SEALEVEL®

SeaISO™ USB Isolator
User Manual

Item# ISO-1

Item# ISO-1R

Contents

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to 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.

ADVISORY CONVENTIONS

Warning - The highest level of importance used to stress a condition where damage could result to the product or the user could suffer serious injury.

Important– The middle level of importance used to highlight information that might not seem obvious or a situation that could cause the product to fail.

Note – The lowest level of importance used to provide background information, additional tips, or other non-critical facts that will not affect the use of the product.

IMPORTANT SAFETY INSTRUCTIONS

SAVE THIS MANUAL— It contains important safety and operating instructions for the installing and using the SeaISO USB Isolator.

Prior to beginning the installation, carefully read, understand, and follow all related *safety guidelines and documentation.* This manual includes warnings, recommendations, and safety precautions that must be observed.

- Carefully follow all the installation instructions later in this manual.
- There are no user-serviceable parts in the SeaISO USB Isolator. Do not disassemble.
- Contact the manufacturer if service or repair is required.
- Do not operate the system if it has a visible damage. Contact the manufacturer for a replacement.

Introduction

The SeaISO USB Isolator is a device that provides galvanic separation between USB devices and host control systems. It is powered from the host system and allows energy transfer over the isolation barrier to the slave device. The Isolator is a USB 2.0 compatible device connecting with the host over a high-speed link and featuring full speed (12 Mbit/s) connection to the isolated slave device.

Model ISO-1 is a standard version enclosed in an ABS plastic case dedicated mainly for industrial use. Model ISO-1R is a custom ruggedized version featuring cable "bump" design and sealed TPE overmold for environmental protection in medical applications.

Features

- Medical grade 4000Vac isolation, data and power
- Meets 60601-1 3rd Edition requirements for 1x MOPP at working voltage up to 250Vac
- Meets 60601-1 3rd Edition requirements for 2x MOPP at working voltage up to 42.4Vac
- High retention connectors
- USB bus powered
- High speed host port
- [1]Full speed device port
- Energy transfer with isolation
- 300mA minimum output current (with host port capable of 500mA)
- Up to 1.1A output current from high-power host port
- Tested for compatibility with USB 3.0
- Overload and short circuit protection
- No software required – appears in the system as a 1-port hub

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[1] Low speed only devices such as keyboards and mice must be connected through an intervening USB hub.

WHAT'S INCLUDED

ISO-1

The SeaISO ISO-1 USB Isolator is shipped with the following items. If any of these items are missing or damaged, please contact Sealevel for replacement.

- SeaISO USB Isolator (model # ISO-1)

- USB cable extension (CA-536)

- USB A-B cable 1m (CA-539)

INSTALLATION INSTRUCTIONS

- Connect B-type USB connector on the isolator to the host computer via the included A-B type 1m long USB cable CA-539
- Connect CA-536 cable to the A-type female USB connector on the isolator
- Connect your desired USB device to the A-type female end of the CA-536 cable
- Host computer should detect a new device and start enumeration
- After enumeration completes (and appropriate device drivers are loaded, if required) your USB device is ready to use

The SeaISO ISO-1R Ruggedized Isolator is shipped as an overmolded cable with the isolation electronics contained in a "bump" in the cable.
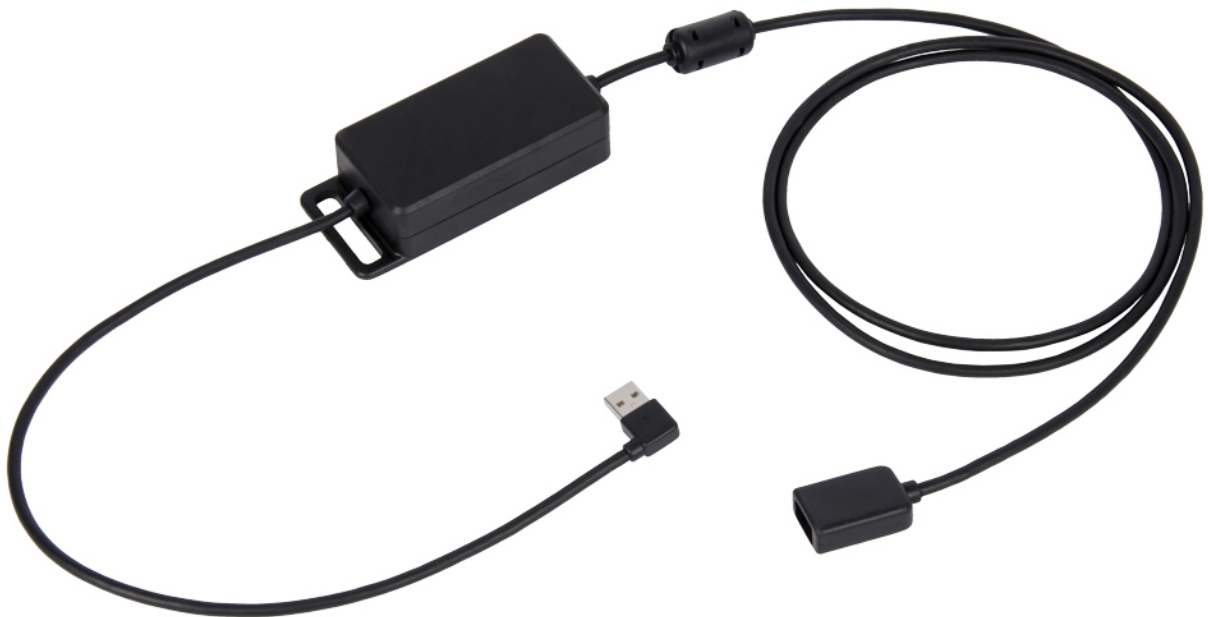
INSTALLATION INSTRUCTIONS

- Connect A-type male USB connector of the isolator to the host computer.
- Connect your desired USB device to the A-type female connector of the isolator
- Host computer should detect a new device and start enumeration
- After enumeration completes (and appropriate device drivers are loaded, if required) your USB device is ready to use

Specifications

DIMENSIONS

4" L x 2" W x 1.2" H

   For CAD drawing with dimensions, see Appendix A.

POWER

Input: 5 VDC (host USB port)
Output: 5 VDC, Current limited by host port capability (up to1.1A)

ENVIRONMENTAL SPECIFICATIONS

Specification	Operating	Storage
Temperature Range	-20°C to 60° C	-40° to 85° C
Humidity Range	10 to 90% R.H. Non-Condensing	10 to 90% R.H. Non-Condensing

CERTIFICATIONS / APPROVALS

- UL Recognized in accordance with 60601-1 3rd Ed. (E474084)
- FCC Part15 Subpart B / ICES 003
- CE marking
    - EMC Directive 2004/108/EC
    - RoHS Directive 2011/65/EU

PRODUCT MARKING
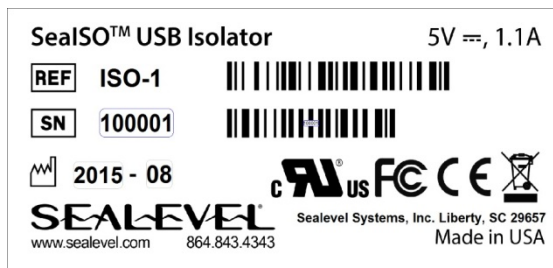
MANUFACTURING

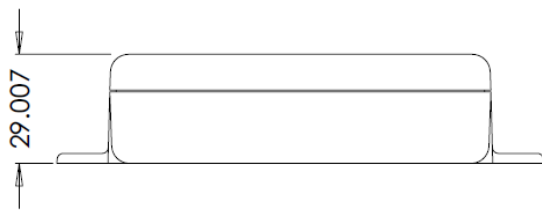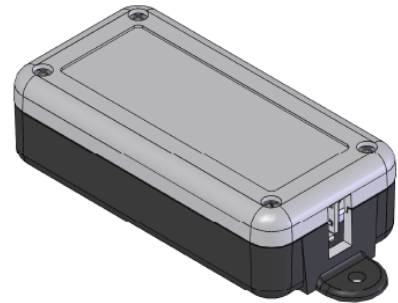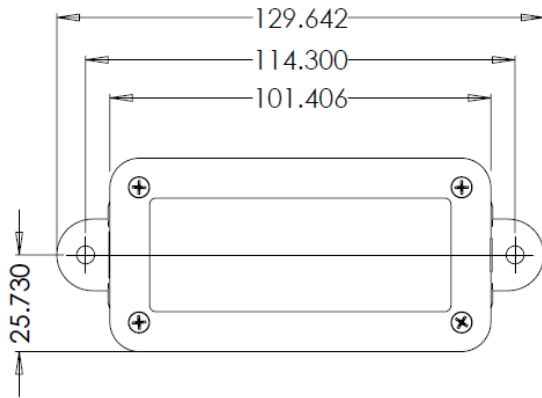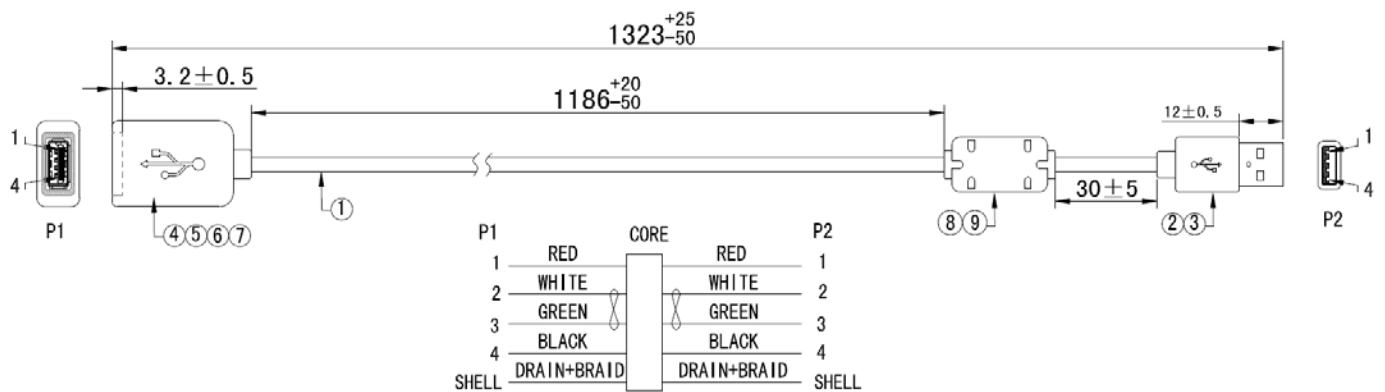All Sealevel Systems printed circuit boards are built to UL 94V0 rating and are 100% electrically tested. They feature solder mask over bare copper or solder mask over tin nickel finish.
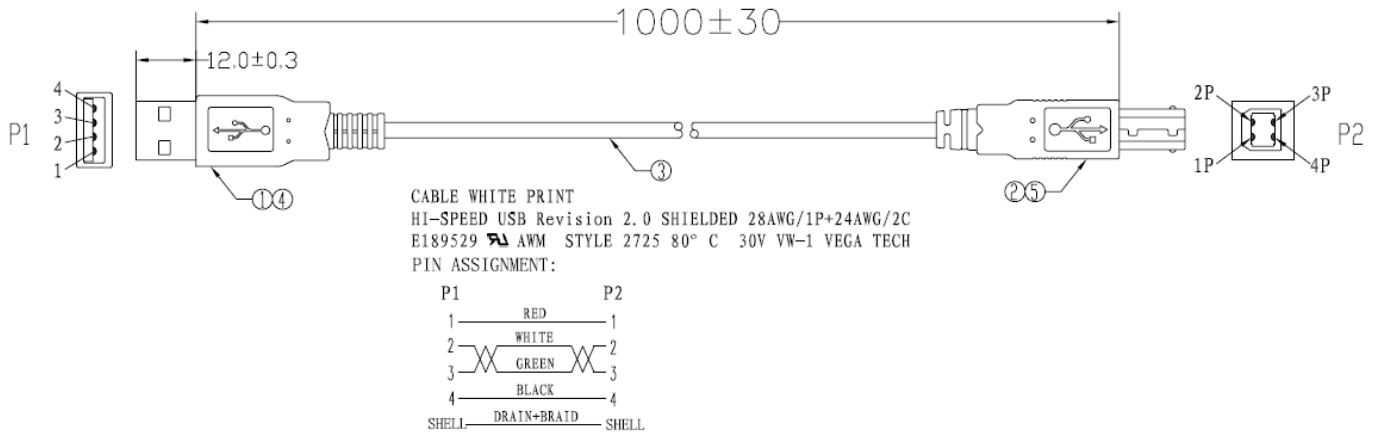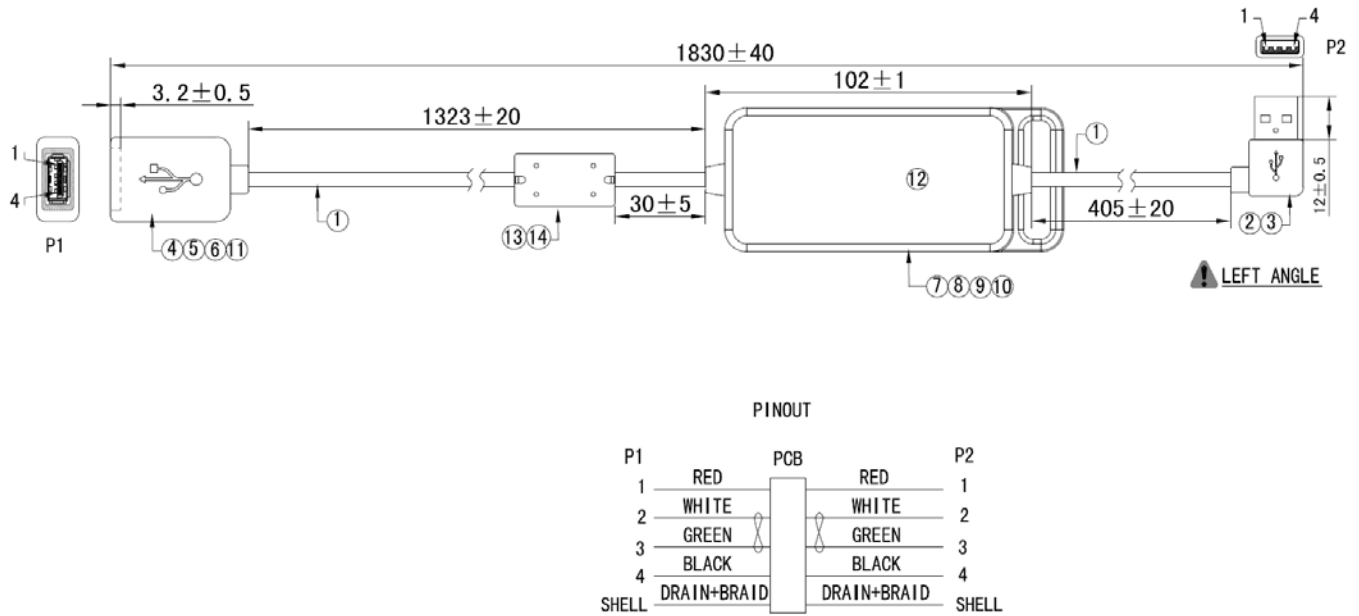
Appendix A – Drawings[2]

ISO-1
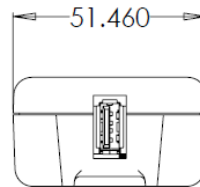
CA-536

[1] All dimensions in millimeters

CA-539


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1000±30
12.0±0.3

P1                                                    2P        3P
4                                                     ┌─────┐
3                                                     │     │    P2
2                                                     │     │
1                                                  1P └─────┘ 4P
        ①④                           ③              ②⑤

CABLE WHITE PRINT
HI-SPEED USB Revision 2.0 SHIELDED 28AWG/1P+24AWG/2C
E189529 ⓊⓁ AWM  STYLE 2725 80° C  30V VW-1 VEGA TECH
PIN ASSIGNMENT:

     P1              P2
     1      RED      1
     2     WHITE     2
     3     GREEN     3
     4     BLACK     4
  SHELL DRAIN+BRAID SHELL
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ISO-1R


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                                    1830±40
                                                1    4
                          1323±20            102±1        P2
        3.2±0.5
1                                                               1
                                                            ①
4                                                                    12±0.5
P1                              30±5              12
                                                          405±20   ②③
      ④⑤⑥⑪      ①        ⑬⑭                              ⚠ LEFT ANGLE
                                  ⑦⑧⑨⑩

                    PINOUT

     P1         PCB         P2
     1    RED        RED     1
     2   WHITE      WHITE    2
     3   GREEN      GREEN    3
     4   BLACK      BLACK    4
  SHELL DRAIN+BRAID DRAIN+BRAID SHELL
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Appendix B – How to Get Assistance

When calling for technical assistance, please have the device installed and ready to run diagnostics. If possible, have your user manual and current settings ready.

The Sealevel website is an excellent resource located at www.sealevel.com. The most current software updates and user manuals are available via our homepage by clicking on the 'Drivers' or 'Manuals' links located under 'Technical Support.' Manuals and software can also be downloaded from the product page for your device.

The FAQ section of our website answers many common questions. Refer to this helpful resource by visiting www.sealevel.com/faq.asp.

TECHNICAL SUPPORT

Monday – Friday
8:00 am to 5:00 pm EST
Phone: +1 (864) 843-4343
Email: support@sealevel.com

SEALEVEL SYSTEMS

2779 Greenville Hwy
PO BOX 830
Liberty, SC 29657

RETURN AUTHORIZATION MUST BE OBTAINED FROM SEALEVEL SYSTEMS BEFORE RETURNED MERCHANDISE WILL BE ACCEPTED. AUTHORIZATION CAN BE OBTAINED BY CALLING SEALEVEL SYSTEMS AND REQUESTING A RETURN MERCHANDISE AUTHORIZATION (RMA) NUMBER.

Warranty

Sealevel's commitment to providing the best I/O solutions is reflected in the Lifetime Warranty that is standard on all Sealevel manufactured I/O products. Relio™ industrial computers are warranted for a period of two years and the R9 family is warranted for a five year period from date of purchase. We are able to offer this warranty due to our control of manufacturing quality and the historically high reliability of our products in the field. Sealevel products are designed and manufactured at its Liberty, South Carolina facility, allowing direct control over product development, production, burn-in and testing. Sealevel achieved ISO-9001:2000 certification in 2002.

Warranty Policy

Sealevel Systems, Inc. (hereafter "Sealevel") warrants that the Product shall conform to and perform in accordance with published technical specifications and shall be free of defects in materials and workmanship for the warranty period. In the event of failure, Sealevel will repair or replace the product at Sealevel's sole discretion. Failures resulting from misapplication or misuse of the Product, failure to adhere to any specifications or instructions, or failure resulting from neglect, abuse, accidents, or acts of nature are not covered under this warranty.

Warranty service may be obtained by delivering the Product to Sealevel and providing proof of purchase. Customer agrees to insure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to Sealevel, and to use the original shipping container or equivalent. Warranty is valid only for original purchaser and is not transferable.

This warranty applies to Sealevel manufactured Product. Product purchased through Sealevel but manufactured by a third party will retain the original manufacturer's warranty.

NON-WARRANTY REPAIR/RETEST

Products returned due to damage or misuse and Products retested with no problem found are subject to repair/retest charges. A purchase order or credit card number and authorization must be provided in order to obtain an RMA (Return Merchandise Authorization) number prior to returning Product.

HOW TO OBTAIN AN RMA (RETURN MERCHANDISE AUTHORIZATION)

If you need to return a product for warranty or non-warranty repair, you must first obtain an RMA number. Please contact Sealevel Systems, Inc. Technical Support for assistance:

Available   Monday – Friday, 8:00AM to 5:00PM EST
Phone   864-843-4343
Email   support@sealevel.com