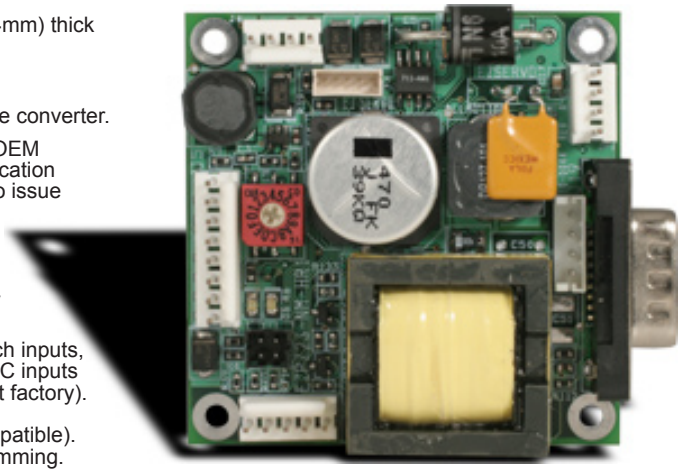
ALL MOTION

EZServo® **Model EZPZ23-HR**

Intelligent Piezo Motor Controller + High-Voltage Driver with Encoder Feedback



Model EZPZ23-HR actual size

For rapid implementation of position control using Nanomotion HR1, HR2, HR4 -1 -S3 or similar piezo-electric motors.

General Specifications

Supply Input..... 11-13V 2A *Examples*: Digikey part 102-1929 or 285-1884

Dimensions..... 2.25" X 2.25" (57mm X 57mm) square, .962" (24.44mm) thick

Operating Modes..... PC controlled or standalone.

PC Control..... Can control up to 16 drives daisychained together.

Communications Protocol..... RS485. Can convert to RS232/USB with appropriate converter.

Control Protocol..... Compatible with devices that use the Cavro DT or OEM protocol. Can use EZCommander™ Windows application or serial terminal program such as HyperTerminal to issue commands. Commands are intuitive and simple.

Motor Compatibility..... Compatible with Nanomotion HR1, HR2, HR4 or similar piezoelectric motors.

Mating Connectors ..... AMP MTA 100 series. Recommended tools: Digikey A9982; or (better) A1998 + A2031

I/O Interface..... Accepts 2 opto-electronic and two mechanical switch inputs, or 4 mechanical switch inputs. Also ADC inputs accurate to 7 bits; can be modified to 10 bit (contact factory).

Signal Levels: <0.8V Vlow; >2V Vhigh (TTL compatible). Threshold set at 1.23V; can be changed via programming.

Optical switch specifications: Transistor optical switch with IC> 1 mA @ IF=20mA. Examples: Digikey QVA11134 or H21A1; Honeywell HOA1887-012 or HOA1870-33 (prewired); OPTEK OPB830W11 (prewired).

Encoder Interface ..... Max. freq. 4 MHz

Operating Temperature..... -20 to 85° C PCB copper temperature

Relative Humidity..... 10% to 90% non condensing (operating and storage)

INPUT CONNECTOR

Mating connector: AMP MTA 100 Series 8 pin, 26 GA, part 3-643815-8 Digikey part A31030-ND

Pin	Function	Notes
1	Switch input #2, A/D input #2, Dir input	Includes 10k Ω pullup to 3.3V.
2	Switch input #1 A/D input #1, Step input	Includes 10k Ω pullup to 3.3V.
3	Opto sensor #2 LED	Includes series 200 Ω resistor to 5V. Resistor can be removed for sensors needing direct access to 5V. Max current draw is <200mA.
4	Opto sensor #2 input, A/D input #4, Upper limit	Includes 10k Ω pullup to 3.3V.
5	Opto Sensor #2 ground	Common input ground
6	Opto Sensor #1 LED	See notes for pin 3.
7	Opto Sensor #1 input, A/D Input #3, Home/ lower limit	Includes 10k Ω pullup to 3.3V.
8	Opto sensor #1 ground	Common input ground

ENCODER CONNECTOR

Mating connector: AMP MTA 100 Series 5 pin, 26 GA, part 3-643815-5 Digikey part A31027-ND

Pin	Function	Notes
1	Ground	Ground for encoder
2	Index	Input from encoder. High level must be >4.5V (external pullups may be required).
3	Chan A	Input from encoder. See comment for Pin 2.
4	+5V (V+)	Power to encoder
5	Chan B	Input from encoder. See comment for Pin 2.

DRIVER CONNECTOR

Mating connector: AMP MTA 100 Series 4 pin, 22GA, part 3-644540-4 Digikey part A31122-ND

Pin	Function	Notes
1	ON/OFF Driver #1 (V-)	Open collector
2	ON/OFF Driver #1 (V+)	2A peak; 1A continuous
3	ON/OFF Driver #2 (V-)	Open collector
4	ON/OFF Driver #2 (V+)	2A peak; 1A continuous

For connector locations, see reverse side.

PIEZO-ELECTRIC MOTOR CONNECTOR

9-pin DSUB connector matches connector on motors. See motor mfg. for pin assignments.

POWER AND COMMUNICATION

Mating connector: AMP MTA 100 Series 4 pin, 22 GA, part 3-643813-4 Digikey part A31108-ND

Pin	Function
1	V+ (external supply) 11-13V
2	GROUND
3	RS485 B
4	RS485 A

Key Features

- Single 4-wire bus links up to 16 drives.
- HR1/HR2/HR4 motor plugs directly into controller/ driver.
- 11V to 13V 2A operation.
- Pre-wired for opto-switch inputs.
- RS232, RS485, or USB-based communications.
- Standalone operation with no connection to a PC.
- Industry standard communications protocol.
- Two 1A On/Off drivers included.
- On-board EEPROM for user program storage.
- 4-quadrant operation.
- Switch-selectable device address.
- Software-selectable max. currents.
- Position, velocity, and torque modes.
- Quadrature encoder-based feedback for position mode.
- Accepts linear or rotary encoder.
- Optional Step and Direction mode, 4MHz frequency.
- Execution Halt/branch pending switch closure.
- 4 ADC inputs. Halt/branch on ADC value.
- Homes to opto or encoder index with one command.
- Fully programmable ramps and speeds.

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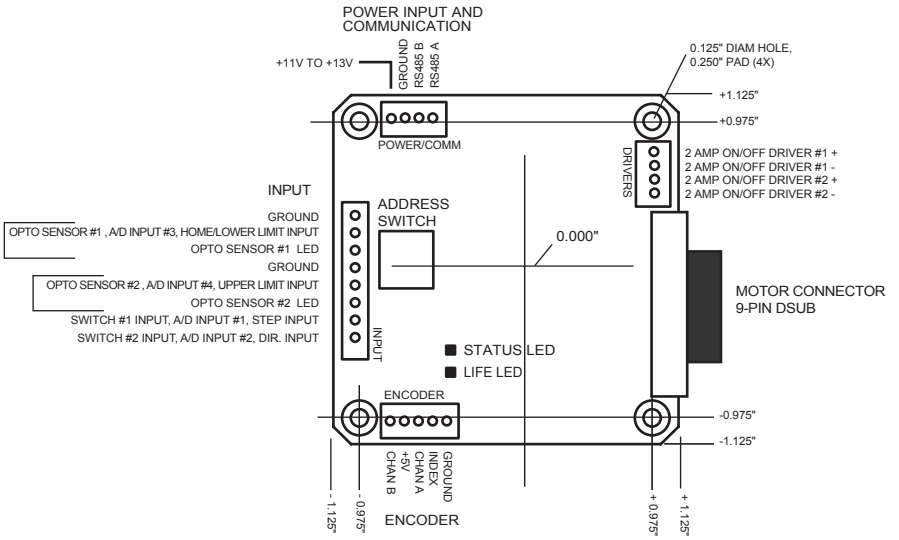
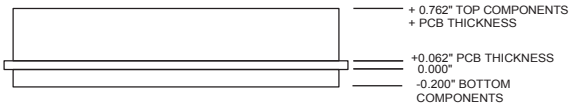
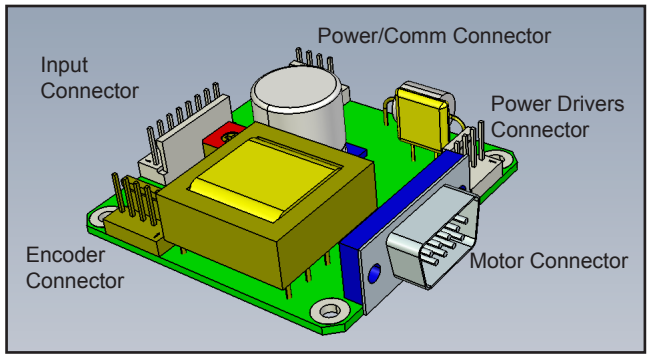
Mechanical Specifications







Ordering Information

Name	Order Number
EZPZ23 for HR1 motor	EZPZ23-HR1
EZPZ23 for HR2 motor	EZPZ23-HR2
EZPZ23 for HR4 motor	EZPZ23-HR4
RS232 to 485 Converter (option)	RS485
USB to 485 Converter (option)	USB485