KBDA
Digital AC Drive with CSP™*
Rugged Die-Cast Aluminum NEMA 4X / IP65 Enclosure with Hinged Cover
Washdown and Watertight for Indoor and Outdoor Use

Primary Features
Horsepower 1/8 to 5 HP, Programmable
115/230/460 VAC - 1ph & 3ph Input
Output 230/460 VAC - 3ph for AC Induction Motors
Starting Torque 200%
Digital Display with LED Status Indicators
FDA Approved Finish**
GFCI Compatible
Allows equipment to operate with Ground Fault Circuit Interruption circuit breakers or outlets.

Benefits
Saves Time
Easy to Install and Simple to Operate. Does not require commissioning. With CSP™ you are 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.

*CSP™ = Common Sense Programming. Parameters are organized into easy-to-understand intuitive groups.
**White cases only

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

Designed and Assembled in USA

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
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.

Multi-Function Output 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.

Jog-Local/Remote
Set the drive to Jog Mode or changes between Local (Keypad) or Remote Operation.

Built-in Potentiometer
Quickest way to change motor speed.

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).

Drive Options

IODA Input/Output Multi-Function Board
Adds up to 17 points of additional I/O.

Modbus Serial Communication Module
See instruction manual for complete description.

Drive-Link™ Programming Kit
Allows PC programming.

On/Off AC Line Switch
Disconnects the AC line.

Class “A” (CE) RFI Filter
Installs inside the drive.

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

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
### Ratings

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

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Part No.</th>
<th>Ratings</th>
<th>Net Weight</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBDA-24D</td>
<td>9536</td>
<td>1, (0.75)</td>
<td>3.6</td>
<td>5.9</td>
</tr>
<tr>
<td>KBDA-27D**</td>
<td>9543</td>
<td>2, (1.5)</td>
<td>6.7</td>
<td>10.3</td>
</tr>
</tbody>
</table>

**115 VAC Rating: 1.5 HP (1.13 kW), 5.5 Amps.

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

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Part No.</th>
<th>Ratings</th>
<th>Net Weight</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBDA-29 (1P)</td>
<td>10003</td>
<td>3, (2.25)</td>
<td>9</td>
<td>10.3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Part No.</th>
<th>Ratings</th>
<th>Net Weight</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBDA-24P</td>
<td>9766</td>
<td>1, (0.75)</td>
<td>3.6</td>
<td>5.9</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Part No.</th>
<th>Ratings</th>
<th>Net Weight</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBDA-29**</td>
<td>9545</td>
<td>3, (2.25)</td>
<td>9</td>
<td>10.3</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Model No.</th>
<th>Part No.</th>
<th>Ratings</th>
<th>Net Weight</th>
<th>Case</th>
</tr>
</thead>
<tbody>
<tr>
<td>KBDA-42</td>
<td>9763</td>
<td>1, (0.75)</td>
<td>2</td>
<td>5.9</td>
</tr>
<tr>
<td>KBDA-45</td>
<td>9659</td>
<td>3, (2.25)</td>
<td>5.5</td>
<td>10.3</td>
</tr>
<tr>
<td>KBDA-48</td>
<td>9661</td>
<td>5, (3.75)</td>
<td>8.3</td>
<td>10.3</td>
</tr>
</tbody>
</table>

*FDA approved (white case only). **Rated 2 HP, 6.7 Amps w/ 1-Phase Input.

### Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maximum Load (% of Current Overload for 2 Minutes)</td>
<td>150</td>
</tr>
<tr>
<td>Switching Frequency (kHz)</td>
<td>8, 10, 12</td>
</tr>
<tr>
<td>Output Frequency Resolution (Hz)</td>
<td>0.06</td>
</tr>
<tr>
<td>Minimum Output Frequency to Motor (Hz)</td>
<td>0.3</td>
</tr>
<tr>
<td>Acceleration Time (Seconds)</td>
<td>0.1 – 180.0</td>
</tr>
<tr>
<td>Deceleration Time (Seconds)</td>
<td>0.3 – 180.0</td>
</tr>
<tr>
<td>Speed Range (Ratio)</td>
<td>60:1</td>
</tr>
<tr>
<td>Speed Regulation (3:1 Speed Range, 0 – Full Load) (% Base Speed)</td>
<td>2.5</td>
</tr>
<tr>
<td>Stalled Motor Trip Time (Seconds)</td>
<td>6</td>
</tr>
<tr>
<td>Braking</td>
<td>Regenerative*</td>
</tr>
<tr>
<td>Operating Temperature Range (°C / °F)</td>
<td>0 – 40 / 32 – 104</td>
</tr>
<tr>
<td>Storage Temperature (°C / °F)</td>
<td>-25 – +85 / -13 – +185</td>
</tr>
</tbody>
</table>

*DC Injection Braking – Programmable via keypad.
General Connection Diagram

- **Drive is set for Reverse Direction.**
- **Drive is set for Forward Direction.**
- **Drive is in Overload.**
- **Drive is in Jog Operation or Remote Signal Operation.**
- **Up Key:** Increases Output Frequency, Set Frequency, Function Number Value, and Code Setting.
- **Starts or Stops the drive.**
- **Changes motor direction.**
- **Down Key:** Decreases Output Frequency, Set Frequency, Function Number Value, and Code Setting.
- **Potentiometer:** Sets Drive Output Frequency.
- **Drive is in Jog Operation or Remote Signal Operation.**
- **Drive is in Program Mode.**
- **Drive Frequency displayed.**
- **Left Shift / Reset Key:** Moves the changeable digit or Resets the drive after a fault has cleared.
- **Displays or enters a Function Value or Code Setting.**
- **Sets the drive to Jog Mode or changes between Local (Keypad) or Remote Signal Operation.**

- **Multi-Function Output Relay**
- **TB2**
- **TB1**
- **U, V, W, L1, L2, L3**
- **AC Line Input (varies by model)**
- **Ground (Earth)**
- **Motor**

**Represented by:**

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