

# KBWD-15

## PULSE WIDTH MODULATED (PWM) WHISPER-DRIVE™

DC Motor Speed Control

Specifically designed for 130 VDC PM & 115 VDC shunt motors requiring a 1.0 form factor.

Replaces costly choke and capacitor filtering.

Provides quieter and cooler motor operation and extended brush life.



P/N 8600

### STANDARD FEATURES

- Short Circuit Protection
- Electronic (I x t) Overload Protection
- LED's for "Power On" and "Overload (CL)"
- Under Voltage Protection
- Tachometer/Armature Feedback
- Inhibit
- Barrier Terminal Block
- Plug-in Horsepower Resistor®
- RFI Filtering

### PLUG-IN HORSEPOWER RESISTOR® CHART

Motor Armature Current (Amps DC)	Plug-In Horsepower Resistor® (ohms)	SCR Rated Motor Horsepower	PWM Rated Motor Horsepower
3.3 - 5.0	.1	1/3 - 1/2	1/2 - 3/4
2.5	.18	1/4	1/3
1.3 - 2.0	.25	1/8 - 1/6	1/6 - 1/4
.7 - 1.0	.51	1/15 - 1/10	1/12 - 1/8
.4 - .6	1.0	1/30 - 1/20	1/20 - 1/15
.1 - .3	2.0	1/50 - 1/100	1/30 - 1/50

- (1) For motor current not on chart use next lowest value Plug-in Horsepower Resistor®.  
 (2) Disregard the Horsepower ranges marked on Plug-in Horsepower Resistor® since they are not correct for PWM controls.  
 (3) Plug-in Horsepower Resistor® supplied separately.

### TRIMPOT ADJUSTMENTS

- Minimum Speed (MIN)
- Maximum Speed (MAX)
- Current Limit (CL)
- IR Compensation (IR)
- Acceleration (ACCEL)
- Timed Current Limit (TCL)

### SPECIFICATIONS

Output Voltage Range (VDC)	0 – 130
Speed Range (ratio)	50:1
Operating Frequency (K Hz)	>16
Form Factor (RMS/Avg Amps)	<1.05
Ambient Operating Range Temp.(°C)	0 – 45
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*
Timed CL Range (secs.)	1 – 7

\* CE Compliance Requires KBRF-200 RFI Filter

### DESCRIPTION

The KBWD-15 Pulse Width Modulated (PWM) DC motor speed control provides excellent dynamic response to load variations. The efficient PWM waveform produces an almost pure DC current to the motor (form factor < 1.05) which has several advantages over a conventional SCR control. The PWM significantly lowers audible motor noise and provides longer brush life. It also produces less motor heating which allows a smaller, less costly motor to be used for most applications. Another advantage of PWM is higher output voltage which provides increased output speed. In addition, pulse-by-pulse current sensing provides short circuit protection.

A unique feature of the KBWD-15 control is the Plug-in Horsepower Resistor®. It eliminates the need for recalibrating IR Comp and Current Limit when the control is used on various horsepower motors. The control is factory set for armature feedback which provides excellent load regulation. For applications requiring superior performance, tachometer feedback is also provided. The KBWD-15 contains I x t overload protection which will shut the control down if the motor is overloaded for a predetermined time. Diagnostic LED's for "Power On" and "Overload (CL)" indication are also provided.

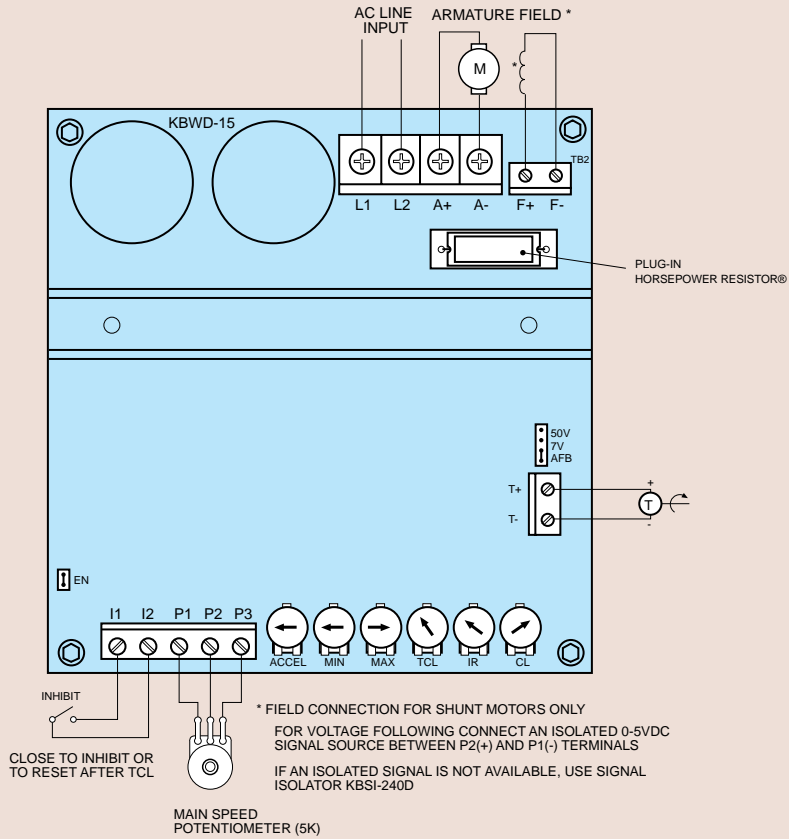
RFI filtering is included as a standard feature. It greatly reduces conducted radio frequency interference, which could affect sensitive equipment. The control contains barrier terminals as standard; however, quick disconnect terminals can be provided as an option. A potentiometer (5K), isolated analog signal (0-5 VDC), or PWM microprocessor output can be used to vary the output of the control.

Acceleration Range (secs.)	0.5 – 15
Min Speed Trimpot Range (VDC)	0 – 40
Max Speed Trimpot Range (VDC)	70 – 130
CL Range (% Range Setting)	0 – 200
IR Comp Range (VDC)	0 – 15
AC Line Voltage Regulation (% base speed)	0.5
Analog Input Voltage (voltage following) (VDC)	0 – 5
Speed Potentiometer – 1/4 Watt (ohms)	5K

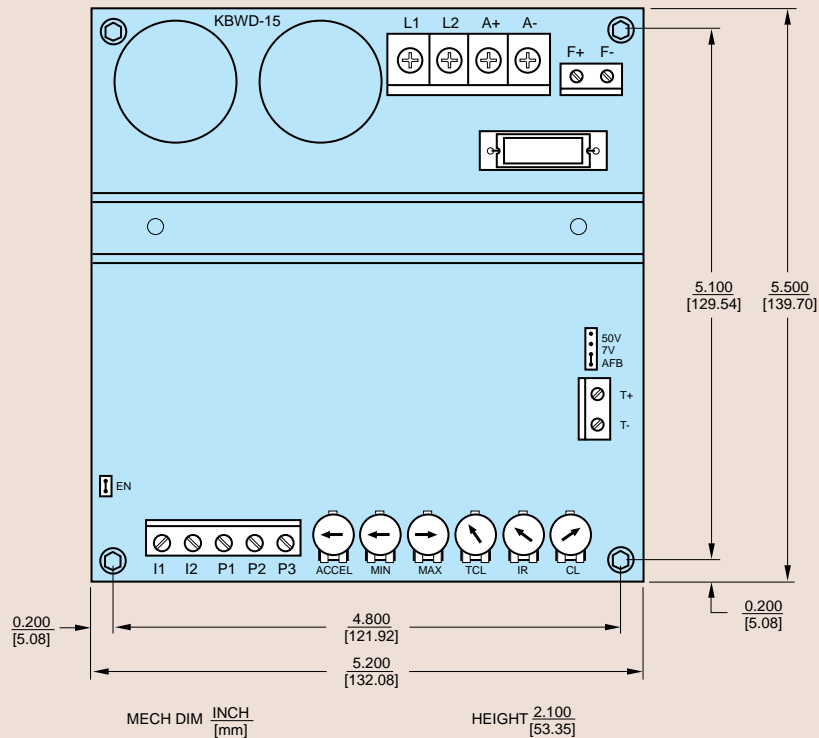
\* Based on motor having linear IR Comp characteristic

## MECHANICAL SPECIFICATIONS

INCHES  
[mm]



## CONNECTION DIAGRAM



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