

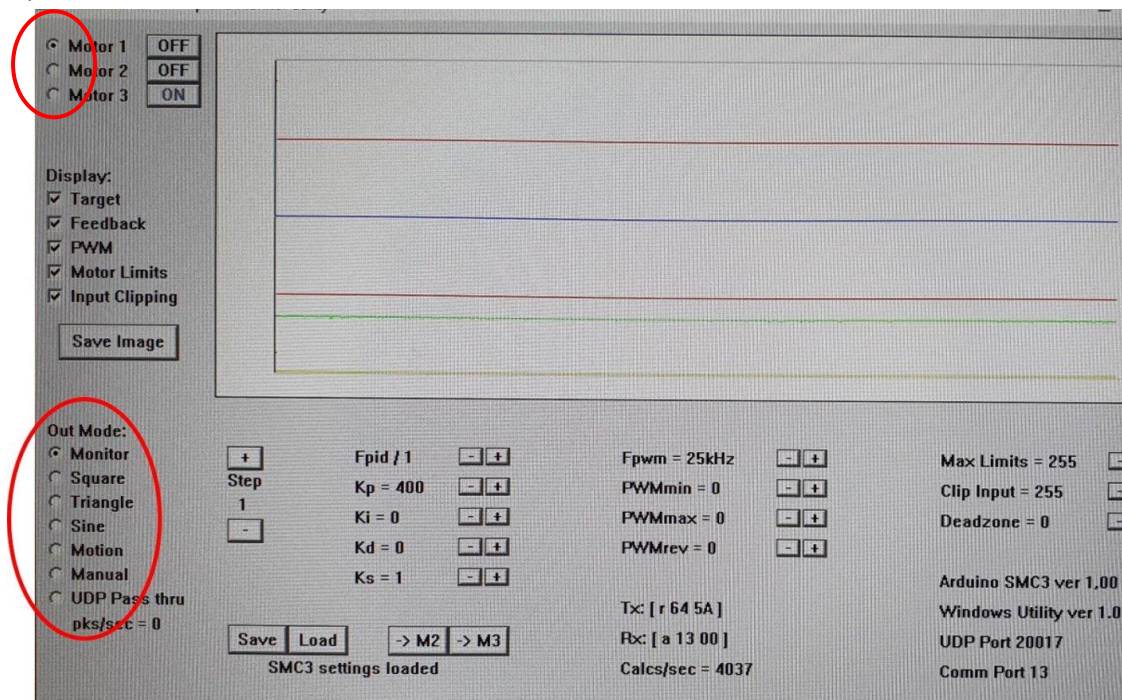
Motor testing with SMC3 utils - Step by Step

This is a step by step tutorial how to connect pots and motors and how to set up SMC3 to test your motors. There is a really good tutorial from RufusDufus you can find under <https://www.xsimulator.net/community/threads/smc3-arduino-3dof-motor-driver-and-windows-utilities.4957/>, but from time to time people have problems so I decided to take off the part "initial setup" from RufusDufus tutorial and go a little bit more into detail.

I presuppose you have installed SMC3 utils and have connection via comport and have set all the values to zero as RufusDufus explained. (SMC3 does NOT work with Arduino Mega without modifications, I tried ☺)

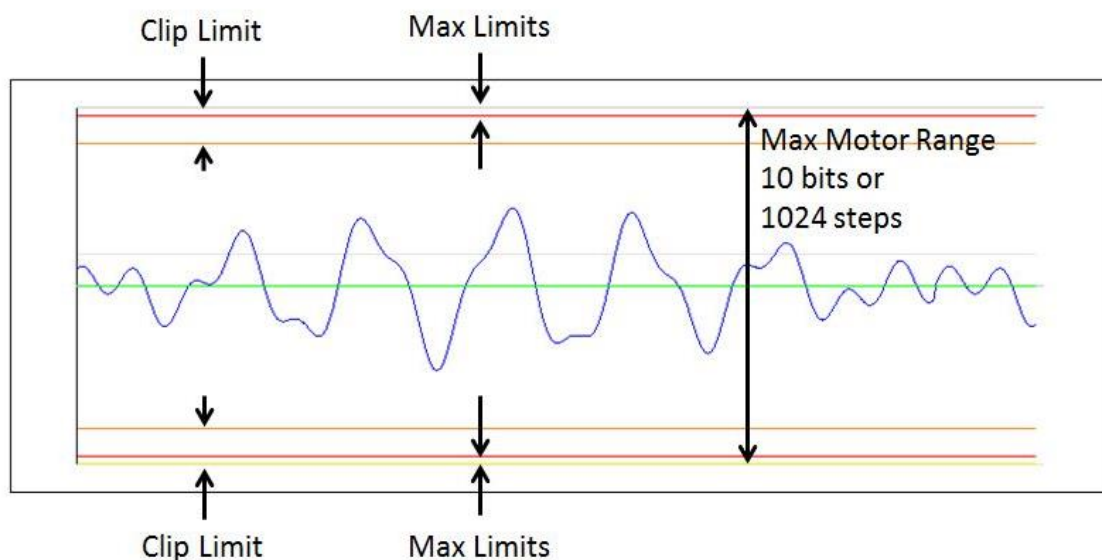
Now follow this steps:

1. Motor NOT connected to Arduino, Pots connected to Arduino but NOT connected to the motor
2. Open SMC3 utils, Out mode is *Monitor* and *Motor 1* is active



Here the green line shows your pot signal. Now turn the pot that the green line moves towards the blue target line.

3. Now you can connect motor to Arduino and pot to motor
4. Now switch out mode to Motion and increase *PWMmax* until motor starts moving



The blue target line starts moving with two possible results:

- the blue line moves up and down and the green line moves to the limit (up or down) and motor stops → Pot and motor connected incorrect → change motor wiring OR change outer pot wires
- the blue line moves up and down and the green line follows → GOOD

- Now just disconnect pot and motor and carefully turn the pot to move the motor to your lever zero position (zero position of your rig) and reconnect pot and motor
- repeat for each motor
- you are ready for SimTools ☺

Note: You can also use the out mode *Manual* . Here you can use the bars on the upper right (next to the graph) to move the motor manually

Note: When the Feedback signal from pot (green line) exceeds one of the red limit lines, the motor switches to off and you have adjust pot until it's within the limit and turn the motor on again (upper left next to the graph)

Overview:

The screenshot shows the 'Windows SMC3 Setup and Monitor Utility' window. It features a central graph displaying a green feedback signal and yellow PWM signal. The interface includes several control panels and settings sections.

Annotations and Features:

- Top Left:** A red note says "Off if Motor driven past Max Limits – click to turn on again once inside limits" pointing to the 'ON' buttons for Motor 1, 2, and 3.
- Left Panel:** 'Chart Colours' section with color-coded labels: Target (sent) in blue, Target (rcv) in green, Feedback in yellow, PWM in red, Motor Limits in orange, and Input Clipping in light blue.
- Display Section:** Checkboxes for Target, Feedback, PWM, Motor Limits, and Input Clipping. A 'Save Image' button is also present.
- Out Mode Section:** Radio buttons for Monitor, Square, Triangle, Sine, Motion, and Manual. A 'Step 1' button with '+' and '-' icons is also shown. A red note says "How much other +/- buttons step by" pointing to these.
- Motor Parameters:** Fields for Fpid / 2, Kp = 500, Ki = 0, Kd = 0, Ks = 1, Fpwm = 25kHz, PWMmin = 50, PWMmax = 200, and PWMrev = 210.
- Limit and Input Settings:** Fields for Max Limits = 20, Clip Input = 150, and Deadzone = 2.
- General Info:** A section at the bottom right showing 'Arduino SMC3 ver 0.61', 'Windows Utility ver 0.61', 'UDP Port 20017', and 'Comm Port 4'. A red note says "General Info (Change Comm and UDP Port numbers in SM3CUtils.ini file)".
- Buttons:** 'Save', 'Load', '> M3', and '> M1' buttons are at the bottom. A red note says "Save/Load all Motor parameters to file" pointing to 'Save' and 'Load', and "Copy current Motor parameters to another" pointing to '> M3' and '> M1'.
- Position Slider:** A vertical slider on the right side is labeled "Position Slider for Manual Mode".