ServoMaster Programming – Step by Step

Operating mode programming (Should be done prior to installation on the layout)

1 – Connect only Power to the board at J5, do not power up yet!
2 – Press and hold the button (SW1)
3 – Apply power while holding the button down
4 – Release button after 2 seconds
5 – Rotate the POT (R2) with a screwdriver until the LEDs match the mode desired

D2	D3	Mode	Description
Off	Off	1	Four position mode (Semaphore signals ect.)
Off	On	2	Turnout control mode
On	Off	3	Grade crossing mode without detection
On	On	4	Grade crossing mode with detection (this is the factory default)

6 – Press and release the button (SW1)
7 – Set the input polarity by rotating the POT (R2) until the LED's match the polarity desired:

D2	D3	Polarity
Off	Off	Positive, use for non-expanded optical grade crossings and modes 2, 3 & 4.
On	On	Negative, use for IR crossings and all expanded grade crossings

8 – Press and release the button (SW1), the unit will now reset

Servo Position Programming

1 – Connect power to the board at J5, do not power up yet!
2 – Connect the servos to J1 and J2
3 – Do not tighten the screws that lock the actuating pushrods to the servos yet!
4 – Apply power, wait about ten seconds for the unit to reset.
5 – Press and hold the button (SW1) until only D2 is lit. You are now ready to set servo 1's positions.

6 – Turn the pot slowly until servo #1 begins to 'follow' the movement of the POT
7 – Tighten the locking screw on servo #1
8 – Turn the pot until the gate is in the up position, or until whatever you are trying to operate is in the first desired position.
9 – Press and release the button. D3 should turn on for a short time.
10 – Install a jumper across pins 1 & 2 of J3 (see manual page 5)
11 – turn the pot until the gate is in the down position, or until whatever you want to operate is in the second desired position.
12 – Press and release the button. D3 should turn on for a short time.
13 – For non grade crossing applications move the jumper from pins 1& 2 to pins 3 & 4 (see page 5). Grade crossing applications should jump to step 19.
14 – Turn the pot until the servo is in the third desired position
15 - Press and release the button. D3 should turn on for a short time.
16 – Install a second jumper on pins 1 & 2 of J3 (see page 5)
17 – Turn the pot until the servo is in the fourth desired position
18 – Press and release the button. D3 should turn on for a short time.
19 – Remove all jumpers.

20 – Press and hold the button, D3 should light, when D3 goes out release the button. You are now ready to set servo 1's speed.

21 – Servo 1 should now begin moving between positions 1 & 2. Turn the POT until the servo moves at the desired speed (turning the pot counter clockwise makes the movement faster).
22 – Press and release the button. D3 should turn on for a short time.

23 – Press and hold the button, D3 should light, when D3 goes out release the button, D2 should now go out and D3 will light. You are now ready to set servo 2's positions.

24 – Turn the pot slowly until servo #2 begins to 'follow' the movement of the POT

25 – Tighten the locking screw on servo #2

26 – Turn the pot until the gate is in the up position, or until whatever you are trying to operate is in the first desired position.

27 – Press and release the button. D2 should turn on for a short time. D3 will go out.

28 – Install a jumper across pins 1 & 2 of J3 (see manual page 5)

29 – Turn the pot until the gate is in the down position, or until whatever you want to operate is in the second desired position.

30 – Press and release the button. D2 should turn on for a short time.

31 – For non grade crossing applications move the jumper from pins 1& 2 to pins 3 & 4 (see page 5). Grade crossing applications should jump to step 37.

31 – Turn the pot until the servo is in the third desired position

32 – Press and release the button. D2 should turn on for a short time.

33 – Install a second jumper on pins 1 & 2 of J3 (see page 5)

34 – Turn the pot until the servo is in the fourth desired position

35 – Press and release the button. D2 should turn on for a short time.

36 – Remove all jumpers.

37 – Press and hold the button, D2 should light, when D2 goes out release the button. You are now ready to set servo 2's speed.

38 – Grade crossing applications can skip to step 41 as the same speed for servo 1 is used for grade crossings.

39 – Servo 2 should now begin moving between positions 1 & 2. Turn the POT until the servo moves at the desired speed (turning the pot counter clockwise makes the movement faster).

40 – Press and release the button. D3 should turn on for a short time.

41 – Press and hold the button for two seconds. The unit should now reset.

42 – Remove power and install the sensor cable and output cable.

The above procedure is a step by step description on how to program everything. However, for example, if you only need to 'correct' the down position of gate #2, you do not have to reprogram everything. You do not need to unlock the locking screws on either servo. To adjust just gate 2's down position you only need to do the following steps: 1, 2, 4, 5, 20, 23, 24, 28, 29, 30, 31, 37, 41 & 42. The position programming sequence has for major segments:

1) position of servo 1 (begins at step 5)
2) speed of servo 1 (begins at step 20)
3) position of servo 2 (begins at step 23)
4) speed of servo 2. (begins at step 37

Step 41 exits the position programming mode. Note too that shutting down the power at any step will exit the programming mode. So, if you only need to modify the up position of servo 1 you can 'pull the plug' after step 9 without the need to go through any additional steps. Positions of the servos are only saved to memory by the button presses in steps 9, 12, 15, 18, 27, 30, 32 and 35. Speeds are stored in steps 22 & 40. If the button presses in these steps are skipped then no changes of servo positions or speeds will be made. Note too that if the LED mentioned in the step does not light when the button is pressed in the above steps then the button was not held down long enough (about a half second) and the new position will not be remembered!