

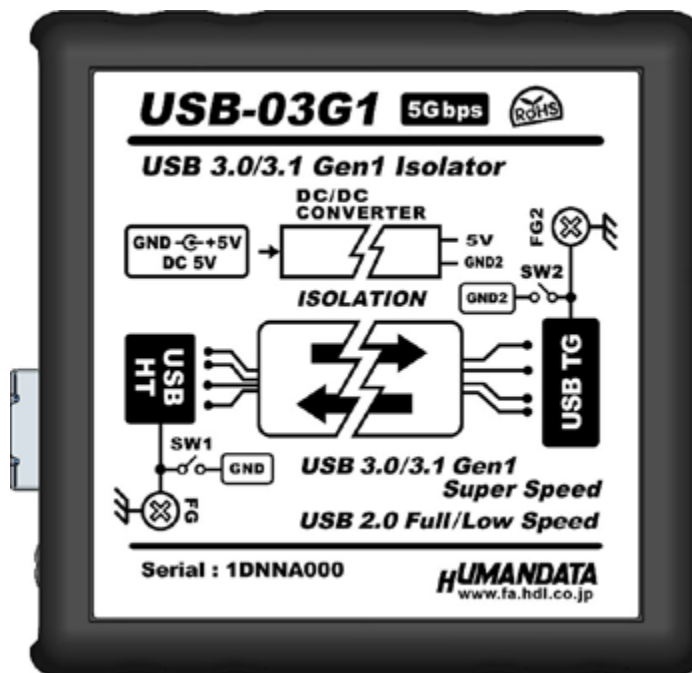
# USB3.0/3.1 Gen1 Isolator



## USB-03G1

### User's Manual


Ver. 1.1




# Table of Contents

● Precautions .....	2
● Revision History .....	3
● Introduction .....	3
1. Overview .....	4
1.1. Name of Parts .....	4
2. Feature .....	5
3. Connection .....	6
4. Power Supply .....	6
5. SG/FG Separation Switch.....	6
6. FG Terminal.....	6
7. Specifications .....	7
7.1. Product Specification .....	7
7.2. AC adapter (Japan's specifications).....	8
7.3. Optional Accessories .....	8
8. Additional Documentation and User Support.....	9
9. Warranty and Compensation.....	9

## ● Precautions

 <p><b>Do Not</b></p>	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.

 <p><b>Attention</b></p>	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.

## ● Revision History

Date	Revision	Description
April 22, 2019	v1.0	Initial release
May 29, 2019	v1.1	ADD: Section " Feature "

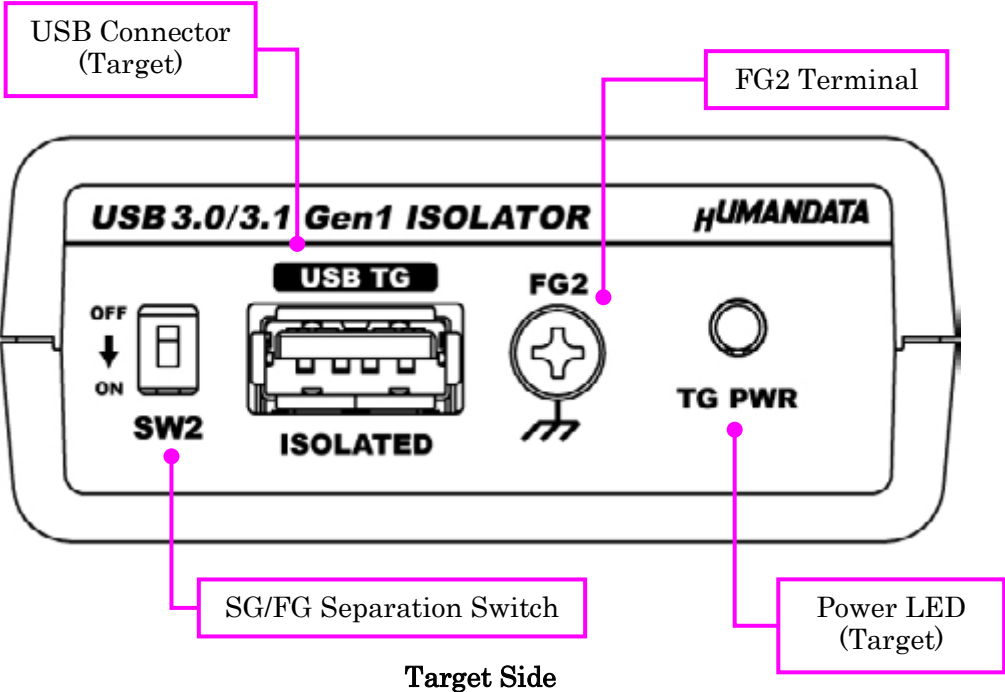
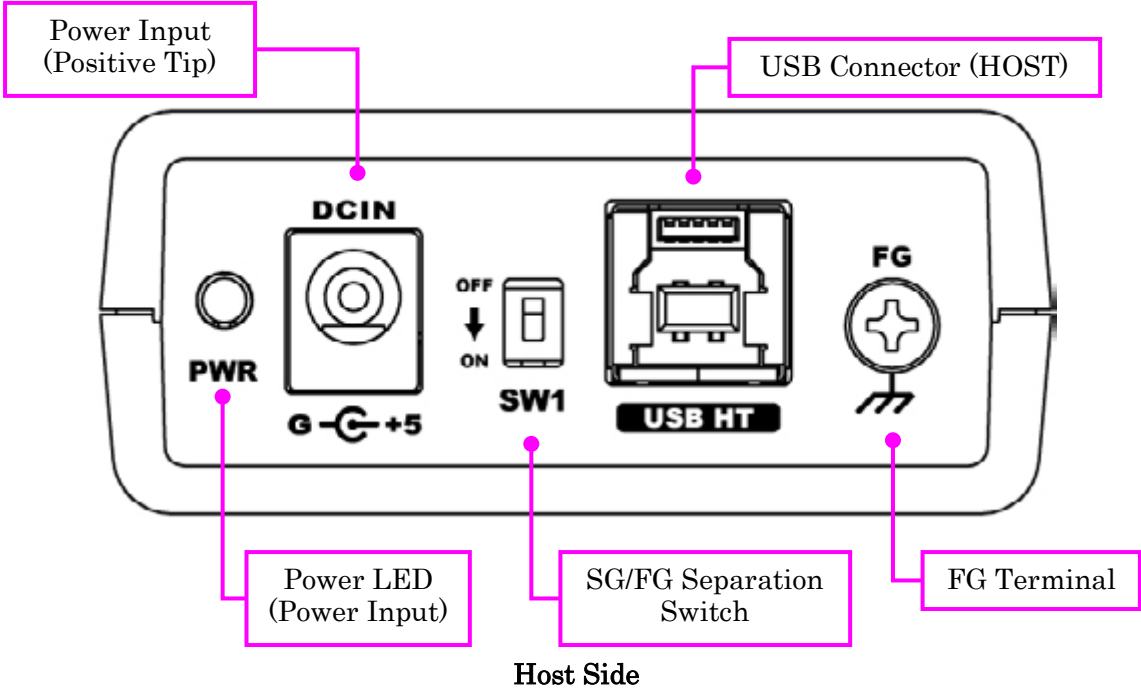
## ● Introduction

Thank you very much for purchasing our product, USB-03G1.

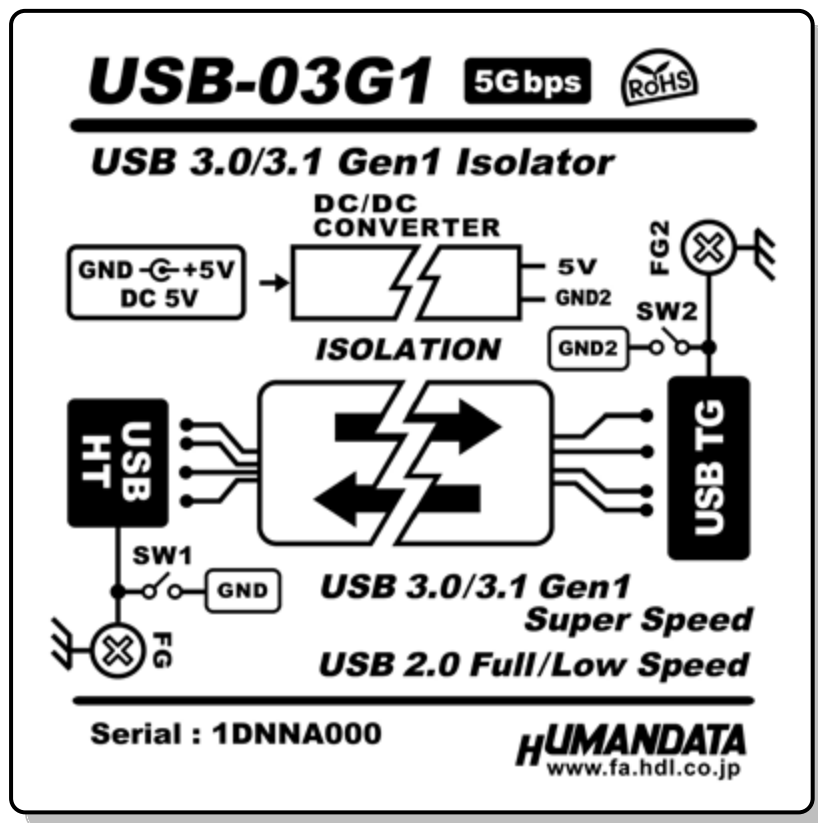
USB-03G1 is a USB3.0/3.1 Gen1 isolator that supports Super Speed, 5Gbps, and isolates between a USB host and a USB peripheral device.

# 1. Overview

## 1.1. Name of Parts



TOP side (Block diagram)



## 2. Feature

USB-03G1 is an adapter, USB isolator, which isolates USB interface. It supports USB3.0/3.1 Gen1 Super Speed (5Gbps), USB2.0 Full Speed (12Mbps) and Low Speed (1.5Mbps).

When you use Low Speed, internal setting needs to be changed.

Or if you use a USB hub on the secondary side, the setting can be automatically switched.

### Notice

USB-03G1 does not support USB2.0 High Speed (480Mbps).

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

### 3. Connection

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


### 4. 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.

### 5. 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



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

### 6. FG Terminal

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



## 7. Specifications

### 7.1. Product Specification

Item	Description	Remarks
Model	USB-03G1	
Input Power	DC 5V 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 Full (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	DC 4000V	Designed value
Support OS	OS-Independent (No drivers required)	
LED	PWR: Power LED TG PWR: Target side Power LED	
Connector (HOST)	USB-B connector	
Connector (Target)	USB-A connector	
Operating Ambient Temperature	-20 to 60 °C (-4 to 140 °F)	No condensation permitted
Operating Ambient Humidity	30 to 85%RH	
Storage Ambient Temperature	-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






## 7.2. AC adapter (Japan's specifications)

Item	Description	Remarks
Input	AC100 to 240V, 50/60Hz 0.3A	
Output	5VDC 2.0A	
Plug	2.1mm inner diameter	Positive Tip
Compatible DC Jack	2.1mm inner diameter	
Operating Ambient Temperature	0 to 40 °C (32 to 104 °F)	No condensation permitted
Operating Ambient Humidity	30 to 85 % RH	
Storage Ambient Temperature	-20 to 80 °C (-4 to 176 °F)	
Storage Ambient Humidity	10 to 95 % RH	
Wire Length	1.6m	
Weight	approx. 70 [g]	
Dimensions	46 x 34 x 25 [mm] 1.811" x 1.339" x 0.984"	Without projections

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

## 7.3. Optional Accessories

Model	Image	Description
PEN-003		USB series Attachment with clamping screw JAN : 4937920800709
PEN-003-DIN		USB series Attachment for 35mm DIN rail JAN : 4937920800716
PEN-003-MG		USB series Attachment with neodymium magnet JAN : 4937920801201

## 8. Additional Documentation and User Support

The following documents and other supports are available at

<https://www.hdl.co.jp/en/faspc/USB/usb-03g1/>

- User's Manual  
... and more.

## 9. Warranty and Compensation

Please refer to the following URL for the warranty.

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

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**USB3.0/3.1 Gen1 Isolator**

**USB-03G1 series**

User's Manual

**Ver. 1.1 ..... May 29, 2019**

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