HSL KVM Remote RS-232 Control

HDC18581 Rev. 2.0

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INTRODUCTION

HSL KVM Remote RS-232 Control

This guide explains how to enter RS-232 commands to a High Sec Labs KM, KVM, Mini-Matrix, Combiner, or Ultra Mini-Matrix switch (hereafter referred to as a **switch**).

To control an HSL switch using RS-232, connect a controlling device to the RS-232 port of the switch. The controlling device can be a PC or any custom device with RS-232 capability and will hereafter be referred to as a **Remote Control Unit** or **RCU**.

Remote controlling means performing actions that could otherwise only be done using the front panel, including selecting channels, or freezing the audio, keyboard/mouse, or USB inputs on a switch.

Note: This manual is relevant for both HSL's secure and commercial product lines.

Connect a Switching Device to a Remote-Control Unit

This procedure shows how to connect a Remote-Control Unit to a switch.

Required Hardware:

If the RCU does not have an RJ14 plug to connect to the switch's RCU port, use HSL's RJ14-to-serial cable (Part Number CPN22935), or create an adapter with an RJ14 plug on one end and a serial RS-232 (DB9) plug on the other, as shown below:

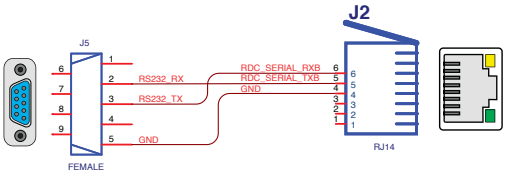


***Fig 1**: RJ14-to-RS-232 Adapter Cable*

The pinout for the RCU is as follows:

- Pin 1: 5V power
- Pin 2: Not connected
- Pin 3: Not connected
- Pin 4: Ground
- Pin 5: Rx
- Pin 6: Tx

Note: If working in a PC environment with a device that has a USB port and no serial RS-232 port, connect a standard USB-to-serial cable adapter, as shown below:

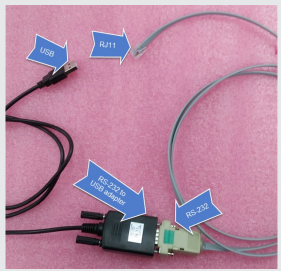


***Fig 2**: USB-to-RS-232 Adapter Cable*

Connect the RCU:

Using the RJ14-to-RS-232 cable shown in Fig 1, connect to the switch via the RCU port.

If using an RCU with an RS-232 port, connect the RS-232 (DB9) plug directly to the RS-232 port.

If using an RCU with a USB port, connect the USB-to-serial adapter shown in Fig 2 to connect to the RCU's USB port.

Control a KVM Using a Windows PC and PuTTY

It is possible to use a Windows PC to select channels on an HSL switch via RS-232. This is done using a serial terminal program like PuTTY.

Required Hardware:

- Windows PC
- Remote Control Unit
- RJ14-to-serial cable
- USB-to-serial cable

Required Software

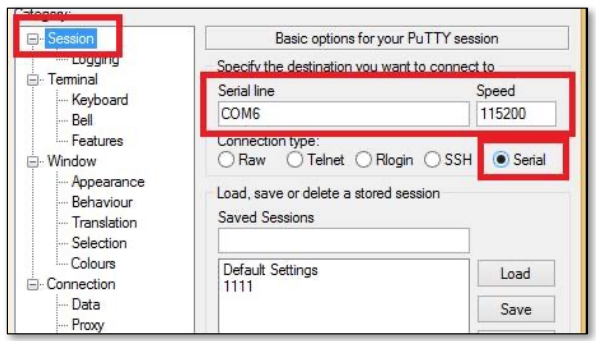
- Windows 10 or higher
- PuTTY serial terminal program

Connect the PC to the Switch

- Connect the USB-to-serial cable to the PC via the USB connector.
- Connect the USB-to-serial cable to the RJ14-to-serial cable via the serial connectors.
- Connect the RJ14-to-serial connector to the switch via the RJ-14 port.

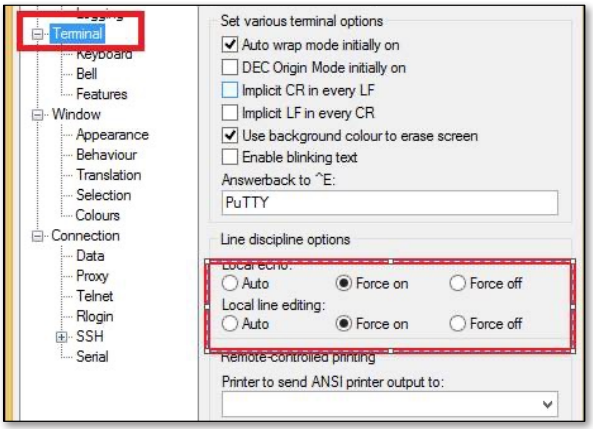
Configure the Connection via PuTTY

- Open the PuTTY serial terminal.
- In the bold text category, select **Serial** as the connection type.
- Select the corresponding COM port (this can be found via the PC's Device Manager).
- Set the speed to 115200.



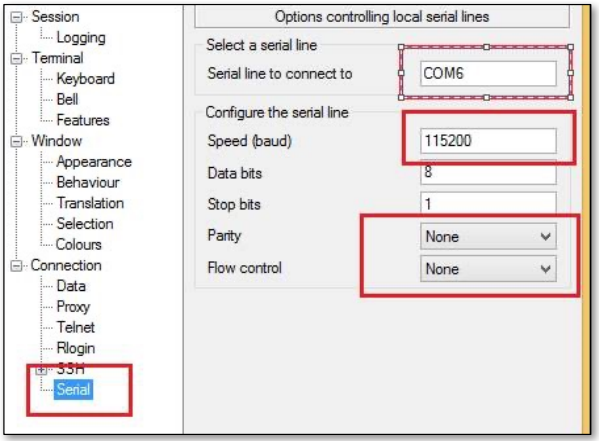
OPERATION

- In the **Terminal** category, under Line Discipline Options, toggle Local Echo and Local Line Editing to "**Force On**."



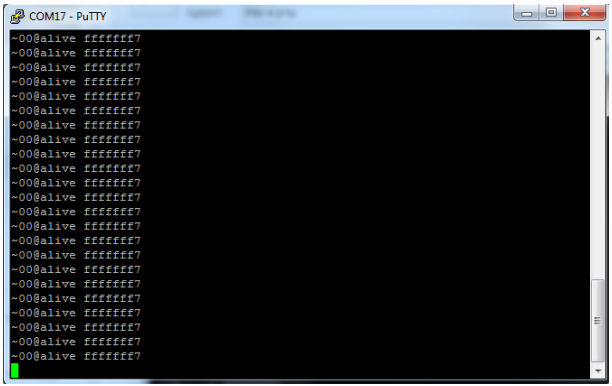
- In the **Connection** category, in the **Serial** sub-category, ensure the correct COM port is selected and the speed (baud) is set to 115200.
- Set the Parity and Flow control to "**None**."

- Click **Open** to open the connection.



OPERATION

Once the connection is open, the **Switch** will begin sending keepalive events to the RCU to communicate its status.



Enter RS-232 Commands

Entering an RS-232 command into the keepalive sequence can replicate the action of pressing one of the switch's front panel buttons. Because these commands are related to the buttons on the switch's front panel, they are constructed as **#AFP_ALIVE** followed by the command-line argument corresponding to the selected channel.

For example, to switch to Channel 4 on the left side of a 4-port Mini-Matrix, enter the command **#AFP_ALIVE FFF7**.

RS-232 commands can also be used to change the interval of keepalive events. This is done by entering the command **#ANATA** followed by a number between 1 and 99, with 1 equal to 100 milliseconds.

For example, to change the interval of keepalive events to 5 seconds, enter the command **#ANATA 50**.

Remote Control Units can be programmed to send RS-232 commands with a single button-press. For further information on how to program a Remote Control Unit, see the Programmable Remote Control Unit User Manual, which can be found here: https://highseclabs.com/wp-content/uploads/2020/10/HLT36829_HSL_UM_Programmable_RC_Rev1.0.pdf

Send RS-232 Commands to a KM or KVM Switch

To replicate the front panel buttons of a KM or KVM Switch using RS-232, enter the **#AFP_ALIVE** command with the following arguments:

Front Panel Button	Command Argument
Channel 1	FE
Channel 2	FD
Channel 3	FB
Channel 4	F7
Channel 5	EF
Channel 6	DF
Channel 7	BF
Channel 8	7F

Send RS-232 Commands to a 4-Port Mini-Matrix

The 4-port Mini-Matrix has two sets of buttons, with one set on the left side of the front panel and one set on the right side.

To replicate the front panel buttons of a 4-port Mini-Matrix using RS-232, enter the **#AFP_ALIVE** command with the following arguments:

Front Panel Button	Left Side	Right Side
Channel 1	FFFE	FFEF
Channel 2	FFFD	FFDF
Channel 3	FFFB	FFBF
Channel 4	FFF7	FF7F
Keyboard/Mouse Freeze Toggle	FDFF	FEFF
Audio Freeze Toggle	FBFF	F7FF
USB Freeze Toggle	EFFF	DFFF

Note: To freeze the keyboard/mouse, audio, or USB to the left or right side, enter the respective toggle command twice. Entering the command a third time will unfreeze.

For example, to freeze the audio to the left side of a 4-port Mini-Matrix, enter the command **#AFP_ALIVE FBFF** twice. Entering **#AFP_ALIVE FBFF** again will unlock the audio.

Send RS-232 Commands to an 8-Port Mini-Matrix

The 8-port Mini-Matrix has two sets of buttons, with one set on the left side of the front panel and one set on the right side.

To replicate the front panel buttons of an 8-port Mini-Matrix using RS-232, enter the **#AFP_ALIVE** command with the following arguments:

Front Panel Button	Left Side	Right Side
Channel 1	FFFFFE	FFFEFF
Channel 2	FFFFFD	FFFDFF
Channel 3	FFFFFB	FFFBFF
Channel 4	FFFFF7	FFF7FF
Channel 5	FFFFEF	FFEFFF
Channel 6	FFFFDF	FFDFFF
Channel 7	FFFFBF	FFBFFF
Channel 8	FFFF7F	FF7FFF
Keyboard/Mouse Freeze Toggle	FEFFFF	FDFFFF
Audio Freeze Toggle	FBFFFF	F7FFFF
USB Freeze Toggle	EFFFFF	DFFFFF

Note: To freeze the keyboard/mouse, audio, or USB to the left or right side, enter the respective toggle command twice. Entering the command a third time will unfreeze.

For example, to freeze the audio to the left side of an 8-port Mini-Matrix, enter the command **#AFP_ALIVE FBFFFF** twice. Entering **#AFP_ALIVE FBFFFF** again will unlock the audio.

Send RS-232 Commands to a KVM Combiner or Ultra Mini-Matrix

To replicate the front panel buttons of a KVM Combiner or Ultra Mini-Matrix using RS-232, enter the **#AFP_ALIVE** command with the following arguments:

Front Panel Button	Command Argument
Channel 1	FFFFFFFE
Channel 2	FFFFFFFD
Channel 3	FFFFFFFB
Channel 4	FFFFFFF7
8/16-Port Models Only	
Channel 5	FFFFFFEF
Channel 6	FFFFFFDF
Channel 7	FFFFFFBF
Channel 8	FFFFFF7F
16-Port Models Only	
Channel 9	FFFEFFFE
Channel 10	FFFDFFFD
Channel 11	FFFBFFFB
Channel 12	FFF7FFF7
Channel 13	FFEFFFEF
Channel 14	FFDFFFDF
Channel 15	FFBFFFBF
Channel 16	FF7FFF7F

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