

# KBRG™

## REGENERATIVE DRIVE

FULL WAVE • 4 QUADRANT

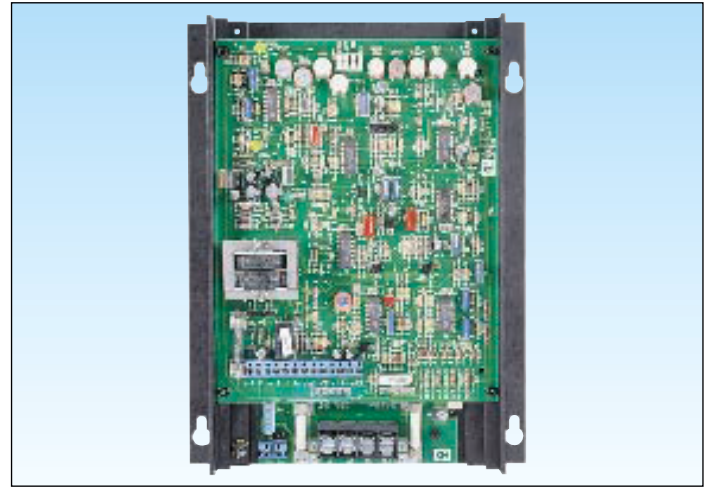
For Speed and Torque Control of  
PM and Shunt DC Motors

KBRG-240D – 1 Hp @ 115 VAC, 2 Hp @ 230 VAC – 50/60 Hz

KBRG-225D – 1½ Hp @ 115 VAC, 3 Hp @ 230 VAC – 50/60 Hz

### TYPICAL APPLICATIONS

- Conveyors • Indexers • Packaging Machinery
- Textile Equipment • Positioners • Feeders
- Converting Machinery • Web Control



### STANDARD FEATURES

- Enable Circuit
- Two (2) or Three (3) Wire Start/Stop
- Overload Shutdown with Timed CL
- External Relay Contacts
- Function Indicator Lamps: Power On, Current Limit, Forward Enable, Reverse Enable
- Protection: Fusing for AC Line, Armature and Control Circuit, MOV Transient Protection, Auto Inhibit®, Rapid Response Current Limit Circuit, Regen Overspeed Protection

### JUMPER SELECTABLE FEATURES

- Control Mode: **Speed** (SPD), Torque (TRQ)
  - AC Line Voltage (VAC 50/60 Hz): 115, **230**
  - DC Armature Voltage (VDC): 90, **180**
  - DC Current Output (ADC): 2.5, 5.0, 7.5, **10**
  - Feedback Type: **Armature**, Tachometer
  - Tachometer Voltage Input (VDC): 7, 20/30, **50**
  - Timed Current Limit: **TCL**, NTCL
  - S/LT Speed Linear Torque
  - NLT Non Linear Torque
- Bold indicates factory setting.

### TRIMPOT ADJUSTMENTS

- Forward Acceleration (FWD ACCEL)
- Reverse Acceleration (REV ACCEL)
- Deadband (DB) • Offset (OFFSET)
- Maximum Speed (MAX SPD)
- Response (RESP)
- IR Compensation (IR COMP)
- Reverse Current Limit (REV CL)
- Forward Current Limit (FWD CL)
- Timed Current Limit (TCL)

### OPTIONAL FEATURES

- Bipolar Signal Isolator, SI-4X (P/N 8801)
- 4-Quad Accel/Decel (P/N 8803)
- Multi-Speed Board (P/N 8814)
- PID Board (P/N 8804)
- NEMA-1 Enclosure for KBRG-225 (P/N 8815)
- Operator Panel for KBRG-225 (P/N 8816)

\* CE Compliance Requires KBRF-200A RFI Filter

### DESCRIPTION

The KBRG™ is a full-wave regenerative drive capable of operating DC PM or Shunt motors in a bidirectional mode. Its 4-quadrant operation provides forward and reverse torque in both speed directions. This allows the control to maintain constant speed with overhauling loads and provides rapid instant reversing and controlled braking. Because of its excellent controllability and response time, the KBRG™ can replace servos in many applications. The control is factory set for armature feedback, which provides up to 1% load regulation over a motor base speed of 50:1. However, tachometer feedback is also available if superior regulation is required. By resetting mode jumper J7 to the “TRQ” position, the KBRG™ can be changed from a speed control to a torque control.

The drive contains a variety of “selectable” jumpers and adjustment trimpots to allow for custom tailoring for exact requirements. For example: jumper J6, when placed in the “TCL” position, provides adjustable timed current limit from 1 to 15 seconds. This feature will protect the motor and control by shutting the drive down after the preset time has elapsed.

The KBRG™ can be operated with either a two (2) or three (3) wire start/stop circuit, or can be started from the AC line. A set of dedicated relay contacts are provided which are activated via the start/stop circuit. They can be used to turn on or off corresponding equipment or to sound an alarm if the drive stops.

Another important feature is the array of the LED's, which indicate the mode of operation the drive is in, and also serve as a diagnostic tool. In addition, KB's exclusive Auto Inhibit® circuit provides safe, smooth starting during rapid cycling of the AC line. The Overspeed Protect Circuit prevents failure of the power bridge in extreme overhauling conditions.

Reliability of the KBRG™ is further enhanced with the use of a high speed current limit circuit along with armature, AC line and control circuit fusing and MOV transient protection. A 5K remote potentiometer and full operating instructions are supplied.

## SPECIFICATIONS

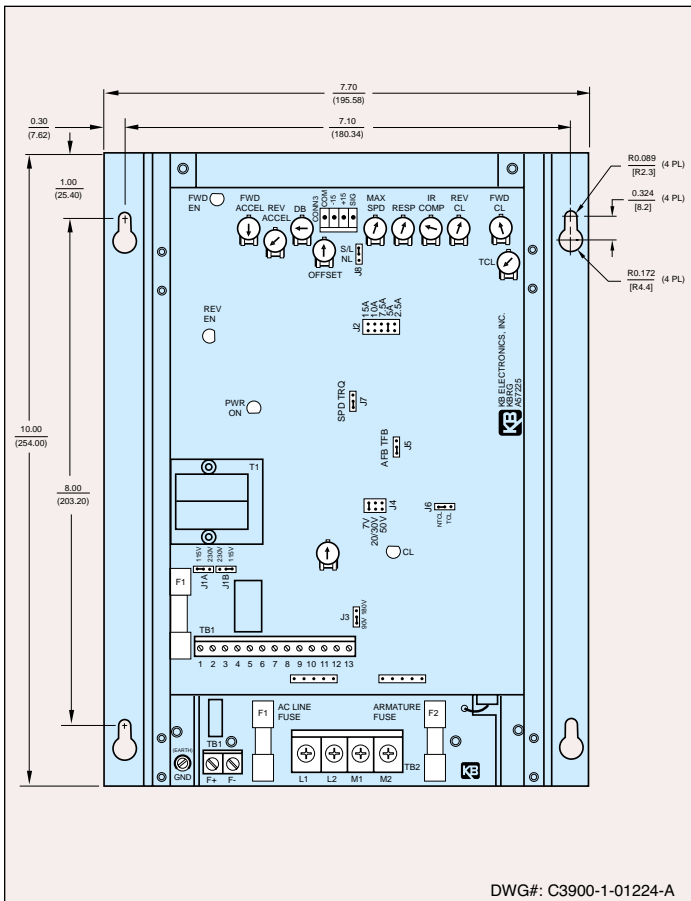
AC Line Input Voltage (VAC $\pm 10\%$ , 50/60 Hz).....	115 or 230	Current Ranges (ADC).....	2.5, 5.0, 7.5, 10, 15 <sup>(2)</sup>
Arm Voltage Range at 115VAC Line (VDC).....	0 – $\pm 90$	FWD and REV Accel Range (Sec.) .....	0.1 – 15
Arm Voltage Range at 230VAC Line (VDC) .....	0 – $\pm 180$ , 0 – $\pm 90$	Dead Band Range (% Base Speed) .....	0 – $\pm 3$
Field Voltage at 115VAC Line (VDC) .....	100/50	Offset Range (% Base Speed) .....	0 – $\pm 5$
Field Voltage at 230VAC Line (VAC) .....	200/100	Max Speed Trimpot Range (% Base Speed).....	70 – 110
Max Load Capacity (% for 1 minute) .....	150	IR Comp Range at 115VAC Line (VDC) .....	0 – 15
Ambient Temperature Range (°C) .....	0 – 55 <sup>(1)</sup>	IR Comp Range at 230VAC Line (VDC) .....	0 – 30
Speed Range (Ratio) .....	50:1	FWD and REV CL Range (% Range Setting) .....	0 – 150
Arm Feedback Load Regulation (% Base Speed).....	$\pm 1$	Timed CL Range (Sec.) .....	1 – 15
Tach Feedback Load Regulation (% Set Speed).....	$\pm 1$	Voltage Following Input Range (VDC) .....	0 – $\pm 10$
Line Regulation (% Base Speed) .....	$\pm 0.5$	Voltage Following Linearity (% Base Speed) .....	$\pm 0.5$

**NOTES:** (1) Control mounted in vertical position only. (2) 15A current range on KBRG-225D only.

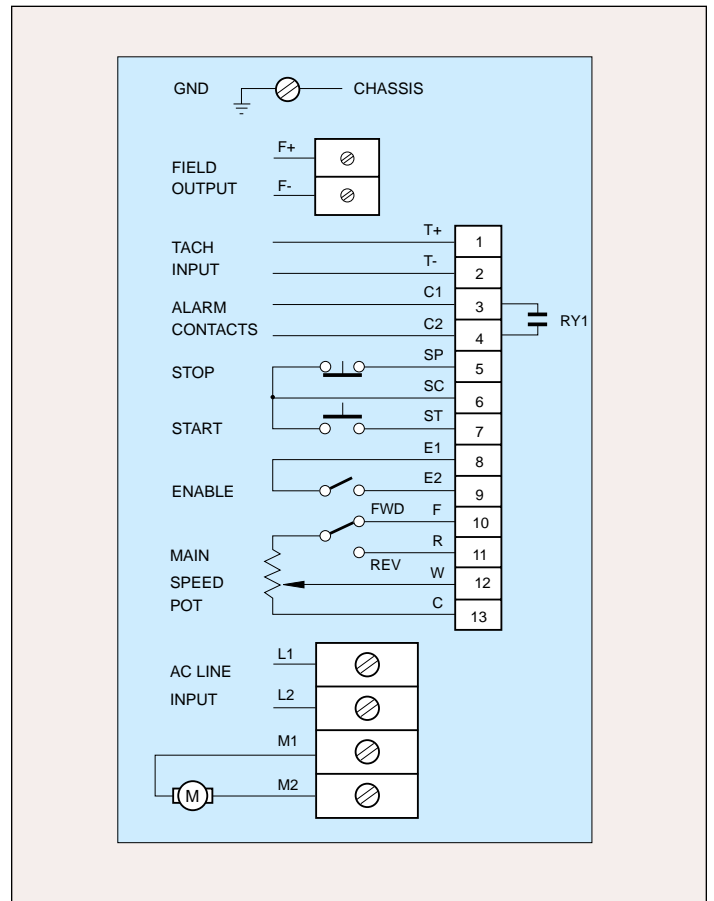
## ELECTRICAL RATINGS

Model Number	KB Part Number	AC Line Voltage (VAC $\pm 10\%$ 50/60 Hz)	Motor Voltage (VDC)	Max. AC Load Current (RMS Amps)	Max. DC Load Current (DC Amps)	Maximum Horsepower Hp, (KW)	
						115 VAC	230 VAC
KBRG-240D	8802	115/230	0 – $\pm 90/180$	16	11	1, (.75)	2, (1.5)
KBRG-225D	8800	115/230	0 – $\pm 90/180$	24	16	1.5, (1.1)	3, (2.25)

## MECHANICAL SPECIFICATIONS INCHES [mm]



## CONNECTION DIAGRAM



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**KB ELECTRONICS, INC.**  
 12095 NW 39th Street, Coral Springs, FL 33065-2516  
 (954) 346-4900 • FAX (954) 346-3377  
 Outside Florida Call TOLL FREE (800) 221-6570  
 www.kbelectronics.com