KVM MODULE

KVM Module for 1UCABCONS

CAB831D
CAB832DS
CAB1631D

Instruction Guide

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Table of Contents

KVM Module

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

Introduction

Overview

By combining the 1UCABCON console and KVM Module you receive the latest, most efficient way to control server rooms and multiple computers. Three models of KVM Modules are available to control from 8 to 136 servers by the 1UCABCONS console or another set of console 100ft (30m) away; it is ideal for various applications.

On-Screen Display (OSD) Menu

With a KVM Module you can name your computers, switch to a computer from a list, configure settings with easy-to-use menus and, view the name of the selected computer on-screen with a programmable time interval. The OSD menu displays the system status throughout operation.

Automatic Mouse Conversion

The KVM Module enables you to connect computers with PS/2 or serial mouse ports (using adapters supplied with the KVM Module) and control the computers from one PS/2 mouse. The KVM Module automatically identifies the mouse and switches to proper mouse protocol. This function is effective for computer ports "7" and "8".

High Video Quality

The 1UCABCONS LCD panel supports VGA resolution up to 1024x768 without any degradation. The advanced VGA circuit design guarantees smooth and flicker-free switching from one computer to the other with cable length up to 100ft (30M)* at PC sides with a Console KVM switch.

*Tested with high-quality UL2919-rated, low-loss and shielded cables.

Features

- Supports both PS/2 and serial mice
- Cascade configuration expands system capability
- Auto-scan automatically selects computers sequentially
- Supports Microsoft IntelliMouse (Pro)
- Hot-key functions allow easy computer access
- Keyboard states automatically saved and restored when switching computers
- Operating system independent, transparent to all applications
- Plug and play system configuration
- Keyboard and mouse can be hot plugged at any time
- DDC2B compatible
- Supports optional multimedia module for microphones and stereo speakers

Features for OSD menu

- Assign computers with unique and meaningful names
- Identify and select computers by the names
- Programmable scan filters unused computers
- Store system settings and name entries to non-volatile memory
- Password security locks computer from unauthorized access
- Gain complete control with easy-to-use OSD interface

Features for multi-access KVM Module

- Manage multiple computers from two locations
- Different Console may have different type of mouse i.e. generic PS/2 mouse and scroll mouse
- Selectable user timeout

Configurations

The KVM Module is available in both an 8 port and a 16 port model to support a variety of requirements. For applications with a large number of computers, KVM Modules can be cascaded in a master/slave configuration.

Single KVM Module Configuration

Combined with a 1UCABCONS Console, the KVM Module can be connected to multiple computers with keyboard, mouse and monitor cables as shown in figure 1.

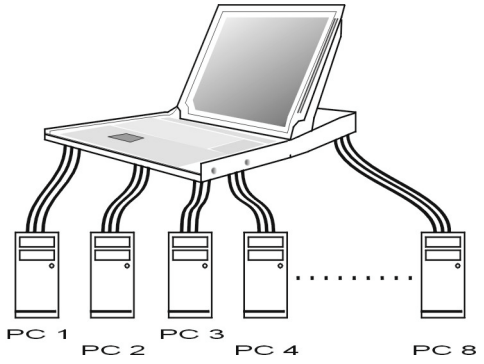

Figure 1: A single KVM Module configuration

KVM Module in cascade (Master/Slave) Configuration

You can connect a second level of one or more KVM Modules to "**PC 1**"~"**PC 8**" ports of a *Master* unit. Cascade configuration expands system ability allowing you to select computers connected to the *Master* or *Slaves*. There is only one *Master* that connects to the 1UCABCONS Console directly operated by a user. Once connected, KVM Modules automatically configure themselves to either *Master* or *Slave*.

Slaves of different KVM Module models can be mixed in cascade configuration as shown in figure 2.

Note: *Master must have equal or more PC ports than that of Slaves, i.e., if the master KVM module has 8 ports, the slave KVM modules can not have more than 8 ports each.*

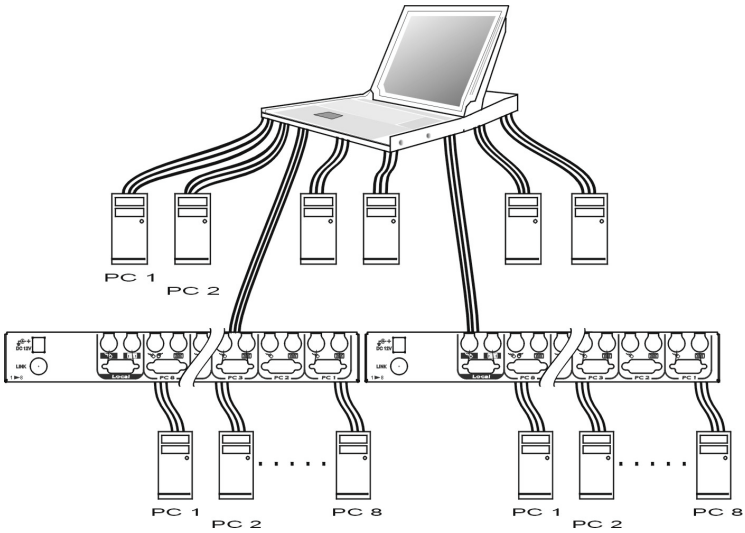

Figure 2: A cascaded KVM Module configuration

Throughout this manual, Master is the KVM Module that connects directly to the drawer. Slave is a KVM Module that has its ***CONSOLE*** *port connected to a Master's "****PC*** *x" port. Slave only exists in cascade configuration.*

Installation

Device Connection

Determine the port number of each computer. For computers using PS/2 mouse, connect the computer's mouse and keyboard cables to the KVM Module's connectors marked with a mouse and keyboard respectively, as shown in figure 3. Repeat this step for **PC 1** to **PC 8**.

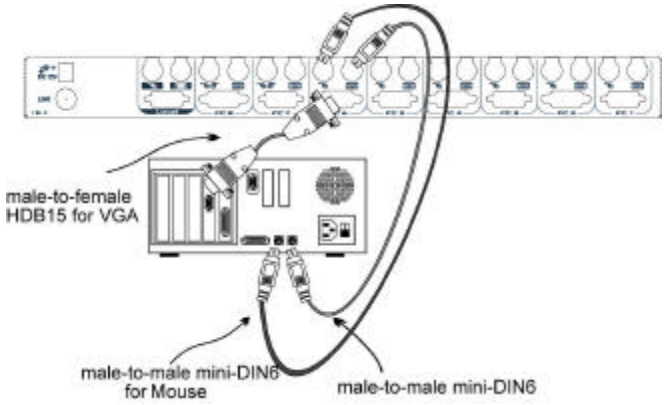

Figure 3: Master computer connection

For computers using serial mice, connect the *DB-9 to mini-DIN-6 adapter* (included with the switch) to the computer mouse port, then use PS/2 cables to connect the mouse to the KVM Module, see figure 4. Connect the computer's monitor cable to the HD-DB-15 VGA connector. **Note:** *This function is only available for* **PC 7** *and* **PC 8** *marked with two mice.*

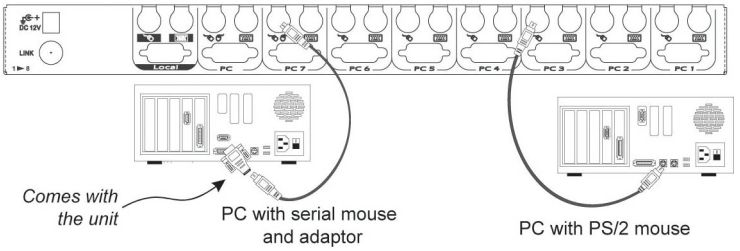

Figure 4: Serial (AT) mouse and PS/2 mouse connection

A slave KVM Module may be mounted to the rear vertical poles inside a rack cabinet by the rear brackets with keyboard, mouse, monitor connectors facing out, as figure 5.

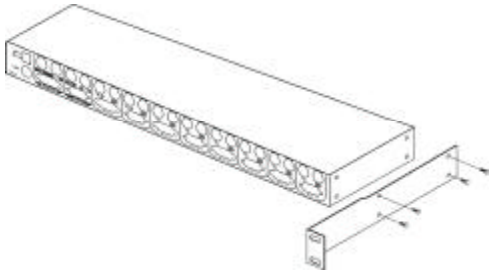

Figure 5: Slave Console KVM switch and rear bracket attachment

*The connectors (keyboard, mouse and monitor) at the **Local** port on the rear of the KVM module are not applicable when the module is connected to the drawer by the C-36 connector. When its C-36 connector is not connected to the drawer, the KVM module acts as a rear-mount stand-alone KVM switch.*

Initial Power-Up

Make sure all computers and KVM Modules are powered down during installation. You must power up the Master KVM Module before turning on any other devices.

For single KVM Module:

1) Apply a power adapter to the *Master*.
2) Turn on computers.

For cascaded Console KVM switches:

1) Apply a power adapter to the *Master*.
2) Apply power adapters to all *Slaves*.
3) Turn on computers.

Note: *You may hot plug additional powered-down computer or a slave KVM Module without turning any existing 1UCABCONS or computer off after initial power up.*

Operation

Push Button Selection

A computer may be selected by pressing the push buttons above the keyboard in the 1UCABCONS, by issuing hot-key commands or by activating the OSD window. The indicator LEDs change to reflect the computer port selected (red). The indicator flashes red when it is in either *Auto Scan* or *Manual Scan* mode.

✍ **K/M RESET**

K/M RESET solves most problems developed by keyboard, mouse, device replacement or change of configuration. Press down on both the number **1** and **2** push buttons for 2 seconds to re-configure the whole system without turning either the 1UCABCONS or any connected computer off.

✍ **AUTO SCAN**

The Console KVM switch provides an easy to use feature to start Auto Scanning. You can press down both the number **7** and **8** buttons for 2 seconds to start Auto Scanning.

OSD (On-Screen-Display) Operation

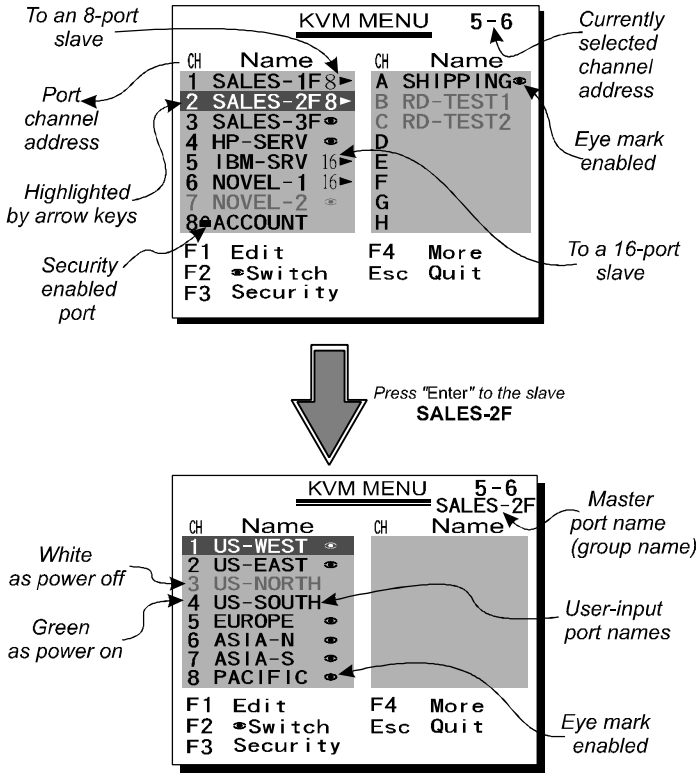

Figure 6: OSD Screen Illustration

By hitting the left <CTRL> key twice within two seconds, you may see the 'Hotkey Menu' if it is enabled (an OSD option). Or, by hitting the left <CTRL> key three times within two seconds, you will see a '**KVM MENU**' screen showing a list of the computers with corresponding port numbers, names and status. See figure 6 for an example.

The port number of the currently selected computer is displayed in red, same as the front indicator, at the right corner of the OSD menu.

The color of a device name is green if it has power and is ready for operation, or the color is white if it has no power. OSD menu updates the color when it is activated. Use the <UP> and <DOWN> arrow keys to highlight a computer and the <ENTER> key to select it. Or, you may press <ESCAPE> to exit the OSD and remove the OSD menu from the display; the status window returns to the display and indicates the currently selected computer or operating status.

A triangle mark (▲) to the right of a name indicates the port is cascaded to a *Slave*; the number at the left of the triangle mark shows the number of ports the *Slave* has, i.e. **8**▲for an 8-port switch. The <ENTER> key brings you one level down and another screen pops up listing the names of the computers on that *Slave*. The name of the *Slave* will be shown at the upper right corner of the OSD menu. It is useful to group computers and still be able to see the group name.

An eye mark (▲) to the right of a name indicating the computer is selected to be monitored in Scan mode. In OSD, this mark can be switched on or off by function key <F2>.

Press <ESCAPE> key to exit OSD and to return to the selected computer; the computer name is also shown on the screen.

▲Function key <F1> - To edit name entry of a computer or a Slave. First, use the <UP> and <DOWN> arrow keys to highlight a port then press <F1> followed by name entry. Valid characters are 'A'~'Z', '0'~'9' and the dash character. Lowercase letters are converted to uppercase ones. Press <BACKSPACE> to delete a letter one at a time. Non-volatile memory stores all name entries until you change, even if the unit is powered down.

▲Function key <F2> - Use this key to switch the eye mark (▲) of a computer on or off. First, use the <UP> and <DOWN> arrow keys to highlight it, then press <F2> to switch its eye mark on or off. If *Scan Type* reads '**Ready PC +**▲', only the power-on and eye mark selected computers will be displayed sequentially in Scan mode.

Function key <F3> - To lock a device (a computer or a *Slave*) from unauthorized access, use *Security*. *Security* is effective for only one device (a computer or a *Slave*). To lock a device, use the <UP> and <DOWN> arrow keys to highlight it, then press <F3>. Now, enter up to 4 characters ('A'~'Z', '0'~'9, '-') followed by <ENTER> as new password. A Security-enabled device is marked with a lock ( ) following its port number. To permanently disable the *security* function from a locked device, highlight it, press <F3> then enter the password.

If you want to access the locked device temporarily, simply highlight it and press <ENTER>, the OSD will ask you for the password. After entering correct password, you are allowed to use the device. This device is automatically re-locked once you switch to another one. During Scan mode, OSD skips the security-enabled device. **Note:** *Only one device (a computer or a Slave) can be locked by this function at a time.*

If you forget the password, the only way to permanently disable the security function is to remove all possible power sources from the 1UCABCONS. You need to turn off all computers and unplug all power adapters, then restart everything.

Function key <F4> - More functions are available by hitting <F4>. A new screen pops up displaying more functions as described below. Most of them are marked with a triangle ( ) indicating there are options to choose from. Using the <UP> and <DOWN> arrow keys, select the functions and press <ENTER>. Available options will be shown in the middle of the screen. Again, using the <UP> and <DOWN> arrow keys to view options then press <ENTER> to select it. You can press <ESCAPE> to exit at any time.

- *Auto Scan*
  In this mode, the 1UCABCONS automatically switches from one power-on computer to the next sequentially in a fixed interval. During *Auto Scan* mode, the OSD displays

the name of the selected computer. When *Auto Scan* detects any keyboard or mouse activity, it suspends the scanning till activity stops; it then resumes with the next computer in sequence. To abort the *Auto Scan* mode, press the left <CTRL> twice, or, press any front button. *Scan Type* and *Scan Rate* set the scan pattern. *Scan Type* (<F4>:More\Scan Type) determines if scanned computers must also be eye mark selected. *Scan Rate* (<F4>:More\Scan Rate) sets the display interval when a computer is selected before selecting the next one.

✍ *Manual Scan*
Scan through power-on computers one by one by keyboard control. can Type (<F4>:More\Scan Type) determines if scanned computers must also be eye mark selected. Press the up arrow key (✍) to select the previous computer and the down arrow key (✍) to select the next computer. Press any other key to abort the Manual Scan mode.

✍ *Audio Stick*
An optional multimedia module can be linked to the back of each KVM Module for selecting microphone and stereo speaker signals. There are two options for *Audio Stick*: **ON** and **Off**. When set to '**On**', audio selection follows computer selection. When set to '**Off**', audio selection stops following computer selection. It is useful if you want to listen to a particular computer's audio signal while operating other computers. The non-volatile memory stores the *Audio Stick* setting.

✍ *Scan Type*
Ready PC +✍: In Scan mode, scan through power-on and eye mark selected computers.

Ready PC: In Scan mode, scan through power-on computers. The non-volatile memory stores the *Scan Type* setting.

✍ *Scan Rate*
Sets the duration of a computer displayed in *Auto Scan* mode. The options are **3 seconds, 8 seconds, 15 seconds and 30 seconds**. The non-volatile memory stores the *Scan Rate* setting.

✍ *Keyboard Speed*
The 1UCABCONS offers keyboard typematic setting that overrides the similar settings in BIOS and in Windows. Available speed options are **Low**, **Middle**, **Fast** and **Faster** as 10, 15, 20 and 30 characters/sec respectively. The non-volatile memory stores the Keyboard Speed setting.

✍ *Hotkey Menu*
When you hit the left <CTRL> key twice within two seconds, the "Hotkey Menu" appears displaying a list of hot-key commands if the option is **On**. The 'Hotkey Menu' can be turned **Off** if you prefer not to see it when the left <CTRL> key is hit twice. The non-volatile memory stores the Hotkey Menu setting.

✍ *CH Display*
Auto Off: After you select a computer, the port number and name of the computer will appear on the screen for 3 seconds then disappear automatically. **Always On**: The port number and name of a selected computer and/or OSD status displayed on the screen all the time. The non-volatile memory stores the CH Display setting.

✍ *Position*
The position of the selected computer name and/or OSD status displayed on screen during operation. The actual display position shifts due to different VGA resolution, the higher the resolution the higher the display position. The non-volatile memory stores the Position setting.
UL as Upper Left, **UR** as Upper Right,
LL as Lower Left, **LR** as Lower Right.
MI as Middle.

Hot-key commands

Hot-key command is a short keyboard sequence to select a computer, to activate computer scan, etc. The 1UCABCONS constantly interprets keystrokes for hot-keys. A hot-key sequence starts with two left <CTRL> keystrokes followed by one or two more keystrokes. A built-in alarm generates a high-pitch beep for correct hot-key command; otherwise, one low-pitch beep for error and the bad key sequence will not be forwarded to the selected computer.

The short form hot-key menu can be turned on as an OSD function (<F4>: more\Hotkey Menu) every time the left <CTRL> key is pressed twice.

> **L-CTRL**: is the <CTRL> key located at the left side of the keyboard.
>
> **1~8/A~H**: are the number keys '1' ~ '8' at the upper row of the keyboard and character keys 'A' ~ 'H' case insensitive. *Do not use the keypad at the right of the keyboard.*

✍ To select a computer by hot-key command, you must know its port number, which is determined by the KVM Module connection. For a computer connected to a *Master*, its port is represented by the PC port label (1~8 or A~H). For a computer connected to a *Slave*, two characters represent its port. The first character is the port number of the *Master* unit (1~8) and the second one is the port number of the *Slave* (1~8 or A~H). Please note that only *Master's* 'PC 1' ~'PC 8' ports can be connected to a *Slave*.

Left ***Ctrl*** + left ***Ctrl*** + ***7***

Selects a computer connected to port 7 of the *Master*.

Left ***Ctrl*** + left ***Ctrl*** + ***6*** + ***C***

Selects a computer connected to port C of a *Slave* connected to port 6 of the *Master*.

✍ To start *Auto Scan*, automatically scan power-on computers one by one at a fixed interval:

Left ***Ctrl*** + left ***Ctrl*** + ***F 1***

When *Auto Scan* detects any keyboard or mouse activity, it suspends the scanning till activity stops; it then resumes with the next computer in sequence. The length of the *Auto Scan* interval (*Scan Rate)* is adjustable, see below. To abort the *Auto Scan* mode, press the left ***Ctrl*** key twice.
Note: *Scan Type* determines whether an eye-marked computer is to be displayed during *Auto Scan*.

✍ *Manual Scan* enables you to manually switch back and forth between power-on computers.
Left ***Ctrl*** + left ***Ctrl*** + ***F2***
Press ✍or ✍to select the previous or the next computer in sequence. And, press any other key to abort the *Manual Scan*.
Note: *Scan Type* determines whether an eye-marked computer is to be displayed during *Auto Scan*.

✍ To adjust *Scan Rate* which sets the duration before switching to the next computer in *Auto Scan*:
Left ***Ctrl*** + left ***Ctrl*** + ***F3***
The 1UCABCONS sends one to four beeps indicating scan interval of ***3***, ***8***, ***15*** and ***30*** seconds respectively.

✍ To adjust keyboard typematic rate (characters/sec), this setting over-rides that of BIOS and any operating system:
Left ***Ctrl*** + left ***Ctrl*** + ***F4***
The 1UCABCONS generates 1 to 4 beeps corresponding to ***10***, ***15***, ***20*** and ***30*** characters/sec respectively.

✍ *Audio Stick*
An optional multimedia module can be linked to the back of each 1UCABCONS for selecting microphone and stereo speaker signals. There are two options for *Audio Stick*: **ON** and **Off**. When set to '**On**', audio selection follows computer selection. When set to '**Off**', audio selection stops following computer selection. It is useful if you want to listen to a particular computer's audio signal while operating other computers.
Left ***Ctrl*** + left ***Ctrl*** + ***F5***
The 1UCABCONS generates 1 or 2 beeps corresponding to ***On*** and ***Off*** respectively.

Cascade Configuration

Connection

*Before connecting a device (a computer or a Slave KVM Module) to the Master KVM Module under power, you must turn off the device. The Master must have equal or more '**PC x**' ports than that of the Slave, i.e., if CAB831D or CAB832DS is the Master another 8 port KVM Module can be a slave but not the CAB1632DS.*

The ports labeled "**PC 1**"~"**PC 8**" can be connected to either a computer or a *Slave*'s **CONSOLE** port, as shown in figure 7. The ports "**PC A**"~"**PC H**" can only be connected to a computer.

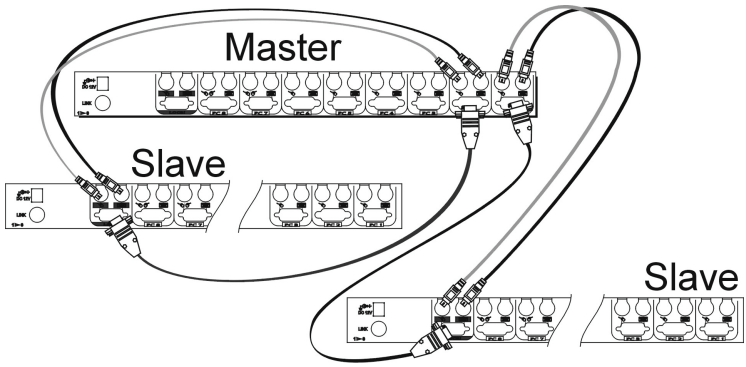

Figure 7: Slave console connection

The maximum number of computers controlled by a master/slave configuration with all 8 port units is 64 -- with 8 *Slaves* and each *Slave* connects to 8 computers, see figure 8.

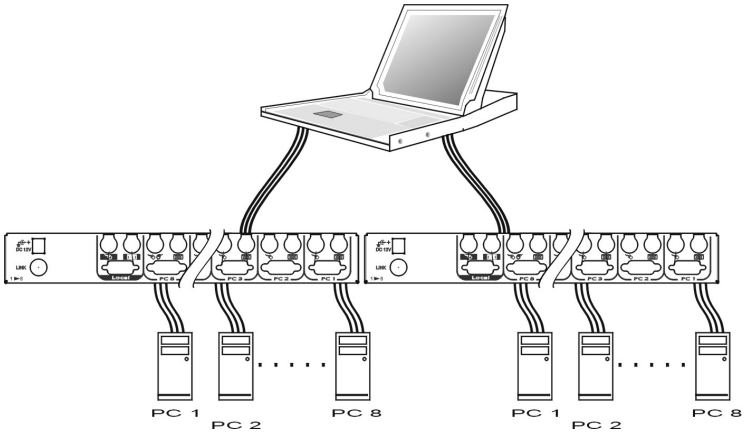

Figure 8: Cascaded 8 port Console KVM switches

> ***For OSD menu:***
> After connection completes, you should re-activate the OSD menu to check if the *Master* recognizes the *Slaves*. A triangle mark (◢) is placed to the right of the channel name indicating the port is connected to a *Slave not* a computer. A number to the left of the triangle mark indicates the *Slave* model, i.e. **8**◢ for an 8 port switch.

Change Configuration while Running

A device (a computer or a KVM switch) at any '**PC** x' port can be changed at any time after initial power-up. If you change any one of the "**PC 1**" to "**PC 8**" ports connection from a computer to a *Slave* or vice versa, or replace the devices of a port; the OSD will update this change the next time it is activated.

Note: *Any new device must be turned off before it is connected to the Master.*

Appendices

Specifications:

Specifications	CAB831D	CAB832DS	CAB1631D
User port number	1	2	1
Computer port number	8	8	16
Cascade control PC number	Up to 64*	Up to 64*	Up to 136*
On-screen display (OSD)	Yes		
Front panel button control	8, available when connected to a KVM drawer		
Hot plug-and-play	Yes		
Hot-key control	Yes		
Rack-mounted	Yes, 19"Industry-standard		
Automatic scan interval	3, 8, 15, 30 seconds		
Programmable scan pattern	Yes		
Cable length (Max)	30M (100ft) at CONSOLE		
	30M (100ft) at PC ports		
VGA bandwidth	1920 x 1440, DDC2B		
KVM drawer connector	Centronics 36		
Keyboard Computer mouse connector Monitor	PS/2 PS/2, serial (with adapters for 2 ports) HDB-15 male		
Keyboard Console mouse connector monitor	PS/2 PS/2 HDB-15 female		
H x W x D (mm) (in.)	44x483x560 1.7x19x22		88x483x560 3.5x19x22
Rear-mount brackets	1U-height, included		
size	1U		2U
Power supply (min)	12V DC		

Troubleshooting:

Ensure that all cables are firmly connected. Since keyboard and mouse cables look similar, make sure they are connected properly. Label and bundle the cables for each computer to avoid confusion when connected to the 1UCABCONS.

Symptom	***Possible causes***	***Recommended solutions***
Nothing works	Bad connection at the C-36 connectors	Push the assembled drawer and the KVM module box firmly together leaving only 8 mm (5/16 inch) space in between. Be sure they are secured by two screws.
VGA monitor works fine but keyboard and touch pad does not work.	Another keyboard or mouse is connected to the rear side of the KVM module box (marked with **Local**) when the C-36 connector is connected to the KVM drawer. Connection inside the KVM drawer becomes loose due to vibration.	If the C-36 connector on the KVM module box connects to a KVM drawer, its **Local** console should not connect to any keyboard or mouse. Verify if the KVM drawer is bad by disconnecting it from the KVM module box (the C-36 connector is not connected). Connect a keyboard, mouse and monitor to the **Local** port on the KVM module box and another computer to any of the **PC** ports and use the KVM module box as a stand-alone KVM switch.
Some front panel buttons do not work	The buttons at the left side of the front buttons (the KVM Switch section) is only effective if a KVM switch box is *directly* connected to the KVM drawer by the C-36 connector.	Use a standard KVM switch box
No OSD screen	No power to 1UCABCONS Loose monitor connection Monitor not multi-sync	Establish power by turning on computers, wait, press left CTRL keys several times. Reconnect monitor Use multi-sync monitor

Keyboard error on boot	Loose keyboard connection	Make sure keyboard cables are Well seated
Alphabets on the TFT LCD display are blur or have shadows.	Improper resolution settings	Set the VGA resolution of the computers to 1024 x 768 with "Large Font" for the best performance.
Left buttons on the drawer for the "KVM Switch" do not work.	The rear KVM module box does not have a KVM switch built-in.	The buttons are effective only if the marking on the lower left corner (see from the connectors side) of the KVM module box shows 1 8,2 8 or 2 16
Master/slave does not work	Improper installation procedures	Make sure slave's CONSOLE is connected to *Master's* PC 1~ PC 8 port Press and hold the **1** and **2** push buttons to initiate K/M reset Remove any possible power supply to the slave (unplug all cables), before connecting it to the *Master*
Keyboard strokes shifted	The computer was in shifted state when last switched	Press both SHIFT keys
The and keys do not work in *Manual Scan*	All PCs are off or only one PC is turned on. Scan mode works for power-on computers only *Scan type* is eye mark selected but no PC is eye mark selected in OSD.	Turn computers on. Press any other key to abort *Manual Scan* mode. Set proper *Scan type* in OSD and determine which PCs are eye mark selected, do it in OSD.
Auto Scan does not switch PC, 1UCABCONS beeps from time to time and red indicator flashes	All PCs are off or only one PC is turned on. Scan mode works for power-on computers only *Scan type* is eye mark selected but no power-up PC is eye mark selected in OSD.	Turn on computers Set proper *Scan Type* in OSD and determine which PCs are eye mark selected, do it in OSD. Press left CTRL key twice to abort *Auto Scan* mode. Press any front button to select a PC, and *Auto Scan* stops
Double OSD images at cascade configuration	Improper slave connection procedure.	Press push buttons 1 and 2 down for 2 seconds to activate K/M RESET Remove any possible power supply to the *Slave* (unplug all

		cables), before connecting it to the *Master*
OSD menu is not at the proper position	OSD menu has fixed resolution and its size varies due to computer VGA resolution changes.	Use <F4>:More\Position to select UL or UR. OSD menu may appear near the middle of the screen when LL or LR is selected.
Computer can not use serial mouse	Loose mouse adapter Incorrect mouse adapter Incorrect **PC** port connection	Secure the mouse adapter to computer's COM port Use only the mouse adapter comes with the unit The mouse conversion is only effective at **PC** ports 7 and 8.
Can not select a computer connected to a slave	Improper *Master* unit connection Improper slave unit connection Too many levels of slaves	Only *Master* ports PC1~PC8 can be connected to slaves. Connect slave CONSOLE port to PC1~PC8 ports of the *Master* Only one level of slave units is allowed. Pop up OSD again to check if *Master* recognizes the slave connection. Look for triangle mark and the number before it.
The 1UCABCONS fails to function occasionally.	Computers do not supply enough power.	Make sure a power adapter with minimum of 9V 500mA output rating is firmly connected to the power jack.

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