

KBVF

Hybrid Drive™

A Digital AC Drive with Analog Interface IP20 Enclosure

Primary Features

Horsepower 1/10 to 5 HP
115/230/460 VAC - 1ph & 3ph Input
Output 230/460 VAC - 3ph
200% Starting Torque
Power and Status Indicators

GFCI Compatible

Allows equipment to operate with Ground Fault Circuit Interruption circuit breakers or outlets. (Factory programming required.)

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 CL Software
Provides overload protection, prevents motor burnout and eliminates nuisance tripping.
UL approved as 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 OEM's

When an off the shelf drive does not meet your needs,
KB will work with you to provide a custom drive solution, Ready to Use, "Out-of-the-Box."
Customization includes: Pre-calibrating or programming of a stock control, adding a custom label or branding, custom software, PLC functions or designing a new control.



Automation and Control

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Additional Features

Sensorless Flux Vector Control

Flux Vector Compensation with Static Auto-Tune provides excellent speed regulation with high torque loads throughout the entire speed range. Auto energy saving at light loads. Smooth motor torque.

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.

Holding Torque at Zero Speed

Resists motor shaft rotation when the drive is in "Stop" mode.

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

Drive-Link™ Programming Kit

Allows PC programming.

SIVFR Signal Isolator and Run Fault Relay*

Provides isolation between a non-isolated signal source and the drive.

DIVF Modbus Serial Communication Module

Class "A" or "B" (CE) RFI Filter

Installs on drive.

DBVF Dynamic Brake Module

Provides faster braking.

Multi-Speed Board

Provides up to four independently adjustable preset speeds.

KBRK Remote Digital Keypad

Allows remote operation and programming of drive**.

IOVF Input/Output Multi-Function Module

Adds up to 17 points of additional I/O.

Main Speed Potentiometer

5 kΩ (supplied).

*Standard on 460 VAC models. ** OEM applications only.

Visit kbelectronics.com

to learn about Build-A-Drive™, KB's New AC Inverter Program.



Applications

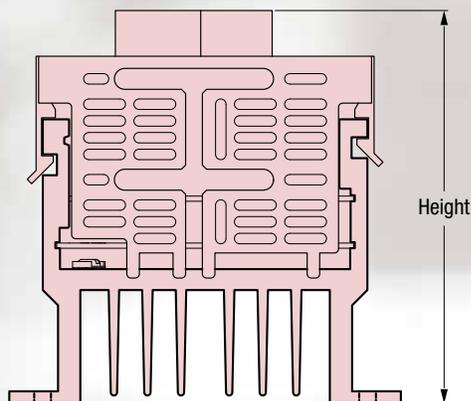
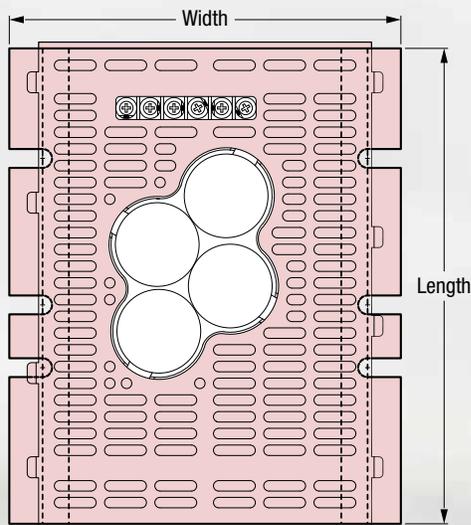
- Actuators • Air Cleaners • Amusement Rides
- Ball Pitching Machines • Blowers • Boat Lifts
- Bowling Alley Lane Cleaners • CNC • Conveyors
- Door and Gate Openers • Drilling • Duct Cleaners
- Dumbwaiters • Elevators and Hoists
- Exercise Equipment • Fabric Processing • Fans
- Feeders • Film Processing • 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



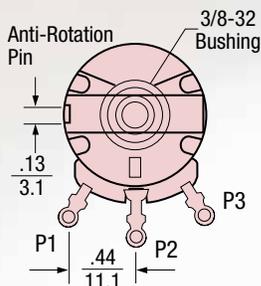
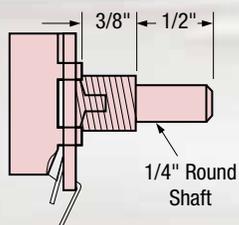
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Automation and Control

Ratings & Dimensions



Main Speed Potentiometer
5 kΩ (Supplied)



115 VAC 1-Phase Input • 230 VAC 3-Phase Output

Model No.	Part No.	Ratings		Dimensions – Inches, (mm)			Net Weight	
		HP, (kW)	Amps	Width	Length	Height	Lbs.	kg
KBVF-13	9957	1/2, (0.37)	2.4	3.9, (99)	4.3, (109)	2.75, (70)	1.3	0.6
KBVF-14	9977	1, (0.75)	4.0	4.7, (119)	4.3, (109)	5, (127)	2.2	1.0

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

Model No.	Part No.	Ratings		Dimensions – Inches, (mm)			Net Weight	
		HP, (kW)	Amps	Width	Length	Height	Lbs.	kg
KBVF-23	9958	1/2, (0.37)	2.4	3.9, (99)	4.3, (109)	2.75, (70)	1.3	0.6
KBVF-24	9978	1, (0.75)	4.0	4.7, (119)	4.3, (109)	5, (127)	2.2	1.0

115/230 VAC 1-Phase Input • 230 VAC 3-Phase Output

Model No.	Part No.	Ratings		Dimensions – Inches, (mm)			Net Weight	
		HP, (kW)	Amps	Width	Length	Height	Lbs.	kg
KBVF-21D	9581	1/10, (0.07)	1.0	3.9, (99)	4.3, (109)	2, (51)	0.7	0.3
KBVF-22D	9572	1/4, (0.18)	1.5	3.9, (99)	4.3, (109)	2.75, (70)	1.3	0.6
KBVF-23D	9959	1/2, (0.37)	2.4	3.9, (99)	4.3, (109)	2.75, (70)	1.3	0.6
KBVF-24D	9979	1, (0.75)	4.0	4.7, (119)	4.3, (109)	5, (127)	2.2	1.0
KBVF-26D	9496	1½, (1.13)	5.5	4.7, (119)	5.7, (145)	4.5, (114)	2.9	1.3

230 VAC 3-Phase Input • 230 VAC 3-Phase Output

Model No.	Part No.	Ratings		Dimensions – Inches, (mm)			Net Weight	
		HP, (kW)	Amps	Width	Length	Height	Lbs.	kg
KBVF-23P	9676	1/2, (0.37)	2.4	3.9, (99)	4.3, (109)	2.75, (70)	1.1	0.5
KBVF-24P	9677	1, (0.75)	4.0	4.7, (119)	4.3, (109)	5, (127)	2.2	1.0
KBVF-27*	9591	2, (1.5)	6.7	4.7, (119)	7.5, (191)	4.45, (113)	4.1	1.9
KBVF-29*	9593	3, (2.25)	9.0	4.7, (119)	7.5, (191)	4.45, (113)	4.6	2.1

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

Model No.	Part No.	Ratings		Dimensions – Inches, (mm)			Net Weight	
		HP, (kW)	Amps	Width	Length	Height	Lbs.	kg
KBVF-42	9645	1, (0.75)	2.0	4.1, (103)	9.31, (236)	2.75, (70)	2.8	1.3
KBVF-45	9590	3, (2.25)	4.6	4.7, (119)	8.75, (222)	4.45, (113)	4.1	1.9
KBVF-48	9592	5, (3.75)	8.3	4.7, (119)	8.75, (222)	4.45, (113)	4.6	2.1

*Rated 2 HP (1.5 kW), 6.7 Amps with 1-Phase Input. **Contains SIVFR signal input isolation and Run/Fault output relay.

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 – 40 / 32 – 104
Storage Temperature (°C / °F)	-25 – +85 / -13 – +185

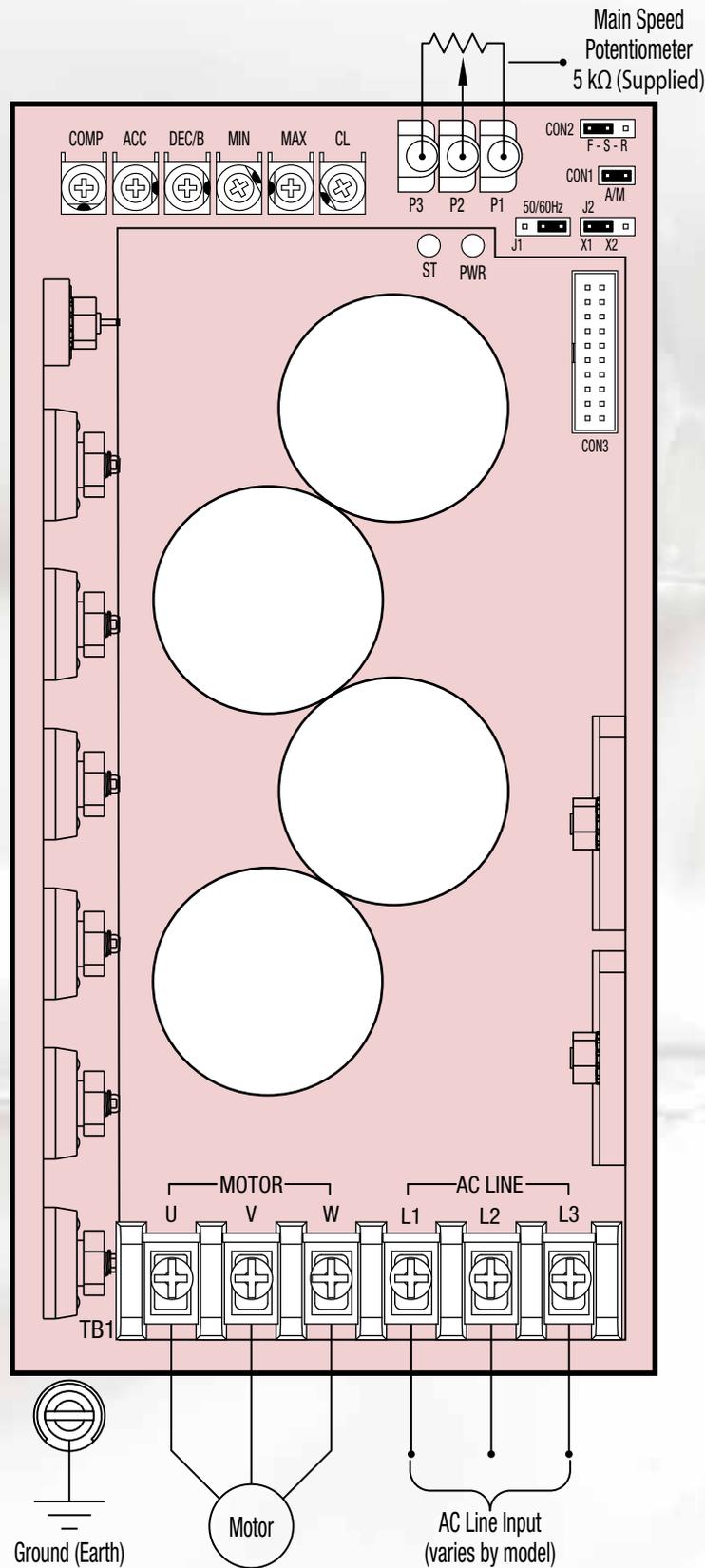
*DC Injection Braking available – requires factory programming.



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Automation and Control

General Connection Diagram



Represented by:



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