

# 4K HDBT 2x1 Scaler Receiver



Model:  
**HDBT-SCL21R/P**

rev.2021.10Oct.05

# User Operation Guide

## PRODUCT DESCRIPTION

The HDBT-SCL21R/P is a professional 4K Scaler Receiver that scales HDMI/HDBaseT video signal to a HDMI output by selecting output resolution from 720p to 4K. The HDBaseT input supports PoC and can connect to HDBaseT transmitter up to a maximum of 100m.

With 1 IR In and 1 IR Out and 2 RS232, the IR and RS232 control signals can be transmitted bi-directionally between the HDBT-SCL21R/P and the compatible HDBaseT matrix (ABtUS 6x2 Series).

The HDBT-SCL21R/P supports advanced built-in EDID and HDCP management. Video sources can be selected via front panel button and RS232 commands by 3rd Party control device.

## FEATURES

- Features 1 HDMI input and 1 HDBaseT input.
- The HDMI output resolution can be selected from 720p to 4Kx2K @60Hz 4:4:4 to assure preferred output.
- HDMI signals transmission up to 70m at 4K and 100m at 1080p on HDBT input.
- Output resolutions selectable to assure preferred output, and supports various output resolutions, such as 4Kx2K@60Hz, 4Kx2K@30Hz, 1920x1080p@60Hz, 1280x720@60Hz and so on.
- Supports RS232 pass-through to communicate control signal between the scaler and the connected HDBaseT matrix.
- Controllable via RS232 local and pass-through, IR local and pass-through.
- The receiver can be powered by the connected HDBaseT matrix via PoC.
- Supports advanced built-in EDID management.

## PANEL DESCRIPTIONS

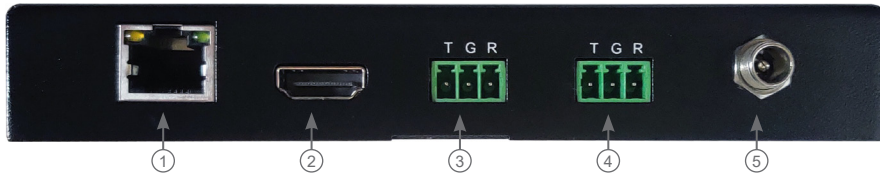
### Front Panel



No.	Name	Description
1	POWER LED	The LED illuminates green when the device is powered on.
2	INPUTS	Two blue LED indicators. <ul style="list-style-type: none"><li>• HDMI: HDMI input activity LED.</li><li>• HDBT: HDBT input activity LED.</li></ul>
3	SWITCH	Press this button to toggle between two inputs.
4	HDMI OUT	Connects to HDMI display.
5	IR IN	Connects to IR receiver for IR pass-through control.
6	IR OUT	Connects to IR emitter for IR pass-through control.
7	FIRMWARE	Micro-USB port for firmware upgrade.

## PANEL DESCRIPTIONS

### Rear Panel



No.	Name	Description
1	HDBT IN	Connects to the HDBT output of a compatible transmitter to receive AV signal, IR and RS232 control signal.
2	HDMI IN	Connects to HDMI source device
3	RS232 (Passthrough)	Connects to the control device (e.g. PC) or a third-party device for it to receive RS232 commands from a compatible HDBT transmitter.
4	RS232 (Control)	Connects to the control device (e.g. PC) to control the unit by sending RS232 commands.
5	POWER DC 12V	DC connector for the power adapter.

## SYSTEM OPERATIONS

### Signal Switching and Output Resolution

#### Signal Switching

Press the **SWITCH** button to toggle and select the HDMI or HDBT source, the corresponding blue activity LED (HDMI/HDBT) of the selected input will light up.

Alternatively, source input can be selected via RS232 command. Please refer to page 5 (Signal Switching) for more details.

#### Output Resolution List

There is a built-in scaler to up-scale or down-scale the input signal to a fixed output resolution. Ten output resolution options can be selected for the HDMI output via RS232 command. Please refer to page 5 (Output Resolution Selection) for more details.

The following table shows the list of available output resolution:

No.	Resolution list
1	4Kx2K@60Hz 4:4:4
2	4Kx2K@30Hz 4:4:4
3	1920x1080p@60Hz
4	1360x768@60Hz
5	1280x800@60Hz
6	1280x720@60Hz
7	1024x768@60Hz
8	1920x1080@50Hz
9	1280x720@50Hz
10	1600x1200@60Hz

# User Operation Guide

## SYSTEM OPERATIONS

### RS232 Control

The RS232 port of HDBT-SCL21R/P has two control methods.

- 1) Local control: Connect the RS232 (Control) port to a control device (e.g. PC) to control the unit by RS232 commands.
- 2) Pass-through control: The RS232 (Passthrough) port is used with the RS232 port of far-end HDBaseT transmitter to control the third-party device (e.g. Projector)

### RS232 Command

The command lists are used to control the scaler receiver. The RS232 control software (e.g. docklight) needs to be installed on the control PC to send RS232 commands.

After installing the RS232 control software, please set the parameters of the COM port, baud rate, data bit, stop bit and the parity bit accordingly to ensure that the software is able to communicate correctly with the device

Baud rate: 9600

Data bit: 8

Stop bit: 1

Parity bit: none

Note:

- All commands needs to end with "<CR><LF>".
- In the commands, "[I" and "]" are symbols for easy reading and do not need to be typed in actual operation.
- Type the command carefully, it is case-sensitive.

## 6.1 System Control

Command	Description	Command Example and Feedback
>UpgradeSoftware	Software upgrading	>UpgradeSoftware
		<UpgradeSoftware
>GetFirmwareVersion	Check the software version	>GetFirmwareVersion
		<V1.0.0
>FactoryReset	Restore factory default	>FactoryReset
		<FactoryReset
>GetStaus	Get the system status	<V1.0.0 ... ..

## SYSTEM OPERATIONS

### 6.2 Signal Switching

Command	Description	Command Example and Feedback
<b>&gt;SetVideo [Inparam]</b>	Switch the HDMI output to HDBT or HDMI input. HDMI output can also be turn on/off. >SetVideo Inparam Inparam = 01, 02, ON, FF 01 - HDBT IN 02 - HDMI IN ON - ON FF - OFF	>SetVideo 01
		<Video OUT 01 IN 01
<b>&gt;GetVideo</b>	Get video switching status.	>GetVideo
		<Video OUT 01 IN 01

### 6.3 Output Resolution Selection

Command	Description	Command Example and Feedback
<b>&gt;SetOutputRES [param]</b>	Set HDMI output resolution. >SetOutputRES param param = 01~10 01 - 4K@60 02 - 4K@30 03 - 1080@60 04 - 1360x768@60 05 - 1280x800@60 06 - 1280x720@60 07 - 1024x768@60 08 - 1080@50 09 - 1280x720@50 10 - 1600x1200@60	>SetOutputRES 01
		<OutputRES 01
<b>&gt;GetOutputRES</b>	Get HDMI output resolution.	>GetOutputRES
		<OutputRES 01

## SYSTEM OPERATIONS

### 6.4 Baudrate Setting

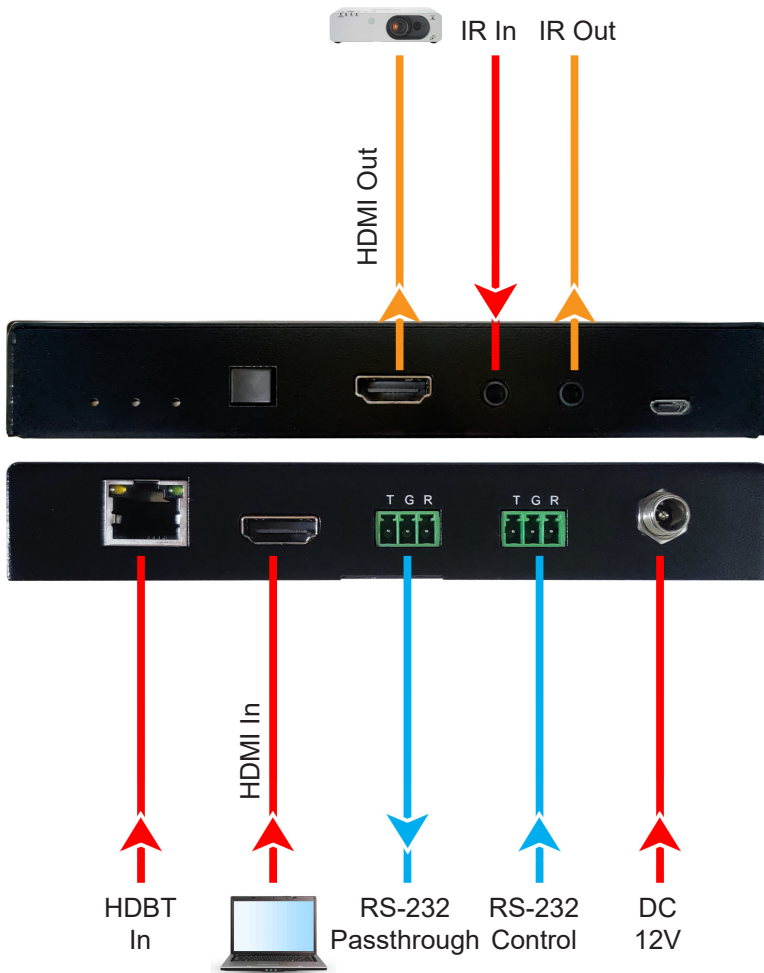
Command	Description	Command Example and Feedback
>SetRS232Baud [param]	Set the baudrate of RS232. >SetRS232Baud param param = 9600, 19200, 38400, 57600, 115200	>SetRS232Baud 9600
		<RS232Baud 9600

### 6.5 HDCP Setting

Command	Description	Command Example and Feedback
>SetHDCPMode [param]	Set HDCP mode of HDMI output. >SetHDCPMode param param = 01 ~ 05 01 - By Src 02 - Force HDCP1.4 03 - Force HDCP2.2	>SetHDCPMode 05
		<HDCPMode OUT 01 STA 05

Command	Description	Command Example and Feedback
	04 - HDCP OFF 05 - By Sink	
>GetHDCPMode	Get HDCP mode of HDMI output.	>GetHDCPMode
		<HDCPMode OUT 01 STA 01
>UpgradeHDCP2 2	Upgrade the key of HDCP2.2.	>UpgradeHDCP22
		<Upgrade HDCP2.2 key

DIAGRAM



ABtUS  
HDBT-SCL21R/P

## SPECIFICATIONS

### VIDEO INPUT

<b>Input</b>	1×HDMI 1×HDBT
<b>Input Connector</b>	1×Type-A female HDMI 1×RJ45
<b>Video input Video Resolution</b>	Up to 4K@60Hz 4:4:4 HDR (HDMI) Up to 4K@60Hz 4:2:0 (HDBT)

### VIDEO OUTPUT

<b>Output</b>	1×HDMI
<b>Output Connector</b>	1×Type-A female HDMI
<b>Video output Video Resolution</b>	Up to 4K@60Hz 4:4:4 HDR (HDMI) Up to 4K@60Hz 4:2:0 (HDBT)

### CONTROL PART

<b>Control Port</b>	1×IR IN, 1×IR Out, 1×RS232 (Control) 1×RS232 (Passthrough),
<b>Control Connector</b>	2×3.5mm jacks, 2×3-pin phoenix connectors

### GENERAL

<b>HDMI Version</b>	Up to 2.0
<b>HDCP Version</b>	Up to 2.2
<b>Bandwidth</b>	18Gbps
<b>HDBT Transmission Distance</b>	1080p@60Hz ≤ 100 meters (328 feet), 4K@60Hz ≤ 70 meters (230 feet)
<b>Operation Temperature</b>	-10 ~ +40°C (+14°F~ +104°F)
<b>Storage Temperature</b>	-15 to +55°C (-5°F to +131°F)
<b>Relative Humidity</b>	10% to 90%
<b>External Power Supply</b>	12V DC 1A
<b>Power Consumption</b>	8W (max)
<b>Dimension (W*H*D)</b>	150 mm x 23 mm x 110 mm
<b>Net weight</b>	375 g

**ABtUS**  
S I N G A P O R E