USB3.0/3.1 Gen1 Isolator Compact

USB-53G1 Rev2 🔵RoHS

User's Manual

Ver.1.0

June 13, 2024

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

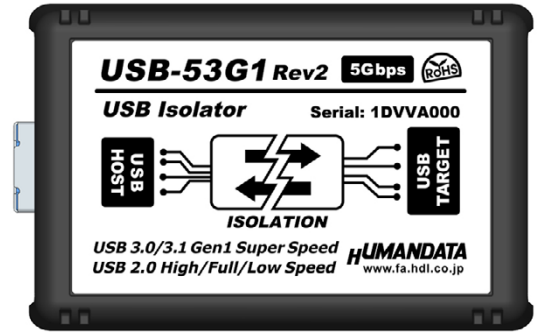| Date	Revision	Description
June 13, 2024	1.0	Initial release (Rev2)

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 Compact, USB-53G1   1

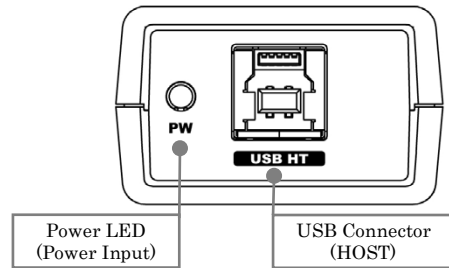☐ USB3.0 A-B cable (200mm)   1

3. Introduction

USB-53G1 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).
USB 2.0 High Speed and Low Speed are supported from Rev2.

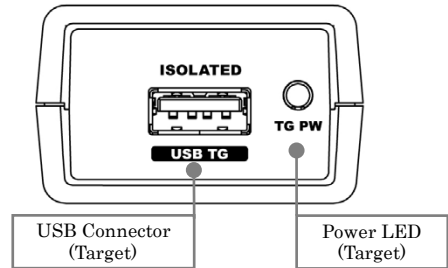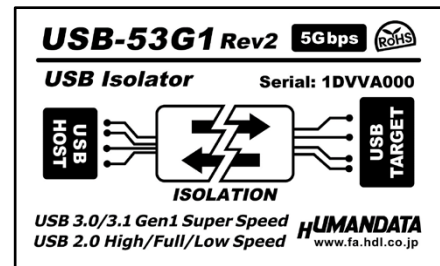## 4. Overview

TOP side

* The images are printed in approximately actual size.
  Dimensions: 67 x 43.5 x 27 [mm] (Without projections)

USB Host side

USB Target side

Product Label

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-53G1 is powered through a USB port (Bus-powered).

7. Product Specification

Item	Description	Remarks
Model	USB-53G1	
Input Power	DC5V Supplied through a USB port	Bus-powered
Current Consumption	Less than 100mA + current of the target device	Max. of 400mA on the target side *2
HOST interface	USB3.0/3.1 Gen1 Super Speed (5Gbps) USB2.0 High Speed (480Mbps) *1 Full Speed (12Mbps) Low Speed (1.5Mbps) *1	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	PW: Power LED TG PW: 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. 50 [g]	Only main body
Dimensions	67 x 43.5 x 27 [mm] (2.638" x 1.713" x 1.102")	Without projections

*1　USB2.0 High Speed and Low Speed are supported from Rev2.
*2　The current that can be supplied to the target side depends on the power supply capacity of the host side. Additionally, please note that due to the efficiency of the internal DC/DC converter, the host side requires more current than the target side.
* 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

9. 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-53g1/
- Support Center: https://www.fa.hdl.co.jp/en/support.html

10. Warranty and Compensation

Please refer to the following URL for the warranty.

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

11. 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.