

4x1 4K HDR Switcher and Receiver with HDMI and HDBaseT Inputs

Application Programming Interface

Version Information

Version	Release Date	Notes
1	Aug 2020	Initial release

Introduction

General

This document provides an alphabetical list of commands available for the AT-OPUS-RX41. Commands are case-sensitive. If the command fails or is entered incorrectly, then the feedback is “Command FAILED”. Commands can be sent using RS-232, Telnet, SSH, or TCP. There should be a 500 millisecond delay between each command sent to the unit. The default port for Telnet is 23. TCP ports are 9000 and 9001.



IMPORTANT: Each command is terminated with a carriage-return (0x0d) and the feedback is terminated with a carriage-return and line-feed (0x0a).

Ports

This product can communicate directly with local and remote RS-232 (over HDBaseT) ports using a direct TCP socket connection. The default port assignment is from left-to-right, viewed from the rear panel. Refer to the table below for the port assignment for this product. For ports connected to RS-232 interfaces, no additional payload is required to transmit data to the device. All data sent to the respective TCP port will be sent bit-for-bit to the RS-232 output. Note that if feedback is required from the RS-232 device, the TCP socket must be kept open. This product does not provide buffer or queuing registers. Therefore, any data from the RS-232 port that is received while the TCP socket connection is closed, will be lost.

Port	Description
9000	MCU (similar to Telnet)
9001	HDBaseT RS-232 port
9002	Local RS-232 port

Example:

With the device IP address of 192.168.1.100 and a PJLINK projector connected to the RS-232 port.

1. Open a TCP socket to 192.168.1.100:9001 and send the following command string:

```
%1POWR 1\x0D
```

2. The projector will respond with the following, using the same socket connection:

```
$1POWR=OK\x0D
```

Commands

Command	Description
AudioSRC	Sets the audio source for the OPTICAL port
AutoSW	Sets the auto-switching mode
Blink	Enables or disables blinking of the POWER LED indicator on the front panel
Broadcast	Enables or disables broadcast mode
CSpara	Sets the baud rate, data bits, parity bit, and stop bits for the serial port
EDIDCopy	Saves the downstream EDID to the specified internal memory location on the unit
EDIDMSet	Assigns an EDID to the specified input.
HDCPSet	Set the HDCP reporting mode of the specified HDMI input port
HDMIAUDUD	Enables or disables audio on the HDMI output
help	Displays the list of available commands
InputBroadcast	Invokes the InputStatus command when enabled
InputStatus	Displays the state of each input
IPAddUser	Adds a user for Telnet and webGUI access
IPCFG	Displays the current network settings for the unit
IPDelUser	Deletes the specified user
IPDHCP	Enables or disables DHCP mode on the unit
IPLogin	Enables or disables login credentials when starting a Telnet session
IPPort	Sets the Telnet listening port for the unit
IPQuit	Closes the current Telnet session
IPStatic	Sets the static IP address, subnet mask, and gateway for the unit
IPTimeout	Specifies the time interval of inactivity before a Telnet session is closed
IROFF	Disables the IR receiver on the unit
IRON	Enables the IR receiver on the unit
Lock	Locks the buttons on the front panel
Mreset	Resets the unit to factory-default settings
PWOFF	Execute this command to power-off the unit
PWON	Execute this command to power-on the unit
PWSTA	Displays the power state of the unit
RHostName	Displays the host name of the unit
ScalerPtMode	Enables or disables scaler pass-through mode

Commands

Command	Description
SHostName	Sets the host name of the unit
Status	Displays the routing state of the unit
System	Displays information about the system status
Toslink	Enables or disables the OPTICAL port on the back panel
Type	Displays the model of the unit
Unlock	Unlocks the buttons on the front panel
Version	Displays the current firmware version of the unit
x1AVx1	Routes the specified input to the output

AudioSRC

Sets the audio source for the **OPTICAL** port on the AT-OPUS-RX41. HDMI audio is de-embedded and heard on the specified source. Use the sta argument to display the current setting

Syntax

AudioSRC X

Parameter	Description	Range
X	Source	SPDIF, ARC, sta

Example

AudioSRC SPDIF

Feedback

AudioSRC SPDIF

AutoSW

Enables or disables auto switching between INPUT ports. Use the sta argument to display the current setting.

Syntax

AutoSW X

Parameter	Description	Range
X	Value	on, off, sta

Example

AutoSW on

Feedback

AutoSW on

Blink

Enables or disables blinking of the **POWER** LED indicator on the front panel. When set to on, the **POWER** LED indicator button will flash, alternating between blue and red, and can be used to physically identify the unit on a network. The **POWER** LED indicator will flash until the Blink off command is executed. on = enables blinking; off = disables blinking. Use the sta argument to display the current setting. The default setting is off.

Syntax

Blink X

Parameter	Description	Range
X	Value	on, off, sta

Example

Blink on

Feedback

Blink on

Broadcast

Enables or disables broadcast mode. By default, broadcast mode is set to ON. When set to ON, any system changes will be broadcast to the web server will also be affected on the control system (if connected), via TCP/IP. To separate control between the web server and Telnet, set this feature to OFF. Command queries such as **IPC**FG and **T**ype will only return information to the requester. Use the sta argument to display the current setting.

Syntax

Broadcast X

Parameter	Description	Range
X	Value	on, off, sta

Example

Broadcast on

Feedback

Broadcast on

CSpa

Sets the baud rate, data bits, parity bit, and stop bits for the serial port. Use the sta argument to display the current serial port settings. Each argument must be separated by a comma; no spaces are permitted. Brackets must be used when executing this command.

Syntax

CSpa[W,X,Y,Z]

Parameter	Description	Range
W	Baud rate	2400, 4800, 9600, 19200, 38400, 57600, 115200
X	Data bits	7, 8
Y	Parity bit	None, Odd, Even
Z	Stop bits	1, 2

Example

CSpa[115200,8,0,1]
 CSpa[sta]

Feedback

CSpa[115200,8,0,1]
 CSpa [115200,8,0,1]

EDIDCopy

Saves the downstream EDID to the specified internal memory location on the unit. Do not use a space between the command and the first argument.

Syntax

EDIDCopyX Y

Parameter	Description	Range
X	Input	1 ... 4
Y	Memory location	1 ... 8

Example

EDIDCopy1 4

Feedback

EDIDCopy1 4

EDIDMSet

Assigns an EDID to the specified input. The EDID can be either one of the internal preprogrammed EDIDs or a custom EDID that can be stored in one of the eight memory locations. A brief description of each preprogrammed EDID is listed in the table below. For a detailed summary of each EDID, refer to the User Manual for more information. Use arguments 1 through 8 to store the EDID in any of eight memory locations. To display the EDID assigned to an input, use the sta argument.

Syntax

EDIDMSetX Y

Parameter	Description	Range
X	Input	1 ... 4
Y	EDID preset	1 ... 25
Z	Memory location	1 ... 8

Example

EDIDMSet2 3 1
EDIDMSet1 sta

Feedback

EDIDMSet2 3 1
EDIDMSet1 default

EDID (parameter Y)	Description	EDID (parameter Y)	Description
1	Default	14	1920x1200 2CH
2	1080p 2CH	15	3840x2160@60 4:2:0 2CH
3	1080p MCH	16	3840x2160@60 4:2:0 MCH
4	1080p DD	17	3840x2160@30 4:4:4 2CH
5	1080p 3D 2CH	18	3840x2160@60 4:4:4 MCH
6	1080p 3D MCH	19	4096x2160@60 4:2:0 2CH
7	1080p 3D DD	20	4096x2160@60 4:2:0 MCH
8	720p 2CH	21	3840x2160@60 4:4:4 2CH
9	720p DD	22	3840x2160@60 4:4:4 MCH
10	1280x800 2CH	23	4K 60 4:2:0 HDR 2CH
11	1366x768 2CH	24	4K 60 4:2:0 HDR MCH*
12	1080p DVI	25	4K 30 Dolby Vision 2CH
13	1280x800 DVI		

* HD multichannel audio (lossless).

HDCPSet

Set the HDCP reporting mode of the specified **HDMI** input port. Some computers will send HDCP content if an HDCP-compliant display is detected. Setting this value to off, will force the computer to ignore detection of HDCP-compliant displays. Disabling this feature will *not* decrypt HDCP content. on = enables HDCP detection; off = disables HDCP detection; sta = displays the current setting. No space should exist between the first argument and the command.

Syntax

HDCPSetX Y

Parameter	Description	Range
X	Input	1 ... 4
Y	Reporting status	on, off, sta

Example

HDCPSet1 off

Feedback

HDCPSet1 off

HDMIAUD

Enables or disables audio on the HDMI output. on = enables HDMI audio output; off = disables HDMI audio output; sta = displays the current setting.

Syntax

HDMIAUD X

Parameter	Description	Range
X	Value	on, off, sta

Example

HDMIAUD off

Feedback

HDMIAUD off

help

Displays the list of available commands. To obtain help on a specific command, enter the help command followed by the name of the command.

Syntax

```
help X
```

Parameter	Description	Range
X	Command name (optional)	Command

Example

```
help
```

Feedback

```
Command List
```

```
-----
IPCFCG
IPDHCP
IPStatic
```

```
...
```

```
...
```

InputBroadcast

Enabling this feature will invoke the InputStatus command, when a new source is connected, and will return the state of all inputs. This also applies when auto-switching occurs. on = enable; off = disable; sta = displays the current setting.

Syntax

```
InputBroadcast X
```

Parameter	Description	Range
X	State	on, off, sta

Example

```
InputBroadcast on
```

Feedback

```
InputBroadcast on
```

InputStatus

Displays the state of each input. 0 = no source connected; 1 = source connected. Optionally specify the number of the input, as an argument, to return the state of that input.

Syntax

```
InputStatus [X]
```

Parameter	Description	Range
X	Input (optional)	1 ... 4

Examples

```
InputStatus
InputStatus1
```

Feedback

```
InputStatus 0100
InputStatus1 0
```

IPAddUser

Adds a user for Telnet control. This command performs the same function as adding a user within the **Config** page of the web server. Refer to the User Manual for more information.

Syntax

```
IPAddUser X Y
```

Parameter	Description	Range
X	User name	20 characters (max)
Y	Password	20 characters (max)

Example

```
IPAddUser BigBoss b055man
```

Feedback

```
IPAddUser BigBoss b055man
TCP/IP user was added
```

IPCFG

Displays the current network settings for the unit.

Syntax

```
IPCFG
```

This command does not require any parameters

Example

```
IPCFG
```

Feedback

```
Mac Addr:  B8:98:B0:05:DF:F7
IP Addr:   10.0.1.101
Netmask:   255.255.255.0
Gateway:   10.0.1.1
Telnet Port: 23
HTTP Port: 80
```

IPDelUser

Deletes the specified TCP/IP user. This command performs the same function as removing a user within the **Config** page of the web server. Refer to the User Manual for more information.

Syntax

```
IPDelUser X
```

Parameter	Description	Range
X	User	User name

Example

```
IPDelUser MinionTwo
```

Feedback

```
IPDelUser MinionTwo
TCP/IP user was deleted
```

IPDHCP

Enables or disables DHCP mode on the unit. on = enables DHCP mode; off = disables DHCP mode; sta = displays the current setting. If this feature is disabled, then a static IP address must be specified for the unit. Refer to the **IPQuit** command for more information.

Syntax

```
IPDHCP X
```

Parameter	Description	Range
X	Value	on, off, sta

Example

```
IPDHCP on
```

Feedback

```
IPDHCP on
```

IPLogin

Enables or disables the use of login credentials when starting a Telnet session on the unit. If this feature is set to on, then the unit will prompt for both the username and password. Use the same credentials as the web server. on = login credentials required; off = no login required. Use the sta argument to display the current setting.

Syntax

```
IPLogin X
```

Parameter	Description	Range
X	Value	on, off, sta

Example

```
IPLogin off
```

Feedback

```
IPLogin off
```

IPPort

Sets the Telnet listening port for the unit. Use the sta argument to display the current setting.

Syntax

```
IPPort X
```

Parameter	Description	Range
X	Port	0 ... 65535, sta

Example

```
IPPort 23
```

Feedback

```
IPPort 23
```

IPQuit

Closes the current Telnet session.

Syntax

```
IPQuit
```

This command does not require any parameters

Example

```
IPQuit
```

Feedback

```
Connection lost...
```

IPStatic

Sets the static IP address, subnet mask, and gateway (router) address of the unit. Before using this command, DHCP must be disabled on the unit. Refer to the [IPDHCP](#) command for more information. Each argument must be entered in dot-decimal notation and separated by a space. The default static IP address is 192.168.1.254.

Syntax

```
IPStatic X Y Z
```

Parameter	Description	Range
X	IP address	0 ... 255 (per byte)
Y	Subnet mask	0 ... 255 (per byte)
Z	Gateway (router)	0 ... 255 (per byte)

Example

```
IPStatic 192.168.1.112 255.255.255.0 192.168.1.1
```

Feedback

```
IPStatic 192.168.1.112 255.255.255.0 192.168.1.1
```

IPTimeout

Specifies the time interval of inactivity before the Telnet session is automatically closed.

Syntax

```
IPTimeout X
```

Parameter	Description	Range
X	Interval (in seconds)	1 ... 60000

Example

```
IPTimeout 300
```

Feedback

```
IPTimeout 300
```

IROFF

Disables the IR receiver on the AT-OPUS-RX41.

Syntax

```
IROFF
```

This command does not require any parameters

Example

```
IROFF
```

Feedback

```
IROFF
```

IRON

Enables the IR receiver on the AT-OPUS-RX41.

Syntax

```
IRON
```

This command does not require any parameters

Example

```
IRON
```

Feedback

```
IRON
```

Lock

Locks the buttons on the front panel. This feature is useful when the unit is installed in a rack environment or other remote location, to prevent unauthorized tampering or accidental pressing of the front-panel buttons. Also refer to the [Unlock](#) command.

Syntax

```
Lock
```

This command does not require any parameters

Example

```
Lock
```

Feedback

```
Lock
```

Mreset

Resets the unit to factory-default settings.

Syntax

```
Mreset
```

This command does not require any parameters

Example

```
Mreset
```

Feedback

```
Mreset
```

PWOFF

Executing this command will power-off the AT-OPUS-RX41. Use the PWON command to power-on the unit.

Syntax

```
PWOFF
```

This command does not require any parameters

Example

```
PWOFF
```

Feedback

```
PWOFF
```

PWON

Executing this command will power-on the AT-OPUS-RX41. Use the PWOFF command to power-off the unit.

Syntax

```
PWON
```

This command does not require any parameters

Example

```
PWON
```

Feedback

```
PWON
```

PWSTA

Displays the current power state of the AT-OPUS-RX41.

Syntax

PWSTA

This command does not require any parameters

Example

PWSTA

Feedback

PWON

RHostName

Displays the host name of the unit.

Syntax

RHostName

This command does not require any parameters

Example

RHostName

Feedback

RHostName OPUSRX41-000304

ScalerPtMode

Enables or disables scaler pass-through mode. Specify the sta argument to display the current setting.

Syntax

ScalerPtMode X

Parameter	Description	Range
X	State	on, off, sta

Example

ScalerPtMode on

Feedback

ScalerPtMode on

SHostName

Sets the hostname of the unit. The hostname can be changed to easily identify the unit within the Atlona Management System (AMS) or a network. If using a custom host name, it must meet the host name standards defined here: <https://tools.ietf.org/html/rfc1123>.

Syntax

```
SHostName X
```

Parameter	Description	Range
X	Name	String (maximum 15 characters)

Example

```
SHostName OMERX41_ConfR
```

Feedback

```
SHostName OMERX41_ConfR
```

Status

Displays the which input is routed to the output. The routing state is returned as xyAVx1, where the y is the input.

Syntax

```
Status
```

This command does not require any parameters

Example

```
Status
```

Feedback

```
x3AVx1
```

System

Displays the current configuration of the AT-OPUS-RX41. The sta argument must be specified.

Syntax

System X

Parameter	Description	Range
X	Constant	sta

Example

System sta

Feedback

Model: AT-OPUS-RX41
 MAC Addr: b8-98-b0-00-3b-f9
 Address Type: DHCP
 IP: 10.20.20.121
 Netmask: 255.255.255.0
 Gateway: 10.20.20.1
 Http Port: 80
 Telnet Port: 23
 Firmware: 1.2.10
 On/Up Time <dd HH:mm:ss>: 0 23:39:40
 Power Status: PWON

Toslink

Enables or disables the **OPTICAL** port on the back of the unit. Use the sta argument to display the current setting.

Syntax

Toslink X

Parameter	Description	Range
X	State	on, off, sta

Example

Toslink off

Feedback

Toslink off

Type

Displays the model information of the unit.

Syntax

Type

This command does not require any parameters

Example

Type

Feedback

AT-OPUS-RX41

Unlock

Unlocks the buttons on the front panel. Also refer to the [Lock](#) command.

Syntax

Unlock

This command does not require any parameters

Example

Unlock

Feedback

Unlock

Version

Displays the current firmware version of the unit.

Syntax

Version

This command does not require any parameters

Example

Version

Feedback

1.2.10

x?AVx1

Routes the specified input to the output.

Syntax

xYAVx1

Parameter	Description	Range
?	Input	1 ... 4

