

# KBMA

## Hybrid Drive™

### A Digital Drive with Analog Interface

#### Rugged Aluminum NEMA 1 / IP 50 Enclosure

#### Primary Features

Horsepower 1/8 to 1 HP, Jumper Selectable  
1Ø Input 115/230 VAC, 50/60 Hz  
3Ø Output 230 VAC  
200% Starting Torque  
Front Panel Power On/Off Switch  
Class "A" (CE) RFI Filter\*

#### 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  
*Energy savings is realized by using variable motor speed vs. constant speed motors.*

##### Economical to Use

Eliminates secondary enclosure  
*No holes to drill, no switches to install.*  
*No need to derate drive for high starting torque applications.*

##### Combines Soft Start with Variable Speed

*Adjustable Soft Start.*

##### KB Customization for OEM's

**"You get exactly what you need. Nothing more, nothing less."**  
*Includes: custom label, preset calibration, installing drive options and custom software.*  
*Ready to use "Out-of-the-Box."*

**GFCI software\*\*** allows equipment to operate with Ground Fault Circuit Interruption circuit breakers or outlets.

\*KBMA-24DF.

\*\*With factory programming.



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.

### Run/Fault Relay

Can be used to turn equipment on or off, to signal a warning if the drive is put into "Stop" mode, or to signal if a fault has occurred.

### On/Off AC Line Switch

Disconnects the AC line.

### 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

### Forward-Stop-Reverse Switch

Provides motor reversing and stop functions.

### Signal Isolator

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

### Auto/Manual Switch

When used with the Signal Isolator, it selects the remote process signal or the Main Speed Potentiometer.



## 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

Learn about Build-A-Drive™ KB's "New AC Inverter" Program  
[www.kbelectronics.com](http://www.kbelectronics.com)



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## Ratings

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

Model No.	Part No.	Ratings		Net Weight	
		HP, (kW)	Amps	Lbs.	kg
KBMA-24D	9533	1, (0.75)	3.6	2.42	1.09
KBMA-24DF*	9534	1, (0.75)	3.6	2.48	1.12

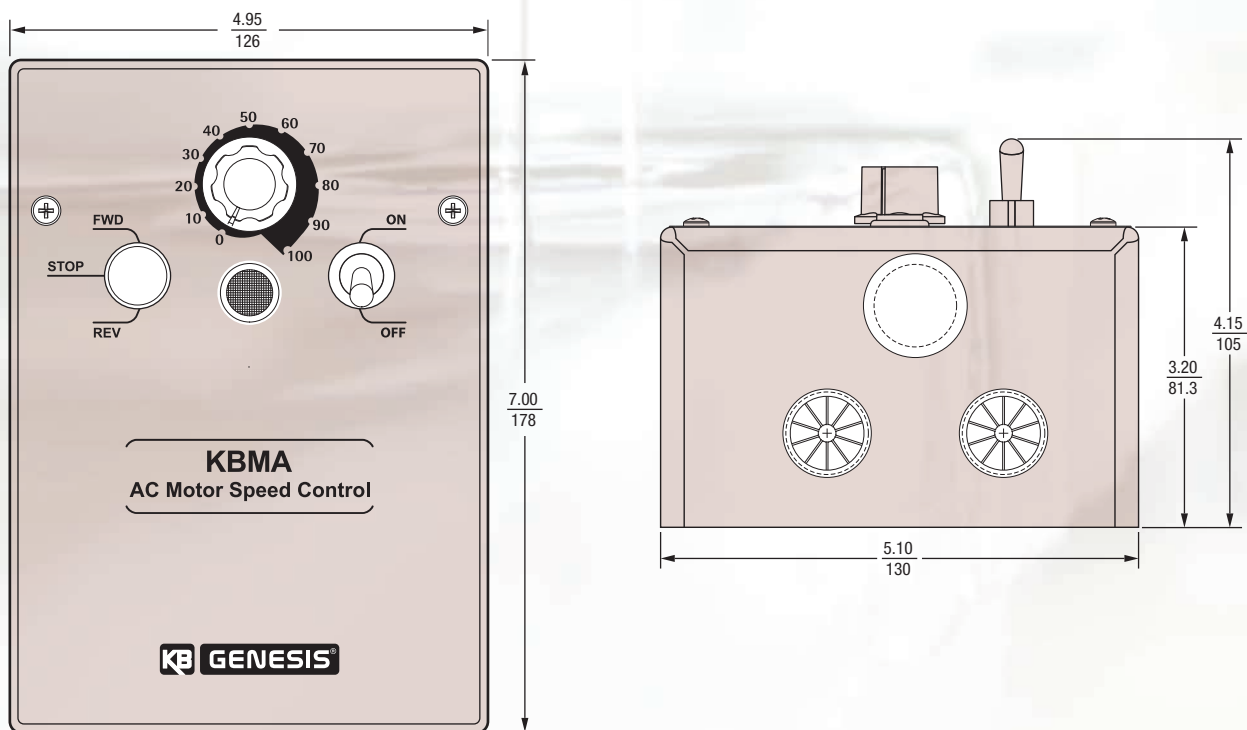
\*"F" Suffix for Built-In Class "A" (CE) RFI (EMI) AC Line Filter.

## 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	DC Injection*
Operating Temperature Range (°C / °F)	0 – 40 / 32 – 104
Storage Temperature (°C / °F)	-25 – +85 / -13 – +185

\*Requires factory programming.

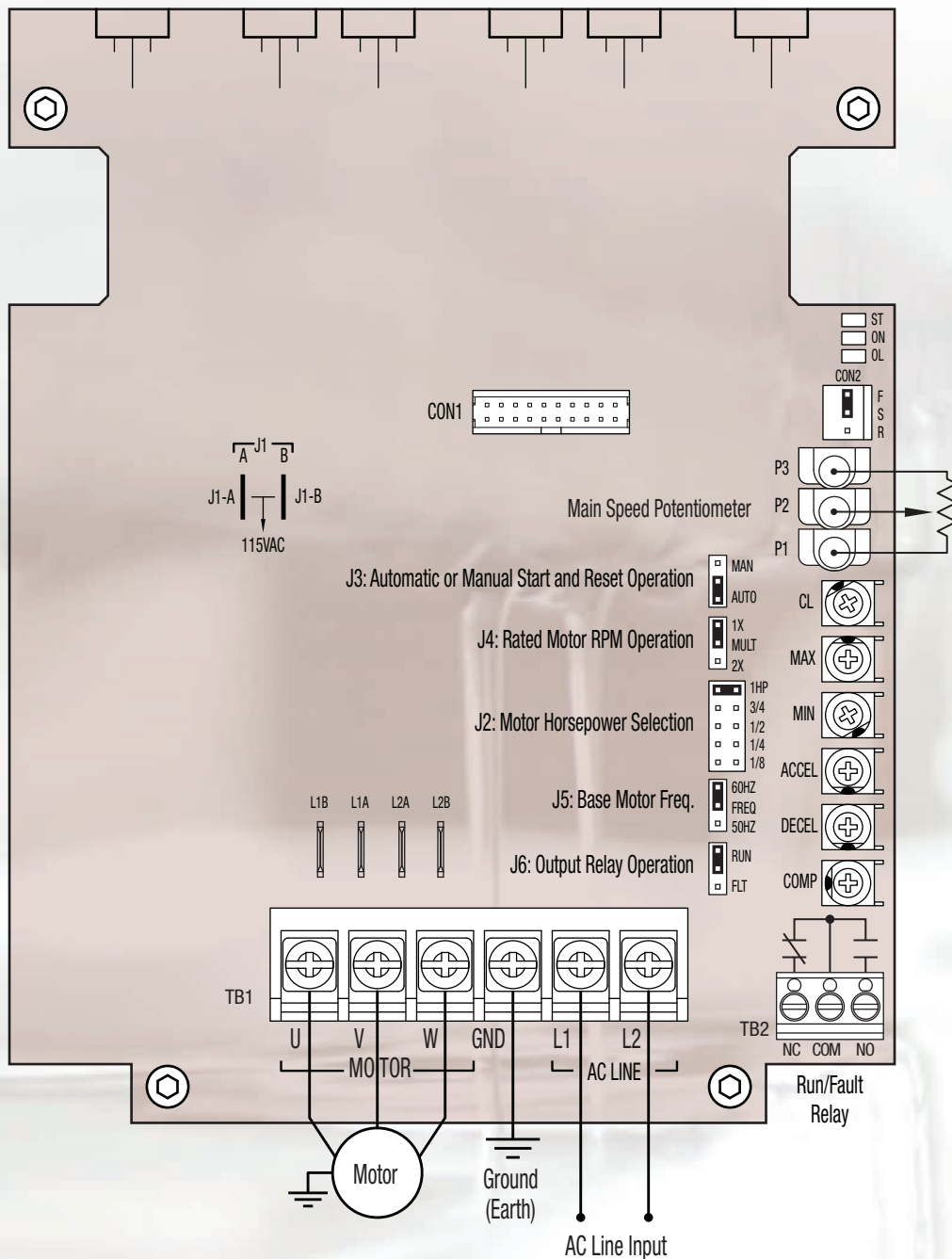
## Dimensions – (Inches/mm)



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# General Connection Diagram



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