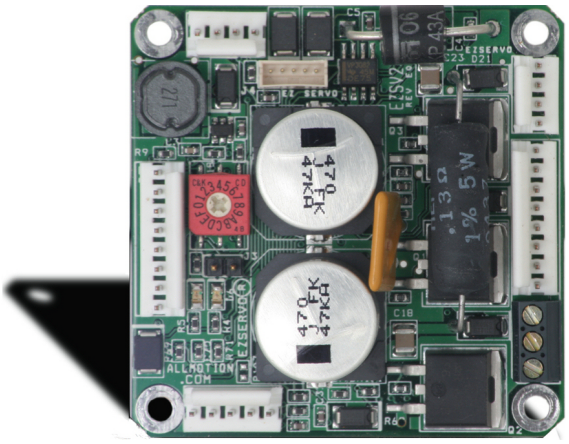
ALLMOTION

EZServo® Model EZSV23

Fully intelligent Servo Motor Controller + Driver with Encoder Feedback



Model EZSV23 actual size

General Specifications

Supply Input ..... 12V to 40V 5A.
Examples: Digikey part 285-1820 or 1470-1015
Dimensions ..... 2.25" x 2.25" (57 mm x 57 mm) square, 1" (25.4mm) thick
Operating Modes ..... PC controlled or standalone. Position, velocity, and torque. Optional Step & Direction mode.
PC Control..... Can control up to 16 drives daisychained together.
Communications protocol..... RS485. Can convert to RS232/USB with appropriate converters.
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.
Motor compatibility..... Accommodates most DC brush or brushless servo motors less than 3" in diameter. Best performance is with motor rated at about 1/2 of supply voltage. Outputs short protected.
Mating Connectors..... AMP MTA 100 series (except high-current power drivers). Recommended tool: Digikey part A9982, or better Digikey parts A2031 + A1998. (See Application Note 131021 for non-standard connector options.)
I/O Interface..... Accepts 2 opto-electronic and two mechanical switch inputs, or 4 mechanical switch inputs. Also ADC and encoder inputs.
Signal Levels: <0.8V Vlow; >2V Vhigh (TTL compatible)
Optical switch specifications: Transistor optical switch with IC> 1 mA @ IF=20mA. *Examples*: OPTEK part OPB841W55 or Digikey part 365-1103-ND (prewired); Honeywell HOA1870-33 (prewired)
Encoder interface..... Primary and secondary quadrature encoders, maxi. freq. 4 MHz
Operating Temperature ..... -20 to 85 °C PCB copper temperature
Relative Humidity..... 10% to 90% non condensing (operating and storage)

I/O CONNECTOR

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

Pin	Name	Notes
1	A/D in #2, secondary encoder Chan B, or Direct input	Includes 10k Ω pullup to 3.3V
2	A/D in #1, secondary encoder Chan A, or Step input	Includes 10k Ω pullup to 3.3V.
3	LED Drive #2	Includes series 200 Ω resistor to 5V.
4	A/D in #4, secondary encoder Index, or Upper Limit input	Includes 10k Ω pullup to 3.3V.
5	Ground	Common input ground
6	LED Drive #1	Includes series 200 Ω resistor to 5V.
7	A/D in #3 or Home/Lower Limit input	Includes 10k Ω pullup to 3.3V.
8	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	Name	Notes
1	Ground	Ground for encoder
2	Index	Input from encoder
3	Chan A	Input from encoder. May use as Hall sensor input for position mode control if no encoder.
4	+5V (V+)	Power to encoder
5	Chan B	Input from encoder. May use as Hall sensor input for position mode control if no encoder.

1A ON/OFF DRIVERS CONNECTOR

Mating Connector: AMP MTA 100 series 4 pin, 22GA, part 3-643813-4 Digikey part A31108-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

HIGH-CURRENT DRIVERS CONNECTOR

Screw terminal alternative motor drive outputs. Use for motors requiring 3A or more current.

Pin	Function
1	PHASE A power driver
2	PHASE B power driver
3	PHASE C power driver

For connector locations, see reverse side.

HALL SENSOR & MOTOR CONNECTOR

Mating Connector: AMP MTA 100 series 8 pin, 22 GA, part 3-643813-8 Digikey part A31111-ND

Pin	Name	Notes
1	Hall sensor A	AllMotion will provide assistance determining correct hookups
2	Hall sensor B	
3	Hall sensor C	
4	+5V Hall sensor power	
5	Ground	Ground for Hall sensors
6	Phase A driver (BLDC) Motor+ (brush DC)	5A peak PWM
7	Phase B driver (BLDC) Not used (brush DC)	5A peak PWM
8	Phase C driver (BLDC) Motor– (brush DC)	5A peak PWM

POWER AND COMMUNICATIONS CONNECTOR

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

Pin	Function
1	V+ (external supply) +12V to 40V
2	GROUND
3	RS485 B
4	RS485 A

Key Features

- Single 4-wire bus linking up to 16 drives
- 5A BLDC or DC brush motor drivers, short protected
- Operates from 12V to 40V.
- RS232, RS485 or USB based control communications
- Optional standalone operation with no connection to PC
- On-board EEPROM for user program storage
- 4-quadrant operation
- Homes to an opto or encoder index with a single command.
- Execution halt/branch pending switch closure
- ADC inputs, halt/branch to ADC value
- Position, velocity, and torque modes. Velocity mode possible using only Hall sensor feedback.
- Quadrature encoder-based feedback for position mode
- Step & Direction mode, 4MHz step frequency
- Secondary encoder mode
- Prewired for optoswitch inputs
- Four digital I/O; and two 1A power On/Off drivers for driving relays, dc motors, solenoids, etc.
- Cavro DT or OEM protocol compatible
- Fully programmable ramps and speeds
- Switch-selectable device address
- Software-settable maximum currents

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REV 050914

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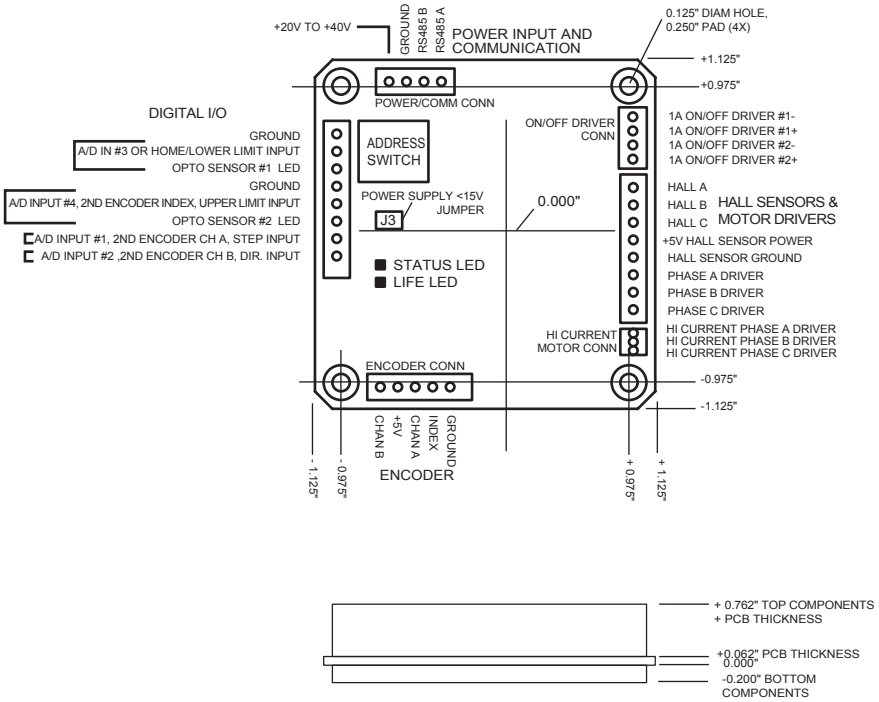
Mechanical Specifications



Ordering Information

Name	Order Number
EZSV23 Servo Drive	EZSV23
RS232 to 485 Converter (option)	RS485
USB to 485 Converter (0ption)	USB485