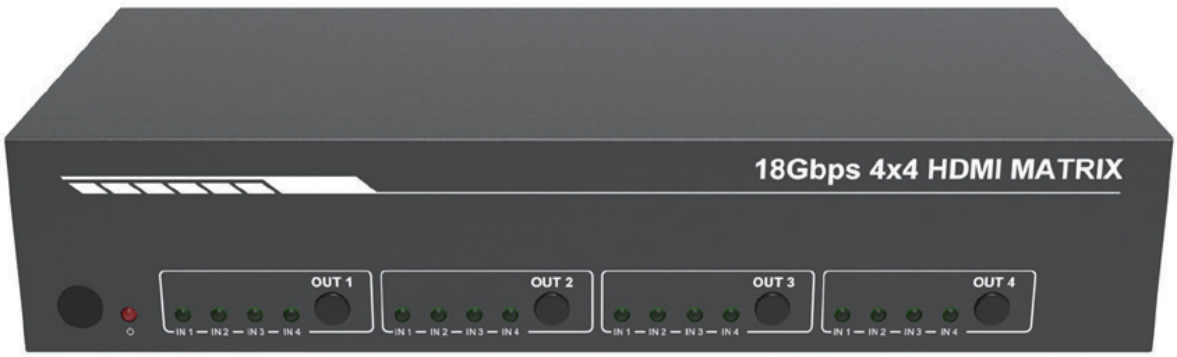
BLACKBIRD™



4K 4x4 HDMI® Matrix

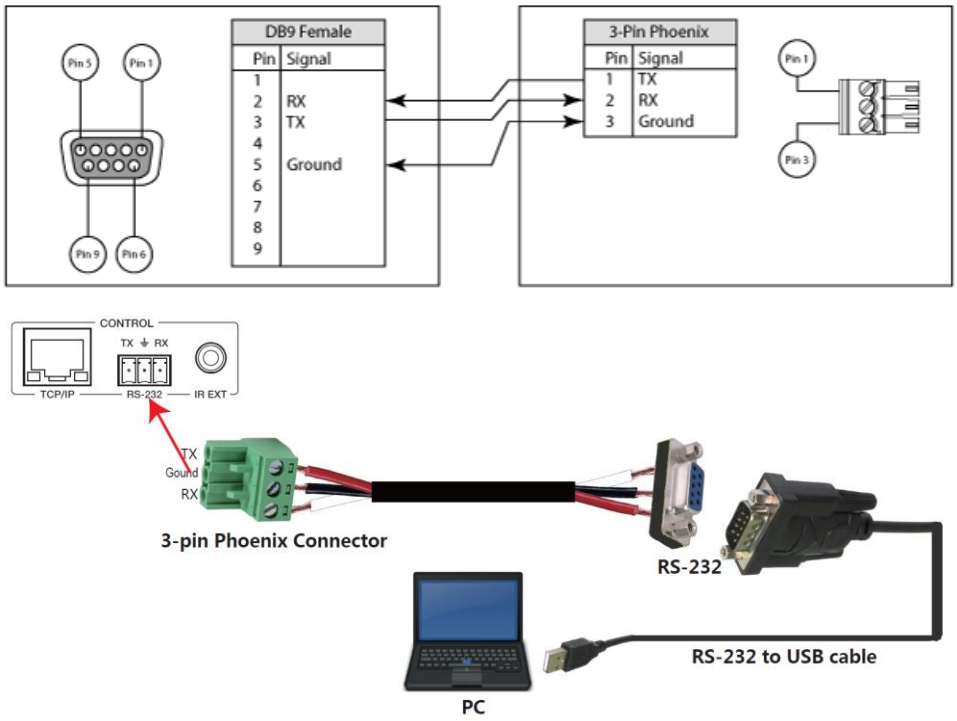
PN 15750 〈 *RS-232 GUIDE*

INTRODUCTION

This Blackbird™ device can be controlled by a computer using an RS-232 serial connection and by issuing commands using RS-232 control software.

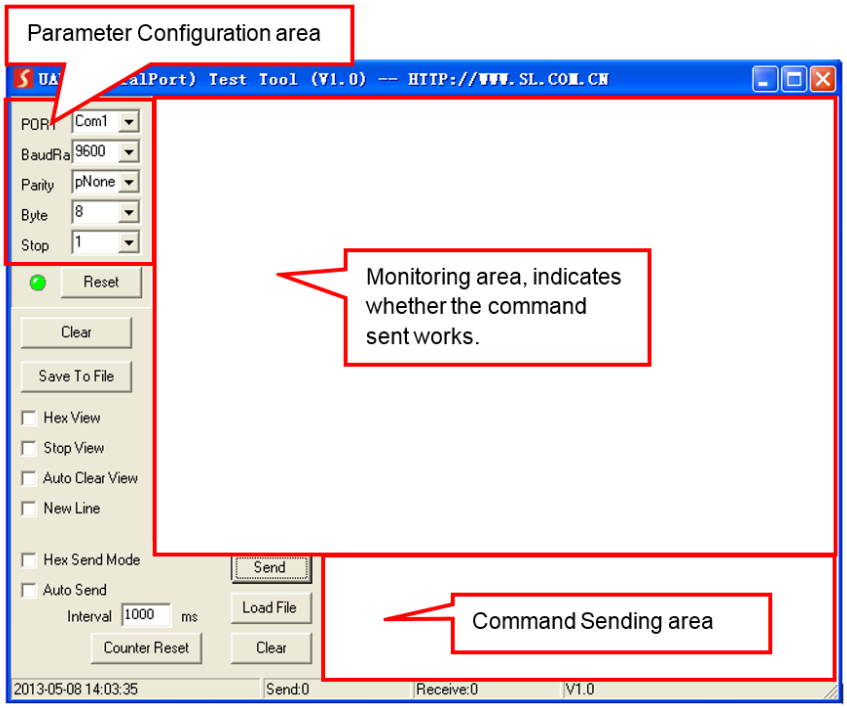
CONNECTION

This device includes a **3-pin Euroblock Terminal**. Use this terminal to construct an RS-232 cable, which can be used to connect your PC to the matrix to allow for matrix control. The following images show how to create and connect an RS-232 cable. If your PC lacks a DB-9 serial port, you will need to use a USB to Serial adapter cable (available separately P/N 3726).



SOFTWARE

This device does not include either a built-in control system or custom RS-232 control software. If you wish to control this device from your PC using an RS-232 connection, you will need to use a third party RS-232 control software package, such as **CommWatch.exe**, whose interface is depicted below.



Set the communications parameters to the following:

Baud Rate: 115200

Data Bits: 8

Stop Bits: 1

Parity Bits: None

TCP/IP Port: 8000

RS-232 COMMANDS

The following guidelines apply to the RS-232 control commands.

1. The brackets **[** and **]** in the commands are for clarity purposes to make the variable more obvious. Do not type these symbols when typing the commands.
2. Other than the brackets, type in all commands exactly as they appear, including any spaces. These commands are case sensitive and require the trailing exclamation point (!) as part of the command.
3. Disconnect all HDBaseT™ receivers from the matrix/transmitter prior to performing any of the upgrade commands.

Power Commands		
Command	**Function**	**Feedback Example**
s power [z]!	Power the device on or off. (z=0~1, where 0 is off and 1 is on)	power on System Initializing... Initialization Finished! power off
r power!	Displays the current power status.	power on / power off
s reboot!	Reboots the device.	Reboot... System Initializing... Initialization Finished!
System Commands		
help!	Lists all commands	
r type!	Displays the device model designation.	HDP-MXB44P

Command	Function	Feedback Example
r status!	Displays the current device status.	Get the unit all status: power, beep, lock, in/out connection, video/audio crosspoint, edid, scaler, hdcp, network status
r fw version!	Displays the firmware version.	MCU FW version x.xx.xx
r link in [x]!	Displays the connection status of input port **[x]**. (x=0~4, where 0 is all ports)	hdmi input 1: connect
r link out [y]!	Displays the connection status of output port **[y]**. (y=0~4, where 0 is all ports)	hdmi output 1: connect
s reset!	Resets the device to its factory default settings.	Reset to factory defaults System Initializing... Initialization Finished!
s beep [z]!	Enable or disable the buzzer function. (z=0~1, where 0 is off and 1 is on)	beep on
r beep!	Displays the buzzer status.	beep off
s lock [z]!	Locks or unlocks the front panel buttons. (z=0~1, where 0 is off and 1 is on)	panel button lock on
r lock!	Displays the panel button lock status.	panel button lock off
s save preset [z]!	Saves the current connection settings to preset **[z]**. (z=1~4)	save to preset 1
s recall preset [z]!	Loads the connection settings from preset **[z]**. (z=1~4)	recall from preset 1

Command	Function	Feedback Example
s clear preset [z]!	Deletes the saved connection settings of preset **[z]**. (z=1~4)	clear preset 1
r preset [z]!	Displays the connection settings for preset **[z]**. (z=1~4)	video/audio crosspoint
s baud rate [z]!	Sets the serial port baud rate. (z=115200, 57600, 38400, 19200, 9600, or 4800)	Baudrate: 115200
r baud rate!	Displays the serial port baud rate.	Baudrate: 115200
s id [z]!	Sets the control ID for the device. (z=000~999)	id 888
Output Commands		
s in [x] av out [y]!	Connects input **[x]** to output **[y]**. (x=1~4, y=0~4, where 0 is all outputs)	input 1 -> output 2
r av out [y]!	Displays the connection settings for output **[y]**. (y=0~4, where 0 is all outputs)	input 1 -> output 1 input 2 -> output 2 input 3 -> output 3 input 4 -> output 4
s hdmi [y] stream [z]!	Enables or disables the stream for output **[y]**. (y=0~4, where 0 is all outputs)	enable hdmi all outputs stream
r hdmi [y] stream!	Displays the stream status for output **[y]**. (y=0~4, where 0 is all outputs)	enable hdmi output 1 stream
s hdmi [y] scaler [z]!	Sets the scaler mode for HDMI® output **[y]**. (y=0~4, where 0 is all outputs, z=1~3, where 1=bypass, 2=4K -> 1080p, and 3=auto)	hdmi all outputs set to bypass mode
r hdmi [y] scaler!	Displays the scaler mode for output **[y]**. (y=0~4, where 0 is all outputs)	hdmi output 1 set to bypass mode

EDID® Commands		
Command	**Function**	**Feedback Example**
s edid in [x] from [z]!	Sets the EDID® for input **[x]** to EDID **[z]** from the internal EDID table or from an output. (x=1~4, z=1~27, where: 1. 1080p, Stereo Audio 2.0 2. 1080p, Dolby®/DTS® 5.1 3. 1080p, HD Audio 7.1 4. 1080i, Stereo Audio 2.0 5. 1080i, Dolby/DTS 5.1 6. 1080i, HD Audio 7.1 7. 3D, Stereo Audio 2.0 8. 3D, Dolby/DTS 5.1 9. 3D, HD Audio 7.1 10. 4K2K30_444, Stereo Audio 2.0 11. 4K2K30_444, Dolby/DTS 5.1 12. 4K2K30_444, HD Audio 7.1 13. 4K2K60_420, Stereo Audio 2.0 14. 4K2K60_420, Dolby/DTS 5.1 15. 4K2K60_420, HD Audio 7.1 16. 4K2K60_444, Stereo Audio 2.0 17. 4K2K60_444, Dolby/DTS 5.1 18. 4K2K60_444, HD Audio 7.1 19. 4K2K60_444, Stereo Audio 2.0 HDR 20. 4K2K60_444, Dolby/DTS 5.1 HDR 21. 4K2K60_444, HD Audio 7.1 HDR 22. User define1 23. User define2 24. Copy_From_Hdmi_Tx_1 25. Copy_From_Hdmi_Tx_2 26. Copy_From_Hdmi_Tx_3 27. Copy_From_Hdmi_Tx_4	input 2 EDID: 1080p,Stereo Audio 2.0

Command	Function	Feedback Example
r edid in [x]!	Displays the EDID® settings for input [x]. (x=0~4, where 0 is all inputs)	input 1 EDID: 4K2K60_444,Stereo Audio 2.0 input 2 EDID: 4K2K60_444,Stereo Audio 2.0 input 3 EDID: 4K2K60_444,Stereo Audio 2.0 input 4 EDID: 4K2K60_444,Stereo Audio 2.0
r edid data hdmi [y]!	Displays the EDID settings for output [y]. (y=1~4)	EDID: 00 FF FF FF FF FF FF 00 . . . . .
Audio Commands		
s hdmi [y] arc [z]!	Enables or disables the Audio Return Channel (ARC) functionality of HDMI® output [y]. (y=0~4, where 0 is all outputs)	hdmi all outputs arc off
r hdmi [y] arc!	Displays the ARC status of HDMI output [y]. (y=0~4, where 0 is all outputs)	hdmi output 1 arc on
CEC Commands		
s cec in [x] on!	Issues a CEC **Power On** command to input [x]. (x=0~4, where 0 is all inputs)	input 1 power on
s cec in [x] off!	Issues a CEC **Power Off** command to input [x]. (x=0~4, where 0 is all inputs)	input 2 power off
s cec in [x] menu!	Issues a CEC **Menu** command to input [x]. (x=0~4, where 0 is all inputs)	input 3 open menu

Command	Function	Feedback Example
s cec in [x] back!	Issues a CEC **Back** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 4 back operation
s cec in [x] on!	Issues a CEC **Up** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 1 up operation
s cec in [x] off!	Issues a CEC **Down** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 2 down operation
s cec in [x] menu!	Issues a CEC **Left** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 3 left operation
s cec in [x] back!	Issues a CEC **Right** command to input **[x]**. (x=0~4, where 0 is all inputs)	Input 4 right operation
s cec in [x] enter!	Issues a CEC **Enter** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 1 enter operation
s cec in [x] play!	Issues a CEC **Play** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 2 play operation
s cec in [x] pause!	Issues a CEC **Pause** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 3 pause operation
s cec in [x] stop!	Issues a CEC **Stop** command to input **[x]**. (x=0~4, where 0 is all inputs)	Input 4 stop operation
s cec in [x] rew!	Issues a CEC **Rewind** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 1 rewind operation
s cec in [x] mute!	Issues a CEC **Mute** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 2 volume mute
s cec in [x] vol-!	Issues a CEC **Volume Decrease** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 3 volume down
s cec in [x] vol+!	Issues a CEC **Volume Increase** command to input **[x]**. (x=0~4, where 0 is all inputs)	Input 4 volume up

Command	Function	Feedback Example
s cec in [x] ff!	Issues a CEC **Fast Forward** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 1 fast forward operation
s cec in [x] previous!	Issues a CEC **Previous** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 2 previous operation
s cec in [x] next!	Issues a CEC **Next** command to input **[x]**. (x=0~4, where 0 is all inputs)	input 3 next operation
s cec hdmi out [y] on!	Issues a CEC **Power On** command to output **[y]**. (y=0~4, where 0 is all outputs)	hdmi out 1 power on
s cec hdmi out [y] off!	Issues a CEC **Power Off** command to output **[y]**. (y=0~4, where 0 is all outputs)	hdmi out 2 power off
s cec hdmi out [y] mute!	Issues a CEC **Mute** command to output **[y]**. (y=0~4, where 0 is all outputs)	hdmi out 3 volume mute
s cec hdmi out [y] vol-!	Issues a CEC **Volume Decrease** command to output **[y]**. (y=0~4, where 0 is all outputs)	hdmi out 4 volume down
s cec hdmi out [y] vol+!	Issues a CEC **Volume Increase** command to output **[y]**. (y=0~4, where 0 is all outputs)	hdmi out 1 volume up
s cec hdmi out [y] active!	Issues a CEC **Active Source** command to output **[y]**. (y=0~4, where 0 is all outputs)	hdmi out 2 active source

Network Commands		
Command	**Function**	**Feedback Example**
r ipconfig!	Displays the current IP status.	IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01
r mac addr!	Displays the current MAC address.	Mac address: 00:1C:91:03:80:01
s ip mode [z]!	Sets the network IP mode to Static IP or DHCP. (z=0~1, where 0 is Static IP and 1 is DHCP)	IP mode: Static. (Please use "s net reboot!" command or repower device to apply new config!)
r ip mode!	Displays the current network IP mode.	IP mode: Static
s ip addr xxx.xxx.xxx.xxx!	Sets the network IP address if the IP mode is set to Static or displays an error message if IP mode is set to DHCP.	Set IP address: 192.168.1.100 DHCP on, Device can't config static address, set DHCP off first.
r ip addr!	Displays the current network IP address.	IP address: 192.168.1.100

Command	Function	Feedback Example
s subnet xxx.xxx.xxx.xxx!	Sets the network subnet mask if the IP mode is set to Static or displays an error message if IP mode is set to DHCP.	Set subnet Mask: 255.255.255.0 (Please use "s net reboot!" command or repower device to apply new config!)
r subnet!	Displays the current network subnet mask.	Subnet Mask: 255.255.255.0
s gatgeway xxx.xxx.xxx.xxx!	Sets the network gateway if the IP mode is set to Static or displays an error message if IP mode is set to DHCP.	Set gateway: 192.168.1.1 DHCP on, Device can't config static address, set DHCP off first.
r gateway!	Displays the current network gateway.	Gateway: 192.168.1.1
s tcp/ip port [x]!	Sets the TCP/IP port. (x=1~65535)	Set TCP/IP port:8000<
r tcp/ip port!	Displays the current TCP/IP port.	TCP/IP port:8000
s telnet port [x]!	Sets the network telnet port. (z=1~65535)	Set Telnet port port:23
r telnet port!	Displays the current network telnet port.	Telnet port:23
s net reboot!	Reboots the network modules.	Network reboot... IP Mode: Static IP: 192.168.1.72 Subnet Mask: 255.255.255.0 Gateway: 192.168.1.1 TCP/IP port=8000 Telnet port=10 Mac address: 00:1C:91:03:80:01

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