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BA SineDrive Series

Low-Cost, Digital Sinusoidal Commutation Amplifier

- Wide output power range from 10 A peak to 100 A peak at 320 VDC
- No transformer required; direct connection to AC line
- Produces smooth sinusoidal current command for smooth velocity and torque control
- Velocity, torque-mode input command
- Accepts encoder for velocity control
- UL and CE approval on low-power models



The Aerotech BA SineDrive servo amplifier (BAS) is a low-cost, digital, sinusoidal commutation brushless amplifier designed to give superior torque and velocity stability.

Friendly Interface Program

The digital BAS has no potentiometers to adjust. All gains and parameters are set up using the simple Windows™-based (HMI) communications program supplied. The main screen allows quick gain and encoder setup with digital offset adjust. Right click on any highlighted parameter for easy on-line help windows that define that function.

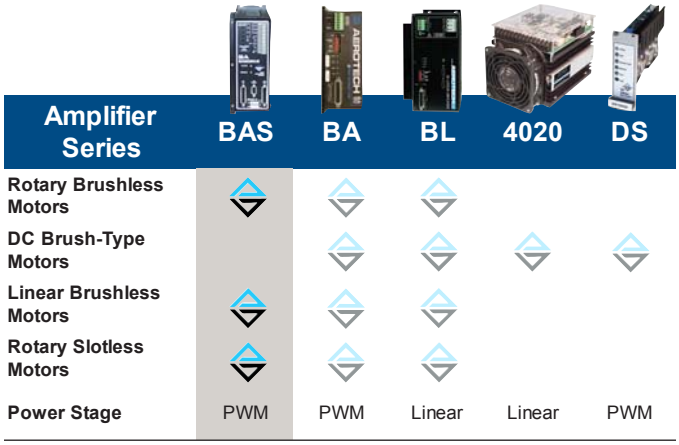
Simple to Set Up

The BAS amplifier is highly flexible and simple to set up with any brushless rotary or linear servomotor. Parameters such as encoder resolution, pole pairs, current limits, offsets, phase advance, and Hall device initialization are stored in nonvolatile memory. Parameter files can be uploaded and downloaded to subsequent amplifiers for quick setup.

Commutation is performed from the encoder feedback to minimize torque ripple and cogging at low speeds.

A hand-held terminal or a PC can be used for setup. The BA SineDrive accepts standard ±10 VDC for velocity or torque commands.

The BA SineDrive is compact and modular requiring only AC input power. For 160 or 320 VDC bus operation, no external transformer is required when 115/230 VAC is the input voltage.



Amplifier Series	BAS	BA	BL	4020	DS
Rotary Brushless Motors	◆	◇	◇		
DC Brush-Type Motors		◇	◇	◇	◇
Linear Brushless Motors	◆	◇	◇		
Rotary Slotless Motors	◆	◇	◇		
Power Stage	PWM	PWM	Linear	Linear	PWM



The BAS HMI setup with on-line help.

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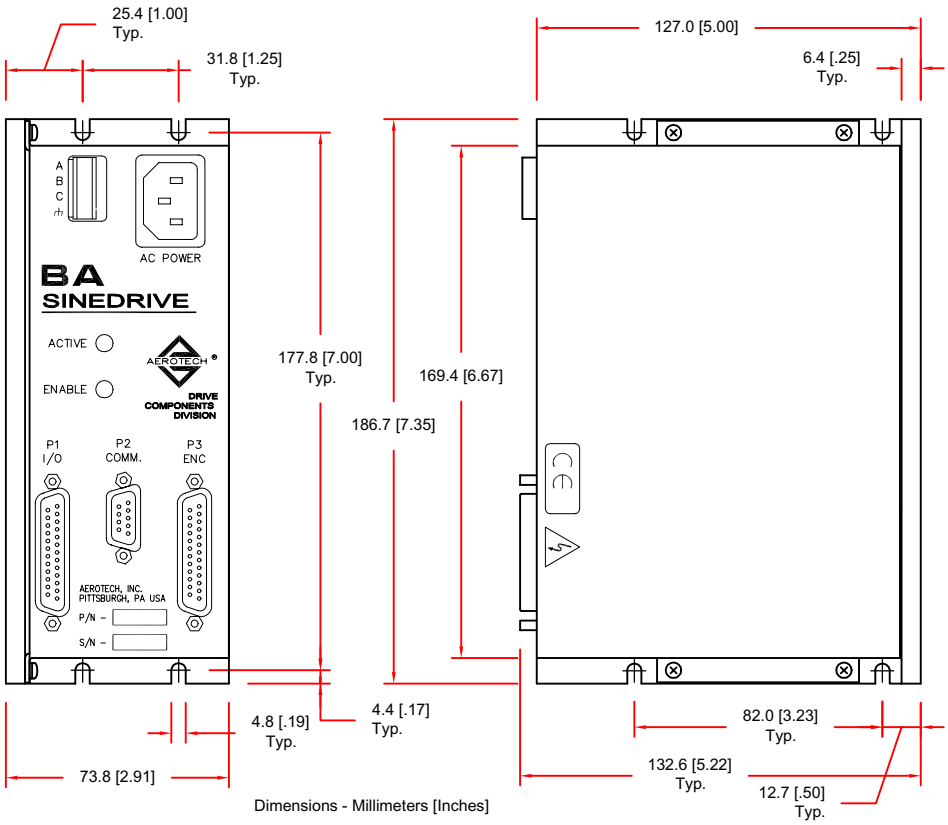
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BAS Series SPECIFICATIONS and DIMENSIONS

Model	Units	BAS10	BAS20	BAS30	BAS50	BAS75	BAS100
Output Voltage[1]	VDC	40-320[2]					
Peak Output Current (2 sec)	A_{pk}	10	20	30	50	75	100
Continuous Output Current	A_{pk}	5	10	15	25	37	50
Peak Output Power	W	2,720	5,440	8,160	13,600	20,160	28,800
Continuous Output Power	W	1,360	2,720	4,080	6,800	10,080	14,400
Power Amplifier Bandwidth	kHz	2					
PWM Switching Frequency	kHz	20					
Minimum Load Inductance	mH	0.8 @ 160 VDC (1 mH @ 320 VDC)					
Operating Temperature	°C	0 to 50					
Storage Temperature	°C	-30 to 85					
Weight	kg (lb)	1.1 (2.5)			3.9 (8.5)	5.6 (12.3)	6.5 (14.2)
Maximum Shunt Regulator Dissipation	W	40 (optional)	40 (optional)	40	100 (10 A Ext.)		
Brushless Operation		Torque (Current), Velocity					
Power Input		Single-Phase AC Line Input 28-230 VAC, 50-60 Hz			28-230 VAC, 50-60 Hz, 1-3 Phase		
Commutation		Sinusoidal From Encoder					
Encoder Input Frequency		10 MHz Maximum Input Frequency (After Quadrature), RS-422 Differential Line Driver					
Indicators		Drive Enable LED, Power-On LED					

Notes:
1. Depends on AC input voltage
2. 40-80 VDC bus requires external transformer, 110 VAC auxiliary input for control input power

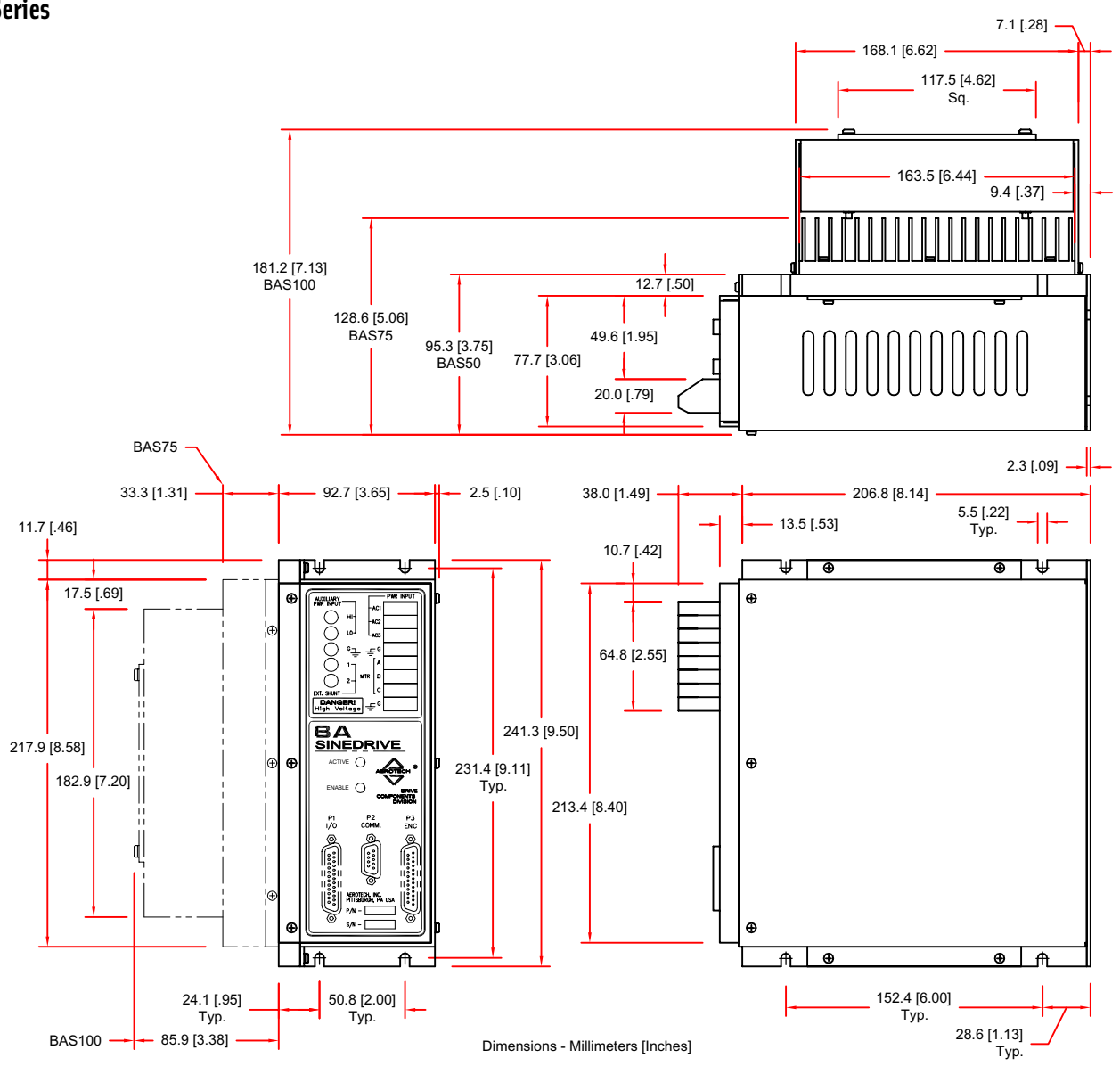
BAS 10, 20, 30 Series



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BAS Series DIMENSIONS

BAS 50, 75, 100 Series



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BAS Series ORDERING INFORMATION

Ordering Example

BAS	75	-320	-S
Amplifier Series	Output Current, Peak	Operating Bus Voltage	Options
	10, 20, 30, 50, 75, 100	80 160 320	S

BAS Series Digital Sine-Commutated Amplifiers

BAS10-x	5 A cont., 10 A peak servo amp/power supply and digital control board
BAS20-x	10 A cont., 20 A peak servo amp/power supply and digital control board
BAS30-320-S	15 A cont, 30 A peak servo amp/power supply, w/shunt regulator & digital control board
BAS50-320-S	25 A cont, 50 A peak servo amp/power supply, w/shunt regulator, 230 VAC 3 phase input & digital control board
BAS75-320-S	37 A cont 750 A peak servo amp/power supply, w/shunt regulator 230 VAC 3 phase input & digital control board
BAS100-320-S	50 A cont 100 A peak servo amp/power supply, w/shunt regulator 230 VAC 3 phase input & digital control board

Bus Voltage

-40*	40 VDC bus; 28 VAC input required (TV0.3-28)
-80*	80 VDC bus; 56 VAC input required (use TV0.3-56)
-160	160 VDC bus; 100-115 VAC input, direct line operation (for 80 VDC bus use TV0.3-56 transformer)
-320	320 VDC bus; 230 VAC input, direct line operation

Note: Requires transformer such as TV0.3-28 OR TV0.3-56 for 56VAC input voltage.

BAS Series Amplifier Options

-S	Add shunt resistor network for BAS10 or BAS20 (standard on the BAS30, BAS50, BAS75, BAS100) EX: BAS20-160-S
INTEGRATION	Setup and tune BAS system with unloaded motor and set parameters for customer specific motor; provide parameter specification sheet

BAS Accessories

TV0.3-28	0.3 kVA autotransformer; 28 or 56 VAC out for 40 or 80 VDC bus, 115/230 VAC, 50/60 Hz input
TV0.3-56	0.3 kVA autotransformer; 56 or 115 VAC out for 80 or 160 VDC bus, 115/230 VAC, 50/60 Hz input
TV1.5	1.5 kVA isolation transformer, 115/230 VAC input; 28, 43, 56, 70, 115 VAC output
TV2.5	2.5 kVA isolation transformer, 115/230 VAC input; 28, 43, 56, 70, 115 VAC output
TV5	5 kVA isolation transformer, 115/230 VAC input; 28, 43, 56, 70, 115 VAC output
TB	Screw terminal block for BAS DB25 control connector
LF	AC line filter, general noise supression (not for CE compliance)
UFM	AC line filter module (required for BAS amplifiers to meet CE compliance)
MCKBAI	Mating connector (kit) for BAS control connector
HT	Hand-held ASCII terminal, 4x20 characters, RS232 interface

Motor Feedback Cables (Brushless)

C15291-50	Feedback cable, BM series brushless motor to controller, 15 ft., MS, DB25
PFC-15	Feedback cable, BM series brushless motor to controller, 15 ft., MS, FL
C18391-50	Feedback cable, BMS series slotless motor to controller, 15 ft., DB25, DB25

Motor Power (Brushless)

C15801-50	Motor power cable, BAS amplifier to: BM75, BM130, BM200, BM250, 15 ft.
C15811-50	Motor power cable, BAS amplifier to: BM500, BM800, BM1400, 15 ft.
PMC2-15	Motor power cable, BAS amplifier to: BM2000, BM3400, BM4500, 15 ft.
C17891-50	Motor power cable, BAS amplifier to BMS series motors, 15 ft.

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