

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 27, 2025	3.0	Upgrade product version to Rev3.

2. Product packaging

Thank you very much for purchasing the USB-03G1. In this package, you will find the following items included. If there are any shortages or issues, please contact us.

☐

USB3.0/3.1 Gen1 Isolator

USB-03G1

1

☐

USB3.0 A-B cable (200mm)

1

☐

AC adapter (DC5V)

1

3. Introduction

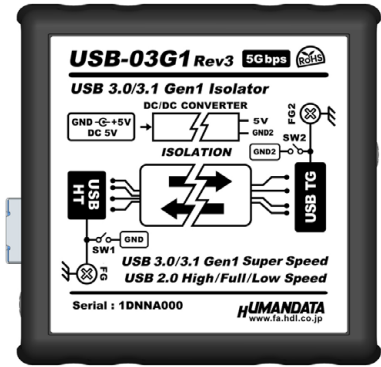
USB-03G1 is an adapter, USB isolator, which isolates USB interface. It supports USB 3.0/3.1 Gen1 Super Speed (5Gbps), USB 2.0 High Speed (480Mbps), Full Speed (12Mbps) and Low Speed (1.5Mbps).

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

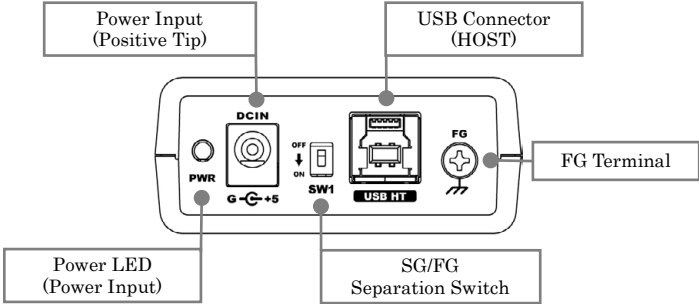
The power circuit has sufficient capacity. This ensures stable operation.

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

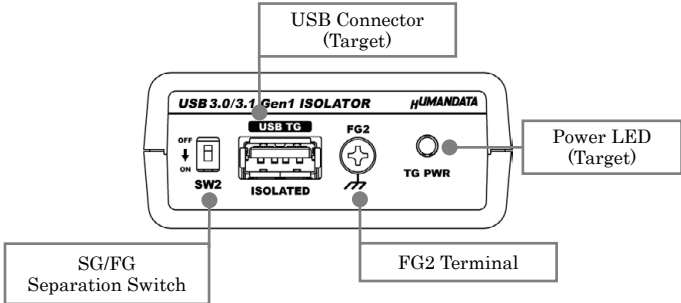
4. Overview



TOP side (Block diagram)



USB Host side



USB Target side

5. Power Supply

USB-03G1 is powered through a USB port (Bus-powered) or an AC adapter (Self-powered). An AC adapter has priority when both supplies are applied.

Target side, USB TG, is linked with host side, USB HST.


6. SG/FG Separation switch

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

Position	GND - FG
OFF	Open
ON	Connection

OFF

ON




* The function of the switch of host and target side is the same.

7. FG Terminal

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

FG



8. Product Specification

Item	Description	Remarks
Model	USB-03G1	
Input Power	DC5V Supplied through a USB port (Bus-powered) or AC adapter (Self-powered)	AC adapter is recommended for stably supply. An AC adapter supply to the host side.
Current Consumption	Less than 100mA + current of the target device	MAX Sum: 900mA
HOST interface	USB3.0/3.1 Gen1 Super Speed (5Gbps) USB2.0 High Speed (480Mbps) Full Speed (12Mbps) Low Speed (1.5Mbps)	USB 1.1 compatible ESD protection
Isolation Method	USB3.0/3.1: Optical Isolation USB2.0: Bus Isolation	
Isolation Protection	DC4000V	Designed value
Support OS	OS-Independent (No drivers required)	
LED	PWR : Power LED TG PWR : Target Power LED	
Connector (Host)	USB-B connector	
Connector (Target)	USB-A connector	
Operating Ambient temp.	-20 to 60 °C (-4 to 140 °F)	No condensation permitted
Operating Ambient Humidity	30 to 85%RH	
Storage Ambient temp.	-20 to 60 °C (-4 to 140 °F)	
Storage Ambient Humidity	30 to 85%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.

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 Temperature	0 to 40 °C (32 to 104 °F)	No condensation permitted
Operating Ambient Humidity	10 to 90 %RH	
Storage Ambient Temperature	-20 to 80 °C (-4 to 176 °F)	
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-03g1/>
- 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.

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