LIBERTY AV SOLUTIONS INT-USB3.1-ARJ 1-Port USB 3.x Fixed Range Point-to-Point Extender System User Manual

Contents

LIBERTY AV SOLUTIONS INT-USB3.1-ARJ 1-Port USB 3.x Fixed Range Point-to-Point Extender System

Product Information

The Intelix INT-USB3.1-ARJ is a 1-port USB 3.x fixed range point-to-point extender system that allows users to extend USB 3.2 beyond the standard 3m cable limit for USB 3.2 peripheral devices. The extender system is composed of two individual units, the Local Extender and the Remote Extender, and incorporates ExtremeUSB-CTM technology.

Features

- Ability to extend USB 3.2 beyond the standard 3m cable limit for USB 3.2 peripheral devices
- Composed of two individual units, the Local Extender and the Remote Extender
- Incorporates ExtremeUSB-CTM technology
- Does not support DisplayPort ALT mode functionality through the USB-C connection

Installation Guide

The installation guide provides instructions on how to install the extender system, install the local and remote extenders, connect the local extender to the remote extender, check the installation, connect a USB device, and compatibility.

- **Installing the Extender System**

  To install the extender system, follow these steps:

  1. Install the Local Extender
  2. Connect the Local Extender to the Remote Extender
  3. Install the Remote Extender
  4. Check the Installation
  5. Connect a USB Device
  6. Check Compatibility
- **Installing the Local Extender**

  To install the Local Extender, follow these steps:

  1. Connect the Local Extender to the computer using a standard USB 3.2 Gen 1 cable.
  2. Power the Local Extender using the USB Host/Hub or optional DC input.
- **Connecting the Local Extender to the Remote Extender**

To connect the Local Extender to the Remote Extender, follow these steps:

1. Connect the Local Extender to the Remote Extender using a Cat5e/6 UTP cable.

- **Installing the Remote Extender**

  To install the Remote Extender, follow these steps:

  1. Connect the Remote Extender to the USB device using a standard USB 3.2 Gen 1 cable.
  2. Power the Remote Extender using the USB Host/Hub or optional DC input.

- **Checking the Installation**

  To check the installation, follow these steps:

  1. Ensure that the Power LED on the Local Extender is solid green.
  2. Ensure that the Link LED on both the Local and Remote Extenders is solid green.

- **Connecting a USB Device**

  To connect a USB device, follow these steps:

  1. Connect the USB device to the Remote Extender using a standard USB 3.2 Gen 1 cable.

Compatibility

The INT-USB3.1-ARJ is compatible with USB 3.2, USB 2.0 and USB 1.1 devices.

Troubleshooting

The troubleshooting section provides guidelines on how to resolve common issues that may occur when using the INT-USB3.1-ARJ.

Specifications

The specifications section provides detailed technical specifications for the INT-USB3.1-ARJ.

Technical Glossary

The technical glossary provides definitions of technical terms used in the user manual.

Thank you for purchasing the Intelix INT-USB3.1-ARJ.
Please read this guide thoroughly.

FCC Radio Frequency Interference Statement Warning

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,
2. this device must accept any interference received including interference that may cause undesired operation.

CE Statement
We, LIBERTY AV SOLUTIONS, declare under our sole responsibility that the INT-USB3.1-ARJ, to which this declaration relates, is in conformity with European Standards EN 55024, EN 55032, EN 61000, and RoHS Directive 2011/65/EU + 2015/863/EU.

IC Statement

This Class A digital apparatus complies with Canadian ICES-003 Issue 7.

WEEE Statement
The European Union has established regulations for the collection and recycling of all waste electrical and electronic equipment (WEEE). Implementation of WEEE regulations may vary slightly by individual EU member states. Please check with your local and state government guidelines for safe disposal and recycling or contact your national WEEE recycling agency for more information.

Product Operation and Storage

- Please read and follow all instructions provided with this product and operate for intended use only.
- Do not attempt to open the product casing as this may cause damage and will void warranty. Use only the power supply provided with this product (if applicable). When not in use, product should be stored in a dry location between -20°C and 70°C.

Document #220616

Introduction

This guide provides product information for the INT-USB3.1-ARJ, installation instructions and troubleshooting guidelines. The instructions in this guide assume a general knowledge of computer installation procedures, familiarity with cabling requirements and some understanding of USB devices.

- **NOTE:** Notes provide additional information that could be useful.
- **CAUTION:** Cautions provide important information about an operational requirement.

Product Contents
Your INT-USB3.1-ARJ extender system contains:

- Local Extender
- Remote Extender
- USB 3.2 Gen 1 USB-C Cable (USB only)
- Custom ARJ Link Cable (10m Plenum Rated)
- Cable Pulling Eye
- 5V Power Supply with NA, UK, EU and AU Power adapters
- 4 Mounting Clips

Features
The INT-USB3.1-ARJ incorporates ExtremeUSB-C™ technology, enabling users to extend USB 3.2 beyond the standard 3m cable limit for USB 3.2 peripheral devices. This extender system is composed of two individual units, the Local Extender and the Remote Extender, and has the following key features:

- 10m extension using included Cable
- Support for new USB 3.2 Gen 1/2 host controllers and devices (up to 5Gbps)
- Bus Powered Operation
- Supports all device types
- Backwards compatible to USB 2.0 devices

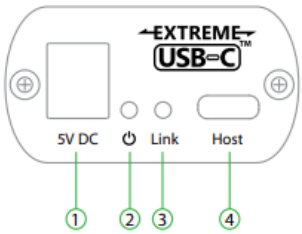
INT-USB3.1-ARJ does NOT support DisplayPort ALT mode functionality through the USB-C connection.

The INT-USB3.1-ARJ includes the ExtremeUSB-C™ suite of features:

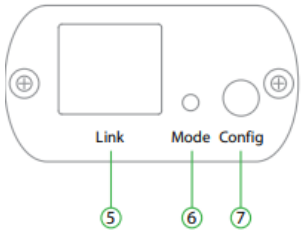
- Transparent USB extension supporting USB 3, 2 and 1
- True plug and play; no software drivers required
- Works with all major operating systems: Windows®, macOS™, Linux® and Chrome OS™

The Local Extender
The Local Extender connects to the computer using a standard USB 3.2 Gen 1 cable. Power is provided by the USB Host/Hub or optional DC input.

Front View



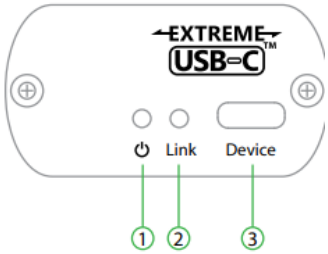
Rear View



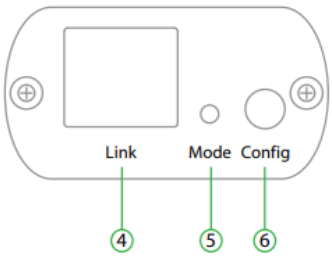
ITEM	TYPE	DESCRIPTION
1	DC Power Port	DC power input
2	Power LED * *Refer to note below*	LED Is SOLID GREEN When sufficient power is provided by host. LED is SOLID AMBER when less than optimal power is not guaranteed by host.
3	Link LED	LED is SOLID GREEN ON when Local Extender is linked to an opposite Remote Extender. LED is OFF or BLINKING when there is no connection between the Local Extender and Remote Extender units.
4	USB Host Port	USB 3 Type-C receptacle used to connect Local Extender to USB 3 Host computer.
5	Link Port (ARJ45)	Accepts custom ARJ45 Cable included with product.
6	Mode	Reserved for manufacturer use.
7	Config	Reserved for manufacturer use.

The Remote Extender
The Remote Extender provides a USB 3.2 Gen 1 Type-C port for standard USB devices and allows you to connect one USB device directly.

Front View



Rear View



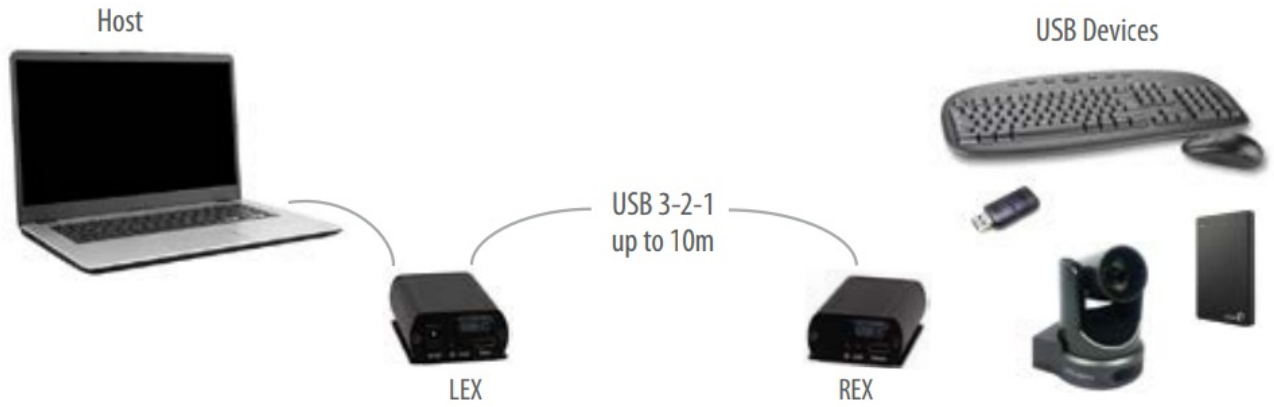
ITEM	TYPE	DESCRIPTION
1	Power LED	LED Is SOLID GREEN when sufficient power is supplied by Local Extender. LED is SOLID AMBER when less than optimal power is not guaranteed by host.
2	Link LED	LED is SOLID GREEN ON when Remote Extender is linked to an opposite Local Extender. LED is OFF or BLINKING when there is no connection between the Local Extender and Remote Extender units.
3	Device Port	USB 3 Type-C receptacle used to connect Remote Extender to USB device.
4	Link Port (ARJ45)	Accepts custom ARJ45 Cable included with product.
5	Mode	Reserved for manufacturer use.
6	Config	Reserved for manufacturer use.

Installation Guide

Installing the INT-USB3.1-ARJ Extender System

To complete the installation, you will also require the following items that are not included with this system:

- USB compatible computer (host computer) with a USB compliant operating system
- USB compatible device(s)



Preparing Your Site
Before installing the extender, you will need to prepare your site:

1. Place the computer where desired and set it up.
2. Ensure to locate your USB device(s) within the cable-length of the computer. If not, adjust the location of your device(s) and/or computer accordingly.

- Cable installation is important, particularly if high throughput applications are used. When installing, ensure the cable is installed away from, or isolated from potential sources of interference such as electrical wiring, fluorescent lighting, etc.
- Use the included ARJ45 Cable Pulling Eye tool when installing included cable through conduits or other tight spaces.
- Use only the included cable with this product; do not cut or re-size the included cable.

Installing the Local Extender

1. Place the Local Extender near the computer.
2. Apply 5V 3A AC power supply to unit. (optional if using USB-C host connection to power circuit)
3. Connect the supplied USB 3.2 Gen 1 cable between the Local Extender host port and a USB 3 port on the host computer.
4. If the Power LED is AMBER, test the system with the connected device(s) to ensure system is stable.If not a 5V 3A power supply may be required.

Connecting the Local Extender to the Remote Extender

1. Plug one end of the included Cable into the Link port on the Local Extender.
2. . Plug the other end of the included cable into the Link port on the Remote Extender.

Installing the Remote Extender

1. Place the Remote Extender near and connect it to the USB device.

Checking the Installation

1. On the Local and Remote Extenders, check that the Power and Link LEDs are on. If the Link LEDs are permanently off or blinking, then the cable between the Local and Remote Extenders may not be installed properly or is defective.
2. For Windows users (7, 8, 8.1, 10), open Device Manager to confirm that the extender system has been installed correctly. Expand the entry for Universal Serial Bus controllers by clicking the “+” sign. If the extender system has been installed correctly, you should find only one instance of “Generic SuperSpeed USB Hub” listed.
    - To open Device Manager in Windows 7:
    - Open the Start Menu, right click on “Computer” then select: Manage >> Device Manager
    - To open Device Manager in Windows 8, 8.1 or 10:

- Right click the Start Menu and then select: Device Manager

3. For macOS users, open the System Profiler to confirm that the extender system has installed correctly. In the left-hand column under Hardware, select “USB” and inspect the right-hand panel. If the extender has been installed correctly, you should find it listed as one instance of “Hub” under the USB SuperSpeed Bus.
   To open System Profiler in macOS:
   Open the Finder, select Applications, then open the Utilities folder and double click on the System Profiler icon.
4. If the extender system is not detected correctly or fails to detect, please consult the Troubleshooting section in this guide.

Connecting a USB Device

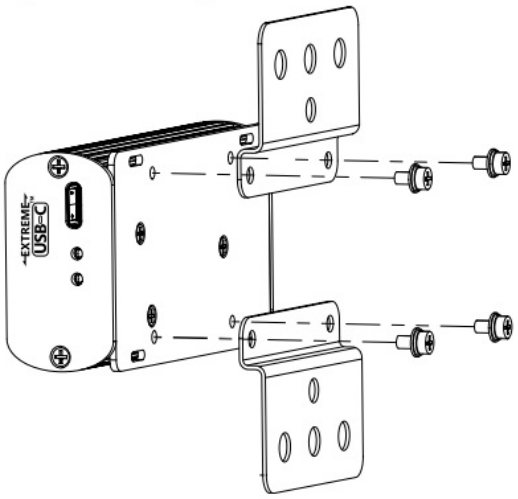
1. Install any software required to operate the USB device. Refer to the documentation for the USB device, as required.
2. Connect the USB device to the device port on the Remote Extender.
3. Check that the device is detected and installed properly in the operating system.

Compatibility
The INT-USB3.1-ARJ complies with USB 1.1, USB 2.0 and USB 3.2 Gen 1 specifications governing the design of USB devices. However, there is no guarantee that all USB devices or hosts will be compatible as there are a number of different characteristics that may impact the operation of USB devices over extended distances. USB Bus power operation is only guaranteed with USB-C Upstream facing port connections with a USB-C cable.

USB Extender Mounting Options

- The bottom of the INT-USB3.1-ARJ enclosure features four convenient pre-drilled holes for optional direct surface mounting and four mounting slots for easy cable-ties.
- Each kit includes:
  - 4 mounting brackets
  - 8 (M2.5×4.5mm) Phillips raised cheese head screws with lock and flat washers
  - Mounting bracket installation guide (refer to diagram below)
- Using a Phillips screwdriver, in the order as illustrated below, fasten and secure the provided screws into place.

Installing the Mounting Brackets



Troubleshooting

The following table provides troubleshooting tips. The topics 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, please contact Technical Support for further assistance.

PROBLEM	CAUSE	SOLUTION
ALL LEDs are OFF on the Local and/ or Remote Extender.	1. The Local and/or Remote Extender is not receiving power from the AC power adapter. 2. The Local Extender is not connected to a host.	1. Ensure that the AC power adapter is properly connected to the Local and/or Remote Extender. 2. Check that the AC adapter is connected to a live source of AC power. Check that the Local and/or Remote Extender Power LED is illuminated.
Link LEDs on the Local and Remote Extenders are OFF or BLINKING.	1. There is no connection between the Local and Remote Extenders.	1. Ensure that the included cable is connected securely between the Local and Remote Extenders.
ALL LEDs on both the Local and Remote Extenders are SOLID ON, but the USB device is not operating correctly, or is detected as an "Unknown Device" in the operating system.	1. The USB device is malfunctioning. 2. The computer does not recognize the USB device. 3. The application software for the USB device is not operating. 4. The USB extender is malfunctioning.	1. Disconnect the extender from the computer. 2. Connect the USB device directly to the host computer. 3. If the device does not operate as expected, consult the user documentation for the device. 4. Update the host computer BIOS, chipset, or USB controller drivers from the manufacturer's website. 5. If the device operates as expected when directly connected to the computer, connect another device to the extender and reconnect it to the host computer. If the device still does not work, please contact Technical Support for assistance.
A USB 3 device is not enumerating as USB 3, or the operating system is notifying the user that the device can "Perform Faster if connected to a USB 3 port".	1. The USB device is malfunctioning. 2. The computer does not recognize the USB device. 3. The application software for the USB device is not operating. 4. The USB 3 port on the computer is malfunctioning. 5. The USB extender is malfunctioning.	1. Disconnect the extender from the computer. 2. Connect the USB 3 device directly to the host computer. 3. If the device does not operate as expected as a USB 3 device, consult the user documentation for that device or try a different USB port on the host computer. 4. Update the host computer BIOS, chipset or USB controller drivers from the manufacturer's website. 5. If the device operates as USB 3 device when directly connected to the computer, connect another USB 3 device to the extender and reconnect it to the host computer. If the device still does not work, please contact Technical Support for assistance.
Power LED is Solid Amber.	1. Upstream USB connection does not advertise 5V 3A connectivity.	1. Ensure connection is made to an upstream USB-C port (Not Type A or B). 2. Switch to a different port. 3. Solution may not require all 900mA to operate. Test complete setup. 4. Install Optional Power Supply. (Sold separately) 5. If not working, please contact Technical Support for assistance.

Specifications

- **RANGE**
  - **Point-to-Point:** 10m using included Cable
- **USB DEVICE SUPPORT**
  - **Maximum Throughput:** 5Gbps

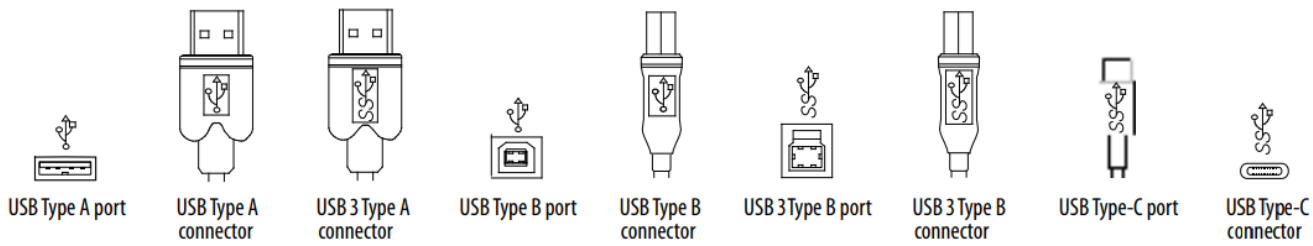
- **Traffic Types All Traffic:** Types
- **Device Types All Device:** Types
- **Maximum Number of Devices and/or Hubs:** 30, including Hubs

- **LOCAL EXTENDER**
  - **USB Connector** 1 x USB 3.2 Gen 1 Type-C Receptacle
  - **Link Connector** 1 x ARJ45 “LINK”
  - **Dimensions** 86.0 x 45.0 x 24.0mm (3.4” x 1.8” x 0.9”)
  - **Enclosure Material** Black Anodized Aluminum
  - **Power Supply** 5V 3A
  - **Maximum Wattage** 15W (5V 3A) USB or Self-Powered
- **REMOTE EXTENDER**
  - **USB Connector** 1x USB 3.2 Gen 1 Type-C Receptacle
  - **Link Connector** 1 x ARJ45 “LINK”
  - **Dimensions** 86.0 x 45.0 x 24.0mm (3.4” x 1.8” x 0.9”)
  - **Enclosure Material** Black Anodized Aluminum
  - **Available Current** Up to 900mA
- **ENVIRONMENTAL**
  - **Operating Temperature Range** 0°C – 50°C (32°F – 122°F)
  - **Storage Temperature Range** -20°C – 70°C (-4°F – 158°F)
  - **Operating Humidity** 20% to 80% relative humidity, non-condensing
  - **Storage Humidity** 10% to 90% relative humidity, non-condensing
- **COMPLIANCE**
  - **EMC FCC** (Class A), CE (Class A)
  - **Environmental** RoHS2/3 (CE)
- **SUPPORT**

  Warranty 5 year

Technical Glossary

USB 3 and USB 2.0 Cables
USB cables have two distinct full-sized connectors. The Type A connector is used to connect the cable from a USB device to the Type A port on a computer or hub. The Type B connector is used to attach the USB cable to a USB device.



USB-C Cable
The Type-C Connector is used to connect to both USB Hosts and Devices.

ARJ45 Cables
Starling 3251C uses a custom cable assembly based on CAT 7 Cable and leverages an ARJ45 Connection.

ARJ45 is a high speed (40Gbps) connection that provides superior cross talk performance when compared to a standard RJ45. The ARJ45 Receptacle is keyed and does not allow RJ45 connections.
ARJ45 Cables cannot be terminated in the field and must be done at the factory. We do not recommend or guarantee operation with any cable other than the one included with this product.

Documents / Resources

	**LIBERTY AV SOLUTIONS INT-USB3.1-ARJ 1-Port USB 3.x Fixed Range Point-to-Point Extender System** [pdf] User Manual INT-USB3.1-ARJ 1-Port USB 3.x Fixed Range Point-to-Point Extender System, INT-USB3.1-ARJ, 1-Port USB 3.x Fixed Range Point-to-Point Extender System, Range Point-to-Point Extender System, Extender System

References

- Icron Technical Support
- libav.com