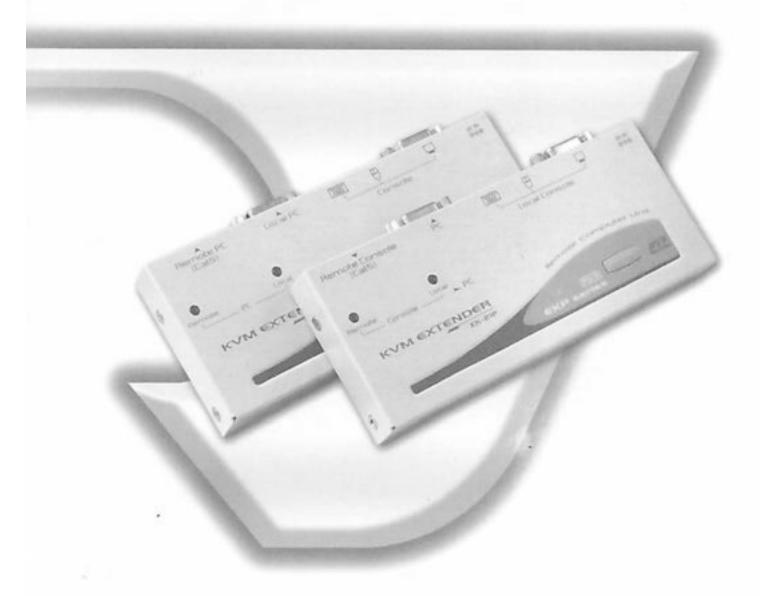
KVM Extender



User's Manual

PS/2 Co	nsole	USB Console
EKP-222	EKU-222	EUC-222
EKP-212	EKU-212	EUC-212
EKP-221	EKU-221	EUC-221
EKP-211	EKU-211	EUC-211

- Control Modes and Cable Types

THE RESERVE THE PERSON NAMED IN		B	The second second	Cons	sole (St	Console (Station) Unit	II	0	Computer Unit	er Unit		Cablacen	17000
Model	<u>.</u>	Function		Model	Consols	Computer port	er port	Mortal	Consc	Console port	Computer		(1.0m)
The second secon	The second second			mone	bout	Local	Remote	Model	Remote	Local	port	Included	Other Choice
(= EUC-12S + EUC-21P + Cable)	2 Consoles 👆		2 Computers	EUC-12S		-	+	EUC-21P	*	-	+-	СВМ180UH СВМ180Н	CBM180H
(= EUC-12S + EKU-11P + Cable)	1 Console -	-	2 Computers	EUC-12S	-	**	-	EKU-11P	-		-	свитвоин свитвон	CBM180H
(= EUC-11S + EUC-21P + Cable)	2 Consoles 👆		1 Computer	EUC-11S	-		-	EUC-21P	-	-	-	CBM180UH CBM180H	CBM180H
(= EUC-11S + EKU-11P + Cable)	1 Console →		1 Computer	EUC-11S	-		-	EKU-11P	*-		-	СВМ1800Н СВМ180Н	CBM180H
(= EKU-12S + EKU-21P + Cable)	2 Consoles -		2 Computers	EKU-12S	-	1	+	EKU-21P	-	-	**	свитвоин свитвон	CBM180H
(= EKU-12S + EKU-11P + Cable)	1 Console 👃	-	2 Computers	EKU-12S	-		1	EKU-11P	+		-	СВМ180UH СВМ180H	CBM180H
(= EK-11S + EKU-21P + Cable)	2 Consoles 👆		1 Computer	EK-11S	-		1	EKU-21P	*	-	-	СВМ180UH СВМ180Н	CBM180H
(= EK-11S + EKU-11P + Cable)	1 Console -		1 Computer	EK-11S	-		+	EKU-11P	-		+-	СВМ180UH СВМ180Н	CBM180H
(= EKP-12S + EKP-21P + Cable)	2 Consoles -		2 Computers	EKP-12S	-	-	1	EKP-21P	-	+-	-	СВМ180Н	N/A
(= EKP-12S + EKP-11P + Cable)	1 Console		2 Computers	EKP-12S	-	-	+	EKP-11P	*		-	СВМ180Н	N/A
(= EK-11S + EKP-21P + Cable)	2 Consoles -		1 Computer	EK-11S			-	EKP-21P	-	**	4-	CBM180H	N/A
(= EK-11S + EKP-11P + Cable)	1 Console 👃		1 Computer	EK-11S	-		-	EKP-11P	-		-	СВМ180Н	NA
			Walte A	Water 4. Onether the day and Oakle Towns		Charle	The Tree	-					

Table 1: Control Modes, and Cable Types

*CBM180UH: 180cm cable for USB interface computer. *CBM180H: 180cm cable for PS/2 interface computer.



CBM180H for PS/2 computer



CBM180UH for USB computer

Table of Contents

	Control Modes and Cable Types
	Introduction1
	Features2
	Packing Checklist3
	Product Description4
	Installation6
	Video Compensation8
	Operation9
	LED Indicators10
	Push Button: Switch to the control status12
	Hotkeys Control14
	Console (Station) Unit Hotkeys Control15
	Computer Unit Hotkeys Control17
	Cascade Configuration19
•	Appendixes20
	Specifications21

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

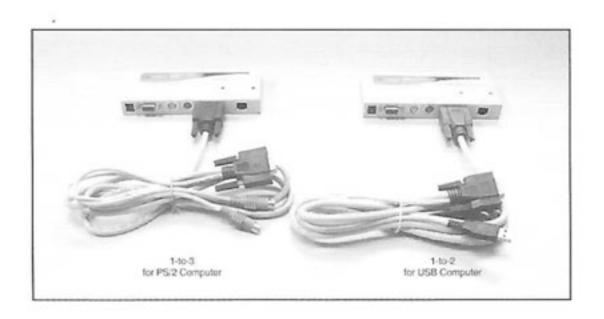
Introduction

The KVM Extender consists of a Computer Unit and a Console (Station) Unit that is suitable to locate one set of keyboard/monitor/mouse 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. Meanwhile, it is allowed for a console to control two computers locally and remotely. 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.

With a variety of models to choose from, you can economically increase the flexibility of your selection and meet your needs for PS/2 or PS/2 + USB system. 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.

There are 12 pairs available for your choices. Please refer to the Table 1 on page 1. Some of models are connected with 1-to-3 or 1-to-2 special cable(s). For detailed description, please see the **Specifications**.



Connection of 1-to-3 and 1-to-2 cable

----- Features

- Connects the Computer Unit and Console (Station) Unit via Category 5 UTP cable
- Remotely locates the keyboard, mouse and monitor up to 150m from a computer
- Supports either USB Console or PS/2 Console for flexible choice
- Video compensation can be adjusted by Hotkey to ensure the optimum signal quality for any length of cable within the limit.
- Synchronize the video resolution between the attached computers via hotkeys
- 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 one or two computers both in local and remote areas. (EUC-222 / EUC-221, EKU-222 / EKU-221, EKP-222 / EKP-221)
- Applicable for one console to manage two computers locally and remotely (EUC-212, EKU-212, EKP-212)
- Beeps confirmation for key control makes the operation easier and crosschecked
- Supports most of mice such as M/S IntelliMouse (Pro), Explorer, Optical, etc.
- Compatible with XGA, VGA, and SVGA system

------ Packing Checklist

- KVM Extender Console (Station) Unit x 1
- KVM Extender Computer Unit x 1
- Power Adapter x 1
- User Manual x 1
- Foot Pad x 2 sets
- KVM Cable (CBM180H or CBM180UH) x 1 or x 2

★Ordering information

Model Name + C = Model with necessary KVM Cables For example: EUC-222C = EUC-222 + Cable x 2

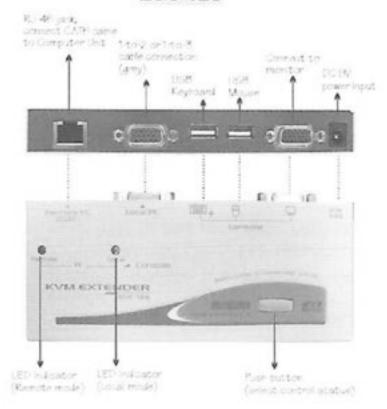
----- Product Description

The products shown below are typical examples of the USB Console and PS/2 Console KVM Extenders.

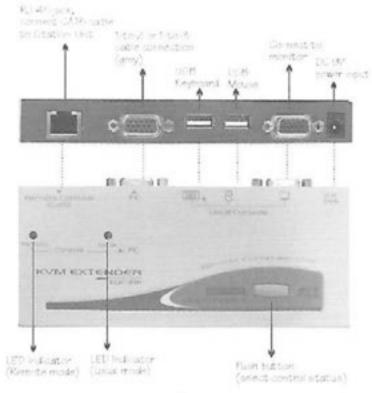
USB Console

www.cablematic.com

EUC-12S

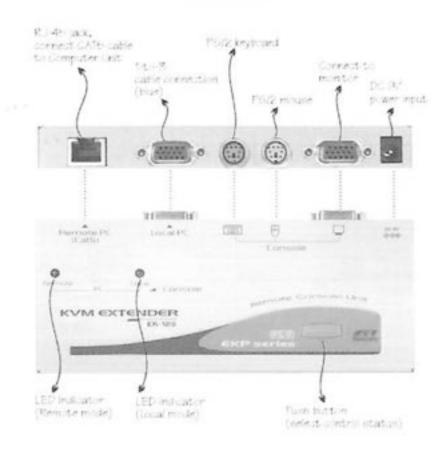


EUC-21P



PS/2 Console

EKP-12S



EKP-21P

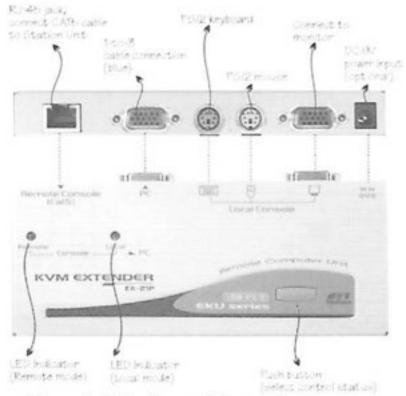


Figure 4: Indication and Connection

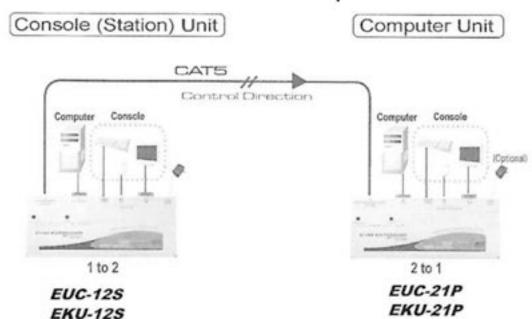
----- Installation

Connection Patterns

EKP-12S

EUC-222 / EKU-222 / EKP-222

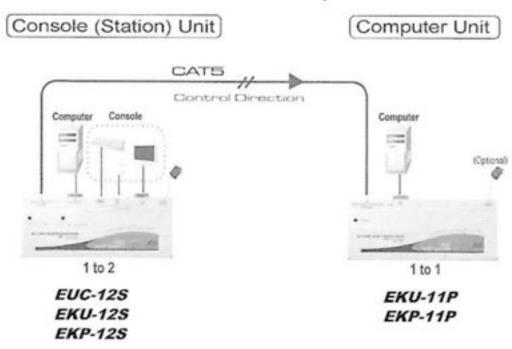
2 Consoles → 2 Computers



EUC-212 / EKU-212 / EKP-212

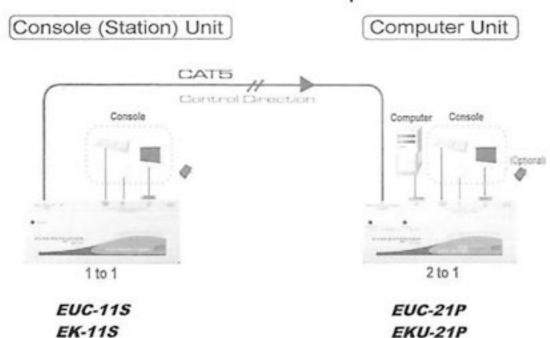
EKP-21P

1 Console → 2 Computers



EUC-221 / EKU-221 / EKP-221

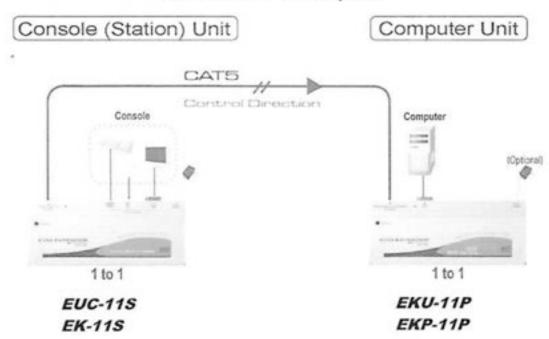
2 Consoles → 1 Computer



EUC-211 / EKU-211 / EKP-211

EKP-21P

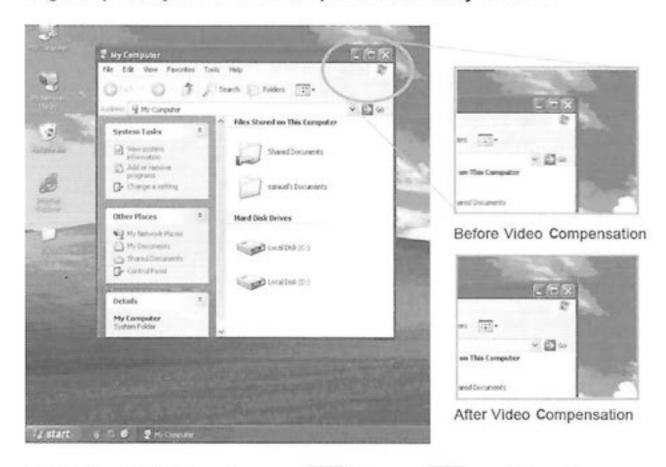
1 Console → 1 Computer



----- 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 "Console (Station) 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.



NOTE: In standard mode press Ctrl twice, and F11 keys followed
In compatibility mode press Ctrl twice, E and F11 keys followed
[To switch to different mode, please press Ctrl + Ctrl + Alt+E (Alt+E : hold Alt and press E)]

----- Operation

A keyboard and mouse must be connected to the Console (Station) 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. Anyway, there are 12 different pairs as the cover page shown can be chosen to meet your needs in all aspects. Please refer to the specifications for the model you are in hand and ready to operate in compliance with the following procedure.

----- LED Indicators

The LEDs on the KVM Extender are showing the latest status which indicates the linking, communication, and control situation between Computer Unit and Console (Station) Unit.

Console (Station) Unit

Model	LED Status	Control Description
	Remote: Off, Local: On	Console Unit controls its local PC.
EUC-12S EKU-12S EKP-12S	Remote: On, Local: Off	Console Unit is remotely taking control of the Computer Unit. In this mode, there are two statuses as follows: 1. The Computer Unit is now taking control of the system if the 3 LEDs (Num, Caps and Scroll Lock) on the keyboard are flashing. 2. The system is waiting for Console Unit or Computer Unit to take control if the 3 LEDs (Num, Caps and Scroll Lock) on the keyboard are not flashing at this moment.
EUC-11S EK-11S	Status: On	The Console Unit remotely controls the Computer Unit

Table 2.1: LED - Control indication for Console Unit

Power Up LED Status

Model No.	LED Indicators
EUC-12S	Local: On
EKU-12S	Local: On
EKP-12S	Local: On
EK-11S	Status: On
EUC-11S	Status: On

Table 2.2: The Initial status and indication is displayed when KVM Extender is powered up



Computer Unit

Model	LED Status	Control Description
EUC-21P	Remote: Off, Local: On	Computer Unit controls its local PC or KVM switches. In this mode, the Console Unit can not take control of the Computer Unit remotely.
EKU-21P EKP-21P	Remote: On, Local: Off	Console Unit is remotely taking control of the Computer Unit
	Remote/Local Flashes alternately (Auto Mode)	The system is waiting for Console Unit or Computer Unit to take control.
EKU-11P EKP-11P	Status: On	The system is controlled remotely from Console Unit

Table 3.1: LED - Control indication for Computer Unit

Power Up LED Status

Model No.	LED Indicators
EUC-21P	Local/remote: Flashes alternately
EKU-21P	Local/remote: Flashes alternately
EKP-21P	Local/remote: Flashes alternately
EKU-11P	Status: On
EKP-11P	Status : On

Table 3.2: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 **Computer Unit** and **Console (Station) Unit** respectively, which can be pushed (switched) in sequence to select the operation modes.

Button on Console (Station) Unit (EUC-222 / EUC-212 / EKU-222 /EKU-212 / EKP-222 / EKP-212)

The button on the panel of Console (Station) Unit can be pushed (switched) in sequence to select the following two modes:

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 Computer Unit.

Button on Computer Unit (EUC-222 / EUC-221 / EKU-222 / EKU-221 / EKP-222 / EKP-221)

While pressing the button, there are three modes can be chosen from and its sequence indicates as follows:

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 Computer Unit or from Console (Station) Unit. Once the keyboard or mouse of Computer Unit is active, the LED of Local is on and the LED of Remote is off. This status indicates that the Computer Unit is now taking control of the system and vice versa for Console (Station) Unit. In this case, the latch time period of 5, 15, 30, or 60 seconds is offered to allow the Computer unit or Console (Station) 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 (Computer Unit or Console Unit) immediately takes control of the system.

Local: The LED of Local is "On". In this mode, the system is being controlled by the Computer Unit. In this case, the Console (Station) Unit can learn this status from the flashing of 3 LEDs (Num, Caps and Scroll Lock) on the keyboard.

Remote: The LED of Remote is "On". In this mode, the system is remotely controlled by the Console (Station) Unit.

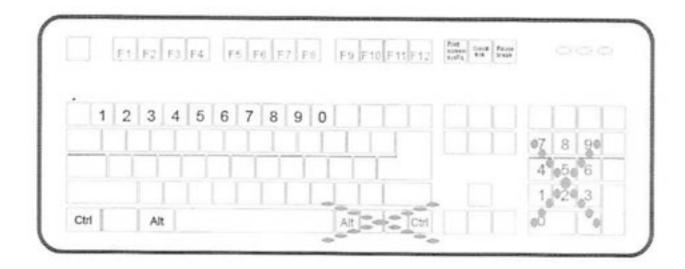
-----Hotkeys Control

Hotkey command is a short keyboard sequence to select a computer, to activate computer scan, and so forth. 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 Rextron'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.

Note: For models EKU-11P and EKP-11P the hotkey function are not applicable



----- Console (Station) Unit Hotkeys Control

Console Unit He	otkey Commands	
Standard Command (without E optional)	Compatibility Mode (With E optional) (Add E if a KVM Switch cascaded)	Function Description
Ctrl +	Ctrl + T	Mode selection in Sequence
Ctrl + Ctrl + F2	Ctrl + Ctrl + E + F2	Toggles console control between Local Computer and Remote Computer
	Ctrl + Esc	Escape from hotkey mode
	trl + Alt+E	Cascading status selection Two beeps: Enables Compatibility Mode so that the KVM extender will work with a KVM switch that also uses a Ctrl hotkey sequence. One beep: Disables Compatibility Mode
Ctrl + Ctrl + 1	Ctri + Ctri + E * + 1	Local mode selection Switches control to local computer
Ctrl + Ctrl + 2	Ctrl + Ctrl + E + 2	Remote mode selection Switches control to remote computer(input allowed only if the Computer Unit is in Remote or Auto mode)
Ctrl + Ctrl + F4	Ctrl + Ctrl + E* + F4	Keyboard speed selection Adjusts the typematic rates of keyboard, the KVM Extender generates 1 to 4 beeps corresponding to 6, 12, 20, and 30 characters/sec respectively. (for PS/2** only)
Ctrl + Ctrl + F11	*Ctrl + Ctrl + E* + F11	Video compensation adjustment Adjusts the video compensation, the KVM Extender generates 1 to 5 beeps correspondin to the cable lengths of 0~30, 30~60, 60~90, 90~120 & 120~150 meters, respectively.
Ctrl + Ctrl + F12	Ctrl + Ctrl + E* + F12	Mouse resynchronized (for PS/2 only)
Ctrl + Ctrl + V + 4 digits	Ctrl + Ctrl + E + V + 4 digits	Video synchronization*** Prevent the video resolution setting from exceeding the capability of the connected display (require CPU reboot); the following options for video resolution are available for selecting: Input 4 digits with 1007 for resolution of 1024 x 0768 1210 for resolution of 1280 x 1024 1612 for resolution of 1600 x 1200 :: 1912 for resolution of 1920 x 1200 1914 for resolution of 1920 x 1440

Table 4 Hotkey control for Console (Station) Unit

NOTE: Special hotkey Ctrl + Ctrl + E + E : Enable the KVM extender to link with port E (the 13th port of a KVM switch cascaded) under the Compatibility Mode enabled.

*NOTE: In the case of cascading the KVM Switch please add | E | key

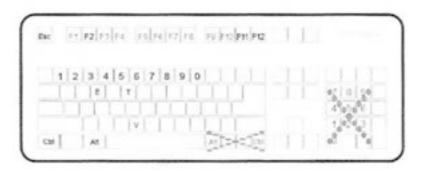
**NOTE: The keyboard speed selection function is applicable for PS/2 models only

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)

*** By default, the Video Synchronization setting between the Console Unit and Computer Unit will follow the Console Unit setting after reboot. The following options for video resolution are available for selecting:

4 digits	Resolution	4 digits	Resolution
10 07	1024 x 768	16 12	1600 x 1200
12 08	1280 x 800	16 10	1680 x 1050
12 10	1280 x 1024	19 10	1920 x 1080
13 07	1360 x 768	19 12	1920 x 1200
14 09	1440 x 900	19 14	1920 x 1440
14 10	1440 x 1050	20 11	2048 x 1152
16 09	1600 x 900		



-----Computer Unit Hotkeys Control

Computer Unit H	Hotkey Commands	
Standard Command (without E optional)	Compatibility Mode (With E optional) (Add E if a KVM Switch cascaded)	Function Description
Ctrl +	Ctrl + T	Mode selection in sequence Toggle switch selects Auto-Loc-Rem mode
Ctrl + C	Ctrl + Esc	Escape from hotkey mode
Ctrl + C	trl + Alt+E	Cascading status selection Two beeps: Enables Compatibility Mode so that the KVM extender will work with a KVM switch that also uses a Ctrl hotkey sequence. One beep: Disables Compatibility Mode
Ctrl + Ctrl + 1	Ctrl + Ctrl + E* + 1	Local mode selection Local Mode: Allows the user at local computer exclusive access to the system; remote access from computer at Console Unit is disabled.
Ctrl + Ctrl + 2	Ctrl + Ctrl + E* + 2	Remote mode selection Remote Mode: Allows the remote user at Console Unit exclusive access to the computer at Computer Unit; access to the computer from the Computer Unit is disabled
Ctrl + Ctrl + 3	Ctrl + Ctrl + E + 3	Auto mode selection
Ctrl + Ctrl + F3	Ctrl + Ctrl + E* + F3	Latch time selection Auto mode latch time: 5, 15, 30, 60 seconds
Ctrl + Ctrl + F4	Ctrl + Ctrl + E* + F4	Keyboard speed selection Adjust the typematic rates of keyboard, the KVM Extender generates 1 to 4 beeps corresponding to 6, 12, 20, and 30 characters/sec respectively.(for PS/2** only)
Ctrl + Ctrl + F6	Ctrl + Ctrl + E* + F6	Privacy setting Configure the Computer Unit Video Signal***
Ctrl + Ctrl + F12	Ctrl + Ctrl + E * + F12	Mouse resynchronization (for PS/2 only)
Ctrl + Ctrl + V + 4 digits	Ctrl + Ctrl + E* + V + 4 digits	Video synchronization Prevent the video resolution setting from exceeding the capability of the connected display (require CPU reboot); the following options for video resolution are available for selecting: Input 4 digits with 1007 for resolution of 1024 x 0768 1210 for resolution of 1280 x 1024 1612 for resolution of 1600 x 1200 : 1912 for resolution of 1920 x 1200 1914 for resolution of 1920 x 1440 2011 for resolution of 2048 x 1152

Table 5 Hotkey control for Computer Unit

NOTE: Special hotkey Ctrl + Ctrl + E + E : Enable the KVM extender to link with port E (the 13th port of a KVM switch cascaded) under the Compatibility Mode enabled.

*NOTE: in the case of cascading the KVM Switch please add | E | key

**NOTE: The keyboard speed selection function is applicable for PS/2 models only

***NOTE: In privacy setting item by repeating the hotkey commands the KVM Extender generates 1 to 3 beeps. Please take notice of the Computer Unit LED. There are two statuses as follows:

A. Computer Unit in Local mode

(Remote LED: Off, Local LED: On)

One beep: Reset to Factory Default.

Two or three beeps: Disable the Computer Unit output video signal.

B. Computer Unit in Auto mode

(Remote / Local LED flashes alternately)

One beep: Reset to Factory Default.

Two beeps: By triggering keyboard / mouse user can disable the Computer Unit output video signal temporarily. (The Computer Unit user protects his privacy for 5,15,30,60 seconds. See Table 5: Ctrl + Ctrl + F3 description)

Three beeps: By triggering keyboard / mouse the Console (Station) Unit or Computer Unit users can disable the output video signal temporarily. (The users protect his privacy for 5,15,30,60 seconds as well)

Alt+E

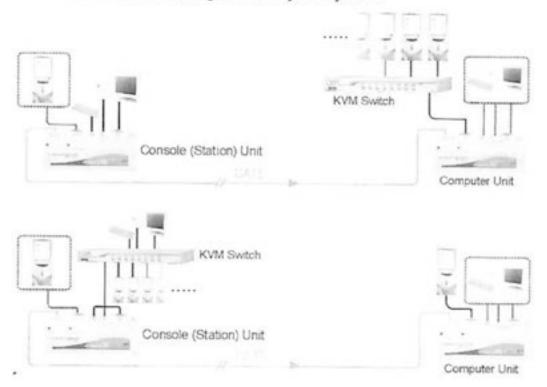
Hold Alt and press E key(press both keys simultaneously).

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

- The external power source is required to supply enough power to the Computer 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.
- To prevent from wrong keystrokes of control keys, for Console (Station)
 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

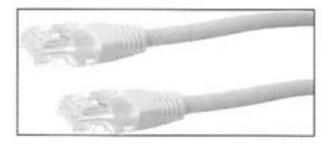
Cable Requirements

www.cablematic.com

The cable interconnected between Computer Unit and Console (Station) 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.

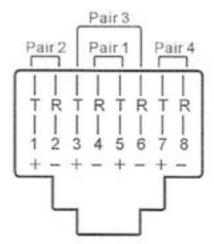
CAT5 Cable

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

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.

-----Specifications

USB + PS/2 Model	EUC.222C	EUC-212C	EUC-221C	EUC-211C	EKU-2220	EKU-2120	EKU-2210	EKU-211C
PS/2 Model					EKP-222C	EKP-212C	EKP-221C	EKP.211G
Connection				CATE	CAT 5 - RJ45 female			
Console (Station) Unit Connectors	USB-A, female x 2 HDB15 female x 1	USB-A, female x 2 HDB15 female x 1	USB-A, female x 2 HD615 female x 1	USB-A, female x 2 HDB15 female x 1	minDRV6, temale x 2 HDB15 temale x 1	minDM6, lemale x 2 HDB15 female x 1	minDRMS, female x 2 HDB15 female x 1	minDIN6, female x 2 HDB15 female x 1
Computer	M HDB15 female x 1	HDB15 female x 1			HDB15 female x 1	HDB15 female x 1		
Computer Unit Connectors	USB-A, female x 2 HDB15 female x 1		USB-A, female x 2 HDB15 female x 1		minDINS, female x 2 HOB15 female x 1		mmDW6, female x 2 HDB15 Semale x 1	
Compolin	M HDB15 female x1	HDB15 female x 1	HDB15 femsle x 1	HDB15 female x 1	HDB15 female x 1	HDB15 fentale x 1	HOB15 female x 1	HDB15 femals x 1
LED Indicators (Station Unit) Local Remote	Locur On Controls its computer Remate On: Controls system remotely	On: Controls its computer On: Controls system remotely	On: Controls system nemotety	On: Controls system remotely	On: Controls its computer On: Controls system renotely	On: Controls its computer On: Controls system remotely	Dr. Controls system nemotely	Or Corticis system remotity
Local LED Indicators (Computer Unit) Remote	On Control transcription On Epidem a control of herody Fach alternatify Automotis	On Control tous consults On System is controlled remaining. Flush alternating Auto mode.	On Control local computer On Equition a controlled venicity From alternativy Automoth	Dr. Eystem is controlled remotally 8	On Control tops computer On Epitien in conditionally Nath attendity Acts made	Or: System is controlled remotely	On Control tool corputer On System is sensived remoting Flash attendage Automobili	On: System is controlled remotely
Push Button				Swach to	Switch to the control status			
Power Supply (min)				External power	External power adapter DC 9V, 600mA			
Resolution				1290 x	1250 x 1024 @150 m²			
Weight (per pair)					293g x 2			
Dimensions (W x D x H)(per pair)				156×6	156 x 65 x 20 (mm) x 2			

With the high quality of CATS cable