

# BELKIN®

# USB CAT5 KVM Extender

## BELKIN®

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# BELKIN®

# USB CAT5 KVM Extender



## User Manual

F1D086U



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# Introduction

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Congratulations and thank you for purchasing the Belkin USB CAT5 KVM Extender (the CAT5 Extender). The CAT5 Extender allows you to control your computer or KVM switch from up to 500 feet (150m) away. It is perfect for isolated server rooms, large server farms, secure systems, or test benches where the computer or KVM switch may be inaccessible to the user.

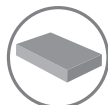
This User Manual provides all the details you'll need to install and operate your new CAT5 Extender, in addition to expert troubleshooting advice—in the unlikely event of a problem.

We appreciate your business and are confident that you will soon see for yourself why over 1 million Belkin OmniView products are in use worldwide.

## Package Contents



USB CAT5 Extender  
Transmitter



USB CAT5 Extender  
Receiver



5V, 1A  
Power Supply



User Manual

# Overview

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## Feature Overview

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### CAT5 Technology

Integrated CAT5 technology enables you to connect your KVM switch to your servers up to 500 feet (150m) away using standard CAT5 cabling. CAT5 cabling reduces cable bulk and simplifies cable management.

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### Video Resolution

The CAT5 Extender supports video resolutions of up to 1920x1440 @ 75Hz on local computer and up to 1280x1024@75Hz on remote.

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### Local and Remote Ports

The CAT5 Extender features local and remote console ports, enabling you to control your computers from near or far.

### Built-In Cabling

A built-in, 3-foot, all-in-one KVM cable provides an easy connection between the CAT5 Extender and your computer or KVM switch.

### LED Display

An LED display on the Transmitter and Receiver units provides quick status monitoring. A power LED indicates power is being supplied to the unit. A flashing LED indicates whether the data is being transmitted.

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## Equipment Requirements

### Cables

Connecting the CAT5 Extender to a computer or KVM switch requires the included KVM cable kit and a standard CAT5 patch cable.



Belkin highly recommends you use Belkin Category 5e, FastCAT™ 5e, or Category 6 Patch Cables for your CAT5 Extender to help ensure the superior performance of your video. These cables offer the highest quality possible to ensure optimal data and video transmission.

**Note:** Use CAT6 solid cables for optimal video at longer lengths.

#### **Belkin UTP Patch Cables:**

A3L791-XX-YYY (CAT5e)

A3L850-XX-YYY (FastCAT5e)

A3L980-XX-YYY (CAT6)

(-XX denotes length in feet)

(-YYY denotes color)

Connecting the CAT5 Receiver to local computer requires Universal KVM USB Cable Kit.

F1D9006-XX

(-XX denotes length in feet)

**Note:** Product codes and availability may vary.

## System Requirements

### OS Platforms

The USB CAT5 Extender is compatible with CPUs running on, but not limited to, the following OS platforms:

- Windows® XP, Vista™, or Server 2003
- Microsoft® DOS 5.x and above
- Red Hat® Linux® 8.x and above
- Novell® NetWare® 5.x
- UNIX®

### Keyboards

- USB-compatible
- Supports 101-/102-/104-/106-standard-key keyboards

### Mice

- USB-compatible mice having 2 or 3 buttons
- USB-compatible wireless and optical mice

### Monitors

- CRT and LCD (with VGA support)

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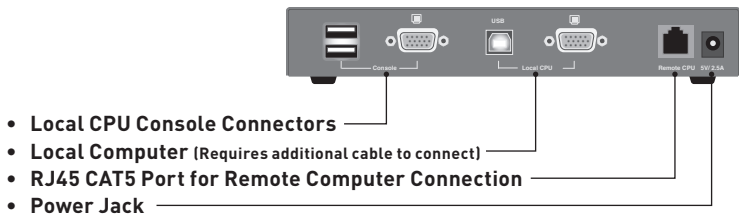
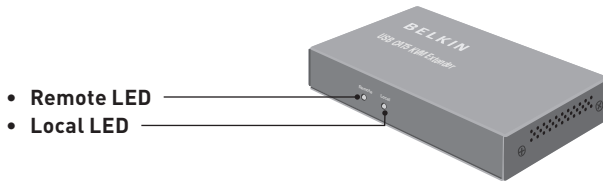


# Overview

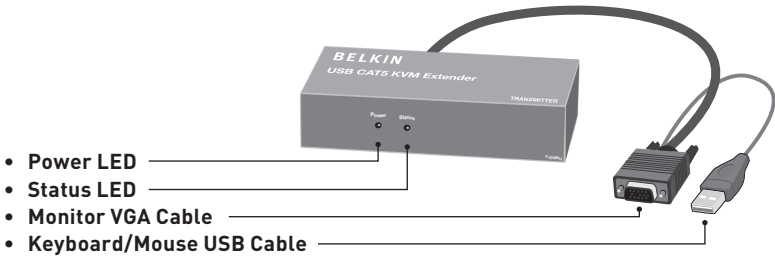
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## Unit Display Diagrams

### Receiver Unit



## Transmitter Unit



## Specifications

|                                      |                                                                                                                 |
|--------------------------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Part No.:</b>                     | F1D086U                                                                                                         |
| <b>Enclosure:</b>                    | Metal enclosure                                                                                                 |
| <b>Receiver Power:</b>               | 5V, 600mA power adapter with center-pin negative polarity                                                       |
| <b>Transmitter Power:</b>            | 5V, 220mA (from attached computer or KVM switch via keyboard port)                                              |
| <b>Max. Video Remote Resolution:</b> | Up to 1280x1024 @ 75Hz (depends on cable length)                                                                |
| <b>Max. Video Local Resolution:</b>  | Up to 1920x1440 @ 75Hz                                                                                          |
| <b>Keyboard Emulation:</b>           | USB a                                                                                                           |
| <b>Mouse Emulation:</b>              | USB                                                                                                             |
| <b>Console Keyboard Input:</b>       | USB Type A                                                                                                      |
| <b>Console Mouse Input:</b>          | USB Type A                                                                                                      |
| <b>Console Monitor Port:</b>         | HDDDB15 female (VGA)                                                                                            |
| <b>CPU Keyboard/Mouse Port:</b>      | USB Type B                                                                                                      |
| <b>CPU Monitor Port:</b>             | HDDDB15 female (VGA)                                                                                            |
| <b>CAT5 Extension Ports:</b>         | RJ45                                                                                                            |
| <b>Operating Temp:</b>               | 32° to 104° F (0° to 40° C)                                                                                     |
| <b>Storage Temp:</b>                 | -4° to 140° F (-20° to 60° C)                                                                                   |
| <b>Humidity:</b>                     | 0-80% RH, non-condensing                                                                                        |
| <b>Warranty:</b>                     | 2 years                                                                                                         |
| <b>Dimensions:</b>                   | Transmitter: 5.2 x 2.2 x 1.2 in.<br>(132 x 55 x 30mm)<br><br>Receiver: 7.8 x 2.8 x 1.2 in.<br>(198 x 70 x 30mm) |
| <b>Weight:</b>                       | Transmitter: 8.0 oz. (0.23kg.)<br><br>Receiver: 12.3 oz. (0.35kg.)                                              |

**Note:** Specifications are subject to change without notice.

## Pre-Configuration

### Consider the following when deciding where to place the CAT5 Extender:

- the lengths of the cables attached to your keyboard, monitor, and mouse
- the location of your computer or KVM switch
- the lengths of the cables you'll use to connect the Transmitter and Receiver units

### Cable-Distance Requirements

VGA signals transmit best at shorter cable lengths. At longer cable lengths, the probability of video degradation increases. For this reason, Belkin recommends that the length of the CAT5 patch cable between the Transmitter and Receiver units does not exceed 500 feet (150m).

**Warning!** Avoid placing cables near fluorescent lights, air-conditioning equipment, or machines that create electrical noise (e.g., vacuum cleaners).

You are now ready to begin installation of your CAT5 Extender.

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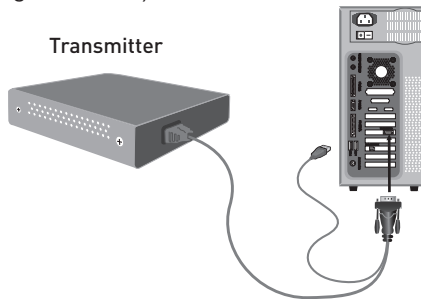
# Installation

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## Step 1 | Connecting the Transmitter to the Computer or KVM Switch

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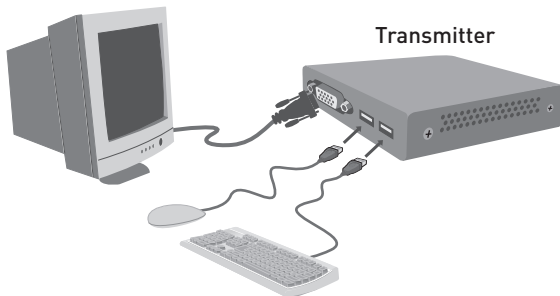
- 1.1 Disconnect all computers from the electrical power supply.
- 1.2 Using the Transmitter unit, connect the built-in VGA and USB cables to the monitor and USB ports on your computer or to the console ports on your KVM switch. (Refer to diagram below.)



## Step 2 | Connecting the Local Console to the Transmitter

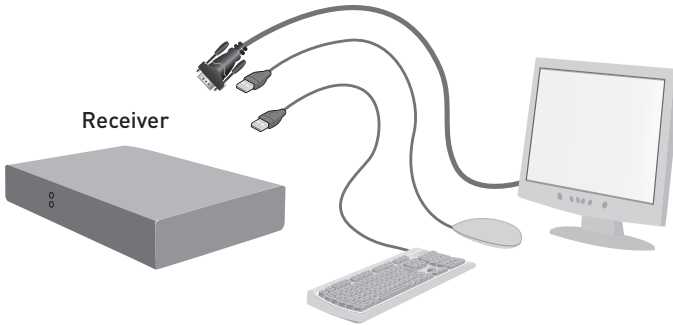
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- 2.1 From your local console, connect your monitor to the VGA console port on the Transmitter unit. (Refer to diagram below.)
- 2.2 Connect your keyboard and mouse to the USB console ports on the Transmitter unit. (Refer to diagram below.)

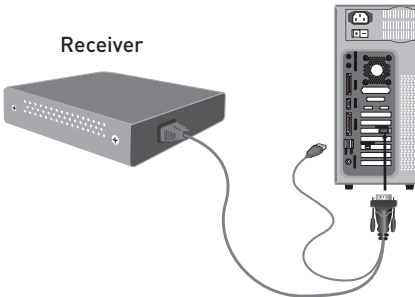


## Step 3 | Connecting the Remote Console to the Receiver

- 3.1 From your remote console, connect your monitor to the VGA console port on the Receiver unit.
- 3.2 Connect your keyboard and mouse to the USB console ports on the Receiver unit.



- 3.3 To use the Receiver as a 2-port KVM switch between local and remote computers, connect your local computer to the Receiver using the Universal KVM USB Cable Kit, Belkin part number F1D9006-XX (not included).



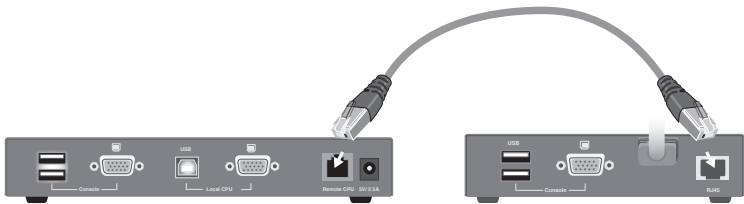
# Installation

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## Step 4 | Connecting the Transmitter to the Receiver

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Using a CAT5 cable, connect one end into the RJ45 port on the Transmitter unit. Connect the other end to the RJ45 port on the Receiver unit. (Refer to diagram below.)



## Step 5 | Powering up the Systems

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- 5.1 Attach the power adapter to the power jack on the Receiver unit. Connect the adapter to a power source to power up the Receiver unit. The Transmitter unit will receive power from the computer or KVM switch to which it is connected.
- 5.2 Power up your computers and KVM switch.

# Using the CAT5 Extender

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Once the CAT5 Extender is installed, the video will display at both the local and remote consoles. However, only one console can have control of the mouse and keyboard input at one time. The control is determined automatically. To gain control, the active console must remain idle for two seconds.

**Note:** If your receiver is connected to both local and remote computers (acting as a 2-port KVM switch), in order to switch between them, you must use the hot-key Scroll Lock command. Please see the “Hot-Key Commands Operation” section below:

## Hot-Key Commands Operation for Receiver

To send commands to the CAT5 Extender, the hot key (Scroll Lock) must be pressed twice within two seconds. You will hear a beep of confirmation. If you have not pressed any key in hot-key mode within two seconds, the keyboard will return to a normal state. The following example illustrates using the hot-key Scroll Lock command to switch between local and remote ports.



The table below lists all supported hot-key commands.

| Command | Function                                     |
|---------|----------------------------------------------|
| C       | Toggle switch between local and remote ports |
| Q       | Turn beep sound on/off                       |
| A       | Auto-adjust video signal to optimum          |



# Using the CAT5 Extender

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## LED Operation

The orange Power LED indicates if the Transmitter and Receiver units are powered on. The green Status LED indicates which console has control. If the Status LED on the Transmitter is flashing, the remote console (or Receiver) has control.

|                  | LED    | Indication                                                                                                         |
|------------------|--------|--------------------------------------------------------------------------------------------------------------------|
| Transmitter LEDs | Power  | On = USB power is present                                                                                          |
|                  | Status | On = normal;<br>Flashing = receiving data                                                                          |
| Receiver LEDs    | Remote | On = input is coming from connected CAT5 source;<br>Flashing = Selected, but no signal;<br>Off = Not selected      |
|                  | Local  | On = input is coming from connected local CPU source;<br>Flashing = Selected, but no signal;<br>Off = Not selected |

## Adjusting the Picture

When the remote console has control, you can adjust the picture quality by pressing the Receiver's hot key "A" to force the remote port's video signal to auto-adjust (see the "Hot-Key Commands Operation" section above).

## Troubleshooting Tips

- Use the Receiver's hot key "A" to force the video signal to auto-adjust.
- Avoid using a specialized mouse. Mice with scrolling wheels are supported.
- Avoid using a specialized keyboard (e.g., a keyboard with special shortcut keys).
- The CAT5 Extender is not compatible with serial or PS/2 mouse ports or KVM switches using serial mice at the console.

## FCC Statement

### Declaration of Conformity with FCC Rules for Electromagnetic Compatibility

We, Belkin International, Inc., of 501 West Walnut Street, Compton, CA 90220, declare under our sole responsibility that the product:

F1D086U

to which this declaration relates:

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.

## CE Declaration of Conformity

We, Belkin International, Inc., declare under our sole responsibility that the product F1D086U, to which this declaration relates, is in conformity with Emissions Standard EN55022 and with Immunity Standard EN55024, LVP EN61000-3-2, and EN61000-3-3.

## ICES

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

## Belkin International, Inc., Limited 2-Year Product Warranty

### What this warranty covers.

Belkin International, Inc. ("Belkin") warrants to the original purchaser of this Belkin product that the product shall be free of defects in design, assembly, material, or workmanship.

### What the period of coverage is.

Belkin warrants the Belkin product for two years.

### What will we do to correct problems?

#### *Product Warranty.*

Belkin will repair or replace, at its option, any defective product free of charge (except for shipping charges for the product).

### What is not covered by this warranty?

All above warranties are null and void if the Belkin product is not provided to Belkin for inspection upon Belkin's request at the sole expense of the purchaser, or if Belkin determines that the Belkin product has been improperly installed, altered in any way, or tampered with. The Belkin Product Warranty does not protect against acts of God (other than lightning) such as flood, earthquake, war, vandalism, theft, normal-use wear and tear, erosion, depletion, obsolescence, abuse, damage due to low voltage disturbances (i.e. brownouts or sags), non-authorized program, or system equipment modification or alteration.

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# Information

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## **How to get service.**

To get service for your Belkin product you must take the following steps:

1. Contact Belkin International, Inc., at 501 W. Walnut St., Compton CA 90220, Attn: Customer Service, or call (800)-223-5546, within 15 days of the Occurrence. Be prepared to provide the following information:
  - a. The part number of the Belkin product.
  - b. Where you purchased the product.
  - c. When you purchased the product.
  - d. Copy of original receipt.
2. Your Belkin Customer Service Representative will then instruct you on how to forward your receipt and Belkin product and how to proceed with your claim.

Belkin reserves the right to review the damaged Belkin product. All costs of shipping the Belkin product to Belkin for inspection shall be borne solely by the purchaser. If Belkin determines, in its sole discretion, that it is impractical to ship the damaged equipment to Belkin, Belkin may designate, in its sole discretion, an equipment repair facility to inspect and estimate the cost to repair such equipment. The cost, if any, of shipping the equipment to and from such repair facility and of such estimate shall be borne solely by the purchaser. Damaged equipment must remain available for inspection until the claim is finalized. Whenever claims are settled, Belkin reserves the right to be subrogated under any existing insurance policies the purchaser may have.

## **How state law relates to the warranty.**

THIS WARRANTY CONTAINS THE SOLE WARRANTY OF BELKIN. THERE ARE NO OTHER WARRANTIES, EXPRESSED OR, EXCEPT AS REQUIRED BY LAW, IMPLIED, INCLUDING THE IMPLIED WARRANTY OR CONDITION OF QUALITY, MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND SUCH IMPLIED WARRANTIES, IF ANY, ARE LIMITED IN DURATION TO THE TERM OF THIS WARRANTY.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitations may not apply to you.

IN NO EVENT SHALL BELKIN BE LIABLE FOR INCIDENTAL, SPECIAL, DIRECT, INDIRECT, CONSEQUENTIAL OR MULTIPLE DAMAGES SUCH AS, BUT NOT LIMITED TO, LOST BUSINESS OR PROFITS ARISING OUT OF THE SALE OR USE OF ANY BELKIN PRODUCT, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This warranty gives you specific legal rights, and you may also have other rights, which may vary from state to state. Some states do not allow the exclusion or limitation of incidental, consequential, or other damages, so the above limitations may not apply to you.

