

KBAC-24D

ADJUSTABLE FREQUENCY DRIVE for 3-Phase AC Motors NEMA-4X / IP-65



TYPICAL APPLICATIONS
• Conveyors • Feeders • Packaging Equipment
• Pumps • Printing Presses • Indexers



Model KBAC-24D
KB Part No. 9987
(Black Case)
KB Part No. 9988
(White Case)

STANDARD FEATURES

- **Motor Overload Protection (I²t)****: Provides motor overload protection which prevents motor burnout and eliminates nuisance trips.
- **Power Start™**: Provides more than 200% starting torque which ensures startup of high frictional loads.
- **Electronic Inrush Current Limit (EICL™)**: Eliminates harmful inrush AC line current during repetitive startup.
- **Short Circuit Protection**: Shuts down the control if a short circuit occurs at the motor (phase-to-phase).
- **Regeneration Protection**: Eliminates tripping due to rapid deceleration of high inertial loads.
- **Slip Compensation with Boost**: Provides excellent load regulation over a wide speed range.
- **Start/Stop Switch**: Provides electronic start and stop functions.
- **Ride Through**: Provides a smooth recovery to the previous set speed during a momentary power loss.
- **Diagnostic LEDs**: Power on (POWER) and control status (STATUS).
- **Holding Torque at Zero Speed**: Resists motor shaft rotation when the control is in Stop Mode.
- **Barrier Terminal Block**: Facilitates wiring of motor and AC line.
- **Protection Features**: Undervoltage and overvoltage protection. MOV input transient protection. Micro controller self-monitoring and auto-reboot. Short circuit protected phase-to-phase at motor.
- **Industrial Duty Die-Cast Aluminum Case**: Available in black finish (P/N 9987) or white FDA approved finish (P/N 9988).

TRIMPOT ADJUSTMENTS

- **Minimum Speed (MIN)**
- **Maximum Speed (MAX)**
- **Acceleration (ACCEL)**
- **Deceleration (DECEL)**
- **Slip Compensation (COMP)**
- **Current Limit (CL)**
- **Boost (BOOST)**

JUMPER SELECTABLE FEATURES

- **J1/J2 (115V/230V)**: Selects AC line input voltage.
- **J3 (1/4, 1/2, 3/4, 1)**: Selects motor horsepower.
- **J4 (Auto/Man)**: Selects automatic or manual reset mode.
- **J5 (50Hz/60Hz)**: Selects motor frequency.
- **J6 (1X/2X)**: Selects motor frequency multiplier.
- **J7 (FIX/ADJ)**: Selects fixed or adjustable boost.

Notes: * Requires CE RFI filter KBRF-300A (KB P/N 9484) or equivalent.

** UL approved as an electronic overload protector for motors.

DESCRIPTION

The KBAC-24D Adjustable Frequency Drive is a variable speed control in a NEMA-4X / IP-65 washdown and watertight enclosure. It is designed to operate 208-230 Volt 3-phase AC induction motors through 3.6 Amps RMS. The sine wave coded Pulse Width Modulated (PWM) output operates at a frequency of 16kHz which provides high motor torque, high efficiency and low noise.

Due to its user friendly design, the KBAC-24D is easy to install and operate. Tailoring to specific applications is accomplished via selectable jumpers and trimpot adjustments, which eliminate the computer-like programming required on other drives. However, for most applications no adjustments are necessary.

Main features include adjustable RMS Current Limit with I²t Motor Overload Protection. In addition, adjustable Slip Compensation provides excellent load regulation over a wide speed range. Power Start™ delivers over 200% motor torque to ensure startup of high frictional loads. Electronic Inrush Current Limit (EICL™) eliminates harmful AC line inrush current and adjustable Linear Acceleration and Deceleration make the drive suitable for soft-start applications. The Ride Through feature provides a smooth recovery to the previous set speed during a momentary power loss and Regeneration Protection eliminates tripping due to rapid deceleration of high inertial loads.

Standard front panel features include diagnostic LEDs for Power On and Control Status, a Start/Stop Switch and a Main Speed Potentiometer. Other features include a Barrier Terminal Block to facilitate wiring of the AC line and motor, adjustable trimpots (MAX, MIN, ACCEL, DECEL, COMP, CL, BOOST) and customer selectable jumpers (line voltage, motor horsepower, auto or manual restart modes, motor frequency, frequency multiplier, fixed or adjustable boost).

Optional accessories include a Forward-Stop-Reverse Switch, Auto/Manual Switch, Power On/Off Switch, Signal Isolator / Run Relay and a Multi Speed Board. Quick-connect terminals are provided for easy installation of all accessories.

OPTIONAL ACCESSORIES

- **Forward-Stop-Reverse Switch (P/N 9480)**: Provides motor reversing and stop functions.
- **Auto/Manual Switch (P/N 9481)**: Selects signal input from either the SIAC Signal Isolator or the Main Speed Potentiometer.
- **Power On/Off Switch (P/N 9482)**: Disconnects AC line.
- **Signal Isolator / Run Relay SIAC (P/N 9488)**: Provides isolation for non-isolated signal inputs and contains a Run Relay which can be used to turn on or off equipment or signal a warning if a fault has occurred.
- **Multi Speed Board (P/N 9489)**:



MODEL KBAC-24D (KB Part Nos. 9987 and 9988¹) – GENERAL PERFORMANCE SPECIFICATIONS

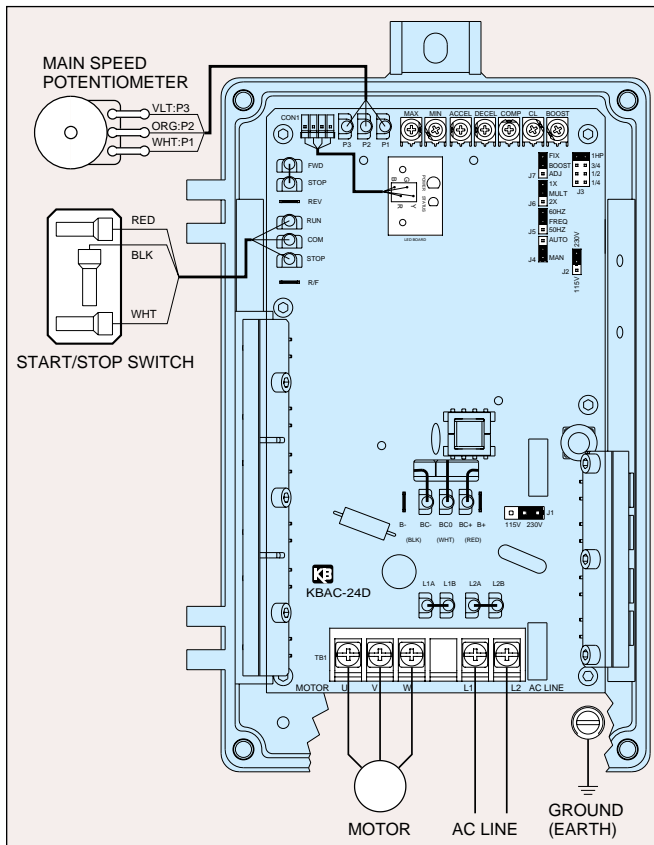
Parameter	Specification	Factory Setting
AC Line Input Voltage (Volts AC, $\pm 10\%$, 50/60 Hz)	115 or 208/230	208/230
Maximum Load Capacity (% for 2 Minutes)	150	—
Switching Frequency at Motor (kHz)	16	—
Signal Following (Non-Isolated Input ²) Input Voltage (Volts DC)	0 – 5	—
Signal Following Input Resolution (Bits)	8	—
Maximum Speed Trimpot (MAX) Range (% of Frequency Setting)	70 – 110	100
Minimum Speed Trimpot (MIN) Range (% of Frequency Setting)	0 – 40	0
Acceleration Trimpot (ACCEL) Range (Seconds)	0.3 – 20	1.5
Deceleration Trimpot (DECEL) Range (Seconds)	0.3 – 20	1.5
Slip Compensation Trimpot (COMP) Range (Volts/Hz/Amp)	0 – 3	1.5
Current Limit Trimpot (CL) Range (% Range Setting)	0 – 200	160
Boost Trimpot (BOOST) Range for 50 Hz Output Frequency (Volts AC)	0 – 70	—
Boost Trimpot (BOOST) Range for 60 Hz Output Frequency (Volts AC)	0 – 35	5
Motor Horsepower Selection (HP)	1/4, 1/2, 3/4, 1	1
Output Frequency (Hz)	0 – 50, 0 – 60	0 – 60
Frequency Multiplier (1X, 2X)	1, 2	1
Minimum Operating Frequency at Motor (Hz)	1	—
Speed Regulation (30:1 Speed Range) (% Base Speed) ³	2.5	—
Speed Range (Ratio)	60:1	—
Operating Temperature Range (°C)	0 – 45	—

Notes: 1. KB P/N 9988 is white FDA approved finish. 2. Requires an isolated signal. If a non-isolated signal voltage is used, install the SIAC Signal Isolator (P/N 9488).
3. Dependent on motor performance.

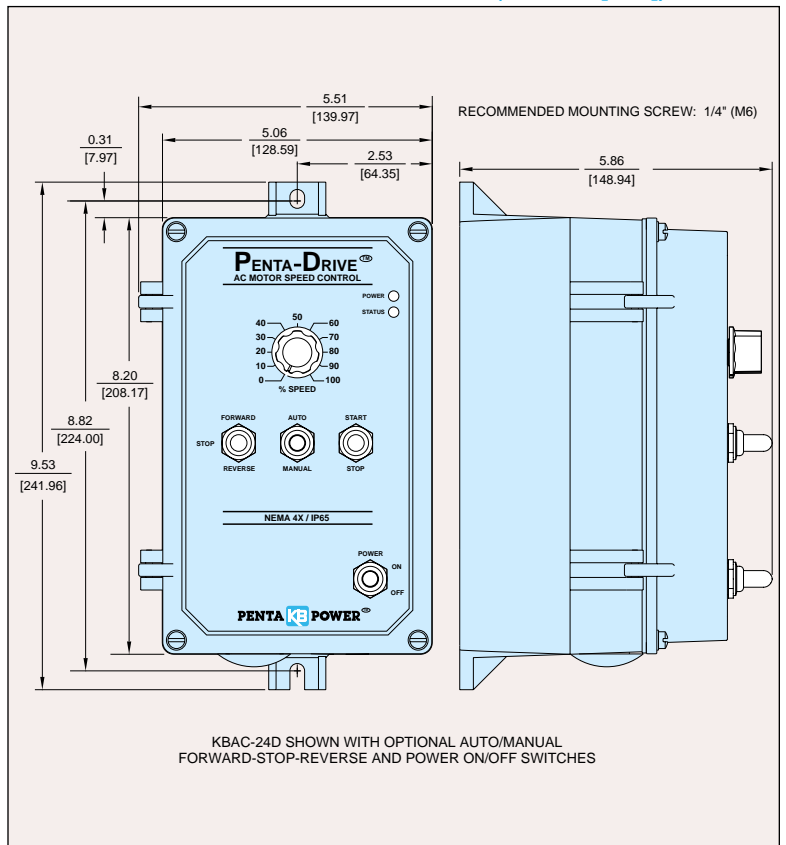
ELECTRICAL RATINGS

AC Line Input Voltage $\pm 10\%$, 50/60 Hz (Single Phase Volts AC)	Maximum AC Line Input Current (Amps AC)	Nominal Output Voltage (Volts AC)	Maximum Continuous Output Load Current (RMS Amps/Phase)	Maximum Horsepower Rating HP, (KW)
115	16	0 – 230	3.6	1, (0.75)
208/230	10	0 – 230	3.6	1, (0.75)

CONTROL LAYOUT & CONNECTION DIAGRAM



MECHANICAL SPECIFICATIONS (Inches / [mm])



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