USB to RS485 Converter Compact
USB-507 RoHS
User's Manual

Ver.1.0
May 10, 2024

HUMANDATA

Precautions (Please be sure to read before use.)

🚫 Do Not

1. This product uses ordinary off-the-shelf electronic components, and is therefore inappropriate for use in applications that require special quality or reliability and are expected to protect human lives or prevent accidents, such as safety mechanisms in fields including space, aeronautics, medicine, and nuclear power.
2. Do not be used underwater or in high-humidity environments.
3. Do not be used in the presence of corrosive gases, combustible gases, or other flammable gases.
4. Do not turn on power when circuit board surface is in contact with other metal.
5. Do not apply voltage higher than rated voltage.

⚠ Attention

6. This manual may be revised in the future without notice owing to improvements.
7. All efforts have been made to produce the best manual possible, but if users notice an error or other problem, we ask that they notify us.
8. Item 7 notwithstanding, HuMANDATA cannot be held liable for the consequences arising from use of this product.
9. HuMANDATA cannot be held liable for consequences arising from using this product in a way different from the uses described herein, or from uses not shown herein.
10. This manual, circuit diagrams, sample circuits, and other content may not be copied, reproduced, or distributed without permission.
11. If the product emits smoke, catches fire, or becomes unusually hot, cut the power immediately.
12. Do not install the control cables or communication cables together with the main circuit lines or power cables. In such an environment, it may result in malfunction due to noise.
13. Be careful of static electricity.

1. Revision History

Date	Revision	Description
May 10, 2024	1.0	Initial release

2. Product packaging

Thank you very much for purchasing the USB-507. In this package, you will find the following items included. If there are any shortages or issues, please contact us.
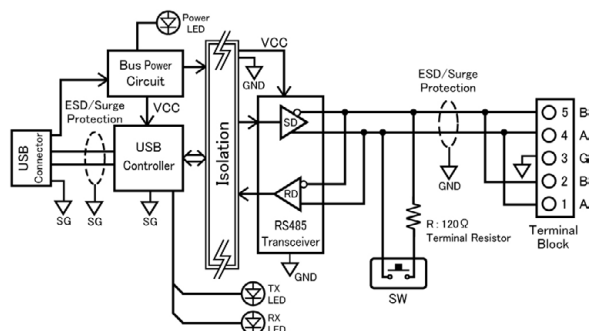
☐ USB to RS485 Converter Compact　USB-507　　1
☐ USB cable (1.8m)　　1
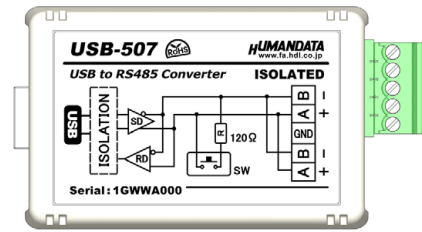☐ Driver & Application CD　　1

3. Introduction

Thank you very much for purchasing our product of USB-507.
USB-507 is a USB to RS-485 converter that isolated between RS-485 and a USB port. So, it's safe for use in factory automation environment.
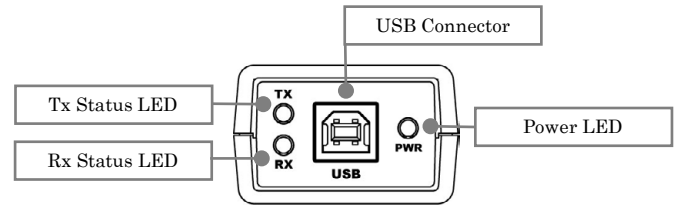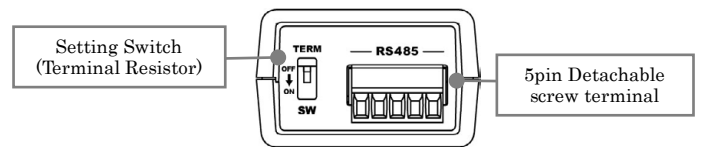
4. Block Diagram

Between USB and RS-485 are isolated.

5. Overview

TOP side (Block diagram)

Front Side (USB)

Rear Side (RS-485)

6. Power Supply

USB-507 is powered through a USB port (Bus-powered). No external power supply is required.

7. Product Specification

Item	Description	Remarks
Model	USB-507	
Input Power	DC5V Supplied through a USB port (Bus-powered)	No external power supply required
Current Consumption	Less than 250 mA	
I/O Interface	RS-485 (2-wire)	ESD protection ±15KV
HOST interface	USB 2.0 Compliant (Support High/Full Speed)	USB 1.1 compatible ESD protection
Baud Rate	300 bps to 6 Mbps	Support custom baud rate
Data Bits	7 or 8 bit	
Stop Bits	1 or 2 bit	
Parity	Even, Odd, No-parity	
FIFO RX Buffer Size	1024 bytes	
FIFO TX Buffer Size	1024 bytes	
Isolation Method	Bus isolation	
Isolation Protection	2000VDC	Designed value
Processor	FT232H	FTDI
USB Driver	Virtual COM port driver	
Support OS	Windows 11/10/8.1/8/7	
LED	PWR: USB bus power RX: Receive data TX: Transmit data	
USB connector	USB2.0 Type-B Female	
RS-485 Connector	5pin Detachable screw terminal	PHOENIX CONTACT Type:1844249

Operating Ambient temp.	-20 to 60 °C (-4 to 140 °F)	No condensation permitted
Operating Ambient Humidity	10 to 90%RH	
Storage Ambient temp.	-20 to 60 °C (-4 to 140 °F)	
Storage Ambient Humidity	10 to 90%RH	
Weight	Approx. 70 [g]	Only main body
Dimensions	67 x 43.5 x 27 [mm] (2.638" x 1.713" x 1.063")	Without projections

* There is a case to be changed to the parts of the compatibility.
* Power saving function (suspend, standby, sleep and others) is not supported.

8. Optional Accessories

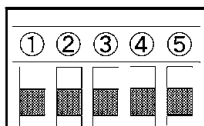| Model	Image	Description
PEN-003		Attachment with clamping screw JAN : 4937920800709
PEN-003-DIN		Attachment for 35mm DIN rail JAN : 4937920800716
PEN-003-MG		Attachment with neodymium magnet JAN : 4937920801201
ACC-038		5p Terminal to RJ45 Adapter (3.5mm) JAN : 4937920801584
TB35-USB-5		Detachable 5P Terminal Connector (3.5mm) 1840395 (Phoenix) JAN : 4937920801287

9. RS-485 (2 wire) Mode

Item	Description	Remarks
Comm. Method	Half-duplex transmission	
Baud Rate	300bps to 6 Mbps	Custom baud rate is supported
Number of Connectable Terminals	192	Typical example
Terminal Resistor	120 Ω	Configurable by setting switch ON/OFF
Transmit-Receive Switching	Automatically controlled by USB controller	

RS-485 mode can communicate with multiple terminals by using a twist pair cable.

10. RS-485 Terminal Block

Terminal block is pluggable. Do not remove it while the power is supplied.

Pin Number	Signal	Signal and Polarity
1	A	SD/RD+
2	B	SD/RD-
3	GND	GND
4	A	SD/RD+
5	B	SD/RD-

The GND (Ground) pin is recommended to be wired.

11. Setting Switch

The setting of terminal resistor is changeable by the setting.

SW	Terminal Resistor (120Ω)
OFF	Disable
ON	Enable

Factory setting

12. Device Driver

When the device is connected to a USB port of PC for the first time, the device driver is needed to install on the USB port. When there are multiple USB ports, the driver is needed to install on each port. The device driver and its install manual are included in the CD bundled with the product. And they are also available on its product page. Please refer to the Chapter 14. "Additional Documentation and User Support".

13. Latency Timer

In some cases, adjusting "Latency Timer" will help to speed up the response time of application. The default value is set by device driver.
If you reduce the value of "Latency Timer", its priority will be higher. But be careful that the response time of the other applications will probably be slow.

Following steps of Windows OS show how to set "Latency Timer".
Open "Device Manager" and right click "[USB-507…]". Open "Properties" window and open "Port Setting" tab, then click "Advanced" button.

14. Additional Documentation and User Support

The following documents and other supports are available at

· Product Documents:
  http://www.hdl.co.jp/en/faspc/USB/usb-507/

· Support Center:
  https://www.fa.hdl.co.jp/en/support.html

15. Warranty and Compensation

Please refer to the following URL for the warranty.

  https://www.fa.hdl.co.jp/en/fa-warranty.html

16. Contact us

Please contact us using the inquiry form on our company's website or email us at SPC2@hdl.co.jp, providing the product model number and serial number.