

# BLDC Motors & Drives



- High performance, low cost, brushless speed control systems
- 30 to 105 watts continuous shaft output
- Operates from 12 to 48V DC power supply
- Driver can supply up to 6.25A continuous, 12.5A peak
- Excellent speed stability
- Eight digital inputs for commanding a variety of functions
- Two digital outputs for interfacing to other equipment
- Two on board potentiometers plus 12 bit analog input for setting speed, acceleration, deceleration

For more information visit: [www.applied-motion.com/BLDC](http://www.applied-motion.com/BLDC)

# BD5 Drive



- High performance, low cost speed control drive
- Operates from 12 to 48V DC power supply
- Output current: up to 6.25Arms continuous, 12.5A peak
- Eight digital inputs for commanding a variety of functions
- Two digital outputs for interfacing to other equipment
- Two on board potentiometers plus 12 bit analog input for setting speed, acceleration, deceleration



For more information go to [www.applied-motion.com/BLDC](http://www.applied-motion.com/BLDC)

## IO Connections



# BD5 Dimensions



# Brushless Drive Technical Specifications

## POWER AMPLIFIER:

AMPLIFIER TYPE	Triple half bridge, 4 quadrant
CURRENT CONTROL	4 state PWM at 10 kHz
OUTPUT CURRENT	BD5-G1-AH: 1.75Arms cont, 3.5Arms peak (5 seconds max) BD5-G2-AH: 3.6Arms cont, 7.2Arms peak (5 seconds max) BD5-G3-AH: 6.25Arms cont, 12.5Arms peak (5 seconds max)
POWER SUPPLY	External 12 - 48 VDC power supply required Under-voltage alarm: 8.5 VDC Over-voltage shutdown: 62 VDC

## CONTROLLER:

MODE OF OPERATION	Velocity control. Speed can be selected by digital input from on-board potentiometer, external analog signal, or 7 preset speeds. Accel/decel rate set by on-board potentiometer
DIGITAL INPUTS	Eight inputs, 5-24 VDC, bidirectional (can be driven by sinking or sourcing signals) 2 kHz max freq response. Common terminal (INCOM) can be connected to an external power supply (5 to 24 VDC), or internally connected to 5V or GND (selected by internal DIP switches) CW/CCW: selects direction of motor shaft rotation STP: commands motor to stop quickly using electromagnetic braking EN/RE: removes power from motor windings M0,M1,M2: selects one of seven preset speeds STMD: selects which mode of stopping is used SPST: selects whether speed is set by on-board pot or external analog signal
DIGITAL OUTPUTS	30 VDC max, 80 mA max, open collector, open emitter. FLT is a dedicated fault output. SPO is a dedicated tachometer output (30 pulses per revolution). Both outputs can be reconfigured at the factory for qualified OEM applications.
ANALOG INPUT	AIN referenced to GND, Range = 0 to 5 VDC, Resolution = 12 bits, 5v = 4500 rpm.
COMMUNICATION INTERFACE	RS-232 (for factory configuration only)

## APPROVALS:

AGENCY APPROVALS	RoHS CE PENDING
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## PHYSICAL:

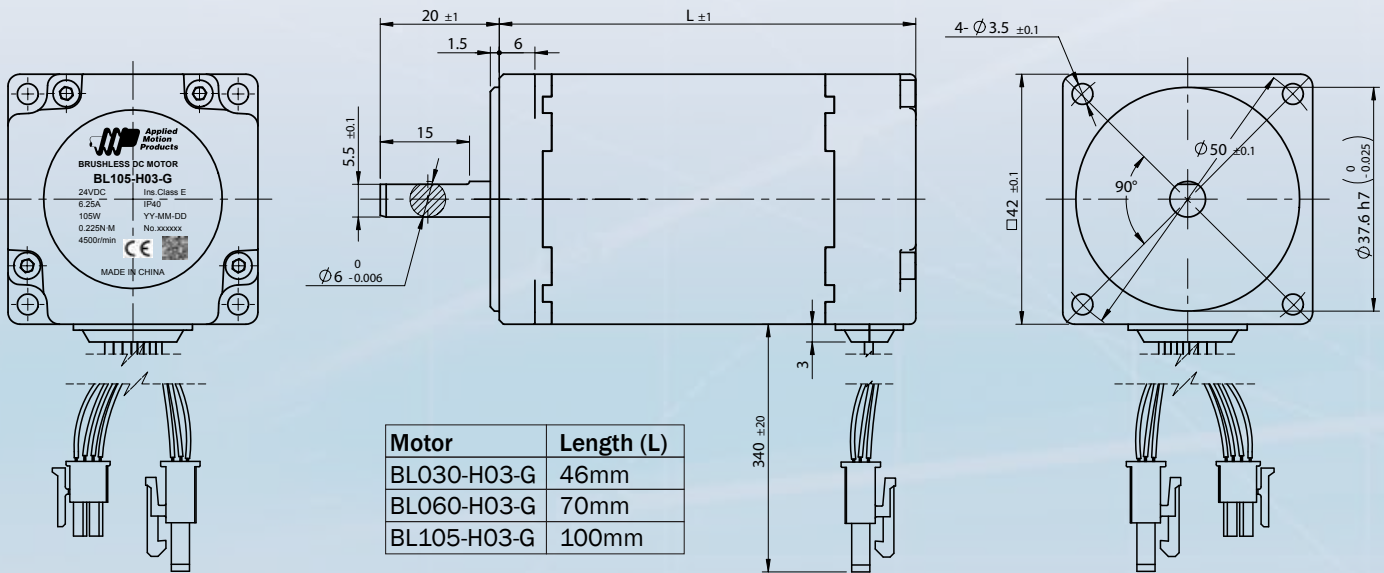
OPERATING TEMPERATURE	0 to 100 °C (32 to 212 °F) Internal temperature of the electronics section
AMBIENT TEMPERATURE	0 to 40 °C (32 to 104 °F) When mounted to a suitable heatsink
HUMIDITY	90% max, non-condensing
MASS	6.0 oz (170 g)



## Motor Specifications

PART #	POWER	RELATED VOLTAGE	RATED CURRENT		RATED TORQUE		KE	ROTOR INERTIA	MASS
	W cont.	VDC	A cont.	A peak	N-M cont.	N-M peak	V/krpm	g-cm <sup>2</sup>	g
BL030-H03-G	30	24	1.75	3.5	0.065	0.13	3.65	38.8	320
BL060-H03-G	60	24	3.6	7.2	0.13	0.26	2.7	72	550
BL105-H03-G	105	24	6.25	12.5	0.225	0.45	2.65	114	830

## Motor Dimensions



## BLDC Drive Part Numbering System

# BD5-G1-AH

**Series**  
BLDC Series

**Output Current**  
5 = 5 A rms cont  
10 = 10 A rms cont

**Motor Frame Size**  
G = 42 mm

**Feedback**  
H = Hall devices

**Communication**  
A = RS-232 (for factory configuration only)

**Motor Winding**  
1 = 30 W, 24 V  
2 = 60 W, 24 V  
3 = 105 W, 24 V

### Order this BD5 model...

1. BD5-G1-AH
2. BD5-G2-AH
3. BD5-G3-AH

### For use with this BL motor...

1. BL030-H03-G
2. BL060-H03-G
3. BL105-H03-G

## BLDC Motor Part Numbering System

# BL000-000-0

**Series**  
BL = Brushless DC Motor

**Wattage Rating**  
030 = 30 watts  
060 = 60 watts  
105 = 105 watts

**Feedback**  
H = Hall devices only

**Frame Size**  
G = 42mm

**Voltage**  
3 = 24 VDC

**RESERVED**

### Standard Part Numbers:

BL030-H03-G  
BL060-H03-G  
BL105-H03-G



## Accessories

### Power Supplies

Applied Motion offers the following DC power supplies for use with the brushless DC drives and motors.

PS50A24: 50 Watts at 24 VDC, recommended for BL030-H03-G motor.

PS150A24: 150 Watts at 24 VDC, recommended for BL060-H03-G motor.

PS320A48: 320 Watts at 48 VDC, recommended for BL105-H03-G motor.



### RC-050 Regeneration Clamp

The RC-050 regeneration clamp is for use where regeneration from the motor may be excessive for the power supply. In these cases the RC-050 is connected between the drive and power supply and absorbs regenerated energy.

### Extension Cable

For applications where motors and drives are separated by more than 30cm (1 foot)

3004-272-1M 1 METER  
3004-272-3M 3 METERS



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