

# KBVF

ENGLISH

## Hybrid Drive™

**Designed and Customized for PMAC / BPM Motors**

NEMA 4 / IP66 Enclosure • Washdown and Watertight for Indoor and Outdoor Use

### Primary Features

Horsepower 1 to 3 HP

230/460 VAC-1ph & 3ph Input

Output 230/460 VAC-3ph

RS485 Modbus RTU Communication Protocol

Diagnostic LED Status Indicators

### Benefits

#### Saves Time

Easy to Install and Simple to Operate.

Does not require commissioning.

Up and running

in less than 10 minutes.

#### Motors Last Longer

##### Proprietary Current Limit (CL) Software

Provides overload protection, prevents motor burnout and eliminates nuisance tripping.

UL approved as an electronic overload protector for motors.

#### Energy Saving

Uses only the power the application requires.

Replacing constant speed with variable speed will significantly reduce energy costs.

#### Customization for OEMs

**When an off the shelf drive does not meet your needs,  
we will work with you to provide a custom drive solution,  
Ready to Use, "Out-of-the-Box."**

Customization includes: Pre-calibrating, programming, adding a custom label or branding, custom software, PLC functions or designing a new control.



Discover more at:  
<https://www.kbelectronics.com>



## Additional Features

### Sensorless Open-Loop Control Algorithm

With KB's proprietary sensorless, open-loop control algorithm specifically designed for both induction and BPM motors, these drives do not require encoders but still provide exceptional torque vs. speed characteristics.

### Isolated User Interface

The isolated user interface (for analog signal input, Forward-Stop-Reverse, Run/Fault Relay contacts) and circuitry for RS485 Modbus RTU Communication Protocol eliminate the need to purchase and install separate interface modules. These drives combine the digital technology of the microprocessor with an easy-to-use isolated analog input user interface.

### Electronic Inrush Current Limit (EICL™) Protection

Eliminates harmful inrush AC line current during power up.

### Ride-Through

Provides smooth recovery to the previous set speed during a momentary power loss.

### Regeneration Protection

Eliminates tripping due to high bus voltage caused by rapid deceleration of high inertial loads.

### Undervoltage and Overvoltage Protection

Shuts down the drive if the AC line input voltage goes above or below the operating range.

### Short Circuit Protection

Shuts down the drive if a short circuit occurs at the motor (phase-to-phase).

### Trimpot Adjustments

Min. Speed, Max. Speed, Accel, Decel, Current Limit, Slip Comp.

## Drive Options

### Class "A" (CE) RFI Filter

Installs on drive.

### Liquidtight Fittings

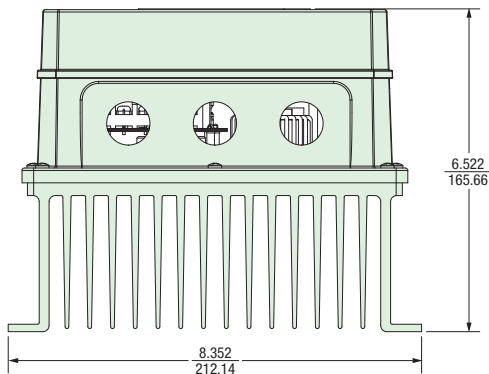
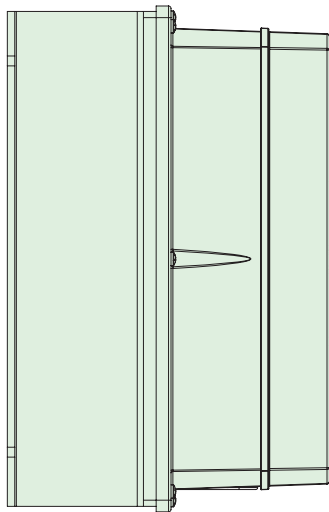
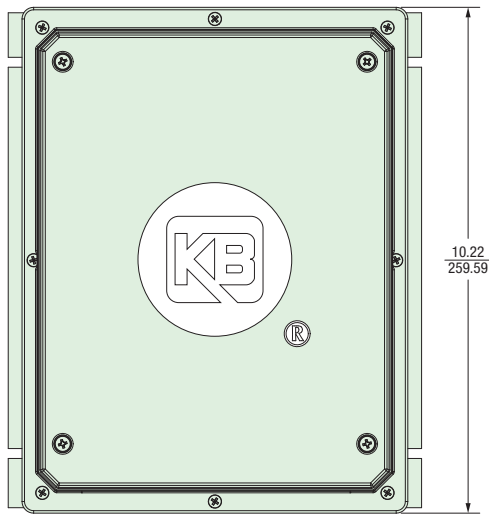
Provides a liquid-tight seal for wiring the drive. Kit includes necessary liquidtight fittings.



## Applications

- Actuators • Air Cleaners • Amusement Rides
- Ball Pitching Machines • Blowers • Boat Lifts
- Bowling Alley Lane Cleaners • CNC • Conveyors
- Door and Gate Openers • Drilling • Duct Cleaners
- Dumbwaiters • Elevators and Hoists
- Exercise Equipment • Fabric Processing • Fans
- Feeders • Film Processing • Floor Cleaning
- Food Processing • Garment Cutting
- Grinding and Polishing • Hoppers • Horse Walkers
- HVAC • Indexers • Irrigation • Laminating
- Lift Station Pumps • Machine Tools
- Medical • Milling • Mixers • Oven Conveyors
- Packaging • Paint Blenders, Shakers, and Sprayers
- Paper Handling • Portable Equipment Used with GFCIs
- Pottery Wheels • Printing
- Pumps • Range Hoods • Sandblasting • Saws
- Sewing • Stretch Wrap • Textile • Treadmills
- Therapeutic Vibrators • Washing Machines
- Wave Soldering • Web Processing • Wheelchair Lifts
- Whole House Vacuums and Attic Fans
- Wire Feeders • Wood and Metal Lathes and Cutters
- Winders and Unwinders

## Dimensions – (Inches/mm)



## Ratings

### 230 VAC 1 & 3-Phase Input • 230 VAC 3-Phase Output

Model No.	Ratings		Net Weight	
	HP, (kW)	Amps	Lbs.	kg
KBVF-27E / KBVF-27EF	2, (1.5)	6.7	11.1	5
KBVF-29E / KBVF-29EF	3, (2.25)	9.0	11.1	5

*\*\*"E" suffix designates standard NEMA 4 / IP56 enclosure. "F" suffix designates optional AC Line RFI (EMI) filter.*

### 460 VAC 3-Phase Input • 460 VAC 3-Phase Output

Model No.	Ratings		Net Weight	
	HP, (kW)	Amps	Lbs.	kg
KBVF-42E / KBVF-42EF	1, (0.75)	2.0	11.1	5
KBVF-45E / KBVF-45EF	3, (2.25)	4.6	11.1	5

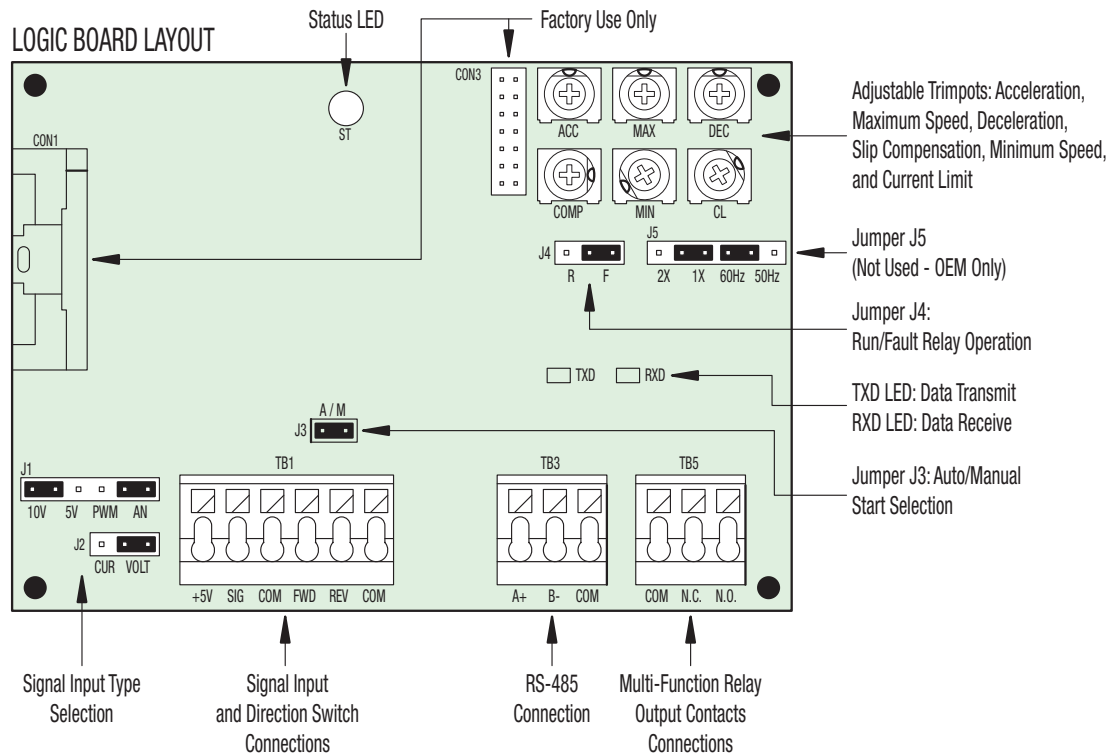
*\*\*"E" suffix designates standard NEMA 4 / IP56 enclosure. "F" suffix designates optional AC Line RFI (EMI) filter.*

## Specifications

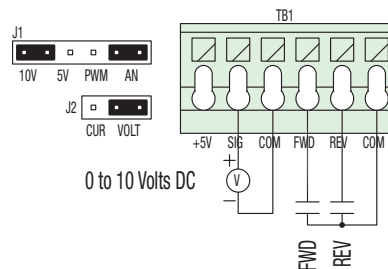
Maximum Load (% of Current Overload for 2 Minutes)	150
Carrier, Switching Frequency (kHz)	16, 8
Output Frequency Resolution (Hz)	0.06
Minimum Output Frequency to Motor (Hz)	0.3
Acceleration Time (Seconds)	0.3 – 20
Deceleration Time (Seconds)	0.3 – 20
Speed Range (Ratio)	60:1
Speed Regulation (30:1 Speed Range, 0 – Full Load) (% Base Speed)	2.5
Stalled Motor Trip Time (Seconds)	6
Braking	Regenerative*
Operating Temperature Range (°C / °F)	0 – 50 / 32 – 122
Storage Temperature (°C / °F)	-25 – +85 / -13 – +185

*\*DC Injection Braking available – requires factory programming.*

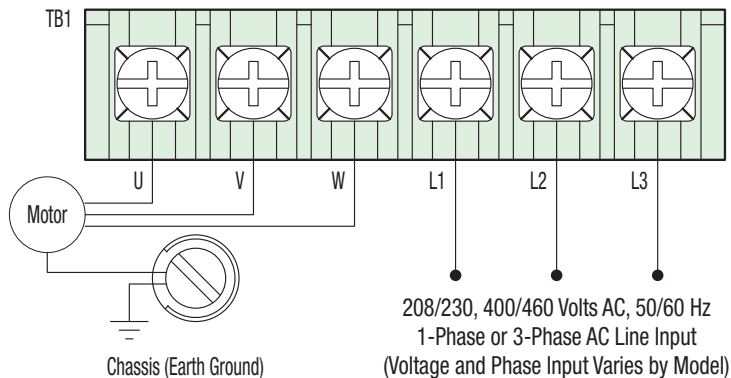
# General Connection Diagram



**TB1 CONNECTIONS AND JUMPER SETTINGS**  
(Signal Input with Reversing Contacts)



**AC LINE, MOTOR, AND GROUND CONNECTIONS**



**CONTROL  
TECHNIQUES™**

**KB ELECTRONICS**

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