

BLACKBIRD™



4K 4x4 HDMI® Matrix with HDBaseT™ Out

PN 39668 < RS-232 GUIDE

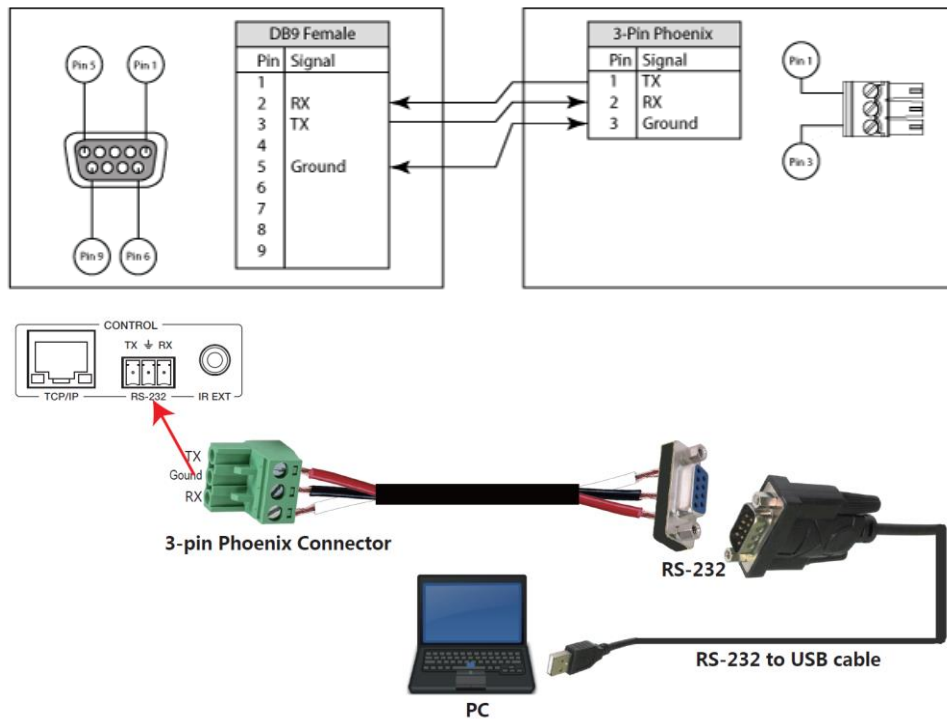
INTRODUCTION

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

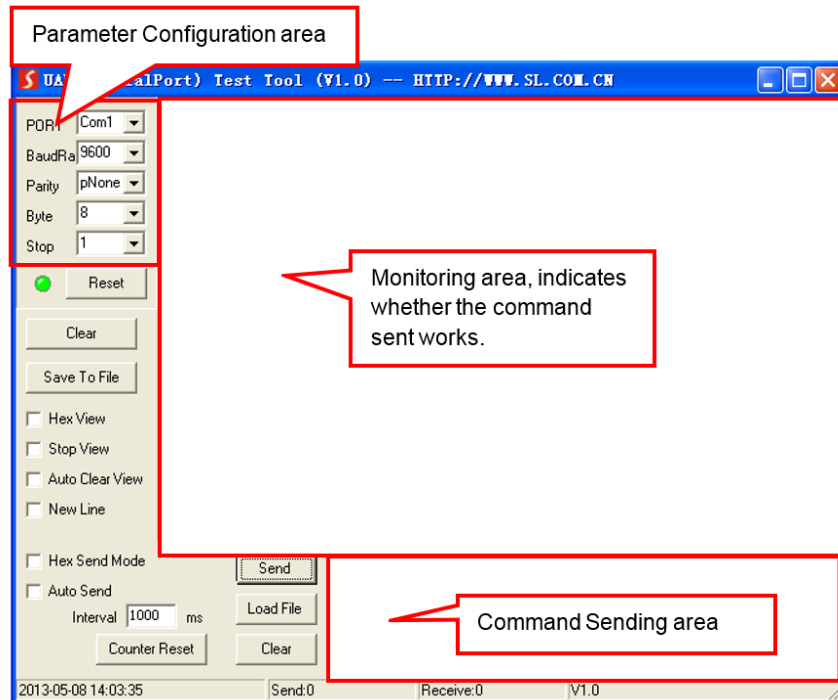
This device includes four **3-pin Euroblock Terminal**. Use one of these terminals to construct an RS-232 cable, which can be used to connect your PC to the matrix or HDBase™ receivers to allow for RS-232 control. If your PC lacks a DB-9 serial port, you will need to use a USB to Serial adapter cable (available separately P/N 3726).

The following images show how to create and connect an RS-232 cable. Refer to the full *User's Manual* for connection details.



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 on!	Powers the device on.	power on
s power off!	Powers the device off.	power off
r power!	Displays the current power status.	power on
s rboot!	Reboots the device.	reboot
System Commands		
s beep on!	Enables the buzzer function.	beep on
s beep off!	Disables the buzzer function.	beep off
r beep!	Displays the status of the buzzer function.	beep on
s lock on!	Locks the front panel buttons.	lock on
s lock off!	Unlocks the front panel buttons.	lock off
r lock!	Displays the lock status of the front panel buttons.	lock off

Command	Function	Feedback Example
s factory reset!	Restores all settings to their factory default values.	Restore factory settings
r version!	Displays the software version.	V1.33
r status!	Displays the device status.	power on V1.33 AV 1 -> 1 AV 2 -> 2 AV 3 -> 3 AV 4 -> 4 beep off lock off ip 0.0.0.0 mac 00-00-00-00-00-00 port 8000
Routing Commands		
s [x] av [y]!	Connects input [x] to output [y]. (x=1~4, y=1~4)	AV 1 -> 2
s [x] a [y]!	Sends output audio [x] to the S/PDIF output. (x=1~4, y=1)	Audio Select 1
s [x] on!	Enables output [x]. (x=1~4)	
s [x] off!	Disables output [x]. (x=1~4)	
s all on!	Enables all outputs.	
s all off!	Disables all outputs.	
s [x] all!	Connects input [x] to all outputs.	1 to all
s pop!	Connects all inputs to their corresponding outputs, i.e., 1 -> 1, 2 -> 2, etc.	ptp

Command	Function	Feedback Example
r out [y]!	Displays the input connection for output [y]. (y=1~4)	AV 1 -> 2
r a out [y]!	Displays which output audio is sent to the S/PDIF output. (y=1)	Audio Select 1
r all out!	Displays the input connections for all outputs.	AV x -> 1 AV x -> 2 AV x -> 3 AV x -> 4
r link in [x]!	Displays the status of input [x]. (x=1~4)	IN1: connect
r link in all!	Displays the status of all inputs.	HDMI IN1: connect HDMI IN2: connect HDMI IN3: connect HDMI IN4: connect
r link out [y]!	Displays the status of all outputs. (y=1)	HDMI OUT1: connect
r link all in!	Displays the status of all inputs.	HDMI IN1: connect HDMI IN2: connect HDMI IN3: connect HDMI IN4: connect
r link all out!	Displays the status of all outputs.	HDMI OUT1: connect HDMI OUT2: connect HDMI OUT3: connect HDMI OUT4: connect
EDID® Commands		
s edid [x] c [y]!	Copy the EDID of output [y] to input [x].	copy edid from output 2 to input 1
s edid [x] d [y]!	Sets the EDID for input [x] to the internal EDID [y]. Refer to the <i>EDID SETTING</i> section below. (x=1~4, y=1~19)	IN1: 4K2K60_444,Stereo Audio 2.0

Command	Function	Feedback Example
s edid all c [y]!	Copy the EDID® of output [y] to all inputs. (y=1~4)	copy edid from output1 to all inputs
s edid all d [y]!	Sets the EDID for all inputs to the internal EDID [y]. Refer to the <i>EDID SETTING</i> section below. (y=1~19)	ALL IN: 4K2K60,HD Audio 7.1 HDR
s edid default!	Sets the EDID for all inputs to the default EDID of 4K2K60_444, Stereo Audio 2.0.	ALL IN: 4K2K60_444,Stereo Audio 2.0
r edid [x]!	Displays the EDID setting for input [x].	IN1: 4K2K60_444,Stereo Audio 2.0
r all edid!	Displays the EDID settings for all inputs.	IN1: 4K2K60_444,Stereo Audio 2.0 IN2: 4K2K60_444,Stereo Audio 2.0 IN3: 4K2K60_444,Stereo Audio 2.0 IN4: 4K2K60_444,Stereo Audio 2.0
HDCP™ Commands		
s x hdcp on!	Enables HDCP for output [x]. (x=1~4)	out 1 hdcp on
s x hdcp off!	Disables HDCP for output [x]. (x=1~4)	out 1 hdcp off
s x hdcp auto!	Sets the HDCP status for output [x] to match the HDCP status of the input. (x=1~4)	out 1 hdcp auto

Command	Function	Feedback Example
s all hdcp on!	Enables HDCP™ for all outputs.	all out hdcp on
s all hdcp off!	Disables HDCP for all outputs.	all out hdcp off
s all hdcp auto!	Sets the HDCP status for all outputs to match the HDCP status of the input.	all out hdcp auto
r hdcp in x!	Displays the HDCP status of input [x]. (x=1~4)	in 1 hdcp on
r hdcp out y!	Displays the HDCP status of output [y]. (y=1~4)	out1 hdcp on
r hdcp all in!	Displays the HDCP status of all inputs.	in 1 hdcp on in 2 hdcp on in 3 hdcp on in 4 hdcp on
r hdcp all out!	Displays the HDCP status of all outputs.	out 1 hdcp on out 2 hdcp on out 3 hdcp on out 4 hdcp on
Network Commands		
s dhcp off!	Sets the network module to use a static IP address.	ip mode Static
s dhcp on!	Sets the network module to use DHCP to assign an IP address.	ip mode DHCP
r dhcp!	Displays the DHCP status of the network module.	ip mode DHCP
s ip addr XXX.XXX.XXX.XXX!	Sets the IP address to XXX.XXX.XXX.XXX.	192.168.1.100
r ip addr!	Displays the IP address.	192.168.1.100

Command	Function	Feedback Example
s subnet XXX.XXX.XXX.XXX!	Sets the subnet mask to XXX.XXX.XXX.XXX.	255.255.255.0
r subnet!	Displays the subnet mask.	255.255.255.0
s gateway XXX.XXX.XXX.XXX!	Sets the gateway address to XXX.XXX.XXX.XXX.	192.168.1.1
r gateway!	Displays the gateway address.	192.168.1.1
s port x!	Sets the network port number.	8000
r port!	Displays the network port number.	8000
r mac addr!	Displays the MAC address.	E8-6A-64-42-BA-5D

EDID SETTINGS

The following table displays all the supported video and audio EDID® settings.

EDID Mode	Video	Audio
1	720p	Stereo 2.0
2	1080p	Stereo 2.0
3	1080p	Dolby®/DTS® 5.1
4	1080p	HD 7.1
5	1080i	Stereo 2.0
6	1080i	Dolby/DTS 5.1
7	1080i	HD 7.1
8	3D	Stereo 2.0
9	3D	Dolby/DTS 5.1
10	3D	HD 7.1
11	4K@30Hz YCbCr 4:4:4	Stereo 2.0

EDID Mode	Video	Audio
12	4K@30Hz YCbCr 4:4:4	Dolby®/DTS® 5.1
13	4K@30Hz YCbCr 4:4:4	HD 7.1
14	4K@60Hz YCbCr 4:2:0	Stereo 2.0
15	4K@60Hz YCbCr 4:2:0	Dolby/DTS 5.1
16	4K@60Hz YCbCr 4:2:0	HD 7.1
17	4K@60Hz YCbCr 4:4:4	Stereo 2.0
18	4K@60Hz YCbCr 4:4:4	Dolby/DTS 5.1
19	4K@60Hz YCbCr 4:4:4	HD 7.1

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