KBVF

Hybrid Drive™

A Digital AC Drive with Analog Interface

IP 20 Enclosure

Primary Features

Horsepower 1/10 to 5 HP
1Ø & 3Ø Input 115/230/460 VAC, 50/60 Hz
3Ø Output 230/460 VAC
200% Starting Torque
Power and Status Indicators

Benefits

Saves Time

Easy to Install and Simple to Operate
Does not require programming
or 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.

Economical to Use

Combines Soft Start with Variable Speed

Adjustable Soft Start.

Customization for OEM's

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 or programming of a stock control, adding a custom label or branding, custom software, PLC functions or designing a new control.

GFCI software, *with factory programming, allows the equipment to operate with Ground Fault Circuit Interruption circuit breakers or outlets.*

c ⓁUL us   RoHS COMPLIANT   CE

KB GENESIS®
Automation and Control

KB Electronics, Inc.
kbelectronics.com • info@kbelectronics.com

Designed and
Assembled in USA

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).

Basic, Programmable, 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.

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

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

Contains SIVFR signal input isolation and Run/Fault output relay.
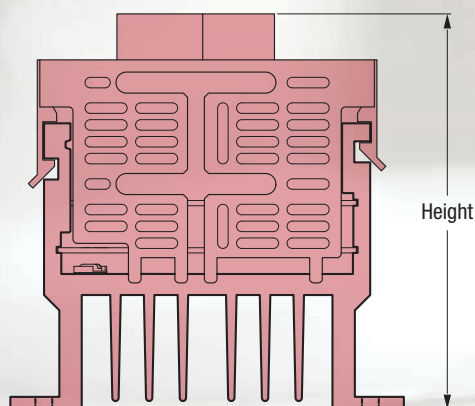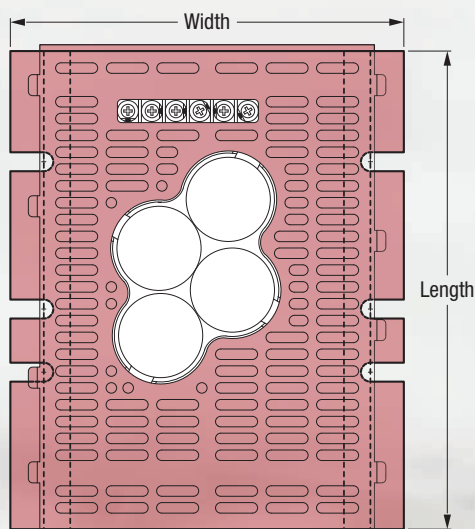
Specifications

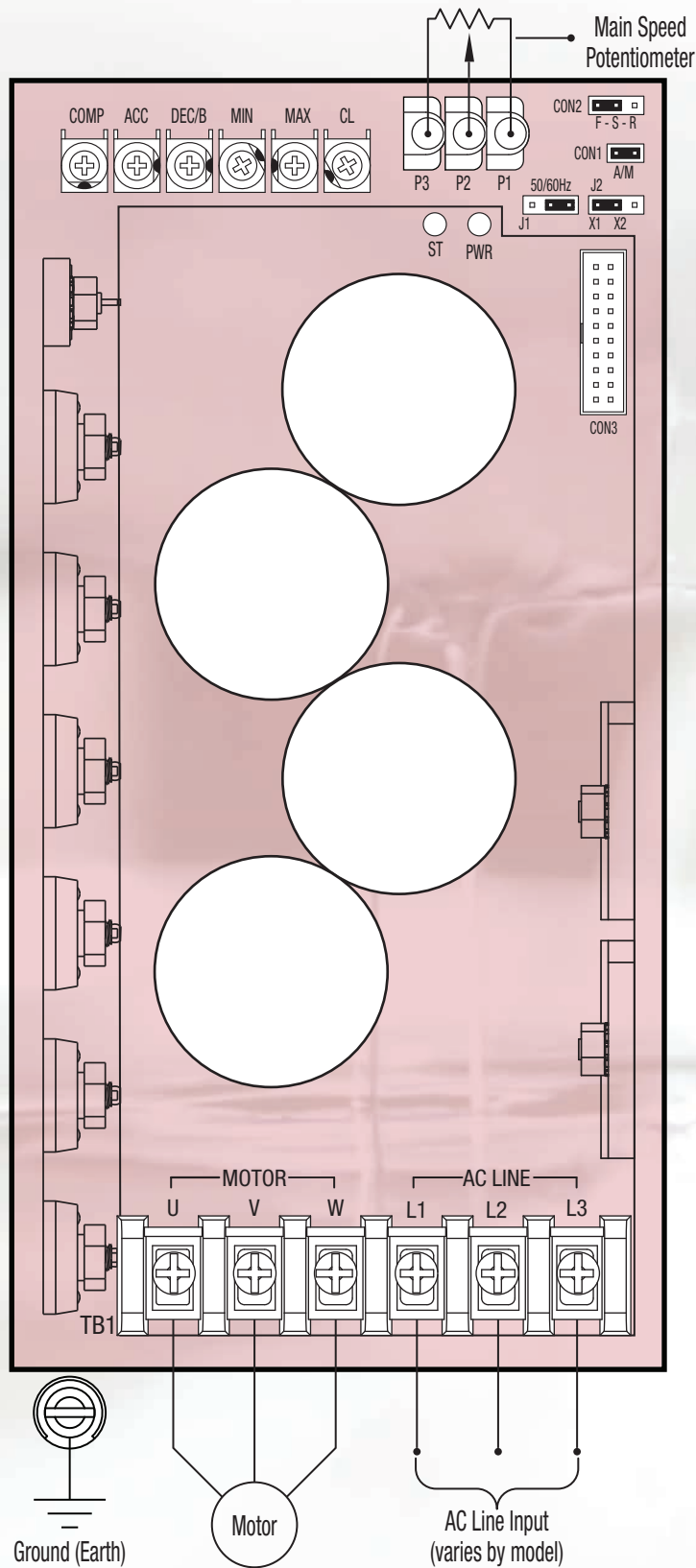|	
Maximum Load (% of Current Overload for 2 Minutes)	150
Carrier, Switching Frequency (kHz)	16, 8
Output Frequency Resolution (Hz)	0.06
Minimum Output Frequency to Motor (Hz)	0.3
Acceleration Time (Seconds)	0.3 – 20
Deceleration Time (Seconds)	0.3 – 20
Speed Range (Ratio)	60:1
Speed Regulation (30:1 Speed Range, 0 – Full Load) (% Base Speed)	2.5
Stalled Motor Trip Time (Seconds)	6
Braking	DC Injection*
Operating Temperature Range (ºC / ºF)	0 – 40 / 32 – 104
Storage Temperature (ºC / ºF)	-25 – +85 / -13 – +185

Requires factory programming, option for regenerative braking module is available.

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General Connection Diagram

Main Speed
Potentiometer

COMP ACC DEC/B MIN MAX CL

P3 P2 P1

CON2 F - S - R

CON1 A/M

50/60Hz J2 X1 X2
J1

ST PWR

CON3

MOTOR
U   V   W

AC LINE
L1   L2   L3

TB1

Ground (Earth)

Motor

AC Line Input
(varies by model)

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Represented by:

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