# SMARTBALL

OSC SPECIFICATIONS

## OPEN SOUND CONTROL

This document list all the available OSC command available on the Smartball project as coded in the prototype version from october 16th 2022. For each command we will specify the address, the type tag and an explication for each argument.

## RECEIVING

### /sb/save

type tag: T or none

Use this command to save the last sent IP parameter. Smartball answer to this command with a */sb/saved* message.

### /sb/portal

type tag: T or none

Reboot the Smartball in portal mode. Use it to configure the Smartball by connecting it's network and accessing the portal on "setup.smartball.io" or "192.168.1.1".

### /sb/connect [ip address]

type tag: s

Send this command with your ip address in string format (ex: 192.168.1.10) to connect the Smartball to this address. Smartball answer to this command with a */sb/connected* message. If you send this command in broadcast you can have a glimpse of all the Smartballs connected to your network.

### /sb/infra [0-1023]

type tag: i

Set the infrared light with a value from 0 to 1023.
**Attention:** using infrared light at full power may drain the battery very fast.

### /sb/motor [0-1023]

type tag: i

Set the vibration motor speed with a value from 0 to 1023. The motor reaction may not change after 255 because of electronical schematic limitation.
**Attention:** using the vibration motor at full power may drain the battery very fast.

### /sb/master [0.-100.]

type tag: f

Set the light master level from 0 to 100 %

### /sb/strobe [0.-500.]

type tag: f

Set strobe frame duration in ms from 50 Hz (10ms) to 1 Hz (500ms). Under 10ms the strobe stays off. When strobing the color of the ball alternate between the colors set in the memory slot 1 and in the memory slot 2.

### /sb/color1 [RGBA] type tag: i or r

Set the color of all 6 LEDS in the memory slot 1.

### /sb/color1 [RGBA][RGBA] type tag: ii or rr

Set bi-color mode, one for each side of the ball in the memory slot 1.

### /sb/color1 [RGBA][RGBA][RGBA] type tag: iii or rrr

Set tri-color mode, one color for each pair of opposite LED in the memory slot 1.

### /sb/color1 [RGBA][RGBA][RGBA][RGBA][RGBA][RGBA] type tag: iiiiii or rrrrrr

Set full-color mode, one color for LED in the memory slot 1. Very funny to use with only one over six LED on, or to do some perlin noise effect.

### /sb/color2 [RGBA] type tag: i or r

Set the color of all 6 LEDS in the memory slot 2.

### /sb/color2 [RGBA][RGBA] type tag: ii or rr

Set bi-color mode, one for each side of the ball in the memory slot 2.

### /sb/color2 [RGBA][RGBA][RGBA] type tag: iii or rrr

Set tri-color mode, one color for each pair of opposite LED in the memory slot 2.

### /sb/color2 [RGBA][RGBA][RGBA][RGBA][RGBA][RGBA] type tag: iiiiii or rrrrrr

Set full-color mode, one color for LED in the memory slot 2.

## SENDING

### /sb/connected [id][ip address] type tag: is

Answer to the */sb/connect* command, the arguments represent the current id of the ball and it's ip address in the xxx.xxx.xxx.xxx string format.

### /sb/saved [val] type tag: T or none

Answer to the */sb/save* command, this answer has no arguments.

### /sb/batt [val] type tag: f

Send back the estimated value of the battery in Volts. 5V indicates that the ball is power via USB. 4.2V to 3V are normal operating values. Value under 3V indicates an emergency shutdown.

/sb/imu [acc_x][acc_y][acc_z][gyr_x][gyr_y][gyr_z][mag_x][mag_y][mag_z] type tag: fffffffff

Groups of value from the 9 axis IMU sensor. 3 axis from the accelerometer in $m.s^{-2}$, 3 axis from the gyroscope (aka gyrometer) in $rad.s^{-1}$, and the last 3 axis from the magnetometer in µT.