

UDC Controller - Attenuator Commands

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1 Introduction

All the commands must start with the same header (ATN - case sensitive) and followed by the ID number of the board. The ID numbers must be between 00 and 31 (two characters format). Commands without these parameters are ignored. The examples below show commands from the computer to the device >>, and the the device response <<. All commands and responses terminate with Carriage Return (CR - \r - 0x0d).

2 Commands

The status request ? command returns the config values of all attenuators. If the device is restarted, these values correspond to the default values stored in the EEPROM memory. This is the command syntax:

Command: ATNxx?, where

xx: ATN board ID, 00<=xx<=31

Response: atnxxmAABB...LL, where

m: multiple attenuators

AA: value of atten. 00

BB: value of atten. 01

...

LL: value of atten. 11

Example:

```
>> ATN01?
<< atn01m010203040506070809101112
```

You can use the R command to print out default configuration (EEPROM) of the device:

Command: ATNxxR Response: atnxxmAABB...LLixx,

where

i: is the ID response command

Example:

```
>> ATN01R
<< atn01m010203040506070809101112i01
```

The A command is used to set only one attenuator:

Command: ATNxxAyyzz, where

xx: ATN board ID, 00<=x<=31

yy: attenuator No., 00<=yy<=11

zz: attenuator value: 00<=zz<=31

Response: atnxxok

Example:

```
>> ATN01?
<< atn01m010203040506070809101112
>> ATN01A1130
<< atn01k
>> ATN01?
<< atn01m010203040506070809101130
```

You can use the M command if you want to configure multiple attenuators:

Command: ATNxxMAABB...LL, where

M: multiple attenuators

AA: value of atten. 00

BB: value of atten. 01

...

LL: value of atten. 11

Response: atnxxok

Example:

```
>> ATN01M121110090807060504030201
<< atn01ok
>> ATN01?
<< atn01m121110090807060504030201
```

The W command is used if you want to store your actual configuration as default (EEPROM):

Command: ATNxxW

Response: atnxxok

Example:

```
>> ATN01R
<< atn01m010203040506070809101112i01
>> ATN01M121110090807060504030201
<< atn01ok
>> ATN01W
<< atn01ok
>> ATN01R
<< atn01m121110090807060504030201i01
```

Use the D command to configure the default (EEPROM):

Command: ATNxxD

Response: atnxxok

Example:

```
>> ATN01R
<< atn01m121110090807060504030201i01
>> ATN01D
<< atn01ok
>> ATN01?
<< atn01m121110090807060504030201
```

If you want to change the device ID, you can use the I command to change the device ID: WARNING: this command does not resolve ID conflicts if several devices are connected to the same bus (e.g. RS485/422).

Command: ATNxxIww, where

xx: actual device ID
ww: new device ID

Response: atnwwok

If you do not know the device ID (e.g. first time programmed device), and you want to reset this value, you can send an I command to everybody. WARNING: only one device connected, this could produce ID conflict later.

Setup ID, read status and check EEPROM:

```
>> ATNXXI02
>> ATN02?
<< atn02m121110090807060504030201
>> ATN02R
<< atn01m121110090807060504030201i01
```

Store new ID in EEPROM (permanent change):

```
>> ATN02W
<< atn02ok
>> ATN02R
<< atn02m121110090807060504030201i02
```

3 Error codes

The device is expecting digits after the command character. If there is an error, the device will return an error code 01 (atnxxERR01, xx: device ID). The example shows the a, w, and x not digit characters:

```
>> ATN01A0awx
<< atn01ERR01
>> ATN01M01010101aa010101010101
<< atn01ERR01
```

If the device ID is out of range, the device will return an error code 02. For example an ID change from 01 to 80, the valid range is between 0 and 31:

```
>> ATN01I80
<< atn01ERR02
```

The device will return an error code 03 if the attenuator number is out of range (between 0 and 11). This example tries to configure the attenuator 15:

```
>> ATN01A1500
<< atn01ERR03
```

The device will return an error code 04 if the attenuator value is out of range (between 00 and 31). This example tries to configure the attenuator 11 to 64:

```
>> ATN01A1164
<< atn01ERR04
```

The attenuator setup command A only accepts ten (10) characters of configuration. If a different number is provided, the device returns an error code 09. For example:

```
>> ATN01A010203
<< atn01ERR09
```

If you are trying to use the M command, and do not provide all the parameters (30 characters - $12 \times 2 + 6$), the device will return an error code 10:

```
>> ATN01M1122334455
<< atn01ERR10
```

The M command also returns an error code 05 if one of the attenuator values is out of range:

```
>> ATN01M0101010101010101010101010199
<< atn01ERR05
```

The ID change command I only accepts eight (8) characters of configuration. If a different number is provided, the device returns an error code 08. For example:

```
>> ATN01I1
<< atn01ERR08
```

Commands related to status and EEPROM only accepts six (6) characters. If a different number is provided, the device returns an error code 07. Example:

```
>> ATN01
<< atn01ERR07
```

Note: this error message is disabled, message ignored. Finally, if the command does not exits, the device will return an error code 06:

```
>> ATN01T
<< atn01ERR06
```

4 Examples

- Setup maximum attenuation (15.5dB) for all the devices: ATN01M31313131313131313131313131
- Setup attenuators in sequence from 0.5dB to 6.0dB, in steps of 0.5dB: ATN01M010203040506070809101112
- Setup attenuators in sequence from 6.0dB to 0.5dB, in steps of 0.5dB: ATN01M121110090807060504030201
- Setup all attenuators to 11.5dB: ATN01M21212121212121212121212121