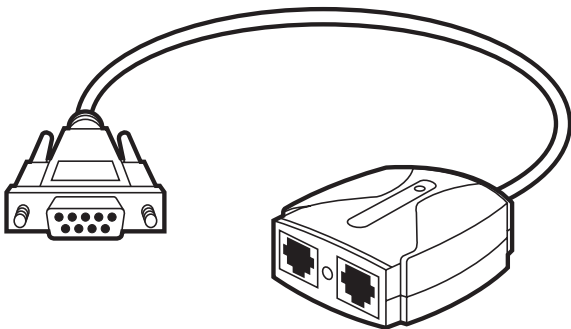




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Serial Access Unit



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**

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FEDERAL COMMUNICATIONS COMMISSION AND INDUSTRY CANADA RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

NORMAS OFICIALES MEXICANAS (NOM) ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.
2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.
3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.
4. Todas las instrucciones de operación y uso deben ser seguidas.
5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..
6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.
7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.
8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.
9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico debe ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.
11. El aparato eléctrico deberá ser conectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.
12. Precaución debe ser tomada de tal manera que la tierra física y la polarización del equipo no sea eliminada.
13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.
14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.
15. En caso de existir, una antena externa deberá ser localizada lejos de las líneas de energía.
16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.
17. Cuidado debe ser tomado de tal manera que objetos líquidos no sean derramados sobre la cubierta u orificios de ventilación.
18. Servicio por personal calificado deberá ser provisto cuando:
 - A: El cable de poder o el contacto ha sido dañado; u
 - B: Objetos han caído o líquido ha sido derramado dentro del aparato; o
 - C: El aparato ha sido expuesto a la lluvia; o
 - D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o
 - E: El aparato ha sido tirado o su cubierta ha sido dañada.

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1. Specifications

Connectors: (2) RJ-14, (1) DB9 female

Indicators: (2) LEDs: (1) blinks when power is on or characters are received or transmitted, (1) blinks when power is on and changes to solid OFF once the main system detects and enables the Serial Access Unit

Size: 1"H x 1.6"W x 2"D (2.5 x 4.1 x 5.1 cm);
Integral cable length: 10" (25.4 cm)

Weight: 3 oz. (85 g)

2. Overview

The Serial Access Unit connects to the R-port on the 8- or 16-Port ServSwitch EC Series IP KVM Switch (KV9308A-R2 or KV9316A-R2). The other end of the Serial Access Unit has an RS-232 port that connects an RS-232 serial device, such as a computer. Control and monitor up to 16 devices via the RS-232 serial ports. Cascade up to 16 Serial Access Units to one ServSwitch. Connect the RS-232 serial ports to computers, routers, or other serial devices that require interactive login.

Figure 2-1 shows the Serial Access Units connected to the RS-232 ports of various devices you could access from the ServSwitch. Serial Access Units connect together in a daisychain configuration.

8-Port ServSwitch EC Series IP KVM Switch (KV9308A-R2)

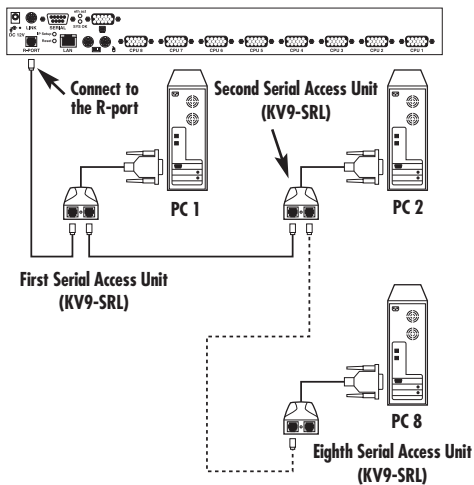


Figure 2-1. Connecting Serial Access Units and serial devices to the 8-Port ServSwitch EC Series IP KVM Switch (KV9308A-R2).

3. Installation

1. To attach the first R-port compatible device, connect the RJ-14 cable (included) to the R-port on the 8- or 16-Port ServSwitch™ EC Series IP KVM Switch (KV9308A-R2 or KV9316A-R2).
2. Connect the opposite end of the RJ-14 cable to the Serial Access Unit's RJ-14 port.

NOTE

There are two RJ-14 ports on the Serial Access Unit. Both function identically, so you can choose either one.

3. Connect the Serial Access Unit's DB9 female connector to the device's serial port.
4. To link a second device, you'll need a second Serial Access Unit. Connect one end of the RJ-14 cable to one of the second Serial Access Unit's RJ-14 ports. Attach the other end of this cable to one of the first Serial Access Unit's RJ-14 port.

Connect the Serial Access Unit's DB9 female connector to the second device's serial port.

5. The LED on the Serial Access Unit's top panel will blink once or twice when the unit is first powered on, and then it changes to solid OFF. When characters are received or transmitted, this LED will blink ON. The other LED blinks when first powered on and changes to solid OFF once the main system detects the Serial Access Unit and enables it.
6. Login to the Serial Access Unit as admin. From the attached ServSwitch software's Home screen's Admin menu, click on **Serial Ports**.
7. The Serial Access Units will be listed. To access these units, make sure that the connection speed and other settings on the menu match the requirements of the device you are controlling.
8. Click on the **Connect** button to begin a terminal session.

4. Settings

Once you connect to a terminal session as described in **Chapter 3**, a table with all attached serial devices appears. Each attached device has one line in the table. If you are logged in as the admin user, you can edit any of the fields in the table. However, regular users can't change any configuration.

To edit this table (if you are the admin user), simply change all the values you want, then press **Commit Change**. When the unit finds errors, it reports them, but other changes that you've made will still go through.

The table columns are described next.

#: This is a user-defined number from 1 to 99 that identifies a channel number and forces the table into a particular order. It's only used to sort the list, so feel free to use non-consecutive numbers, etc.

Name/Description: This is user-defined text that labels what's being controlled.

SERIAL ACCESS UNIT

Baud (bps): This is the RS-232 communication rate for the port. Set this to match the device you're controlling. The Serial Access Unit supports all common baud rates between 300 and 115,200 bps.

Mode: This indicates the character framing rules for the RS-232 connection. Most connections are 8N1, meaning 8 data bits, no parity, and 1 stop bit. The Serial Access Unit supports the following modes:

- 8N1, 8O1, 8E1, 8M1, 8S1: 8 data bits; none, odd, even, mark, or space parity; 1 stop bit.
- 7N1, 7O1, 7E1, 7M1, 7S1: 7 data bits; none, odd, even, mark, or space parity; 1 stop bit.
- 8N2: 8 data bits; no parity; 2 stop bits.

Force DCD: Force the Carrier Detect signal active at all times. Normally, DCD is asserted when a new user connects and is dropped when the last user disconnects. This is how the Serial

Access Unit emulates a modem. For some situations, this is important for security reasons, because the remote device will reset and logout a user when CD drops (hangs up). Other devices will be confused by CD, so they require DCD to be active at all times. The default setting is OFF.

Console Log: This indicates how many lines (up to 200) of console data are logged. Follow the link to see the log contents on another Web page. All characters from the RS-232 port go into the log. Once the 200-line limit is reached, old data is deleted.

Connect: This button launches a Java™ applet that connects back to the product and provides terminal emulation (VT100™/ANSI) and scroll back.

If the IPMI option is enabled, an additional two columns are shown: IPMI and BMC_Password. When IPMI is enabled on a channel, the Connect column points to another Web page instead of the SSH client (described in **Section 6.2**).

SERIAL ACCESS UNIT

IPMI: Set this to “Y” (for yes) to enable IPMI on that channel. You must set the baud rate and other details to match your IPMI host. In most cases, 19200, 8N1 (force DCD) will work.

BMC_Password: This is the login password for the BMC controller on this port’s motherboard. The password is visible when you enter it, but is not shown otherwise. Only an indicator that says whether or not the password is defined shows.

5. Login to the Java SSH Console

When you click on the **Connect** button, two new windows open as shown in Figure 5-1. One is a large terminal window with a black background. The other window is a login prompt. (This is required because the Java program is connecting via SSH back to the machine.) You must enter a username (or admin) and password to proceed. Once you log in, the small window closes and the main window becomes active.

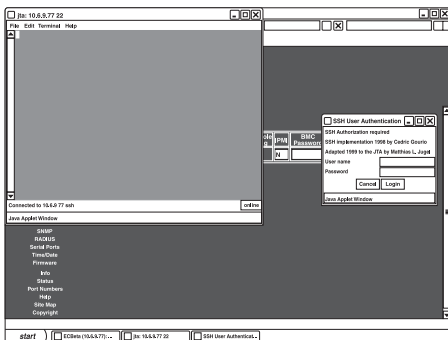


Figure 5-1. Terminal and login windows.

SERIAL ACCESS UNIT

Output from the system will always be shown in green. At the beginning, a small banner with port name and baud rate is shown. You are now connected interactively with the RS-232 port connected to this Serial Access Unit. Anything you type will be output. Any characters received will appear on the screen when they arrive.

A simple menu system of one-character commands is available. Press **Ctrl + Shift + _** (**underscore**) to access the menu shown in Figure 5-2.

```
Baud rate:115200 bps, 8N1
Connected to #1: ?Rextron... (Press Ctrl-Shift for menu.)

RS-232 menu (#1: ?Rextron, 115200 bps, 8N1)
Q - Disconnect
# - Send break
H - Hangup line (drop DCD)
E - Send Ctrl-Shift
L - Show log entries (line buffer)
I - Show last 10 log entries
other - Return to connection
Press key -> q

Disconnected.
█
```

Figure 5-2. RS-232 menu.

Several simple one-character commands are shown in the RS-232 menu. Press the key corresponding to the command you want to activate. If you press the command within two seconds after pressing **Ctrl + Shift + _**, the menu won't be shown and the command executes immediately.

To end the connection, press **Ctrl + Shift + _**, then type Q.

6. Using IPMI

When the IPMI option is enabled, additional columns appear in the main configuration table. Follow the link for **Sensor report** to control the indicated machine. A sensor report for all sensors on the BMC appears on this page. Also, the following **Chassis Control** commands are available at the top of the page.

6.1 Chassis Control Commands

- Hard Reset
- Power Cycle
- Turn ON
- Turn OFF
- Pulse diag int: This causes an NMI fault (a non-maskable interrupt). Plus, it might reset the machine.
- Graceful OFF: This command tells the operating system to shut down.

NOTE

Unfortunately, most of these commands are not implemented by current IPMI systems. You will find that most of them don't work in all circumstances.

6.2 Remote SSH Login

You can bypass the Web page and log in directly using SSH. You will need an SSH client (not included, but many free SSH clients are available on the Web). Use the SSH client to connect to the system's port 22. With the appropriate username/password, you can login to the Linux[®] operating system running on the computer.

Use the Connect command to connect to any Serial Access Unit. To list all units attached and their baud rates, use the Connect-l command. The list appears as shown in Figure 6-1.

SERIAL ACCESS UNIT

```
# connect-1  
5 active units
```

Ch#	Name	Serial	#Settings
1:	(none)	01e1e088090000b2	115200 bps, 8N1
2:	(none)	018007890900042	115200 bps, 8N1
3:	(none)	0184e0880900009a	115200 bps, 8N1
4:	(none)	01f6f28809000093	115200 bps, 8N1
5:	(none)	0130098909000e7	115200 bps, 8N1

Figure 6-1. Connect-1 list of active units.

Using `connect X`, where *X* is a channel number (1 to 5, in the above example) or the channel name, you can connect interactively to any Serial Access Unit. You can also access the same RS-232 command menu by pressing **Ctrl + Shift + _**.

7. Reminders

Hardware handshaking (CTS/RTS) is required at speeds over 9600 bps. It's always enabled at the Serial Access Unit, but your serial device may require setup to enable handshaking on the other end of the connection. For UNIX® systems, the command is:

```
stty -crtcts </dev/(serial port)
```

The Serial Access Units network is a simple RS-485 multidrop network running at 115,200 bps. Not all Serial Access Units will be outputting/inputting data at maximum speed (115,200 bps) all the time. The maximum speed is intended to be used for interactive login, and not all the channels will be busy at the same time. Hardware handshaking limits individual channels' output rates.

Up to four users can connect at once to the same serial port. All users may type commands at any time, and all will see the same output.

All users have equal access to all channels.

SERIAL ACCESS UNIT

A maximum of 16 Serial Access Units can be attached at once.

You can plug and re-plug the Serial Access Unit at any time. No data will be lost and new nodes will be auto-detected within 15 seconds. If disconnected and reconnected, log entries will not be lost, but they're inaccessible while the unit is unplugged.

Appendix. RJ-14 Connectors

Use four-conductor telephone wire and RJ-14 connectors. These are the connectors used on telephone handsets (between the phone base and the receiver that you hold in your hand). Some references call them 4P4C connectors (4 positions, 4 conductors) and regular RJ-11 connectors are called 6P4C connectors (6 positions, 4 conductors, although only 2 are actually used).

This application requires a 1-to-1 pinout. If you hold up 2 of the RJ-14 ends, both oriented the same way, pin 1 (from the left) of one connector should connect to pin 1 (from the left) of the other one. This is the opposite of normal telephone wires which have reversed pinouts. If you are using silver telephone wire, you will see a seam on one side and not the other. When you insert the wire into the modular plug for crimping, one end should have the seam up and the other down. This creates a 1-1 pinout.