

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) PWM with 1-2ms high time, 50-300Hz period, 5V amplitude
Controller	12-bit Dual Sample Rate Quasi PD Analog position and current signals accessible (F1, F2)
Compatible actuators	All Actuonix -P Actuators with position feedback, 6V or 12V (except PQ12) Controller configuration must be selected at time of order
Dimensions	36mm x 15mm x 6.7mm
Power	6–12 VDC, 1A minimum Note: Supply voltage must match actuator's rated voltage
Operating environment	–10°C 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 adjusts the current limiting between 0A-1A and 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, which varies linearly between 0V-3.3V based on the position on the actuator – 3.3V is fully retracted and 0V is fully extended.

F2 is an optional output giving access to the current feedback signal, whose voltage is a 3.3:1 scaled representation of the actuator current – 0A would equate to 0V on F2, while 1A would equate to 3.3V.

Any connection made to F1 or F2 must be high impedance type, or actuator performance may be affected.

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	L8, P8, L12, L16, P16, T16

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

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