

ACE500

S E R I E S

Digital Servo Amplifier

World Class High Voltage all digital brushless servo-amplifiers designed especially for embedded OEM applications.

Overview

The ACE500 is the newest addition to ElectroCraft's AC "Smart" series of all digital servo-amplifiers designed to provide today's OEM with maximum brushless servo performance at the lowest possible cost.

The ACE500 series utilizes the latest in DSP-based drive design architecture to provide software selectable torque, velocity, and position mode (Step & Direction) operation.

Sine wave commutation using encoder feedback provides smooth torque at low speeds for demanding motion control requirements found in robotic, direct drive, and linear motor applications.

Optional software selectable trapezoidal mode allows commutation and velocity loop control from Hall effect feedback only.

Flux Vector Control is Better

The ACE500 AC Servo (flux vector) control algorithm provides higher dynamic response and improved noise immunity over older generation servo control techniques. AC flux vector control uses modern space vector modulation in lieu of older sine-weighted PWM or two channel, analog multiplier techniques. This state-of-the-art approach provides a more robust motor controller with lower current harmonics. Which in turn means smoother, more efficient motor control.



More Power in a Smaller Package

The ACE500 was driven by design to be one of the most space efficient high voltage, high power brushless servo-amplifiers available.

Measuring just 6.9" (175mm) x 5.2" (132mm) x 1.95" (50mm) without heatsink.

Intelligent - Powerful ACE standard Features Include:

- Universal AC or DC power input (90 to 254 VAC, single phase, or 120 to 360 VDC).
- Serial drive status diagnostics.
- Field upgradeable DSP firmware.
- Safety compliance meets EN60950, UL1950 and CSA22.2.14 standards.
- CE marked to the Low Voltage Directive. EMC compliance optional.
- High capacity shunt, customer external.
- Optional Halls only operation mode.
- *ElectroCraft CompletePower™ PLUS Windows®*-based set-up and tuning utility software included.

Pinouts

J2 - User I/O Control

- 1 +5 VDC, 250 mA, Input (User Supplied)
- 2 Common, Return
- 3 + 5 VDC, 250 mA, Input (User Supplied)
- 4 Common, Return
- 5 Enable!/Reset Input
- 6 Run Command, Input
- 7 Dynamic Brake, Input
- 8 General Purpose Digital Input, TTL, 0-+5V
- 9 General Purpose Digital Input, TTL, 0-+5V
- 10 Common, Return
- 11 Step Input, TTL, 0-+5V
- 12 Direction Input, TTL, 0-+5V
- 13 Analog Common
- 14 AN1+ Differential Input, 0 to +/-10VDC
- 15 AN1- Differential Input, 0 to +/-10VDC
- 16 Common, Return
- 17 AN2+ Differential Input, 0 to +/-10VDC
- 18 AN2- Differential Input, 0 to +/-10VDC
- 19 General Purpose Digital Output, TTL, 0-+5V
- 20 Common Return
- 21 Tach., Output
- 22 General Purpose Digital Output, TTL, 0-+5V
- 23 !Fault, Output, TTL, 0-+5V
- 24 Ready Output, TTL, 0-+5V
- 25 Frame Ground

J3 - Motor Interface

- 1 Commutation S1, Input
- 2 Commutation S2, Input
- 3 Commutation S3, Input
- 4 +5 VDC Output, User Supplied
- 5 Common, Return
- 6 Encoder A, Input
- 7 Encoder !A, Input
- 8 Common, Return
- 9 Encoder B, Input
- 10 Encoder !B, Input
- 11 Servo Frame Ground
- 12 Encoder Z, Input
- 13 Encoder !Z, Input
- 14 Motor Temp./PTC Input
- 15 Motor Temp./PTC Input

J1 – RS232 Communications Port

- 1 N/C
- 2 TX, RS232 TXD Output, RS232 signal level
- 3 GND, COMMON
- 4 RTS, RS232 RTS Output, RS232 sig. level
- 5 RX, RS232 RXD Input, RS232 signal level
- 6 CTS, RS232 CTS Input, RS232 signal level

J4 – CAN Communications Port

- 1/9 CAN HI Input
- 2/10 CAN LO Output
- 3/11 COMMON Return
- 4/12 N/C
- 5/13 N/C
- 6/14 Shield
- 7/15 COMMON Return
- 8/16 CAN VCC, User Supplied

ACE500 Model Specifications

Model	500
Input Power: VAC	90 to 254, Single Phase,
Hz	50 to 60, or DC
Output: VDC	120 to 360, 310 nominal @ 220 VAC
Output Power Peak: kW	3.2
Phase Cur. Peak: A	15
Phase Cur. Cont. A	7.5
Bridge PWM: kHz	30, 15 center-aligned
Cur. Loop Bandwidth: Hz	Digitally selectable, 2 kHz typ.
Motor Inductance: mH	0.25 to 50 typ.
Motor feedback &: VDC	+5, 3% reg., user supplied
Interface power mA	250
Ambient Temp. Range: °C	0 to 50
Overtemp Trip: °C	70 on cold plate surface
Humidity:	5% to 95% RH, Non-Condensing
Hi Pot Rating:	3000 VAC for 1 minute from SELV (AC Input to Frame Ground)

Control loops

Position, Velocity PID filter

Current loop update rate

Feedback

Current resolution

Velocity resolution

Position resolution

Loop Operation

Digitally adjustable up to 5 KHz

Digitally adjustable up to 10 KHz

Encoder, 2 MHz

10 bit

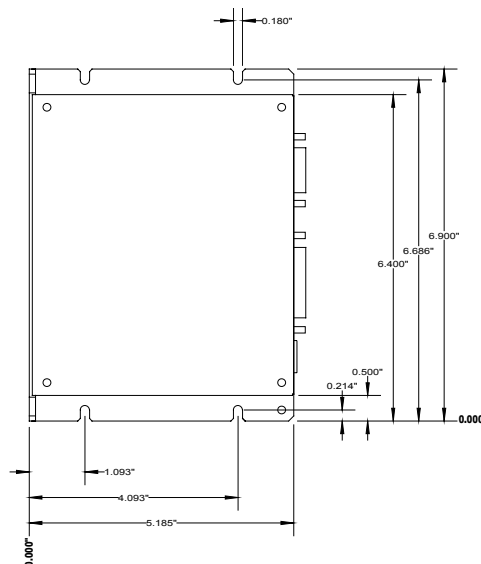
32 bit

32 bit

Velocity, Torque, Position

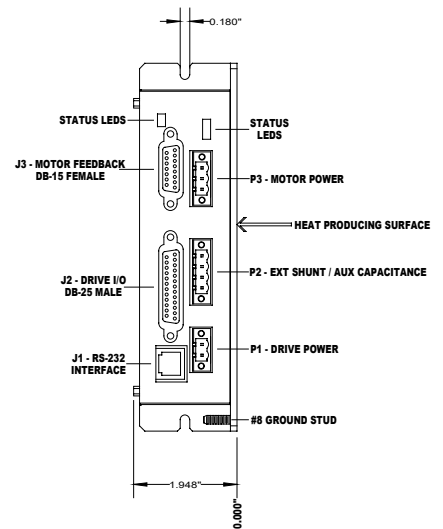
Note: Specifications subject to change without notice.

Dimensions



Weight

1.9 lb. (0.86 Kg)



For more information including custom user options available, please contact:

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