Single Servo Manual Controller with Programmable Servo Travel Limits.

Manual operated servo driver board will move a R/C servo in response to hand held remote slide, rotary position or joystick potentiometer input.

**Specifications:**
- 1-channel manual servo control.
- Servo output 1msec to 2msec pulses.
- Servo Travel A - B limits can be easily set.
- Servo quick pin header connection.
- Wire terminal block for remote potentiometer control.
- Servo Travel 0 - 90 Degrees.
- Quick power connection.
- Operates from 7 - 9 Vdc @ 1 Amp power supply.
Single Servo Controller

Set-Up

Rotational R/C Servo

Servo (S)
Servo (+)
Servo (-)

Caution
Check Correct Servo Connection

Wall Plug Power Supply
9 Vdc @ 1.0 Amp

JP2 Configuration
Jumper Block Momentary Short
Upper Servo Travel Range
Jumper Block OFF when operating Controller
Potentiometer Connection Terminal
5K to 10k Ohm POTentiOMETER

JP1 Configuration
Jumper Block Momentary Short
Lower Servo Travel Range
Jumper Block OFF when operating controller
Or power wire pad connection (wire + / - )

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Single Servo Controller

**Operation**

Connect a potentiometer, servo and power supply to the controller board.

Adjusting the potentiometer will control the position of the attached servo. The full range of the potentiometer and board electronics will generate pulse width equivalent to a 180-degree servo movement. (1ms - 2ms) Some servos will not accommodate this movement range. so take care not to drive the servo into its limit stops at the extreme setting range.

**Setting the Servo Movement Range**

To set the upper and lower range movements that a servo will move in as the potentiometer is adjusted do the following:

**Upper Limit Range:**
Adjust the potentiometer and move the servo output to the upper range point that you want the servo to stop at. Temporarily short the JP1 pin pair set by placing the jumper onto the pin pair for a few seconds, then remove the jumper. This will record in memory the upper movement range limit. This setting will be retained even after the power is turned off, and will stay in memory until manually reset to a new range.

**Lower Limit Range:**
Adjust the potentiometer and move the servo output to the lower range point that you want the servo to stop at. Temporarily short the JP2 pin pair set by placing the jumper onto the pin pair for a few seconds, then remove the jumper. This will record in memory the upper movement range limit. This setting will be retained even after the power is turned off, and will stay in memory until manually reset to a new range.

Note: If the servo does not move as the potentiometer is adjusted, it may be that the upper and lower limit ranges are overlapping. Try re setting the limits again or **RESET** the limit settings and start again with the servo limits.

**To Reset the Servo Lower and Upper Limit Ranges:**
Temporarily short JP1 pin pair set or JP2 pin pair set by placing a jumper onto the pin pair for a few seconds, then remove the jumper. This will reset the servo movement limit values recorded in memory to a 0 value allowing the servo to move the full range.

**Troubleshooting:**

Q. I am having trouble getting the servo to move when I adjust the potentiometer.

A1. **Reset the Servo Lower and Upper Limit Ranges:**
Temporarily short JP1 pin pair set or JP2 pin pair set by placing a jumper onto the pin pair for a few seconds, then remove the jumper.

A2. **Check to see that the Potentiometer has been wired correctly to the control board terminal block.** Wires +, - and W

A3. **Check to see that the Potentiometer is in the range of a 5-10K ohm rating.**
**Set-Up / Single Switch Control**

- **Servo Positions**: (A / B), (B / A)
- **Remote Switch**
  - Momentary Push Button
- **Wall Plug Power Supply**: 9 Vdc @ 2.0 Amp
  - (+) Red Wire
  - (-) Black Wire
- **Wizard - 12 Controller**
  - 4.7K Ohm Resistor
  - Servo Travel Limits
  - Power Connection 2.1 mm

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**Controller**

- **Wall Plug Power Supply**: 9 Vdc @ 2.0 Amp
- **Remote Switch**: 4.7K Ohm
- **Servo Positions**: (A / B), (B / A)

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With the remote momentary toggle switch in the center OFF position the voltage to the Wizard -12 wiper input will be 2.5Vdc and will send the servo to its **center position**. The combined resistance of the 470 and 4.7K resistors will produce a wiper input voltage of 0.5 Vdc or 4.5 Vdc and will send the servo almost to the **ends of its travel +/- 45 degrees**. The Wizard - 12 has programmable limits which could be set using a potentiometer before connecting the resistors, if less servo travel movement is needed.
Wizard - 12  Optional Input Devices

**Set-Up / Input Devices**

**Optional Devices**

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**Switch Interface**

- **Switch**
- **W**
- **-**
- **Switch Interface**
- **W**
- **-**
- **Black Wire**
- **Red Wire**
- **White Wire**

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**Slide / Linear Potentiometer Interface**

- **Slide / Linear Potentiometer Interface**
- **W**
- **-**
- **W**

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**Wizard - 12 Controller**

- **CAUTION**
  - Check Wire Connections for correct polarity

- **CAUTION**
  - Do Not Mix up Wire Connections
  - Board can be Damaged

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**Wizard - 12 Optional Input Devices**

**Set-Up / Input Devices**

**CAUTION**
Check Wire Connections for correct polarity

**Micro Joystick 1-Channel Interface**

**CAUTION**
Check Wire Connections for correct polarity
( + / W / - )

**Rotational Potentiometer Interface**

- **Black Wire**
- **Red Wire**
- **White Wire**

10k Ohm POTENTIOMETER

**CAUTION**
Check Wire Connections for correct polarity

**Rotational Controller**

**Controller**

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Ver 1.0

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Wizard - 12 Optional Input Devices

Set-Up / Input Devices

Optional Devices

Wizard - 12 Controller

Connection Wires

Switch Interface Board

Resistor 4.7K Ohm

4.7K Ohm - Yellow, Violet, Red, Gold

Remote Switches

Switch

Palm Switch

CAUTION
Check Wire Connections for correct polarity (+ / W / - )
**Wizard - 12**

Optional Input Devices

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**Set-Up / RF Switch Control**

- **RF Receiver**
  - R1
  - R2
  - A
  - B
  - C

- **Servo Position**
  - Default Position
  - Servo Travel Limits

- **Location A**
  - RF Receiver
  - 4 - Channel
  - Servo Position
  - A
  - Default Position

- **Location B**
  - RF Transmitter
  - Momentary On / Off Switch Hand Module
  - (1) Servo Arm Left
  - (2) Servo Arm Right
  - (3) Sound Board -A
  - (4) Wizard-2 Board

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**Wall Plug Power Supply**

9 Vdc @ 1.0 Amp

**Flex Sensor**

Wizard - 12 Controller

**Flex Sensor Interface Board**

- Red = R
- Black = B
- White = W

**Servo Positions**

4.7K Ohm - Yellow, Violet, Red, Gold

**Resistor**

4.7K Ohm

**Servo Positions**

(B / A / C)

**Applied Pressure**

- OR -

**Set-Up / Input Devices**

**Optional Devices**

**Wizard - 12 Controller**

Ver 1.0

B R W

**Power Connection**

(-) Black Wire

(+ ) Red Wire

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Set-Up / Input Devices

Servo Positions
(A / B)
(B / A)

Remote Switch

Momentary Push Button

Potentiometer Connection
A
Ch 1

Potentiometer Connection
B
Ch 2

Remote Switch

Momentary Toggle Switch

Switch Input Setup

Wizard - 12

4.7 K Ohm Resistor

4.7 K Ohm Resistor

4.7 K Ohm Resistor

4.7 K Ohm Resistor

470 Ohm Resistor

470 Ohm Resistor

1- Ch Joystick

470 Ohm - Yellow, Violet, Brown, Gold

4.7 K Ohm - Yellow, Violet, Red, Gold