



01™ Supermodified

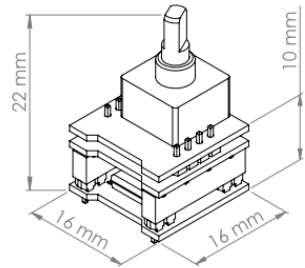
The Robotic Rebirth of the Hobby Servo



Overview

Hobby servos come as a complete package incorporating electro-mechanics (motor + gearbox) as well as control and power electronics. Standard modified servos allow for continuous rotation of the output shaft (by removing the mechanical stop from the output servo gear) but they do not incorporate any means of position / speed control, rendering them inappropriate for most robotics applications.

At **01™ Mechatronics** we have identified the need for an approach that allows the full modification of a standard servo to meet the specifications required by more demanding projects. Robotics enthusiasts can now modify their standard servos to allow for speed and position control. The applications are endless – limited only by the hobbyist's / robotics researcher's imagination. °



Features

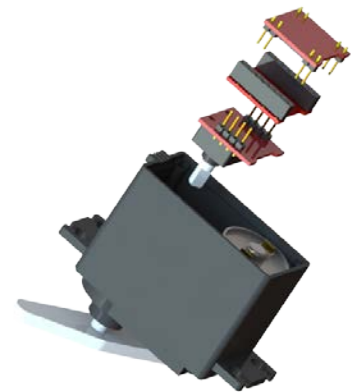
Tiny – fits easily inside RC-servo: The **01™ Supermodified** servo controller can be installed inside existing servos by just replacing the pre-existing potentiometer and electronics. Readily-modified servos are also available. Please contact us for more information. Note that the **01™ Supermodified** kit can also be used to control standard DC brush motors.

Includes high resolution absolute encoder: The **01™ Supermodified** servo controller utilises the **MagEnc**, *15-bit magnetic absolute encoder* module to monitor output shaft rotation. The angular resolution is 0,0109° (32768 discrete positions per revolution). The **MagEnc** absolute encoder features *machined* support and alignment parts and a custom SmCo ring magnet designed by **01™ Mechatronics**.

Control Capability: Once in place, the **01™ Supermodified** servo controller will allow you to obtain full PID position/speed control on your standard hobby servo with *configurable velocity profiles*. Unmatched control quality with PID control loop running at 9.765 KHz.

Communications: The **01™ Supermodified** servo controller can communicate with the outside world in a variety of ways:

- I²C bus. Up to 128 addressable modules can be controlled through a single bus. 3.3 V interface available upon request.
- RS-485 (01Mech protocol). Up 247 addressable modules.
- 5V multi-node UART (01Mech protocol).
- The standard hobby servo communications interface is also supported with an additional I/O for selecting between speed and position control.
- Analog Mode. 0-5V analog voltage interface with an additional IO for selecting between speed and position control.





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Additional I/Os: Additionally up to 4 analog inputs and 3 digital I/O pins are available. The **01™ Supermodified** servo PicoMCU board can be used also as a stand-alone controller.

5A Motor driver IC: The **01™ Supermodified** kit utilizes the Freescale MC34931 motor driver IC. With a current capability of 5A (7.8 Amps peak), current feedback, multiple protection functions and operating on a range of 4.5-24V the **01™ Supermodified** controller will reliably and intelligently deliver all the motor power needed.

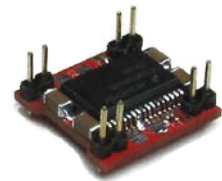
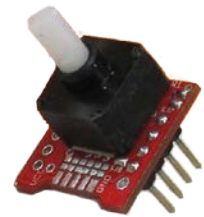
Plug and play: **01™ Mechatronics** provides a USB to RS485 converter as well as a stand-alone application, with a comprehensive GUI, in order to use and get familiar with the hardware and software. The application can be downloaded for free from our site, while the USB to RS485 converter is given for free for orders of 3 or more **01™ Supermodified** kits.

Arduino Ready: The **01™ Supermodified** servo controller can interface directly with all Arduino platforms without the need for external circuitry making it the ultimate plug-and-play robotics / mechatronics gadget. Code libraries and examples are available on our website.

Matlab Ready: **01™ Mechatronics** provides a dll (dynamic link library) and .m files that make the use of the **01™ Supermodified** kit with Matlab, a truly trivial task.

Always evolving: **01™ Mechatronics** is currently developing the interface of the **01™ Supermodified** controller with Labview. Our technical team is ready to implement any features that are frequently requested. Please use our website contact form to request new features!

Programmable: The **01™ Supermodified** servo controller utilizes our PicoMCU™ development board with an ATMEL ATmega328P running at 20MIPS. Our controllers can be programmed through the UART or RS-485 interface as it comes pre-programmed with a bootloader.



Contact Information

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requirements*

