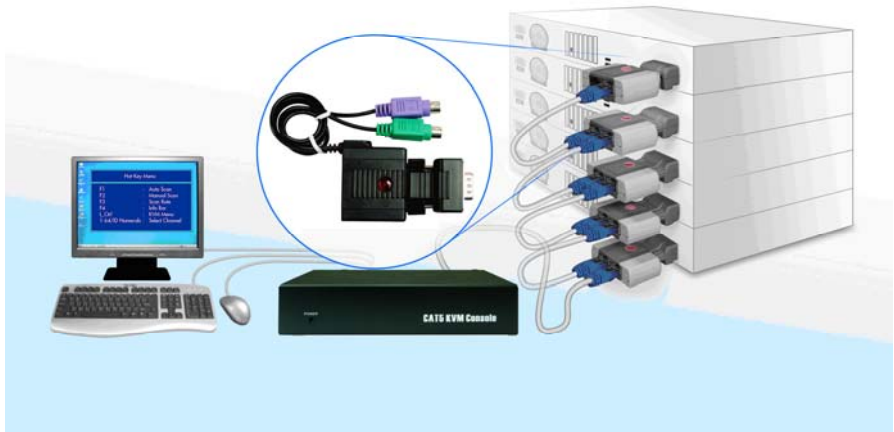


BE-602/BE-602X

**CAT5 Chainable KVM
Console Receiver**

Installation Manual



Introduction

The CAT5 KVM Switch is a CAT5 based distributed KVM Switch system for management of multiple servers and computers. It offers flexible, high-quality control with two basic components: the Management Console and the Compact Remote Unit. With its proprietary cutting-edge video enhancement technology, servers can be up to 300M (1,000 feet) from the Console. The Remote Units are linked to one another and to the Console using tidy Category 5 UTP cable. A single user console (with keyboard, monitor and mouse) can access and control up to 8 servers. Flexible, user-configured control hotkeys make the BE-602 compatible with other brands of KVM switches, and an excellent KVM Console extender. Servers are easy to access and control with simple on-screen display menus, and servers can be added at any time without interrupting server operation.

Components



BE-602/BE-602X: Console Receiver.

Allows a network manager to access and control up to 8 servers.



BE-601S: PS2 Transmitter Unit

One for each server. No external power is needed.



BE-601U: USB Transmitter Unit

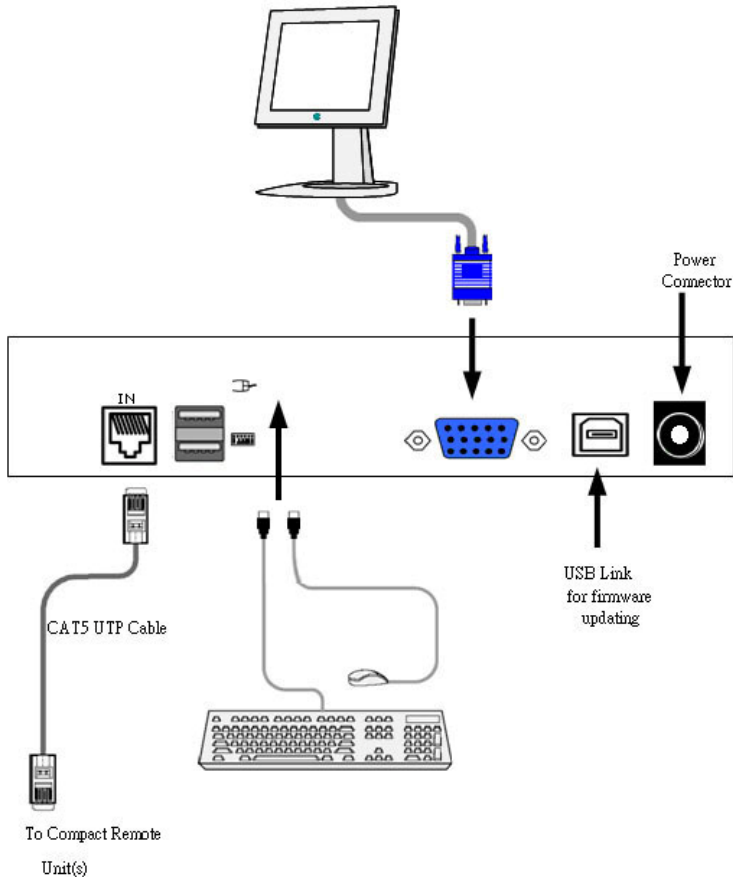
One for each server. No external power is needed.



CAT5 UTP CABLE

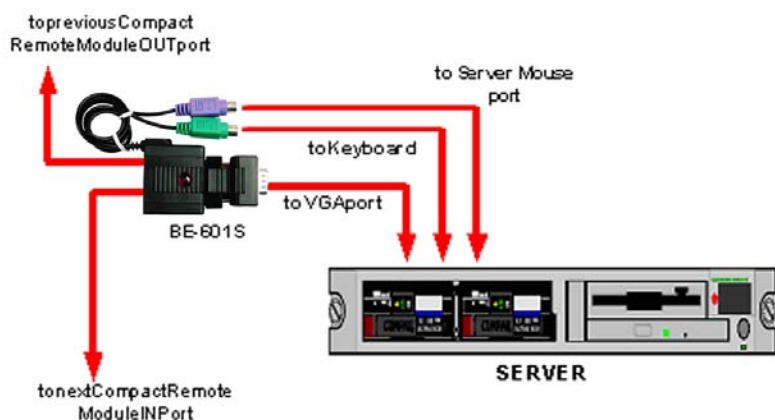
Connecting the Management Console Unit

The figure below shows the rear of the CAT5 KVM Console Receiver Unit. Please use only the power adapter supplied with the CAT5 KVM Switch.

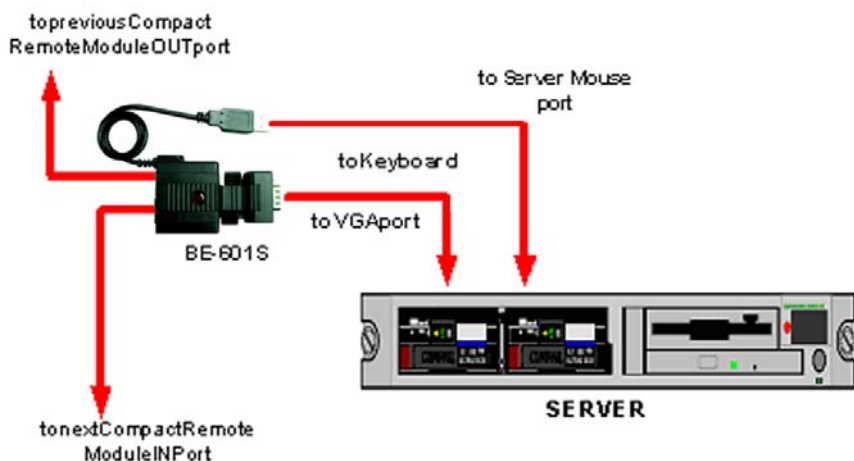


Connecting the Compact Remote Unit

BE-601S



BE-601U



Connecting the CAT5 KVM Console to the Compact Remote Units

Pay careful attention to IN and OUT connectors on the Console and on the Compact Remote Units. The Remote Unit OUT connectors have LEDs. Connect the OUT connector of the nearest Remote Unit to the IN connector on the Console. Daisy chain Remote Units by connecting INs to OUTs. The only terminator that may be required is a VGA terminator if you use a BE-601L without connecting a monitor. The CAT5 port on the last Compact Remote Unit does not require any terminator.

The OSD Functions

The CAT5 KVM system is controlled and monitored by an On Screen Display (OSD) on the Console Unit screen. Hotkeys provide access to the various function windows.

Activate the OSD

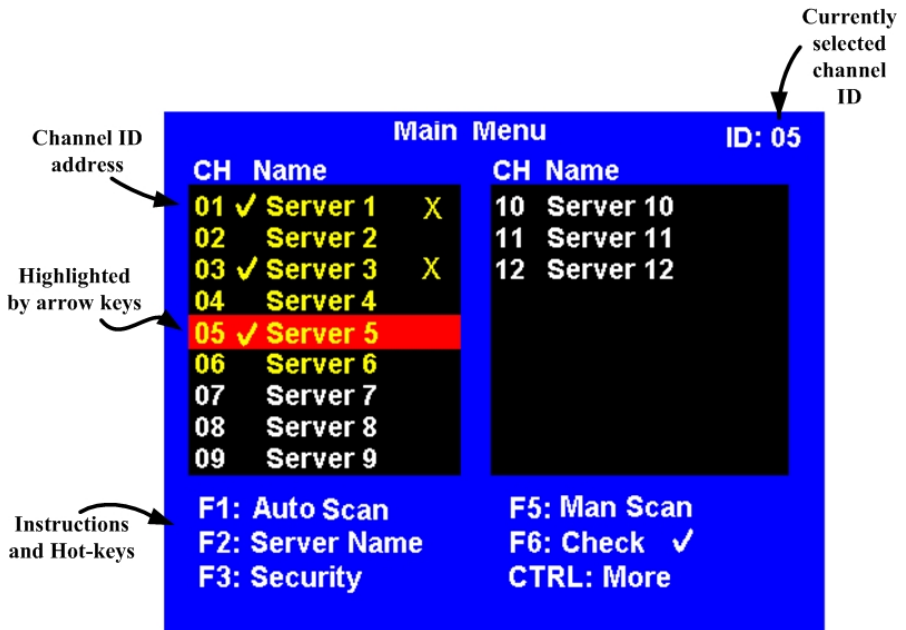
To Activate the OSD, press either <Ctrl> key twice (within two seconds). That is, press <Ctrl><Ctrl>. The OSD Main Menu appears, similar to the picture below, except the first time will be without computer ID numbers, names, and status.

For First Time Run, Run Auto Set ID

With the OSD showing, press <Ctrl> one more time. The Setup menu appears. Select Auto Set ID, and press <Enter>. The Auto Set ID function assigns each computer a sequential ID number according to cable position.

After you have run Auto Set ID the OSD Main Menu will show a list of the computers with ID numbers, names and status. See picture below.

(Note: The default OSD activation key is <Ctrl>; this may be changed to <Shift> or <Alt> if desired. See page 10, Define H-key.)



The ID of the currently selected computer is displayed in the upper right hand corner.

Select, Observe and Control a Computer

1. Navigate to the desired computer with the ←→↑↓ arrow keys.
2. Press <Enter>. The selected computer's screen replaces the OSD Main Menu screen. A confirmation label appears (shown below), identifying which computer is accessed. Use the Console keyboard and mouse to control the selected computer.



Return to the OSD Screen

To return to the OSD screen after accessing a computer:

1. Press either <Ctrl> key twice.

The OSD Hot-key Functions

F1: Auto Scan

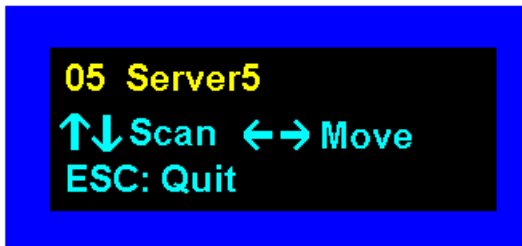
In this mode, the manager console automatically switches from one power-on computer to the next sequentially at fixed time intervals. During Auto Scan mode, the OSD displays the name of computer being scanned.

If a computer needing attention is noticed during Auto Scan, just move the mouse or hit a key. Auto Scan halts, and the selected computer is under immediate control.

To **STOP** the Auto Scan mode, press <ESC>.

To enter Manual Scan Mode

While in Auto Scan, press the ↑ or ↓ key to enter manual scan mode. You will see the following screen.



In manual scan mode, you can scan power-on computers one by one by keyboard control. Press the up arrow ↑ key to select the previous computer and the down arrow key ↓ to select the next computer.

Press the left and right ← → keys to change the position of the scanned computer information box.

To abort manual scan mode, press <ESC>.

F2: Server Name

Assign or edit the name of a computer. Length may be up to 8 characters. Valid characters are 'A'~'Z', '0'~'9' and the dash '-' character. Lowercase characters are converted to uppercase.

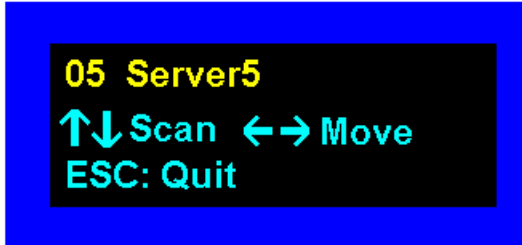
F3: Security

This protects individual computers from unauthorized KVM access; by default it is disabled. To enable, highlight the computer you want to protect, then press <F3>. The 'X' mark shows that the security function is enabled.

To access a locked computer, highlight it and press <Enter>; the password challenge appears. (See Admin Password, page 11.) After entering the correct password, you are allowed to control the selected computer. The computer is automatically re-locked once you switch to another computer. Password-protected computers are skipped during Scan Mode.

F5: Man Scan

Press F5 to enter manual scan mode. You will see the following screen.



In manual scan mode, you can scan power-on computers one by one by keyboard control. Press the up arrow ↑ key to select the previous computer and the down arrow key ↓ to select the next computer.

Press the left and right ← → keys to change the position of the scanned computer information box.

To abort manual scan mode, press <ESC>.

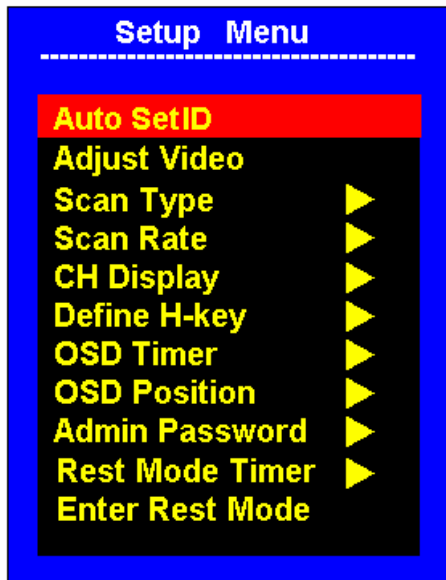
F6: Check

This is a scan filter. In order to limit AutoScan to certain computers, give those computers a “✓” mark. To set, highlight the computer, and press <F6> to switch the “✓” mark on or off. Use “Scan Type” to set up scanning so it includes just those machines you checked. (See Page 10: Scan Type.)

<CTRL>: More

More functions are available; access them by opening the OSD, then pressing <CTRL>. A new screen pops up displaying the functions below. Most of them are marked with a '▶', indicating there are options to choose from. Use the ↑↓ arrow keys to select the desired function, then press <Enter>. Available functions will be shown at the bottom of the screen. Again use the ↑↓ keys to select an option, then press <Enter> to activate it.

Press <ESC> when you are ready to save your settings and quit the Setup Menu.



►Auto Set ID

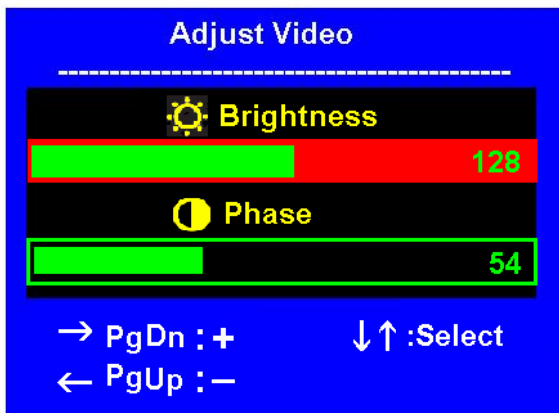
The Auto Set ID function assigns each computer a sequential ID number according to cable position. When this function is run, the system renews and re-arranges IDs for all the powered-on computers. Normally Auto Set ID is run a) when the system is first installed, and b), if any new servers or computers are added.

►Adjust Video

You can tune the image quality for each individual remote screen displayed on the Console monitor.

To adjust a screen image:

1. View the computer whose image you want to adjust.
2. Press <Control><Control> to start the OSD Main Menu.
3. Press <Control> to open the extended Setup (MORE) Menu.
4. Highlight Adjust Video, and press <Enter.>
5. The Adjust Video dialog appears:



6. Use the ↑↓ arrow keys to select 'Brightness' or 'Phase' for video adjustment.
7. Adjust the image by pressing ←, →, Page Up, or Page Down keys.
8. When the image is satisfactory, press <ESC> to accept and quit.
The setting is retained in the individual Compact Remote Unit.

► Scan Type

There are two Scan Type options for AutoScan: [Ready PC] and [Ready PC + ✓].

[Ready PC]: AutoScan mode will scan all powered-on computers, except those with the Security X setting.

[Ready PC + ✓]: AutoScan mode will scan only powered-on computers that have a "✓" mark assigned, except those with the Security X setting. (See F6: Check, page 8.)

► Scan Rate

This sets the display duration for each computer displayed in AutoScan mode. The options are: **3 seconds**, **8 seconds**, **15 seconds**, and **30 seconds**.

► CH Display

Always On: The ID number and name of the selected computer and/or OSD status will be displayed on the screen all the time.

Auto Off: The ID number and name of the selected computer and/or OSD status will be displayed on the screen for 3 seconds, then

automatically disappear.

► Define H-key

The CAT5 KVM Switch default hotkey to activate the OSD menu is <Ctrl>. Select any of the three hotkey options: <Ctrl >, <Shift>, or <Alt>. Operation remains the same, e.g., if you select <Shift>, then <Shift><Shift> activates the OSD.

► OSD Timer

There are four options for the automatic timeout period of the OSD screen: **30 , 45 , 60 or 80 seconds**. This represents the amount of time the OSD remains showing. When it times out, the OSD turns off. Hit <Control><Control> if you want it to appear again.

► OSD Position

To set up the position of selected computer name and/or OSD status displayed on screen during operation. Use ↑↓ arrow keys to select **Up Left, Up Right, Low Left, Low Right and Middle**.

The actual display position shifts due to different VGA resolutions, the higher resolutions will produce a higher position.

► Admin Password

Once the Admin Password protection is set, you can only access the OSD menu by supplying the assigned password. Don't forget it. The Admin Password is also used to access computers protected with the Security X setting. (See F3: Security, page 8.)

► Rest Mode Timer

This sets the timeout timer, the amount of time the system remains in active KVM mode if undisturbed (no keyboard or mouse activity). If undisturbed for more than set amount of time, the system goes to sleep, and the monitor goes black. The options are: **0 Minutes, 1 minute, 5 minutes, and 10 minutes. 0 means never sleep.**

To awaken the system from Rest Mode, hit any key.

► Enter Rest Mode

This is a security feature that allows you to force immediate rest mode. Select Enter Rest Mode, press <Enter.> The system goes to sleep.

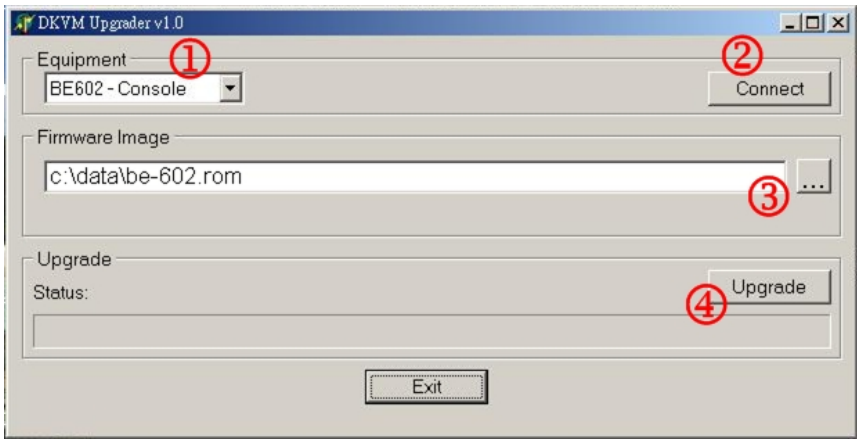
Upgrade Firmware

Use the CAT5 KVM Update Software program to upgrade the firmware for the management Console Unit and Compact Remote Units. Firmware updating enables you to install the latest CAT5 KVM Switch firmware version with enhancements and bug fixes. Firmware upgrade is accomplished by running the Update program on a PC connected to the Console Unit via USB.

How to Upgrade the Console Unit (BE-602) and the Remote Unit (BE-601X)

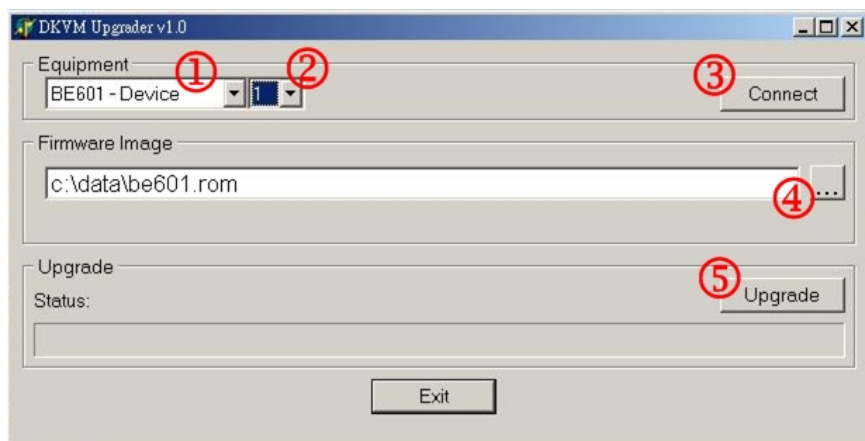
1. Copy the Upgrade firmware program to your desired hard disk.
2. Connect a standard USB cable to the PC's USB port and the BE-602 console USB Link port.

3. Activate the KVM Upgrader program. The following screen appears.
4. Please follow steps ①~④ to upgrade the BE-602 Console unit.
Step ①: Select BE-602.
Step ②: Press Connect button to check if the BE-602 exists.
Step ③: Select the folder where you saved the new firmware.
Step ④: Press Upgrade button to upgrade the firmware.

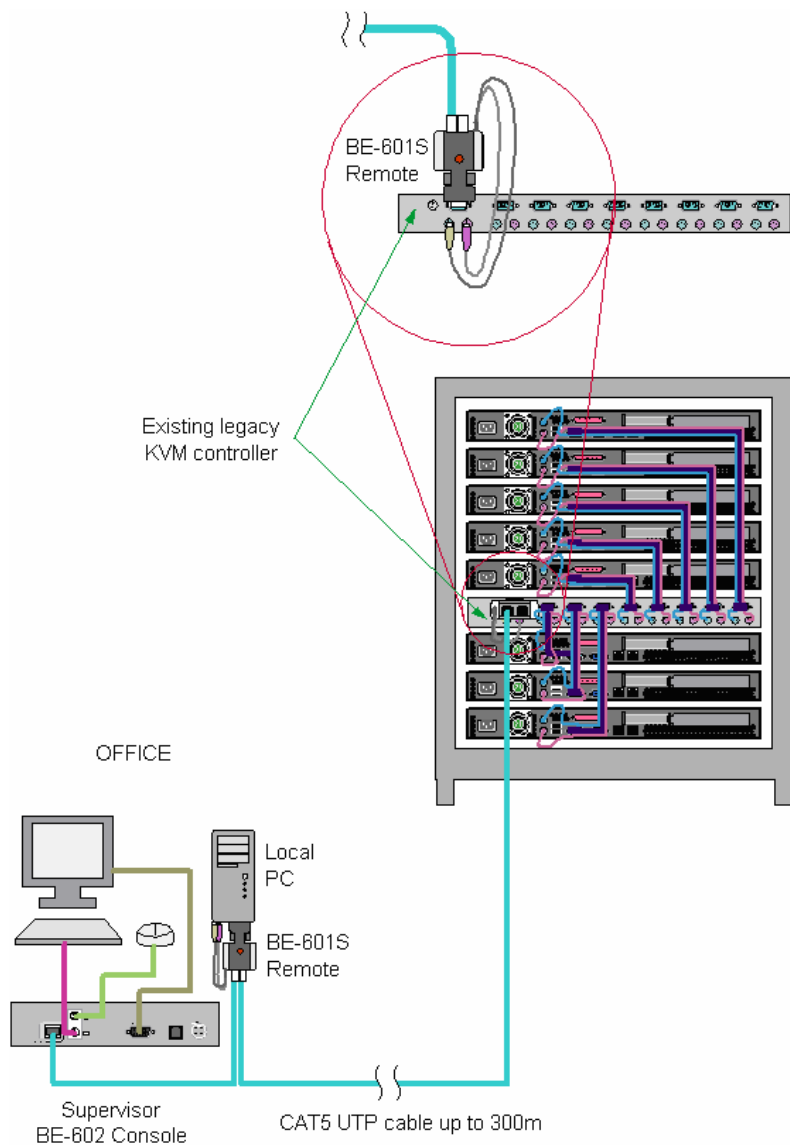


5. After you have upgraded the console unit, you can upgrade the remote unit BE-601X firmware.
6. Please follow steps ①~⑤ again to upgrade the BE-601 Remote unit.
Step ①: Select BE-601X.
Step ②: Select the ID number of BE-601X to be upgraded.
Step ③: Press Connect button to check if the BE-601X exists.
Step ④: Select the folder where you saved the new firmware.

Step ⑤: Press the Upgrade button to upgrade the firmware.



Application for existing KVM equipment



Twisted Pair Cabling

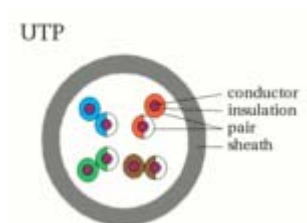
Twisted pair cabling is a common form of wiring in which two conductors are wound around each other for the purposes of canceling out electromagnetic interference. The number of twists per meter makes up part of the specification for a given type of cable. The greater the number of twists, the lower the interference and the better the communication performance. Twisting wires decreases interference because:

- The loop area between the wires (which determines the magnetic coupling into the signal) is reduced as much as physically possible.
- The directions of current generated by a uniform coupled magnetic field are reversed for every twist, canceling each other out.

Cable types

(in rough order of increasing cost and improving performance)

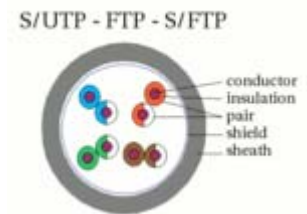
Unshielded Twisted Pair (UTP)



Unshielded Twisted Pair

UTP cable is not surrounded by any shielding. It is the primary wire type for telephone usage and is very common for computer networking, especially in patch cables or temporary network connections due to the high flexibility of the cables.

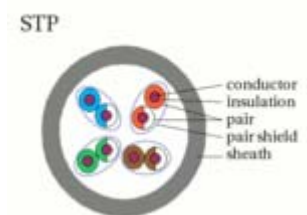
Foiled Twisted Pair (FTP)



Screened Unshielded Twisted Pair, Foiled Twisted Pair, Screened Foiled Twisted Pair

FTP cable is basically a UTP cable surrounded by an outer foil shield that increases protection from external interference. Requires shielded connectors. Often a good balance between cost and performance.

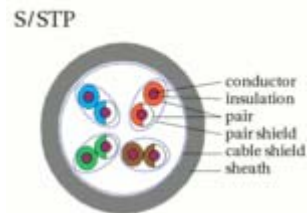
Shielded Twisted Pair (STP)



Shielded Twisted Pair

This cable has a conductive braided or foil casing for each pair and theoretically offers very good protection from interference and crosstalk. It was commonly used for token ring networks. The potential performance increase of STP over UTP is sometimes deemed not worth STP's considerably greater cost. Requires shielded connectors.

Screened Shielded Twisted Pair (S/STP)



Screened Shielded Twisted Pair

S/STP is like STP, but with an extra outer braided or foil shield similar to coaxial cable, which offers still better protection from interference from external sources. Requires shielded connectors. Plenty dear.

Screened Foiled Twisted Pair (S/FTP)

This is a combination of S/UTP and FTP, i.e., it combines both braided and foil shielding. Requires shielded connectors. Exotic. Plenty dear, too.

Table 1: Relative Costs of Twisted Pair Categories

	Category 5 Class D	Category 5E	Category 6 Class E	Category 7 Class F
Bandwidth	100 MHz	100 MHz	200 MHz	600 MHz
Cable Type	UTP/FTP	UTP/FTP	UTP/FTP	SSTP
Relative Cost (Cat 5 =1)	1	1.2	1.5	2.2

Cat 5:The traditional rating of cables for high speed data installation. Rated frequency is 100 MHz. This cable works well from voice to 100BASE-T Ethernet and 155Mbps ATM. This cable type is also known as ISO/IEC 11801 Class D cabling. Today Cat 5 copper communications wiring is the recognized minimum for broadband services. The standard for the wiring are ISO/IEC-11801 and TIA/EIA-568-A-5. CAT5 performance is only possible when cable, connector modules, patch cords, and all electronics carry the same CAT5 rating.

Cat 5e:(e for enhanced) New rating developed in USA. Rated frequency is 100 MHz. Cat 5E is becoming the new standard for premises wiring, because it is recommended as the minimum for all future installations by TIA/EIA, IEEE and many equipment manufacturers. Enhanced Category 5 was ratified in 1999.

Cat 6: A new rating recently (as of 2005) developed in US, ISO/IEC and CENELEC. Rated frequency is 200 MHz with some requirements specified for 250 MHz. Category 6 is being specified concurrently by both ISO in the 11801-2001 document and the TIA in its Category 6 addendum to TIA 568B (ANSI/TIA/EIA-568-B.2-1 ratified by the TIA/EIA in June 2002). This presents the best performance possible with the current T568A and T568B wiring configurations on an 8 position 8 conductor modular connector (RJ-45). In Europe this is known as ISO/IEC 11801 Class E cabling.

Cat 7: A rating for individual pair screened cables derived from the German DIN 44312-2 standard requirements. Rated frequency is 600 MHz. The work is in progress (as of 2005). This is also known as ISO/IEC 11801 Class E. This cable is fully shielded and uses non-standard RJ-45 interface (Alcatel hybrid RJ-45 connector). This cabling is primarily for the European market place. Other alternative connector style is IBM Mini-C connector. In Europe this is known as Class F cabling.