

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
Jan. 20, 2025	2.0	Upgrade product version to Rev2.

2. Product packaging

Thank you very much for purchasing the USB-029H2-5K. In this package, you will find the following items included. If there are any shortages or issues, please contact us.

- USB 2.0 Isolator Industrial-Grade (High voltage isolation) 1
USB-029H2-5K
- USB cable (1.8m) 1
- AC adapter (DC5V) 1

3. Introduction

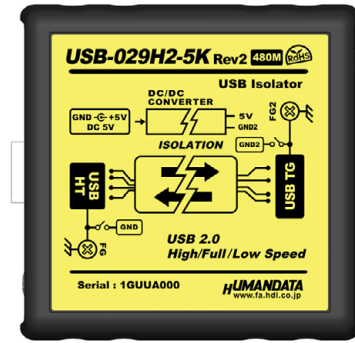
The USB-029H2-5K is an adapter that isolates the USB interface and also supports USB 2.0 High-Speed.

It is an industrial-grade product that adds features such as FG terminal and FG/SG separation to the standard USB-029 specification. It achieves stable operation through a robust power circuit.

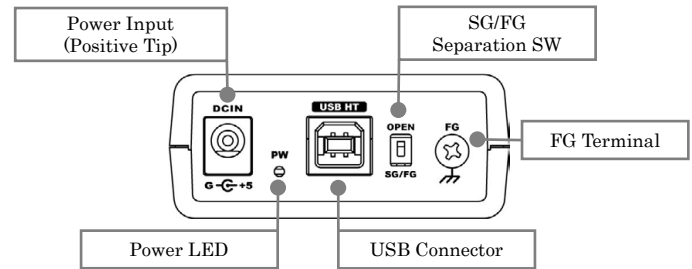
By isolating the USB interface, it offers benefits such as improved noise resistance and enhanced precision of external analog devices (by isolating GND).

MAX 600mA bus power can be supplied to the target side depending on the host side power capability.

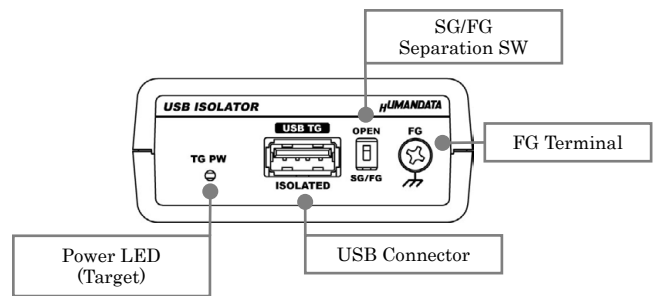
4. Overview



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-029H2-5K 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. SG/FG Separation switch

You can separate between SG (signal ground) and FG (frame ground) by the dip-switch each USB host and USB target.

Position	SG - FG
OPEN	Open
SG/FG	Connection

* Factory setting

* Host and target is same function.

8. FG Terminal

It is possible to connect a ground wire to this terminal when needed.



9. Product Specification

Item	Description	Remarks
Model	USB-029H2-5K	
Input Power	DC5V 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	Due to the efficiency of the internal DC/DC, more current flows to the host side than the target side.
Suppliable current of target side	Less than 600mA	Suppliable current of target side must be less than supply capability of host side.
HOST interface	USB 2.0 Compliant High Speed (480Mbps) Full Speed (12Mbps) Low Speed (1.5Mbps)	USB 1.1 compatible ESD protection
Isolation Method	Bus isolation	
Isolation Protection	DC5000V	Designed value
Support OS	OS-Independent (No drivers required)	
LED	POW: Power LED TG POW: Target Power LED	
USB Connector (Host)	USB2.0 Type-B (Female)	
USB Connector (Target)	USB2.0 Type-A (Female)	
Operating Ambient temp.	-20 to 60 [°C] (-4 to 140 [°F])	No condensation permitted
Operating Ambient Humidity	20 to 90%RH	
Storage Ambient temp.	-20 to 60 [°C] (-4 to 140 [°F])	
Storage Ambient Humidity	20 to 90%RH	
Weight	Approx. 90 [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

10. 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

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

11. 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

12. 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-029h2/>
- Support Center: <https://www.fa.hdl.co.jp/en/support.html>

13. Warranty and Compensation

Please refer to the following URL for the warranty.

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

14. 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.

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