Make the Rose Connection

ROSE ELECTRONICS

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SERVEVIEW KEYBOARD CONTROLLED SWITCH

INSTALLATION AND OPERATION MANUAL

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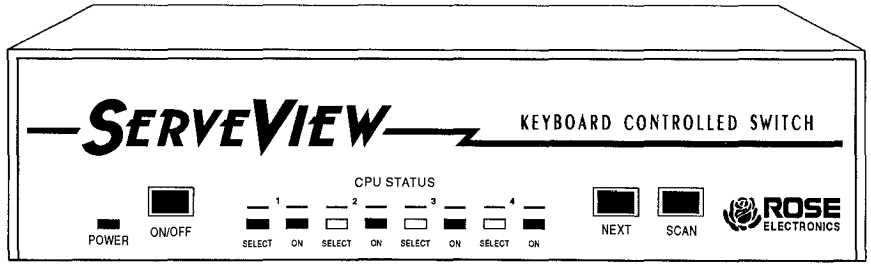

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NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

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INTRODUCTION

Thank you for choosing ServeView™ . Designed for *plug-and-play* operation, your new ServeView Keyboard Controlled Switch will simplify your job by helping you organize your multiple computer applications. Because ServeView lets you use a single keyboard, monitor, and mouse to access a number of computers, you can significantly reduce your equipment overhead and end keyboard and monitor clutter.

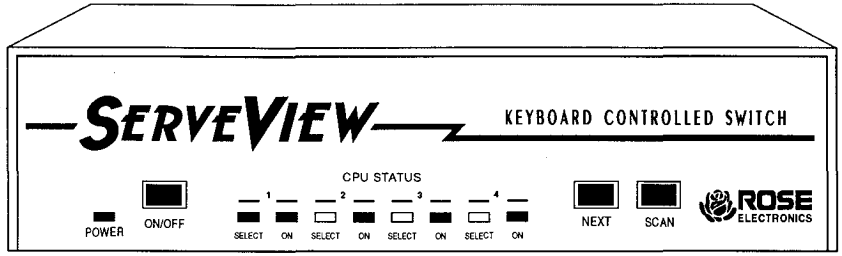


Figure 1. The ServeView unit

Features

- Access up to 256 PCs with one keyboard, monitor, and mouse
- Microprocessor controlled keyboard and mouse switching and emulation for plug-and-play operation
- Saves energy to assist in latest energy saving programs
- Available in two-port or four-port models
- Drives video, keyboard, and mouse signals up to 200 feet away
- Select CPU from keyboard, front panel, or RS232 port
- Supports XGA, SVGA, VGA, EGA, CGA, and monochrome video
- Video resolution supports up to 1280X1024 non-interlaced video
- Supports all modes of PS/2 and AT compatible keyboards
- Mouse can be PS/2 or RS232 type
- Front panel LEDs show selected CPU and its power-on state
- Remembers and restores Num Lock, Caps Lock, Scroll Lock, and keyboard mode of each CPU when switching
- Screen blank function turns off video after 1–999 seconds of inactivity
- Scan function sequences among CPUs at a rate of 1–15 seconds
- Programmable keyboard typematic rate and delay
- Can save keyboard power-up state, screen blank interval, and typematic value in non-volatile memory
- Null command can correct out-of-sync PS/2 mouse
- Automatic save of keyboard mode changes for convenient installation
- Available in 117VAC or 230VAC models
- 19" and 24" rack mount kits available

GETTING STARTED

To acquaint you with your ServeView unit, this manual first describes ServeView's front and rear panels. Detailed installation and operation instructions begin with the *Quick setup system wiring guide* on page 5. This easy-to-understand diagram illustrates how to connect ServeView to your CPUs, monitor, keyboard, and mouse. Information for setting up a ServeView expansion system is given in the *ServeView expansion* section starting on page 8. Also see the *Keyboard command summary* on page 18.

Package contents

Your ServeView package includes the ServeView unit, a power transformer, your warranty registration card, and this manual.

Cable requirements

ServeView connects to each CPU with a CPU Adapter Cable and to the monitor, keyboard, and mouse with an MKM Adapter Cable. These cables are most commonly purchased with the ServeView and will provide quick and trouble-free operation. If you wish to build your own cables, refer to the pinout information in *Appendices A, B, and C. Appendix F* describes the cable part number based on the type of equipment you wish to connect. *Appendix G* lists the most common cables.

To connect more than 4 ports, you must connect slave units to the master ServeView. To do this you need a ServeView-to-ServeView adapter cable for each slave unit. Cables and accessories are available from where you purchased your ServeView.

Most installations use cable no longer than 20 feet in length. Cable length will affect the quality of the video, depending upon which resolution you will be using. You can improve the video resolution and distance by ordering coax cables, see *Appendix F and G* and *Table 5 Video Distance Capability.*

Locating the unit

The ServeView unit is best located as close to the CPUs as possible. This will reduce the length of the CPU cables and provide a more cost-effective and neater installation. Some installations use a rack in which to mount the CPUs, some use shelves, and others may use a free-standing arrangement. Quite often ServeView will be mounted in a rack with the optional rackmount kit. While usage of the ServeView is trouble-free and transparent and need not be in an accessible location, you may wish to access the front panel in order to verify the currently selected port or to switch to the next port. Many customers will purchase a longer MKM adapter cable and put the monitor, keyboard, and mouse on a desk leaving the ServeView near the CPUs.

SERVEVIEW OVERVIEW

The front panel

The ServeView front panel features three push-button switches and nine LED indicators. To familiarize yourself with ServeView's controls and indicators, review the illustration and descriptions given below.

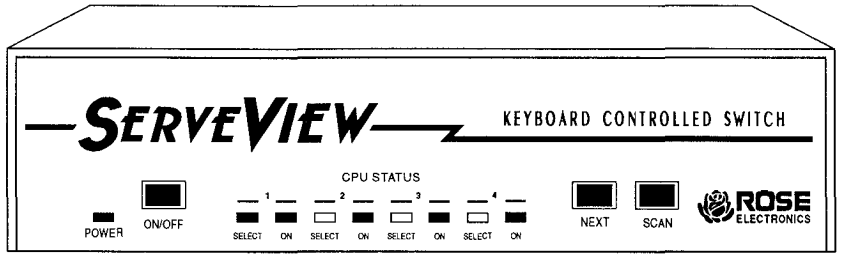


Figure 2. The ServeView front panel

Table 1. The front panel

POWER	**Power LED**: When lit indicates that unit is powered on.	
ON/OFF	**Power Switch**: Pressing the switch turns the unit on, provided supplied power adapter is properly connected.	
CPU STATUS	**CPU Status LEDs**: Numbered pairs of LEDs indicate status of CPUs connected to corresponding numbered ports on rear panel.	
	SELECT (RED)	When lit shows which CPU you have selected for access.
	ON (GREEN)	When lit indicates which CPUs are powered on or that slave unit is attached and powered on.
NEXT	**Next Switch**: Used to manually switch monitor, keyboard, and mouse from a selected computer to next one in sequence.	
SCAN	**Scan Mode and Expansion Switch:** Alternate action switch that enables scanning to sequence among all CPUs. Also makes a unit a "slave" when chaining several units together for expansion.	
	Scan Mode	To change the scan state, press this switch. This will lock it in. Press it again so that it is in the out position. This action will change the scan state to its opposite state (on to off or off to on). For normal operation, the scan switch should be in the "out" position.
	Expansion	Pressing the switch once puts it in the "in" position. When switch is left in the "in" position and the unit is powered on, all keyboard commands are disabled and unit becomes a "slave" unit that can be switched only by a master unit.

INSTALLATION

This section provides complete, detailed instructions for the setup of your ServeView Keyboard Controlled Switch. For an illustrated example, see the *Quick setup system wiring guide* on the previous page. If you are installing more than one ServeView unit, please refer to the *ServeView expansion* section on page 8 prior to beginning installation.

> **NOTE:** Be sure that **all** computers you are connecting to your ServeView will support the monitor, keyboard, and mouse you plan to use.

Step 1. Connecting the monitor, keyboard, and mouse

The Monitor/Keyboard/Mouse (MKM) adapter cable connects your monitor, keyboard, and mouse equipment to the ServeView. Various styles of electrical connectors are used by different classes of equipment, so you should have the correct cable to match your equipment's connectors. MKM adapter cables are available where you purchased your ServeView. Should you prefer to build your own cables, however, pinout information is shown in *Appendices A and B.*

1.1 Plug the DB-25 male connector of the MKM adapter cable into the port labeled "Monitor/Keyboard/Mouse" on the ServeView rear panel.

1.2. Plug the MKM adapter cable's monitor, keyboard, and mouse connectors into your equipment's corresponding connectors.

Step 2. Connecting the CPUs

CPU adapter cables connect your computers to the ServeView. Each computer requires its own adapter cable, with appropriate connectors for your particular CPU. CPU adapter cables are available where you purchased your ServeView. Should you prefer to build your own cables, pinout information is shown in Appendices A and B .

2.1 Plug the DB-25 male connector of the CPU adapter cable into one of the numbered CPU ports on the ServeView rear panel.

2.2 Plug the CPU adapter cable's monitor, keyboard, and mouse connectors into the CPU's corresponding ports.

> **WARNING:** Avoid routing cable near fluorescent lights, air conditioning compressors, or machines that may create electrical noise. For best quality video, when exceeding 20 feet use coax cable. See *Table 5 Video Distance Capability* and *Appendix F and G* for further cable information.

Step 3. Powering up the system

3.1 Plug the power transformer's power jack into the the power plug located on the back of the ServeView unit, then plug the transformer into a power strip or wall outlet.

3.2 Push the On/Off switch on the front of the ServeView to power it up.

3.3 Boot up each of the connected CPUs. ServeView emulates all keyboard and mouse functions for automatic boot-up. You do not have to re-boot the CPU, if it is inconvenient. In this case you may need to issue the mode command, see page 12, to have proper keyboard communication.

Step 4. Switching from the keyboard

Your ServeView is now ready for operation using its default settings. To take full advantage of the ServeView features, refer to the *Operation* section beginning on page 10. The *Operation* section gives detailed information about each of the ServeView commands, describing its application and giving the keyboard command sequence. For your convenience, this information is summarized in the *Keyboard command summary* on page 18. To begin switching immediately, however, follow the instructions below.

> **NOTE:** Before entering any ServeView keyboard command, you must press and release the **left** Control Key. This activates ServeView to look for commands from the keyboard. You then have two seconds in which to start entering a valid command.
>
> **NOTE:** When entering numeric commands, use only the numeral keys located at the top of your alpha-numeric keyboard. Numbers entered from the numeric keypad to the right will **not** be recognized as valid commands.

4.1 Press and release your keyboard's **left** Control Key (**<Ctrl>**), then type in the port number. If more than 9 CPUs are connected, refer to the *Keyboard port selection* section on page 10.

SERVEVIEW EXPANSION

ServeView units can be chained together to expand your system to include up to 256 ports. When used like this, the unit attached to the Monitor/Keyboard/Mouse port via the MKM adapter cable becomes the master unit. All other ServeViews are slave units that provide port expansion only and perform no control functions.

Slave units can be added to your ServeView system as you need them. For each slave you add to the system, you gain 3 additional ports. As Figure 5 shows, adding a single slave to a 4-port master unit gives you 7 ports. Adding a second slave unit will give you 10 ports, and so forth. Connecting a slave unit to each of your master ServeView's 4 ports lets you connect 16 CPUs to a single monitor, keyboard, and mouse.

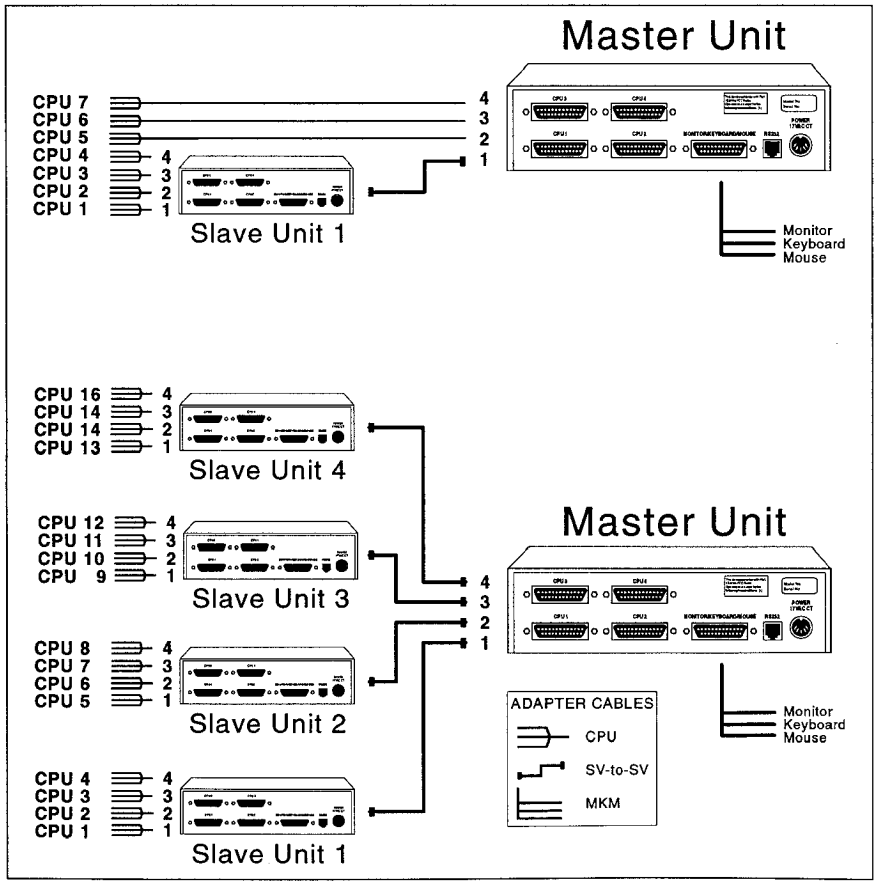


Figure 5. Expansion system layout

Expansion cable requirements

For slave-to-master installation you will need one ServeView-to-ServeView expansion cable for each slave unit. You still need a CPU adapter cable for each CPU you will be connecting to the ServeView CPU ports. As always, one MKM adapter cable is also required for connecting the master unit to your keyboard, monitor, and mouse.

Slave unit installation

Laying out the ServeView system prior to installation will make the installation process go more smoothly. It will also prevent confusion during operation by ensuring that the port selection numbers you use in the keyboard commands remain consecutive. Figure 5 illustrates the proper layout and numbering of your slaves and CPUs.

1. Connect the monitor, keyboard, and mouse to the master unit's Monitor/Keyboard/Mouse port as outlined on page 6.
2. Connect the MKM port of each slave unit to one of the numbered CPU ports on ServeView's rear panel using a ServeView-to-ServeView expansion cable.

   As illustrated in Figure 5, when connecting slave units, connect the MKM port of the first slave to the master's CPU 1 port, the second slave's MKM port to the master's CPU 2 port, and so on. This ensures the port selection numbers you use in keyboard commands remain consecutive. In this fashion you can connect ServeViews in levels of up to 4-deep.

   Port 1 is now defined as CPU 1 on the slave connected to the master's CPU 1. For a system with a single slave and master, port 7 would be CPU 4 on the master.
3. Press the slave unit's Scan switch (defined on page 3) once to put it in the "in" position. This deactivates the unit's control functions. This switch must be in the "in" position **at power-up** in order for the slave unit to be fully recognized by the master unit.
4. From the keyboard attached to the master unit, enter the maximum ports command to tell the master unit how many ports are being used. This allows scanning to cycle correctly and allows the master unit to control the interplay of the slave units. Enter command: **<Ctrl>P*xx*<Enter>** (with xx representing the total number of ports in the system).
5. To save the number of ports entered above in the master unit's non-volatile memory, enter the Keep command: **<Ctrl> K**.

NOTE: <Ctrl> represents pressing and releasing **left** Control Key.

OPERATION

ServeView is simple to operate. Port selection and function commands are entered from the keyboard. You can also select ports manually from the ServeView's front panel by using the Scan and Next switches. This section details each ServeView function. For information on selecting ports from a computer or terminal connected to ServeView's RS232 port, please refer to page 15. Also see the *Keyboard command summary* starting on page 18.

IMPORTANT OPERATION NOTE: To send ServeView keyboard commands, you must first press and release the **left** Control Key (**<Ctrl>**). Pressing and releasing **<Ctrl>** activates ServeView to look for commands from the keyboard. You have two seconds between each keystroke to enter a valid command, otherwise ServeView aborts the command.
NOTE: When entering numeric commands, use only the numeric keys located at the top of your keyboard. Numbers entered from the numeric keypad to the right will **not** be recognized as valid commands.
NOTE: ServeView commands ignore case. All command letters are shown capitalized for clarity only.

Keyboard port selection

To select a port from your keyboard, press and release your keyboard's **left** Control Key (**<Ctrl>**), then type in the port number. Remember to use the numbers located at the top of your keyboard. **Do not** use the numeric keypad.

1–9 Ports: ServeView will immediately switch to the desired port when you enter the one-digit number.

10–99 Ports: ServeView will immediately switch to the desired port when you enter the two-digit number. For single-digit ports, you can enter the number with a leading zero (such as 01) or enter the single-digit number and press **<Enter>**. If you enter only one digit, and do not follow it with **<Enter>**, ServeView will wait two seconds for you to enter another digit, then, if no additional number is entered, will switch immediately to the single-digit port.

100–256 Ports: ServeView will immediately switch to the desired port when you enter the three-digit number. For single- and double-digit ports, you can enter the number with one or two leading zeros (such as 027, 001), or enter the single- or double-digit number and press **<Enter>**. As noted above, ServeView will wait two seconds for a second or third number to be entered, then will switch to the port number entered.

Going to the next or previous port

From the keyboard you can toggle forward or backward through the ports by selecting either the Next or Previous port. To go to the Next port, press and release the **left** Control Key (**<Ctrl>**), then press the "+/=" (plus) key. To go to the Previous port, press and release **<Ctrl>**, then press the "-/_" (minus) key. The command is not case-sensitive. Use the keys at the top of your keyboard, **not** those on the numeric pad.

You can also select the Next port manually from the front panel by pushing the switch labeled "Next". Each time you press the switch, the next sequential port is selected. You cannot select the previous port from the front panel.

Scan mode commands

To enable scanning from the keyboard, press and release the **left** Control Key (**<Ctrl>**), then type "S". ServeView will begin scanning sequentially from its current port through the remaining ports, then begin again at CPU Port 1. The time between switching to the next port is the scan time interval (see below) and is programmable from 1-15 seconds. To stop scanning, press and release **<Ctrl>**, then type "X". Scanning is also disabled by entering a port selection command. The power-on state of scanning can be saved in non-volatile memory. To do this set the scan state and follow with the Keep command.

To control scanning from the ServeView front panel, press the switch labeled "Scan" this will lock it in. Press it again so that it is in the out position. This action will change the scan state to its opposite state (on to off or off to on), whether it has been set from the scan switch or through the keyboard. The scan switch on a master unit should always be left in the out position since leaving it in will make it a slave unit the next time the unit is powered on.

Scan time interval command

The scan time interval command sets the time, in seconds, that ServeView will pause at each of the ports when scanning. The default setting is 5 seconds. To set another interval, press and release the **left** Control Key, type "**T**", enter the new scan time interval (in seconds), and press **<Enter>**. Remember to use the upper numeric keys, **not** the numeric keypad to the right. Follow with the Keep command to save the setting.

Screen blanking command

This feature reduces the wear on your screen and provide security for your system by blanking the screen when there has been no keyboard or PS/2 mouse activity for a specified length of time. To set the screen blank interval time, press and release the **left** Control Key, type "**V**", enter the interval time, in seconds (0–999), and press **<Enter>** (an interval time of 0 disables this

screen blank feature). Remember to use the upper numeric keys, **not** the numeric keypad to the right. Follow with the Keep command to save the new setting in the unit's non-volatile memory.

When in the Screen Blank state, all ServeView Select LEDs will be off. To restore the video screen, press any key or move the PS/2 mouse. To disable the screen blank feature, press and release the **left** Control Key, type **"V"**, enter **"0"** as the interval time, and press **<Enter>**. Follow with the Keep command if desired to save it.

Mode command

ServeView supports keyboard modes 1, 2, and 3. The keyboard mode is set by commands from the CPU. Mode 2 is the most common mode used by the vast majority of CPUs. It is also the power-up state of all 101-type and PS/2 keyboards. Mode 1 is used primarily by most models of the latest PS/2s. Mode 3 is used by certain specialized servers.

ServeView automatically detects each CPU's keyboard mode upon CPU boot-up, and thus learns which CPU uses which mode. It will automatically save the mode in non-volatile memory, meaning you will probably not need to enter the mode command or save it in non-volatile memory, ServeView does it for you. If the CPU has already booted and is then connected, ServeView cannot detect the CPU's keyboard mode and uses the setting stored in the ServeView's non-volatile memory. The mode command can be issued to change the keyboard mode for each port and can be saved in non-volatile memory with the Keep command.

Most CPUs which are mode 2 do not send a mode 2 command, since that is the keyboard's power-on mode. If a port was previously set to mode 1 and you connect a mode 2 CPU to that port, it probably will not communicate correctly and you will need to issue the mode command.

To issue the Mode command, press and release the **left** Control Key, type **'M"**, and enter the mode number **"1"**, **"2"**, or **"3"** followed by **<Enter>**. Remember to use the alpha-numeric keys, **not** the numeric keypad, to enter the mode number. Follow with the Keep command. The mode is changed on your currently selected port. To change the mode on another port, you must first switch to that port and then issue the mode command.

To change the keyboard mode of an expansion unit, connect its MKM port directly to a keyboard, set the keyboard mode for each CPU port by issuing the Mode command, then enter the Keep command. Make sure that you had the scan switch "out" when entering the commands and returned the Scan switch to the "in" position when powering it up to be used as a slave. This step may be unnecessary since slave units automatically learn and save any mode changes, just like the master units do.

Typematic value command

ServeView can be configured to control the keyboard typematic rate and delay. This setting is used to adjust the user preference of the way the keyboard acts when holding a key down to repeat the key, such as when moving a cursor across a line. The rate is the speed at which the keys are sent in keys/second. The delay is the wait time in milliseconds after the key is initially pressed, before additional keystrokes are sent. To issue the command press and release the **left** Control key, then type **"A"**, then enter the 1-3 digit decimal *typematic value* followed by **<Enter>**. The *typematic value* is defined as shown below. Use the keep command to save the value.

The *typematic value* to be used is determined from the following tables using the equation: **Typematic Value = Rate value + Delay Value**. Pick the desired rate in keys/sec. (32 choices) and delay in milliseconds (4 choices) from the tables below. Add the values to the right of the desired settings. For example to use a Rate of 16.0 keys/sec. and a 500 millisecond delay, the typematic value = 7 + 32 = 39, so to set this value, type *<Ctrl> A 39 <Enter>*.

Table 3. Typematic rate

Rate Keys/sec	Rate Value	Rate Keys/sec	Rate Value	Rate Keys/sec	Rate Value	Rate Keys/sec	Rate Value
30.0	0	15.0	8	7.5	16	3.7	24
26.7	1	13.3	9	6.7	17	3.3	25
24.0	2	12.0	10	6.0	18	3.0	26
21.8	3	10.9	11	5.5	19	2.7	27
20.0	4	10.0	12	5.0	20	2.5	28
18.5	5	9.2	13	4.6	21	2.3	29
17.1	6	8.6	14	4.3	22	2.1	30
16.0	7	8.0	15	4.0	23	2.0	31

Table 4. Typematic delay

Delay in millisec.	Delay value	Delay in millisec.	Delay value	Delay in millisec.	Delay value	Delay in millisec.	Delay value
250	0	500	32	750	64	1000	96

Maximum ports command

This command tells the ServeView system the total number of ports connected. This enables expansion and ensures that the scan function will cycle correctly. Although this command is used primarily when chaining slave units to a master, it can also be used to enable only two or three ports of a four-port

ServeView unit. To issue the command press and release the **left** Control Key, type "**P**", enter the total number of ports (from 1 to 3 digits), and press **<Enter>**. Follow with the Keep command to save the new setting in the unit's non-volatile memory. This command never need to be used on a slave unit since the master controls access to the CPU ports.

Keep command

The Keep command saves the current state of the ServeView's custom settings. These settings are scan state, scan interval, each CPU's mode and keyboard LED state, maximum ports, the screen blank interval, and the keyboard typematic value. These settings are saved in non-volatile memory and become the power-up settings. To enter the command, press and release the **left** Control Key, then type "**K**".

Null command

This command is used to re-synchronize an out-of-sync PS/2 mouse. Such a condition can result due to transients, spurious power-up effects, or plugging and unplugging of cables with live equipment. The command may need to be entered once or twice, depending if the mouse is out-of-sync by one or two bytes. Microsoft mouse driver version 9.01 corrects this inadequacy of previous drivers and renders this command unnecessary. At publishing time, it is believed this mouse driver is only available for DOS and Windows. To issue the command, press and release the **left** Control Key, then type "**N**".

ROM Identification command

This command is used to identify the revision level of ServeView firmware currently installed. Before entering this command, your currently selected CPU should be at a command prompt, so that when the ServeView sends the ROM revision level that the result will be displayed. To issue the command, press and release the **left** Control Key, then type "**I**". ServeView will send back its current firmware revision level, in the format *majorlevel.minorlevel*.

Reset command

This command is used to re-boot the mouse and keyboard without removing power from the ServeView. This is most useful to reset a PS/2 mouse which has been unplugged and plugged back in. This command is also useful to enable mouse data to be sent to a CPU which has not enabled the mouse. This may be the case if the ServeView was not connected or powered off after a CPU was booted up. To issue the command, press and release the **left** Control Key, then type "**R**". This command should not be issued to a CPU which has a PS/2 mouse connected, but no mouse driver is loaded, since many CPUs will crash if you send them unexpected mouse data.

Using the RS232 port

For your convenience, a computer or terminal can be connected to the RS232 serial port on the unit's rear panel. This allows you to send switching commands from your computer's serial port. You will need standard serial cabling with 6-pin jacks, and the appropriate adapter (either DB-25 female to RJ11 female or DB-9 female to RJ11 female, depending upon your equipment). These adapters are available where you purchased your ServeView.

1. Insert the RJ11 cable between the RS232 serial port on ServeView's rear panel, and the RJ11 female connector of the appropriate adapter.
2. Connect the adapter to one of the computer's (or terminal's) COM ports.
3. Set your computer at 9600 baud, no parity, 8 bits, 1 stop-bit.
4. To switch ports, enter the 1-3 digit port number followed by enter: ***xxx<Enter>***.

> **WARNING:** Serial cabling in excess of 50 feet should be routed with caution. The maximum cable length depends upon the construction of the cable and its routing. For extended runs, shielded cable should be used. Avoid routing near fluorescent lights, air conditioning compressors, or machines that may create electrical noise. If you experience data error, use shorter cables.

Mixing VGA and EGA PCs

For a mixed EGA and VGA system, you must have a multi-sync monitor capable of syncing to a horizontal scan rate of 15.5Khz to 35KHz. These are somewhat difficult to find. The older NEC Multisync II monitors are capable of this. Use VGA cables for all CPUs, as well as an EGA-to-VGA adapter (ACC-EV) for each EGA computer.

XGA video, model 9515, 9517, and 9518, monitors

Many models of IBM PS/2s come with XGA and XGA-2 video. You should have ordered the CAB-Y0606Cxx cable for your CPU. If this cable is not used, you may be unable to switch to high resolution video. If you wish to use XGA monochrome you also must order a special cable. Otherwise certain color combinations will not be visible.

9515, 9517, and 9518 monitors are not normal VGA monitors and require special CPU cables in order for the video to be synchronized and sized correctly. See *Appendices E and F* for ordering details on special cables mentioned. For further information you can request Technical Support Note *Using XGA/XGA-2 with the ServeView and VideoSwitch.*

Video distance capability

The limitation on driving distance is usually due to the quality of the video. The table below shows the distances, resolution, and quality of video that can be expected. The table uses a letter which shows the cable type and a number which refers to the quality of the video, as described below. This table applies to the base unit without chaining. There will be some degradation when ServeViews are chained together. Rose Electronics does not support systems where the video quality is 1 or 2. There are further capabilities not listed here in order to send the higher resolution video longer distances. Please contact Rose Electronics technical support for more details.

N – Normal cabling

C – Coax cabling

4 – Perfect or near-perfect; Unable to easily detect defects in screen

3 – Very acceptable; Images clear, small reflections around lettering depending upon color; if you examine the screen closely you will find defects

2 – Acceptable; Slightly fuzzy images; readable text, acceptable for casual use, but not for prolonged viewing as this will cause eye fatigue

1 – Unusable; images smeared; text not easily readable

Table 5. Video distance capability

	5'	10'	20'	30'	50'	75'	100'	125'	150'	200'
640X480 60Hz refresh	N4 C4	N4 C4	N4 C4	N4 C4	C4	C4	C4	C4	C3	C3
640X480 72-75Hz refresh	N4 C4	N4 C4	N4 C4	N3 C4	C4	C4	C4	C3	C3	C3
800X600 non-interlaced	N4 C4	N4 C4	N3 C4	N3 C4	C4	C4	C4	C3	C3	C3
1024X768 interlaced	N4 C4	N3 C4	N3 C4	N3 C4	C4	C4	C3	C3	C3	C3
1024X768 non-interlaced	N4 C4	N3 C4	N3 C4	N3 C4	C4	C3	C3	C3	C3	
1280X1024 interlaced	N3 C4	N3 C4	C4	C3	C3	C3	C3			
1280X1024 non-interlaced	N3 C4	N3 C4	C4	C3						

Power interruption to the ServeView

Certain keyboards are sensitive to rapid cycling of the power. Since power to the keyboard is provided from the ServeView, you should not interrupt power to the ServeView for less than three seconds. The ServeView is immune to such transients, but the keyboard may not reset correctly.

Rackmount kit

The rackmount kit is an optional item that can be ordered at any time. Your ServeView unit is pre-drilled to accept the rack-mount mounting screws. There are two sizes available 19" by 3.5" and 24" by 3.5".

KEYBOARD COMMAND SUMMARY

To enter any keyboard command, first press and release the **left** Control Key, represented by **<Ctrl>**. Then enter the command followed by any parameters you wish to specify, for example the port number.

Letter commands are not case sensitive, and are shown in upper case for clarity only.

Do not use the numeric keypad to enter any commands.

All ServeView commands use a two second time-out between characters, to abort the command. This is a feature that restores the keyboard to normal operation, so the keyboard is not put it into a command mode which might lock it up from normal operation.

The **<Ctrl>** character is always passed through to the CPU. The command characters and command operands, however, are absorbed by the ServeView and not sent to the CPU.

Table 6. Keyboard command summary

Command	Key Sequence	Description
Go to selected port	**<Ctrl>** *xxx* where "*xxx*" is 1–3 digit port number	Connects your common keyboard, monitor, and mouse to the selected CPU port. Only a single digit is necessary when using less than 9 ports.
Go to next port	**<Ctrl>** +	Selects the next sequential port. **Note:** You can also move to the next port by pressing the Next switch on ServeView's front panel.
Go to previous port	**<Ctrl>** -	Selects the previous sequential port.
Scan On	**<Ctrl>** S	Turns Scan mode on, causing ServeView to start scanning sequentially from the current port through the remaining ports and beginning again at Port 1.
Scan Off	**<Ctrl>** X	Turns Scan mode off. **Note:** Scan can also be stopped by entering a port selection command.
Reset command	**<Ctrl>** R	Resets and enables mouse and keyboard, enables PS/2 mouse on currently selected port.
Send null to mouse	**<Ctrl>** N	Used to re-synchronize PS/2 mouse which has gotten out-of-sync.
Identify ROM version	**<Ctrl>** I	Identifies ROM version, CPU must be at some sort of command prompt to receive value.
Keep settings	**<Ctrl>** K	Tells ServeView to save current scan state and custom settings of commands shown below.
Scan time interval	**<Ctrl>** T *xx* **<Enter>** where "*xx*" is time in seconds from 1-15 seconds	Sets the time, in seconds, that ServeView will pause at each port when scanning. **Note:** Follow with Keep command.
Set screen blank time interval	**<Ctrl>** V *xxx* **<Enter>** where "xxx" is time in seconds from 0 to 999 seconds	Sets time in seconds with no keyboard or PS/2 mouse activity after which video will be turned off. Reactivated when any key is pressed or PS/2 mouse is moved. **Note:** Follow with Keep command.
Set keyboard mode	Select port, then enter command: **<Ctrl>** M *x* **<Enter>** where "*x*" is 1, 2, or 3)	Sets ServeView CPU's keyboard mode. Used when CPU is booted before being connected to ServeView. **Note:** Follow with Keep command.
Set maximum ports	**<Ctrl>** P *xxx* **<Enter>** where "*xxx*" is a 1–3 digit number from 2 to 256 signifying total number of ports	Sets the total number of ports to be used. Used when chaining slave units to a master, or when only 2 or 3 ports of a 4-port unit are being used. **Note:** Follow with Keep command.
Set typematic value	**<Ctrl>** A *xxx* **<Enter>** where "*xxx*" is a 1–3 digit number from 0 to 127 indicating KB typematic value	Sets power-on keyboard typematic action which is controlled by the ServeView. This can be used to adjust the key stroke rate and delay to the user preferred setting. See *Tables 3 and 4* for how the typematic value is determined. **Note**: Follow with Keep command.

TROUBLESHOOTING

1. CPU does not boot, keyboard error received
CPU does not boot, mouse error received

a. Cable is loose, reseat cable and hit F1 to continue or reboot computer.
b. Wrong cable plugged in, keyboard and mouse cables reversed.
c. Cable is defective, try using cable from another CPU. If problem goes away cable is defective.
d. Port on ServeView is defective, try using another port on ServeView. If problem goes away port is defective.
e. Port on CPU is defective, try plugging in keyboard or mouse directly if problem remains CPU port is defective. If CPU power status LED not lit, fuse on motherboard may be blown.
f. Old firmware version. Version 2.1 and later adjusted CPU timing to allow certain CPUs sensitive to timing to communicate reliably.

2. Mouse driver does not load.

a. If PS/2 type mouse, CPU must be connected to ServeView or mouse at boot-up time in order for mouse to be recognized by CPU. Reboot computer with ServeView powered on and cable attached.
b. If RS-232 type mouse, make sure right COM port is being used and syntax of mouse driver is correct to search for the correct port.
c. Old firmware revision, revisions before 2.5 did not support Logitech PS/2 mouse.
d. Incompatible or old mouse driver being used, try latest driver. At time of this publishing Microsoft 9.01 driver is best one available.

3. Can't switch ports from keyboard

a. Power to ServeView was removed for less than three seconds possibly causing keyboard to lock up. Disconnect keyboard and plug it back in.
b. Scan switch was left pushed in when power was applied to the ServeView, putting it in expansion mode. With scan switch out, turn the ServeView off and back on.
c. The mode of the keyboard does not match that of the CPU. Issue the mode command, usually 1 for IBM PS/2s and 2 for all others. The default setting of the ServeView is mode 2. Sometimes an incorrect mode will confuse the CPU or keyboard and require re-booting the CPU or resetting the keyboard by unplugging and plugging it back in.

4. Wrong or missing characters from those typed

a. The keyboard mode is incorrect. See *item 3c* above.
b. Old firmware version. See *item 1f* above.

5. Can't access all functions of mouse

a. If Microsoft BallPoint mouse, get latest Microsoft revision 9.01 driver.
b. Logitech 3-button mouse not supported.

6. Mouse does not move

a. ServeView turned off after or not connected when CPU booted or application using mouse run. Exit and re-enter application using mouse or issue reset command.
b. PS/2 mouse was not connected when ServeView powered up or has been disconnected and reconnected. Issue the reset command.

7. PS/2 mouse gets out of sync

a. Cabling was disturbed during mouse movement. Issue the null command once or twice to re-sync the mouse. Get a later mouse driver which does not exhibit this problem, such as Microsoft rev 9.01.
b. Old firmware revision. Earlier firmware versions would sometimes go out of sync under heavy mouse movement with certain CPUs. Get later ServeView firmware version or later mouse driver which does not exhibit this problem, such as Microsoft rev 9.01.

8. Video fuzzy

a. Cable too long or wrong type. Verify that resolution and distance match *Video Distance Capability* table. Upgrade cable if necessary.
b. Old hardware revision. Starting with revision F hardware, video is capable of up to 1280X1024 non-interlaced resolution. The modification is simple to do, but requires soldering. You can request Technical support note *"Upgrading SV-2U and SV-4U resolution"* or we can make the change for a nominal fee.

9. Video not synchronized or wrong color

a. Cable is loose, reseat cable.
b. Wrong CPU cable used. If you have a 9515, 9517, 9518, XGA mono or similar monitor you must use special cables or adapters. See previous section, *XGA video, Model 9515, 9517, 9518 monitors.*
c. Cable is defective, try using cable from another CPU if problem goes away cable is defective.
d. Port on ServeView is defective, try using another port on ServeView. If problem goes away port is defective.

10. Lower resolution video OK, but can't enter high resolution mode

a. Wrong CPU cable used. If you have a XGA, XGA-2, or other high resolution video card you should probably be using the CAB-Y.. cable to connect your CPUs.
b. Driver has not been setup. Windows, OS/2, or other driver has not been configured for this resolution. Configure the driver.

11. Slave unit does not switch

a. Slave unit scan switch not in "in" position when unit powered up.
b. Master unit scan switch not in "out" position when unit powered up.
c. Maximum ports command not issued.

SERVICE INFORMATION

Maintenance and repair

The unit does not contain any user-serviceable parts inside. Any malfunction of the unit should be reported to a factory-authorized repair center for service. Any discrepancies in the operation of the unit according to this manual should be reported to the Technical Support Department of Rose Electronics.

Technical support

If you cannot determine the nature of a problem, please call Rose Electronics and ask for Technical Support. If possible, call from a phone located near the unit—we may be able to solve your problem directly over the phone. If we cannot solve your problem, and determine that the fault is in the unit, we will issue a Return Authorization (RA) number that must appear on the outside of all returned products. The unit should be double-packed in the original container, insured, and shipped to the address given to you by our Technical Support representative.

To speak to a Technical Support representative, call (281) 933-7673 from 8:00–Noon and 1:00–5:00 Central Time, Monday through Friday.

Appendix A. Cable pinout Information

You can, if you prefer, build your own adapter cables. The following tables give you all pertinent information for cable construction.

Pin-to-Pin Wiring
MKM Adapter

PS/2 Keyboard with MiniDin-6M

ServeView DB-25M	Keyboard MiniDin-6F	Signals
4	3	Digital Ground
7	5	Keyboard Clock
8	1	Keyboard Data
11	4	+ 5V

PS/2 Mouse with MiniDin-6M

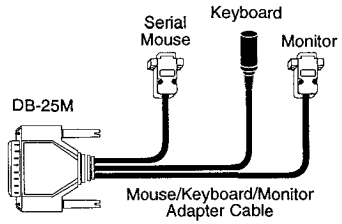
ServeView DB-25M	Mouse MiniDin-6F	Signals
4	3	Digital Ground
9	5	Mouse Clock
10	1	Mouse Data
11	4	+ 5V

PC Keyboard with Din-5M

ServeView DB-25M	Keyboard DIN-5M	Signals
4	4	Digital Ground
7	1	Keyboard Clock
8	2	Keyboard Data
11	5	+ 5V

Serial Mouse with DB-9F

ServeView DB-25M	Mouse DB-9M	Signals
23	5	Digital Ground
21	3	TxD*
12	2	RxD
13	7	RTS
24	4	DTR*



Serial Mouse with DB-25F

ServeView DB-25M	Mouse DB-25M	Signals
23	7	Digital Ground
21	2	TxD*
12	3	RxD
13	4	RTS
24	20	DTR*

EGA or CGA Monitor with DB-9M

ServeView DB-25M	Monitor DB-9F	Signals
1, 2, 3	1	Analog Ground
4	2	Digital Ground
5	8	Horizontal Sync
6	9	Vertical Sync
17	3	Red
18	4	Green
19	5	Blue
20	6	Intensity

VGA Monitor with HD-15M

ServeView DB-25M	Monitor HD-15F	Signals
1,2,3	6, 7, 8	Analog Ground
4	5, 10	Digital Ground
5	13	Horizontal Sync
6	14	Vertical Sync
14	1	Red
15	2	Green
16	3	Blue

Note: EGA and EGA Monochrome Monitors both use DB-9 connectors and have the same wiring as CGA Monitors (shown above).

**Requires 1K series resistor*

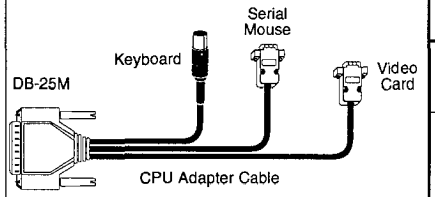
Pin-to-Pin Wiring CPU Adapter

PS/2 Keyboard Port with MiniDin-6F — PS/2 Mouse Port with MiniDin-6F

ServeView DB-25M	Keyboard MiniDin-6M	Signals	ServeView DB-25M	Mouse MiniDin-6M	Signals
4	3	Digital Ground	4	3	Digital Ground
7	5	Keyboard Clock	9	5	Mouse Clock
8	1	Keyboard Data	10	1	Mouse Data
11	4	+ 5V	11	4	+ 5V

CPU Keyboard Port with DIN-5F — **Serial Mouse Port with DB-9M**

ServeView DB-25M	Keyboard DIN-5M	Signals	ServeView DB-25M	Mouse DB-9M	Signals
4	4	Digital Ground	23	5	Digital Ground
7	1	Keyboard Clock	12	2	RxD
8	2	Keyboard Data	13	7	RTS
11	5	+ 5V			



Serial Mouse Port with DB-25M

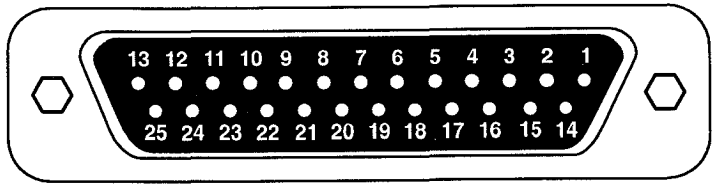
ServeView DB-25M	Mouse DB-25F	Signals
23	7	Digital Ground
12	3	RxD
13	4	RTS

EGA or CGA Video Port with DB-9F — **VGA Video Port with HD-15F**

ServeView DB-25M	Monitor DB-9M	Signals	ServeView DB-25M	Monitor HD-15M	Signals
1, 2, 3	1	Analog Ground	1,2,3	6, 7, 8	Analog Ground
4	2	Digital Ground	4	5, 10	Digital Ground
5	8	Horizontal Sync	5	13	Horizontal Sync
6	9	Vertical Sync	6	14	Vertical Sync
17	3	Red	14	1	Red
18	4	Green	15	2	Green
19	5	Blue	16	3	Blue
20	6	Intensity			

Note: EGA and EGA Monochrome Video Ports both use DB-9 connectors and have the same wiring as CGA Monitors (shown above).

Appendix B. MKM/CPU pinout specification

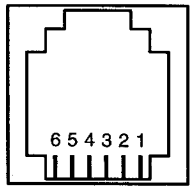


DB-25 Female Connector

Pinouts for ServeView DB-25 Female Connectors

Pins	Numbered CPU Ports	MKM Port	Description
1	Ground	Ground	Analog Ground
2	Ground	Ground	Analog Ground
3	Ground	Ground	Analog Ground
4	Ground	Ground	Digital Ground
5	HSync-in	HSync-out	Video Control
6	VSync-in	VSync-out	Video Control
7	KBClk	KBClk	Keyboard Clock
8	KBData	KBData	Keyboard Data
9	MSClk	MSClk	Mouse Timing
10	MSData	MSData	Mouse Data
11	+5V-in	+5V-out	Power for LEDs, Peripherals
12	RS232-out	RS232-in	Serial Data
13	RS232-in	RS232-out	Serial Data
14	Red-in	Red-out	VGA Color
15	Green-in	Green-out	VGA Color
16	Blue-in	Blue-out	VGA Color
17	Red-in	Red-out	EGA Color
18	Green-in	Green-out	EGA Color
19	Blue-in	Blue-out	EGA Color
20	Intensity-in	Intensity-out	EGA Color/Mono
21	-V	-V	Unreg -12V
22	Ground	Ground	Digital Ground
23	Ground	Ground	Digital Ground
24	+V	+V	Unreg +12V
25	Reserved	Reserved	Reserved

Appendix C. RS232 pinout specifications



Pin	Signal Name	Acronym	I/O	Description
1	Data Set Ready	DSR	Input	Unused
2	Data Terminal Ready	DTR	Output	Pulled high with 1Kohm resistor
3	Transmit Data	TXD	Output	Serial data from port
4	Signal Ground	GND		DC ground reference
5	Receive Data	RXD	Input	Serial data to port
6	Request to Send	RTS	Output	Pulled high with 1Kohm resistor

Appendix D. Factory default settings

Setting	Default
Scan enable	Off
Scan Time Interval	5 seconds
Caps/Numlock/Scroll	Numlock On
Keyboard Mode	2
Screen Blank Time Interval	0 (Off)
Typematic Value	43 (Rate=10.9 chars/sec, delay = 500 millisec.)

Appendix E. General specifications

SIZE	8.8" W x 2.25" H x 4.9" D
WEIGHT	3 lb.
INPUT POWER	117 VAC power adapter supplied 230 VAC optional
OUTPUT POWER	17VAC CT, .7A
POWER CONNECTOR	DIN5
CPU/MKM CONNECTORS	DB25 Female
CHASSIS	Fully shielded, beige painted steel
CONTROLS	Next and Scan switches on front of unit
INDICATORS	1 power LED, 4 each select LED and power LED

Appendix F. Cable part numbers

To specify a cable, refer to the diagram below, which defines each field of the cable part number, or refer to *Appendix G* which lists most common cables.

Table 5. ServeView cable part numbers

CAB - X YY MM T N /Z

- /Z: Special option
  /9517 or /9517 or /9518 when using 95xx monitor
  /MONO when using XGA monochrome
- N: Desired cable length in feet
- T: Type of ServeView adapter cable
  M = Monitor-Keyboard-Mouse (MKM) port cable
  C = CPU cable
- MM: Type of mouse
  06 = PS/2 mouse with mini-din 6 connector
  09 = RS232 mouse with DB9 connector
  25 = RS232 mouse with DB25 connector
- YY: Type of keyboard
  05 = 101 keyboard with 5-pin din connector
  06 = PS/2 or 101 keyboard with 6 pin mini-din connector
- X: Type of video used
  V = VGA
  E = EGA
  Y = XGA, can also be used for VGA
  C = XGA/VGA coax
- CAB: Indicates part number is a cable

Appendix G. Cables and accessories

Description	Part Number
Monitor/Keyboard/Mouse Adapter Cables	
VGA–AT keyboard–Serial (9) mouse to DB-25M cable	CAB-V0509M1
EGA–AT keyboard–Serial (9) mouse to DB-25M cable	CAB-E0509M1
VGA–PS/2 keyboard–PS/2 mouse to DB-25M cable	CAB-V0606M1
CPU Adapter Cables	
VGA–AT keyboard–Serial (9) mouse to DB-25M cable	CAB-V0509C*xx**
EGA–AT keyboard–Serial (9) mouse to DB-25M cable	CAB-E0509C*xx**
VGA–PS/2 keyboard–PS/2 mouse to DB-25M cable	CAB-V0606C*xx**
XGA–PS/2 keyboard–PS/2 mouse to DB-25M cable	CAB-Y0606C*xx**
XGA/VGA Coax–AT keyboard–Serial (9) mouse to DB-25M cable	CAB-C0509C*xx***
XGA/VGA Coax– PS/2 keyboard–PS/2 mouse to DB-25M cable	CAB-C0606Cxx**
*Available in standard lengths of 5, 10, and 20 ft. Replace *xx* with desired length.	
**Available in 30, 50, 75, 100, 125, 150 and 200-foot lengths. Replace *xx* with desired length.	
Adapters	
EGA-to-VGA adapter for use with mixed VGA and EGA systems. Converts CPU's EGA DB-9 connector to VGA HD-15 for connection to VGA CPU Adapter Cable.	ACC-EV
4-conductor RJ11 cable for connecting optional computer or terminal to ServeView's RS232 serial port. Used with PC or AT adapter shown below	CAB-04RJ*xx**
25 pin female DB25 adapter for ServeView serial port	ACC-PCRX
9 pin female DB9 adapter for ServeView serial port	ACC-ATRX
Other Cables	
ServeView-to-ServeView Expansion Cable for connecting slave units to master ServeView for system expansion (1-foot long)	CAB-SMM1/RI
Accessories	
Rackmount: Black anodized, for installation in 19-inch racks.	RM-SV1
Rackmount: Black anodized, for installation in 24-inch racks.	RM-SV1/24
Call for other rackmount arrangements.	

NOTE: ServeView is also available in 8, 12, and 16 port units, also expandable up to 256 ports. Call our sales department for more details.