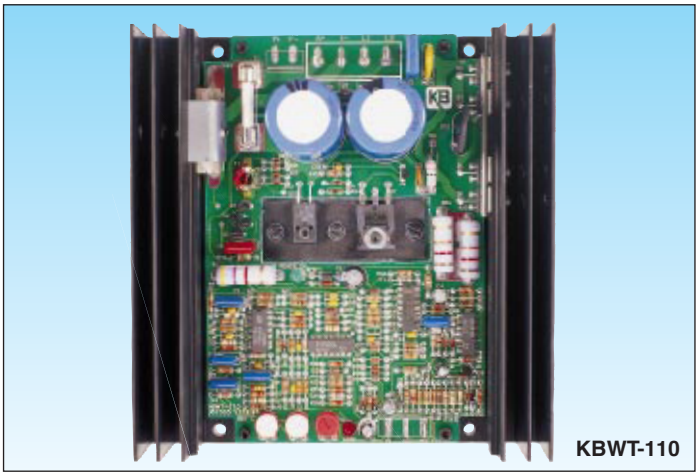


# KBWT – HIGH CURRENT PULSE WIDTH MODULATED (PWM) WHISPER-DRIVE™ DC Motor Speed Control

Specifically Designed For DC Motors  
That Require a 1.0 Form Factor

Provides Quieter and Cooler Motor  
Operation and Extended Brush Life

Replaces Costly Choke & Capacitor Filtering 



## STANDARD FEATURES – All Models

- Short Circuit Protection
- Electronic Motor Burnout Protection (I x t)
- LED's for "Power On" and Overload (OL)
- Active Bridge: Provides controlled AC line inrush current limiting
- Power Transistor Short Circuit Runaway Protection
- Heat-Spreader: Prevents power transistor failure due to overloads
- Under Voltage Protection
- Adjustment Trimpots:  
Minimum Speed (MIN)▲, Maximum Speed (MAX), IR Compensation (IR)▲, Current Limit (CL)▲
- Potentiometer Safety Circuit (optional):  
Prevents startup with the AC line unless speed potentiometer is set to zero
- Armature Fuse (optional)

## SPECIFICATIONS

Speed Range (Ratio) .....	50:1
Operating Frequency (KHz) .....	>16
Form Factor (RMS/Avg Amps) .....	<1.05
Operating Temperature Range (°C) .....	0 – 45
Load Regulation (% Base Speed) .....	1*
Acceleration Range (Secs) (Fixed 0.2, 2.5, 7, 10) .....	2.5
MIN Speed Trimpot Range (% Full Speed) .....	0 – 30
MAX Speed Trimpot Range (% Full Speed) .....	50 – 100
CL Range (% Range Setting) .....	0 – 200
Motor Overload Protection Time (Secs, Fixed 3,5,10) .....	3
IR COMP Range (ΔVDC).....	0 – 15
AC Line Voltage Regulation (% Base Speed).....	0.5
Analog Input Voltage (Voltage Following) (VDC – Isolated) .....	0 – 5
Speed Potentiometer – 1/4 Watt (ohms) .....	5K

\*Based on motor having linear IR Comp characteristics.

## DESCRIPTION

The KBWT Pulse Width Modulated (PWM) DC motor speed controls provide excellent dynamic response to load variation. 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. PWM significantly lowers audible motor noise and provides longer brush life. It also produces less motor heating allowing 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 and prevents control damage due to shorted motors.

A unique feature of the KBWT Series is its active bridge, which provides a substantial reduction in AC line surge current each time the control is turned on. This allows the control to be turned on or off rapidly without damage to critical components. The KBWT also contains a built-in safety circuit that will shut down the control if the main power transistor short circuits. This prevents high-speed runaway, a potential problem with competitors' controls.

The KBWT utilizes heat-spreader construction. This system provides an enhanced thermal path that eliminates overtemperature cycles which cause premature failure of the power transistors.

Other features of the KBWT are (I x t) motor burnout protection, which will shut the control down if the motor is overloaded for a predetermined time, and the Potentiometer Safety Circuit™ (optional), which prevents the control from starting when the AC line is applied unless the speed potentiometer is reset to zero. Diagnostic LED's for "Power On" and "Overload (OL)" indication are also provided. The control contains quick disconnect terminals as standard. A potentiometer (5K), isolated analog input signal (0-5 VDC), or PWM microprocessor output can be used to vary the output of the control.

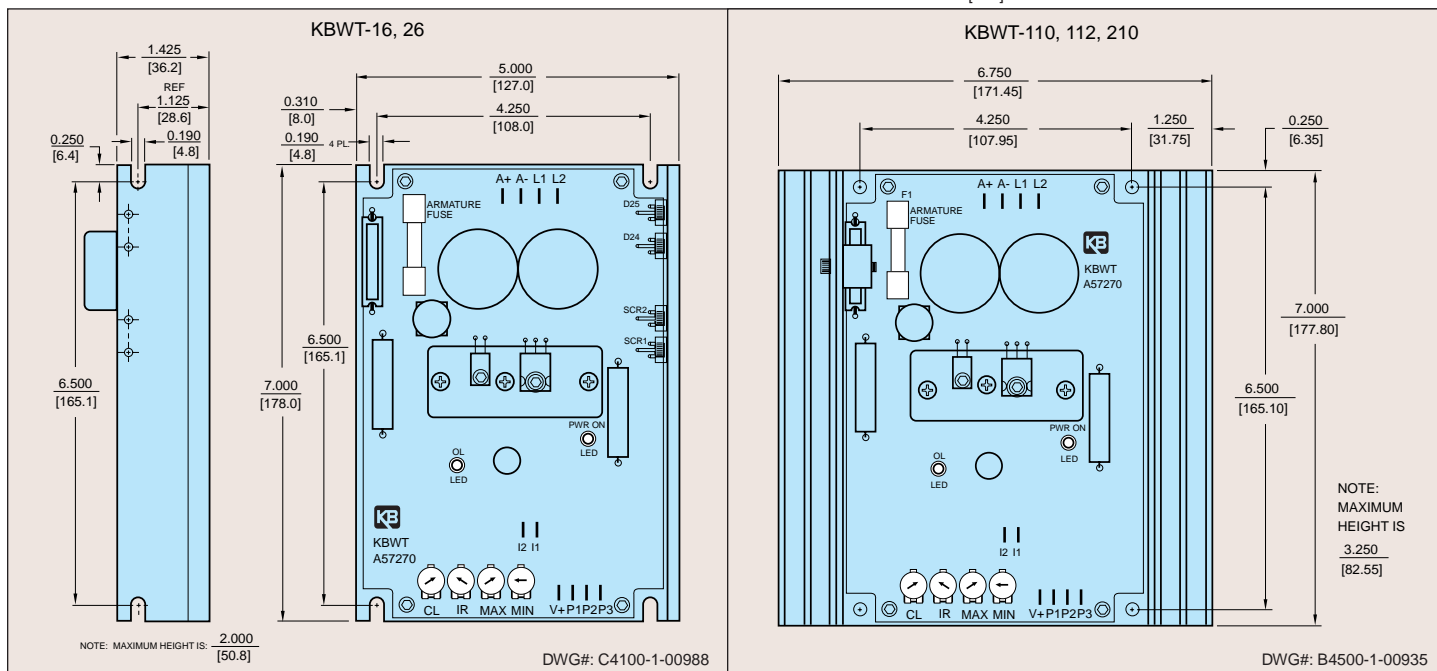
\* CE Compliance Requires KBRF-200A RFI Filter

**PENTA KB POWER™**

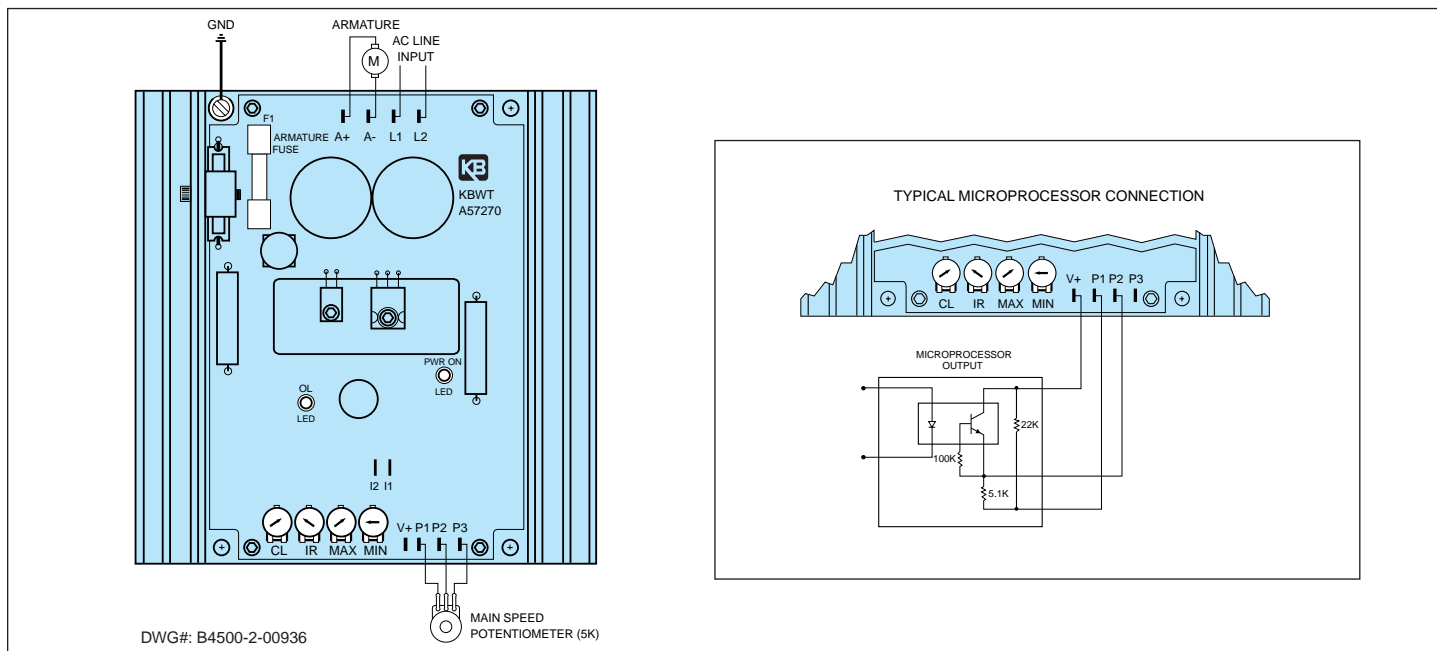
## ELECTRICAL RATINGS

Model No.	KB Part No.	AC Line Voltage (VAC) - 10%, +15% (50/60 Hz)	Maximum AC Line Current (RMS Amps)	Maximum DC Output Current					Maximum Motor Horsepower (KW)		Armature Fuse Rating (Amps) (Optional)
				Continuous Duty Rating				Current Limit Max. Setting (Amps DC)	Continuous Duty	Intermittent Duty (1 min)	
				Amps DC	@ Output Voltage	Amps DC	@ Output Voltage				
KBWT-16	8614	115	10.0	6.0	90	6.0	130	10.0	.75 (.5)	1.5 (1.1)	15
KBWT-26	8615	230	10.0	6.0	180	6.0	260	10.0	1.5 (1.1)	3.0 (2.0)	15
KBWT-110	8603	115	15.0	10.0	90	8.5	130	17.0	1.2 (.9)	2.0 (1.5)	20
KBWT-112	8612	115	18.0	12.0	90	10.5	130	25.0	1.5 (1.1)	2.5 (1.9)	25
KBWT-210	8610	230	15.0	10.0	180	8.5	260	17.0	2.2 (1.7)	4.0 (3.0)	20

## MECHANICAL SPECIFICATIONS INCHES [mm]



## CONNECTION DIAGRAM



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