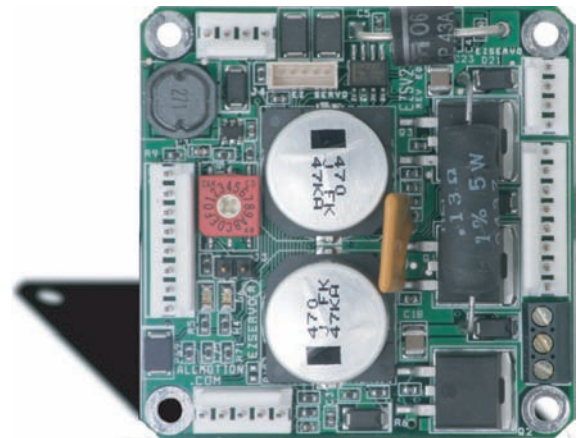


## Electrical Specifications

|                              |  |
|------------------------------|--|
| Supply Input .....           | 12V to 40V 5A.<br><i>Examples:</i> Digikey part 271-1112 or Digikey part Z1158   |
| 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.<br>Optional Step & Direction mode.  |
| PC Control.....              | Can control up to 16 drives daisy-chained 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.<br>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).<br>Recommended tool: Digikey part A9982, or better Digikey parts A2031 + A1998.  |
| I/O Interface.....           | Accepts 2 opto-electronic and two mechanical switch inputs, or 4 mechanical switch inputs. Also ADC and encoder inputs.<br>Signal Levels: <0.8V Vlow; >2V Vhigh (TTL compatible)<br>Optical switch specifications: Transistor optical switch with IC > 1 mA @ IF=20mA. <i>Examples:</i> 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 .....  | 0 to 45° C standard, -20 to 50° C upon special request   |
| Relative Humidity.....       | 10% to 90% non condensing (operating and storage)  |



Model EZSV23 actual size

| I/O CONNECTOR   |  |                                       |
|---|--|---------------------------------------|
| Mating Connector: AMP MTA 100 series 8 pin, 26 GA, part 3-643814-8<br>Digikey part A31030 |  |                                       |
| 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<br>Digikey part A31027 |          |   |
| 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<br>Digikey part A31108 |                       |                        |
| Pin  | Function              | Notes                  |
| 1  | ON/OFF driver #1 (V+) | 2A peak; 1A continuous |
| 2  | ON/OFF driver #1 (V-) | Open collector         |
| 3  | ON/OFF driver #2 (V+) | 2A peak; 1A continuous |
| 4  | ON/OFF driver #2 (V-) | Open collector         |

| HIGH-CURRENT DRIVERS CONNECTOR  |                      |
|---|----------------------|
| Screw terminal alternative motor drive outputs.<br>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.

## Fully intelligent Servo Motor Controller + Driver with Encoder Feedback

### HALL SENSOR & MOTOR CONNECTOR

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

| 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

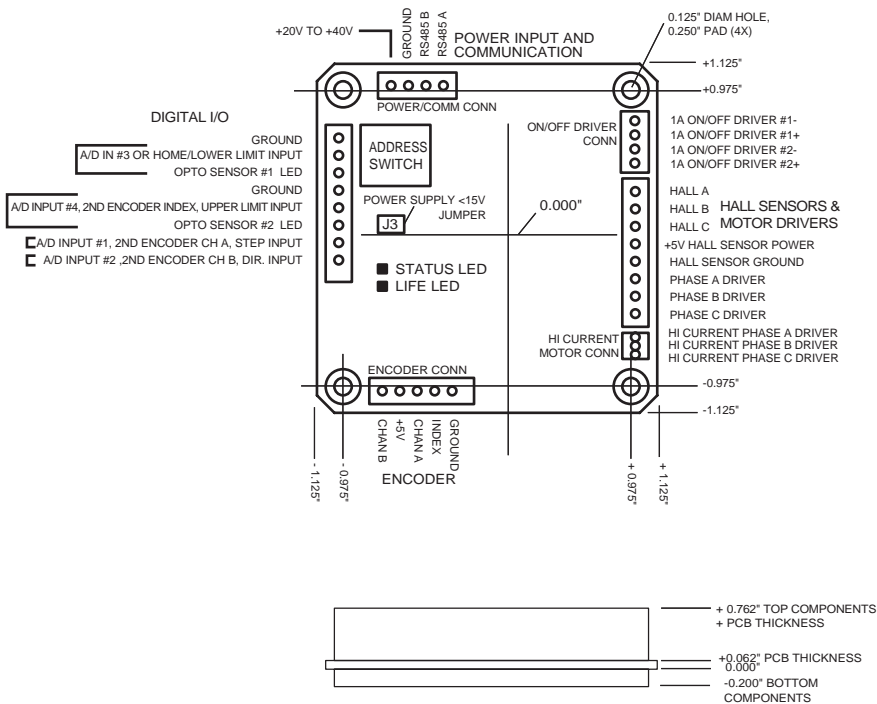
| Pin | Function                         |
|-----|----------------------------------|
| 1   | V+ (external supply) +12V to 40V |
| 2   | GROUND                           |
| 3   | RS485 B                          |
| 4   | RS485 A                          |

## 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

Fully intelligent Servo Motor Controller + Driver with Encoder Feedback

## Mechanical Specifications



## Ordering Information

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