

2/4/8/16-Port Secure KVM Remote Control Port User Guide

How to Use an RS232 Serial Connection
to Control Your Secure KVM Remotely

Secure. Certified. Connected.



Supported Models

Belkin's Universal DisplayPort and 2nd Gen Secure KVM switches feature a remote control port on the back for connecting to remote control devices such as remotes, certain AV equipment, and computers with TTY terminal access. Remote control commands use the RS232 protocol to replicate the actions of the switch's front panel buttons or keyboard shortcuts. This guide covers how to connect a Belkin SKVM to a remote control device (including instructions for building an adapter if one is unavailable), as well as the communication settings and commands to use with the SKVM.

This guide applies to the following SKVM models:

Universal DisplayPort Secure KVMs

- F1DN102KVM-DC-4
- F1DN102KVM-D-4
- F1DN202KVM-DC-4
- F1DN202KVM-D-4
- F1DN104KVM-DC-4
- F1DN104KVM-D-4
- F1DN204KVM-DC-4
- F1DN204KVM-D-4
- F1DN108KVM-DC-4
- F1DN208KVM-DC-4
- F1DN104KVMDCU-4
- F1DN204KVMDCU-4

Universal 2nd Gen Secure KVMs

- | | | |
|-------------------|-------------------|-------------------|
| • F1DN102KVM-UN-4 | • F1DN202KVM-UN-4 | • F1DN202KVM-UN4W |
| • F1DN102KVM-UNN4 | • F1DN202KVM-UN4C | • F1DN104KVM-UN4W |
| • F1DN102KVM-UN4C | • F1DN202KVM-UN4Z | • F1DN204KVM-UN4W |
| • F1DN102KVM-UN4Z | • F1DN202KVM-UNN4 | • F1DN108KVM-UN4W |
| • F1DN104KVM-UN-4 | • F1DN204KVM-UN-4 | • F1DN208KVM-UN4W |
| • F1DN104KVM-UNN4 | • F1DN204KVM-UNN4 | • F1DN102KVMUNN4W |
| • F1DN104KVM-UN4C | • F1DN204KVM-UN4C | • F1DN202KVMUNN4W |
| • F1DN104KVM-UN4Z | • F1DN204KVM-UN4Z | • F1DN104KVMUNN4W |
| • F1DN104KVMUNN4Z | • F1DN204KVMUNN4Z | • F1DN204KVMUNN4W |
| • F1DN108KVM-UN-4 | • F1DN208KVM-UN-4 | • F1DN108KVMUNN4W |
| • F1DN108KVM-UN4Z | • F1DN208KVM-UN4Z | • F1DN208KVMUNN4W |
| • F1DN116KVM-UN-4 | • F1DN102KVM-UN4W | |

DisplayPort MultiClave Secure KVMs

- F1DN104MVKVMDC4
- F1DN108MVKVMDC4

Connecting the Remote Control

To connect a USB remote control to the SKVM's RJ11 port, Belkin offers a pre-made USB-to-RS232 cable (F1DN-RC-USB-CBL). This cable generates a serial communication port from the USB devices, which it uses to open a remote-control session for a controlling PC.

The pinout for this cable is as follows:

Connector Pin	Cable Line
Pin 1	N/A
Pin 2	N/A
Pin 3	N/A
Pin 4	Ground
Pin 5	RX
Pin 6	TX
Pin 7	N/A
Pin 8	N/A
Pin 9	N/A



F1DN-RC-USB-CBL

Creating a USB-to-RS232 Adapter Cable

If a Belkin USB-to-RS232 adapter cable is unavailable, a USB-A cable can be adapted with an RJ11 male plug using the following connections:

USB Cable Color	RJ11 Connector	Function
Red	Pin 1	+5V
White	Pin 2	TTL Transmit
Blue	Pin 3	TTL Receive
Black	Pin 4	RS232 Transmit
Green	Pin 5	RS232 Receive
Shielding	Pin 6	Ground

Serial Communication Settings

Once the remote control is connected to the SKVM, the communication settings are as follows:

- **Speed (baud):** 115200
- **Parity:** None
- **Flow Control:** None

Keep-Alive Event Settings

Once the connection is open, the SKVM will begin sending Keep-Alive events to the control device to communicate its status using the RS232 protocol.

By default, the SKVM sends a Keep-Alive event once every 5 seconds. The interval can be changed by using a TTY terminal program and the command **#ANATA** followed by the desired interval (expressed in increments of 0.1 seconds, to a maximum of 9.9 seconds expressed as **#ANATA 99**).

Examples:

- **#ANATA 1** Set the Keep-Alive interval to 0.1 seconds.
- **#ANATA 5** Set the Keep-Alive interval to 0.5 seconds.
- **#ANATA 30** Set the Keep-Alive interval to 3 seconds.

Channel Switching

A controller can be programmed to send commands to the SKVM to switch channels, replicating the action of pressing one of the channel select buttons.

To switch channels with a controller, enter the command **#AFP_ALIVE** followed by a space and the corresponding argument.

Channel Switching Commands for SKVMs

Channel	Command
1	FE
2	FD
3	FB
4	F7
5	EF
6	DF
7	BF
8	7F
9	FF
10	FDFF
11	FBFF
12	F7FF
13	FEFF
14	DFFF
15	BFFF
16	7FFF

Examples:

- **#AFP_ALIVE FE** Channel 1
- **#AFP_ALIVE 7F** Channel 8
- **#AFP_ALIVE 7FFF** Channel 16

Channel Switching Commands for MultiClave SKVMs

Belkin's MultiClave SKVMs have two sets of buttons, with one set on the left side of the front panel and one set on the right side to switch channels for two video displays independently.

To switch channels on a MultiClave SKVM, enter the command **#AFP_ALIVE** followed by a space and the corresponding argument:

Channel	Left Side	Right Side
1	FFFFFFFE	FFFFFFFB
2	FFFFFFFD	FFFFFFF7
3	FFFFFFEF	FFFFFFBF
4	FFFFFFDF	FFFFFF7F
5	FFFEFFE	FFFBFFB
6	FFFDFFD	FFF7FF7
7	FFEFEFE	FFBFFBF
8	FFDFFDF	FF7FF7F

Examples:

- **#AFP_ALIVE FFFFFFFE** Channel 1 (Left Side)
- **#AFP_ALIVE FFFFFFF7** Channel 2 (Right Side)
- **#AFP_ALIVE FFEFEFE** Channel 7 (Left Side)
- **#AFP_ALIVE FFBFFBF** Channel 7 (Right Side)

Enable/Disable Audio Freeze and CAC Freeze

To freeze the audio on a selected channel, enter the command **#ANATR 4F**.

To freeze the DDP/CAC input on a selected channel, enter the command **#ANATR 50**.

To disable audio or CAC freeze, enter the freeze command a second time.

MultiClave SKVM Operation Commands

Belkin's MultiClave SKVM switches can be controlled with RS232 commands that replicate the function of keyboard shortcuts.

Action	Command
Activate On-screen Display	#ANATR o
Reset to Factory Default	#ANATL F11 r
Mouse Navigation	Command
Relative Mouse	#ANATL F11 b
Absolute Mouse	#ANATL F11 c
Default Vertical Mouse Navigation (screen 1 on bottom)	#ANATL F11 d n
Inverted Vertical Mouse Navigation (screen 1 on top)	#ANATL F11 d r
Display Resolution / EDID	Command
Select Input Resolution / EDID	#ANATL F12 d [1...7] 1. 3840x2160/30Hz 2. 3440x1440/30Hz 3. 2560x1600/60Hz 4. 2560x1440/60Hz 5. 2048x2048/60Hz 6. 1920x1200/60Hz 7. 1920x1080/60Hz
Select Output Resolution / EDID	#ANATL F11 d [1...8] 1. 2048x2048 2. 3840x1080 3. 2560x1440 4. 2560x1600 5. 1920x1080 6. 1920x1200 7. 3440x1440 8. 3840x2160

Display Resolution / EDID (continued)	Command
Enable EDID Pass-Through	#ANATL F12 d e
Disable EDID Pass-Through	#ANATL F12 d d
Enable Retain EDID after Power Cycle	#ANATL F12 r e
Disable Retain EDID after Power Cycle	#ANATL F12 r d
Maintain Aspect Ratio	#ANATL a e
Disable Aspect Ratio	#ANATL a d
Screen Mode	Command
Single Screen / Duplicate Mode	#ANATL F11 s 1
Extended Mode (Horizontal)	#ANATL F11 s 2
Extended Mode (Vertical)	#ANATL F11 s 3
Viewing Mode	Command
Full-screen View	#ANATL f
Matrix / Side-by-Side View	#ANATL x
Tile / Quad View	#ANATL q
Scale View	#ANATL s
Picture-in-Picture View	#ANATL F11 x

Appendix

Command Structure for Kramer, Crestron, and Extron Remote Controls

Depending on the manufacturer, some controlling devices may require certain characters when entering a command. The following are command structures for the most common control devices.

Function	Description	Kramer	Extron	Crestron
Carriage Return	Return the text cursor to the beginning of the line	<cr>	<cr>	\x0d
Line Feed	Move the text cursor to the beginning of a new line	<lf>	<lf>	\x0a
Command Start	Begin a new command	-	-	#
Space	Separate multiple command strings	-	-	\x

belkin.com/cybersecurity

Belkin International, Inc.

555 S Aviation Blvd, Suite 180
El Segundo, CA 90245-4852
USA 310-751-5569

Support

Secure SKVM/SKM Support
800-282-2355

Sales

FederalBusinessDivision@belkin.com

LinkedIn:

