AUTOMOTION
INFRANOR GROUP COMPANY

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 Automotion'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.
- *AutoMotionPLUS*™ Windows®-based set-up and tuning utility software included.

"Putting Brushless Into Motion" ®

P.O. Box 7746, Ann Arbor, MI 48107 • **PHONE** 734/662-7771 • **FAX** 734/662-3707 • **E-MAIL** sales@automotioninc.com • www.automotioninc.com

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

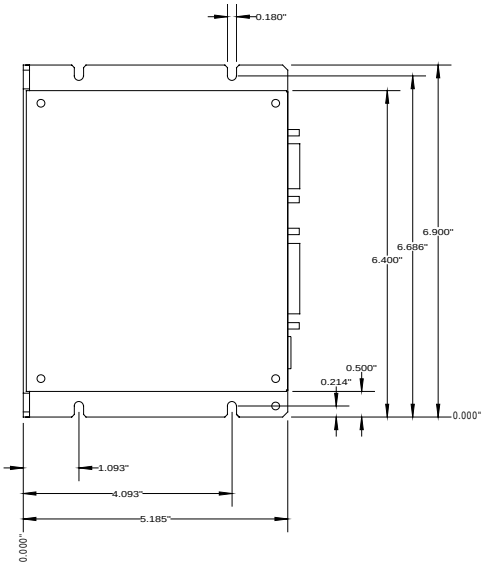
Position, Velocity PID filter	Digitally adjustable up to 5 KHz
Current loop update rate	Digitally adjustable up to 10 KHz
Feedback	Encoder, 2 MHz
Current resolution	10 bit
Velocity resolution	32 bit
Position resolution	32 bit
Loop Operation	Velocity, Torque, Position

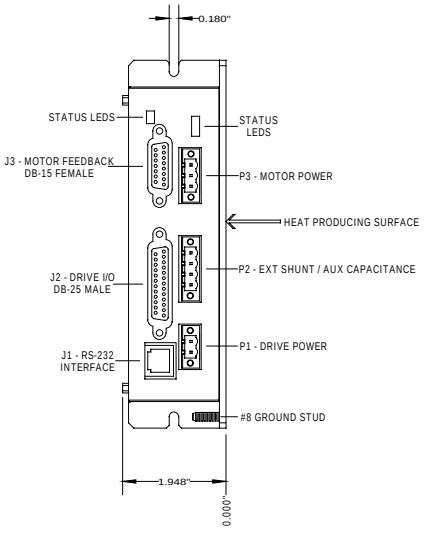
Note: Specifications subject to change without notice.

Dimensions

Weight

1.9 lb. (0.86 Kg)





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

E-MAIL sales@automotioninc.com • www.automotioninc.com

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