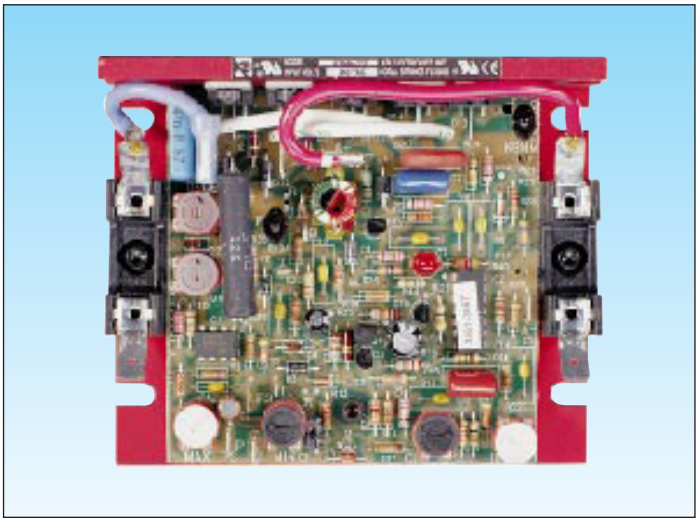
KBMM™

Variable Speed DC Motor Controls For Shunt Wound and PM Motors

1/100 – 1½ Hp @ 115 VAC – 50/60 Hz▲
1/50 – 3 Hp @ 230 VAC – 50/60 Hz▲
Short Circuit Proof [2] – 5 Year Warranty [4]
Patented Overload Circuit

TYPICAL APPLICATIONS

- Conveyors • Packaging Machines • Feeders
- Exercise Equipment • Pumps
- Screening and Printing Equipment



STANDARD FEATURES

- Plug-in Horsepower Resistor®[3] – Allows a single model to be used on a wide range of motors
- Tachometer or Armature Feedback
- Trimpots: MIN, MAX, IR, CL, ACCEL, DECEL
- Built-in Armature and Line Fuses[3]
- Auto Inhibit®, Inhibit™ and Enable
- MOV Transient Protection
- CL LED Indicator

OPTIONAL FEATURES

- Auxiliary Heatsink (P/N 9861)
- Barrier Terminal Accessory Kit (P/N 9883)
- Dial Plate and Knob Kit (P/N 9832)

SPECIFICATIONS

Speed Range (Ratio)	50:1
Load Regulation – Armature Feedback (0 – Full Load, 50:1 Speed Range) (% Base Speed)	1*
Load Regulation – Tachometer Feedback (0 – Full Load, 50:1 Speed Range) (% Set Speed)	1*
Line Voltage Regulation – Armature Feedback (at Full Load, ± 10% Line Variation) (% Base Speed)	1/2*
Line Voltage Regulation – Tachometer Feedback (at Full Load, ± 10% Line Variation) (% Set Speed)	1/2*
Control Linearity (% Speed vs. Dial Rotation)	2
CL/Torque Range (% Full Load)	0 – 200
ACCEL-DECEL Time Range (0 – Full Speed) (Secs.)	.2 – 10
MIN Speed Trimpot Range (% Full Speed)	0 – 30*
MAX Speed Trimpot Range (% Full Speed)	50 – 120*
IR Compensation Trimpot Range (at Specified Full Load) (Volts)	0 – 24
Maximum Allowable Ambient Temperature (at Full Rating) (°C/°F)	45/113
Tach Feedback Input Volts (Per 1000 RPM) (VDC)	7/50

▲ Rating indicated is with Auxiliary Heatsink. For maximum rating without Auxiliary Heatsink see Electrical Rating Chart. AC Line Voltage is ± 15% – 50/60 Hz.
* Performance is for 90V PM motors on 115 VAC and 180V PM motors on 230 VAC.

* CE Compliance Requires KBRF-200A RFI Filter

DESCRIPTION

The KBMM™[1] full-wave, variable speed, DC motor control offers the user the ultimate in reliability and performance at an affordable price. The control contains a unique, superfast, Direct-Fed™ current limit circuit that helps to protect the SCR power bridge against direct shorts[2]. The reliability of the KBMM™ is further enhanced with the use of high-surge, 25A SCR's and line and armature fusing[3]. The KBMM™ is fitted with KB's exclusive Plug-in Horsepower Resistor®[3]. It eliminates the need for recalibrating IR Comp and Current Limit when the control is used on various horsepower motors. In addition, the rating of the control can be extended to 1½ Hp at 115V and 3 Hp at 230V by the use of KB's auxiliary heatsink.

The versatility of the KBMM™ is confirmed by its extensive list of standard features, such as: selectable armature or tach feedback and adjustment trimpots for min speed, max speed, IR comp, CL and linear Accel and Decel. The circuitry of the KBMM™ includes Auto Inhibit®, which eliminates surging during rapid AC line switching; pulse transformer triggering, which provides cogless operation at low speed under no-load conditions; and superior noise rejection circuitry, which eliminates false starts and blown SCR's.

The output voltage of the control is a linear function of potentiometer rotation. In addition, the control can be used in a voltage following mode by supplying an *isolated* analog input signal to terminal P2+ and F-. The KBMM™ is compact in size (only 4.3" x 3.64" x 1.25") and easily replaces all competitive speed controls. The control is supplied with a 5K remote potentiometer and full operating instructions.

NOTES: [1]Patented; [2]Short circuit protected at motor only; [3]Fuses and Plug-in Horsepower Resistor® supplied separately; [4]See Limited Warranty for KBMM-125, 225.

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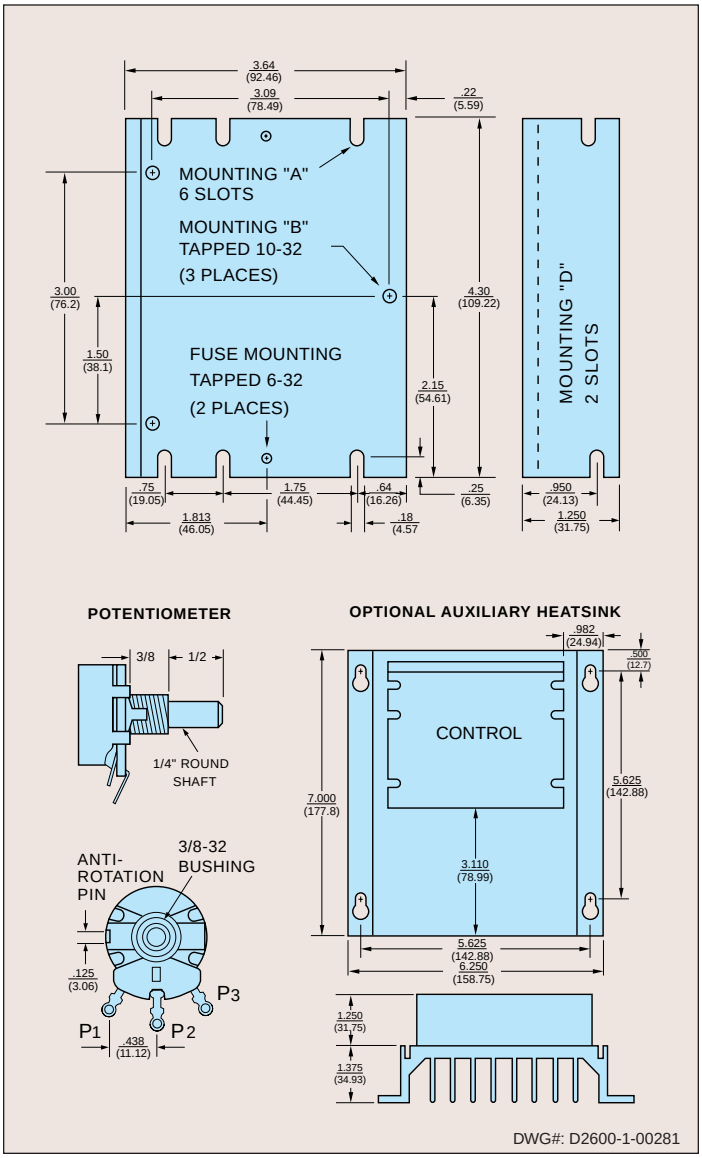
ELECTRICAL RATINGS

Model Number	KB Part Number	AC Line Voltage (VAC) ±15% 50/60 Hz	Motor Voltage (VDC)	Rating Without Auxiliary Heatsink			Rating With Auxiliary Heatsink			Field Voltage (Shunt Wound Motor Only) (VDC)
				Max AC Load Current (RMS Amps)	Max DC Load Current (Avg. Amps)	Maximum Horsepower [Hp, (KW)]	Max AC Load Current (RMS Amps)	Max DC Load Current (Avg. Amps)	Maximum Horsepower [Hp, (KW)]	
KBMM-125	9449	115	0 - 90	12.0	8.0	0.75, (0.6)	24.0	16.0	1.5, (1.1)	50, 100
KBMM-225	9450	230	0 - 180	12.0	8.0	1.5, (1.1)	24.0	16.0	3, (2.3)	100, 200
KBMM-225D	9451	115	0 - 90	12.0	8.0	0.75, (0.6)	24.0	16.0	1.5, (1.1)	50, 100
		230	0 - 180			1.5, (1.1)			3, (2.3)	100, 200

MECHANICAL SPECIFICATIONS



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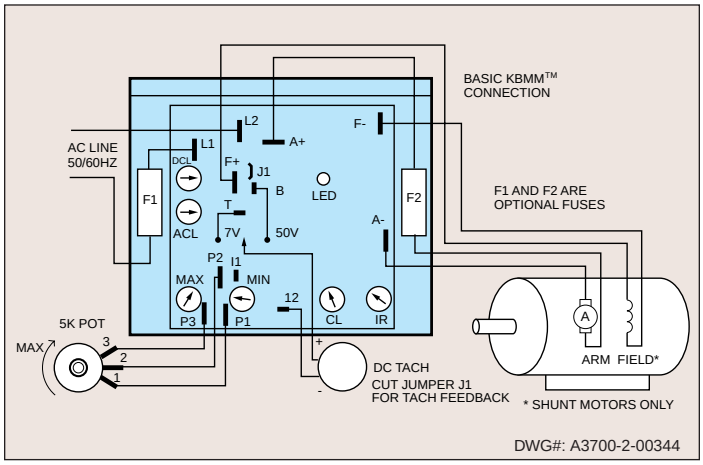
CONNECTION DIAGRAM



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PLUG-IN HORSEPOWER RESISTOR®/FUSE SELECTION CHART

Motor Horsepower Range**		Plug-in-Horsepower Resistor® Resistance Value (ohms)	Recommended Fuse Size (Amps)
Armature Voltage 90 – 130 VDC	Armature Voltage 180 VDC		
1/100 – 1/50	1/50 – 1/25	1.0	1/3
1/50 – 1/30	1/25 – 1/15	.51	1/2
1/30 – 1/20	1/15 – 1/10	.35	3/4
1/20 – 1/12	1/10 – 1/6	.25	1¼
1/12 – 1/8	1/6 – 1/4	.18	2
1/8 – 1/5	1/4 – 1/3	.1	2½
1/4	1/2	.05	4
1/3	3/4	.035	5
1/2	1	.025	8
3/4	1½	.015	12
1*	2*	.01	15
1½*	3*	.006	25

* Use with Auxiliary Heatsink – see Electrical Ratings.
** For overlapping motor horsepower range use lower value Plug-in Horsepower Resistor®.

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