

# 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
Arm Voltage Range at 115VAC Line (VDC).....	0 – $\pm 90$
Arm Voltage Range at 230VAC Line (VDC) .....	0 – $\pm 180$ , 0 – $\pm 90$
Field Voltage at 115VAC Line (VDC) .....	100/50
Field Voltage at 230VAC Line (VAC) .....	200/100
Max Load Capacity (% for 1 minute) .....	150
Ambient Temperature Range (°C) .....	0 – 55 <sup>(1)</sup>
Speed Range (Ratio) .....	50:1
Arm Feedback Load Regulation (% Base Speed).....	$\pm 1$
Tach Feedback Load Regulation (% Set Speed).....	$\pm 1$
Line Regulation (% Base Speed) .....	$\pm 0.5$

Current Ranges (ADC) .....	2.5, 5.0, 7.5, 10, 15 <sup>(2)</sup>
FWD and REV Accel Range (Sec.) .....	0.1 – 15
Dead Band Range (% Base Speed) .....	0 – $\pm 3$
Offset Range (% Base Speed) .....	0 – $\pm 5$
Max Speed Trimpot Range (% Base Speed).....	70 – 110
IR Comp Range at 115VAC Line (VDC) .....	0 – 15
IR Comp Range at 230VAC Line (VDC) .....	0 – 30
FWD and REV CL Range (% Range Setting) .....	0 – 150
Timed CL Range (Sec.) .....	1 – 15
Voltage Following Input Range (VDC) .....	0 – $\pm 10$
Voltage Following Linearity (% Base Speed) .....	$\pm 0.5$

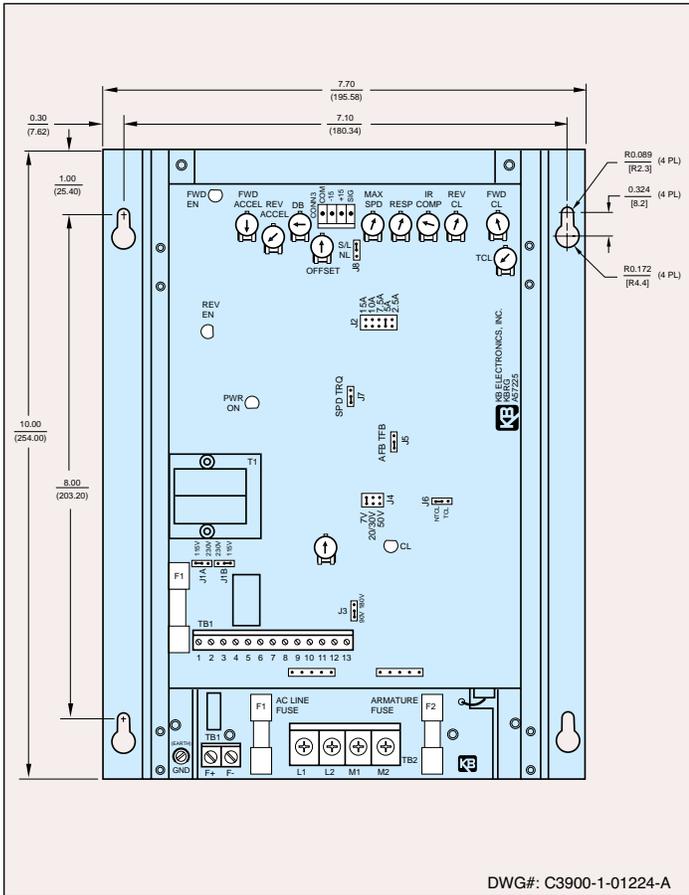
**NOTES:** (1) Control mounted in vertical position only. (2) 15A current range on KBRG-225D only.

## ELECTRICAL RATINGS

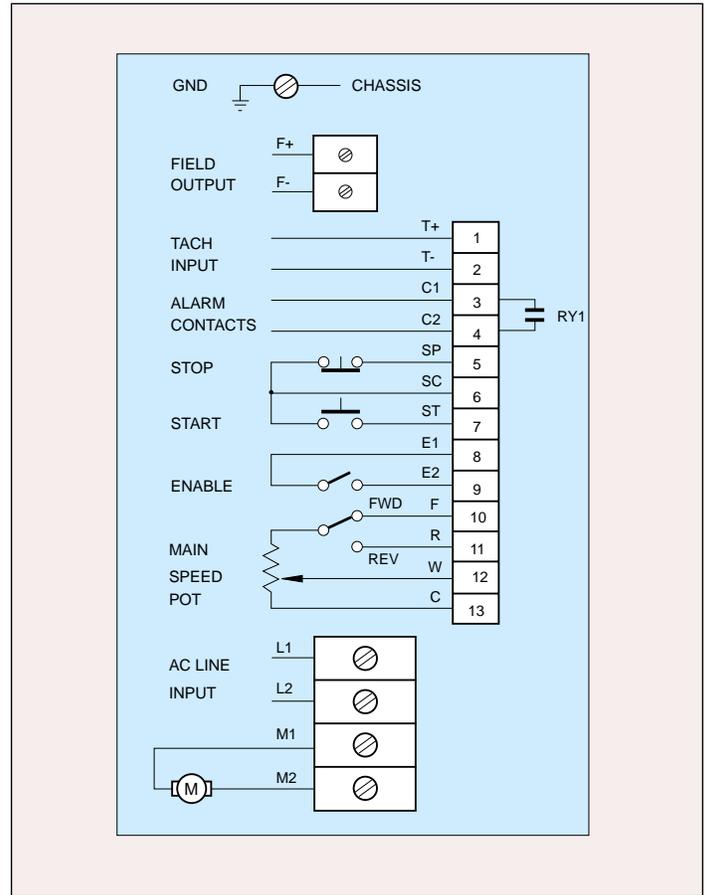
Model Number	KB Part Number	AC Line Voltage (VAC) $\pm 10\%$ 50/60 Hz	Motor Voltage (VDC)	Max. AC Load Current (RMS Amps)	Max. DC Load Current (DC Amps)	Maximum Horsepower Hp, (KW)	
						115 VAC	230 VAC
KBRG-240D	8802	115/230	0 – $\pm 90/180$	16	11	1, (.75)	2, (1.5)
KBRG-225D	8800	115/230	0 – $\pm 90/180$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

## MECHANICAL SPECIFICATIONS

INCHES  
[mm]



## CONNECTION DIAGRAM



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