USB Isolator

USB-029 Rev2 (RoHS)

User's Manual

Ver.1.2

Jun. 5, 2025

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 13, 2016	1.0	Initial release
Aug. 30, 2019	1.1	Updated outline drawing
Jun. 5, 2025	1.2	Change: Specifications of AC adaptor

2. Product packaging

Thank you very much for purchasing the USB-029. In this package, you will find the following items included. If there are any shortages or issues, please contact us.

- ☐ USB Isolator USB-029   1
- ☐ USB cable (1.8m)   1
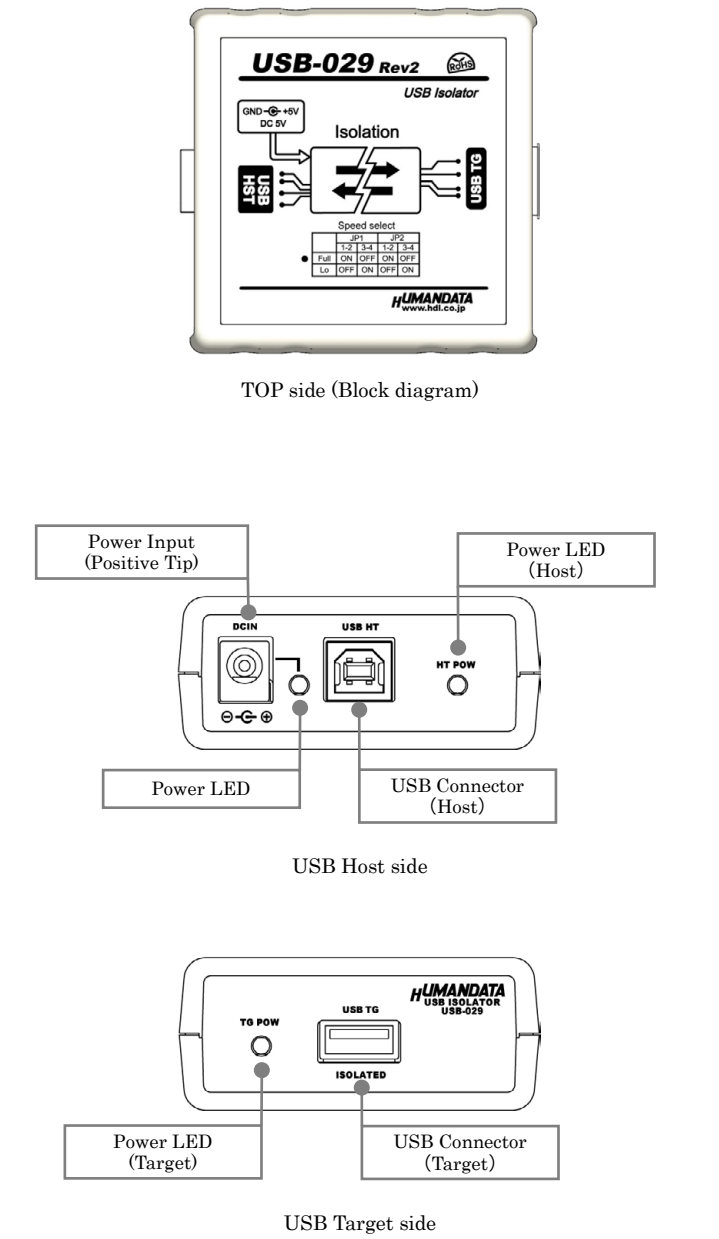- ☐ AC adapter (DC5V)   1

3. Introduction

USB-029 is a USB 2.0 Full Speed (12Mbps) and Low Speed (1.5Mbps) compliant isolator that isolates between a USB host and a USB peripheral device.

With USB-029, it can be expected to eliminate ground loops that can cause measurement errors and equipment from surges, common-mode voltage, static discharge, magnetic fields, and radio frequency interference.

There is no need to install any drivers. It works with every operating system of Windows, Linux, Mac OS X, and others.

4. Overview

TOP side (Block diagram)

USB Host side

USB Target side

5. Connection

You can use an included USB cable to the host side connector to the host (such as a personal computer), and connect a USB peripheral device to the target side connector.

6. Power Supply

USB-029 is powered through a USB port (Bus-powered) or an AC adapter (Self-powered). An AC adapter has priority when both supplies are applied.

7. Jumper Setting

You can use the jumpers (JP1 and JP2) to change configuration from Full Speed to Low Speed. USB-029 is shipped in Full Speed setting.

For Low Speed devices such as a mouse or a keyboard, it is necessary to configure the jumpers.

Speed selection

	JP1		JP2		
	1-2	3-4	1-2	3-4	
Full Speed	ON	OFF	ON	OFF	*Default setting
Low Speed	OFF	ON	OFF	ON	

8. Product Specification

Item	Description	Remarks
Model	USB-029	
Input Power	5VDC Supplied through a USB port (Bus-powered) or AC adapter (Self-powered)	Recommend the use of an AC adapter for stably supply. An AC adapter supply to the host side.
Current Consumption	Less than 100mA + current of the target device	500mA max.
HOST interface	USB 2.0 Compliant (Supports Full and Low Speed)	USB 1.1 compatible High Speed is not supported ESD protection
Isolation Method	Bus isolation	
Isolation Protection	3500VDC	Designed value
Support OS	OS-Independent (No drivers required)	
LED	HT POW: Host Power TG POW: Target Power DCIN: Power	
Operating Ambient temp.	-20 to 60 °C	No condensation permitted
Operating Ambient Humidity	30 to 85 %RH	
Storage Ambient temp.	-20 to 60 °C	
Storage Ambient Humidity	30 to 85 %RH	
Weight	Approx. 80 [g]	Only main body
Dimensions	67 x 67 x 28 [mm] (2.638" x 2.638" x 1.102")	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

9. AC adapter (Japan's specifications)

Item	Description	Remarks
Input	AC100～240V 50/60Hz 0.45A	
Output	5VDC 2.0A	Positive Tip
Plug	2.1mm inner diameter	
Compatible DC Jack	2.1mm inner diameter	
Operating Ambient temp.	0 to 40 °C	No condensation permitted
Operating Ambient Humidity	10 to 90 %RH	
Storage Ambient temp.	-20 to 80 °C	
Storage Ambient Humidity	5 to 95 %RH	
Wire Length	1.6 [m]	
Weight	approx. 70 [g]	
Dimensions	46 x 37 x 22 [mm] 1.811" x 1.457" x 0.866"	Without projections

* This AC adapter is attached for use mainly in Japan. If you use in the other countries, please check the specifications above and plug shape.

* There may be cases that this part and specifications are changed.

10. 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

11. Additional Documentation and User Support

The following documents and other supports are available at

- Product Documents: https://www.hdl.co.jp/en/faspc/USB/usb-029
- Support Center: https://www.fa.hdl.co.jp/en/support.html

12. Warranty and Compensation

Please refer to the following URL for the warranty.

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

13. 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.

Please note that it may be difficult to provide technical support over the phone. We kindly ask for your cooperation in using email or other means of communication whenever possible.