



# 4K / UHD HDMI to HDBaseT Distribution Amplifier

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Application Programming Interface

## Version Information

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Version	Release Date	Notes
1	Nov 2018	Initial release
2	Apr 2021	<b>Firmware 1.0.17</b> - Added the <a href="#">InputStatus (page 10)</a> and <a href="#">OutputStatus (page 14)</a> commands.

# Commands

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## General

This document provides an alphabetical list of commands available for AT-UHD-CAT series of products. 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, 9001, and 9002.



**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. 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 of the HDBaseT output.

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
BCPW	Sets the function of the <b>POWER</b> button on the front panel
Blink	Enables or disables blinking of the <b>POWER</b> LED indicator on the front panel
Broadcast	Enables or disables broadcast mode
CSpa	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 the specified EDID to the <b>HDMI IN</b> port
EDIDSW	Sets the EDID mode
HDCPSet	Set the HDCP reporting mode of the specified <b>HDMI</b> input port
help	Displays the list of available commands
InputStatus	Displays the status of the input as either a 0 or 1
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	Sets the time interval of inactivity before the Telnet session is terminated
Lock	Locks the buttons on the front panel
Mreset	Resets the unit to factory-default settings
OutputStatus	Displays the status of the outputs as either a 0 or 1
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
System	Displays the status of the unit
TrigCEC	Triggers the specified command
Type	Displays the model of the unit
Unlock	Unlocks the buttons on the front panel
Version	Displays the current firmware version of the unit

### BCPW

Sets the function of the **POWER** button on the front panel. Refer to the table below for a description of each argument. Use the `sta` argument to display the current setting.

#### Syntax

```
BCPW X
```

Parameter	Description	Range
X	Mode	local, cec, both, sta

#### Example

```
BCPW local
```

#### Feedback

```
BCPW local
```

Mode	Description
local	Pressing the <b>POWER</b> button will toggle the AT-UHD-CAT-XX between standby mode and normal operating mode.
cec	When a sink device (display) is connected to the AT-UHD-CAT-XX, pressing the <b>POWER</b> button will toggle the power state of the display using the CEC protocol. <i>The power state of the AT-UHD-CAT-XX is unaffected.</i> Power-on and power-off commands are sent over both the <b>HDBaseT OUT</b> and <b>HDMI OUT</b> ports
both	Pressing the <b>POWER</b> button will toggle the power state of <i>both</i> the AT-UHD-CAT-XX and any sink devices that are connected to the AT-UHD-CAT-XX, using the CEC protocol. Power-on and power-off commands are sent over both the <b>HDBaseT OUT</b> and <b>HDMI OUT</b> ports.

### 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 GUI will also be affected on the control system (if connected), via TCP/IP. To separate control between the web GUI and Telnet, set this feature to OFF. Command queries such as #IPCFG and #Type 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
```

### CSpara

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

```
CSpara[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

```
CSpara [115200,8,0,1]
CSpara [sta]
```

#### Feedback

```
CSpara [115200,8,0,1]
CSpara [115200,8,0,1]
```

### EDIDCopy

Copies the downstream EDID to the **HDMI IN** port. If no sink device is connected to the HDMI OUT port, then "Output 1 was no connected" will be returned.

#### Syntax

```
EDIDCopy
```

This command does not require any parameters

#### Example

```
EDIDCopy
```

#### Feedback

```
EDIDCopy
```

### EDIDMSet

Assigns an EDID to the **HDMI IN** port. A brief description of each preprogrammed EDID is listed in the table below. To display the EDID assigned to an input, use the sta argument.

#### Syntax

```
EDIDMSetX
```

Parameter	Description	Range
X	EDID preset	0 ... 16, sta

#### Example

```
EDIDMSet2
```

#### Feedback

```
EDIDMSet2
```

EDID	
STD	ATL 1280x800 RGB 2CH
ATL 1080P 2CH	ATL 1366x768 RGB 2CH
ATL 1080P Multi CH	ATL 1080P DVI
ATL 1080P DD	ATL 1280x800 RGB DVI
ATL 1080P 3D 2CH	ATL 3840x2160@30 2CH
ATL 1080P 3D Multi CH	ATL 3840x2160@30 Multi CH
ATL 1080P 3D DD	ATL 3840x2160@60 2CH
ATL 720P 2CH	ATL 3840x2160@60 Multi CH
ATL 720P DD	

### EDIDSW

Sets the EDID mode. int = internal EDID (use the EDIDMSet command to select the EDID), learn = fetches the downstream EDID and copies it to the HDMI IN port. Use the sta argument to display the current setting.

#### Syntax

```
EDIDSWX
```

Parameter	Description	Range
X	Mode	int, learn, sta

#### Example

```
EDIDSWint
```

#### Feedback

```
EDIDSWint
```

### HDCPSet

Set the HDCP reporting mode of the **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

```
HDCPSet X
```

Parameter	Description	Range
X	Reporting status	on, off, sta

#### Example

```
HDCPSet off
```

#### Feedback

```
HDCPSet 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
```

```
-----
Help
IPCFG
IPDHCP
...
...
```

### IPAddUser

Adds a user for Telnet control. This command performs the same function as adding a user within the **Config** page of the web GUI. 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
```

### InputStatus

Event-driven API command. Feedback indicates if a source device is present, based on both the HDMI 5V and TMDS lines. If a source is detected on the input, then a 1 will be returned. Inputs with no source connected will return a 0.

#### Syntax

```
InputStatus X
```

Parameter	Description	Range
X	Returned result (input)	0 ... 1

### Example

If a PC is connected to the HDMI input, then the following is true:

- The control system, using either RS-232 or Telnet, will receive `InputStatus 1`.
- Disconnection of the PC will return `InputStatus 0`.

User polling can be performed by using the following: `InputStatus`.

### 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 GUI. 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 GUI. 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 octet)
Y	Subnet mask	0 ... 255 (per octet)
Z	Gateway (router)	0 ... 255 (per octet)

#### 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
```

### 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
```

### OutputStatus

Event-driven API command. Feedback indicates if a sink device is present, based on the state of both the HDMI HPD and TMDS signals. If a sink is detected on an output, then a 1 will be returned. Outputs with no source connected will return a 0.

Note that the number of 1 and 0 values returned, is dependent upon the number of outputs on the unit. For example, the AT-UHD-CAT-4 has one HDMI output and four HDBaseT outputs, for a total of five outputs. Therefore, if all outputs were connected to a sink device, then the OutputStatus command would be formatted as:

```
OutputStatus 11111
```

#### Syntax

```
OutputStatus X
```

Parameter	Description	Range
X	Returned result (outputs)	0 ... 1

### Example

If the local HDMI display is disconnected to an AT-UHD-CAT-8, and all All HDBT ports are used, then the following is true:

- The control system, using either RS-232 or Telnet, will receive `OutputStatus 111111110`. The last digit in the output **always** indicates the HDMI output. HDBaseT outputs are read from left-to-right, with the first HDBaseT output occupying the left-most digit in the output.
- Reconnecting the display will return `OutputStatus 111111111`.

If all displays are powered-off using CEC, the following is true:

- The control system, using either RS-232 or Telnet, will receive `OutputStatus 000000000`. Note that some displays may only mute video, while the HDMI-HPD line is kept high.

User polling can be performed by using the following: `OutputStatus`.

### PWOFF

Executing this command will power-off the AT-UHD-CAT-XX. 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-UHD-CAT-XX. 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-UHD-CAT-XX.

#### Syntax

```
PWSTA
```

This command does not require any parameters

#### Example

```
PWSTA
```

#### Feedback

```
PWON
```

### System

Displays the status of the unit.

#### Syntax

```
System X
```

Parameter	Description	Range
X	Format	sta, dev

#### Example

```
System sta
```

#### Feedback

```
Model: AT-UHD-CAT-2
MAC Addr: b8-98-b0-00-01-d2
Address Type: DHCP
IP: 10.0.1.192
Netmask: 255.255.255.0
Gateway: 10.0.1.1
HTTP Port: 80
Telnet Port: 23
Firmware: 1.0.17
On/Up Time (dd HH:mm:ss): 00 00:28:37
Power Status: PWON
```

### TrigCEC

Sends the specified command to the display using CEC. The first parameter is the zone output: 1 = **HDBaseT OUT 1**, 2 = **HDBaseT OUT 2**, 3 = **HDMI OUT**, all = all outputs. Note that CEC is an HDMI protocol. Therefore, HDBaseT outputs will trigger CEC commands from the connected receiver. Do not add a space between the command and the first argument.

#### Syntax

```
TrigCECX Y
```

Parameter	Description	Range
X	Zone	1 ... 3, all
Y	Command	on, off

#### Example

```
TrigCEC1 on
```

#### Feedback

```
TrigCEC1 on
```

### Type

Displays the model information of the unit.

#### Syntax

```
Type
```

**This command does not require any parameters**

#### Example

```
Type
```

#### Feedback

```
AT-UHD-CAT-4ED
```

### 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

1.0.17

