



unIFY 3rd Party Control

For Remote Control of unIFY Devices

Software API

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1 – Overview of 3rd Party Control

All Attero Tech unIFY devices have the ability to be controlled remotely by a 3rd party system. They utilize a simple ASCII based protocol to allow control of unIFY devices on the fly using RS-232 serial or UDP network control.

1.1 – Dante Devices

For Dante-based networked products, there are two different protocol options. The Dante proprietary interface (-C) is reserved for products where support for this interface such as Symetrix Radius, Prism and Edge products and Attero Tech's unIFY CommandHub. For other control systems, the direct UDP (-U) command interface should be used. This document describes the protocol that the direct UDP command interface uses.

The command interface a device supports is determined by the firmware the device has loaded in it. Whether a device does or does not support the direct UDP command interface can be found by using either of the two methods:

- 1) Using unIFY Control Panel V2.1 or newer, the control interface type is shown by right clicking on a device in the device list and selecting Device Info. The "Control Type" field will indicate either -U or -C for a supported Attero Tech device.
- 2) Using Dante Controller, look at the devices "Product Version" and "Firmware Version". If the Product Version is V2.x.x or V3.x.x, or the Product Version is V4.x.x and the Firmware Version is V2.0.0, the software supports the -U UDP interface. This applies to all products except the unDNEMO, and unDNEMO-BT.

Devices can be ordered with the correct firmware to support direct UDP control interface by adding a "-U" suffix to the 900-xxxx-yy part number. For devices in the field that have firmware that support the Dante Proprietary interface (-C), in the firmware may be changed to support the direct UDP interface and this change can be applied in the field.

**Note: Older units may have firmware that pre-dates in-field updates. If you have one of these, and need to update the device, contact Attero Tech support.*

1.2 – AES67 Devices

For AES67-based networked products, there is only the direct UDP (-U) command interface. This document describes the protocol that this interface uses.

2 – Message Format

The control messages used by the direct UDP command interface have a very simple format. No matter what the device, the format of the message is always the same. The overall format of the message contains only printable ASCII characters so that they can be debugged easily. Each message contains a number of data fields each separated by a space. The message is then terminated with a carriage return. The general format of a message is shown below:

```
<Command> <Parameter1> <Parameter2><CR>
```

Field Name	Description
<Command>	The command that will be given to the device.
<Parameter1>	First optional parameter. See device command tables below for specific details
<Parameter2>	Second optional parameter. See device command tables below for specific details
<CR>	Carriage return character (ASCII character 13)

A typical message would look something like the following:

```
IG 1 25.0<CR>
```

2.1 – Command Responses

Each command sent to a device should return a response. Like the original command, the response only contains printable ASCII characters, each field is separated by a space and the message is terminated carriage return. The general format of a response message is shown below.

```
<ACK> <Command> <Parameter1> <Parameter2><CR>
```

Field Name	Description
<ACK>	Success or failure indication: “ACK” if successful; “NACK” if unsuccessful
<Command>	The original command that was given to the device
<Parameter1>	First optional parameter from the original command message
<Parameter2>	Second optional parameter from the original command message
<CR>	Carriage return character (ASCII character 13)

If the command is successful, the device will return an ACK response. The ACK message for our example message above would be

```
ACK IG 1 25.0<CR>
```

If the command is processed but for some reason unsuccessful, the device will return a NACK response instead of an ACK. Just like the ACK, the original command will also be include in the NACK message.

```
NACK IG 1 25.0<CR>
```

There are cases where the device will not respond to a command at all. This is caused when the device unable to process the message it was sent for some reason. The most typical situation where this could happen is that the terminating <CR> character missing. Alternatively it could also be that the device is currently supporting the wrong command interface.

2.2 – Delivery Method

Commands are sent by placing them in a UDP packet which is sent directly to the IP address of the device being controlled. All direct UDP messages should be sent to port 49494 of the recipient device. Responses to commands will be directed back to the specific IP address and port that the request originated from.

**Note: the unD32 uses a slightly different delivery method. Please refer to the unD32 section for more details.*

3 – unDIO2x2 Commands

**Note: unDIO2x2 devices must be product version V3.x.x or be V4.x.x with firmware V2.0.0 to support direct UDP commands.*

The following commands are available for the unDIO2x2.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (1 or 2)	Gain (0.0, 25.0 or 40.0)
Phantom Power	PP	Channel # (1 or 2)	State (0 = off or 1 = on)
Output Boost	OG	Channel # (1 or 2)	Gain (0.0 or 10.0)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-

3.1 – Input Gain

Select microphone or line input mode by setting the amount of microphone pre-amplifier input gain. The command sets a specific gain on a specific input. Input gains available are 0.0, 25.0, or 40.0. The gain values must contain the decimal value so sending a value of 0, 25 or 40 will not be accepted.

Example command:

IG 1 25.0<CR> Sets the input gain of channel 1 to +25dB

Example response:

ACK IG 1 25.0<CR> OK response

3.2 – Phantom Power

Activates or deactivates the phantom power on a particular input.

Example command:

PP 2 0<CR> Sets the phantom power on input 2 to be off

Example response:

ACK PP 2 0<CR> OK response

3.3 – Output Boost

Select the amount of gain to be used by the hardware output boost amplifier on a particular output. The output gains available are 0.0 or 10.0. The gain values must contain the decimal value so sending a value of just 0 or 10 will not be accepted.

Example command:

OG 1 10.0<CR> Sets the output gain of channel 1 to be +10dB

Example response:

ACK OG 1 10.0<CR> OK response

3.4 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command turns on the identify function and it will remain active until the appropriate Identify command is sent to turn it off, or the device is reset or power cycled. The Find Unit command activates the identify function but unlike the identify command the identify function will automatically turn itself off after 5 seconds.

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

3.5 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. There are ten presets available 0 through 9. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

3.6 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters. The command takes no parameters.

Example command:

QUERY<CR>

Example response:

ACK QUERY IG1=0.0 IG2=25.0 OG1=10.0 OG2=0.0 PP1=0 PP2=1 MUTE=0 ID=0<CR>

The example response shows the device is configured as follows:

- Input 1 Gain 0dB (line level)
- Input 2 Gain +25dB
- Output 1 Gain +10dB
- Output 2 Gain 0dB
- Phantom power Input 1 - off
- Phantom power input 2 - on
- ID function - Disabled

**Note: The Query command response contains a MUTE parameter which is no longer supported and should be ignored.*

3.7 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to 0.0, the output gains to 0.0, phantom power is turned off on both inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:
DEFAULTS<CR>

Example response:
ACK DEFAULTS<CR>

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

3.8 – Version

Returns the software version of the host processor in the unDIO2X2. The command takes no parameters.

Example command:
VERSION<CR>

Example response:
ACK VERSION 1.3.0<CR>

4 – unDIO2X2+ Commands

The following commands are available for the unDIO2X2+

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-2)	Gain (0.0, 15.0, 30.0, 45.0)
Input Pad	IP	Channel # (0-2)	State (0 = off or 1 = on)
Phantom Power	PP	Channel # (0-2)	State (0 = off or 1 = on)
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Parameter Lock	LOCKP	State (0 = off or 1 = on)	-
Identify Device	ID	Mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Get Product Type	GETPRODTYPE	-	-
Get Product ID	GETPRODID	-	-
Get Device Name	GETDEVICENAME	-	-
Get Device Lock	GETDEVICELOCK	-	-
Get Audio Levels	GETAUDIOLEVEL	-	-
Get MAC address	GETMAC	-	-
Get Channel label	GETCHNLLABEL	Type = ("RX", "TX")	Channel # (1-2)
Get MCU model	MODEL	-	-

4.1 – Input Gain

Select microphone or line input mode for a particular input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the gain setting to all available input channels. A channel value of 1 or 2 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are 0.0, 15.0, 30.0 and 45.0. The gain values must contain the decimal value so sending a value of 15, for example, will not be accepted.

Example command:

```
IG 1 30.0<CR>           Sets the input gain of channel 1 to +30dB
```

Example response:

```
ACK IG 1 30.0<CR>      OK response
```

4.2 – Input Pad

Activate the input pad for a particular input. Doing so gives approximately a further 16dB headroom for audio input signals allowing +24dBu input signals to be accommodated. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the pad setting to all available input channels. A channel value of 1 or 2 will set the input pad on the specified channel only. Any other channel value will result in a NACK response. The input pad state is either a zero (“0”) for off or a one (“1”) for on. Any other value will result in a NACK being returned.

Example command:

```
IP 1 1<CR>           Activates the input pad on channel 1
```

Example response:

```
ACK IP 1 1<CR>      OK response
```

4.3 – Phantom Power

Activates or deactivates the phantom power on a particular input. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1 or 2 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

```
PP 1 0<CR>          Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>      OK response
```

4.4 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

***Note:** This is attenuation only and applies no amplification to the audio signals.

Example command:

```
OV 0 -20<CR>        Sets both output channels to -20 dB attenuation.
```

Example response:

```
ACK OV 0 -20<CR>    OK response
```

4.5 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero (“0”) for unmuted and a one (“1”) for muted. Any other value will result in a NACK being returned.

***Note:** The output mute setting is independent of the volume control.

Example command:

```
OM 2 1<CR>          Mute output channel 2.
```

Example response:

```
ACK OM 2 1<CR>      OK response
```

4.6 – Parameter Lock

Parameter lock is used to prevent changes being made to device parameters such as input gain and output volume. The command simply requires a state of either zero (“0”) to turn the lock off or one (“1”) to turn it on. When enabled, any attempt to change the value of a device parameter over the network will, regardless of what application or software generates that request, result in a NACK being returned. The parameter lock works in conjunction with the Dante lock. The Dante lock, when activated, prevents unauthorized users from changing Dante parameters such as device IP address, device name, channel names and audio routing related to that device (See the Audinate documentation on locking devices for more details of the Dante lock feature).

If the Dante Lock is activated with the parameter lock enabled, not only are the Dante parameters such as IP address and route configuration locked, but so are the device parameters like input gain and output volume so nothing can be changed. However, if the Dante Lock is activated with the parameter lock disabled, Dante parameters are still locked but device parameters such as input gain and output volume remain accessible. This is useful in systems where a 3rd party control system or DSP is being used to directly control the devices parameters in real time.

The parameter lock can also be used with the Dante lock disabled to simply prevent accidental alteration of device parameters.

Example command:

```
LOCKP 1<CR>          Activate the parameter lock.
```

Example response:

```
ACK LOCKP 1<CR>      OK response
```

4.7 – Identify/Find Unit

Used to find a device by flashing the device LED’s. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

```
ID 1<CR>             Turn on identify function
ID 0<CR>             Turn off identify function
FU<CR>               Turn on find unit function
```

Example commands:

```
ACK ID 1<CR>         OK response
ACK ID 0<CR>         OK response
ACK FU<CR>           OK response
```

4.8 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

```
LOAD 5<CR>          Load Preset 5
SAVE 3<CR>          Save current settings as preset 3
```

Example response:

```
ACK LOAD 5<CR>      OK Response
ACK SAVE 3<CR>      OK Response
```

4.9 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=0.0 IG2=0.0 IP1=OFF IP2=OFF PP1=OFF PP2=OFF OV1=0 OV2=0 OM1=OFF OM2=OFF ID=OFF  
LOCKP= UNLOCKED<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain 0.0 dB  
Input 2 Gain 0.0 dB  
Input 1 Pad Off  
Input 2 Pad Off  
Input 1 Phantom Power Off  
Input 2 Phantom Power Off  
Output 1 Volume 0 dB  
Output 2 Volume 0 dB  
Output 1 Mute = Unmuted  
Output 2 Mute = Unmuted  
ID function – Disabled  
Parameter Lock - Unlocked
```

4.10 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to 0.0dB, input pads are turned off, phantom power is turned off, output volume is set to 0dB, and output mutes are set to unmuted and these same settings are then stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device parameters to the original factory values removing any user changes and should be used with caution. This command has no effect on any of the Dante settings.*

4.11 – Version

Returns the software version of the host processor. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.3.0<CR>
```

4.12– Get Product Type

This command requests the Product Type. The commands takes no parameters

Example command:

```
GETPRODTYPE<CR>
```

Example response:

```
ACK GETPRODTYPE unDIO2X2+ <CR>
```

4.13 – Get Product ID

This command requests the product ID and is unique so each type of Attero device will return the same value. The product ID is 64 bits and is returned as 16 ASCII characters representing 16 hexadecimal digits. To signify that the data is in hexadecimal the data is preceded with a 0x.

Example command:
GETPRODID<CR>

Example response:
ACK GETPRODID 0x000000000000000F<CR>

4.14 – Get Device Name

This command requests the device name as shown in Dante Controller. The device name data is up to 32 characters long consisting of number and letters with no spaces. The name may also contain a dash ("-") character, but it will not begin or end with a dash ("-") character.

Example command:
GETDEVICENAME<CR>

Example response:
ACK GETDEVICENAME unDIO2X2-000000<CR>

4.15 – Get Device Lock

This command requests the status of the Dante device lock. The command has no parameters. The device lock status indicates whether the Ultimo device configuration can be modified (i.e. is unlocked) or cannot be modified (i.e. is locked). The return values are LOCKED for locked status, UNLOCKED for unlocked status, and UNKNOWN if the MCU cannot determine the lock status.

Example command:
GETDEVICELOCK<CR>

Example response:
ACK GETDEVICELOCK LOCKED<CR>

4.16 – Get Audio Level

This command requests the audio signal level value data. The command has no parameters. Audio level data for all RX and all TX channels is returned in the response. The return values are as follows:

Return Value	Meaning
0x00	Clipping is occurring
0x01	A valid signal is detected (>-64dBFS)
0xFD	No signal
0xFF	Invalid

Example command:

```
GETAUDIOLEVEL<CR>
```

Example response:

```
ACK GETAUDIOLEVEL RX1=0xFF RX2=0xFF TX1=0xFF TX2=0xFF TX3=0xFF TX4=0xFF<CR>
```

4.17 – Get MAC Address

This command requests the MAC address used by the device. The command has no parameters. The MAC address data is 48bits and is returned as 12 ASCII characters representing 12 hexadecimal digits.

Example command:

```
GETMAC<CR>
```

Example response:

```
ACK GETMAC 001DC1000495<CR>
```

4.18 – Get Channel Label

This command requests the channel label as shown on the Dante network for a specific transmit or receive channel. The command has two parameters. The first parameter is either RX or TX indicating whether the channel name is one of the receiving or transmitting channels respectively. The second parameter is the channel number is either 1 or two for the RX channels or 1, 2, 3 or 4 for the TX channels. The returned name is up to 32 characters long.

Example command:

```
GETCHNLLABEL RX 2<CR>
```

Example response:

```
ACK GETCHNLLABEL RX 2 RXCHNL1<CR>
```

4.19 – Get Model

This command requests the model of the devices MCU firmware. The command has no parameters.

***Note:** The value returned is **NOT** retrieved from the communications processor but hard-coded into firmware itself and indicates the device the MCU code is meant for.

Example command:

```
MODEL<CR>
```

Example response:

```
ACK MODEL unDX2IO+<CR>
```

5 – unDX2IO Commands

**Note: unDX2IO devices must be product version 3.x.x or be product version 4.x.x and firmware version 2.0.0 to support direct UDP commands.*

The following commands are available for the unDX2IO.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (1 or 2)	Gain (0.0, 25.0 or 40.0)
Phantom Power	PP	Channel # (1 or 2)	State (0 = off or 1 = on)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-

5.1 – Input Gain

Select microphone or line input mode by setting the amount of microphone pre-amplifier input gain. The command sets a specific gain on a specific input. Input gains available are 0.0, 25.0, or 40.0. The gain values must contain the decimal value so sending a value of 0, 25 or 40 will not be accepted.

Example command:

```
IG 1 25.0<CR>           Sets the input gain of channel 1 to +25dB
```

Example response:

```
ACK IG 1 25.0<CR>      OK response
```

5.2 – Phantom Power

Activates or deactivates the phantom power on a particular input.

Example command:

```
PP 2 0<CR>             Sets the phantom power on input 2 to be off
```

Example response:

```
ACK PP 2 0<CR>        OK response
```

5.3 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command turns on the identify function and it will remain active until the appropriate Identify command is sent to turn it off, or the device is reset or power cycled. The Find Unit command activates the identify function but unlike the identify command the identify function will automatically turn itself off after 5 seconds

Example commands:

```
ID 1<CR>                Turn on identify function
ID 0<CR>                Turn off identify function
FU<CR>                 Turn on find unit function
```

Example commands:

```
ACK ID 1<CR>           OK response
ACK ID 0<CR>           OK response
ACK FU<CR>             OK response
```

5.4 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. There are ten presets available 0 through 9. A preset stores the devices configuration and includes the input gain settings, and the phantom powers settings. The response to this command from the device is the same format as for a basic command response.

Example command:

```
LOAD 5<CR>          Load Preset 5
SAVE 3<CR>          Save current settings as preset 3
```

Example response:

```
ACK LOAD 5<CR>      OK Response
ACK SAVE 3<CR>      OK Response
```

5.5 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=0.0 IG2=25.0 PP1=0 PP2=1 MUTE=0 ID=0<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain - 0
Input 2 Gain +25dB
Phantom power Input 1 - off
Phantom power input 2 - on
ID function - Disabled
```

**Note: The Query command response contains a MUTE parameter which is no longer supported and can therefore be ignored.*

5.6 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to 0.0, the output gains to 0.0, phantom power is turned off on both inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

5.7 – Version

Returns the software version of the host processor in the unDX2IO. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.3.0<CR>
```

6 – unDX2IO+ Commands

The following commands are available for the unDX2IO+.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-2)	Gain (-18.0, -3.0, 25.0, 40.0)
Input Pad	IP	Channel # (0, 3, 4)	State (0 = off or 1 = on)
Phantom Power	PP	Channel # (0-4)	State (0 = off or 1 = on)
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Parameter Lock	LOCKP	State (0 = off or 1 = on)	-
Identify Device	ID	Mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Get Product Type	GETPRODTYPE	-	-
Get Product ID	GETPRODID	-	-
Get Device Name	GETDEVICENAME	-	-
Get Device Lock	GETDEVICELock	-	-
Get Audio Levels	GETAUDIOLEVEL	-	-
Get MAC address	GETMAC	-	-
Get Channel label	GETCHNLLABEL	Type ("RX", "TX")	For RX type - Channel # (1-2) For TX type - Channel # (1-4)
Get MCU model	MODEL	-	-

6.1 – Input Gain

Select microphone or line input mode for a particular input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the gain setting to both input channels. A channel value of 1, or 2 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are -18.0, -3.0, 25.0 and 40.0. The gain values must contain the decimal value so sending a value of -18, for example, will not be accepted.

Example command:

IG 1 25.0<CR> Sets the input gain of channel 1 to +25dB

Example response:

ACK IG 1 25.0<CR> OK response

***Note:** unify shows the values for two of the gain options slightly differently. The "-3.0" value is indicated as "0dB" and the "-18" value is indicated as "0dB (Pad Active)".

6.2 – Input Pad

Select the input range for a particular input (inputs 3 and 4 only). The first parameter is the channel number and should be 0, 3 or 4. A channel number of 0 will apply the pad setting to all available input channels. A channel value of 3 or 4 will set the input pad on the specified channel only. Any other channel value will result in a NACK response. The input pad state is either a zero ("0") for off (10dBV consumer range) or a one ("1") for on for (+4dBu pro range). Any other value will result in a NACK being returned.

Example command:

```
IP 1 1<CR>           Activates the input pad on channel 1
```

Example response:

```
ACK IP 1 1<CR>      OK response
```

6.3 – Phantom Power

Activates or deactivates the phantom power on a particular input. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1 or 2 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

```
PP 1 0<CR>          Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>      OK response
```

6.4 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

***Note:** This is attenuation only and applies no amplification to the audio signals.

Example command:

```
OV 0 -20<CR>        Sets both output channels to -20 dB attenuation.
```

Example response:

```
ACK OV 0 -20<CR>    OK response
```

6.5 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

***Note:** The output mute setting is independent of the volume control.

Example command:

```
OM 2 1<CR>          Mute output channel 2.
```

Example response:

```
ACK OM 2 1<CR>      OK response
```

6.6 – Parameter Lock

Parameter lock is used to prevent changes being made to device parameters such as input gain and output volume. The command simply requires a state of either zero (“0”) to turn the lock off or one (“1”) to turn it on. When enabled, any attempt to change the value of a device parameter over the network will, regardless of what application or software generates that request, result in a NACK being returned. The parameter lock works in conjunction with the Dante lock. The Dante lock, when activated, prevents unauthorized users from changing Dante parameters such as device IP address, device name, channel names and audio routing related to that device (See the Audinate documentation on locking devices for more details of the Dante lock feature).

If the Dante Lock is activated with the parameter lock enabled, not only are the Dante parameters such as IP address and route configuration locked, but so are the device parameters like input gain and output volume so nothing can be changed. However, if the Dante lock is activated with the parameter lock disabled, Dante parameters are still locked but device parameters such as input gain and output volume remain accessible. This is useful in systems where a 3rd party control system or DSP is being used to directly control the devices parameters in real time.

The parameter lock can also be used with the Dante lock disabled to simply prevent accidental alteration of device parameters.

Example command:

```
LOCKP 1<CR>          Activate the parameter lock.
```

Example response:

```
ACK LOCKP 1<CR>      OK response
```

6.7 – Identify/Find Unit

Used to find a device by flashing the devices LED’s. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

```
ID 1<CR>              Turn on identify function
ID 0<CR>              Turn off identify function
FU<CR>                Turn on find unit function
```

Example commands:

```
ACK ID 1<CR>         OK response
ACK ID 0<CR>         OK response
ACK FU<CR>           OK response
```

6.8 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

```
LOAD 5<CR>           Load Preset 5
SAVE 3<CR>           Save current settings as preset 3
```

Example response:

```
ACK LOAD 5<CR>      OK Response
ACK SAVE 3<CR>      OK Response
```

6.9 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=40.0 IG2=25.0 IP3=OFF IP4=OFF PP1=OFF PP2=OFF OV1=0 OV2=0 OM1=OFF OM2=OFF  
ID=OFF LOCKP=UNLOCKED<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain 40.0 dB  
Input 2 Gain 25.0 dB  
Input 3 Pad Off  
Input 4 Pad Off  
Phantom Power Input 1 Off  
Phantom Power Input 2 Off  
Output 1 Volume 0 dB  
Output 2 Volume 0 dB  
Output 1 Mute = Unmuted  
Output 2 Mute = Unmuted  
ID function - Disabled  
Parameter lock - Unlocked
```

6.10 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains on inputs 1 and 2 to -3.0dB, phantom power on inputs 1 and 2 are turned off, input pad on inputs 3 and 4 are set to off (consumer), the output volumes set to 0dB, and output mutes turned off and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

6.11 – Version

Returns the software version of the host processor. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.3.0<CR>
```

6.12 – Get Product Type

This command requests the Product Type. The commands takes no parameters

Example command:

```
GETPRODTYPE<CR>
```

Example response:

```
ACK GETPRODTYPE unDX2IO+<CR>
```

6.13 – Get Product ID

This command requests the product ID and is unique so each type of Attero device will return the same value. The product ID is 64 bits and is returned as 16 ASCII characters representing 16 hexadecimal digits. To signify that the data is in hexadecimal the data is preceded with a 0x.

Example command:
GETPRODID<CR>

Example response:
ACK GETPRODID 0x0000000000000015<CR>

6.14– Get Device Name

This command requests the device name as shown in Dante Controller. The device name data is up to 32 characters long consisting of number and letters with no spaces. The name may also contain a dash ("-") character, but it will not begin or end with a dash ("-") character.

Example command:
GETDEVICENAME<CR>

Example response:
ACK GETDEVICENAME unDX2IO-000000<CR>

6.15 – Get Device Lock

This command requests the status of the Dante device lock. The command has no parameters. The device lock status indicates whether the Ultimo device configuration can be modified (i.e. is unlocked) or cannot be modified (i.e. is locked). The return values are LOCKED for locked status, UNLOCKED for unlocked status, and UNKNOWN if the MCU cannot determine the lock status.

Example command:
GETDEVICELOCK<CR>

Example response:
ACK GETDEVICELOCK LOCKED<CR>

6.16 – Get Audio Level

This command requests the audio signal level value data. The command has no parameters. Audio level data for all RX and all TX channels is returned in the response. The return values are as follows:

Return Value	Meaning
0x00	Clipping is occurring
0x01	A valid signal is detected (>-64dBFS)
0xFD	No signal
0xFF	Invalid

Example command:

```
GETAUDIOLEVEL<CR>
```

Example response:

```
ACK GETAUDIOLEVEL RX1=0xFF RX2=0xFF TX1=0xFF TX2=0xFF TX3=0xFF TX4=0xFF<CR>
```

6.17 – Get MAC Address

This command requests the MAC address used by the device. The command has no parameters. The MAC address data is 48bits and is returned as 12 ASCII characters representing 12 hexadecimal digits.

Example command:

```
GETMAC<CR>
```

Example response:

```
ACK GETMAC 001DC1000495<CR>
```

6.18 – Get Channel Label

This command requests the channel label as shown on the Dante network for a specific transmit or receive channel. The command has two parameters. The first parameter is either RX or TX indicating whether the channel name is one of the receiving or transmitting channels respectively. The second parameter is the channel number is either 1 or two for the RX channels or 1, 2, 3 or 4 for the TX channels. The returned name is up to 32 characters long.

Example command:

```
GETCHNLLABEL RX 2<CR>
```

Example response:

```
ACK GETCHNLLABEL RX 2 RXCHNL1<CR>
```

6.19 – Get Model

This command requests the model of the devices MCU firmware. The command has no parameters.

***Note:** The value returned is **NOT** retrieved from the communications processor but hard-coded into firmware itself and indicates the device the MCU code is meant for.

Example command:

```
MODEL<CR>
```

Example response:

```
ACK MODEL unDX2IO+<CR>
```

7 – unD3IO Commands

***Note:** unD3IO devices must be product version V2.x.x, V3.x.x, or be V4.x.x with firmware V2.0.0 to support direct UDP commands.

The following commands are available for the unD3IO.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (1)	Gain (0.0, 25.0 or 40.0)
Phantom Power	PP	Channel # (1)	State (0 = off or 1 = on)
Input Select	IS	Channel # (2)	Input (“A”, “B” “A+B”)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-

7.1 – Input Gain

Select microphone or line input mode for the unD3IO’s XLR input by setting the amount of microphone pre-amplifier input gain. The first parameter is the channel number and as the XLR input is the first channel, this should always be the value 1. Any other value will result in a NACK response. Input gains available are 0.0, 25.0, or 40.0. The gain values must contain the decimal value so sending a value of 0, 25 or 40 will not be accepted.

Example command:

IG 1 25.0<CR> Sets the input gain of channel 1 to +25dB

Example response:

ACK IG 1 25.0<CR> OK response

7.2 – Phantom Power

Activates or deactivates the phantom power on the unD3IO XLR input. The XLR is channel 1 so this parameter should always be the value 1. Any other value will result in a NACK response. The second parameter sets the phantom power either on (0) or off (1).

Example command:

PP 1 0<CR> Sets the phantom power on input 1 to be off

Example response:

ACK PP 1 0<CR> OK response

7.3 – Input Select

Select which of the line level inputs is used as input 2. Input 2 of the unD3IO is used exclusively for the line level only inputs so the first parameter in this command should always be a 2. Any other value will result in a NACK response. The second parameter is which inputs provide audio for the second audio input. The three options are

- A – Audio from only the RCA inputs mono-mixed into a single channel
- B – Audio from only the stereo-jack input mono-mixed into a single channel
- A+B – A mono mix of all the audio from both the RCA and stereo jack inputs

Example commands:

IS 2 A<CR>	Sets input select to RCA inputs only
IS 2 B<CR>	Sets input select to stereo jack inputs only
IS 2 A+B<CR>	Sets input select to RCA and stereo jack Mix

Example responses:

ACK IS 2 A<CR>	OK response
NACK IS 1 B<CR>	Fail response (channel incorrectly set)

7.4 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command turns on the identify function and it will remain active until the appropriate Identify command is sent to turn it off, or the device is reset or power cycled. The Find Unit command activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

7.5 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

7.6 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=0.0 IS=A PP1=0 ID=0<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain - 0  
Input select - RCA inputs only  
Phantom power Input 1 - off  
ID function - Disabled
```

**Note: The Query command response contains a MUTE parameter which is no longer supported and can therefore be ignored.*

7.7 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to 0.0, the output gains to 0.0, phantom power is turned off on both inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

7.8 – Version

Returns the software version of the host processor in the unD3IO. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.3.0<CR>
```

8 – unD4I Commands

***Note:** unD4I devices must be product version V3.x.x or be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.

The following commands are available for the unD4I.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (1-4)	Gain (-12.0, 0.0, 3.0, 15.0, 18.0, 30.0, 33.0, or 45.0)
Phantom Power	PP	Channel # (1-4)	State (0 = off or 1 = on)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..8])	-
Save preset values	SAVE	x (x = [0..8])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-

8.1 – Input Gain

Select microphone or line input mode for a particular unD4I input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 1 and 4. Any other value will result in a NACK response. Input gains available are -12.0, 0.0, 3.0, 15.0, 18.0, 30.0, 33.0, or 45.0. The gain values must contain the decimal value so sending a value of -12, 0, 3, 15, 18, 30, 33, or 45 will not be accepted.

Example command:

```
IG 1 15.0<CR>           Sets the input gain of channel 1 to +15dB
```

Example response:

```
ACK IG 1 15.0<CR>      OK response
```

8.2 – Phantom Power

Activates or deactivates the phantom power on a particular unD4I inputs. The first parameter is the channel number between 1 and 4. Any other value will result in a NACK response. The second parameter sets the phantom power either on (0) or off (1).

Example command:

```
PP 1 0<CR>             Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>        OK response
```

8.3 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command turns on the identify function and it will remain active until the appropriate Identify command is sent to turn it off, or the device is reset or power cycled. The Find Unit command activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

8.4 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

8.5 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

QUERY<CR>

Example response:

ACK QUERY IG1=0.0 IG2=0.0 IG3=0.0 IG4=0.0 PP1=OFF PP2=OFF PP3=OFF PP4=OFF ID=OFF DBG=OFF<CR>

The example response shows the device is configured as follows:

- Input 1 through 4 Gain = 0 dB
- Phantom power Input 1 through 4 = Off
- ID function – Disabled
- Dante Debug Mode LEDs Off

8.6 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to 0.0, the output gains to 0.0, phantom power is turned off on both outputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:
DEFAULTS<CR>

Example response:
ACK DEFAULTS<CR>

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

8.7 – Version

Returns the software version of the host processor on the unD4I. The command takes no parameters.

Example command:
VERSION<CR>

Example response:
ACK VERSION 1.3.0<CR>

9 – unD4I-L Commands

**Note: unD4I-L devices must be product version V3.x.x or be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.*

The following commands are available for the unD4I-L. It is important to note that the unD4I-L also supports customizable, asynchronous event messages in addition to the standard command set provided in this section. Please refer to the user manual for the unD4I-L on how to configure the logic input event messaging.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (1-4)	Gain (-12.0, 0.0, 3.0, 15.0, 18.0, 30.0, 33.0, or 45.0)
Phantom Power	PP	Channel # (1-4)	State (0 = off or 1 = on)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..8])	-
Save preset values	SAVE	x (x = [0..8])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Read logic input state	RLI	Input # (0-4)	
Read logic output state	RLO	Output # (0-4)	
Write logic output state	WLO	Output # (0-4)	State (0 = Off or 1 = On)
Read logic input voltage	RAC	Input # (1-4)	

9.1 – Input Gain

Select microphone or line input mode for a particular unD4I-L input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 1 and 4. Any other value will result in a NACK response. Input gains available are -12.0, 0.0, 3.0, 15.0, 18.0, 30.0, 33.0, or 45.0. The gain values must contain the decimal value so sending a value of -12, 0, 3, 15, 18, 30, 33, or 45 will not be accepted.

Example command:

```
IG 1 15.0<CR>           Sets the input gain of channel 1 to +15dB
```

Example response:

```
ACK IG 1 15.0<CR>      OK response
```

9.2 – Phantom Power

Activates or deactivates the phantom power on a particular unD4I-L inputs. The first parameter is the channel number between 1 and 4. Any other value will result in a NACK response. The second parameter sets the phantom power either on (0) or off (1).

Example command:

```
PP 1 0<CR>             Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>        OK response
```


9.3 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command turns on the identify function and it will remain active until the appropriate Identify command is sent to turn it off, or the device is reset or power cycled. The Find Unit command activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

9.4 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

9.5 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

QUERY<CR>

Example response:

```
ACK QUERY IG1=0.0 IG2=0.0 IG3=0.0 IG4=0.0 PP1=OFF PP2=OFF PP3=OFF PP4=OFF ID=OFF RLI=15
RLO=0 RAS=0 DBG=OFF MCU_STATIC_IP=0 MCU_IP=169.254.1.0 MCU_NM=255.255.0.0 MCU_GW=0.0.0.0
EVENT_MSG_METHOD=0
```

The example response shows the device is configured as follows:

- Gain Input 1 through 4 = 0 dB
- Phantom power Input 1 through 4 = Off
- ID function – Disabled
- Logic Inputs (RLI) = 15 (bitmask of state - MSB In 4 = High, In 3 = High, In 2 = High, LSB In 1 = High)
- Logic Outputs (RLO) = 0 (bitmask of state - MSB Out 4 = Low, Out 3 = Low, Out 2 = Low, LSB Out 1 = Low)
- Dante Debug LED Mode = Off
- MCU_IP = Dynamic IP (0= Dynamic IP, 1 = static IP)
- MCU IP address =-169.254.1.0
- MCU Netmask = 255.255.0.0
- Event Message Mode = UDP (0 = UDP, 1 = TCP)

***Note:** The Query command response contains a RAS and MCY_GW parameters which are no longer supported and can therefore be ignored.

9.6 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to 0.0, the output gains to 0.0, phantom power is turned off on both inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:
DEFAULTS<CR>

Example response:
ACK DEFAULTS<CR>

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

**Note: This command does not reset the devices secondary IP address setup. This will remain the same even after a defaults command is issued.*

9.7 – Version

Returns the software version of the host processor on the unD4I-L. The command takes no parameters.

Example command:
VERSION<CR>

Example response:
ACK VERSION 1.3.0<CR>

9.8 – Read Logic Input State

Reads the logic state of one or all the logic inputs of the unD4I-L.

The command must be accompanied by a parameter which determines if the response will contain the state of an individual input (1-4) or the states of all inputs (0). When requesting a single input state, the response will be either a '0' for off or a '1' for on. When requesting all input states, the response will contain a decimal number representing a 4-bit bitmask of the input states where input 1 is the LSB and input 4 the MSB. The table below shows the possible values that can be returned and the state of each input that the value represents.

Value	State			
	Input 4	Input 3	Input 2	Input 1
0	Off	Off	Off	Off
1	Off	Off	Off	On
2	Off	Off	On	Off
3	Off	Off	On	On
4	Off	On	Off	Off
5	Off	On	Off	On
6	Off	On	On	Off
7	Off	On	On	On
8	On	Off	Off	Off
9	On	Off	Off	On
10	On	Off	On	Off
11	On	Off	On	On
12	On	On	Off	Off
13	On	On	Off	On
14	On	On	On	Off
15	On	On	On	On

Example commands:

```
RLI 0<CR>
RLI 1<CR>
```

Retrieve the state of all logic inputs
 Retrieve the state of just input one

Example responses:

```
ACK RLI 0 10<CR>
ACK RLI 1 0<CR>
```

All input states where inputs 4 and 2 are on and inputs 1 and 3 are off.
 State for input 1 is off

9.9 – Read Logic Output State

Reads the logic state of one or all the logic outputs of the unD4I-L. The command must be accompanied by a parameter which determines if the response will contain the state of an individual output (1-4) or the states of all outputs (0). When requesting a single output state, the response will be either a '0' for off or a '1' for on. When requesting all output states, the response will contain a decimal number representing a 4-bit bitmask of the output states where input 1 is the LSB and input 4 the MSB. The table below shows the possible values that can be returned and the state of each output that the value represents.

Value	State			
	Output 4	Output 3	Output 2	Output 1
0	Off	Off	Off	Off
1	Off	Off	Off	On
2	Off	Off	On	Off
3	Off	Off	On	On
4	Off	On	Off	Off
5	Off	On	Off	On
6	Off	On	On	Off
7	Off	On	On	On
8	On	Off	Off	Off
9	On	Off	Off	On
10	On	Off	On	Off
11	On	Off	On	On
12	On	On	Off	Off
13	On	On	Off	On
14	On	On	On	Off
15	On	On	On	On

Example commands:

```
RLO 0<CR>
RLO 1<CR>
```

Retrieve the state of all logic outputs
 Retrieve the state of just output one

Example responses:

```
ACK RLO 0 10<CR>
ACK RLO 1 0<CR>
```

All output states where outputs 4 and 2 are on and outputs 1 and 3 are off.
 State for output 1 is off

9.10 – Write Logic Output State

Writes a new logic state for one or all the logic outputs of the unD41-L. This command can take one of two forms.

9.10.1 – Set Single Channel

The command must be accompanied by two parameters. The first parameter determines which output state (1-4) is to be changed. The second parameter must be either a '0' for off or a '1' for on.

Example commands:

WLO 1 1<CR>	Write the logic output 1 to be on
WLO 2 1<CR>	Write the logic output 2 to be on
WLO 2 0<CR>	Write the logic output 2 to be off

Example responses:

ACK WLO 1 1<CR>	Confirmation output 1 is now set to on
ACK WLO 2 1<CR>	Confirmation output 2 is now set to on
ACK WLO 2 0<CR>	Confirmation output 2 is now set to off

9.10.2 – Set All Channels

The command must be accompanied by two parameters. The first parameter must be a 0 indicating all channels are to be written at once. The second parameter contains a decimal number representing a 4-bit bitmask of the output states where input 1 is the LSB and input 4 the MSB. The table below shows the possible values that can be used and the state of each output that the value would represent.

Example commands:

WLO 0 5<CR>	Write the state of all logic outputs – Outputs 1 and 3 on, 2 and 4 off
-------------	--

Example responses:

ACK WLO 0 5<CR>	Confirmation outputs 1 and 4 are off, 1 and 3 are on
-----------------	--

Value	State			
	Output 4	Output 3	Output 2	Output 1
0	Off	Off	Off	Off
1	Off	Off	Off	On
2	Off	Off	On	Off
3	Off	Off	On	On
4	Off	On	Off	Off
5	Off	On	Off	On
6	Off	On	On	Off
7	Off	On	On	On
8	On	Off	Off	Off
9	On	Off	Off	On
10	On	Off	On	Off
11	On	Off	On	On
12	On	On	Off	Off
13	On	On	Off	On
14	On	On	On	Off
15	On	On	On	On

9.11 – Read Logic Input Voltage

Reads the actual voltage level on a logic input. The value returned is the ASCII representation of the 12-bit ADC reading (0-4095). The actual voltage value can be calculated using the following formula:

$$\text{Voltage} = \frac{x}{4096} \times 3.3 \quad \text{where } x \text{ is the value returned by the command.}$$

Example commands:

```
RAC 2<CR>
```

Read analog level on logic input 2

Example responses:

```
ACK RAC 2 2048<CR>
```

Voltage level on logic input 2 is $\frac{2048}{4096} \times 3.3 = 1.65V$

10 – unD32 Commands

Unlike other devices, the UDP packet can either be addressed to the specific IP address of the device to be controlled or it can be a broadcast message instead. However, the message ***MUST*** include the device name which needs to be prefixed to the commands and separated from the command by a space. The advantage of using a broadcast IP address is the control system does not need to know the specific IP address of any unD32 as any unD32 receiving the broadcast message will use the device name as a filter and only the unD32 that is specifically referenced in the message will execute the command. The broadcast method does not allow for a single command to affect multiple unD32 units.

Regardless of whether the UDP message is sent to a specific IP or a broadcast IP, packets must be directed to port 57007 and any response is returned back to the default response port 57008. These ports may be changed from the unD32 control application.

The following commands are available for the unD32.

Description	Command	Parameter 1	Parameter 2
Output Mute	OM	Channel # (1 - 32 or M)	Mute (0= off, 1 = on)
Output Attenuation	OA	Channel # (1 - 32 or M)	Level (-70.0 - 0.0)
Retrieve current settings	QUERY	Type (<Empty>, M or 1 - 32)	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-

10.1 – Output Mute

Sets the mute status of a particular output or the master mute. Individual channel mutes can be used to mute a particular output channel. The master mute can be used to mute all channels simultaneously. The first parameter selects which output or outputs are affected. Use a value between 1 and 32 to change an individual channel mute or use 'M' to change the master mute. The second parameter contains the new mute status. A '0' turns the mute off while a '1' turns the mute on.

Example commands:

```
unD32-000000 OM 1 0<CR>
unD32-000000 OM M 1<CR>
```

Turns channel 1 mute off
 Turns master mute on

Example responses:

```
unD32-000000 ACK OM 1 0<CR>
unD32-000000 ACK OM M 1<CR>
```

Channel 1 mute off response
 Master mute on response

Notes:

The master mute status always overrides any individual channel mute settings. The table below shows how the master mute and individual channel mute settings affect the audio of any given output channel.

Master mute Status	Channel Mute Status	Resultant Output
Off	Off	Audio Output
Off	On	Muted
On	Off	Muted
On	On	Muted

10.2 – Output Attenuation

Sets the attenuation level of a particular output or the master attenuation. Individual channel attenuation can be used to reduce the output level on a particular output channel. The master attenuation attenuates the levels across all channels.

The first parameter of this command selects which outputs are affected. Use a value between 1 and 32 to change an individual channel attenuation level or 'M' to change the master attenuation level. The second parameter contains the new attenuation level in dB. The attenuation value internally is limited to steps of 0.375dB. Any value will be accepted and rounded to the nearest available step. A value of "0" (zero) represents full volume. A value of -70.0 represents minimum volume (this is then rounded internally to -70.125).

Example commands:

```
unD32-000000 OA 1 0<CR>          Set channel 1 attenuation to 0
unD32-000000 OA M -35.1<CR>      Set master attenuation to -35dB
```

Example responses:

```
unD32-000000 ACK OA 1 -0.000<CR>  Channel 1 attenuation set to zero
unD32-000000 ACK OA M -35.250<CR> Master attenuation set to -35d.25dB
```

Notes:

The effects of master attenuation and individual channel attenuation are cumulative.

10.3 – Query

A QUERY command allows the control system to get a snapshot of the current state of the devices attenuation levels and mute settings. Using the channel number as the parameter will result in only that channels information being returned. Using 'M' as the parameter will only return the master attenuation and master mute settings. In both cases, the response will include both the attenuation level and the mute status.

The attenuation level is returned as a number expressed in 'dB'. It will always begin with a minus sign and will always be shown to 3 decimal places. The mute status is either a 0 or a 1 where 0 means the mute is not active and a 1 meaning the mute is active.

Example command:

```
unD32-000000 QUERY 1<CR>          Request ch 1 attenuation level and mute status
unD32-000000 QUERY M<CR>         Request master attenuation level and mute status
```

Example response:

```
unD32-000000 ACK QUERY 1 -50.250 0<CR>  Response to channel 1 only Query
unD32-000000 ACK QUERY M -0.000 1<CR>    Response to Master only Query
```

The QUERY command can also be sent with no parameters. The response includes the master attenuation and master mute status as well as all channel attenuation levels and channel mute statuses. The format of this response is somewhat different from other command responses with each set of parameters separated by a <CR><LF>.

Example command:

```
unD32-000000 QUERY<CR>
```

Example response:

```
unD32-000000 ACK QUERY<CR><LF>
Master:  -0.000 0<CR><LF>
[1]:    -0.000 0<CR><LF>
[2]:    -0.000 0<CR><LF>
[3]:    -0.000 0<CR><LF>
.
.
.
.
[30]:   -0.000 0<CR><LF>
[31]:   -0.000 0<CR><LF>
[32]:   -0.000 0<CR><LF>
```


10.4 – Defaults

The DEFAULTS command forces the system to return to its original factory settings. The response from the device to this command is the same format as for a basic command response.

Example command:

```
unD32-000000 DEFAULTS<CR>
```

Example response:

```
unD32-000000 ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

10.5 – Version

Returns the software version of the unD32. The command takes no parameters.

Example command:

```
unD32-000000 VERSION<CR>
```

Example response:

```
unD32-000000 ACK VERSION 1.3.0<CR>
```

11 – unDX4I Commands

***Note:** unDX4I devices must be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.

The following commands are available for the unDX4I.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-4)	Gain (-18.0, -3.0, 25.0, 40.0)
Phantom Power	PP	Channel # (0-4)	State (0 = off or 1 = on)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)

11.1 – Input Gain

Select microphone or line input mode for a particular unDX4I input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 4. A channel number of 0 will apply the gain setting to all available input channels. A channel value of 1, 2, 3, or 4 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are -18.0, -3.0, 25.0 and 40.0. The gain values must contain the decimal value so sending a value of -18, for example, will not be accepted.

Example command:

```
IG 1 25.0<CR>           Sets the input gain of channel 1 to +25dB
```

Example response:

```
ACK IG 1 25.0<CR>       OK response
```

***Note:** unIFY shows the values for two of the gain options slightly differently. The “-3.0” value is indicated as “0dB” and the “-18” value is indicated as “0dB (Pad Active)”.

11.2 – Phantom Power

Activates or deactivates the phantom power on a particular unDX4I inputs. The first parameter is the channel number and should be between 0 and 4. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1, 2, 3, or 4 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

```
PP 1 0<CR>              Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>         OK response
```

11.3 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

***Note:** This is attenuation only and applies no amplification to the audio signals.

Example command:

OV 0 -20<CR> Sets both output channels to -20 dB attenuation.

Example response:

ACK OV 0 -20<CR> OK response

11.4 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

***Note:** The output mute setting is independent of the volume control.

Example command:

OM 2 1<CR> Mute output channel 2.

Example response:

ACK OM 2 1<CR> OK response

11.5 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR> Turn on identify function
 ID 0<CR> Turn off identify function
 FU<CR> Turn on find unit function

Example commands:

ACK ID 1<CR> OK response
 ACK ID 0<CR> OK response
 ACK FU<CR> OK response

11.6 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR> Load Preset 5
 SAVE 3<CR> Save current settings as preset 3

Example response:

ACK LOAD 5<CR> OK Response
 ACK SAVE 3<CR> OK Response

11.7 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=-3.0 IG2=-3.0 IG3=-3.0 IG4=-3.0 PP1=OFF PP2=OFF PP3=OFF PP4=OFF ID=OFF OV1=0  
OV2=0 OM1=OFF OM2=OFF<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain -3.0 dB  
Input 2 Gain -3.0 dB  
Input 3 Gain -3.0 dB  
Input 4 Gain -3.0 dB  
Phantom Power Input 1 Off  
Phantom Power Input 2 Off  
Phantom Power Input 3 Off  
Phantom Power Input 4 Off  
ID function – Disabled  
Output 1 Volume 0 dB  
Output 2 Volume 0 dB  
Output 1 Mute = Unmuted  
Output 2 Mute = Unmuted
```

11.8 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to -3.0dB, the output gains to 0dB, phantom power is turned off on both XLR inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

11.9 – Version

Returns the software version of the host processor on the unDX4I. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.3.0<CR>
```

12 – unD6IO Commands

**Note: unD6IO devices must be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.*

The following commands are available for the unD6IO.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-2)	Gain (-18.0, -3.0, 25.0, 40.0)
Phantom Power	PP	Channel # (0-2)	State (0 = off or 1 = on)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Line Input Select	IS	Channel # (0, 3,4)	Input (A, B, A+B)

12.1 – Input Gain (XLR inputs only)

Select microphone or line input mode for a particular unD6IO input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the gain setting to all available input channels. A channel value of 1 or 2 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are -18.0, -3.0, 25.0 and 40.0. The gain values must contain the decimal value so sending a value of -18, for example, will not be accepted.

Example command:

```
IG 1 25.0<CR>           Sets the input gain of channel 1 to +25dB
```

Example response:

```
ACK IG 1 25.0<CR>       OK response
```

**Note: unIFY shows the values for two of the gain options slightly differently. The “-3.0” value is indicated as “0dB” and the “-18” value is indicated as “0dB (Pad Active)”.*

12.2 – Phantom Power (XLR inputs only)

Activates or deactivates the phantom power on a particular unD6IO inputs. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1 or 2 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

```
PP 1 0<CR>             Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>        OK response
```

12.3 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

12.4 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

12.5 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=-3.0 IG2=-3.0 PP1=OFF PP2=OFF ID=OFF OV1=0 OV2=0 OM1=OFF OM2=OFF IS3=A IS4=A<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain -3.0 dB
Input 2 Gain -3.0 dB
Phantom Power Input 1 Off
Phantom Power Input 2 Off
ID function - Disabled
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
Input Select Ch3 = RCA
Input Select CH4 = RCA
```

12.6 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to -3.0dB, the output gains to 0dB, phantom power is turned off on both XLR inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:
DEFAULTS<CR>

Example response:
ACK DEFAULTS<CR>

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

12.7 – Version

Returns the software version of the host processor on the unD6IO. The command takes no parameters.

Example command:
VERSION<CR>

Example response:
ACK VERSION 1.3.0<CR>

12.8 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

**Note:* This is attenuation only and applies no amplification to the audio signals.

Example command:
OV 0 -20<CR> Sets both output channels to -20 dB attenuation.

Example response:
ACK OV 0 -20<CR> OK response

12.9 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

**Note:* The output mute setting is independent of the volume control.

Example command:
OM 2 1<CR> Mute output channel 2.

Example response:
ACK OM 2 1<CR> OK response

12.10 – Line Level Select

Select which of the specific inputs are used for the line level inputs, input 3 and input 4. Input 3 and 4 of the unD6IO are used exclusively for the line level audio and the user can select which of the line level connectors, the RCA or the 3,5mm jack, the audio comes from. Input 3 and 4 form a stereo pair with input 3 the left channel and input 4 the right channel.

When using this commands two parameters are required. The first parameter is the channel number. To set the value for a specific channel use the channel number, 3 or 4. To set both, channels to the same value, use 0. Any other value for the first parameter will result in a NACK response. The second parameter indicates which specific input or inputs provide the audio. The three options are:

- A – Audio from only the RCA input
- B – Audio from only the stereo-jack input
- A+B – A mix of the audio from both the RCA and stereo jack input

Example commands:

IS 3 A<CR>	Sets input 3 to RCA left only
IS 4 B<CR>	Sets input 4 to 3.5mm jack right input only
IS 3 A+B<CR>	Sets input 3 to be a mix of RCA Left input and 3,5mm jack left input

Example responses:

ACK IS 3 A<CR>	OK response
NACK IS 1 B<CR>	Fail response (channel incorrectly set)

13 – unD6IO-BT Commands

**Note: unD6IO-BT devices must be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.*

The following commands are available for the unD6IO-BT.

Description	Command	Parameter 1	Parameter 2
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Get Product Type	GETPRODTYPE	-	-
Get Device Name	GETDEVICENAME	-	-
Get Device Lock	GETDEVICELOCK	-	-
Get Audio Level	GETAUDIOLEVEL	-	-
Get MAC Address	GETMAC	-	-
Get Channel Label	GETCHNLLABEL	String ("RX" or "TX")	Channel # 1-4 for "TX" 1-2 for "RX"
Get Model	MODEL	-	-
Reboot device	REBOOT	-	-
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Line Input Select	IS	Channel # (0, 3,4)	Input (A, B, A+B)
Get Bluetooth MAC	BTMAC	-	-
Get Bluetooth® friendly name	BTN	-	-
Set Bluetooth® friendly name	BTN	"Name" (up to 32 character string)	-
Get Front Panel Button status	BTL	-	-
Lock Front Panel Button	BTL	state (0 = Lock off, 1 = Lock on)	-
Get Bluetooth® Status	BTS	-	-
Activate pairing	BTB	-	-
Get BT connection mode	BTCMODE	-	-
Set BT connection mode	BTCMODE	State (0 = manual, 1 = reconnect, 2= exclusive)	-

Get BT Audio Mode	BTMODE	-	-
Set BT Audio Mode	BTMODE	Mode (0 - 2) See notes	
Close Active Bluetooth® Connection	BCC	-	-
Clear Bluetooth® Pairings	CBC	-	
AVRCP Play command	BTPLAY	-	-
AVRCP Pause command	BTPAUSE	-	-
AVRCP Stop command	BTSTOP	-	-
AVRCP Next command	BTNEXT	-	-
AVRCP Previous command	BTPREV	-	-
AVRCP Volume Up command	BTVOLUP	-	-
AVRCP Colume Dn command	BTVOLDN	-	-
AVRCP mute command	BTMUTE	-	-
Get connected BT device name	BTCDN	-	-
Get audio track title	BTSONG	-	-
Get audio artist information	BTARTIST	-	-
Get audio album information	BTALBUM	-	-

13.1 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

13.2 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

```
LOAD 5<CR>          Load Preset 5
SAVE 3<CR>          Save current settings as preset 3
```

Example response:

```
ACK LOAD 5<CR>      OK Response
ACK SAVE 3<CR>      OK Response
```

13.3 – Query

Retrieve a snapshot of the current state of the device. The response includes several devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY ID=OFF OV1=0 OV2=0 OM1=OFF OM2=OFF IS3=A+B IS4=A+B BTN= myName BTS=0 BTL=1<CR>
```

The example response shows the device is configured as follows:

```
ID function - Disabled
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
Input Select Ch3 = RCA L
Input Select CH4 = 3.5mm R
Bluetooth® Friendly Name = myName
Bluetooth® Interface Status = Idle
Button Lock = Locked
```

13.4 – Defaults

The DEFAULTS command forces the system to return to factory settings.

```
ID function - Disabled
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
Input Select CH3 = RCA L
Input Select CH4 = RCA R
Parameter Lock =
Bluetooth® Friendly Name = D6IO-BT-010203 (Dante Device Name)
Bluetooth® Interface Status = Idle
BT Comms Mode = Manual
BT Audio mode = Media Bridging only
```

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

***Note:** Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.

13.5 – Version

Returns the software version of the host processor on the unD6IO-BT. The command takes no parameters.

Example command:
VERSION<CR>

Example response:
ACK VERSION 1.0<CR>

13.6 – Line Level Select

Select which of the specific inputs are used for the line level inputs, input 3 and input 4. Input 3 and 4 of the unD6IO-BT are used exclusively for the line level audio and the user can select which of the line level connectors, the RCA or the 3,5mm jack, the audio comes from. Input 3 and 4 form a stereo pair with input 3 the left channel and input 4 the right channel.

When using this commands two parameters are required. The first parameter is the channel number. To set the value for a specific channel use the channel number, 3 or 4. To set both, channels to the same value, use 0. Any other value for the first parameter will result in a NACK response. The second parameter indicates which specific input or inputs provide the audio. The three options are:

- A – Audio from only the RCA input
- B – Audio from only the stereo-jack input
- A+B – A mix of the audio from both the RCA and stereo jack input

Example commands:

IS 3 A<CR>	Sets input 3 to RCA left only
IS 4 B<CR>	Sets input 4 to 3.5mm jack right input only
IS 0 A+B<CR>	Sets input 3 to be a mix of RCA Left input and 3,5mm jack left input and input 4 to be a mix of RCA right input and 3,5mm jack right input

Example responses:

ACK IS 3 A<CR>	OK response
NACK IS 1 B<CR>	Fail response (channel incorrectly set)

13.7 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

**Note: This is attenuation only and applies no amplification to the audio signals.*

Example command:

OV 0 -20<CR>	Sets both output channels to -20 dB attenuation.
--------------	--

Example response:

ACK OV 0 -20<CR>	OK response
------------------	-------------

13.8 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero (“0”) for unmuted and a one (“1”) for muted. Any other value will result in a NACK being returned.

**Note: The output mute setting is independent of the volume control.*

Example command:

OM 2 1<CR>	Mute output channel 2.
------------	------------------------

Example response:

```
ACK OM 2 1<CR>
```

OK response

13.9 – Get Product Type

Returns the product type information from the Dante interface (Shows as “Product Type” in Dante Controller). The command takes no parameters. This is different to the “MODEL” command which reports the device type of the host processor firmware. Both commands should result in the same response.

Example command:

```
GETPRODTYPE<CR>
```

Example response:

```
ACK GETPRODTYPE unD6IO-BT<CR>
```

13.10 – Get Device Name

Returns the devices Dante name. The command takes no parameters. The name returned is a string of up to 32 characters.

Example command:

```
GETDEVICENAME<CR>
```

Example response:

```
ACK GETDEVICENAME D6IO-BT-000000<CR>
```

13.11 – Get Device Lock State

Returns the state on the Dante device lock. The command takes no parameters. The response returns the string “UNLOCKED” or “LOCKED” dependent on state.

Example command:

```
GETDEVICELOCK<CR>
```

Example response:

```
ACK GETDEVICELOCK UNLOCKED<CR>
```

13.12 – Get Audio Level

Returns the signal presence state of all Dante audio channels as detected by the Dante interface. The command takes no parameters. The return values for each channel are: 0x00=CLIP, 0x01=HAS SIGNAL, 0xFD=NO SIGNAL, or 0xFF=INVALID.

Example command:

```
GETAUDIOLEVEL<CR>
```

Example response:

```
ACK GETAUDIOLEVEL RX1=0xFF RX2=0xFF TX1=0xFD TX2=0xFD TX3=0xFD TX4=0xFD<CR>
```

13.13 – Get Device MAC

Returns the MAC address of the Dante interface. The command takes no parameters.

Example command:

```
GETMAC<CR>
```

Example response:

```
ACK GETMAC 001dc10a8169<CR>
```

13.14 – Get Channel Label

Returns the label for a given Dante audio channel. This is the name that is indicated for the channel in the routing grid in Dante Controller. Each channel name has to be retrieved individually. The command take two parameters. The first

parameter defines the channel type: "RX" or "TX". The second parameter is the specific channel number. For "RX" channels the value can be 1 or 2. For "TX" channels, the value can be between 1 and 4.

Example command:

```
GETCHNLLABEL RX 1<CR>
```

Example response:

```
ACK GETCHNLLABEL RX 1 R×1U<CR>
```

13.15 – Get MCU Model

Returns the model information as reported by the MCU firmware. This command requires no parameters. This is different to the "GETPRODTYPE" command which reports what the Dante interface is configured as. Both commands should result in the same response.

Example command:

```
MODEL<CR>
```

Example response:

```
ACK MODEL unD6IO-BT<CR>
```

13.16 – Reboot Device

Forces a full reboot of the device. This command requires no parameters. This causes a rest of both the Dante interface and the host MCU. Using this command has the following effects:

- 1) Any unsaved device settings will be lost.
- 2) Any active Bluetooth connection will be dropped. It will need to be manually re-established once the device is running again.
- 3) Dante audio connections to and from this device will cease while the reset is in progress. They will automatically re-establish once the device is running.

Example command:

```
REBOOT<CR>
```

Example response:

```
ACK REBOOT<CR>
```

13.17 – Get/Set Bluetooth® Friendly Name

This function allows the control system to set a new friendly name, visible to other Bluetooth® devices when in pairing mode. Maximum length is 32 characters. Additional characters will be truncated.

Example "Get" command:

```
BTN<CR>
```

Example "Get" response:

```
ACK BTN unD6IO-BT-010203<CR>
```

Example "Set" command:

```
BTN myBT<CR>
```

Example "Set" response:

```
ACK BTN mBT<CR>
```

13.18 – Get Bluetooth® MAC

Returns the MAC address of the Bluetooth® interface. This command has no parameters.

Example “Get” command:

```
BTMAC<CR>
```

Example “Get” response:

```
ACK BTMAC ACK 00:00:00:00:00:00<CR>
```

13.19 – Get/Set Button Lock

This function allows the control system to lock out the front panel button from local user operation. Any button presses while the button is locked are ignored by the device (0 = Unlocked, 1 = Locked).

Example “Get” command:

```
BTL<CR>
```

Example “Get” response:

```
ACK BTL 1<CR>
```

Example “Set” command:

```
BTL 1<CR>
```

Lock front panel button

Example “Set” response:

```
ACK BTN 1<CR>
```

13.20 – Bluetooth® Status

Returns the state of the Bluetooth® interface. This command requires no parameters. The following values may be returned:

0 = Idle

1 = Discoverable

2 = Connected – Unknown AVRCP support

3 = Connected – AVRCP Not Supported

4 = Connected – AVRCP Supported

5 = Connected – AVRCP & PDU Supported

Example “Get” command:

```
BTS<CR>
```

Example “Get” response:

```
ACK BTS 2<CR>
```

Bluetooth® Interface has an active connection but unknown AVRCP support

13.21 – Activate Pairing

Remotely activate the pairing/connect mode. This command duplicates the operation of a front panel button press.

Example command:

```
BTB<CR>
```

Example response:

```
ACK BTB<CR>
```

Bluetooth® Interface is now in pairing/connect mode

13.22 – Bluetooth® Connection Mode

This commands sets or retrieves the Bluetooth® connection mode status. When reading the state, the command takes no parameters. When setting the state, the command uses one parameter to indicate the new mode. The mode can be one of the following values:

- 0 - Manual mode
- 1 - Reconnect mode
- 2 - Exclusive mode

Example "read" command:

```
BTCMODE<CR>
```

Example "read" response:

```
ACK BTCMODE 1<CR>
```

Device is set to "Reconnect" mode

Example "read" command:

```
BTCMODE 2<CR>
```

Set device to exclusive mode

Example "read" response:

```
ACK BTCMODE 2<CR>
```

13.23 – Bluetooth® audio mode

Reads or writes the state of the current Bluetooth® audio mode. When reading, the command required no parameters. When writing, the command requires which mode to set the device in. The mode can be one of the following values:

- 0 = Both Call Bridging and Media Audio Bridging enabled
- 1 = Only Media Audio Bridging enabled (Default)
- 2 = Only Call Bridging enabled

Example "read" command:

```
BTMODE<CR>
```

Example "read" response:

```
ACK BTCMODE 0<CR>
```

Device is set to call and media bridging mode.

Example "read" command:

```
BTMODE 1<CR>
```

Set device to media bridging only mode.

Example "read" response:

```
ACK BTMODE 1<CR>
```

13.24 – Close Bluetooth® Connection

This function allows the control system to remotely close the active Bluetooth® connection.

Example command:

```
BCC<CR>
```

Example response:

```
ACK BCC<CR>
```

Active Bluetooth® connection closed.

13.25 – Clear Bluetooth® Pairings

This function clears the pairing list of the device. Note, if the pairing list is cleared, the user may need to manually unpair their device before attempting to pair again.

Example command:

```
CBC<CR>
```

Example response:

```
ACK CBC<CR>
```

Pairing list cleared

13.26 – AVRCP Commands

The following commands can be used when AVRCP support is indicated. Sending these commands at any other time will result in them having no affect. None of these commands require any additional parameters.

BTPLAY	Set Bluetooth audio device to play
BTPAUSE	Set Bluetooth audio device to pause
BTSTOP	Set Bluetooth audio device to stop
BTNEXT	Skip to next track on Bluetooth audio device
BTPREV	Return to previous track on Bluetooth audio device
BTVOLUP	Turn volume up*
BTVOLDN	Turn Volume down*
BTMUTE	Mute audio on Bluetooth audio device

*Some smart devices do not support direct manipulation of volume via AVRCP. In order to support the volume function on as large a range of devices as possible, the volume commands adjust the volume within the unD6IO-BT instead of on the connected device.

Example command:
 BTPLAY<CR>

Example response:
 ACK CBC<CR> Pairing list cleared

13.27 – AVRCP PDC Commands

The following commands can be used when AVRCP PDC support is indicated. These commands return metadata regarding the Bluetooth device and the audio it is playing. None of these commands require any additional parameters. The value returned for each device is enclosed within double quotation marks (“”).

BTCDN	Retrieve Bluetooth audio devices name
BTSONG	Retrieve the track title for the current audio
BTARTIST	Retrieve the artist information for the current audio
BTALBUM	Retrieve the album information for the current audio

Example command:
 BTSONG<CR>

Example response:
 ACK BTSONG "Track 1"<CR>

14 – unDNEMO-BT Commands

The following commands are available for the unDNEMO-BT.

Description	Command	Parameter 1	Parameter 2
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Channel Info	CH_INFO	Range 1-64	-
Get Active CH Index	ACT_CH_IDX	-	-
Set Active CH Index	SET_ACT_CH_IDX	Range 1-64	-
Get Speaker Mute	SPKR_MUTE	-	-
Set Speaker Mute	SET_SPKR_MUTE	(0 = off, 1 = on)	-
Get Volume	VOLUME	-	-
Set Volume	SET_VOLUME	Range (1 -10)	-
Get Button Brightness	GBB	-	-
Set Button Brightness	SBB	Range (0-10)	-
Get Display Brightness	GDB	-	-
Set Display Brightness	SDB	Range (0-10)	-

14.1 – Defaults

The DEFAULTS command forces the system to return to factory settings.

Sets all channels disabled
 Sets all channels (device name, and channel name) to null
 Sets all channels (display name - "No Channels Assigned")

Sets AUX source to LINE input.
 Sets Display and Keypad brightness to MAX
 Clears all MODE setup bits
 Sets the active source to NET
 Sets volume to 50%.

Example command:
 DEFAULTS<CR>

Example response:
 ACK DEFAULTS<CR>

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

14.2 – Version

Returns the software version of the host processor on the unD6IO-BT. The command takes no parameters.

Example command:
 VERSION<CR>

Example response:
 ACK VERSION 1.0<CR>

14.3 – Channel Info

This function allows the control system to retrieve the channel information for use in an extended user interface. The command takes a single parameter (1 to 64) to indicate the desired channel.

Example command:
`CH_INFO 10<CR>`

Response Format: `ACK CH_INFO {Channel} {Enable State} "Device Name" "Channel Name" "Display Name" <CR>`

Example response:
`ACK CH_INFO 10 1 "unDX2IO-010203" "Mic 1" "Lectern Mic"<CR>`

14.4 – Get Active Channel Index

This command allows the control system to retrieve the active channel index that is being monitored.

Example command:
`ACT_CH_IDX<CR>`

Example response:
`ACK ACT_CH_IDX 5<CR>`

14.5 – Set Active Channel Index

This command allows the control system to set the active channel index desired for monitoring.

Note: If a channel is disabled, this command will still attempt to select that channel and result in no available monitor audio.

Command Format: `SET_ACT_CH_IDX {1 to 64}`

Example command:
`SET_ACT_CH_IDX 2<CR>`

Example response:
`ACK ACT_CH_IDX 5<CR>`

14.6 – Get Speaker Mute

This command returns the state of the speaker mute.

Command Format: `SPKR_MUTE<CR>`

Example command:
`SPKR_MUTE<CR>`

Example response:
`ACK SPKR_MUTE 1<CR>`

14.7 – Set Speaker Mute

This command sets the state of the speaker mute.

Command Format: `SPKR_MUTE {0 = Unmuted / 1 = Muted}<CR>`

Example command:
`SET_SPKR_MUTE 1<CR>`

Example response:
`ACK SPKR_MUTE 1<CR>`

14.8 – Get Volume

This command returns the state of the speaker/headphone volume. The volume range is from 0 to 10 with a step size of 1.

Example command:
VOLUME<CR>

Example response:
ACK VOLUME 7<CR>

14.9 – Set Volume

This command returns the state of the speaker/headphone volume. The volume range is from 0 to 10 with a step size of 1.

Example command:
SET_VOLUME 7<CR>

Example response:
ACK SET_VOLUME 7<CR>

14.10 – Get Button Brightness

This command returns the brightness of the keypad. The brightness range is from 0 to 10 with a step size of 1.

Example command:
GBB<CR>

Example response:
ACK GBB 7<CR>

14.11– Set Button Brightness

This command sets the brightness of the keypad. The brightness range is from 0 to 10 with a step size of 1.

Example command:
SBB 7<CR>

Example response:
ACK SBB 7<CR>

14.12 – Get Display Brightness

This command returns the brightness of the display. The brightness range is from 0 to 10 with a step size of 1.

Example command:
GDB<CR>

Example response:
ACK GDB 7<CR>

14.13– Set Display Brightness

This command sets the brightness of the display. The brightness range is from 0 to 10 with a step size of 1.

Example command:
SDB 7<CR>

Example response:
ACK SDB 7<CR>

15 – unBT2A

Unlike all other devices in the document, the unBT2A is not Dante and is configured via a serial port over an RS-232 connection for 3rd party control.

Parameter	Value
Baud Rate	9600
Data Bits	8
Parity	None
Stop Bit	1
Flow Control	None

Figure 1 – unBT2A Serial Port Settings

15.1 – Commands

The following commands are available for the unBT2A.

Description	Command	Parameter 1	Parameter 2
Version Info	VERSION	-	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Get Bluetooth® friendly name	BTN	-	-
Set Bluetooth® friendly name	BTN	“Name” (up to 32 character string)	-
Lock Front Panel Button	BTL	state (0 = Lock off, 1 = Lock on)	-
Get Bluetooth® Status	BTS	-	-
Activate pairing	BTB	-	-
Close Active Bluetooth® Connection	BCC	-	-
Clear Bluetooth® Pairings	CBC	-	-
Get Mute State	MUTE	-	-
Set Mute State	MUTE	state (0 = unmuted, 1 = muted)	-
Get/Set Stereo State	STEREO	state (0 = Mono, 1 = Stereo)	-
Get/Set Audio Level	ATTENUATED	state (0 = 0dB applied 1 = -12dB applied)	-

15.2 – Version

Returns the software version of the host processor on the unBT2A. The command takes no parameters.

Example command:
 VERSION<CR>

Example response:
 ACK VERSION 1.3.0<CR>

15.3 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes a list of device parameters..

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY MUTE=0 BTN=unBT2A BTS=0 BTL=0<CR>
```

The example response shows the device is configured as follows:

```
Mute = Unmuted  
Bluetooth® Friendly Name = unBT2A  
Bluetooth® Status = IDLE  
Button Lock = Unlocked
```

15.4 – Defaults

The DEFAULTS command forces the system to return to factory settings. It resets the Bluetooth® interface which also resets the friendly name to “unBT2A”. The output muting state is also cleared.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

15.5 – Get/Set Bluetooth® Friendly Name

This function allows the control system to set a new friendly name, visible to other Bluetooth® devices when in pairing/connection mode (Maximum length is 16 characters).

Example “Get” command:

```
BTN<CR>
```

Example “Get” response:

```
ACK BTN unBT2A<CR>
```

Example “Set” command:

```
BTN myBT2A<CR>
```

Example “Set” response:

```
ACK BTN myBT2A<CR>
```

15.6 – Get/Set Button Lock

This function allows the control system to lock out the front panel button from local user operation. Any button presses while the button is locked are ignored by the device (0 = Unlocked, 1 = Locked).

Example “Get” command:

```
BTL<CR>
```

Example “Get” response:

```
ACK BTL 1<CR>
```

Example “Set” command:

```
BTL 1<CR>
```

Lock front panel button

Example “Set” response:

```
ACK BTN 1<CR>
```

15.7 – Blue tooth® Status

This function allows the control system retrieve the state of the unBT2A Bluetooth® interface (0 = IDLE, 1 = DISCOVERABLE, 2 = CONNECTED).

Example “Get” command:

```
BTS<CR>
```

Example “Get” response:

```
ACK BTS 2<CR>
```

Bluetooth® Interface has an active connection

15.8 – Activate Pairing

This function allows the control system to remotely activate the pairing/connect mode by simulating the front panel user button press.

Example command:

```
BTB<CR>
```

Example response:

```
ACK BTB<CR>
```

Bluetooth® Interface is now in pairing/connect mode

15.9 – Close Bluetooth® Connection

This function allows the control system to remotely close the active Bluetooth® connection.

Example command:

```
BCC<CR>
```

Example response:

```
ACK BCC<CR>
```

Active Bluetooth® connection closed.

15.10 – Clear Bluetooth® Pairings

This function clears the pairing list of the device. Note, if the pairing list is cleared, the user may need to manually unpair their device before attempting to pair again.

Example command:

```
CBC<CR>
```

Example response:

```
ACK CBC<CR>
```

Pairing list cleared

15.11 – Get/Set Mute State

The device maintains its own internal mute state. It is set by the user's mute "policy" but this state is overridden internally by the state of the Bluetooth stream which will force the mute active if there is no Bluetooth audio stream. This command can be used to set the user mute "policy" and it can also be used to read the current mute state along with the reason for its state. The table below shows what the active mute state will be indicated as based on the stream state and the user policy.

Stream Active	User mute "policy"	Active State
0	X	1
1	0	0
1	1	1

Example set Mute command:

```
MUTE 0<CR>
```

Example response:

```
ACK MUTE 0<CR>
```

Set user mute policy to unmuted

Example "get" Mute command:

```
MUTE<CR>
```

Example response:

```
ACK MUTE 1 - Stream_Active=0 && User_Mute=0
```

```
MUTE 1 - Current mute state - (0=unmuted, 1=muted)
Stream_Active=0 - Bluetooth state (0=No stream active, 1=stream active and user mute policy applies)
User_Mute=0 - User mute policy (0=unmuted, 1=muted)
```

The example get mute response indicates the mute is active because there is no Bluetooth audio stream.

15.12 – Get/Set Stereo State

This command allows the unBT2A to be configured with either a mono or stereo output. The mono output mode is useful for systems that utilize mono playback systems and wish to maximize the input channel capacity of the system. The mono output signal is the sum of both channels at 50% volume sent to each output. Stereo output mode sends the left/right channels separately to each output at 100% volume. A "0" indicates "Mono" mode. A "1" indicates "Stereo" mode.

Example set Stereo command:

```
STEREO 0<CR>
```

Example response:

```
ACK STEREO 0<CR>
```

Set audio output to mono

Example "get" Stereo command:

```
STEREO<CR>
```

Example response:

```
ACK STEREO 1
```

Stereo mode is "on" and output is stereo

15.13 – Get/Set Nominal Output Level

This command reads or sets the nominal output level for proper interfacing of levels to connected audio equipment (mixers, DSPs, audio matrices etc.). A “0” value indicates the audio output level is set to a “Consumer” level output (nominal -10dBV, +10dBV max). A “1” value indicates the audio output level is set to a “Pro” level output (nominal +4dBu, +20dBu max).

Example set Attenuate command:

```
ATTENUATE 0<CR>
```

Example response:

```
ACK ATTEENUATE 0<CR>
```

Set audio to “Consumer” mode (nominal -10dBV)

Example “get” Attenuate command:

```
ATTENAUITE<CR>
```

Example response:

```
ACK ATTENUATE 1
```

Audio is set to “Pro” mode (nominal +4dBu)

16 – unHX2D

The following commands are available for the unHX2D.

Description	Command	Parameter 1	Parameter 2
Identify Device	ID	Mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Read/Write analog input pad	PAD	Channel # (0-2)	Mode (0 = off, 1 = on)
Read/Write HDMI output mute	HOM	Channel # (0-2)	Mode (0 = off, 1 = on)
Read/Write HDMI output volume	HOV	Channel # (0-2)	Volume (-100..20)
Read/Write analog output mute	AOM	Channel # (0-2)	Mode (0 = off, 1 = on)
Read/Write analog output Volume	AOV	Channel # (0-2)	Volume (-100..20)
Read/Write Dante output (Ch1 & 2) mute	DOM1	Channel # (0-2)	Mode (0 = off, 1 = on)
Read/Write Dante output (Ch1 & 2) volume	DOV1	Channel # (0-2)	Volume (-100..20)
Read/Write Dante output (Ch3 & 4) mute	DOM2	Channel # (0-2)	Mode (0 = off, 1 = on)
Read/Write Dante output (Ch3 & 4) volume	DOV2	Channel # (0-2)	Volume (-100..20)
Read/Write Dante mono mix setup	DMOM	Bank (1,2)	Mode (0 = off, 1 = on)
Read/Write audio delay	DLY	Value (0..400)	
Read/Write delay bypass	DBYPS	Mode (0 = off, 1 = on)	
Read/Write HDCP Enable	HDCP	Mode (0 = off, 1 = on)	
Read/Write force hot plug detect on	HPD	Mode (0 = off, 1 = on)	
Read/Write HDMI direct mode	HDMIAUDOUT	String "ORG", "ANA"	
Read/Write Internal mixer settings	MIX	(See text)	(See text)

16.1 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

16.2 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

16.3 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

QUERY<CR>

Example response:

ACK QUERY PAD1=OFF PAD2=OFF ID=OFF AOV1=0 AOV2=0 AOM1=OFF AOM2=OFF HOV1=0 HOV2=0 HOM1=OFF HOM2=OFF DOV1=0 DOV2=0 DOV3=0 DOV4=0 DOM1=OFF DOM2=OFF DOM3=OFF DOM4=OFF DMOM1=OFF DMOM2=OFF ADVR=OFF DLY=0 DBYPS=OFF HDCP=OFF HPD=OFF HDMI_IN=OFF HDMI_OUT=OFF\r<CR>

The example response shows the device is configured as follows:

Pad Ch1 = Off	Dante output 1 Mute = Unmuted
Pad Ch2 = Off	Dante output 2 Mute = Unmuted
ID function - Disabled	Dante output 3 Mute = Unmuted
Analog output 1 volume 0 dB	Dante output 4 Mute = Unmuted
Analog output 2 volume 0 dB	Dante Mono mix bank 1 = Off
Analog output 1 Mute = Unmuted	Dante Mono mix bank 2 = Off
Analog output 2 Mute = Unmuted	ADVR = Off (deprecated)
HDMI output 1 volume 0 dB	Audio delay = 0
HDMI output 2 volume 0 dB	Audio delay bypass = Off
HDMI output 1 Mute = Unmuted	HDCP sink support= Off
HDMI output 2 Mute = Unmuted	HPD ignore = Off
Dante output 1 volume 0 dB	HDMI_IN = Off (No HDMI input device detected)
Dante output 2 volume 0 dB	HDMI_OUT = Off (No HDMI output device detected)
Dante output 3 volume 0 dB	
Dante output 4 volume 0 dB	

16.4 – Defaults

The DEFAULTS command forces the system to return to factory settings.

```
Input Select CH3 = RCA L
Input Select CH4 = RCA R
ID function - Disabled
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
Bluetooth® Friendly Name = D6IO-BT-010203 (Dante Device Name)
Bluetooth® Interface Status = Idle
Button Lock = Locked
```

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

16.5 – Version

Returns the software version of the host processor on the unHX2D. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.0<CR>
```

16.6 – Input Pad

This command is used to both read and write the input pad state of on the analog inputs. The pad state is either off for consumer levels (-10dBV nominal) or on for Pro levels (+4dBu nominal). When reading, the commands requires a channel parameter. The response returns the pad state for that channel unless channel 0 is used in which case the state of both input pads is returned in channel order. When writing, both a channel number and state parameter are required. Using channel 0 will write the given input state to all inputs. An ACK is returned if the write is successful.

Example read command:

```
PAD 1<CR>
```

Example read response:

```
ACK PAD 1.0<CR>
```

Example write command:

```
PAD 1 1<CR>
```

Example read response:

```
ACK PAD 1.1<CR>
```

16.7 – Output Volumes (AOV, HOV, DOV1, DOV2)

There are read and write commands to set the volume for various outputs. All volume commands work the same with each command setting a specific output types volume. Volume levels for all volume commands range from -100 to 20. When reading, the commands take a channel parameter. The response returns the current volume level unless channel 0 is used in which case all volume levels of that output type are returned in channel order. When writing, both channel number and volume level parameters are required. Using channel 0 will write the given volume level to all channels of that output type. An ACK is returned if the write is successful.

The AOV command is used for the analog output volume. The HOV commands is used for the HDMI output volume. The DOV1 command is used for the Dante output pair 1 volume (Dante Tx channels 1 & 2) and the DOV2 command is used for the Dante output pair 2 volume (Dante Tx channels 3 & 4)

Example read command:

```
DOV1 1<CR>
```

Example read response:

```
ACK DOV1 1.-20<CR>
```

Example write command:

```
DOV2 1 -10<CR>
```

Example read response:

```
ACK DOV2 1.-10<CR>
```

16.8– Output Mutes (AOM, HOM, DOM1, DOM2)

There are read and write commands to set the mute for various outputs. All mute commands work the same with each command setting a specific output types mute. When reading, the commands take a channel parameter. The response returns the current mute state unless channel 0 is used in which case all mute states of that output type are returned in channel order. When writing, both channel number and mute state parameters are required. Using channel 0 will write the given mute state to all channels of that output type. An ACK is returned if the write is successful.

The AOM command is used for analog output mute. The HOM command is used for HDMI output mute. The DOM1 command is used for Dante output pair 1 mute (Dante Tx channels 1 & 2) and the DOM2 command is used for Dante output pair 2 mute (Dante Tx channels 3 & 4)

Example read command:

```
DOM1 1<CR>
```

Example read response:

```
ACK DOM1 1.1<CR>
```

Example write command:

```
DOM2 1 0<CR>
```

Example read response:

```
ACK DOM2 1.0<CR>
```

16.9 – Dante Mono Mix

The unHX2D has two stereo Dante “banks” that it uses. Bank 1 which comprises of Dante Tx channel 1 and 2 while bank 2 which comprises of Dante Tx channel 3 and 4. Normally, each bank outputs a stereo stream with each channel in a bank containing one side of the audio.

However, each bank also supports a mono mix option whereby the first channel in the bank is replaced by a mono mix of stereo stream sent to that bank (the second channel in the bank is unaffected).

The Dante mono mix command allows configuration of which mode each bank runs in. When reading, the command takes just the bank parameter. The response returns the current mono mix state for that bank. When writing, both bank and state parameters are required. An ACK is returned if the write is successful.

Example read command:

```
DMOM 1<CR>
```

Example read response:

```
ACK DMOM 1 0<CR>
```

Example write command:

```
DMOM 2 1<CR>
```

Example write response:

```
ACK DMOM 2 1<CR>
```

16.10 – Delay

When audio is routed via the DSP, the audio can have a delay added. The DLY command allows the user to read and write the length of this delay. When reading, the command requires no parameters. The response contains the current value of the delay in milliseconds (between 0 and 400). When writing, the delay parameter must be included. An ACK is returned if the write is successful.

Example read command:

```
DLY<CR>
```

Example read response:

```
ACK DLY 250<CR>
```

Example write command:

```
DLY 47<CR>
```

Example write response:

```
ACK DLY 47<CR>
```

16.11 – Delay Bypass

The delay bypass allows the delay element to be switched into or out of the audio path. When switched out, the delay element keeps its value but the element itself does not have any effect on the audio. When reading, the command requires no parameters. The response contains the current state of the bypass. When writing, the delay bypass state parameter must be included. An ACK is returned if the write is successful.

Example read command:

```
DBYPS<CR>
```

Example read response:

```
ACK DBYPS 0<CR>
```

Example write command:

```
DBYPS 1<CR>
```

Example write response:

```
ACK DBYPS 1<CR>
```

16.12 – HDCP Sink Support

Some source devices such as Apple computers use HDCP regardless whether the content they are using requires it or not. If the unHX2D is connected to a sink that does not support HDCP then that output device will not be able to show the content if the source uses HPCP. Using this option, the unHX2D can be configured to indicate to the source device that the eventual sink does not support HDCP and to not use HDCP unless it is required to do so.

****Note: Using this setting DOES NOT affect copy protected content which will ALWAYS use HDCP and will require the sink device to support HDCP.***

When reading, the command requires no parameters. The response contains the current state of the HDCP sink support setting. When writing, the new state must be included. An ACK is returned if the write is successful.

Example read command:

```
HDCP<CR>
```

Example read response:

```
ACK HDCP 0<CR>
```

Example write command:

```
HDCP 0<CR>
```

Example write response:

```
ACK HDCP 0<CR>
```

16.13 – HPD Ignore

Hot Plug Detect (HPD) is used in HDMI repeaters to signal the presence and removal of a connected sink to the original source device. In some cases, it is desirable to de-embed the HDMI audio content without a connected sink device attached. Using the HDP command, the unHX2D can be configured to indicate either the true connected/unconnected state of the sink (state is 0) or indicate a sink device is permanently connected (state is 1).

When reading, the command requires no parameters. The response contains the current state of the HDP setting. When writing, the new state must be included. An ACK is returned if the write is successful.

Example read command:

```
HPD<CR>
```

Example read response:

```
ACK HPD 0<CR>
```

Example write command:

```
HOD 1<CR>
```

Example write response:

```
ACK HPD 1<CR>
```

16.14 – Internal Mixer

The "MIX" command allows the user to determine what input audio is used to constitute a particular outputs audio. Each output is configured separately. Unlike other commands, this commands requires numerous parameters...

MIX <output> <analog in level> <Dante1/2 in level> <Dante3/4 in level> <HDMI In level> <SPDIF In level>

The <output> parameter is the output that the MIX command will affect. Options for output parameter are HDMI, ANALOG, DANTE1 and DANTE2. The remaining five parameters are the audio levels of each input that make up the mix. The value of these range from -100 to 0 where -100 is no audio from that input and 0 is the inputs full level.

**Note: The HDMI output settings are only used if HDMIAUDOUT is set to ANA. A mix for the HDMI output can still be set while HDMIAUDOUT is set to ORG but the new levels won't be used until HDMIAUDOUT is set to ANA.*

When reading, only the output parameter is required. The response contains the current state of each of the input levels that make up that outputs audio. When writing, the output parameter must be followed by five numbers. An ACK is returned if the write is successful.

Example read command:
MIX ANALOG<CR>

Example read response:
ACK MIX ANALOG -100 0 -100 -100 -100<CR>

Example write command:
MIX DANTE1 -100 0 -100 -100 -100<CR><CR>

Example write response:
ACK HPD 1<CR>

16.15 – HDMIAUDOUT

This command allows the user to set the source of the audio used on the HDMI output. The audio can come direct from the HDMI input or can be passed through the unHX2D DSP to allow embedding/de-embedding of the audio.

When reading, the command requires no parameters. The response contains the current setting for the HDMI audio output. This will either be ORG if the audio is direct from the HDMI input or ANA if the audio is coming from the DSP. When writing, the new setting of "ORG" or "ANA" must be included. An ACK is returned if the write is successful.

**Note: The SPDIF output audio is only available when the HDMI audio output is direct from the HDMI input. If the audio is directed to the DSP the SPDIF output will not work.*

Example read command:
HDMIAUDOUT<CR>

Example read response:
ACK HDMIAUDOUT ORG<CR>

Example write command:
HDMIAUDOUT ANA<CR>

Example write response:
ACK HDMIAUDOUT ANA<CR>

17 – unAIO2X2+ Commands

The following commands are available for the unAIO2X2+

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-2)	Gain (0.0, 15.0, 30.0, 45.0)
Input Pad	IP	Channel # (0-2)	State (0 = off or 1 = on)
Phantom Power	PP	Channel # (0-2)	State (0 = off or 1 = on)
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Identify Device	ID	Mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Get Product Type	GETPRODTYPE	-	-
Get Product ID	GETPRODID	-	-
Get Device Name	GETDEVICENAME	-	-
Get MAC address	GETMAC	-	-
Get Channel label	GETCHNLLABEL	Type = ("RX", "TX")	Channel # (1-2)
Get MCU model	MODEL	-	-

17.1 – Input Gain

Select microphone or line input mode for a particular input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the gain setting to all available input channels. A channel value of 1 or 2 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are 0.0, 15.0, 30.0 and 45.0. The gain values must contain the decimal value so sending a value of 15, for example, will not be accepted.

Example command:

```
IG 1 30.0<CR>           Sets the input gain of channel 1 to +30dB
```

Example response:

```
ACK IG 1 30.0<CR>       OK response
```

17.2 – Input Pad

Activate the input pad for a particular input. Doing so gives approximately a further 16dB headroom for audio input signals allowing +24dBu input signals to be accommodated. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the pad setting to all available input channels. A channel value of 1 or 2 will set the input pad on the specified channel only. Any other channel value will result in a NACK response. The input pad state is either a zero ("0") for off or a one ("1") for on. Any other value will result in a NACK being returned.

Example command:

```
IP 1 1<CR>              Activates the input pad on channel 1
```

Example response:

```
ACK IP 1 1<CR>         OK response
```

17.3 – Phantom Power

Activates or deactivates the phantom power on a particular input. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1 or 2 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

PP 1 0<CR> Sets the phantom power on input 1 to be off

Example response:

ACK PP 1 0<CR> OK response

17.4 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

***Note:** This is attenuation only and applies no amplification to the audio signals.

Example command:

OV 0 -20<CR> Sets both output channels to -20 dB attenuation.

Example response:

ACK OV 0 -20<CR> OK response

17.5 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

***Note:** The output mute setting is independent of the volume control.

Example command:

OM 2 1<CR> Mute output channel 2.

Example response:

ACK OM 2 1<CR> OK response

17.6 – Identify/Find Unit

Used to find a device by flashing the device LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR> Turn on identify function
ID 0<CR> Turn off identify function
FU<CR> Turn on find unit function

Example commands:

ACK ID 1<CR> OK response
ACK ID 0<CR> OK response
ACK FU<CR> OK response

17.7 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

```
LOAD 5<CR>          Load Preset 5
SAVE 3<CR>          Save current settings as preset 3
```

Example response:

```
ACK LOAD 5<CR>      OK Response
ACK SAVE 3<CR>      OK Response
```

17.8 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=0.0 IG2=0.0 IP1=OFF IP2=OFF PP1=OFF PP2=OFF OV1=0 OV2=0 OM1=OFF OM2=OFF
ID=OFF<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain 0.0 dB
Input 2 Gain 0.0 dB
Input 1 Pad Off
Input 2 Pad Off
Input 1 Phantom Power Off
Input 2 Phantom Power Off
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
ID function - Disabled
```

17.9 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to 0.0dB, input pads are turned off, phantom power is turned off, output volume is set to 0dB, and output mutes are set to unmuted and these same settings are then stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device parameters to the original factory values removing any user changes and should be used with caution. This command has no effect on any of the Dante settings.*

17.10 – Version

Returns the software version of the host processor. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.3.0<CR>
```

17.11 – Get Product Type

This command requests the Product Type. The command takes no parameters

Example command:
`GETPRODTYPE<CR>`

Example response:
`ACK GETPRODTYPE unAIO2X2+ <CR>`

17.12 – Get Product ID

This command requests the product ID and is unique so each type of Attero device will return the same value. The product ID is 64 bits and is returned as 16 ASCII characters representing 16 hexadecimal digits. To signify that the data is in hexadecimal the data is preceded with a 0x.

Example command:
`GETPRODID<CR>`

Example response:
`ACK GETPRODID 0x000000000000000F<CR>`

17.13 – Get Device Name

This command requests the device name as shown in Dante Controller. The device name data is up to 32 characters long consisting of number and letters with no spaces. The name may also contain a dash ("-") character, but it will not begin or end with a dash ("-") character.

Example command:
`GETDEVICENAME<CR>`

Example response:
`ACK GETDEVICENAME unDIO2X2-000000<CR>`

17.14 – Get MAC Address

This command requests the MAC address used by the device. The command has no parameters. The MAC address data is 48bits and is returned as 12 ASCII characters representing 12 hexadecimal digits.

Example command:
`GETMAC<CR>`

Example response:
`ACK GETMAC 001DC1000495<CR>`

17.15 – Get Channel Label

This command requests the channel label as shown on the Dante network for a specific transmit or receive channel. The command has two parameters. The first parameter is either RX or TX indicating whether the channel name is one of the receiving or transmitting channels respectively. The second parameter is the channel number is either a 1 or a 2 for both RX and TX channels. The returned name is up to 32 characters long.

Example command:
`GETCHNLLABEL RX 2<CR>`

Example response:
`ACK GETCHNLLABEL RX 2 RXCHNL1<CR>`

17.16 – Get Model

This command requests the model of the devices MCU firmware. The command has no parameters.

**Note: The value returned is *NOT* retrieved from the communications processor but hard-coded into firmware itself and indicates the device the MCU code is meant for.*

Example command:

```
MODEL<CR>
```

Example response:

```
ACK MODEL unAX2IO+<CR>
```

18- unAX2IO+ Commands

The following commands are available for the unAX2IO+.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-2)	Gain (-18.0, -3.0, 25.0, 40.0)
Input Pad	IP	Channel # (0, 3, 4)	State (0 = off or 1 = on)
Phantom Power	PP	Channel # (0-4)	State (0 = off or 1 = on)
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Identify Device	ID	Mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Get Product Type	GETPRODTYPE	-	-
Get Product ID	GETPRODID	-	-
Get Device Name	GETDEVICENAME	-	-
Get MAC address	GETMAC	-	-
Get Channel label	GETCHNLLABEL	Type ("RX", "TX")	For RX type - Channel # (1-2) For TX type - Channel # (1-4)
Get MCU model	MODEL	-	-

18.1 – Input Gain

Select microphone or line input mode for a particular input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the gain setting to both input channels. A channel value of 1, or 2 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are -18.0, -3.0, 25.0 and 40.0. The gain values must contain the decimal value so sending a value of -18, for example, will not be accepted.

Example command:

```
IG 1 25.0<CR>           Sets the input gain of channel 1 to +25dB
```

Example response:

```
ACK IG 1 25.0<CR>      OK response
```

**Note: 77nify shows the values for two of the gain options slightly differently. The "-3.0" value is indicated as "0dB" and the "-18" value is indicated as "0dB (Pad Active)".*

18.2 – Input Pad

Select the input range for a particular input (inputs 3 and 4 only). The first parameter is the channel number and should be 0, 3 or 4. A channel number of 0 will apply the pad setting to all available input channels. A channel value of 3 or 4 will set the input pad on the specified channel only. Any other channel value will result in a NACK response. The input pad state is either a zero ("0") for off (10dBV consumer range) or a one ("1") for on for (+4dBu pro range). Any other value will result in a NACK being returned.

Example command:

```
IP 1 1<CR>           Activates the input pad on channel 1
```

Example response:

```
ACK IP 1 1<CR>      OK response
```

18.3 – Phantom Power

Activates or deactivates the phantom power on a particular input. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1 or 2 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

```
PP 1 0<CR>          Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>      OK response
```

18.4 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

***Note:** This is attenuation only and applies no amplification to the audio signals.

Example command:

```
OV 0 -20<CR>        Sets both output channels to -20 dB attenuation.
```

Example response:

```
ACK OV 0 -20<CR>    OK response
```

18.5 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

***Note:** The output mute setting is independent of the volume control.

Example command:

```
OM 2 1<CR>          Mute output channel 2.
```

Example response:

```
ACK OM 2 1<CR>      OK response
```

18.6 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

18.7 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

18.8 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

QUERY<CR>

Example response:

ACK QUERY IG1=40.0 IG2=25.0 IP3=OFF IP4=OFF PP1=OFF PP2=OFF OV1=0 OV2=0 OM1=OFF OM2=OFF
ID=OFF <CR>

The example response shows the device is configured as follows:

Input 1 Gain 40.0 dB
Input 2 Gain 25.0 dB
Input 3 Pad Off
Input 4 Pad Off
Phantom Power Input 1 Off
Phantom Power Input 2 Off
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
ID function - Disabled

18.9 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains on inputs 1 and 2 to -3.0dB, phantom power on inputs 1 and 2 are turned off, input pad on inputs 3 and 4 are set to off (consumer), the output volumes set to 0dB, and output mutes turned off and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:
DEFAULTS<CR>

Example response:
ACK DEFAULTS<CR>

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

18.10 – Version

Returns the software version of the host processor. The command takes no parameters.

Example command:
VERSION<CR>

Example response:
ACK VERSION 1.3.0<CR>

18.11 – Get Product Type

This command requests the Product Type. The command takes no parameters

Example command:
GETPRODTYPE<CR>

Example response:
ACK GETPRODTYPE unAX2IO+<CR>

18.12 – Get Product ID

This command requests the product ID and is unique so each type of Attero device will return the same value. The product ID is 64 bits and is returned as 16 ASCII characters representing 16 hexadecimal digits. To signify that the data is in hexadecimal the data is preceded with a 0x.

Example command:
GETPRODID<CR>

Example response:
ACK GETPRODID 0x0000000000000015<CR>

18.13– Get Device Name

This command requests the device name as shown in Dante Controller. The device name data is up to 32 characters long consisting of number and letters with no spaces. The name may also contain a dash (“-”) character, but it will not begin or end with a dash (“-”) character.

Example command:
GETDEVICENAME<CR>

Example response:
ACK GETDEVICENAME unDX2IO-000000<CR>

18.14 – Get MAC Address

This command requests the MAC address used by the device. The command has no parameters. The MAC address data is 48bits and is returned as 12 ASCII characters representing 12 hexadecimal digits.

Example command:
GETMAC<CR>

Example response:
ACK GETMAC 001DC1000495<CR>

18.15 – Get Channel Label

This command requests the channel label as shown on the Dante network for a specific transmit or receive channel. The command has two parameters. The first parameter is either RX or TX indicating whether the channel name is one of the receiving or transmitting channels respectively. The second parameter is the channel number is either a 1 or a 2 for the RX channels or a 1, a 2, a 3, or a 4 for the TX channels. The returned name is up to 32 characters long.

Example command:
GETCHNLLABEL RX 2<CR>

Example response:
ACK GETCHNLLABEL RX 2 RXCHNL1<CR>

18.16 – Get Model

This command requests the model of the devices MCU firmware. The command has no parameters.

**Note: The value returned is *NOT* retrieved from the communications processor but hard-coded into firmware itself and indicates the device the MCU code is meant for.*

Example command:
MODEL<CR>

Example response:
ACK MODEL unAX2IO+<CR>

19 – unAX4I Commands

***Note:** unDX4I devices must be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.

The following commands are available for the unDX4I.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-4)	Gain (-18.0, -3.0, 25.0, 40.0)
Phantom Power	PP	Channel # (0-4)	State (0 = off or 1 = on)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Get Product Type	GETPRODTYPE	-	-
Get Product ID	GETPRODID	-	-
Get Device Name	GETDEVICENAME	-	-
Get MAC address	GETMAC	-	-
Get Channel label	GETCHNLLABEL	Type ("RX", "TX")	For RX type - Channel # (1-2) For TX type - Channel # (1-4)
Get MCU model	MODEL	-	-

19.1 – Input Gain

Select microphone or line input mode for a particular unDX4I input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 4. A channel number of 0 will apply the gain setting to all available input channels. A channel value of 1, 2, 3, or 4 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are -18.0, -3.0, 25.0 and 40.0. The gain values must contain the decimal value so sending a value of -18, for example, will not be accepted.

Example command:

```
IG 1 25.0<CR>           Sets the input gain of channel 1 to +25dB
```

Example response:

```
ACK IG 1 25.0<CR>     OK response
```

***Note:** 82nify shows the values for two of the gain options slightly differently. The "-3.0" value is indicated as "0dB" and the "-18" value is indicated as "0dB (Pad Active)".

19.2 – Phantom Power

Activates or deactivates the phantom power on a particular unDX4I inputs. The first parameter is the channel number and should be between 0 and 4. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1, 2, 3, or 4 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

```
PP 1 0<CR>           Sets the phantom power on input 1 to be off
```

Example response:

```
ACK PP 1 0<CR>       OK response
```

19.3 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

***Note:** This is attenuation only and applies no amplification to the audio signals.

Example command:

```
OV 0 -20<CR>         Sets both output channels to -20 dB attenuation.
```

Example response:

```
ACK OV 0 -20<CR>     OK response
```

19.4 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

***Note:** The output mute setting is independent of the volume control.

Example command:

```
OM 2 1<CR>           Mute output channel 2.
```

Example response:

```
ACK OM 2 1<CR>       OK response
```

19.5 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

```
ID 1<CR>             Turn on identify function  
ID 0<CR>             Turn off identify function  
FU<CR>              Turn on find unit function
```

Example commands:

```
ACK ID 1<CR>         OK response  
ACK ID 0<CR>         OK response  
ACK FU<CR>          OK response
```

19.6 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

```
LOAD 5<CR>          Load Preset 5
SAVE 3<CR>          Save current settings as preset 3
```

Example response:

```
ACK LOAD 5<CR>      OK Response
ACK SAVE 3<CR>      OK Response
```

19.7 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=-3.0 IG2=-3.0 IG3=-3.0 IG4=-3.0 PP1=OFF PP2=OFF PP3=OFF PP4=OFF ID=OFF OV1=0
OV2=0 OM1=OFF OM2=OFF<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain -3.0 dB
Input 2 Gain -3.0 dB
Input 3 Gain -3.0 dB
Input 4 Gain -3.0 dB
Phantom Power Input 1 Off
Phantom Power Input 2 Off
Phantom Power Input 3 Off
Phantom Power Input 4 Off
ID function - Disabled
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
```

19.8 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to -3.0dB, the output gains to 0dB, phantom power is turned off on both XLR inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

***Note:** Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.

19.9 – Version

Returns the software version of the host processor on the unDX4I. The command takes no parameters.

Example command:
VERSION<CR>

Example response:
ACK VERSION 1.3.0<CR>

19.10– Get Product Type

This command requests the Product Type. The commands takes no parameters

Example command:
GETPRODTYPE<CR>

Example response:
ACK GETPRODTYPE unAX2IO+<CR>

19.11 – Get Product ID

This command requests the product ID and is unique so each type of Attero device will return the same value. The product ID is 64 bits and is returned as 16 ASCII characters representing 16 hexadecimal digits. To signify that the data is in hexadecimal the data is preceded with a 0x.

Example command:
GETPRODID<CR>

Example response:
ACK GETPRODID 0x0000000000000015<CR>

19.12– Get Device Name

This command requests the device name as shown in Dante Controller. The device name data is up to 32 characters long consisting of number and letters with no spaces. The name may also contain a dash (“-”) character, but it will not begin or end with a dash (“-”) character.

Example command:
GETDEVICENAME<CR>

Example response:
ACK GETDEVICENAME unDX2IO-000000<CR>

19.13 – Get MAC Address

This command requests the MAC address used by the device. The command has no parameters. The MAC address data is 48bits and is returned as 12 ASCII characters representing 12 hexadecimal digits.

Example command:
GETMAC<CR>

Example response:
ACK GETMAC 001DC1000495<CR>

19.14 – Get Channel Label

This command requests the channel label as shown on the Dante network for a specific transmit or receive channel. The command has two parameters. The first parameter is either RX or TX indicating whether the channel name is one of the receiving or transmitting channels respectively. The second parameter is the channel number is either a 1 or a 2 for the RX channels or a 1, a 2, a 3, or a 4 for the TX channels. The returned name is up to 32 characters long.

Example command:

```
GETCHNLLABEL RX 2<CR>
```

Example response:

```
ACK GETCHNLLABEL RX 2 RXCHNL1<CR>
```

19.15 – Get Model

This command requests the model of the devices MCU firmware. The command has no parameters.

**Note: The value returned is *NOT* retrieved from the communications processor but hard-coded into firmware itself and indicates the device the MCU code is meant for.*

Example command:

```
MODEL<CR>
```

Example response:

```
ACK MODEL unAX2IO+<CR>
```

20 – unA6IO Commands

**Note: unD6IO devices must be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.*

The following commands are available for the unD6IO.

Description	Command	Parameter 1	Parameter 2
Input Gain	IG	Channel # (0-2)	Gain (-18.0, -3.0, 25.0, 40.0)
Phantom Power	PP	Channel # (0-2)	State (0 = off or 1 = on)
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Line Input Select	IS	Channel # (0, 3,4)	Input (A, B, A+B)
Get Product Type	GETPRODTYPE	-	-
Get Product ID	GETPRODID	-	-
Get Device Name	GETDEVICENAME	-	-
Get MAC address	GETMAC	-	-
Get Channel label	GETCHNLLABEL	Type ("RX", "TX")	For RX type - Channel # (1-2) For TX type - Channel # (1-4)
Get MCU model	MODEL	-	-

20.1 – Input Gain (XLR inputs only)

Select microphone or line input mode for a particular unD6IO input by setting the amount of microphone pre-amplifier input gain it uses. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the gain setting to all available input channels. A channel value of 1 or 2 will set the input gain on the specified channel only. Any other channel value will result in a NACK response. Input gains available are -18.0, -3.0, 25.0 and 40.0. The gain values must contain the decimal value so sending a value of -18, for example, will not be accepted.

Example command:

```
IG 1 25.0<CR>           Sets the input gain of channel 1 to +25dB
```

Example response:

```
ACK IG 1 25.0<CR>      OK response
```

**Note: 87nify shows the values for two of the gain options slightly differently. The "-3.0" value is indicated as "0dB" and the "-18" value is indicated as "0dB (Pad Active)".*

20.2 – Phantom Power (XLR inputs only)

Activates or deactivates the phantom power on a particular unD6IO inputs. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the phantom power state to all available input channels. A channel value of 1 or 2 will set the phantom power state on the specified channel only. Any other value will result in a NACK response. The second parameter defines the new state the phantom power will be set to and is either on (0) or off (1).

Example command:

PP 1 0<CR> Sets the phantom power on input 1 to be off

Example response:

ACK PP 1 0<CR> OK response

20.3 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR> Turn on identify function
ID 0<CR> Turn off identify function
FU<CR> Turn on find unit function

Example commands:

ACK ID 1<CR> OK response
ACK ID 0<CR> OK response
ACK FU<CR> OK response

20.4 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR> Load Preset 5
SAVE 3<CR> Save current settings as preset 3

Example response:

ACK LOAD 5<CR> OK Response
ACK SAVE 3<CR> OK Response

20.5 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

```
QUERY<CR>
```

Example response:

```
ACK QUERY IG1=-3.0 IG2=-3.0 PP1=OFF PP2=OFF ID=OFF OV1=0 OV2=0 OM1=OFF OM2=OFF IS3=A  
IS4=A+B<CR>
```

The example response shows the device is configured as follows:

```
Input 1 Gain -3.0 dB  
Input 2 Gain -3.0 dB  
Phantom Power Input 1 Off  
Phantom Power Input 2 Off  
ID function - Disabled  
Output 1 Volume 0 dB  
Output 2 Volume 0 dB  
Output 1 Mute = Unmuted  
Output 2 Mute = Unmuted  
Input Select Ch3 = RCA  
Input Select CH4 = RCA "R" + 3.5mm Jack "R"
```

20.6 – Defaults

The DEFAULTS command forces the system to return to factory settings. It sets input gains to -3.0dB, the output gains to 0dB, phantom power is turned off on both XLR inputs and these same settings are also stored to preset 0. The settings in the remaining presets are left as is. The response from the device to this command is the same format as for a basic command response.

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

20.7 – Version

Returns the software version of the host processor on the unD6IO. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.3.0<CR>
```

20.8 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

**Note: This is attenuation only and applies no amplification to the audio signals.*

Example command:

```
OV 0 -20<CR>                      Sets both output channels to -20 dB attenuation.
```

Example response:

```
ACK OV 0 -20<CR>      OK response
```

20.9 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

***Note:** The output mute setting is independent of the volume control.

Example command:

```
OM 2 1<CR>           Mute output channel 2.
```

Example response:

```
ACK OM 2 1<CR>      OK response
```

20.10 – Line Level Select

Select which of the specific inputs are used for the line level inputs, input 3 and input 4. Input 3 and 4 of the unD6IO are used exclusively for the line level audio and the user can select which of the line level connectors, the RCA or the 3,5mm jack, the audio comes from. Input 3 and 4 form a stereo pair with input 3 the left channel and input 4 the right channel.

When using this commands two parameters are required. The first parameter is the channel number. To set the value for a specific channel use the channel number, 3 or 4. To set both, channels to the same value, use 0. Any other value for the first parameter will result in a NACK response. The second parameter indicates which specific input or inputs provide the audio. The three options are:

- A - Audio from only the RCA input
- B - Audio from only the stereo-jack input
- A+B - A mix of the audio from both the RCA and stereo jack input

Example commands:

```
IS 3 A<CR>           Sets input 3 to RCA left only
IS 4 B<CR>           Sets input 4 to 3.5mm jack right input only
IS 3 A+B<CR>        Sets input 3 to be a mix of RCA Left input and 3,5mm jack left input
```

Example responses:

```
ACK IS 3 A<CR>      OK response
NACK IS 1 B<CR>     Fail response (channel incorrectly set)
```

20.11 – Get Product Type

This command requests the Product Type. The command takes no parameters

Example command:
`GETPRODTYPE<CR>`

Example response:
`ACK GETPRODTYPE unAX2IO+<CR>`

20.12 – Get Product ID

This command requests the product ID and is unique so each type of Attero device will return the same value. The product ID is 64 bits and is returned as 16 ASCII characters representing 16 hexadecimal digits. To signify that the data is in hexadecimal the data is preceded with a 0x.

Example command:
`GETPRODID<CR>`

Example response:
`ACK GETPRODID 0x0000000000000015<CR>`

20.13– Get Device Name

This command requests the device name as shown in Dante Controller. The device name data is up to 32 characters long consisting of number and letters with no spaces. The name may also contain a dash ("-") character, but it will not begin or end with a dash ("-") character.

Example command:
`GETDEVICENAME<CR>`

Example response:
`ACK GETDEVICENAME unDX2IO-000000<CR>`

20.14 – Get MAC Address

This command requests the MAC address used by the device. The command has no parameters. The MAC address data is 48bits and is returned as 12 ASCII characters representing 12 hexadecimal digits.

Example command:
`GETMAC<CR>`

Example response:
`ACK GETMAC 001DC1000495<CR>`

20.15 – Get Channel Label

This command requests the channel label as shown on the Dante network for a specific transmit or receive channel. The command has two parameters. The first parameter is either RX or TX indicating whether the channel name is one of the receiving or transmitting channels respectively. The second parameter is the channel number is either a 1 or a 2 for the RX channels or a 1, a 2, a 3, or a 4 for the TX channels. The returned name is up to 32 characters long.

Example command:
`GETCHNLLABEL RX 2<CR>`

Example response:
`ACK GETCHNLLABEL RX 2 RXCHNL1<CR>`

20.16 – Get Model

This command requests the model of the devices MCU firmware. The command has no parameters.

**Note: The value returned is *NOT* retrieved from the communications processor but hard-coded into firmware itself and indicates the device the MCU code is meant for.*

Example command:

```
MODEL<CR>
```

Example response:

```
ACK MODEL unAX2IO+<CR>
```

21 – unA6IO-BT Commands

**Note: unD6IO-BT devices must be product version V4.x.x with firmware V2.0.0 to support direct UDP commands.*

The following commands are available for the unD6IO-BT.

Description	Command	Parameter 1	Parameter 2
Identify Device	ID	mode (0 = off, 1 = on)	-
Find Unit	FU	-	-
Load preset values	LOAD	x (x = [0..9])	-
Save preset values	SAVE	x (x = [0..9])	-
Retrieve current settings	QUERY	-	-
Reset to factory defaults	DEFAULTS	-	-
Version Info	VERSION	-	-
Output Volume	OV	Channel # (0-2)	Level (-60 to 0, 1 dB increments)
Output Mute	OM	Channel # (0-2)	State (0 = unmuted, 1 = muted)
Line Input Select	IS	Channel # (0, 3,4)	Input (A, B, A+B)
Get Bluetooth® friendly name	BTN	-	-
Set Bluetooth® friendly name	BTN	“Name” (up to 32 character string)	-
Lock Front Panel Button	BTL	state (0 = Lock off, 1 = Lock on)	-
Get Bluetooth® Status	BTS	-	-
Activate pairing	BTB	-	-
Close Active Bluetooth® Connection	BCC	-	-
Clear Bluetooth® Pairings	CBC	-	-
Get Product Type	GETPRODTYPE	-	-
Get Product ID	GETPRODID	-	-
Get Device Name	GETDEVICENAME	-	-
Get MAC address	GETMAC	-	-
Get Channel label	GETCHNLLABEL	Type (“RX”, “TX”)	For RX type – Channel # (1-2) For TX type – Channel # (1-4)
Get MCU model	MODEL	-	-

21.1 – Identify/Find Unit

Used to find a device by flashing the devices LED's. When the identify function is activated, the power LED will flash on and off. The Identify command (ID) turns on the identify function and it will remain active until the appropriate identify command is sent to turn it off, or the device is reset or power cycled. The find unit command (FU) activates the identify function but unlike the identify command the find unit function will automatically turn itself off after 5 seconds

Example commands:

ID 1<CR>	Turn on identify function
ID 0<CR>	Turn off identify function
FU<CR>	Turn on find unit function

Example commands:

ACK ID 1<CR>	OK response
ACK ID 0<CR>	OK response
ACK FU<CR>	OK response

21.2 – Load/Save

The LOAD and SAVE commands allow the different configurations to be saved as presets. A preset stores the devices configuration and includes the input gain setting, the output gain setting, and the phantom power setting. There are ten presets available 0 through 9. Preset 0 contains the default settings used at power-up. The response to this command from the device is the same format as for a basic command response.

Example command:

LOAD 5<CR>	Load Preset 5
SAVE 3<CR>	Save current settings as preset 3

Example response:

ACK LOAD 5<CR>	OK Response
ACK SAVE 3<CR>	OK Response

21.3 – Query

A QUERY command allows the control system to get a snapshot of the current state of the device. When a Query command is sent, the response includes all of the devices parameters.

Example command:

QUERY<CR>

Example response:

ACK QUERY IS3=A IS4=B ID=0 OV1=0 OV2=0 OM1=0 OM2=1 BTN=myName BTS=2 BTL=1<CR>

The example response shows the device is configured as follows:

Input Select Ch3 = RCA L
Input Select CH4 = 3.5mm R
ID function – Disabled
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
Bluetooth® Friendly Name = myName
Bluetooth® Interface Status = Connected
Button Lock = Locked

21.4 – Defaults

The DEFAULTS command forces the system to return to factory settings.

```
Input Select CH3 = RCA L
Input Select CH4 = RCA R
ID function – Disabled
Output 1 Volume 0 dB
Output 2 Volume 0 dB
Output 1 Mute = Unmuted
Output 2 Mute = Unmuted
Bluetooth® Friendly Name = D6IO-BT-010203 (Dante Device Name)
Bluetooth® Interface Status = Idle
Button Lock = Locked
```

Example command:

```
DEFAULTS<CR>
```

Example response:

```
ACK DEFAULTS<CR>
```

**Note: Using this command restores the device settings to the original factory values removing any user changes. It should be used with caution.*

21.5 – Version

Returns the software version of the host processor on the unD6IO-BT. The command takes no parameters.

Example command:

```
VERSION<CR>
```

Example response:

```
ACK VERSION 1.0<CR>
```

21.6 – Output Volume (Attenuation)

Sets the output volume for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output volume to all output channels. A channel value of 1 or 2 will set the output volume on the specified channel only. Any other channel value will result in a NACK being returned. The volume must be an integer number between -60 and 0 where -60 is -60dB attenuation of the signal (low volume) and 0 is no attenuation (full volume).

**Note: This is attenuation only and applies no amplification to the audio signals.*

Example command:

```
OV 0 -20<CR>           Sets both output channels to -20 dB attenuation.
```

Example response:

```
ACK OV 0 -20<CR>     OK response
```

21.7 – Output Mute

Sets the output mute state for a selected output channel. The first parameter is the channel number and should be between 0 and 2. A channel number of 0 will apply the output mute setting to all output channels. A channel value of 1 or 2 will set the output mute on the specified channel only. Any other channel value will result in a NACK being returned. The second parameter is the mute state. Use a zero ("0") for unmuted and a one ("1") for muted. Any other value will result in a NACK being returned.

**Note: The output mute setting is independent of the volume control.*

Example command:

```
OM 2 1<CR>           Mute output channel 2.
```

Example response:

```
ACK OM 2 1<CR>     OK response
```


21.8 – Line Level Select

Select which of the specific inputs are used for the line level inputs, input 3 and input 4. Input 3 and 4 of the unD6IO-BT are used exclusively for the line level audio and the user can select which of the line level connectors, the RCA or the 3,5mm jack, the audio comes from. Input 3 and 4 form a stereo pair with input 3 the left channel and input 4 the right channel.

When using this commands two parameters are required. The first parameter is the channel number. To set the value for a specific channel use the channel number, 3 or 4. To set both, channels to the same value, use 0. Any other value for the first parameter will result in a NACK response. The second parameter indicates which specific input or inputs provide the audio. The three options are:

- A - Audio from only the RCA input
- B - Audio from only the stereo-jack input
- A+B - A mix of the audio from both the RCA and stereo jack input

Example commands:

IS 3 A<CR>	Sets input 3 to RCA left only
IS 4 B<CR>	Sets input 4 to 3.5mm jack right input only
IS 0 A+B<CR>	Sets input 3 to be a mix of RCA Left input and 3,5mm jack left input and input 4 to be a mix of RCA right input and 3,5mm jack right input

Example responses:

ACK IS 3 A<CR>	OK response
NACK IS 1 B<CR>	Fail response (channel incorrectly set)

21.9 – Get/Set Bluetooth® Friendly Name

This function allows the control system to set a new friendly name, visible to other Bluetooth® devices when in pairing mode. (Maximum length is 16 characters)

Example “Get” command:

```
BTN<CR>
```

Example “Get” response:

```
ACK BTN unD6IO-BT-010203<CR>
```

Example “Set” command:

```
BTN myBT<CR>
```

Example “Set” response:

```
ACK BTN mBT<CR>
```

21.10 – Get/Set Button Lock

This function allows the control system to lock out the front panel button from local user operation. Any button presses while the button is locked are ignored by the device (0 = Unlocked, 1 = Locked).

Example “Get” command:

```
BTL<CR>
```

Example “Get” response:

```
ACK BTL 1<CR>
```

Example “Set” command:

```
BTL 1<CR>
```

Lock front panel button

Example “Set” response:

```
ACK BTN 1<CR>
```

21.11 – Bluetooth® Status

This function allows the control system retrieve the state of the unBT2A Bluetooth® interface.
(0 = IDLE, 1 = DISCOVERABLE, 2 = CONNECTED)

**Note: There may be a couple of second delay after the sending of a BTB message to activate pairing whereby the status reads "IDLE" but the unit is itself in "Discovery" mode.*

Example "Get" command:
BTS<CR>

Example "Get" response:
ACK BTS 2<CR> Bluetooth® Interface has an active connection

21.12 – Activate Pairing

This function allows the control system to remotely activate the pairing/connect mode by simulating the front panel user button press.

**Note: There may be a couple of second delay after the sending this command where the response to a BTS status message may indicate "IDLE" but the unit is itself in "Discovery" mode.*

Example command:
BTB<CR>

Example response:
ACK BTB<CR> Bluetooth® Interface is now in pairing/connect mode

21.13 – Close Bluetooth® Connection

This function allows the control system to remotely close the active Bluetooth® connection.

Example command:
BCC<CR>

Example response:
ACK BCC<CR> Active Bluetooth® connection closed.

21.14 – Clear Bluetooth® Pairings

This function clears the pairing list of the device. Note, if the pairing list is cleared, the user may need to manually unpair their device before attempting to pair again.

Example command:
CBC<CR>

Example response:
ACK CBC<CR> Pairing list cleared

21.15– Get Product Type

This command requests the Product Type. The commands takes no parameters

Example command:
GETPRODTYPE<CR>

Example response:
ACK GETPRODTYPE unAX2IO+<CR>

21.16 – Get Product ID

This command requests the product ID and is unique so each type of Attero device will return the same value. The product ID is 64 bits and is returned as 16 ASCII characters representing 16 hexadecimal digits. To signify that the data is in hexadecimal the data is preceded with a 0x.

Example command:
GETPRODID<CR>

Example response:
ACK GETPRODID 0x0000000000000015<CR>

21.17– Get Device Name

This command requests the device name as shown in Dante Controller. The device name data is up to 32 characters long consisting of number and letters with no spaces. The name may also contain a dash (“-”) character, but it will not begin or end with a dash (“-”) character.

Example command:
GETDEVICENAME<CR>

Example response:
ACK GETDEVICENAME unDX2IO-000000<CR>

21.18 – Get MAC Address

This command requests the MAC address used by the device. The command has no parameters. The MAC address data is 48bits and is returned as 12 ASCII characters representing 12 hexadecimal digits.

Example command:
GETMAC<CR>

Example response:
ACK GETMAC 001DC1000495<CR>

21.19 – Get Channel Label

This command requests the channel label as shown on the Dante network for a specific transmit or receive channel. The command has two parameters. The first parameter is either RX or TX indicating whether the channel name is one of the receiving or transmitting channels respectively. The second parameter is the channel number is either a 1 or a 2 for the RX channels or a 1, a 2, a 3, or a 4 for the TX channels. The returned name is up to 32 characters long.

Example command:
GETCHNLLABEL RX 2<CR>

Example response:
ACK GETCHNLLABEL RX 2 RXCHNL1<CR>

21.20 – Get Model

This command requests the model of the devices MCU firmware. The command has no parameters.

**Note: The value returned is *NOT* retrieved from the communications processor but hard-coded into firmware itself and indicates the device the MCU code is meant for.*

Example command:
MODEL<CR>

Example response:
ACK MODEL unAX2IO+<CR>

Document Information

Document title:	unIFY 3rd Party Control
Document file name:	621-00007 unIFY 3rd Party Software API.docx
Revision number:	<06_j>
Issued by:	Attero Tech
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Revision History

Revision	Date	Author	Description of change
00_a	11/04/13	CNL	Initial Draft
00_b	02/14/14	CNL	Changed document to unIFY software API document Added generic protocol sections Added sections for supported commands for each device
00_c	05/13/14	CNL	Split document into two sections for old and new format messages
00_d	08/07/14	CNL	Added unD4I supported commands Rewrote various sections to reflect current situation with support for both UDP and Dante Proprietary Interface for most devices
00_e	10/29/14	CNL	Modified to detail the 3 rd party Control interface only
01	10/29/14	CNL	Release Version 01
01_a	10/07/15	CNL	Added supported unD4I-L command with logic extensions
01_b	10/08/15	CNL	Minor changes after review by Josh
02	10/08/15	CNL	Release Version 02
03_a	2/23/16	JDA	Added unDX4I section. Corrected QUERY responses for unD4I and unD4I-L.
03_b	2/23/16	CNL	Some minor corrections and alterations Removed double spaces after periods Corrected some copy-paste errors in several unD4I-L sections Changed references to "Phantom" to "phantom" when used in text Added additional clarification text for output volume and output mute commands
04	2/23/16	CNL	Release Version 04
04_a	05/13/16	JDA	Bug #2732 - unD32 communication port reported incorrectly Added unD6IO commands
04_b	05/13/16	CNL	Reviewed ready for release
05	05/13/16	CNL	Release Version 05
05_a	10/9/16	JDA	Added unBT2A, revised intro to cover serial device control as well.
05_b	10/18/16	JDA	Added unD6IO-BT and unDNEMO-BT command sets.
05_c	10/27/16	CNL	Review changes
05_d	11/07/16	JDA	Finalized corrections
05_e	11/08/16	CNL	Minor corrections and formatting
06	11/08/16	CNL	Release Version
06_a	06/16/17	CNL	Added unDX2IO+ and unDIO2X2+ sections
06_b	07/18/17	CNL	Added extended commands to unDIO2x2+ and unDX2IO+ Added D32i section with commands noted in bug #3179 Added unHX2D section
06_c	07/21/17	JDA	Removed Vendor ID
06_d	07/24/17	CNL	Completed DEFAULTS setting for D32i Added MIX commands to unHX2D
06_e	08/11/17	CNL	Bug 3815 - Added notes to explain preamp controls discrepancy in unIFY
06_f	08/16/17	CNL	Added AES67 products Fixed QUERY response for unDIO2x2+ and unD6IO Added note that BTS state may not be immediately correct after BTB
06_g	11/29/17	CNL	Corrected QUERY message response for unD4I-L
06_h	9/18/18	CNL	Removed Synapse section (becomes part of Synapse API doc)



06_j	12/17/18	CNL	Bug #5942 - Missing commands for updated unD6IO-BT firmware Bug #5336 - unD32 output attenuation examples wrong Bug #5812 - Section 13.11 refers to wrong product Bug #4377 - unD4I-L QUERY response does not match API Bug #5874 - BT2A response for MUTE command appears incomplete Bug #3915 - unD6IO-BT - Friendly name restrictions
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