

Actuonix External RC Control Board • Ext -R

The Ext -R control board is an in-line, compact, lightweight, alternative to the LAC. This board has our standard RC input and position controller, making it compatible with most RC receivers, and a wide array of controllers such as Raspberry Pi, and Arduino.

In addition to position feedback-based stall protection, an adjustable potentiometer allows you to set a current limit between 0A and 1A. This can help increase the life of the actuator by limiting the maximum force the actuator will generate when over loaded.

The board can be powered by the 3 wire RC connection, or by connecting an external supply to the extra pins. See connection diagram for more detail.



Scale 1:1

Specifications

| | |
|-----------------------|--|
| Control input modes | Digital: RC Servo (PWM) Control over 1-2ms High time; 50-300Hz Period |
| Controller | Digital 12-bit Analog position and current signals accessible (F1, F2) |
| Compatible actuators | All Actuonix -P Actuators with position feedback, 6 or 12 volts Controller configuration must be selected at time of order |
| Dimensions | 36 mm x 15 mm x 6.7mm |
| Power | 6–12 VDC, 1A minimum Note: Supply voltage must match actuator's rated voltage |
| Operating environment | -10 to +70°C at 10–80% relative humidity |

Operation

The actuator will move to the commanded position when power and a valid control signal are applied. The control range is between 1000 μ s (full retract) and 2000 μ s (full extend). When the control signal is removed, the actuator will move to the last valid control position it received, then enter a low power mode. When the control signal resumes, normal operation will also resume.

Should the actuator be prevented from moving, due to overloading, impacting a hard stop, or current limiting, the stall protection mode will be activated. If the stall condition remains after a few seconds, the motor will be disabled. The commanded position must be changed (by a larger increment than usual), or the power cycled to exit the stall condition.

The current limit potentiometer can be adjusted at any time. Turn the potentiometer counter-clockwise to increase the current limit and clockwise to lower the current limit.

F1 is an optional output giving access to the position feedback signal. F2 is an optional output giving access to the current feedback signal. Any connection made to F1 or F2 must be high impedance type, or actuator performance may be affected.



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Model Selection

The Ext-R is pre-configured to work with the selected actuator family. Make your selection based on the actuator you wish to connect to the Ext-R.

Ext-R-**MMM**

| Feature | Options |
|------------------------------|------------------------------|
| MMM : Actuator Family | P16, T16, L8, P8, ... |

External Connections Detail

X1 Radio Control Receiver Connector

| Pin | Label | Function | Wire Colour |
|-----|-------|-------------------------------|-------------|
| 1 | - | Ground | Black |
| 2 | + | 6-12 VDC Power | Red |
| 3 | S | RC / Hobby Servo Input Signal | White |
| 4 | - | No Internal Connection | Red |
| 5 | - | Ground | Black |

X2 Actuator Connector

| Pin | Function | Wire Colour |
|-----|--------------------|-------------|
| 1 | Positive Reference | Yellow |
| 2 | Motor | Black |
| 3 | Motor | Red |
| 4 | Position Feedback | Purple |
| 5 | Negative Reference | Orange |

X3 Feedback Connector

| Pin | Label | Function |
|-----|-------|-------------------|
| 1 | F1 | Position Feedback |
| 2 | F2 | Current Feedback |

P1 Current Limit Control

| Direction | Current Limit |
|-----------|-----------------|
| CW | Lower (0A min) |
| CCW | Higher (1A max) |



Top View – External Power Supply Connected



Top View – RC Receiver Power Only



Bottom View – P1 Current Limit Control Potentiometer