

Mercury motion controller

Digital motion control for DC brushed,
brushless and stepper* motors

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controller

*High precision and performance
for your applications

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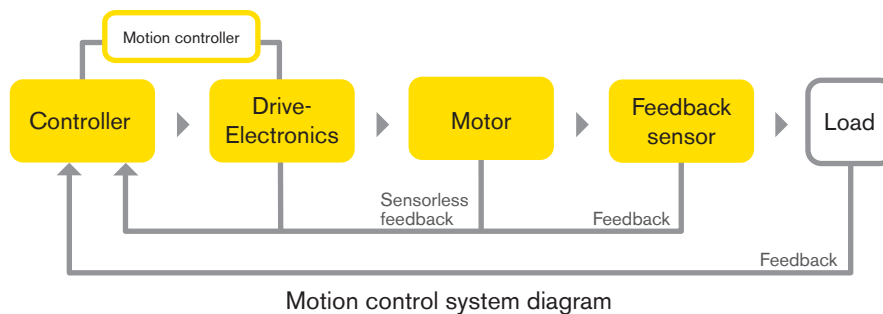


Overview

Mercury is a high performance closed loop motor controller and driver for DC brushed and brushless motors, capable to drive motors up to 1.1KW peak.

Its design includes multiple communication ports, enabling thus a wide choice of interfacing methods. Its extended voltage operating range allows its use in industry or automotive applications, and the small footprint and the needlessness of an external heatsink allow the controller to be a valid OEM for critical-size applications.

The design also includes a wide variety of self protection mechanisms (thermal, over-current, under and over-voltage, etc.). Other main features are the free user-programmable firmware updates and the inclusion of a motion control API for C/C++.

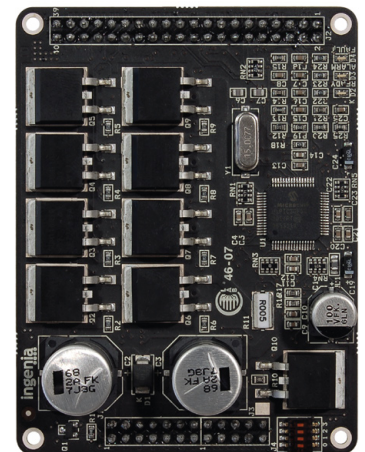


Main features

- Fully digital motion controller.
- Suitable for DC brushed, PMSM (BLDC and BLAC) and stepper* motors.
- No additional heatsink necessary.
- Specially designed for OEM applications.
- Sinusoidal and trapezoidal commutation (brushless motors).
- Space vector modulation (brushless motors).
- PWM modulation (DC and brushless motors).
- Motion modes: Position, Velocity and Homing.
- Various feedback combinations:
 - Digital halls and encoder (brushless only)
 - Digital halls only (brushless only)
 - or encoder only
- Communication through RS232, SPI* and CAN with hardware Node-ID
- Programmable protections for over-current, over-voltage, over-temperature, under-voltage.
- Programmable digital/analog inputs/outputs.
- On board temperature and bus voltage sensor.
- On-system upgradeable firmware.
- Easily programmable through Motion Control Library API (C/C++).
- Custom hardware and firmware options available.

Typical applications:

- Systems with distributed motor control intelligence
- CNC machines
- Cutting and packaging machines
- Soldering robots
- Other tools (cutting, pressing)
- Force feedback systems
- Mobile robots
- Self-steering systems



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* Upon demand

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Specifications

Electrical data

Supply voltage	10-75V
Logic voltage	9-15V
Maximum peak current	16A
Maximum continuous current	8A
PWM switching frequency	29KHz
Min. load inductance	250µH
Max. encoder frequency	200KHz
Temperature range	-20°C to 50°C

Configurable alarms

Over voltage (Shutdown/LED/Event)
Under voltage (Shutdown/LED/Event)
Over current (Shutdown/LED/Event)
Over temperature (Shutdown/LED/Event)
Under temperature (Shutdown/LED/Event)

Supported motors

PMSM (BLDC and BLAC)
DC brushed
Unipolar and bipolar stepper*

User programmable interface

Digital input/output (x8)	CMOS/TTL (max. 25mA)
Analog input (x2)	Resolution 10bit 0-5VDC (RSource < 5KOhms)

Mechanical data

Size	83x64x24mm
Weight	85g
Connector 1	12x2 2.54mm pitch
Connector 2	20x2 2.54mm pitch

Interfaces

RS-232	115200bps
CAN	125Kbps, 250Kbps, 500Kbps, 1Mbps
SPI*	Up to 10MHz

LED indicator

Red	FAULT
Green	READY
Orange	ALARM

Motor feedback inputs

Halls	HALL1, HALL2, HALL3
Qua. Encoder (2 CH+1)	ENC1A, ENC1B, ENC1Z
Sec. Qua. Encoder (2 CH)*	ENC2A, ENC2B

Control loops

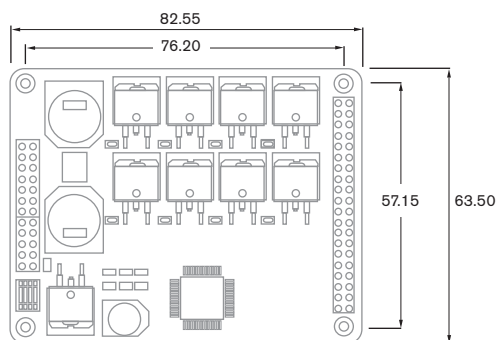
Current	Limiting & fusing
Velocity	PID
Position	PID

Power outputs

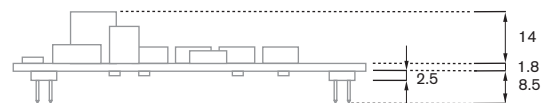
Encoder+Hall	5VDC, max 100mA
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2D drawings (mm)

All specifications and designs are subject to change without notice or obligation.



Top view



Side view

* Upon demand



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