

ACS300

S E R I E S

Digital Servo Amplifier

Twice the Power of the ACS200 Series, this World Class intelligent, low voltage, all digital, brushless servo-amplifiers was designed especially for embedded OEM applications.

Overview

The ACS300 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 ACS300 series utilizes the latest in DSP-based digital drive design architecture to provide software selectable torque, velocity, and position mode 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 ACS300, like all of ElectroCraft digital drives makes use of AC Servo (flux vector) control algorithms to provide higher dynamic response and improved noise immunity. 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 - Slightly Larger Package

The ACS300 was driven by design to be one of the most space efficient low voltage digital brushless servo-amplifiers available.

With up to 1.8 KW of peak power output available, it is still only 5.25" (133mm) x 3.4" (86mm) x 1" (25mm), without a heatsink.

Intelligent - Powerful ACS300 Standard Features Include:

- +12 to +48 VDC logic supply input.
- 0 to +48 VDC (60 VDC Peak) motor supply input.
- 15 Amps Cont., 30 Amps Peak (5 seconds) with cold plate. Extended Peak with Heatsink/Fan.
- RS232 Communications.
- Optional CAN Bus Communications.
- Serial drive status diagnostics.
- Field upgradeable DSP firmware.
- Optional Halls only operation mode.
- *ElectroCraft CompletePower™ PLUS Windows®-based set-up and tuning utility software included.*

Pinouts

J1 - User Digital I/O Control

- 1 +5 VDC, 250 mA, Output
- 2 +5 VDC, 250 mA, Output
- 3 Enable!/Reset, TTL, Input
- 4 Run!/Stop Command, TTL, Input
- 5 Step, TTL, Input
- 6 Direction, TTL, Input
- 7 Enabled, TTL, Output
- 8 Ready, TTL, Output
- 9 Digital GND
- 10 Digital GND

J2 - User Analog I/O Control

- 1 REF+, Diff Input, +/- 10V
- 2 REF-, Diff Input, +/-10V
- 3 Analog GND
- 4 Diff Input, +/-10V, Aux. +
- 5 Diff Input, +/- 10V, Aux. -
- 6 Analog GND
- 7 Analog GND

J3 - RS232 Communications

- 1 TXD
- 2 RXD
- 3 CTS
- 4 RTS
- 5 GND

J4 - Encoder Interface

- 1 +5 VDC, Encoder Output
- 2 Encoder A, Input
- 3 Encoder !A, Input
- 4 Encoder B, Input
- 5 Encoder !B, Input
- 6 Encoder Z, Input
- 7 Encoder !Z, Input
- 8 Digital GND, Encoder
- 9 Digital GND, Encoder

J5 - Hall Interface

- 1 +5 VDC, Commutation, Output
- 2 Commutation S1, Input
- 3 Commutation S2, Input
- 4 Commutation S3, Input
- 5 Digital GND, Commutation
- 6 Digital GND, Commutation

J6, J7 - CAN Communications

- 1 CANH
- 2 CANL
- 3 GND

P1 - DC Logic Input

- 1 Logic, User Supplied, +12 to +48 VDC
- 2 GND, Logic

ACS300 Model Specifications

DC Input

Output: VDC
 MIN. Supply Filter
 Output Power, Peak (No Heatsink) Watts
 Phase Cur. Peak:
 Phase Cur. Cont.
 Bridge PWM:
 Cur. Loop Bandwidth: Hz
 Motor Inductance:
 Motor feedback &:
 Interface power
 Ambient Temp. Range:
 Humidity:

Motor Supply VDC 0 to +48
 Logic Supply VDC +12 to +48
 VDC 0 to +48
 uF 100 recommended
 1800 @ 60 VDC
 Amps 30A
 Amps 15A
 kHz 40, 20 center-aligned
 Digitally selectable, 2 kHz typ.
 mH 0.1 to 50 typ.
 VDC +5, 3% reg.
 mA 250 max.
 °C 0 to 50
 5% to 95% RH, Non-Condensing

Control loops

Position, Velocity PID filter
 Current loop update rate

Digitally adjustable up to 5 kHz
 Digitally adjustable up to 10 kHz
 Encoder, 2 MHz

Feedback

Loop Operation

Velocity, Torque, Position

Current resolution

10 bit

Velocity resolution

32 bit

Position resolution

32 bit

Note: Specifications subject to change without notice.

Dimensions

Ht. with Cold Plate 1" (25mm)
 Ht. with Heatsink 2.125" (54 mm)

P2 -DC Input / Motor Output

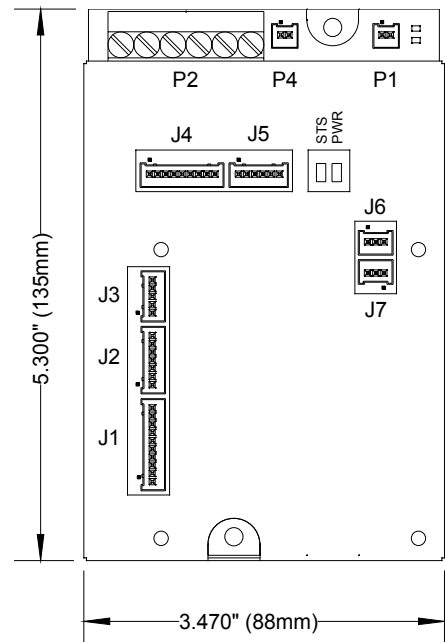
- 1 0 to +48 VDC, Input
- 2 GND, Motor
- 3 Phase U
- 4 Phase V
- 5 Phase W
- 6 Frame GND

P4 - Temp Output

- 1 Temp+
- 2 Temp -

Weight

0.49 lb. (222 g) Cold Plate Model
 1.30 lb. (590 g) Heatsink Model



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

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