# *Silencer*® **Series**
# **Brushless Controllers**

## TYPICAL APPLICATIONS

Control of Brushless Motors for:
- Medical pumps and blowers
- Air-handling equipment
- Packaging and printing products
- Semiconductor handling and insertion machines
- Industrial automation equipment
- Office automation and equipment

## FEATURES

- 2-quadrant speed controllers for electronically commutating three-phase brushless motors with Hall sensors, which are arranged offset at 120 electrical degrees
- Speed of the motor is preset by means of either an internal or an external potentiometer
- Maximum constant current can be adjusted via an on-board potentiometer
- Direction of rotation of the motor can be preset by means of the direction control input. The controller output stage can be activated and deactivated by means of the disable control input
- Controller is safeguarded against heat overload by means of an internal thermal cutoff
- Controller output stage has been constructed using POWER-MOSFET technology, resulting in very high efficiency

## BENEFITS

- Compact packaging minimizes space demands
- Matched drives and motors from a single supplier
- Complete system testing provides high reliability
- Terminal block connections for ease of wiring
- Multiple methods of speed control
    - Input voltage
    - Internal potentiometer
    - External potentiometer
    - External voltage reference

*Drive Electronics*

## *BDP-Q2-50-10*
## *2-quadrant speed controller for brushless motors*



Silencer® brushless controllers are available in a variety of voltage and current ratings. Their compact packaging minimizes space demands. All controllers have generous terminal blocks to facilitate ease of wiring.

Silencer drives are compatible with Silencer Series Brushless DC Motors. Silencer motors are available in sizes 12, 17, 23, 28, 34 and 42 in standard frames with 1.2 to 4.15 inch diameters. They offer speeds up to 20,000 rpm and continuous torques ranging from 1.2 to 519 oz-in. Standard options include gearheads, resolvers and encoders.
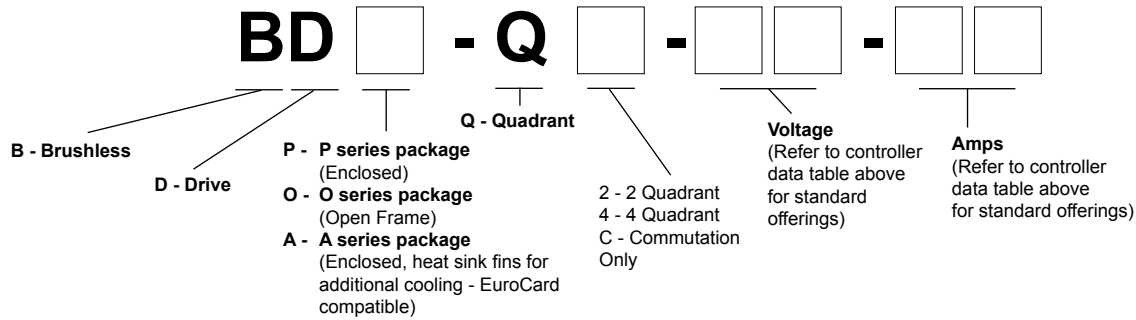
If you have questions about Silencer drives or would like to speak to an applications engineer, please call us or visit our web site.

## SPECIFICATION AND NUMBERING SYSTEM
### Part Numbering System Guide

**BD** ☐ **- Q** ☐ **-** ☐☐ **-** ☐☐

**B - Brushless**

**D - Drive**

**P - P series package**
(Enclosed)
**O - O series package**
(Open Frame)
**A - A series package**
(Enclosed, heat sink fins for additional cooling - EuroCard compatible)

**Q - Quadrant**

2 - 2 Quadrant
4 - 4 Quadrant
C - Commutation Only

**Voltage**
(Refer to controller data table above for standard offerings)

**Amps**
(Refer to controller data table above for standard offerings)

| Electrical Data | |
|---|---|
| Operating voltage -+input and Gnd Residual voltage < 5 % | 20 - 50 VDC |
| Maximum constant current (adjustable)* | 10 A |
| Supply voltage for Hall sensors | 6 V / 20 mA |

*At higher input voltages, additional heat-sinking may be required for maximum current.*

| Mechanical Data | |
|---|---|
| Weight | 4.93 oz / 140 gm |
| Dimensions - (L x W x H) - 2.17 x 3.70 x 1.54 in (55 x 94 x 39 mm) | |
| Mounting - 4 x M3 with a distance between holes of 1.54 x 3.43 in (39 x 87 mm) | |
| Drill Diameter - 4.0 mm - (4) places | |

| Termination Table | | |
|---|---|---|
| Terminal # | Nomenclature | Description |
| 1 | GND | Gnd for Supply Voltage |
| 2 | Positive Input | Positive Supply Voltage |
| 3 | Phase A | Motor Phase A |
| 4 | Phase C | Motor Phase C |
| 5 | Phase B | Motor Phase B |
| 6 | S3 | Hall Switch #3 |
| 7 | S2 | Hall Switch #2 |
| 8 | S1 | Hall Switch #1 |
| 9 | VCC | Supply for Hall Switches |
| 10 | GND | Gnd for Hall Switches |
| 11 | DIS | Control Input - Disable |
| 12 | REV | Control Input - Reverse |
| 13 | GND | Gnd for Dis and Rev |
| 14 | SPD | Set value input for speed |

**Inputs**
- Direction of rotation – (REV) open collector / TTL / CMOS / switch
- Disable output stage – (DIS) open collector / TTL / CMOS / switch

**Moisture Range**
20 to 80% non-condensed

**Temperature Range**
Storage       -40 to +85°C
Operation    -10 to +45°C

### Outline Drawing - Three Views



*Dimensions are in inches*