

# Servo Control

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Code for controlling a 2-axis servo turret from an Arduino's serial input.

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## Usage

To set the turret simply send a comma separated list of the pitch and yaw angles, terminated by a .

### Examples

#### Setting Angles

Sending the following string over serial

```
-30,50.
```

Sets the pitch (rotation around axis perpendicular to facing direction) to  $-30^\circ$  and the yaw (rotation around the vertical axis) to  $50^\circ$ .

#### Reseting Turret

Sending the following string over serial

```
.
```

Resets the pitch (rotation around axis perpendicular to facing direction) to  $0^\circ$  and the yaw (rotation around the vertical axis) to  $0^\circ$ .

### Using the turret with C++ on Windows

To use the turret in Windows with C++, connect to the serial port and send your angles formatted as an ASCII string. See PC\_Demo for a demo.

```
#include "serial.h" //libraries
#include <string>

serial myserial("COM5"); //connect to COM port

string str = ""; //new string
str = to_string(pitch) + "," + to_string(yaw) + "."; //concatenate string and angles from int to string
const char* c = str.c_str(); //convert str to const char*

myserial.write(c, sizeof(c)); //send string over serial
```

## Parameters

Parameter	Default Value	Explanation
BAUD_RATE	115200	Baud rate for serial communications
EOPmarker	'.'	End of serial packet marker
Servo_up_pin	9	PWM pin for top servo
Servo_down_pin	10	PWM pin for bottom servo
UP_ZERO	(-18)	Center point for top servo
DOWN_ZERO	(65)	Center point for bottom servo
UP_MIN	(-90)	Minimum angle value for top servo
UP_MAX	90	Maximum angle value for top servo
UP_MIN	(-135)	Minimum angle value for bottom servo
UP_MAX	135	Maximum angle value for bottom servo