



# **DNA 3rd Party Control Protocol Guide**

Software API

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Revision 01

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## Contents

1 - Overview .....	ii
2 - Command Message Format.....	iii
2.1 - Command Responses .....	iii
2.2 - UDP Port Configuration .....	iv
3 - Commands - DNA.....	iv
3.1 - Output Level .....	iv
3.2 - Location .....	iv
3.3 - Load/Save Presets .....	v
3.4 - Version .....	v
3.5 - Status Request.....	vi
3.5.1 Multicast Status Message.....	vi

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## 1 - Overview

All SoundTube DNA devices have the ability to be controlled remotely by a 3<sup>rd</sup> party system. They utilize a simple ASCII over UDP protocol to allow for real-time control of a subset of the product features. This document describes the protocol that the UDP command interface uses.

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## 2 – Command 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> <Param1> <Param2><CR>

Field Name	Description
<Command>	The command that will be given to the device.
<Param1>	First optional parameter. See device command tables below for specific details
<Param2>	Second optional parameter. See device command tables below for specific details
<CR>(\r)	Carriage return character (ASCII character 13)

A typical message would look something like the following:

OV 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> <Param1> <Param2><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
<Param1>	First optional parameter from the original command message
<Param2>	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 – UDP Port Configuration

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.

## 3 – Commands - DNA

The following commands are available for the DNA.

Description	Command	Param 1	Param 2
Output Volume	OUTPUT	Channel # (1 or 2)	None or (0.0 to 99.0 dB)
Location	LOCATION	"Device Location" (max32 characters)	-
Load preset values	LOADPRESET	x (x = [0..9])	-
Save preset values	SAVEPRESET	x (x = [0..9])	-
Version Info	VERSION	-	-
Status Request	STATUS		

### 3.1 – Output Level

This command sets a output level for the amplifier outputs. The valid output level range is between -100 dB and +12 dB in 1 dB increments. An OUTPUT command without a level parameter will be acknowledged and returned with the currently output level setting. This allows the command to be used as a "get" command.

Example command(Set):

OUTPUT 1 0.0<CR> (\r) Sets the output level to 0 dB.

Example response:

ACK OUTPUT 1 0.0<CR> OK response

Example command (Get):

OUTPUT 1<CR> Sets the output level to 0 dB.

Example response:

ACK OUTPUT 1 0.0<CR> OK response

### 3.2 – Location

Command to get or set the location string used to describe where the amplifier is located.

Example command (Set):

LOCATION LOBBY<CR> Set the location parameter

Example response:

ACK LOCATION LOBBY<CR> OK response

Example command (Get):

LOCATION<CR> Get the location parameter

Example response:

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ACK LOCATION LOBBY<CR>

OK response

## 3.3 – Load/Save Presets

The LOADPRESET and SAVEPRESET 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 DSP settings, the output gain setting, and the location setting. The response to this command from the device is the same format as for a basic command response.

Example command:

LOADPRESET 5<CR>

SAVEPRESET 3<CR>

Load Preset 5

Save current settings as preset 3

Example response:

ACK LOADPRESET 5<CR>

ACK SAVEPRESET 3<CR>

OK Response

OK Response

## 3.4 – 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<CR>

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### 3.5- Status Request

The amplifier responds to a status request message, but also has support for asynchronous status messaging to more efficiently updated 3rd party monitoring software on the network.

The status request message has the following syntax and response parameters.

Example command:  
`STATUS<CR>`

Example response:  
`ACK STATUS 0 0 0 0<CR>`

Response	Param 1 ( Speaker Status)	Param 2 (Amp Error Status)	Param 3 (Over Temp Status)	Param 4 (Power Source)
ACK STATUS	0 = OK 1 = Impedance Error	0 = OK 1 = Amplifier Error	0 = OK 1 = Over Temp	0 = PoE+ 1 = DC Powered 2 = PoE

#### 3.5.1 Multicast Status Message

A status message also gets sent asynchronously to the multicast IP address of **239.254.50.123 on port 49494**. The message format is slightly different that the polled status message.

Example response:

`AMP-STATUS 0 0 0 0<CR>`

Response	Param 1 (Amp Error Status)	Param 2 (Over Temp Status)	Param 3 ( Speaker Status)
AMP-STATUS	0 = OK 1 = Amplifier Error	0 = OK 1 = Over Temp	0 = OK 1 = Impedance Error



## Document Information

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