

## BRUSH-TYPE SERVO AMPLIFIERS **MDC - MDCX** **S E R I E S**



### Design Features and Performance Benefits

The MDC and MDCX Series Brush-type Servo Amplifiers are MOSFET pulse-width-modulated (PWM) switching amplifiers. The amplifiers provide four quadrant control in *torque*, *velocity*, and *voltage* modes. Directional limit inputs allow use in stand alone applications. The MDCX features complete isolation of the user interface from the power stage, allowing transformer-less operation with 120 VAC. Choose the lower cost MDC drive when using isolated DC power supplies with bus voltages of 21 to 180 VDC.

The MDC and MDCX series of servo amplifiers are protected

against over current, over temperature, and shorted outputs. Easy to read LED indicators show fault conditions. The MDC and MDCX Series Servo Amplifiers use convenient plug-gable screw connectors for power supply input, motor output and auxiliary inputs, and a DB9 or pluggable screw connector on the command input.

Loop gain and tachometer scaling are adjusted with potentiometers. Peak and continuous currents are selected by plug-gable resistors.

Both the MDC and MDCX Series Servo Amplifiers are available in board level and housed versions. The MDCX is also available with an integral power supply, in-rush

**MDC-MDCX Series  
Brush-type Servo  
Amplifiers offer  
cost-effective, high  
performance motion  
control in a compact  
package**

- 21 to 180 VDC Supply Voltage
- 24 A Peak/12 A Continuous
- Small Size/ Low Cost
- Fully Isolated Design (MDCX model)
- Four Quadrant, Regenerative Operation
- 40 kHz Switching Frequency
- On board +5 VDC Supply for Encoder
- Convenient 120 VAC Single Supply Operation
- Fully Protected (Voltage, Current, Temperature)
- Easy to Read LED Fault Indicators
- OEM and End-User Packaging
- High Efficiency (> 90 %)

# BRUSH-TYPE SERVO AMPLIFIERS

## MDC - MDCX

### S E R I E S

# Motion Science™

### Specifications

Supply Voltage  
Supply Voltage (HP, AC Input Models)  
Continuous Current  
Peak Current  
Switching (PWM) Frequency  
Current Loop Bandwidth  
Max. Command Voltage  
Max. Motor Voltage

Min. Motor Inductance  
Min. Electrical Time Constant (L/R)  
Tachometer Input Format  
Max. Tachometer Voltage  
Weight (Board Level)

### MDC50

21-80 VDC  
  
12 Amps  
24 Amps  
20 kHz  
2.0 kHz  
+/- 10 Volts  
92 % of DC Supply  
Voltage  
0.5 mH  
0.25 ms  
Single Ended  
+/- 50 Volts  
1.5 lbs.

### MDC160

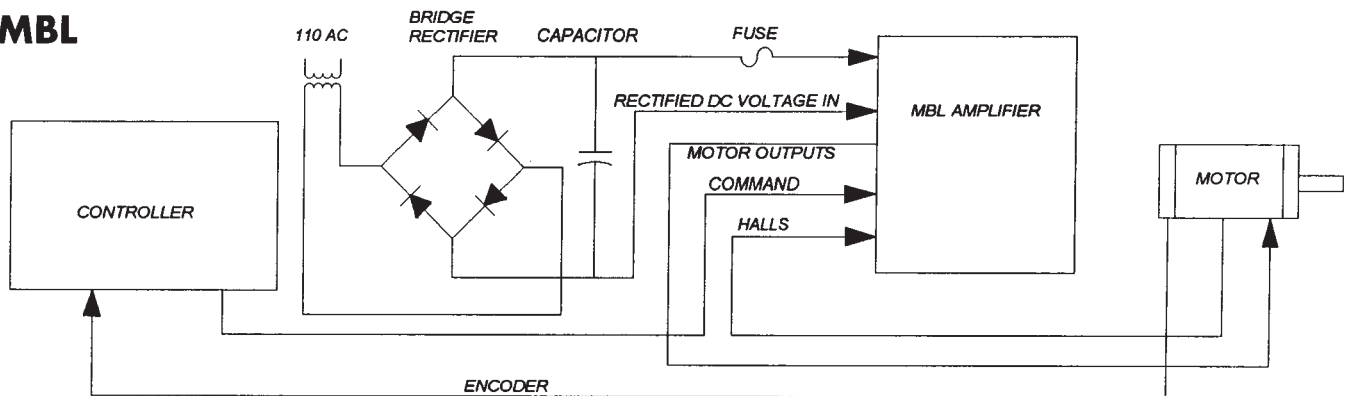
40-180 VDC  
  
12 Amps  
24 Amps  
20 kHz  
2.0 kHz  
+/- 10 Volts  
92 % of DC Supply  
Voltage  
1 mH  
0.25 ms  
Single Ended  
+/- 50 Volts  
1.5 lbs.

### MDCX

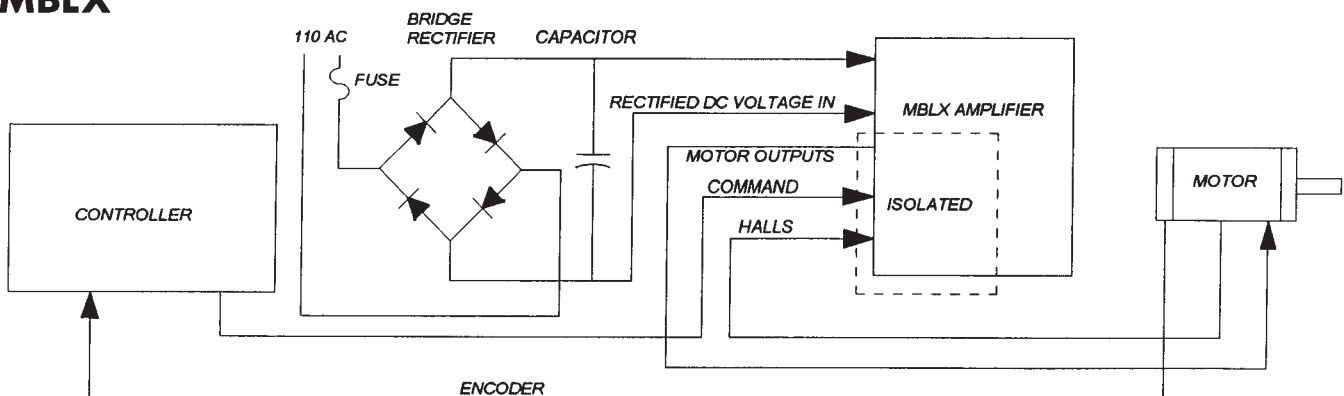
100-180 VDC  
70-130 VAC  
12 Amps  
24 Amps  
20 kHz\*  
2.0 kHz  
+/- 10 Volts  
92 % of DC Supply  
Voltage  
1 mH  
0.25 ms  
Single Ended  
+/- 50 Volts  
1.5 lbs.

\* For higher frequency operation call factory

### MBL



### MBLX



### Ordering Info

Amplifier Model No.	Output for Each Axis		
	Output Voltage Range	Contin. Current	Peak Current
MDC5012**	21 - 80 VDC	6 Amps	12 Amps Max.
MDC5024**	21 - 80 VDC	12 Amps	24 Amps Max.
MDC16012**	40 - 180 VDC	6 Amps	12 Amps Max.
MDC16024**	40 - 180 VDC	12 Amps	24 Amps Max.
MDCX16012**	100 - 180 VDC	6 Amps	12 Amps Max.
MDCX16024**	100 - 180 VDC	12 Amps	24 Amps Max.

**Note:** Continuous and peak currents are adjustable. For specific customer requirements please contact the factory.

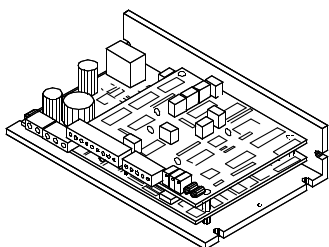
### \*\*Specify

- .....Leave blank for board level. (No sheet metal enclosure).
- H**.....After model # for amplifier with sheet metal enclosure.
- HP**.....(MDCX only) After model # for housed version with power supply & shunt regulator.
- 01**.....Add to model #/suffix for command input terminal block option.

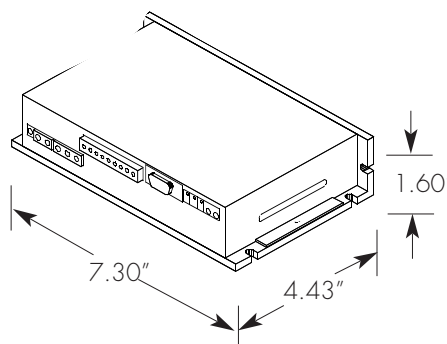
### Order Example:

- MDC16024**.....(Amplifier only. No sheet metal enclosure or power supply).
- MDC16024H-01**.....(Amplifier housed with a sheet metal enclosure and terminal block option).
- MDCX16024**.....(Amplifier only. No sheet metal enclosure or power supply).
- MDCX16024H-01**.....(Amplifier housed with a sheet metal enclosure and terminal block option).
- MDCX16024H**.....(Amplifier housed with a sheet metal enclosure).
- MDCX16024HP**.....(Amplifier housed with power supply and shunt regulation).

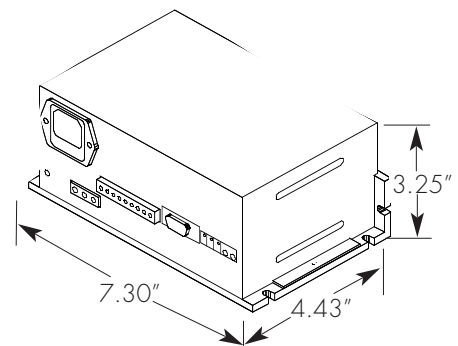
**Board Level**



**H version**



**HP version**

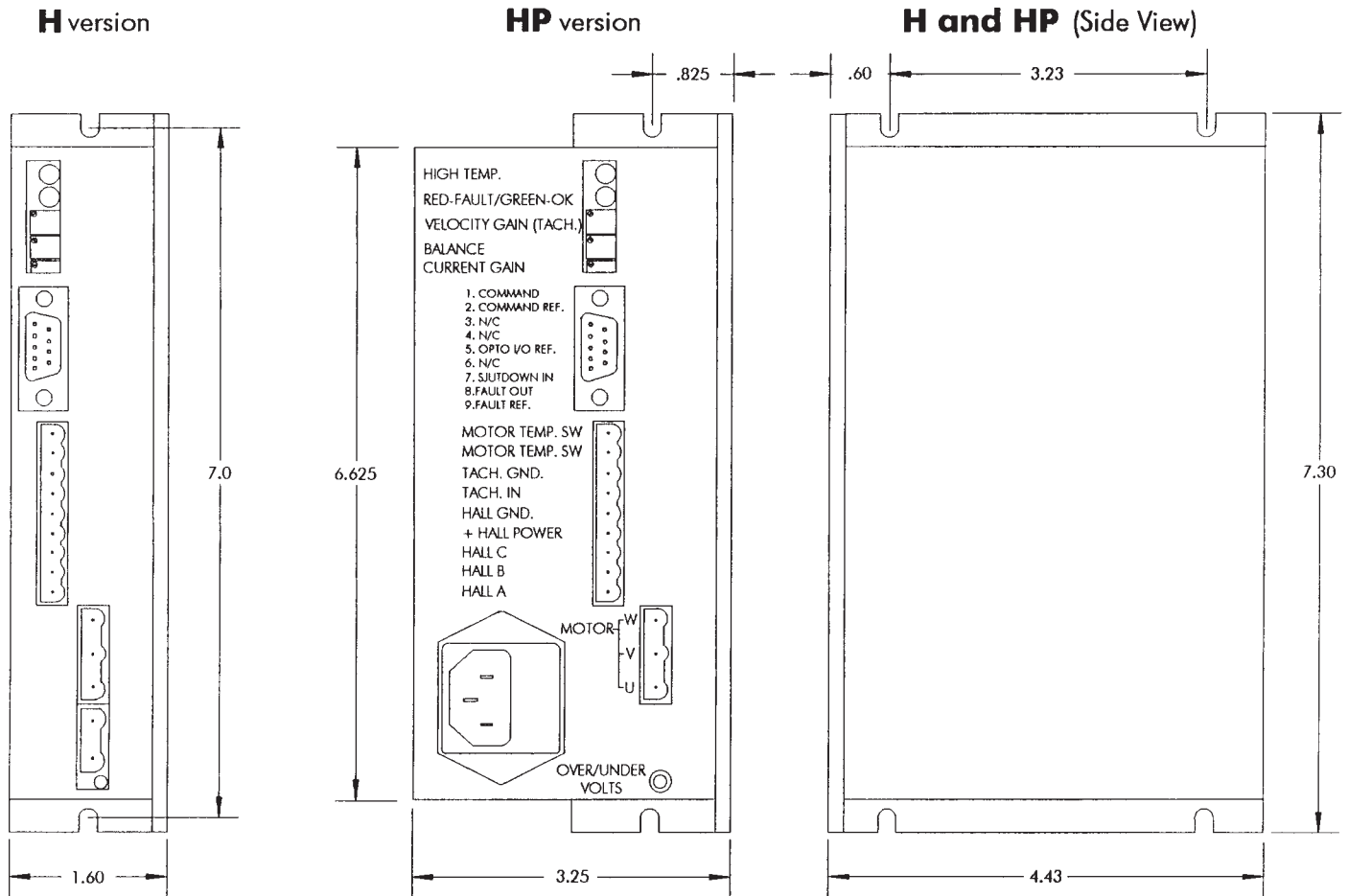


# BRUSH-TYPE SERVO AMPLIFIERS

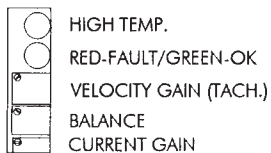
## MDC - MDCX

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#### Adjustments



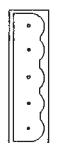
#### Command Inputs

##### DB9 Connector (standard)



1. COMMAND
2. COMMAND REF.
3. N/C
4. N/C
5. OPTO I/O REF.
6. N/C
7. SHUTDOWN IN
8. FAULT OUT
9. FAULT REF.

##### Terminal Block (option -01)

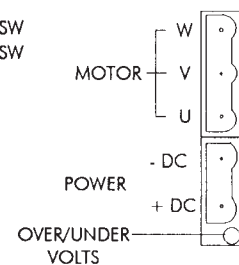


- OPTO I/O REF.
- FAULT OUT
- SHUTDOWN IN
- COMMAND REF.
- COMMAND

#### Motor Feedback

9. MOTOR TEMP. SW
8. MOTOR TEMP. SW
7. TACH. GND.
6. TACH. IN
5. HALL GND.
4. + HALL POWER
3. HALL C
2. HALL B
1. HALL A

#### Motor Power



Each MDC and MDCX Amplifier is supplied with mating Phoenix™ screw connectors