USB 3.2 Gen1 Extender

User Manual

USB3-E101 / USB3-E101POE / USB3-104E

USB3-E101

USB3-E101POE

USB3-104E

Safety Instructions

※ Do not open the product. There are no user serviceable parts inside.
※ Qualified servicing personnel must only carry out any repairs or maintenance.
※ Never use damaged cables.
※ Do not expose the product to water or places of moisture.
※ This product is intended for indoor use only.
※ Do not place the product near direct heat sources. Always place it in a well-ventilated place.
※ Do not place heavy items on the product or the cables.

1. Introduction

The SuperSpeed extender system enables USB 3.2 Gen1 data transfer rates of up to 5Gbps and extends signals up to 100m (328 ft) over standard CAT 6a/7 cabling. It supports a wide variety of USB extension applications, including security monitoring, conference rooms, video matrix systems, remote storage, industrial control, digital signage, scientific data acquisition, and medical applications. It supports all USB peripherals including USB cameras, sound bars, touch screens, keyboards, mice, interactive whiteboards, multi-function printers, flash drives, hard drives, audio devices, and any other USB devices.

2. Features

- True plug and play; no software drivers required.
- Screw-lock design for Type-C port. (for USB3-E101 / USB3-E101POE)
- Extends USB 3.2 Gen 1 (5Gbps), USB 2.0 (480Mbps) and USB 1.1 (12Mbps) devices up to 100m (328 ft) over CAT 6a/7 cable.
- Supports all Control, Interrupt, Bulk and Isochronous devices.
- Supplies up to 1.5A (for USB3-E101 / USB3-E101POE) & 0.8A (for USB3-104E) at device port.
- Supports Over Current Protection / Short Circuit Protection and ±15kV ESD protection.
- Supports IEEE 802.3af Power over Ethernet (PoE) standard. (for USB3-E101POE)
- Supports 2kVDC isolation protection between USB host and USB device.
- Compatible with all major operating systems, including Windows, macOS, Linux, and ChromeOS.
- Aluminum enclosure with a sleek curved design and wall-mountable structure.

3. Specifications

<table>
<tr><td colspan="3">Model No.</td><td>USB3-E101</td><td>USB3-E101POE</td><td>USB3-104E</td></tr>
<tr><td rowspan="8">Connector</td><td rowspan="2">USB Port</td><td>Local</td><td colspan="2" rowspan="2">USB 3.2 Type-C Female</td><td>USB 3.2 Type-B Female</td></tr>
<tr><td>Remote</td><td>USB 3.2 Type-A Female*4</td></tr>
<tr><td rowspan="2">Link</td><td>Local</td><td colspan="3" rowspan="2">RJ-45 Female</td></tr>
<tr><td>Remote</td></tr>
<tr><td rowspan="2">Firmware Update</td><td>Local</td><td colspan="3" rowspan="2">3.5mm Audio Jack Female</td></tr>
<tr><td>Remote</td></tr>
<tr><td rowspan="2">Power</td><td>Local</td><td>None</td><td>5.5*2.1mm DC Jack</td><td rowspan="2">5.5*2.1mm DC Jack</td></tr>
<tr><td>Remote</td><td>5.5*2.1mm DC Jack</td><td>None</td></tr>
<tr><td colspan="3">Interconnection Cable</td><td colspan="3">Standard CAT 6a/7</td></tr>
<tr><td rowspan="3">Max.Cable Length</td><td colspan="2">CAT 5e SFTP / 24AWG</td><td colspan="3">50m (164 ft)</td></tr>
<tr><td colspan="2">CAT 6 SFTP / 23AWG</td><td colspan="3">100m (328 ft)</td></tr>
<tr><td colspan="2">CAT 6a UFTP / 23AWG</td><td colspan="3">100m (328 ft)</td></tr>
<tr><td rowspan="6">LEDs</td><td rowspan="2">Power</td><td>Local</td><td colspan="3" rowspan="2">Red</td></tr>
<tr><td>Remote</td></tr>
<tr><td rowspan="2">Activity</td><td>Local</td><td colspan="2" rowspan="2">Green</td><td rowspan="2">None</td></tr>
<tr><td>Remote</td></tr>
<tr><td rowspan="2">Link</td><td>Local</td><td colspan="3" rowspan="2">Orange</td></tr>
<tr><td>Remote</td></tr>
<tr><td colspan="3">USB Cable Length</td><td colspan="2">0.6m USB 3.2 CM/CM</td><td>0.6m USB 3.2 AM/BM</td></tr>
<tr><td rowspan="3">Environmental</td><td colspan="2">Operating Temperature</td><td colspan="3">0 ~ 40°C</td></tr>
<tr><td colspan="2">Storage Temperature</td><td colspan="3">0 ~ 60°C</td></tr>
<tr><td colspan="2">Humidity</td><td colspan="3">0-80% RH, Non-condensing</td></tr>
<tr><td rowspan="2">Power Supply</td><td colspan="2">Local</td><td>Bus Powered</td><td>DC48V 0.75A (36W)</td><td>Bus Powered</td></tr>
<tr><td colspan="2">Remote</td><td>DC5V 2A (10W)</td><td>IEEE 802.3af PoE (13W)</td><td>DC5V 4A</td></tr>
<tr><td colspan="3">Housing</td><td colspan="3">Aluminum</td></tr>
<tr><td colspan="3">Dimensions (L x W x H)</td><td colspan="3">90 x 73 x 31mm</td></tr>
</table>

4. Package Contents

- Packaging Box
- Power Supply
- 0.6m USB 3.2 Cable
- Screws
- Manual

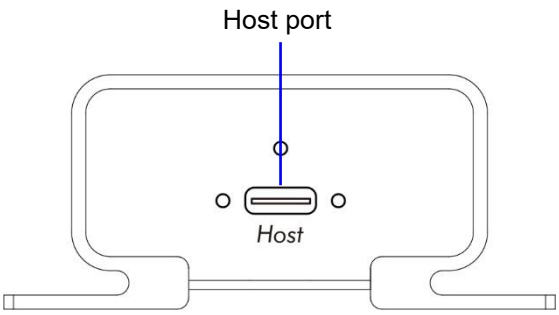
5. Physical Diagram

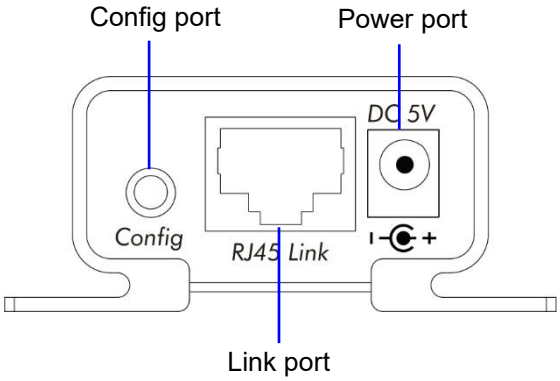
5.1 USB3-E101

【Local Unit】

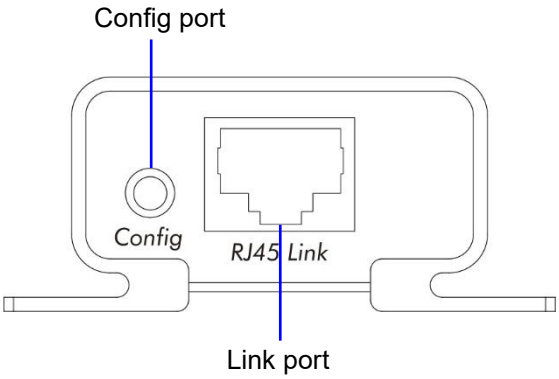
【Remote Unit】

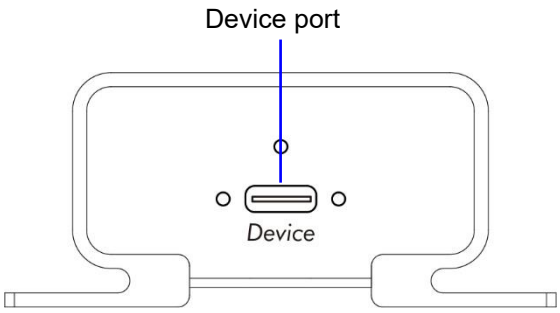
[Front View]



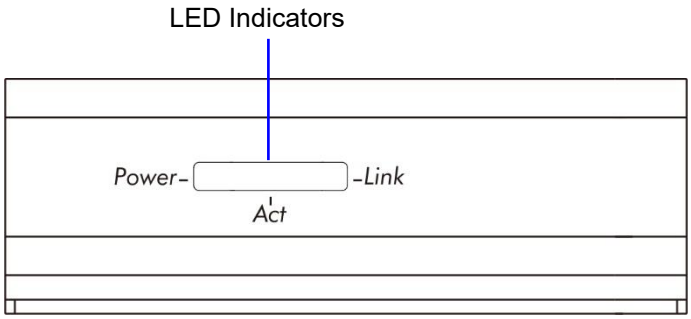


[Rear View]





[Side View]

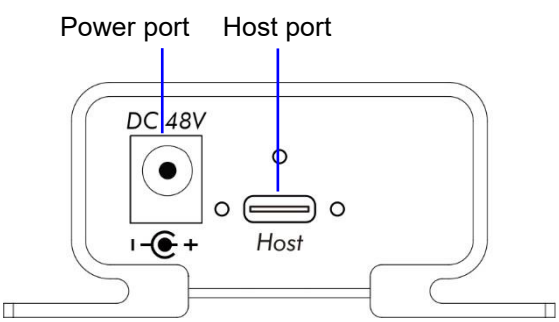


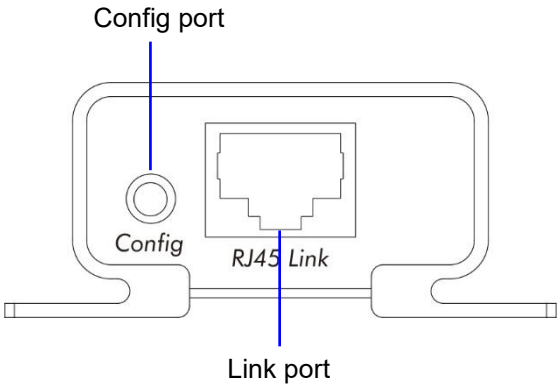
5.2 USB3-E101POE

【Local Unit】

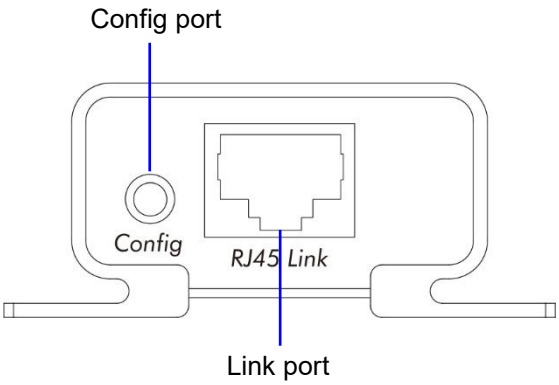
【Remote Unit】

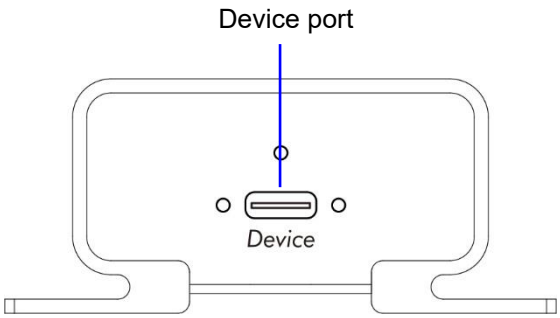
[Front View]



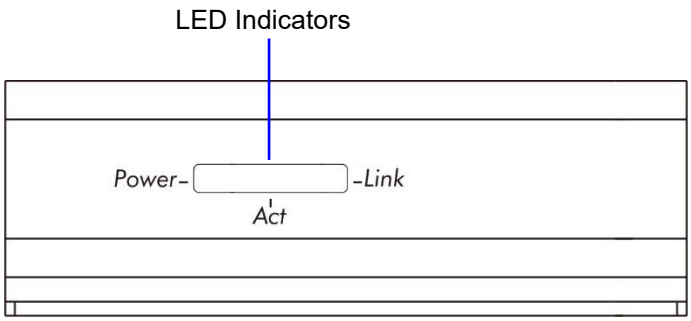


[Rear View]





[Side View]

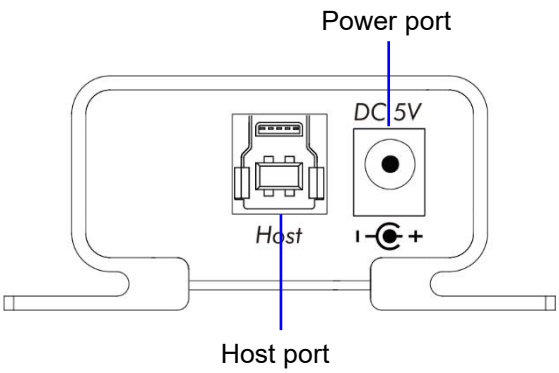


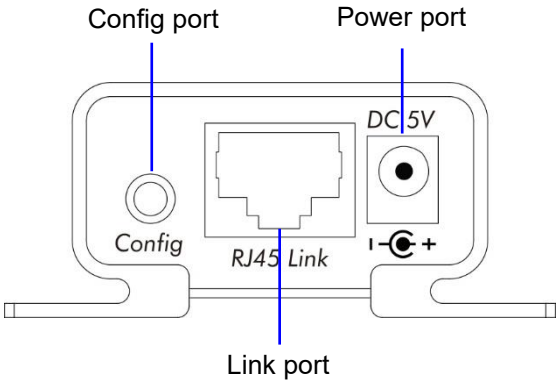
5.3 USB3-104E

【Local Unit】

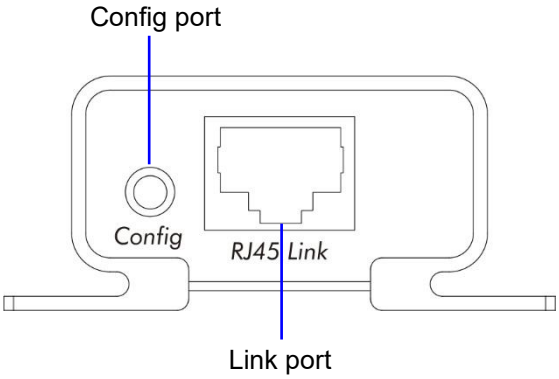
【Remote Unit】

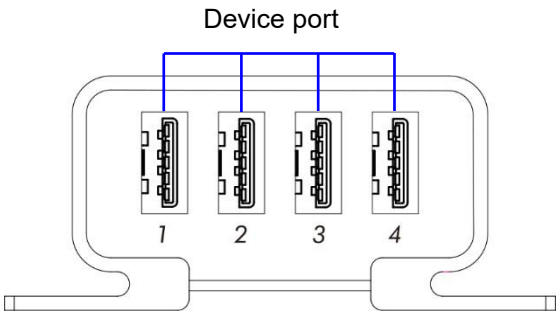
[Front View]



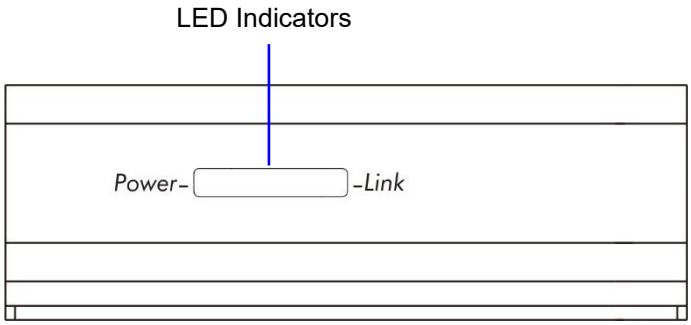


[Rear View]



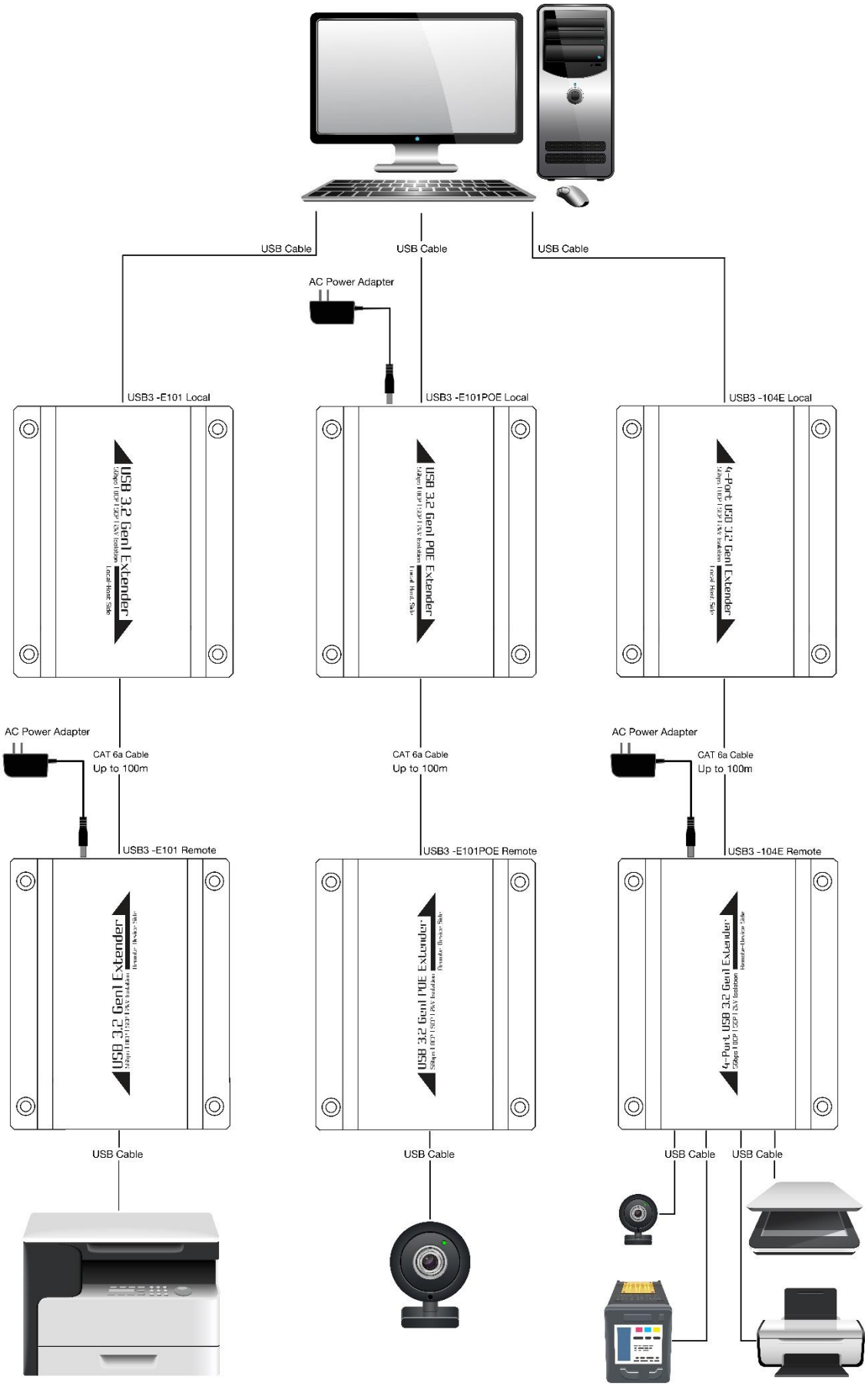


[Side View]



6. Connecting

6.1 Typical Application



6.2 Installing the Local & Remote Unit

➢ **Preparing for Installation**

Follow these steps to prepare your site:

1. Determine where the host computer will be located and set up the computer.
2. Determine where you want to locate the remote USB device(s).
3. If you are using surface cabling, the extender supports a maximum distance of 100m (328 ft).
4. If you are using premise cabling, make sure that CAT 6a cabling is installed between the two locations, with CAT 6a wall outlets located near both computer and USB devices. The total length of this cable, including patch cords, must not be longer than 100m (328 ft).

➢ **Installing the Local Unit**

1. Plug the supplied USB cable into the local unit and connect it to an available USB port on the computer.
2. Plug one end of the CAT 6a cable into the Link port (RJ-45) on the local unit. (Please see Category cable wiring)
3. The power LED indicator lights up.
4. If you are using the USB3-E101POE model, please connect the 48V power adapter to the local unit.

➢ **Installing the Remote Unit**

1. Plug the other end of the CAT 6a cable into the Link port (RJ-45) on the remote unit.
2. Plug the 5VDC power adapter into the remote unit, then AC plug into the power receptacle. (If you are using the 4-ports hub receiver, do plug 5VDC 4A power adapter)
3. Connect USB devices to the USB hub(s) on the remote unit using USB cables.
4. The power LED indicator lights up.

LEDs		Status
Definition	Color	
Power	Red	Power LED indicates that the power is connected.
Act	Green	USB signal indicator: USB 3.0 remains on and USB 2.0 blinks.
Link	Orange	Link LED indicates a valid link between the local and the remote via cabling.

➢ Checking Installation

1. Check that the Link (Orange) LED indicator is on for both the local unit and the remote unit.
2. For Windows users, open Device Manager to confirm the extender has been installed correctly. If the extender is installed correctly, it should be indicated as a “Generic USB Hub”.
3. For macOS users, open the System Profiler to confirm that the extender has been installed correctly. In the left column under Hardware, select “USB” and check the right panel. If the extender has been installed correctly, it should be indicated as a “THUB” under the USB High-Speed Bus/USB Bus.
4. If the extender is not detected correctly or fails to detect, go to the page of Troubleshooting.

NOTE:

The extender complies with USB 1.1, USB 2.0, and USB 3.2 specifications governing the design of USB devices. However, we do not guarantee that all USB devices are compatible with the extender, as there are a number of different factors that may impact the operation of USB devices over extended distances.

7. Category cable wiring

Take precautions when selecting CAT 6a cables before connecting them; use a cable tester to check the wires are correctly terminated. (Incorrect Termination may cause damage to the remote unit). We recommend using T568B wiring as shown below.

8. 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
Power LED is not functioning.	The device is not powered.	Verify that the local or remote device requiring a power adapter is correctly connected. Confirm that the power outlet is supplying power.
Link LED is not functioning.	There is no connection between the local unit and the remote unit.	Make sure the CAT 6a cable (≦100m) is good and Verify that the cable is correctly connected to both ends.
Local Act LED is not functioning.	There is no connection in Host Port.	Check that the Host USB port is working correctly and verify that the USB cable is correctly connected to the PC and the local unit host port.
Remote Act LED is not functioning.	The peripheral devices are loosely connected or incompatible.	Verify that the USB peripheral devices are securely connected to the remote unit and confirm that the Link LED is on. Connect the USB device directly to the PC to verify its compatibility.

CE/FCC & Recycling Information

CE Certification

This equipment complies with the requirements relating to Electromagnetic Compatibility Standards EN55032/EN55035 and the further Standards cited therein. It must be used with shielded cables only. It has been manufactured under the scope of RoHS compliance.

FCC Certification

This equipment has been tested and found to comply with the limits for 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.