

## KVM Extender / splitter



**NS560UTP**

**User Manual**



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Please read this manual thoroughly and follow the **Installation** procedures to prevent any damage to the KVM switch or any connecting device

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## **Introduction**

The **KVM Extender** consists of a **Local unit** and a **Remote unit** that is suitable to locate a keyboard/monitor/mouse set up to 150 meters away from a computer or KVM switch using an inexpensive Category 5 UTP (unshielded twisted pair) cable. It provides an ideal and convenient way to remotely access the computer which is located in a secure, clean or dirty, harsh environment.

The **KVM Extender** is designed to enable one computer to be controlled by one or two users. They are perfect to be used in factory or construction areas where you want to secure your computers and valuable data or manage them either in remote or both in remote and local sites.

No software or dip switches are required, just plug and play. With one push button, two LED indicators and simple hotkey commands, you can manage this device easily.

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## **Key Features**

- Connects the **Local unit** and **Remote unit** via Category 5 UTP cable
- Remotely locates the keyboard, mouse and monitor up to 150m from a computer
- Supports **PS/2**
- Video compensation can be adjusted by **hotkey** to ensure the optimum signal quality for any length of cable within the limit.
- Easy to get and install the standard cable at lower cost
- Simple indication makes operation user-friendly
- Locates the computer away from your desk and work area, saving you valuable space
- Allows two users to share a single computer both in local and remote areas.
- Beeps confirmation for key control makes the operation easier and cross-checked
- Supports for standard PS/2 keyboard & mice, including Microsoft IntelliMouse
- Compatible with XGA, VGA, and SVGA system

## Specifications

NS560UTP		
Connection	CAT 5 – RJ45 Female	
Remote unit Connectors	Console	MiniDIN6, female x 2 HDB15 female x 1
Local unit Connectors	Console	MiniDIN6, female x 2 HDB15 female x 1
	Computer	HDB15 female x 1
LED Indicators (Remote unit)	Remote	On: Controls System remotely
LED Indicators (Local unit)	Local	On: Controls local computer
	Remote	On: System is controlled remotely
		Flash alternately: Auto mode
Push Button	Switch to control status	
Power Supply	External power adapter DC 9V, 600mA	
Resolution	1024 x 768 @150m	
Weight	293g	
Dimensions (W x D x H)	156 x 65 x 20 (mm)	

## Packing Checklist

- KVM Extender Remote unit x 1
- KVM Extender Local unit x 1
- Power Adapters – 9V DC, 600mA x 1
- User Manual x 1
- Food Pad x 2 sets
- KVM Cable x 1

## Installation

### NS560UTP

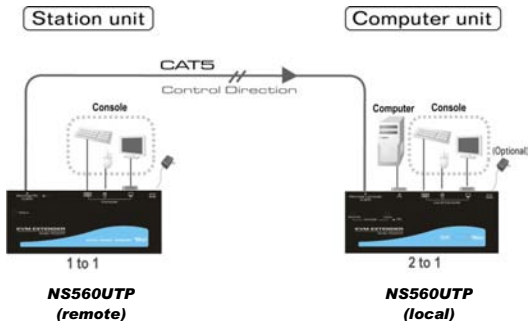


Figure 4: Connection patterns of KVM Extenders

## Video Compensation

Before operating, you may like to conduct the Video Compensation first. In this case, the hotkeys are used to adjust the Equalization on the **Remote Unit** to get optimum video signal for various cable lengths. There are five segments of various lengths of CAT 5 cables can be chosen from. To achieve the best visibility, please refer to the chapter of "Remote Unit Hotkeys Control" to adjust the video compensation.

First, assure that the length of CAT 5 cable you used now. Then, use the hotkeys to adjust the video compensation. You can press **Ctrl** twice, **E** and **F11** keys followed, and the different beeps sounded to indicate the setup of cable length respectively. Please refer to **Operation of Hotkey Control**.

## Operation

A keyboard and mouse must be connected to the **Remote unit**. And then the system conducts the emulation for local computer which can be controlled remotely. On the other hand, it does not need to use keyboard, mouse and monitor if you don't want to control the computer locally.

## LED Indicators

The LEDs on the **KVM Extender** are showing the latest status which indicates the linking, communication, and control situation between **Local unit** and **Remote unit**.

### Remote unit

Model	LED Status	Control Description
NS560UTP (remote)	Remote: On	The <b>Remote unit</b> remotely controls the <b>Local unit</b>

Table 3.1: LED - Control indication for **Remote unit**

### Power Up LED Status

Model No.	LED Indicators
NS560UTP (remote)	Remote: On

Table 3.2: The Initial status and indication is displayed when **KVM Extender** is powered up

## Local unit

Model	LED Status	Control Description
NS560UTP (local)	Remote: Off, Local: <b>On</b>	<b>Local unit</b> controls its local PC or KVM switches. In this mode, the <b>Remote unit</b> can not take control of the <b>Local unit</b> remotely.
	Remote: <b>On</b> , Local: Off	<b>Remote unit</b> is remotely taking control of the <b>Local unit</b>
	Remote/Local Flashes alternately (Auto Mode)	The system is waiting for <b>Remote unit</b> or <b>Local unit</b> to take control.

Table 4.1: LED - Control indication for **Local unit**

### *Power Up LED Status*

Model No.	LED Indicators
NS560UTP (local)	Local/remote: Flashes alternately

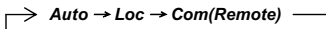
Table 4.2: The Initial status and indication is displayed when **KVM Extender** is powered up

## **————— Push Button: Switch to the control status**

There is a button on the panel of **Local unit** which can be pushed (switched) in sequence to select the operation modes.

### **Button on Local unit NS560UTP**

The button on the panel of **Local unit** can be pushed (switched) in sequence to select the following three modes:



**Auto:** 1. In this mode, the Remote and Local LEDs are flashing alternately.

2. The system is now waiting to take control of either from **Local unit** or from **Remote unit**. Once the keyboard or mouse of **Local unit** is active, the LED of Local is on and the LED of Remote is off. This status indicates that the **Local unit** is now taking control of the system and vice versa for **Remote unit**. In this case, the latch time period of 5, 15, 30, or 60 seconds is offered to allow the **Local unit** or **Remote unit** to take control again if the latch time is due and the status returns to the “**Auto**” mode.

In “**Auto**” mode, whenever the **keyboard, mouse buttons** or **scroll wheel** of mouse is activated, the Unit (**Local unit** or **Remote unit**) immediately takes control of the system.

**Local:** The LED of Local is “**On**”. In this mode, the system controls its local computer.

**Remote:** The LED of Remote is “**On**”. In this mode, the system remotely controls the **Local unit**.

## ————— **Hotkeys Control**

The **KVM Extender** interprets keystrokes for hotkeys all the time. A hotkey sequence starts with two *left* **Ctrl** keystrokes followed by one or two more keystrokes. A built-in buzzer generates a high-pitched beep for correct hotkey command, while one short and one long beeps are sounded for wrong commands. Thus, the bad key commands will not be forwarded to the selected modes.

There is an unique Hotkey command of **Ctrl** + **Ctrl** + **Alt+E** you should be well aware when the **KVM Extenders** are connected to other KVM Switches.

To switch to this mode, press *left* **Ctrl** twice, hold **Alt** and press **E** key (press both keys simultaneously). This function is used to prevent from misunderstanding once the system is connected to **NewStar's KVM Switches**. Thus, the user can choose either the control mode of **KVM Extender** or the number of computer connected to the **KVM Switches**.

## Remote unit Hotkeys Control

Hotkey Commands		Function Description
without <b>E</b> optional Standard Command	With <b>E</b> optional With Compatibility Mode Enabled	
<b>Ctrl</b> + <b>Ctrl</b> + <b>Esc</b>	<b>Ctrl</b> + <b>Ctrl</b> + <b>Esc</b>	Escape from hotkey mode
<b>Ctrl</b> + <b>Ctrl</b> + <b>Alt+E</b>	<b>Ctrl</b> + <b>Ctrl</b> + <b>Alt+E</b>	Two beeps: Enables <b>Compatibility Mode</b> so that the KVM extender will work with a KVM switch that also uses a <b>Ctrl</b> hotkey sequence. One beep: Disables <b>Compatibility Mode</b>
<b>Ctrl</b> + <b>Ctrl</b> + <b>F4</b> (Keyboard speed selection)	<b>Ctrl</b> + <b>Ctrl</b> + <b>E</b> + <b>F4</b> (Keyboard speed selection)	Adjusts the typematic rates of keyboard, the <b>KVM Extender</b> generates 1 to 4 beeps corresponding to 6, 12, 20, and 30 characters/sec respectively.
<b>Ctrl</b> + <b>Ctrl</b> + <b>F11</b> (Video Compensation Adjustment)	<b>Ctrl</b> + <b>Ctrl</b> + <b>E</b> + <b>F11</b> (Video Compensation Adjustment)	Adjusts the video compensation, the <b>KVM Extender</b> generates 1 to 5 beeps corresponding to the cable lengths of 0~30, 30~60, 60~90, 90~120 & 120~150 meters respectively.
<b>Ctrl</b> + <b>Ctrl</b> + <b>F12</b>	<b>Ctrl</b> + <b>Ctrl</b> + <b>E</b> + <b>F12</b>	Mouse resynchronized (for PS/2 only)

Table 5: Hotkey control for **Remote Unit**

**Note:**

**Special hotkey** ( **Ctrl** ) - ( **Ctrl** ) - ( **E** ) - ( **E** ) : Enable the KVM extender to link with port E of a KVM switch under the Compatibility Mode enabled **Beeps** corresponding to video compensation **Ctrl** + **Ctrl** + **E** + **F11**

Beep sounds	UTP Cable Length
1 beep	0~100 feet (0~30 meters)
2 beeps	100~200 feet (30~60 meters)
3 beeps	200~300 feet (60~90 meters)
4 beeps	300~400 feet (90~120 meters)
5 beeps	400~500 feet (120~150 meters)

## Local unit Hotkeys Control

Hotkey Commands		Function Description
without <b>E</b> optional Standard Command	with <b>E</b> optional With Compatibility Mode Enabled	
<b>Ctrl</b> + <b>Ctrl</b> + <b>Ti</b>	<b>Ctrl</b> + <b>Ctrl</b> + <b>Ti</b>	Toggle switch selects <b>Auto-Loc-Rem</b> mode
<b>Ctrl</b> + <b>Ctrl</b> + <b>Esc</b>	<b>Ctrl</b> + <b>Ctrl</b> + <b>Esc</b>	Escape from hotkey mode
<b>Ctrl</b> + <b>Ctrl</b> + <b>Alt+E</b>	<b>Ctrl</b> + <b>Ctrl</b> + <b>Alt+E</b>	Two beeps: Enables <b>Compatibility Mode</b> so that the KVM extender will work with a KVM switch that also uses a <b>Ctrl</b> hotkey sequence. One beep: Disables <b>Compatibility Mode</b>
<b>Ctrl</b> + <b>Ctrl</b> + <b>1i</b>	<b>Ctrl</b> + <b>Ctrl</b> + <b>E</b> + <b>1i</b>	Local Mode: Allows the user at local computer exclusive access to the system; remote access from computer at <b>Remote unit</b> is disabled.

<b>Ctrl + Ctrl + 2i</b>	<b>Ctrl + Ctrl + E + 2i</b>	Remote Mode: Allows the remote user at <b>Remote unit</b> exclusive access to the computer at <b>Local unit</b> ; access to the computer from the <b>Local unit</b> is disabled
<b>Ctrl + Ctrl + 3</b>	<b>Ctrl + Ctrl + E + 3</b>	<b>Auto</b> mode selection
<b>Ctrl + Ctrl + F3</b>	<b>Ctrl + Ctrl + E + F3</b>	<b>Auto</b> mode latch time: 5, 15, 30, 60 seconds
<b>Ctrl + Ctrl + F4</b> (Keyboard speed selection)	<b>Ctrl + Ctrl + E + F4</b> (Keyboard speed selection)	Adjust the typematic rates of keyboard, the <b>KVM Extender</b> generates 1 to 4 beeps corresponding to <b>6, 12, 20,</b> and <b>30</b> characters/sec respectively.
<b>Ctrl + Ctrl + F12</b>	<b>Ctrl + Ctrl + E + F12</b>	Mouse resynchronization (for PS/2 only)

Table 6: Hotkey control for **Local unit**

**Note:**

Special hotkey ( Ctrl ) - ( Ctrl ) - ( E ) : Enable the KVM extender to link with port E of a KVM switch under the Compatibility Mode enabled

- **Alt+E** :  
Hold **Alt** and press **E** key (press both keys simultaneously).
- Mouse resynchronization:  
When the mouse can not work normally, conduct this function and make it synchronized with your system.

## **Cascade Configuration**

The **KVM Extender** can be connected to the **KVM Switch** in compliance with the “**Cascade Configuration**”. In this case, there are some connection patterns may be conducted in a certain situations. However, to prevent from any conflict via hotkey commands among the connections, the **E** key is added and followed behind the **Ctrl** + **Ctrl**, which will enable you to manage the **KVM Extender** straightly. Moreover, please refer to the “**Notice of Cascade Connection**” stressed below for better management of your system.

### *Notice of Cascade Connection*

1. The external power source is required to supply enough power to the **Local unit** of **KVM Extender** when connecting to the **KVM Switch**. In this case, you can purchase optional power adapter DC9V, 600mA from your local dealers.
2. To prevent from wrong keystrokes of control keys, for **Remote unit** of **KVM Extender**, the parameters such as Cable Length, Keyboard Speed, Push Button Control should be set up in advance before connecting to the **KVM Switch**.

## Appendixes

### Cable Requirements

The cable interconnected between **Local unit** and **Remote unit** normally used is Category 5(CAT5) terminated with RJ45 connectors. It's easy to get them from the local stores or call your dealers for help. Besides, CAT5e or CAT6 are applicable to the **KVM Extender**. This CAT5 is not provided with the standard package mainly because it is subject to the different length you may require. In this case, the length of cable you used should be less than 150m. Otherwise, the poor result especially for video resolution may occur over longer distance beyond the limit.

#### Cat5 Cable

The **KVM Extender** needs a piece of unshielded twisted pair(UTP) cable up to a maximum length of 150 meters.

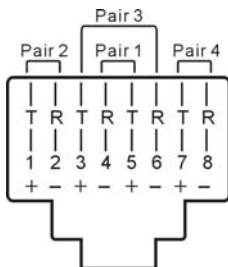


The cable must be wired in compliance with the EIA/TIA 568B industry standard as shown below.

Pin	Wire Color	Pair	Function
1	White/Orange	2	T
2	Orange	2	R
3	White/Green	3	T
4	Blue	1	R
5	White/Blue	1	T
6	Green	3	R
7	White/Brown	4	T
8	Brown	4	R

Table A1: Wiring definition of CAT5

**Note:** CAT5, CAT5e or CAT6 cables are applicable to the extender pair.



The above diagram shows the RJ45 connector of a CAT5 cable with its metal contacts facing up.

## Limited Warranty

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