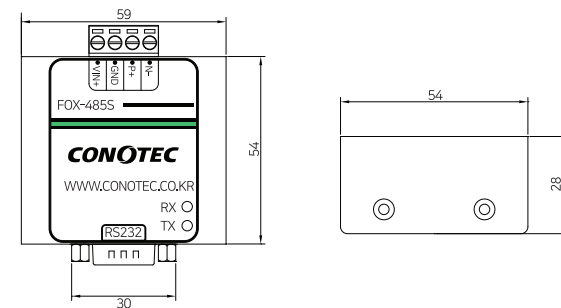
※ Data transmission up to 1,200 ~ 115,200 BPS is possible without control signal.

04 FOX-485S / FOX-485U Product Description

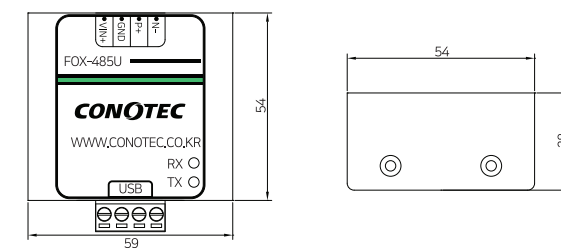


05 Dimensions & Bracket Installation

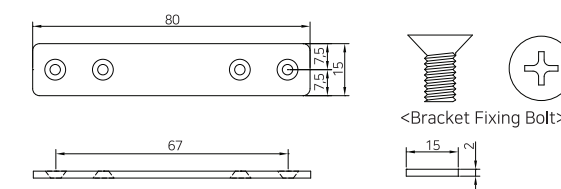
► FOX-485S External Dimensions (59×54×28mm)



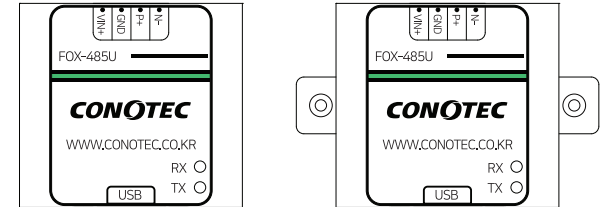
► FOX-485U External Dimensions (59×54×28mm)



► FOX-485S / FOX-485U Bracket External Dimensions (80×15×2mm)

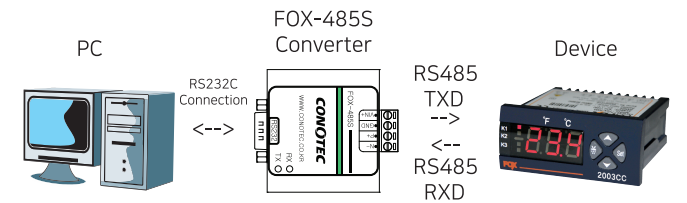


► FOX-485S / FOX-485U Bracket Assembly Method



1. Attach the L-shaped bracket to the rear bolt fixing part of the case using a countersunk bolt.
2. The bracket fixing method for the FOX-485S / FOX-485U converter is the same.

06 FOX-485S Product Usage Method

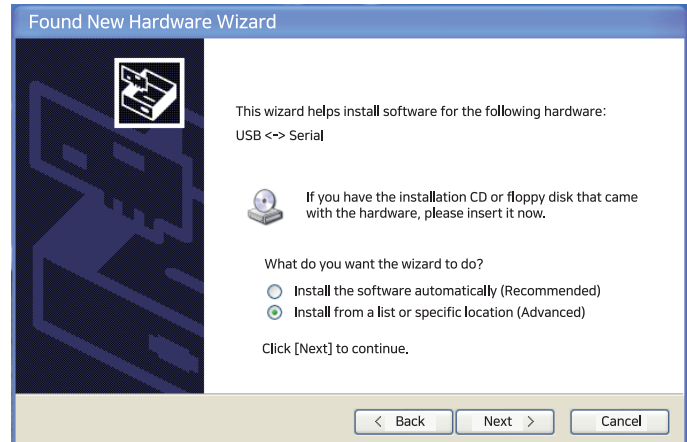


1. Connect the RS232C connector on the converter to the PC using an extension cable.
2. Connect the same RS485 signal line as the communication terminal to the communication terminal.
For example, connect P+ ↔ P+, N- ↔ N-
3. Wired/wireless use is possible. If RS232C connector power is not supplied via the PC, external power (5~7VDC) must be supplied.
4. When internal termination resistance is required, set the ON/OFF switch at the rear of the case to ON to connect 120 ohm resistance. (If the resistance is connected, the RS485 internal resistance will be terminated with 120 ohms, which helps reduce external noise and signal transmission errors.)

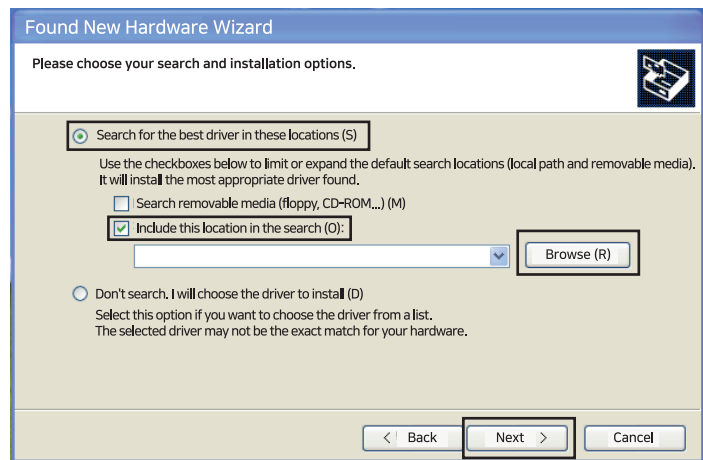
07 Driver Installation Method (FOX-485U)

► USB Driver Installation

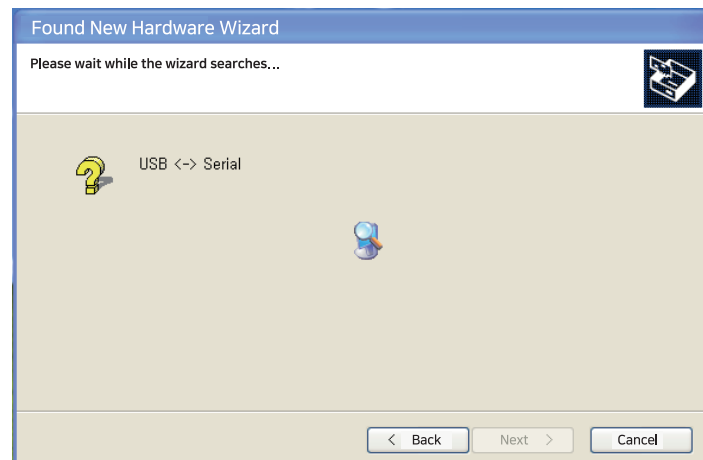
1. Download the FOX-485U USB driver from the Customer Support > Resources section of our website (<http://www.conotec.co.kr>).
2. Unzip the downloaded file.
3. When the product is connected to the USB port of the PC, the "Found New Hardware Wizard" will automatically launch.
 - A window like the one below will appear to proceed with driver installation.
 - In the selection menu, choose "Install from a list or specific location (Advanced)" and then click "Next."



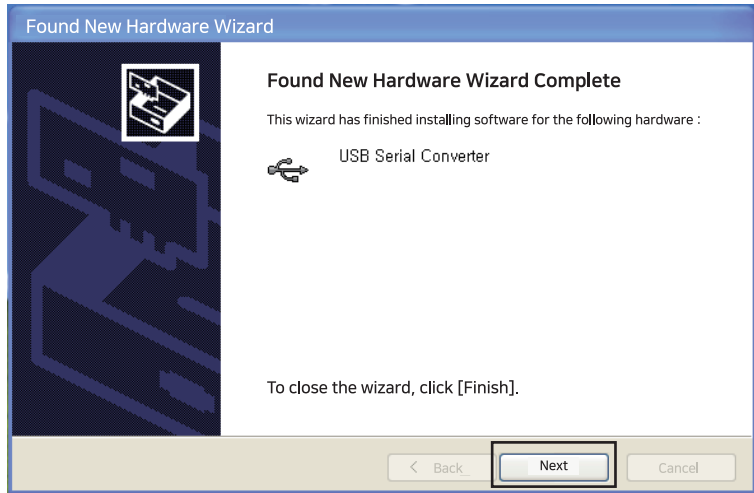
4. In the Search and Install Options window, select "Search for the best driver in these locations", then in the lower section, check "Include this location in the search", and click "Browse...".
5. If the "Browse for Folder" window appears, navigate to the extracted folder and select the directory "FOX-485U USB Driver", then click "OK".



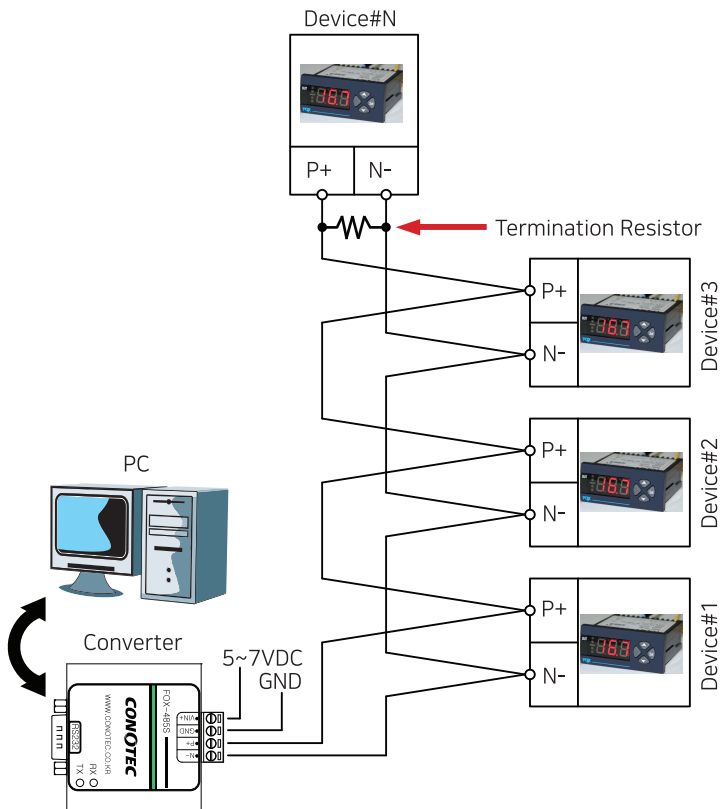
6. After the wizard searches, the USB Driver will be installed.



7. When the 'Found New Hardware Wizard Complete' window appears, the USB driver installation is complete. Click 'Finish'.



08 Installation & Termination Handling



- ※ Turn on the internal termination resistor switch.

- Connect a 100Ω~120Ω termination resistor to both ends of the line.
 - If the PC or main unit voltage is insufficient (below 5V), connect an external power adapter (5~7VDC) for use. (Adapter sold separately)

- ※ Effectiveness of Termination Resistors

A termination resistor connects the internal RS485 with 120Ω to close the circuit, improving resistance to external noise and enhancing signal transmission efficiency. Therefore, in a 1:1 setup, both the HOST and CLIENT should have termination. In a 1:N setup, termination should be applied only to the HOST and the final CLIENT module.

- ※ Product Testing Method

From our website (<http://www.conotec.co.kr>), download "Communication Test Method Using SerialWorks on PC" from the data room to test the product and converter status.

- ※ When purchasing a communication-type controller from us, you can use our own communication program. The program "[Program] DSFox Communication Program" can be downloaded from our website (<http://www.conotec.co.kr>) data room.

09 Precautions When Powering On

- If the green RX LED on the converter keeps blinking
- The N-line should be connected to the N-terminal, and the P-line should be connected to the P-terminal. If they are reversed, it may cause not only unstable communication but also damage to the internal IC due to overload. Ensure correct wiring to prevent reversed connections.
- Communication converter wiring recommendations
- For RS485 communication, it is recommended to use twisted pair cables with 50Ω impedance. If twisted pair cables are not used, it is recommended to use shielded cables and connect the shield to both N- and P+ terminals.
- Notes on termination resistor
- Termination resistors generally use 100~120Ω, but adjustments may be required depending on cable conditions. If communication is unstable even when using a 100~120Ω termination resistor, adjust the resistance value appropriately for optimal performance.

※ The above specifications may be changed without any notice for performance enhancement. Please make yourself fully familiar with and follow the above precautions.

- Warranty period: One year from the date of purchase
- Address : (Street address) 56, Ballyongsandan 1-rp, Jangan-eup, Gijang-gun, Busan, ROK
(Land-lot address) 901-1, Ballyong-ri, Jangan-eup, Gijang-gun, Busan, ROK (46034)

- Product service : 070-7815-8289
- Customer service : 051-819-0425 ~ 0427
- FAX : 051-819-4562
- Email : overseas-sales@conotec.co.kr
- SNS : Facebook, Instagram, Twitter, YouTube ► 'Search for 'Conotec'
- Website : www.conotec.co.kr

◆ Installation precautions

- This device should be connected to a protective earth terminal and a power supply in order to prevent an electric shock.
- Do not block the air outlet.

◆ Operation precautions

※ An operating environment of this device is as follows.

- Ambient temperature : 0 ~ 60℃
- Ambient humidity : 80%RH or less
- Indoor uses only
- Pollution class 2
- Altitude under 2000m
- Installation category : II
- This device should be laid out in a way that its power cord is easy to handle.
- Using this product in any method other than those specified by the manufacturer may damage its protection function

■ Major products and development

- Temperature/humidity controller
- Counter and timer controller
- Current and voltage panel meter
- Temperature/humidity indicator
- Oven controller
- CO2 controller
- PID controller
- Unit cooler controller
- Heat pump controller
- Chiller controller
- Thermo-hygrostat controller
- Short message alarm
- Temperature/humidity transmitter
- Smartphone app and monitoring system

※ This manual was prepared in the Naver Nanum fonts.