Features

- Ultra smooth servo traversing
- Complimentary (reversed) output
- Fully programmable
- Extremely light: 4g
- Low current consumption: 5mA
- Wide input voltage: 2.7V to 6.0V

Applications

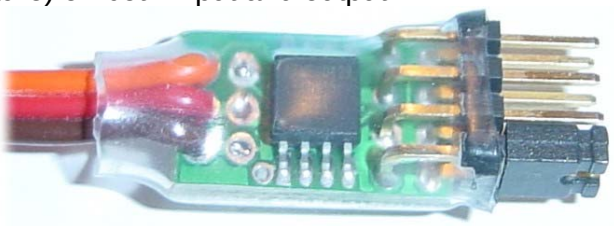
- RC retract systems
- Flap deployment
- Robotics

1 Description

Retract180 is designed to provide extended traverse range on standard servos (up to 180º) without servo modification. The top and bottom end points and maximum traverse rate are fully programmable without the use of bulky potentiometers. Once programmed, settings are retained until the programming sequence is executed again. A primary and complimentary (reversed) output is available for systems using 2 servos. The complimentary output may be trimmed during programming, which together with transmitter trim, allow both servos to be accurately positioned.

2 Pin Connections

The image below shows the programming jumper inserted across the programming pins. The remaining 2 rows are the servo output pins with the negative (brown or black) wire being closest to the programming pins. The output has the same orientation as the 2-way input lead with orange (signal) being on the far side of the board (shown in picture) on both input and output.



The 3-way RC input lead must be connected to the desired channel of the receiver (eg. Gear, Flap, etc).

www.firmtronics.com
info@firmtronics.com

Retract180 User Guide

Absolute Maximum Ratings

Operation cannot be guaranteed outside the absolute maximum ratings.

Minimum Input Voltage……	2.7V
Maximum Input Voltage……	6.0V
Operating Temperature Range…	–25°C to +85°C
Storage Temperature Range…..	–65°C to +150°C

3 Programming

Programming mode allows servo trim, lower end point, upper end point and traverse rate to be programmed. Programming mode requires the use of the jumper. In each programming mode, the transmitter stick is used to make adjustments to the servo. Once the desired setting has been made, release the stick (to centre). The jumper must then be removed or inserted to get to the next programming mode. If the output is required to connect to a switch (eg for Gear), it is recommended that a proportional channel is used for programming. Once programmed, the Retract180 can be connected to a switched channel. If the transmitter has a travel adjust feature, it is recommended to set these to 100%. To program the Retract180, please follow these instructions:

1. With power off, connect servos, insert programming jumper and insert the input RC lead into the desired channel of the receiver (gear, flaps, etc).
2. First turn on transmitter then turn on receiver power (thereby powering the Retract180). You're now in Programming Mode 1 – Setting the complimentary servo trim.
3. PM1: Move the stick one way or the other to trim out the complimentary servo (only the complimentary servo moves). When it's at the desired position, remove the jumper to get to Programming Mode 2 – Set end point 1.
4. PM2: Move the stick one way or the other until the desired first end point is reached. Be careful not to set this point beyond the stall point of the servo. Insert jumper to get to Programming Mode 3 – Set end point 2.
5. PM3: Move the stick one way of the other until the desired second end point is reached. Be careful not to set this point beyond the stall point of the servo. Remove jumper to get to Programming Mode 4 – Set maximum traverse rate.
6. PM4 (final stage): The servos will track back and forth from one end point to the other. Move the stick one way or the other to increase or decrease the maximum traverse rate. This is the maximum traverse rate the servos will attain during operation. Insert jumper then power off the receiver (thereby powering off the Retract180) and REMOVE JUMPER before powering back on.

4 Operation

The servos will operate between the end points set during programming mode and will attain a maximum traverse rate set during programming mode. For applications requiring extended range, it is important to test that the physical stops internal to the servo allow for such extended range. Digital servos and high-end servos may electronically limit the amount of travel but most general purpose servos will attain 180º as long as the input signal is compatible – a function that Retract180 provides.

If servos are required that do allow for extended travel as standard, physical modifications may be necessary. This generally requires the removal of the plastic stops inside the servo and often the addition of resistors to the internal potentiometer. The Internet provides a wealth of information on various modifications to various servos.

To trim the servos, first use the transmitter trim to trim the primary servo then use the programming mode to trim the complimentary servo.