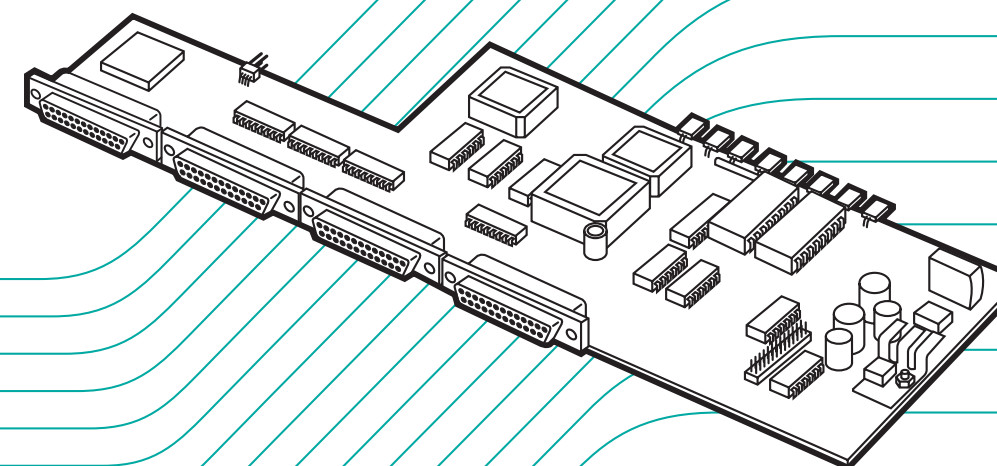


JUNE 1999



## 4-Port Expansion Boards for ServSwitch and ServSwitch Ultra



KV5000C-R2  
KV5100C-R4

### Customer Support Information:

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# Welcome to the ServSwitch™ Family!

Thank you for purchasing a BLACK BOX® ServSwitch™ Brand KVM-switch accessory! We appreciate your business, and we think you'll appreciate the many ways that your ServSwitch keyboard/video/mouse switching system will save you money, time, and effort.

That's because our ServSwitch family is all about breaking away from the traditional, expensive model of computer management. You know, the one-size-fits-all-even-if-it-doesn't model that says, "One computer gets one user station, no more, no less." Why not a single user station (monitor, keyboard, and mouse) for multiple computers—even computers of different platforms? Why not a pair of user stations, each of which can control multiple computers? Why not multiple user stations for the same computer?

With our ServSwitch products, there's no reason why not. We carry a broad line of robust solutions for all these applications. Do you have just two PCs, and need an economical alternative to keeping two monitors, keyboards, and mice on your desk? Or do you need to share dozens of computers, including a mix of IBM® PC, RS/6000®, Apple® Macintosh®, Sun Microsystems®, and SGI® compatibles among multiple users with different access levels? Does your switch have to sit solidly on a worktable and use regular everyday cables? Or does it have to be mounted in an equipment rack and use convenient many-to-one cables? No matter how large or small your setup is, no matter how simple or how complex, we're confident we have a ServSwitch system that's just right for you.


The ServSwitch™ family from Black Box—the one-stop answer for all your KVM-switching needs!

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This installation guide will tell you how to install your 4-Port Expansion Board in your ServSwitch™ or ServSwitch™ Ultra unit. The 4-Port Expansion Board product codes covered in this manual are:

**KV5000C-R2**  
**KV5100C-R4**

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# Installing a 4-Port Expansion Board in a ServSwitch or ServSwitch Ultra

The 4-Port Expansion Board for ServSwitch™, our product code KV5100C-R4, is an extra circuit board that can be installed in 8- and 12-port full-size ServSwitches (SW723A-R4 and SW724A-R4) to add four additional CPU ports to those Switches. For example, if you had a full-size regular ServSwitch with eight CPU ports (SW723A-R4), you could upgrade to twelve CPU ports by installing a single 4-Port Expansion Board or upgrade to sixteen CPU ports by installing two of these Boards.

Similarly, the 4-Port Expansion Board for ServSwitch™ Ultra, our product code KV5000C-R2, is an extra circuit board that can be installed in 8- and 12-port full-size ServSwitch Ultras (KV5008FA-R2 and KV5012FA-R2).

## EXTREME CAUTION!

**Installing the 4-Port Expansion Board requires almost completely disassembling and reassembling the ServSwitch or ServSwitch Ultra. This can be complicated and time-consuming, and it is *very easy* to damage the Switch during the process—several of our customers have done so. We *very strongly* recommend that you let us install the Board for you at our factory; while this is being done, we might be able to lend you replacement units so that your KVM-switching network will not experience any downtime. Please call Black Box to arrange this!**

**If you do install the 4-Port Expansion Board yourself, there are some very important things you need to be aware of beforehand:**

- 1. Make sure that the Switch you'll be installing the Board in has been upgraded with the most recent version of its firmware. If the Board's firmware is more recent than the Switch's, the Switch could be totally disabled.**
- 2. Take every reasonable caution against static electricity. At the very least, discharge yourself on a metallic surface before touching the Board; if possible, stand on an anti-static mat and wear a grounding strap or anti-static gloves.**
- 3. You will be removing many screws during the course of the installation. These screws are different lengths and sizes, so note carefully which type of screw goes in which screwhole.**

## 4-PORT EXPANSION BOARD FOR SERVSWITCH™ AND SERVSWITCH™ ULTRA

To install the 4-Port Expansion Board in a ServSwitch or ServSwitch Ultra, take these steps:

1. Make sure the Switch is turned OFF, unplugged, and disconnected from all other devices.
2. Unscrew and remove the six screws (four on top and one on each side) that fasten the wraparound top-and-side cover to the Switch. See Figure 1 on the next page.
3. Remove the Switch's top cover.
4. Unscrew and remove the three countersunk screws on the bottom panel that fasten the back panel to the bottom panel. See Figure 2 on the next page.
5. Unscrew and remove the three countersunk screws on the Switch's bottom panel that fasten the Switch's PCB(s) (printed circuit board[s]) to the panel. See Figure 2 on the next page.
6. Separate the Switch's PCB(s) and back panel from the bottom panel, being very careful not to bend the LEDs.
7. Depending on how many Expansion Boards you are installing, you will need to remove two or four of the CPU-port blanks (covering plates) that are attached to the Switch's back panel and cover the CPU-port slots—see Figure 3 on page 7. Unscrew and remove the screws that fasten these blanks to the back panel, then remove the blanks themselves.

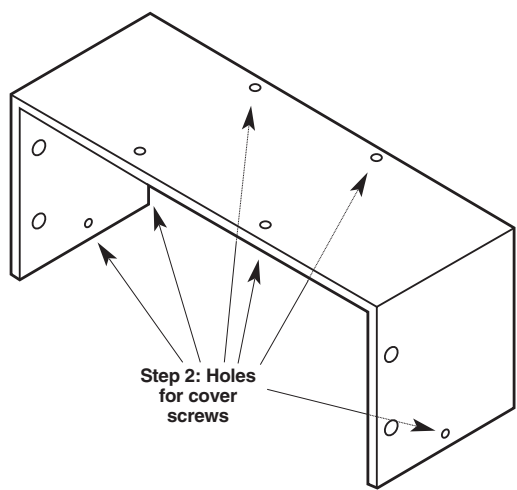


Figure 1. The Switch's cover.

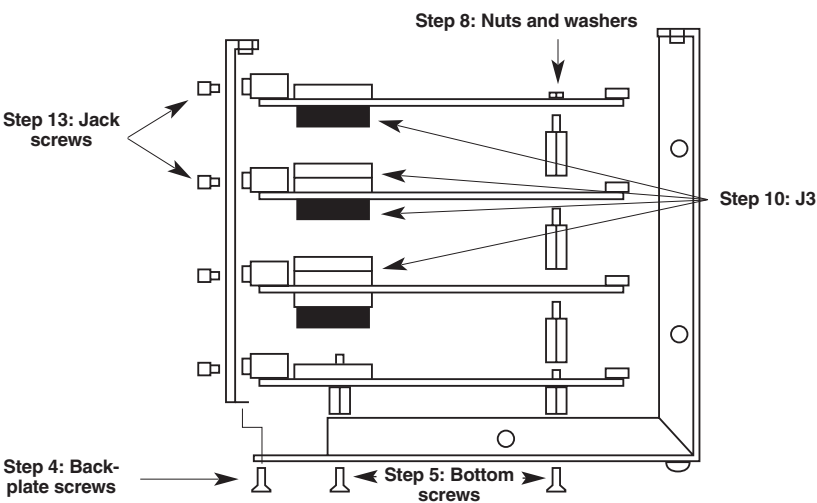


Figure 2. Exploded left-side view of a ServSwitch or ServSwitch Ultra with the maximum number of ports installed.

8. Unscrew and remove the nuts and washers from the screw-ends of the standoffs that poke through the topmost PCB. There will definitely be two of these standoffs at the front of the PCB; there might also be one on the narrow right-hand end. See Figure 2 on the previous page, Figure 4 on the next page, and Figure 5 on page 9.
9. Unscrew and remove the eight jack screws attached to the Expansion Board, one on either side of the Board's four DB25 connectors. (These will secure the connectors to the backplate; you will be screwing them back on soon.)
10. You should have received two or three new standoffs with your Expansion Board. Screw these into the screw-ends of the existing standoffs that you exposed in step 8. You should also have received an extender (spacer) for the J3 connector on the PCB that will be below the Expansion Board (see Figure 2 on the previous page, Figure 4 on the next page, and Figure 5 on page 9); plug this extender into the J3 connector, being careful not to bend the extender's pins.
11. Plug the 4-Port Expansion Board into the J3 extender you just attached, being extremely careful not to bend the Board's pins (see Figure 2 on the previous page and Figure 5 on page 9). The new standoffs' screw-ends should poke through the appropriate holes on the Board, and the Board's DB25 connectors should fit in the CPU-port slots you exposed in step 7.
12. Fasten the Board to the other PCBs by screwing the nuts and washers you removed in step 8 onto the screw-ends of the new standoffs.
13. Fasten the Board to the back panel by screwing the jack screws you removed in step 9 back in. (See Figure 2 on the previous page.)
14. Make sure that port-numbering jumper J14 (see Figure 4 on the next page and Figure 5 on page 9) is set correctly on all of your unit's "slave boards" (all the boards in the PCB stack except the bottommost main board). On the second board from the bottom, you'll see that J14 has been *removed* to identify that board as the location of ports 5 through 8. On the third board from the bottom, J14 should be set to the *left* to identify that board as the location of ports 9 through 12. On the fourth board (if you've installed one), J14 should be set to the *right* to identify that board as the location of ports 13 through 16. If these jumpers aren't set correctly, the Switch will either access the wrong ports, access multiple ports simultaneously, or light LED 3 ("slave-communication error") at power-up.

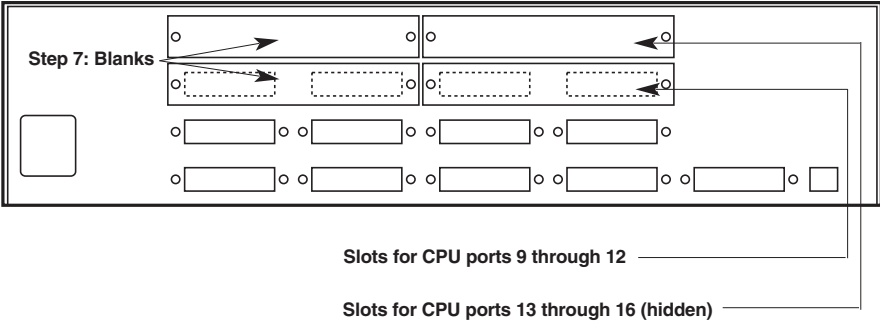


Figure 3. The Switch's back panel\*.

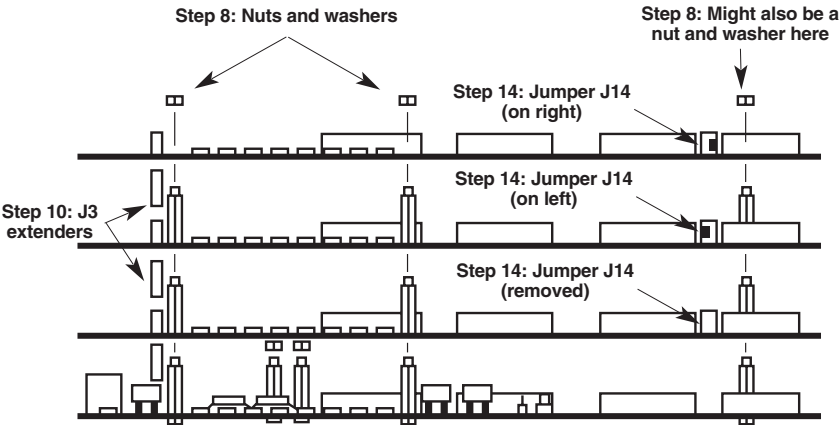


Figure 4. Exploded front view of a ServSwitch's or ServSwitch Ultra's PCB stack (16-port unit shown).

\*Solid lines show actual appearance of 8-port Switch prior to Board installation; dotted lines show how the appearance of the 12-port units differs.

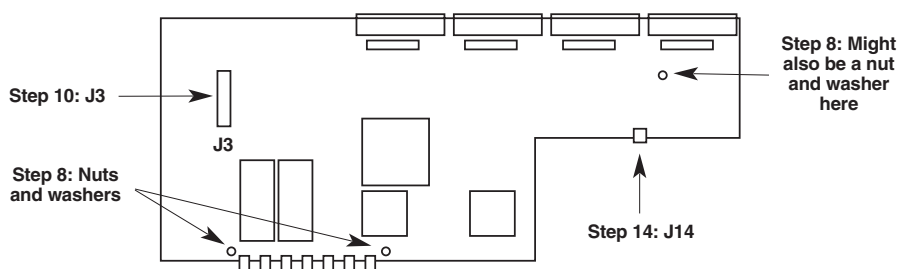


15. Put the PCB-stack-plus-back-panel assembly back together with the Switch's bottom and front panels. (This can be very tricky. Hold the assembly at a 45° angle relative to the front panel—this will make it much easier to realign the LEDs with the corresponding holes in the front panel.)
16. Refasten the PCB stack to the bottom panel by screwing the screws that you removed in step 5 back in.
17. Refasten the back panel to the bottom panel by screwing the screws that you removed in step 4 back in.

Before putting the Switch's top cover back on, test the unit as directed in steps 18 through 22.

18. Temporarily connect the Switch to a monitor, keyboard, and mouse, along with at least one CPU for every PCB in the Switch. (On a Switch you have just expanded to twelve ports, for example, one CPU should be attached to port 1, one CPU to port 5, and one CPU to port 9.)
19. Plug the Switch back in and turn it ON. (If, using the configuration currently stored in its NVRAM, the Switch won't be able to switch to all of the test CPUs, you might have to change the Switch's "Maximum computers," "Expansion width," and "Expansion units" values. Refer to **Sections 5.2.3 through 5.2.5** of your ServSwitch or ServSwitch Ultra manual.)
20. Turn ON the attached monitor and CPUs.
21. Make sure that the Switch's front-panel pushbuttons, keyboard commands, and overlay menus will still scan and switch between all of the CPUs from the front panel as before. If the Switch does not respond properly, call Black Box for technical support.
22. If the Switch seems to be working properly, turn OFF the Switch and all attached test equipment. Unplug the Switch from utility power and disconnect it from the test equipment.
23. Replace the Switch's top cover.
24. Refasten the top cover by screwing the screws that you removed in step 2 back in.

Once you reconnect the Switch to its normal system (rebuilding, if necessary, its normal configuration), you can attach additional computers to the Switch's new CPU ports if all lower-numbered ports are occupied. Power up the system and change the "Maximum computers" setting (see **Section 5.2.3** of your ServSwitch or ServSwitch Ultra manual) to reflect the new ports/computers you've just added. Once you've done so, the Switch, including its new CPU ports, should be ready for continuous operation.



**Figure 5. Top view of the 4-Port Expansion Board (and previously installed PCBs).**

