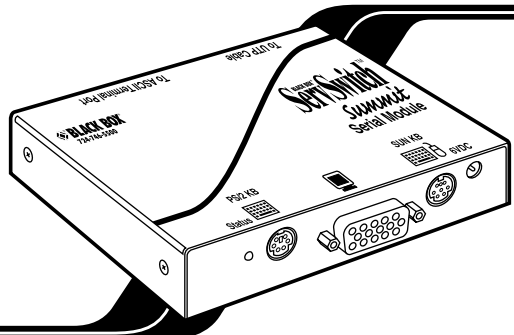




Serial Computer Interface Module for ServSwitch™ Summit



1. Introduction

If you want to use your ServSwitch™ Summit system (KV1500A series of product codes) to access a CPU or other device through an RS-232 port, attach a serial computer interface module (“CIM,” product code KV1518A) to the device’s serial port as described in **Section 2**. The KV1518A CIM is designed to emulate an ASCII terminal, converting keyboard input to RS-232 data input and converting RS-232 data output for display on a VGA monitor. This conversion allows any device that can be accessed by an ASCII terminal to be operated with a user station attached to your Summit system, across an end-to-end distance of up to 500 ft. (152.4 m) as opposed to the normal RS-232 maximum of 50 ft. (15.2 m).

Here are some of the KV1518A’s useful features:

- It maintains eight pages of data in a circular buffer.
- In its Buffer Edit Mode (see **Section 3.3**), you can edit data, copy it, mark it, and/or resend it to the computer or other device.
- In its On-Line Mode (see **Section 3.2**), you can operate the ASCII device as if it were attached to a text terminal.
- It has twelve programmable keys for frequently performed character-string commands (see **Section 4**).
- You can directly attach a local PS/2® or Sun® user station (keyboard and monitor) if necessary (see **Section 2**).

CUSTOMER
SUPPORT
INFORMATION

Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 724-746-5500)
FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746
Mailing address: Black Box Corporation, 1000 Park Drive, Lawrence, PA 15055-1018
Web site: www.blackbox.com • E-mail: info@blackbox.com

2. Installation

Take these steps to attach a KV1518A CIM to the serial port of a computer CPU or other device and to your Summit system:

1. Run an appropriate cable from the KV1518A's DB25 female DTE connector to the device's serial port. The type of cable will depend on what type of connector the port is and whether it's pinned as DTE (for a data source/destination such as a CPU) or DCE (for a data-communicating device such as a modem). Here are the product codes of some cables we recommend if the port is:
 - DB9 male DTE (most PCs, some routers, etc.): EVMBMC-0006 for a 6-ft. (1.8-m) cable;
 - DB25 male DTE (some older PCs, routers, etc.): EYN250-0005-MF for a 5-ft. (1.5-m) cable;
 - DB25 female DCE (many external modems, muxes): BC00703 for a 6-ft. (1.8-m) cable.

If the device has some other type of serial port, call Black Box Technical Support.

2. If you need temporary “crash cart” access or permanent local control, you can attach a local user station (consisting of a keyboard and VGA monitor only) to the KV1518A. The user station's keyboard can be either be PS/2 or Sun type; a Sun keyboard will require a special setting in the Setup Screen—see **Section 4**).

To install a local user station, plug a PS/2 keyboard into the KV1518A's 6-pin mini-DIN connector, or a Sun keyboard into its 8-pin mini-DIN connector. Plug a VGA monitor into the KV1518A's HD15 connector.

NOTE

This local station will contend for keyboard control with the remote user stations attached to Summit USMs based on a fixed one-second activity timeout. As soon as there has been no keyboard activity from the local station for one second, a remote station can take keyboard control, and vice versa.

3. Plug in and turn on the device. If possible, set it to communicate at 9600 bps, 8 data bits, no parity, and 1 stop bit. (These don't have to be the permanent serial settings, but the device must be set this way to establish initial communication with the KV1518A; later you can configure both the device and the KV1518A to better settings—see **Section 4**. If the device *can't* be configured for these settings, you'll need to temporarily attach a CPU or other device that *can* be.)

4. Plug the KV1518A's power supply into the KV1518A and a working AC outlet. If the KV1518A and power supply are installed and operating properly, the KV1518A's green LED will start blinking; once per second while the CIM is idle, more quickly while it's passing data in either direction.
5. Connect one end of a CAT5 UTP cable (not included, we recommend product code EYN737MS) to the RJ-45 port on the KV1518A. Connect the other end of the cable to RJ-45 channel port #1 on the back of one of your Summit Base Units, or to the RJ-45 port on the back of a USM if you want Direct Mode access (see **Appendix B** of your ServSwitch Summit Base Unit manual).

If the CIM is installed properly and the attached device or port is configured correctly, you're ready to start using the CIM for your serial communication.

3. Operation

3.1 SCREEN LAYOUT

The KV1518A produces eight-color video at 800 x 600 resolution, which can accommodate 32 lines of 80 text characters each. A typical ASCII terminal uses 24 lines, so the KV1518A uses the eight extra lines to provide system-status and help information. As shown in Figure 1, these eight lines are divided so that four are at the top of the screen and four are at the bottom:

- In line 1 of the top pane, the KV1518A's firmware version is displayed at the right.
- In line 3 of the top pane, the cursor position and buffer-page number are displayed at the left and the terminal type and data rate are displayed at the right.
- In line 4 of the top pane, the communication status is displayed in the center. This status can be:
 - “On Line”: The KV1518A is communicating with the computer and displaying the interactions in its terminal-screen area;
 - “Help”: [Alt] + [F1] has been pressed, so the Help screen is being displayed;
 - “Set Up”: [Alt] + [F2] or [Alt] + [F3] has been pressed, so the KV1518A is in Setup Mode; or
 - “Buffer Edit”: [Alt] + [F4] has been pressed, so the KV1518A is in Buffer Edit Mode.

- In addition, the access type is shown at the right of line 4 of the top pane. The access type can be either “LOC” (the local keyboard/monitor user station is active), “RMT” (a remote Summit user station is active), or “NO” (there is no current user-station activity—the KV1518A is idle and will grant keyboard and mouse control to the first user station that attempts to assert it).
- The four lines in the bottom pane display command keys specific to the current screen.

```

      1          2          3          4          5          6          7          8
1234567890123456789012345678901234567890123456789012345678901234567890
1          Black Box Corporation ©Copyright 2002          V1.05
2          ASCII Terminal Converter, Model: KV1518A
3 Line 03 Position 10 Page 8          VT100 9600 Baud
4 ----- Status: On Line -----RMT-----
5 #
6 Login: Huimin
7 Password:
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
<Alt-F1> = Display Help Menu Screen <Alt-F2> = Setup serial communication
<Alt-F3> = Set Up Programmable Keys <Alt-F4> = Review/Edit Buffer
<Ctrl-Break> = Reset Serial Communication and KV1518A
<Ctrl-s>/<Ctrl-Q> = Stop/Resume output from Computer

```

Terminal-screen area
(24 lines x 80 characters)

Figure 1. KV1518A screen layout (an On-Line Mode session shown).

3.2 ON-LINE MODE

When you operate the KV1518A in On-Line Mode (see Figure 1), the main screen area displays your interactions with the ASCII device, as if it were the screen of an ASCII terminal. Simultaneously, the data stream being output by the device is stored in an eight-page circular buffer, so you can not only access and operate the device, but you can also review its historical data as needed. Because the buffer is circular, it always retains the most recent eight pages of data from the device; the newest data will overwrite the oldest data.

Conveniently, you may program any of the PC keyboard's twelve function keys to trigger your most-often-used data-stream commands (see **Section 4**). Pressing any key you've set this way causes the Summit to send the corresponding command to the device. During the online session, you can also send any of the following key combinations (press and hold [Ctrl] or [Alt], press and release the command key, and release [Ctrl or Alt]) to control your communication with the device or to access the KV1518A's help and setup screens:

- [Ctrl] + [Break] (the [Pause/Break] key next to the [Scroll Lock] key): Resets both the KV1518A and the serial communication with the device.
- [Ctrl] + [S] (not case-sensitive): Sends an X-OFF command to the device to temporarily stop it from sending any data; until the flow is allowed to resume, all output data will be queued by the device. (If the device doesn't support X-ON/X-OFF flow control, this command has no effect.)
- [Ctrl] + [Q] (not case-sensitive): Sends an X-ON command to allow the device to resume sending data after being halted by the [Ctrl] + [S] command.
- [Alt] + [F1]: Displays the Help screen shown in Figure 3.
- [Alt] + [F2]: Displays the Setup screen shown in Figure 4.
- [Alt] + [F3]: Displays the Set Up Programmable Keys screen shown in Figure 5.
- [Alt] + [F4]: Switch to Buffer Edit Mode, as shown in Figure 2.

3.3 BUFFER EDIT MODE

The KV1518A stores the most recent eight pages of data from the attached ASCII device in a circular buffer. After you switch the KV1518A from On-Line Mode (see **Section 3.2**) to Buffer Edit Mode by pressing [Alt] + [F4], you can review the contents of the buffer by moving the cursor with the arrow keys, [PageUp], [PageDown], [Home], and [End]; see Figure 2. You can also edit the data in the buffer with [Insert], [Delete], [Backspace], and the other keys listed in the Help screen in Figure 3.

SERIAL CIM FOR SERVSWITCH™ SUMMIT

```

1                2                3                4                5                6                7                8
1234567890123456789012345678901234567890123456789012345678901234567890
1                Black Box Corporation ©Copyright 2002                V1.05
2                ASCII Terminal Converter, Model: KV1518A
3 Line 03 Position 10 Page 8                VT100 9600 Baud
4 ----- Status: Buffer Edit -----RMT-----
5 $!s -1
6 total 25
7 -rwxrwxrwx 1 0                189024 Oct 25 1993 tklaunch.exe
8 -rwxrwxrwx 1 0                14598 Sep 22 1993 touch.exe
9 -rwxrwxrwx 1 0                14078 Sep 22 1993 tr.exe
10 -rwxrwxrwx 1 0                10722 Sep 22 1993 tsort.exe
1 -rwxrwxrwx 1 0                7420 Sep 22 1993 tty.exe
2 -rwxrwxrwx 1 0                9228 Sep 22 1993 uname.exe
3 -rwxrwxrwx 1 0                29074 Sep 28 1993 uncompre.exe
4 -rwxrwxrwx 1 0                11238 Sep 22 1993 unexpand.exe
5 -rwxrwxrwx 1 0                11318 Sep 22 1993 uniq.exe
6 -rwxrwxrwx 1 0                13288 Sep 22 1993 unpack.exe
7 -rwxrwxrwx 1 0                11518 Sep 22 1993 unstrip.exe
8 -rwxrwxrwx 1 0                12670 Sep 22 1993 uuencode.exe
9 -rwxrwxrwx 1 0                10342 Sep 22 1993 uuencode.exe
20 -rwxrwxrwx 1 0                188928 Oct 21 1993 vdiff.exe
1 -rwxrwxrwx 1 0                76358 Oct 7 1993 vi.exe
2 -rwxrwxrwx 1 0                240752 Oct 22 1993 viw.exe
3 -rwxrwxrwx 1 0                493971 Oct 22 1993 viw.hlp
4 -rwxrwxrwx 1 0                766 Sep 27 1993 viwdoc.ico
5 -rwxrwxrwx 1 0                5632 Aug 19 1993 viwf.fon
6 -rwxrwxrwx 1 0                10598 Sep 22 1993 wc.exe
7 -rwxrwxrwx 1 0                9758 Sep 22 1993 which.exe
8
9 <Home>/<End> = First/Last page <PageDown>/<PageUp> = Next/Previous Page
30 <↑><↓><←><→> = Move Cursor <Insert> = Toggle insert mode
1 <Delete> = Erase a character <Back Space> = Erase a character on the left
2 <F6>/<F7> = Mark Begin/End <F8> = Send <F10> = Clear Buffer <Esc> = Exit
```

Figure 2. The Buffer Edit Mode screen.

```

1234567890123456789012345678901234567890123456789012345678901234567890
1      Black Box Corporation ©Copyright 2002      V1.05
2      ASCII Terminal Converter, Model: KV1518A
3 Line 03 Position 10 Page 8      VT100 9600 Baud
4 ----- Status: Help -----RMT-----
5
6      ASCII Terminal Converter
7      Help Screen
8
9      On Line Commands
10     <Ctrl-Break> = Reset Serial Communication and KV1518A
11     <Ctrl-S>/<Ctrl-Q> = Stop/Resume output from Computer
12
13     Set Up Commands
14     <Alt-F1>      = Display Help Menu
15     <Alt-F2>      = Setup Screen
16     <Alt-F3>      = Set up Programmable keys
17     <Alt-F4>      = Review/Edit Buffer
18     <Esc>         = Exit
19
20     Buffer edit
21     <Home>/<End>   = Go To First Page/Last page
22     <PageDown>/<PageUp>= Go To Next Page/Previous Page
23     <↑><↓><←><→> = Move Cursor
24     <Insert>       = Toggle insert mode
25     <Delete>/<Del> = Erase a character in position
26     <Back Space>  = Erase a character on the left
27     <F6>           = Begin Mark
28     <F7>           = Send "Marked" buffer to computer, and return On Line
29     <F10>          = Clear Buffers, and return on line
30     <Esc>         = Exit, return to On Line
31
32     <Alt-F1> = Display Help Menu Screen   <Alt-F2> = Setup Screen
33     <Alt-F3> = Set Up Programmable Keys   <Alt-F4> = Review/Edit Buffer
34     <Ctrl-Break> = Reset Serial Communication and KV1518A
35
36

```

Figure 3. The Help screen.

4. Configuration

Press [Alt] + [F2] to bring up the Setup screen, shown in Figure 4, where you can select your desired serial-communication parameters (baud rate [data rate], etc.) and type of local video output. The initial parameters will always start at their factory defaults, so make sure that the serial port or device to which the KV1518A is attached is temporarily configured for 9600 bps, 8 data bits, no parity, and 1 stop bit. (If the port or device can't support all of these settings, you must temporarily attach one that can.) Also, if you want to perform initial configuration with a local user station, it must consist of a PS/2 keyboard and VGA monitor.

Available data-rate (“Baud Rate”) settings are 2400, 4800, 9600, and 19,200 bps. You can select even, odd, or no (“None”) parity; 7 or 8 data bits; and 1 or 2 stop bits (but 7 data bits requires 2 stop bits). The terminal type is fixed at VT100.

To force local VGA output even when your local keyboard is a Sun type, access the KV1518A from a user station with a PS/2 keyboard and a VGA monitor. Bring up the Setup screen and change the video option for “Sun keyboard” to “VGA.” You can then access the KV1518A from Sun type user stations.

```

1          1          2          3          4          5          6          7          8
1234567890123456789012345678901234567890123456789012345678901234567890
1          Black Box Corporation ©Copyright 2002          V1.05
2          ASCII Terminal Converter, Model: KV1518A
3 Line 03 Position 10 Page 8          VT100 9600 Baud
4 ----- Status: Set Up -----RMT-----
5
6          ASCII Terminal Converter
7          Setup Screen
8
9
10         Baud Rate : 9600
11         Parity : None
12         Data Bit : 8
13         Stop Bit : 1
14
15         Terminal Type : VT100
16
17         Video Output:
18         PS/2 Keyboard: VGA Only
19         Sun Keyboard: Sun Composite
20
21         Set up: Default
22
23         Use <Tab>/<Shift-Tab> to go to a field to edit
24         Use <↑> or <↓> to change parameter in a field
25
26         <Esc> to return to On Line
27
28
29 <Alt-F1> = Display Help Menu Screen <Alt-F2> = Setup Screen
30 <Alt-F3> = Set Up Programmable Keys <Alt-F4> = Review/Edit Buffer
31 <Ctrl-Break> = Reset Serial Communication and KV1518A
32

```

Figure 4. The Setup screen.

If you'd like to program any of your keyboard's twelve function keys with commands or data items you frequently have to send the device, bring up the Set Up Programmable Keys screen (shown in Figure 5) by pressing [Alt] + [F3]. Once a string (with a maximum length of sixteen characters) has been assigned to a key, pressing that key while you're in On-Line Mode will send the entire string to the device.

```

1234567890123456789012345678901234567890123456789012345678901234567890
1      Black Box Corporation ©Copyright 2002          V1.05
2      ASCII Terminal Converter, Model: KV1518A
3 Line 03 Position 10 Page 8          VT100    9600 Baud
4 ----- Status: Set Up -----RMT-----
5
6      ASCII Terminal Converter
7      Set Up Programmable Keys
8
9
10     F1      = ^D
11     F2      = <default>
12     F3      = ^U
13     F4      = <default>
14     F5      = <default>
15     F6      = <default>
16     F7      = <default>
17     F8      = <default>
18     F9      = <default>
19     F10     = <default>
20     F11     = <default>
21     F12     = This is my name.
22
23     <Tab>/<Shift><Tab> to a field to edit; max. of 16 characters
24     Use <Ctrl-V> to enter special character; e.g., <Ctrl-V><Esc>,
25     <Ctrl-V><Ctrl-C>, <Ctrl-V><Ctrl-M> or <Ctrl-V><Enter> for CR key
26     <F11>/<F12> = Load/Save programmable key
27     <Esc> return to On Line
28
29     <Alt-F1> = Display Help Menu Screen   <Alt-F2> = Setup Screen
30     <Alt-F3> = Set Up Programmable Keys   <Alt-F4> = Review/Edit Buffer
31     <Ctrl-Break> = Reset Serial Communication and KV1518A
32

```

Figure 5. The Set Up Programmable Keys screen.

5. Troubleshooting

5.1 THINGS TO TRY

If you don't get a device prompt:

1. If the KV1518A's screen is displayed on your monitor with the top and bottom help windows, make sure that it indicates "On Line" status. If not, press [Esc] to return to On-Line Mode.
2. Make sure that the KV1518A and the attached device are both receiving power. The KV1518A's power supply should be securely connected to both the KV1518A and a working outlet. Its LED (next to the 6-pin mini-DIN PS/2 mouse connector) should flicker quickly if data is being transmitted and blink once per second at other times.
3. Make sure that the cable between the KV1518A and the device is securely attached at both ends.
4. Make sure that the serial-communication settings of the KV1518A match those of the device. Press [Alt] + [F2] to check the KV1518A's settings in its Setup Screen.

If you don't get any video or the video is degraded or distorted:

1. Make sure that all of your cables are connected securely.
2. Make sure that your monitor can handle 800 x 600 video resolution at a refresh rate of 60 Hz.
3. If you're at a remote user station's monitor, make sure that you aren't trying to run CAT5 cable too far end-to-end. The total length of CAT5 cabling from the serial device to the monitor shouldn't be greater than 500 ft. (152.4 m).
4. If you're using a Sun keyboard at the local user station, the KV1518A will, by default, try to output legacy Sun compatible composite video on its HD15 connector. You'll need to temporarily attach a PS/2 keyboard, press [Alt] + [F2] to bring up the Setup Screen (see **Section 4**), and change the video setting so that the KV1518A outputs VGA video even when a Sun keyboard is attached.

5.2 CALLING BLACK BOX

If you determine that the KV1518A is malfunctioning, *do not attempt to alter or repair it*. It contains no user-serviceable parts. Contact Black Box Technical Support at 724-746-5500.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- the nature and duration of the problem;
- when the problem occurs;
- the components involved in the problem—the attached CPU or other device, the type of serial cable and serial port, etc.;
- any particular application that, when used, appears to create the problem or make it worse; and
- the results of any testing you've already done.

5.3 SHIPPING AND PACKAGING

If you need to transport or ship your KV1518A:

- Package it carefully. We recommend that you use the original container.
- If you ever ship it back to us for any reason, contact Black Box to get a Return Authorization (RA) number.

6. Specifications

Cable Required: Between KV1518A and Base Units: Four-pair (eight-wire) Category 5 solid-core unshielded twisted pair (UTP) pinned and paired according to TIA-568B

Interface: EIA/TIA RS-232, DTE, to CPUs' RS-232 serial ports

Serial

Characteristics: Supports X-ON/X-OFF flow control to attached device; other characteristics are user-selectable: 2400, 4800, 9600, or 19,200 bps; 7 or 8 data bits; even, odd, or no parity; and 1 or 2 stop bits (if 7 data bits has been selected, there must be 2 stop bits)

Maximum

Distance: End to end, from user stations to CPU attached to KV1518A: 500 ft. (152.4 m)

User Controls: On-Screen User Interface (OSUI);
Keyboard commands

Indicator: (1) Power/activity LED

Connectors: (1) RJ-45 female to Base Unit;
(1) DB25 female to RS-232 serial port (DTE—can't be directly connected)

Maximum

Altitude: Operating: 10,000 ft. (3048 m);
Storage: 40,000 ft. (12,192 m)

Temperature

Tolerance: Operating: 32 to 104°F (0 to 40°C);
Storage: 32 to 122°F (0 to 50°C)

Humidity


Tolerance: Operating: 20 to 85% noncondensing;
Storage: 20 to 90% noncondensing

Enclosure: Injection-molded plastic

MTBF (calculated): 1,691,000 hours

Power:	From utility-power (mains) outlet, through detachable power cord and IEC 320 inlet, to external transformer: Input: 100 to 240 VAC at 47 to 63 Hz and up to 500 mA; Output: 5 VDC at up to 300 mA
Size:	0.9"H x 4.3"W x 3.6"D (2.3 x 10.9 x 9.1 cm)
Weight:	0.7 lb. (0.3 kg)

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