USB Isolator Board

USB-043

User's Manual

Ver. 1.0

HuMANDATA LTD.

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● Precautions

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.

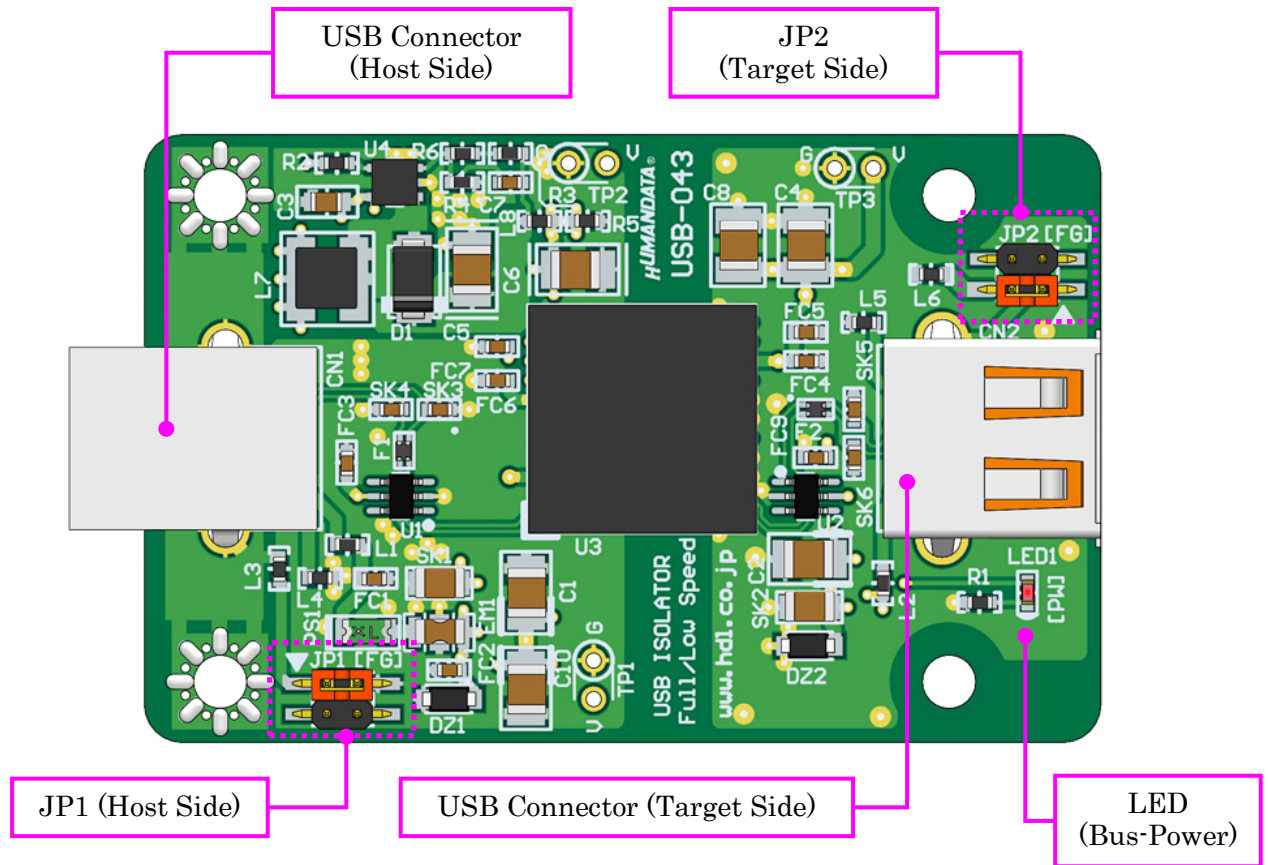|		
Attention	6	This manual may be revised in the future without notice owing to improvements.
	7	All efforts have been made to produce the best manual possible, but if users notice an error or other problem, we ask that they notify us.
	8	Item 7 notwithstanding, HuMANDATA cannot be held liable for the 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.

● Revision History

Date	Revision	Description
April 2, 2020	v1.0	Initial release

● Introduction

Thank you very much for purchasing our product.

USB-043 is a USB 2.0 Full Speed(12Mbps) and Low Speed(1.5Mbps) compliant isolator which isolates between a USB host and a USB peripheral device with 2500VDC. USB-043 can be used to built-in to the device for the board type. With USB-043, 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 such as Windows, Linux, Mac OS X.

1. Overview

USB Connector
(Host Side)

JP2
(Target Side)

JP1 (Host Side)

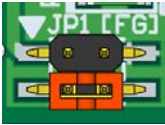USB Connector (Target Side)
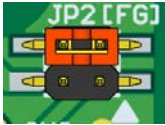
LED
(Bus-Power)

2. Power Supply

USB-043 is powered through a USB port (Bus-powered).

3. SG/FG Separation Jumper (JP1, JP2)

You can change connection of SG (signal ground) and FG (frame ground).

JP1 Jumper (Host Side)	SG-FG
1-2 pin	Short (Factory Setting)
3-4 pin	Open

| JP2 Jumper (Target Side)	SG-FG
1-2 pin	Short (Factory Setting)
3-4 pin	Open

4. Specifications

4.1. Product Specification

Item	Description	Remarks
Model	USB-043	
Input Power	5VDC, Supplied through a USB port (Bus-powered)	No external power supply required
Current Consumption	Less than 100 mA + current of the target device	Target device: 400mA max. (Lower than the supply capacity of the host side)
Host interface	USB 2.0 Compliant (Supports Full and Low Speed)	USB 1.1 compatible Hi Speed is not supported. ESD protection
Isolation Method	Bus isolation	
Isolation Protection	2500VDC	Designed value
Support OS	OS-Independent	No drivers required
LED	PW: Power LED	
USB Connector (Host)	Standard Type B Female	High-retention connector
USB Connector (Target)	Standard Type A Female	High-retention connector
Operating Ambient Temperature	-20 to 60 °C	No condensation permitted
Operating Ambient Humidity	30 to 85 %RH	
Storage Ambient Temperature	-20 to 60 °C	
Storage Ambient Humidity	30 to 85 %RH	
Noise Tolerance	Not defined	
Transmission and other Standards	Not defined	
Dimensions	63 x 40 [mm] (2.480" x 1.575")	Without projections
Weight	Approx. 20 [g]	Only main body

* There may be cases that these parts and specifications are changed.

4.2. Optional Accessories

Model	Image	Description
ACC-024		Attachment A for panel mount JAN：4937920801072
P112-M		USB Extension Cable for panel mount, type M JAN：4937920800419
P112-S		USB Extension Cable for panel mount, type S JAN：4937920800402
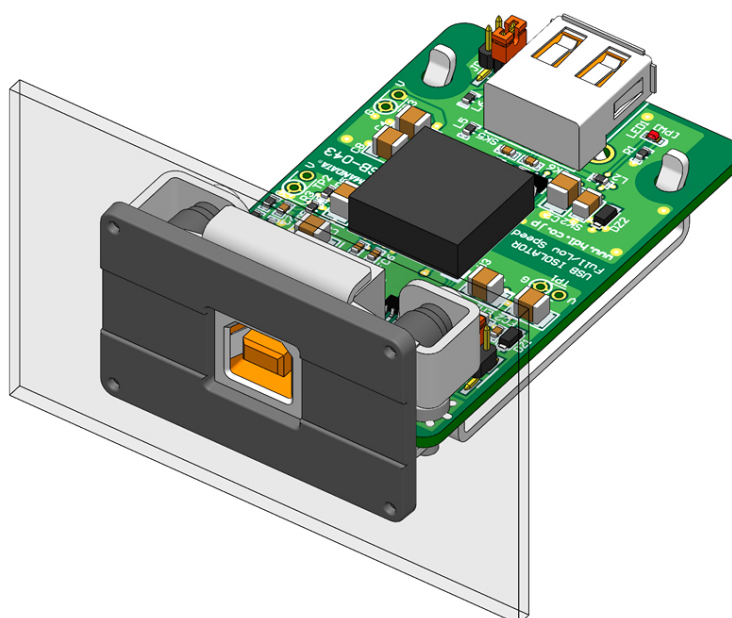
Sample image using ACC-024 (Attachment A for panel mount)

5. Additional Documentation and User Support

The following documents and other supports are available at

https://www.hdl.co.jp/en/faspc/USB/usb-043

- User's Manual
  … and more.

6. 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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