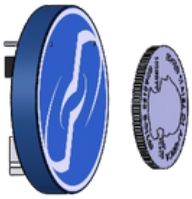
Barrett™
DRIVE SYSTEMS

Puck® P4-37™

Barrett's high-power motor controller option comes in the form of a 37mm Puck®. With patented dual iSense control, and onboard magnetic encoder, motor control has never been so sophisticated, yet so simple. This revolutionary design features snap-on connectors and daisy chain wiring for quick and easy integration with any low space, high-power application.

NO SPACE? NO PROBLEM

While the P4-16™ masters the art of size and strength, the P4 - 37™ is designed to push the boundaries of motor control without all the bulky electronics. At a modest 12 cubic cm, 16 grams, and 4KW peak drive power, this small motor controller is built for big output. With up to 200V input, and 20A peak output, the P4 - 37™ drives motors at both higher speeds, and higher torques. This design fits perfectly in high-speed and high-payload applications, like Barrett's own Ultra-High-Speed WAM 3.0.



P4 - 37™

LIGHT WEIGHT, HEAVY FEATURES

SIMPLICITY

Daisy Chain topology reduces wiring and enables a network of up 31 Pucks® per bus. With on-board encoder, the P4-37™ eliminates signal degradation, power loss, and cable bulk inherent to standard motor-control.

HIGH SPEED

With input voltage up to 200V, the P4-37™ is capable of driving motors almost 4X faster than the 48V predecessors. This important attribute makes the P4-37™ the perfect motor controller upgrade.

SMOOTH BUT STRONG

Dual iSense control combined with 20A output offers not just impressive torque, but smooth output. The P4-37™ provides all the benefits of high power actuation without the cogging and inconsistency of a typical motor controller.

FEATURES

FEATURES

- High speed CANopen communication
- 5 Wire Bus Topology:
  2xCAN, Bus Voltage, 12V, and GND
- Up to 31 controllers per CAN bus
- Built in magnetic encoder
- 5V and 3.3V auxiliaries outputs
- Dual iSense current sensor
- Space-Vector Commutation
- 32-bit floating point processor
- Low torque ripple
- Quiet, fan-less operation
- Internal temperature sensors
- In-system field upgradeable firmware
- Digital Hall-array feedback
- Adjustable PWM frequency (up to 100KHz)
- Dual Analog Inputs (16-bit)
- Up to 6 Digital I/O
- External Encoders: SPI and Quadrature
- SPI Master Peripheral Support
- i^2t Current Limiting

SPECIFICATIONS

Input Voltage: 12V-160V DC (200V Peak)
Drive Current: 7A Continuous, 20A Peak
Output Power: 4KW Peak
Standby Power Consumption: ≤0.4W
Motor Output Efficiency: Coming soon...
Dimensions: 37mm OD, 11.5mm Height
Mass: Total 16g
Absolute Encoder: 12-bit Angular Resolution
Bus Length: Max 25m
Operating Temp: -25°C - 100°C

Contact Us

(617) 252-9000 www.barrett.com

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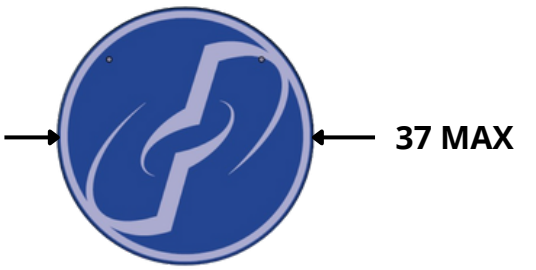
Barrett Puck® P4-37™ Motor-Interface-Board and Magnet-Mounting Specifications

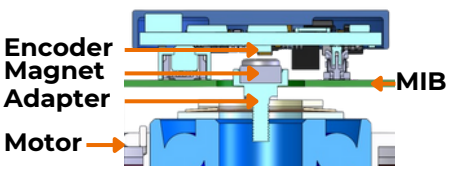
This page contains Motor-Interface-Board (MIB) specifications for Barrett Technology's Puck P4-37™ module. The MIB may be designed by the customer using the guidelines shown below. A 4 x 6mm magnet with a radial N-S field attached to the rotating shaft of the motor at the distance specified. Contact Barrett for design assistance.



All Dimensions in mm

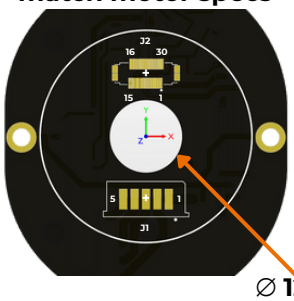
Power Connector on MIB			
Pin No.	**Name**	**Type**	**Description**
1	**VBus**	Power	VBus Input
2	**Phase C**	Motor Lead	Output to Phase C
3	**Phase B**	Motor Lead	Output to Phase B
4	**Phase A**	Motor Lead	Output to Phase A
5	**GND**	Power	Ground

Magnet standoff: 1.5 +/- 0.5 from encoder



Recommended Magnet: Digikey 469-1075-ND

Mounting holes should match motor specs



Part	Manufacturer PN	Location
J1	Samtec UMPS-05-03.5-G-VT-SM	0, -11
J2	Molex 2039560303	0, 11

Signal Connector on MIB			
Pin No.	**Name**	**Type**	**Description**
1, 18	**12V**	Power	12V Input
2	I2C_Data	Digital I/O	I2C Data
3	I2C_CLK	Digital I/O	I2C Clock
4	MISO	Digital I/O	SPI MISO
5	MOSI	Digital I/O	SPI MOSI
6	SCK	Digital I/O	SPI Clock
7	CS Digital I/O 2	Digital I/O	SPI Chip Select Digital I/O 2
8	**CAN_HI**	Digital I/O	CAN High Diff.
9	**CAN_LO**	Digital I/O	CAN Low Diff.
10, 11, 29	5V	Power	5V Output
12, 13, 30	3.3V	Power	3.3V Output
14, 15	**GND**	Power	Ground
16	Digital I/O 6	Digital I/O	I/O Pin 6
17	Digital I/O 5	Digital I/O	I/O Pin 5
19	Digital I/O 1	Digital I/O	I/O Pin 1
20	Reset_B	Digital In	Factory-use only
21	JTAG_TCLK	Digital I/O	JTAG Clock
22	JTAG_TDO	Digital I/O	JTAG Data Out
23	JTAG_TDI	Digital I/O	JTAG Data In
24	JTAG_TMS	Digital I/O	JTAG TMS
25	ADC2	Power	12-bit 3.3V Input
26	EXT_QUAD_B Digital I/O 4	Digital I/O	Quad ENC In B Digital I/O 4
27	EXT_QUAD_A Digital I/O 3	Digital I/O	Quad ENC In A Digital I/O 3
28	ADC1	Power	12-bit 3.3V Input

All **BOLD** signals are mandatory connections

Contact Us

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US Patents: 11,290,043; 10,148,155; 7,893,644; 7, 854,631; 7,511,443