



# USB 2.0 Isolator 5000 Vrms Dongle

w/ DIN RAIL Mounting Kit

Model Number: *CM-M4160-ISO*

## Installation Guide

Coolgear, Inc.

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## Revision History

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Revision	Date	Comments
1.0	12/05/2024	First Release

## 1. Introduction

Thank you for purchasing Coolgear's USB 2.0 Isolator 5000 Vrms Dongle. The USB 2.0 Isolator protects your PC or laptop from surges, noise, and ground loop errors when connecting high-voltage USB peripherals. Ideal for sensitive applications like automotive measurements, it ensures accurate data transfer and shields equipment from over-voltage and transient spikes. USB bus-powered, it delivers 5V/300mA through a built-in DC-to-DC converter when connected to a high-power USB port.

### Features:

- USB isolation 5000VDC between USB host and USB device.
- USB 2.0 compatible, 1.5Mbps low speed / 12Mbps full speed and 480Mbps high speed Bi-directional communication.
- Short circuit protected for x D+ and x D- lines.
- Isolated host power through a DC-to-DC converter.
- Class 3A contact ESD performance per ANSI / ESD STM5.1-2007; Supports  $\pm 15$ kV ESD protection.
- High common-mode transient immunity  $>50$  kV/ $\mu$ s.
- Auto-Negotiation of Link Speed.
- Supports Windows 98SE / ME / 2000 / XP / Vista / 7 / 8 / 8.1 / 10 / 11, Mac OS 8.6 or higher; no driver installation required.

## 2. Connector Layout



Male USB 2.0 Port (To Host)

Female USB 2.0 Port (To Device)

### 3. Connecting

#### Typical Application

- Industrial automation systems
- Measurement devices
- Environments requiring safety insulation
- Broadcast and Studio
- Audiophile-grade home systems
- All applications requiring clean and stable USB connections with separate grounds



Fig 1. The USB Isolator unit is installed in-line between the PC and a connected USB device.



Fig 2. The USB Isolator unit is installed in-line between the PC and a connected USB device with an analogue signal equipment

## 4. Installation

The Hub supports managing utilities called USB Hub Administrator for major recent Windows (XP and above) and Linux:

1. Plug the unit's molded USB A male cable into the host computer.
2. The Power LED (Orange) will light on, indicating power is being received from the host and the isolator is ready.
3. Plug the downstream device into the unit (Type A female connector). This USB cable is not included.
4. The USB Isolator is transparent to the host operating system and does not require configuration or software installation.

**\*\*Note:** The isolator is USB bus powered. When the USB Isolator is connected to a high power USB host port, it can provide power current up to 300mA to the attached downstream device.

## 5. Troubleshooting

Table -1 provides troubleshooting tips. The solutions are arranged in the order in which they should be executed in most situations. If you are unable to resolve the problem after following these instructions, contact your distributor for further support.

Table -1 Troubleshooting tips

Problem	Cause	Solution
The USB device is attached but not functioning.	<ul style="list-style-type: none"> <li>• The USB device requires drivers that were not installed.</li> <li>• The USB device does not support USB this isolator.</li> <li>• The USB device may have failed.</li> </ul>	<ol style="list-style-type: none"> <li>1. Install the required USB device driver on the computer operating system before plug in the USB device to the receiver. Access your USB device's manufacturer's Web site for detail info.</li> <li>2. In the Universal Serial Bus (USB) controllers section of Device Manager, check if the USB device is listed.</li> </ol>
The USB device is attached but not functioning.	<ul style="list-style-type: none"> <li>• An over current condition has occurred because the USB device is drew more current than it can be supplied per USB specification (500mA). Operating systems may pop up to indicate an issue.</li> </ul>	<ol style="list-style-type: none"> <li>1. Unplug the power adapter from the receiver, wait approximately 30 seconds; plug the power adapter into receiver again.</li> <li>2. If over current keeps occurring, either the USB device may use more power than the USB specification, or the USB device may be damaged.</li> <li>3. Consult your USB device documentation and plug into your USB device with the required power adapter.</li> </ol>

## 6. Regulatory Compliance

### CE Certification

This equipment complies with the requirements relating to electromagnetic compatibility. It has been manufactured under the scope of RoHS compliance.

### FCC Compliance Statement

This equipment generates and uses radio frequency and may cause interference to radio and television reception if not installed and used properly. This equipment has been tested and found to comply with the limits of a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

You are cautioned that changes or modification not expressly approved by the party responsible for compliance could void your authority to operate the equipment. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation



### WEEE (Waste of Electrical and Electronic Equipment), Recycling of Electronic Products

In 2006 the European Union introduced regulations (WEEE) for the collection and recycling of all waste electrical and electronic equipment. It is no longer allowable to simply throw away electrical and electronic equipment. Instead, these products must enter the recycling process. Each individual EU member state has implemented the WEEE regulations into national law in slightly different ways. Please follow your national law when you want to dispose of any electrical or electronic products. More details can be obtained from your national WEEE recycling agency.

### Contact Us:

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**Toll Free:** 1 888-688-2188  
**Local:** 1 727-209-1300  
**Fax:** 1 727-209-1302

### Safety

- Read the entire Installation Guide before implementing this product for your application. This guide contains important information about electrical connections that must be followed for safe and proper operation.
- Inspect the product closely for visual defects before putting it to use.
- Keep away from areas where moisture builds, this product contains electrical components that can be damaged by

moisture build up, this can adversely affect your equipment connected to it.

- Do not disassemble the product. Handling the product's internal components can expose it to ESD (Electro-Static Discharge) hazards that can affect the function of the device.
- If this product is not functioning properly, email our support team at [support@coolgear.com](mailto:support@coolgear.com).

## USB CHARGING & CONNECTIVITY EXPERTS

### Within Every Great Machine

For over 20 years our rugged, off-the-shelf USB hubs, chargers, and serial products are ready to go for your next project. Based in the US, Coolgear has successfully engineered and deployed millions of connectivity solutions into industrial, medical, automotive, commercial, and aerospace industries.

We understand the importance of reliability, build quality, & consider all our customers' applications as critical, wanting to ensure long-lasting event-free integrations.

#### Compliance Statement

View compliance within the product's respective Technical Data Sheet, found on the product's online listing.

#### Technical Support

When you reach out to Coolgear support, you'll find yourself in the hands of a solution-oriented and knowledgeable expert ready to answer whatever question you throw at them. If you ever need help with your product, visit [coolgear.com/support](http://coolgear.com/support) for support tickets, downloads, and other support resources. For the latest drivers, please visit [coolgear.com/download](http://coolgear.com/download).

#### Product Standard Warranty

One (1) Year Warranty from Date of Purchase Invoice. Coolgear will repair or replace any Product determined to be defective and which has been returned, at your risk and expense, to Coolgear. Where Coolgear determines in its sole judgment that repair or replacement of such Product is not reasonable, Coolgear will keep the non-conforming Product and refund to you the amount you paid for such Product. Returned Products shall be subject to the balance of the Warranty Period otherwise applicable. Any reconditioned parts used by Coolgear shall be subject to all the same provisions as otherwise applicable to new parts. THE FOREGOING DESCRIBES COOLGEAR'S SOLE LIABILITY, AND YOUR SOLE REMEDY, FOR ANY BREACH OF WARRANTY. IF YOU DO NOT AGREE WITH THE TERMS OF THIS LIMITED WARRANTY, YOU MUST RETURN THE PRODUCTS UNUSED AND IN THEIR ORIGINAL CONTAINERS TO YOUR ORIGIN OF PURCHASE.

#### Limitation of Liability

This Limited Warranty does not cover: (i) defects or damages resulting from natural causes, casualty, accident, misuse or abuse, neglect, alterations, service or repair by other than Coolgear, including without limitation by you; (ii) improper installation or de-installation, operation or maintenance, improper connections with peripherals or other causes not arising out of defects in the materials or workmanship of Products; (iii) any Product for which the warranty sticker has been removed, modified or defaced; (iv) normal wear and tear; (v) damage to or loss of repaired or replaced Products during shipping by Coolgear except when such damage or loss is caused by poor or inadequate packaging by Coolgear; or (vi) Products purchased outside the United States. UNDER NO CIRCUMSTANCES WILL COOLGEAR BE LIABLE FOR ANY LOSS OF USE, INTERRUPTION OF BUSINESS OR ANY INDIRECT, SPECIAL, INCIDENTAL, PUNITIVE OR CONSEQUENTIAL DAMAGES OF ANY KIND (INCLUDING LOST PROFITS) REGARDLESS OF THE FORM OF ACTION WHETHER IN CONTRACT, TORT (INCLUDING NEGLIGENCE), STRICT PRODUCT LIABILITY OR OTHERWISE, EVEN IF COOLGEAR HAS



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