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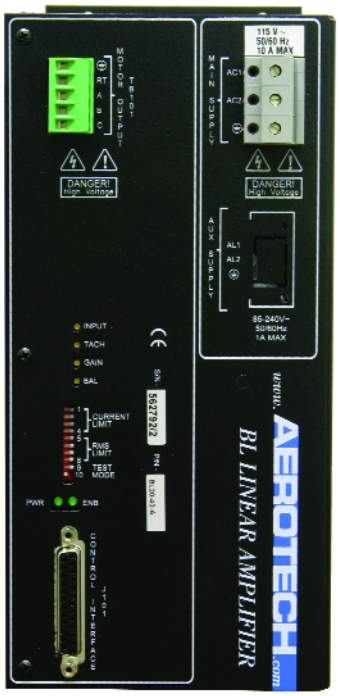
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BL Series

Linear Amplifiers

- Drive brush or brushless motors
- Modular design
- 10 or 20 A peak models
- Self-commutation
- Complete electrical isolation
- Integrated or external power supply



BL series amplifiers are highly reliable linear brushless servo amplifiers that are easily adaptable to drive brush or brushless servomotors. The BL amplifier package is a complete modular unit that includes heat sink, metal cover, control, and bus power supplies that operate at ±40 VDC (@ 20 amps peak) or ±80 VDC (@ 10 amps peak). The BL drives provide the designer with servo drive flexibility for use in applications such as CMM (Coordinate Measurement Machines), X-Y stages, inspection and scanning, medical device fabrication, and semiconductor fabrication.

The BL drives feature a self-commutation mode using analog or digital Hall effect feedback signals. The BL drives even include a 5 VDC, 250 mA supply to power encoders and Hall effect devices (HEDs). Each model is jumper selectable, providing the capability to drive both brush and brushless motors in current (torque) mode, velocity mode, etc.

Complete electrical isolation is provided between the control stage and the power stage for all models of the BL series. This is accomplished with a transformer-isolated control voltage power supply and opto-isolation of the drive signals, current command signals, and fault signal between the control and power stages. Each drive is fully protected against control power supply under voltage, rms current limit exceeded, power stage bias supplies under voltage, over temperature, over current, and excessive power transistor dissipation.

Operating modes include current command, velocity command, or dual-phase command (for brushless modes of operation only). For brush modes of operation, the available operating modes are current command and velocity command.

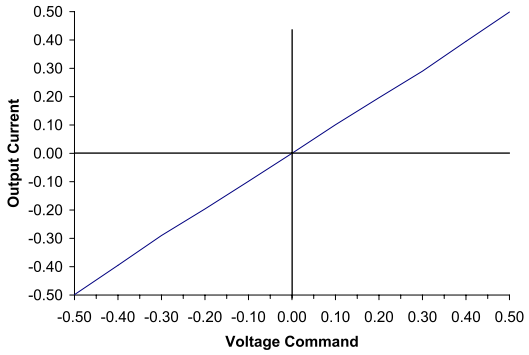
Differential inputs are used for better noise immunity. Velocity feedback is from either an encoder or tachometer, and logic inputs include directional current limits and shutdown. Fault, current, and velocity outputs simplify monitoring drive status. In addition, the BL drive can drive three individual brush motors in torque mode.

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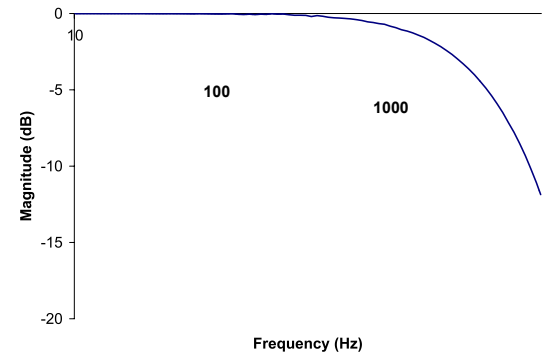
BL Series SPECIFICATIONS

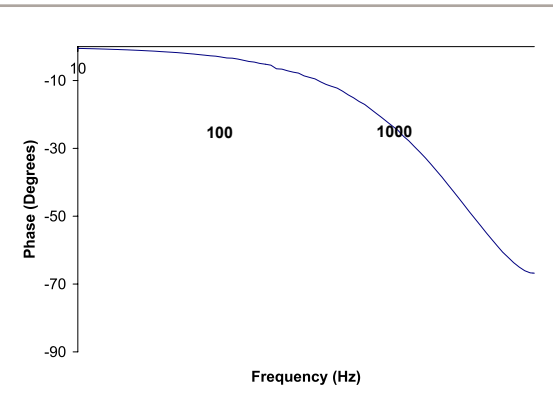
	Units	BLDrive 10-40	BLDrive 20-40	BLDrive 10-80
Peak Output Current[1]	A_{pk}	10	20	10
Continuous Output Current[1]	A_{rms}	5	10	5
Output Voltage (Brushless)[2]	VDC	±40	±40	±80
Output Voltage (Brush)	VDC	40	40	80
Input Voltage	VAC	100 to 230 (Model Dependent)		
Peak Power Dissipation (Per Phase)	watts	360		
Peak Output Power[3]	watts	675	1350	1350
Continuous Output Power	watts	280	560	560
Power Amplifier Gain (Each Phase)	A/V	1	2	1
Power Amplifier Bandwidth[4]	kHz	2		
Minimum Load Inductance	mH	0		
Min. Load Resistance (Line-to-Neutral)	ohms	0.5		
Operating Temperature	°C	0 to 50		
Storage Temperature	°C	-30 to 85		
Weight	kg (lb)	8.5 (18.8)		

Notes:
1. Actual peak and continuous output current is load dependent
2. The BL series can drive each of its phases rail-to-rail since the drive supply for each phase is not derived from the ± bus voltages
3. This specification based on the output power transistors in the saturated (e.g., full on) condition
4. Driving BLM-203-A (R_{LL} = 4 W, L_{LL} = 3.2 mH)



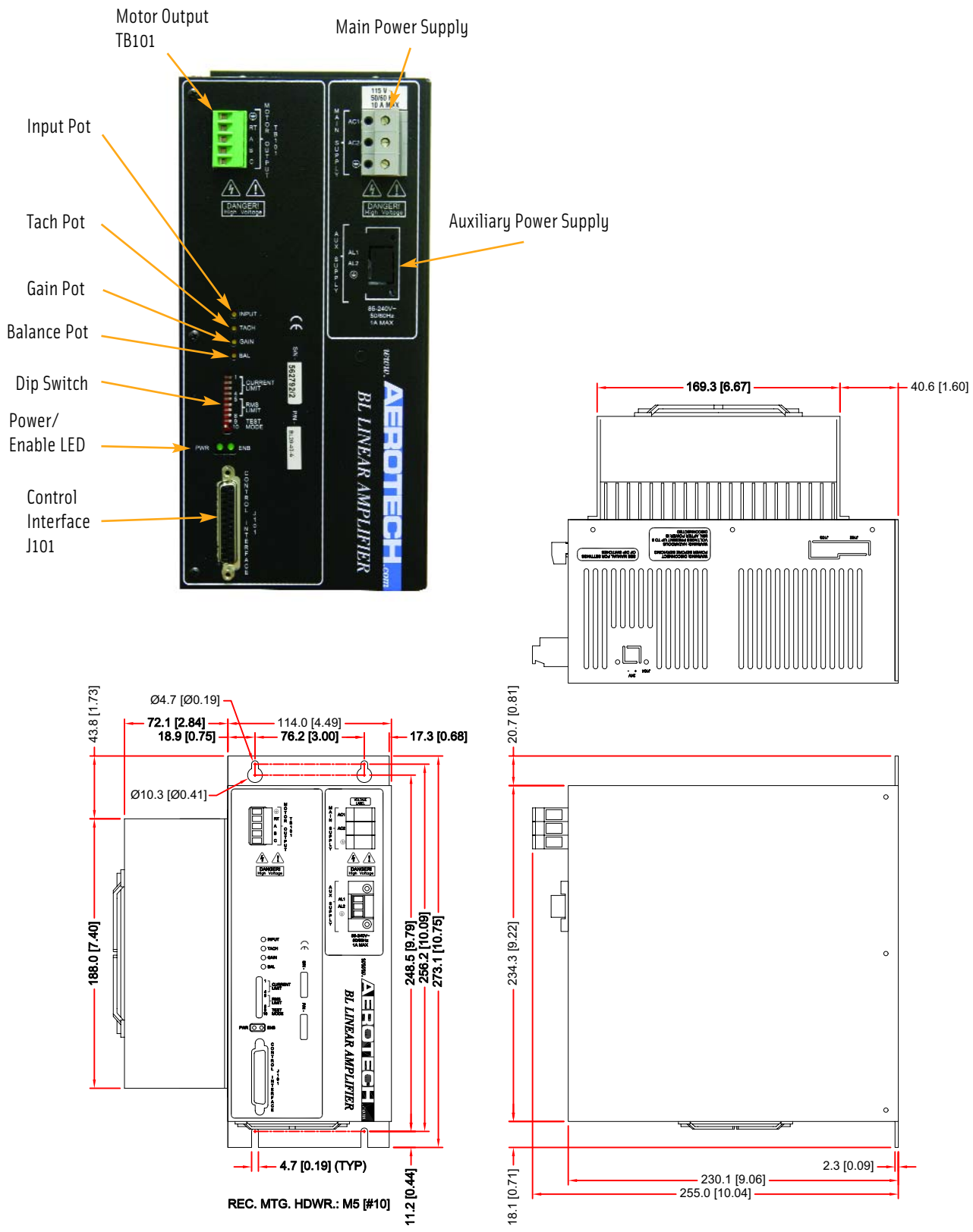
BL Linear Amplifier Series Transfer Characteristics (Load R = 6.59 ohms; L = 2.14 mH)





BL Linear Amplifier Series Frequency Response Plots (Load R = 6.59 ohms; L = 2.14 mH)

BL Series DIMENSIONS



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BL Series ORDERING INFORMATION

Ordering Example

BL	20	-40	-A	-AH
Series	Output Current	Operating Bus Voltage	Input Voltage	Options
	10 20	40 80	A B C D EP	AH VM1 - VM2 CM1 - CM3 TP PKn CCn

BL Series Linear Amplifiers

BL10-40-x	Brushless linear amplifier with ±40 V output and 10 A peak current, with cooling fan and isolation transformer
BL10-80-x	Brushless linear amplifier with ±80 V output and 10 A peak current, with cooling fan and autotransformer
BL20-40-x	Brushless linear amplifier with ±40 V output and 20 A peak current, with cooling fan and autotransformer

x = A for 115 VAC single phase input power (standard)
x = B for 230 VAC single phase input power
x = C for 100 VAC single phase input power
x = D for 208 VAC single phase input power
x = EP for external power supply

BL Series Amplifier Options

-VM1	Brushless motor, electronic tachometer, 0° commutation offset (Aerotech standard)
-VM2	Brushless motor, electronic tachometer, 30° commutation offset
-VM3	Brush motor, analog tachometer
-VM4	Brush motor, electronic tachometer
-CM1	Brushless motor, 0° commutation offset (Aerotech standard)
-CM2	Brushless motor, 30° commutation offset
-CM3	Brush motor
-AH	Analog Hall
-TP	Three independent current regulators (one enable/fault)
-PKn	Peak current output n% of max (where n can equal 6, 13, 19, 27, 33, 40, 46, 54, 60, 67, 73, 81, 87, 94, 100)
-CCn	Continuous current output before automatic shutdown n% of max (where n can equal 3, 7, 10, 14, 17, 21, 24, 27, 30, 34, 37, 41, 44, 47, 50)

Feedback Cables

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) Cables

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

Control Cables

BAC2-3	Amplifier cable, BL amplifier to control for brushless series motors, 3 ft
BAC6-3	Amplifier cable, BL amplifier to control for DC brush series motors, 3 ft

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