

# User Manual

## Secure KVM Switch API

Adder Technology Limited

Part No. MAN-000022  
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Registered Address:  
Adder Technology Limited  
Saxon Way,  
Bar Hill, Cambridge  
CB23 8SL, UK

Adder Corporation  
24 Henry Graf Road  
Newburyport,  
MA 01950  
USA

Adder Technology  
(Asia Pacific) Pte. Ltd.,  
8 Burn Road  
#04-10 Trivex,  
Singapore 369977

## Introduction

This guide explains how to use RS-232 to remotely control an Adder Secure KVM switch (AVS-2114, AVS-2214, AVS-4114, AVS-4214), flexi-switch (AVS-4128) and multi-viewer (AVS-1124).

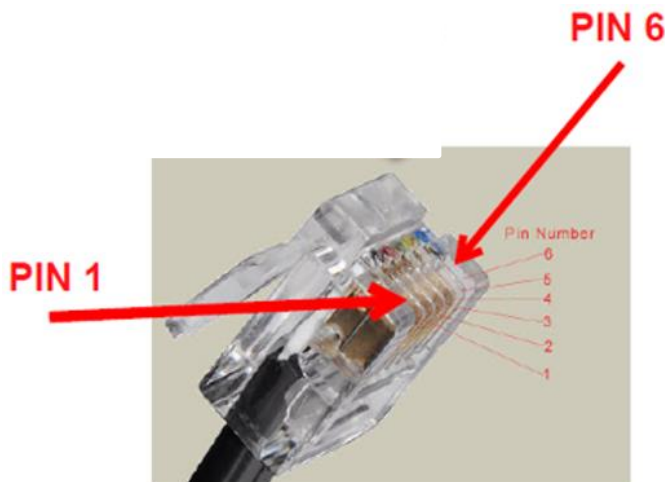
To control a switch using RS232, the user needs to connect a controlling device to the switch's RCU port. The controlling device can be a PC or any custom device with RS-232 capability.

Remote controlling means performing actions that users could otherwise do only using the front panel, including:

- Switching channels
- Audio hold
- Selecting channels to display on left and right monitors (AVS-4128 only)
- Switching KM control between left and right channels (AVS-4128 only)
- Selecting preset layouts and updating window parameters (AVS-1124 only)

## Installation

This procedure shows how to connect a switch to a remote-control device. A suitable RS232 cable will be required with an RJ12 connector to plug into the RCU port with the pinout shown below:



Pinout for the RDU port:

- Pin 1: 5V
- Pin 2: Not connected
- Pin 3: Not Connected
- Pin 4: GND
- Pin 5: RX
- Pin 6: TX

Few modern PCs have an RS232 port, so it may be necessary to use a USB or Ethernet adapter.

## Operation

Configuring Example Using the PuTTY open-source serial console utility. This procedure demonstrates how to switch channels via RS-232 using a remote control Windows PC.

### Pre-configuration

1. Install PuTTY on the remote computer.
2. Connect a serial cable from the PC's USB port to the switch's RCU port.

- 3. Run the PuTTY utility.
- 4. Configure the Serial, Terminal and Session settings, as per figures 1 to 3

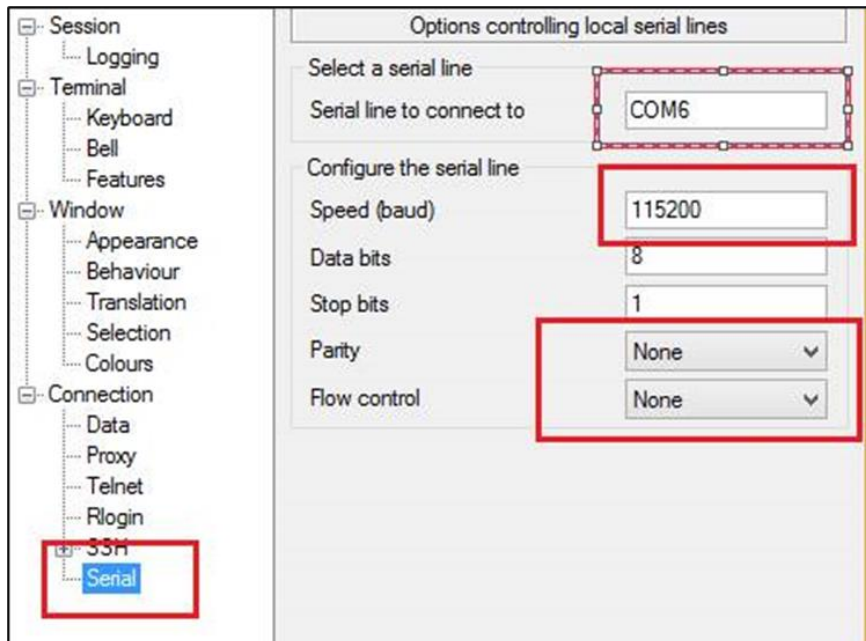


Figure 1: PuTTY Serial Settings

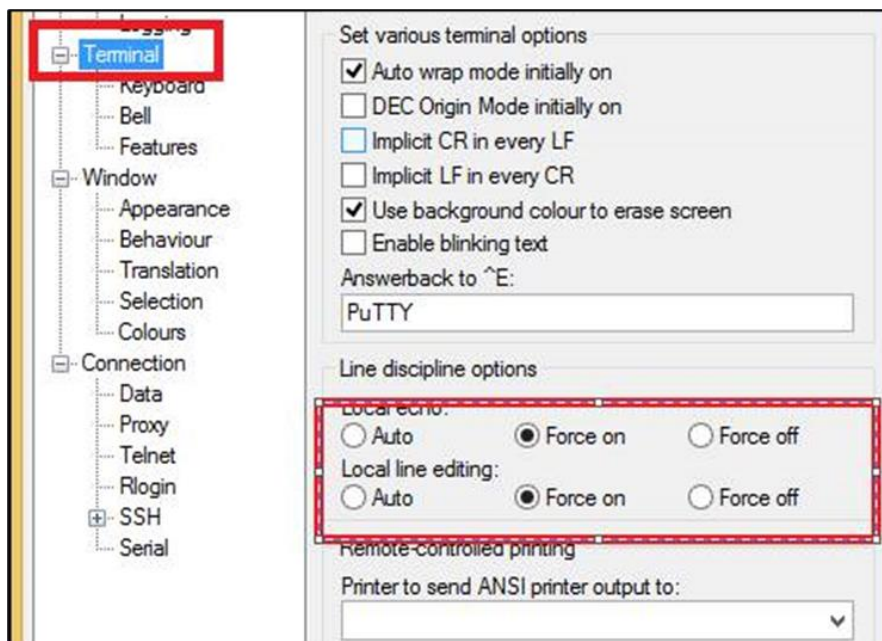


Figure 2: PuTTY Terminal Settings

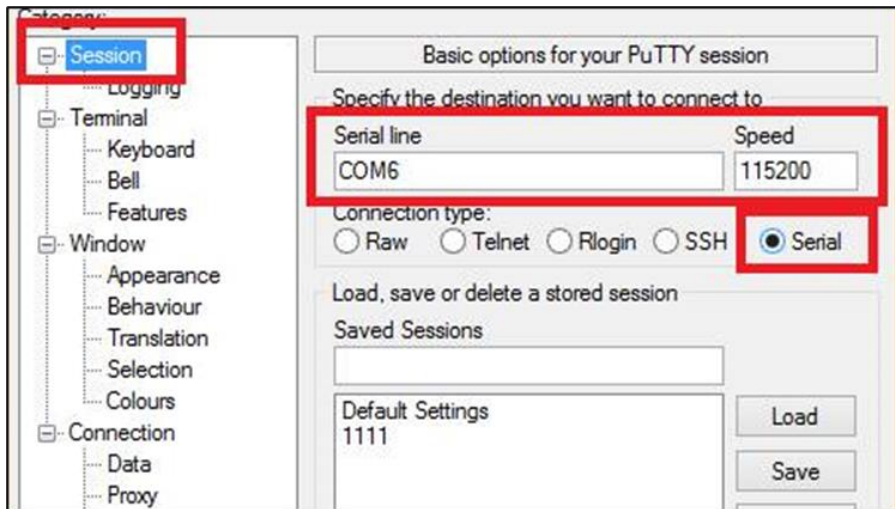


Figure 3: PuTTY Session Settings

Note: At this point, the device starts sending Keep-Alive events, every five seconds.

Keep-Alive events are transmitted by the switch periodically to communicate the current configuration. For example, to switch a KVM to Channel 4, the user types: #AFP\_ALIVE F7

Then, every five seconds, the device sends the following keep-alive event: 00@alive fffffff7 as shown in Figure 4.

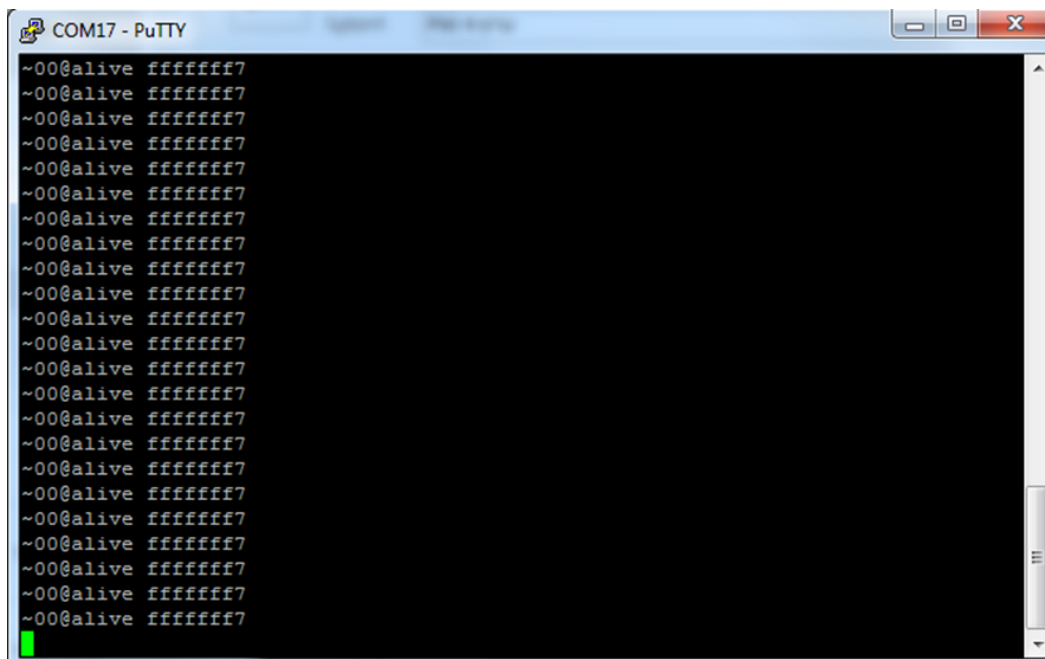


Figure 4: Keep-Alive Events

The interval time of keep-alive events can be changed, using the #ANATA command followed by a time period operand in units of 0.1 second. Thus:

- #ANATA 1 gives an interval of 0.1 seconds
- #ANATA 30 gives an interval of 3 seconds

## KVM Switches

To switch channels, enter the #AFP-ALIVE command followed by a channel number operand. For example, to switch to channel 3, enter:

```
#AFP_ALIVE FB
```

Channel #	Operand
1	FE
2	FD
3	FB
4	F7
5	EF
6	DF
7	BF
8	7F

Figure 5: KVM Switch Channel Operands

To toggle the audio hold button, enter the command #AUDFREEZE 1

## Flexi-Switch

To switch channels, enter the #AFP-ALIVE command followed by a left/right side and channel number operand. For example, to switch to channel 3 on the left monitor, enter:

```
#AFP_ALIVE FFFB
```

Left Side		Right Side	
Channel #	Operand	Channel #	Operand
1	FFFFFFE	1	FFFEFF
2	FFFFFFD	2	FFFDFF
3	FFFFFFB	3	FFFBFF
4	FFFFFF7	4	FFF7FF
5	FFFEFF	5	FFEFFF
6	FFFDFF	6	FFDFFF
7	FFFBFF	7	FFBFFF
8	FFF7FF	8	FF7FFF

Figure 6: Flexi-switch Channel Operands

Other commands:

- Toggle the audio hold button: #AUDFREEZE 1
- Toggle KM focus between left and right sides
  - Left: #AFP\_ALIVE FFFFFFF
  - Right: #AFP\_ALIVE FDFFFF

## Multi-Viewer

### Command Structure

The command structure is comprised of the following 4 fields:  
 <pre-amble> <command> <operand1> <operand2>

Where:

- There is a space between each field
- The pre-amble is either #ANATL or #ANATR, where:
  - #ANATL equals the key sequence Left CTRL | Left CTRL
  - #ANATR equals the key sequence Right CTRL | Right CTRL
- Commands require 0, 1 or 2 operands
- Command success: Upon successful command execution, the device returns the output: command + OK
- Command failure: Upon failure, the device returns the output: command + Error Message
- To initiate a new serial connection, enter #ANATF 1

### Command List

The command is a translation of the keyboard hotkey listed in an Appendix of the Multi-Viewer User Manual (MAN-000007). Example translations are:

Description	Hotkey	API Command
Load preset #3	Left Ctrl   Left Ctrl   F3	#ANATL F3
Switch to channel #4	Left Ctrl   Left Ctrl   4	#ANATL 4
Maximize active channel to full screen	Left Ctrl   Left Ctrl   F	#ANATL F

Figure 7: Example commands

The most common commands are likely to be loading a preset and positioning and resizing windows on the display. The general format of the command to move and resize a window is:

#ANATL F11 END <Channel> <Operation> <Location>

Where:

<Channel> is 1 to 4

<Operation> is:

1. Window top left X location (0 to 100%)
2. Window top left Y location (0 to 100%)
3. Window X extent as percentage of total X width
4. Window Y extent as percentage of total Y height
5. X offset (the location of the window compared to the full image size when bigger).
6. Y offset (the location of the window compared to the full image size when bigger).
7. X scaling as a percentage
8. Y scaling as a percentage

<Percent> is a 4 digit number in increments of 0.01%

Note that where dual monitors are used in Extend mode, the percentages relate to the total display size. For example, to set the window for channel 1 to occupy the 4<sup>th</sup> quadrant:

Description	API Command
Set the window top left X position at half display	#ANATL F11 END 1 1 5000
Set the window top left Y position at half display	#ANATL F11 END 1 2 5000
Set window X extent to half screen	#ANATL F11 END 1 3 5000
Set window Y extent to half screen	#ANATL F11 END 1 4 5000

Figure 8: Set Channel 1 to 4<sup>th</sup> quadrant (single monitor)

Note that the commands change slightly when using dual side by side monitors:

Description	API Command
Set the window top left X position at half display	#ANATL F11 END 1 1 2500
Set the window top left X position at half display	#ANATL F11 END 1 2 5000
Set window X extent to half screen	#ANATL F11 END 1 3 2500
Set window Y extent to half screen	#ANATL F11 END 1 4 5000

*Figure 9: Set Channel 1 to 4<sup>th</sup> quadrant of left monitor*

There is one command that doesn't adhere to the aforementioned pattern, Audio Hold. To toggle the audio hold button, enter the command:

#AUDFREEZE 1