



# ***USB Link II***

## **User Guide**



### **Magenta Research**

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**FCC Radio Frequency Interference Statement Warning**

The USB Link II has been tested and found compliant with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when installed and operated in a commercial environment. The USB Link II generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with this user guide, may cause harmful interference to radio communications. Operation of the USB Link II in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

**CE Statement**

We, Magenta Research, declare under our sole responsibility that the USB Link II, to which this declaration relates, is in conformity with European Standard EN 55022/A1 Class A, and EN 50082-1 (IEC 801-2, IEC 801-3, IEC 801-4)



**SAFETY WARNING**

**Installation** • This equipment is to be installed in a restricted access location.

**Connection** • Not for direct connection to Telecommunication Network Circuitry (TNV)

**Power sources** • This equipment should be operated only from the power source indicated on the product. This equipment is intended to be used with a main power system with a grounded (neutral) conductor. The third (grounding) pin is a safety feature, do not attempt to bypass or disable it. This equipment can be powered from redundant power sources. Disconnect all power sources before servicing.

**Power disconnection** • To remove power from the equipment safely, remove all power cords from the rear of the equipment, or from the power source receptacle (wall plug).

**Power cord protection** • Power cords should be routed so that they are not likely to be stepped on or pinched by items placed upon or against them.

**Servicing** • Refer all servicing to qualified service personnel. There are no user-serviceable parts inside. To prevent the risk of shock, do not attempt to service this equipment yourself because opening or removing covers may expose you to dangerous voltage or other hazards.

**Slots and openings** • If the equipment has slots or holes in the enclosure, these are provided to prevent overheating of sensitive components inside. These openings must never be blocked by other objects.

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**Specifications**

Range (over Category 5 UTP cable)	150 meters (492 ft)
USB device support	High speed devices (480 Mb/s) Full speed devices (12 Mb/s) Low speed devices (1.5 Mb/s)
USB hub support	Any single chain can include four USB hubs and one Link, in any order.
Power available to USB device at TRANSMITTER	1 x 500 mA
Power available to USB device at RECEIVER	4 x 550 mA
USB cable	2 meters (6.6 ft)
TRANSMITTER connector (upstream)	1 x USB Type B
TRANSMITTER connector (downstream)	1 x RJ-45
RECEIVER connector (upstream)	1 x RJ-45
RECEIVER connector (downstream)	4 x USB Type A (Hub)
TRANSMITTER dimensions	110 mm x 88 mm x 30 mm 4.3" x 3.5" x 1.2"
TRANSMITTER weight	280 g (0.6 lbs.)
RECEIVER dimensions	140 mm x 88 mm x 30 mm 5.5" x 3.5" x 1.2"
RECEIVER weight	330 g (0.73 lbs.)
Humidity	Up to 95%
Temperature range	Operation: 0°C to 55°C, Storage: -20°C to 85°C

## **Introduction**

This manual is intended to assist with the installation of the USB Link II. 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 give additional information that could make installation easier.


## **USB Link II Product Contents**

When you open your USB Link II for the first time you should find the following items:

- USB Link II User Guide
- Local Transmitter
- Remote Receiver
- AC power adapter
- USB cable(6 ft)

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

- USB compatible computer
- USB device
- Category 5/6 Unshielded Twisted Pair (UTP) cable with two RJ45 connectors pinned to the T568B specification.

 **NOTE:** The maximum length of the Category 5/6 UTP cable, including patch cords, must not exceed 492 ft (150m).

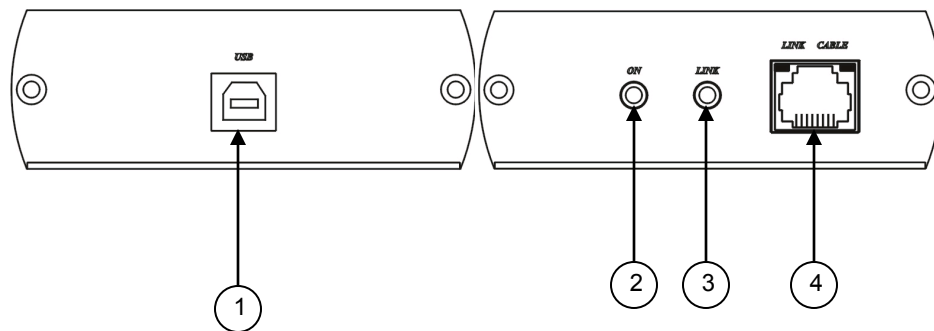
The USB Link II is composed of two individual units, the Local transmitter and the Remote Receiver.

### **The Transmitter Unit**

The transmitter unit connects to the host computer using a conventional USB cable.

**Front View**

**Rear View**



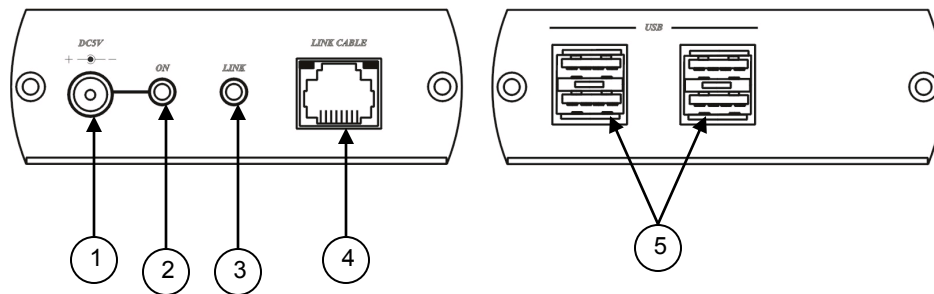
- 1** Host Port (USB Type B)
- 2** Power LED (ON)
- 3** Link LED (LINK)
- 4** Link Port (RJ45)

## The Receiver Unit

The receiver unit connects to the USB device using a conventional USB cable. It also must be connected to a power outlet through an AC power adapter. The receiver unit allows you to connect up to four USB devices.

Front View

Rear View

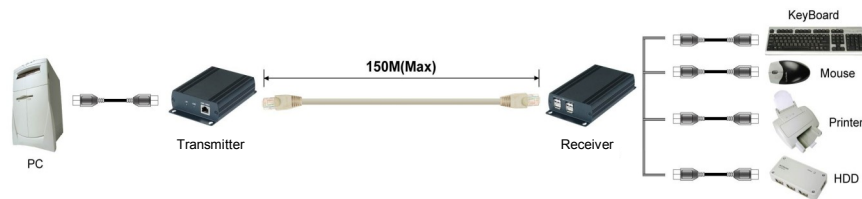



- 1** Power Connector
- 2** Power LED (ON)
- 3** Link LED (LINK)
- 4** Link Port (RJ45)
- 5** 4-Port USB Hub (USB Type A)



## Network Cabling

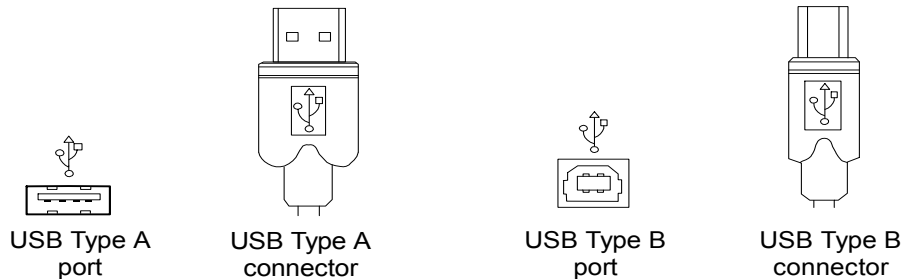
The transmitter and receiver units are interconnected by up to 150 meters of Category 5/6 Unshielded Twisted Pair (UTP) cabling. The UTP cabling must have a straight-through conductor configuration, with no crossovers, and must be terminated with T568B specified RJ45 connectors at both ends.



 **NOTE:** Category 5/6 UTP cabling is the standard data communications cable installed in most commercial and some residential buildings.

## USB Cables


USB cables have two distinct 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.



## **Power Handling**

Some USB devices are powered directly from the USB and do not require individual power supplies. These devices are called bus-powered devices. The USB Link II can provide power to these devices so they can be operated remotely.

Bus-powered devices are further divided into low-power and high-power categories. Low-power devices are allowed to draw up to 100 mA from the USB. Typical examples include mice, joysticks, and keyboards without hubs. High-power devices are allowed to draw up to 550 mA from the USB. Typical examples include cameras and keyboards with hubs. To determine if a device is high-power or low-power, consult the user documentation for the device.

 **NOTE:** Devices with their own power source are usually considered to be low-power devices from a USB perspective.

## **Compatibility**

The USB Link II complies with USB 2.0 and 1.1 specifications governing the design of full speed USB devices. However Magenta Research does not guarantee that all full speed USB devices are compatible with the USB Link II.


## **Before You Begin**

Before you can install the USB Link II, you need to prepare your site:

1. Determine where the host computer is to be located and set up the computer.
2. Determine where you want to locate the USB device(s).
3. Ensure you have enough Category 5/6 UTP cabling to connect the two locations. (Maximum 492 ft or 150 m)

## **Installing the TRANSMITTER Unit**


1. Place the TRANSMITTER unit near the host computer.
2. Plug the Type B connector on the USB cable (included) into the Host port on the TRANSMITTER.
3. Plug the Type A connector on the USB cable into the USB port on the computer.

 NOTE: There is no separate power supply required for the Transmitter unit.

## **Installing the RECEIVER Unit**

1. Place the RECEIVER unit near the USB device(s).
2. Plug the power adapter into a suitable AC outlet.
3. Connect the power adapter to the RECEIVER unit.

### **Connecting the TRANSMITTER Unit to the RECEIVER Unit**

 NOTE: To ensure proper operation, we recommend that only Category 5 or better, Unshielded Twisted Pair (UTP) cabling be used to connect the TRANSMITTER unit to the RECEIVER unit. The UTP cabling must have a straight-through conductor configuration with no crossovers, and must be terminated with T568B specified RJ45 connectors at both ends.

1. Plug one end of the Category 5/6 UTP cabling (not included) into the Link port on the TRANSMITTER unit.
2. Plug the other end of the Category 5/6 UTP cabling into the Link port on the RECEIVER unit.

### **Checking the Installation**

1. Check that the Power LEDs on the TRANSMITTER and RECEIVER units are both on.
2. Check that the Link LEDs on the TRANSMITTER and RECEIVER units are both on.
3. On the host PC, open the Device Manager applet. Expand the entry for Universal Serial Bus controllers by clicking the “+” sign. If the USB Link II has been installed correctly you should find it listed as a Generic USB Hub.

### **Connecting a USB Device**

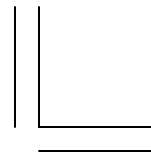
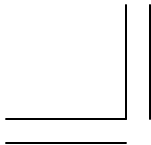
1. Install any software required to operate the USB device(s). Refer to the documentation for the device(s), as required.
2. Connect the USB device(s) to the device port on the RECEIVER unit.

## Troubleshooting

The following tables provide troubleshooting help. 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 Magenta Research technical support for further assistance.

Symptoms/Cause	Remedy
Power LEDs on TRANSMITTER and RECEIVER are off. <b>Cause:</b> The USB Link is not receiving power	<ol style="list-style-type: none"> <li>1. Ensure that the power adapter is connected to the RECEIVER unit</li> <li>2. Ensure PC USB Port is active.</li> <li>3. Check that the adapter is connected to a live source of electrical power.</li> </ol>
Link LEDs on TRANSMITTER and RECEIVER are off. <b>Cause:</b> There is no connection between the TRANSMITTER and RECEIVER units.	<ol style="list-style-type: none"> <li>1. Ensure that a Category 5 UTP cable with straight-through conductors is connected between the TRANSMITTER and RECEIVER units.</li> <li>2. Connect a short Category 5 patch cord between the TRANSMITTER and RECEIVER units. Recheck the operation of the system.</li> </ol>

Symptoms/Cause	Remedy
<p>Link LED on TRANSMITTER is on; Host LED on TRANSMITTER is off.</p> <p><b>Cause:</b></p> <ol style="list-style-type: none"> <li>1. The computer is not functioning. The TRANSMITTER unit is not connected to the computer.</li> <li>2. The computer does not support USB hubs.</li> <li>3. The USB Link is malfunctioning.</li> </ol>	<ol style="list-style-type: none"> <li>1. Disconnect all USB devices from the RECEIVER unit.</li> <li>2. Disconnect TRANSMITTER from the computer.</li> <li>3. Disconnect and then reconnect the power adapter to the Link.</li> <li>4. Reconnect the TRANSMITTER unit to the computer.</li> <li>5. In the Universal Serial Bus controllers section of Device Manager, check that the Link is recognised as a "Generic USB Hub".</li> </ol>



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