AO19 Cal Controller - Commands
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1 Introduction

All the commands must start with the same initials (CAL - case sensitive) and followed by the command letter, and options, if required. The examples below show commands from the computer to the device `>>`, and the device response `<<`. All commands and responses terminate with Carriage Return (CR - `\r` - 0x0d).

2 Commands

The status request `?` command returns the state of the seven digital outputs*. If the device is power cycled, these values correspond to the default values stored in the EEPROM memory. Command syntax:

Command: `CAL?`

Response: `calmABCDEFG`, where

   m: multiple attenuators response
   A: digital output 0 status, 0/Low or 1/High
   B: digital output 1 status
   . . .
   G: digital output 6 status

Example:

```
>>   CAL?
<<   calm0000000
```

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

Command: `CALR`

Response: `calrABCDEFG` (similar to `?`)

Example:

```
>>   CALR
<<   calr1010101
```

The `S` command is used to configure outputs separately:

Command: `CALSXY`, where

   X: Digital output pin / ID, $0 \le X \le 6$
   Y: Digital output status, 0 or 1.

Response: `calok` †

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*0 - brown; 1 - white; 2 - red; 3 - yellow; 4 - blue; 5 - orange; 6 - green

†this is an standard response for most of the commands if there are not errors

Example:

```
>>   CAL?
<<   calm0000000
>>   CALS01
<<   calok
>>   CAL?
<<   calm1000000
```

You can use the `M` command if you want to configure multiple outputs at the same time:

Command: `CALMABCDEFG`, (similar to `?`)

Response: `calok`

Example:

```
>>   CAL?
<<   calm0000000
>>   CALM0101010
<<   calok
>>   CAL?
<<   calm0101010
```

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

Command: `CALW`

Response: `calok`

Example:

```
>>   CALR
<<   calr1010101
>>   CALM0000000
<<   calok
>>   CALW
<<   calok
>>   CALR
<<   calr0000000
```

Use the `D` command to configure the default (EEPROM). The default option is also configured when you power up the system.

Command: `CALD`

Response: `calok`

Example:

```
>>   CAL?
<<   calm0000000
>>   CALR
<<   calr1111111
>>   CALD
<<   calok
>>   CAL?
<<   calm1111111
```

3   Error codes

The device is expecting digits after the command character (e.g. `S` command). If there is an error, the device will return an error code `1`. For example:

```
>>   CALSaa
<<   calERR1
```

If the device digital output pin is is out of range (between 0 and 6 only), the device will return an error code `2`. For example:

```
>>   CALS70
<<   calERR2
```

If pin status is out of range (0 and 1 only), the device will return an error code `3`. For example:

```
>>   CALS02
<<   calERR3
```

If the command does not exits, the device will return an error code `4`:

```
>>   CALX
<<   calERR4
```

You have to provide at least four characters for a command (starting with `CAL` and command, e.g. `?`). If you send only `CAL`, error code `5` will be returned,

```
>>   CAL
<<   calERR5
```

The `S` command accepts six characters exactly, if the command is incomplete, the device returns error code `6`.

```
>>   CALS0
<<   calERR6
```

The `M` command accepts eleven characters exactly, if the command is incomplete, the device returns error code `7`.

```
>>   CALM000
<<   calERR7
>>   CALM00000000
<<   calERR7
```

4   Examples

- All outputs to low: `CALM0000000`
- All outputs to high: `CALM1111111`
- Pin 0 to high, and Pin 6 to low: `CALS01` followed by `CALS60`