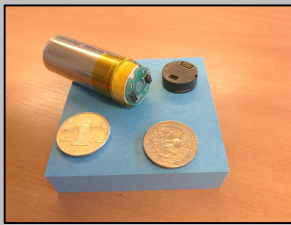
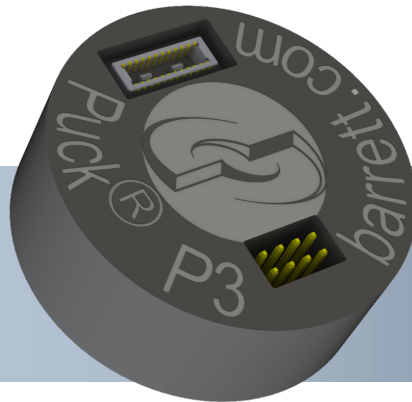


SMALL SIZE



HIGH PERFORMANCE



Barrett's ultra-miniature, high performance brushless motor controller makes complex multi-actuator designs simple!

Barrett P3

Weight: 4 g

Size: 2 cm³

Motor Power: 70 W

FEATURES

- CANopen communication with software-controllable termination resistor
- 4 or 5-wire bus topology:
 - 2-wire CAN
 - Motor power 12-48 V
 - Ground
 - Logic power (optional)
- Up to 31 controllers/bus
- Built-in magnetic encoder
- 3.3-V and 5-V auxiliary outputs
- Integrated current sensing
- Space-vector commutation
- 32-bit floating-point processor
- 128-kB SRAM
- 512-kB Flash memory
- 64-kB EEPROM
- Low torque ripple
- Quiet, fanless operation
- Internal temperature sensing
- In-system field-upgradeable firmware
- Digital Hall-effect feedback
- Adjustable PWM frequency
- Motor-temperature sensing
- Dual analog inputs (16-bit)
- Up to 4 digital I/O
- External encoder capable:
 - SSI encoder
- SPI master peripheral support

FEATURES (planned*)

- Modbus RTU compatible
- Limit switch detection
- Safety signal support
- I2C master peripheral support

Big Functionality, Compact Form

The Barrett P3 is a networkable high performance brushless single-axis motion controller and amplifier with an integrated encoder and precision current sensing. It controls the torque output of brushless motors with state-of-the-art space vector commutation and very low torque ripple. You can also command velocity, position, or give the controller a target position to reach using its built-in trapezoidal velocity controller.

P3 (Puck, version 3) is the product of over a decade of design, development, testing, and refinement of the motor controllers used in our own robots.

With a volume of 2 cm³ and a total weight of only 4 grams, the P3 is designed to replace a standard motion controller and amplifier while taking up less space than a typical encoder. When mounted directly onto the motor body, the close proximity of the controller eliminates long "home-run" wiring problems encountered with standard motion-control setups such as routing, signal degradation, EMI, I²R power losses, and cable bulk.

Up to 31 P3s may be networked together on a single, easy to manage, 4 or 5-wire bus. Two wires are used for robust, industry-standard CANopen communications. One wire supplies motor power, one wire is a ground, and an optional wire supplies a separate logic power.

The P3 can control a wide range of motor voltages from 16 to 48VDC without any reconfiguration. It is designed to command a smooth, continuous torque- even when the input voltage is unstable.

So many features, so little size...

With multiple patents pending, the Barrett P3 is truly a sophisticated and revolutionary motor controller which is easily integrated into any application requiring maximum power efficiency, low mass, and compact size.

SPECIFICATIONS

Input voltage	Min	12 V
	Max	48 V
Quiescent power	Typ	30 mW
Drive current	Continuous	1.5 A
	Peak	3 A
Output power	Continuous	70 W
	Peak	150 W
Dimensions	Diameter	19 mm
	Height	7 mm
	Total	4 g
Mass		
Absolute encoder	Rotary	4,096 cts/rev
Bus length	Max	20 m
Operating temperature	Min**	0 °C
	Max	100 °C

* These features can be enabled with a firmware update.

** The minimum operating temperature must be non-condensing.