



Horticulture Equipment & Services LLC (HES, LLC)

P. O. Box 192

Estill Springs, TN 37330

Office: (931) 607-4170|

Conveyors and Custom Conveyors

Operation Manual



Introduction

Read this manual carefully to learn how to operate and maintain your product properly. The information in this manual can help you and others avoid injury and product damage. Although HES LLC designs and produces safe products, you are responsible for operating the product properly and safely. Whenever you need service, HES LLC parts, or additional information contact an Authorized Service Dealer or HES LLC Customer Service and have the model and serial numbers of your product ready.

This manual identifies potential hazards and has special safety messages that help you and others avoid personal injury and even death. ***Danger***, ***Warning*** and ***Caution*** are signal words used to identify the level of hazard. However, regardless of the hazard, be extremely careful.

- ***Danger*** signals an extreme hazard that will cause serious injury or death if you do not follow the recommended precautions.
- ***Warning*** signals a hazard that may cause serious injury or death if you do not follow the recommended precautions.
- ***Caution*** signals a hazard that may cause minor or moderate injury if you do not follow the recommended precautions.

This manual uses two other words to highlight information. **IMPORTANT** calls attention to special mechanical information and **NOTE:** emphasizes general information worthy of special attention.

Safety

Improper use or maintenance by the operator or owner can result in injury. To reduce the potential for injury, comply with these safety instructions and those in the unit's operator's manual.

Always pay attention to the safety alert symbols, which mean

CAUTION, WARNING or DANGER — “personal safety instruction.” Failure to comply with the instructions may result in personal injury or death.

Always disconnect the main power from the machine before working in or around any electrical boxes or servicing any electrical components including but not limited to electrical motors, components, switches or wiring. Only use a certified electrician for any electrical maintenance required.

Safety and Instruction Decals

Safety decals and instructions are easily visible to the operator and are located near any area of potential danger. Replace any decal that is damaged or lost.



These are general warnings regarding your machine. There will also be decals attached to the machine with specific warning that should always be followed.

General Safety Instructions

WARNING

1. Follow all local and national electrical and safety codes.
2. Motor must be properly grounded. This should be accomplished by using a separate ground wire connected to the green grounding screw on the motor shell. Failure to properly ground unit could result in severe electrical shock.
3. Always disconnect power source before working on or near a motor or its connected load. If the power disconnect point is out of sight, lock it in the open position and tag it to prevent unexpected application of power. Do not depend on a motor control device (motor starter, etc.) to insure against unexpected motor start-up.

4. Be careful when touching the exterior of an operating motor – it may be hot enough to be painful or cause injury. This condition is normal if operated at rated load and voltage. Modern motors are designed to operate at these higher temperatures. Make certain the power source conforms to the requirements of the motor nameplate.
5. When cleaning electrical or electronic equipment always use an approved nonflammable cleaning agent such as dry-cleaning solvent. Always use a cleaning agent that will not attack the finish or insulation.
6. All moving parts should be guarded.
7. The temperature in the area surrounding the motor should not exceed the maximum ambient temperature shown on the nameplate.
8. Protect power cable from encountering sharp objects.
9. Do not kink power cable and never allow the cable to encounter oil, grease, hot surfaces or chemicals.
10. Do not use extension cords.

Set-up & Operations

- When you first receive your new equipment, take time and look it over to make sure that there was no damage done in the delivery.
- Unless specified in the initial order, your system will need to be wired to your existing electrical system. All electrical connections and specifications should be handled by a certified electrician. HES LLC will not be held in any way responsible for your electrician's performance or lack of.
- Be sure to give plenty of clearance around the machine for loading media and unloading the conveyor.
- Always be sure to check for any obstructions before your initial start up to be certain the area is clear for operation and free of obstructions.

Operating Adjustments

The Conveyor has been tested at the factory and should not need any adjustment. However, it is recommended that the machine be turned on and ran empty to make sure that all components are in proper working order.

Make sure all body parts, hair, clothing, jewelry, etc. are clear of the machine.

Operating Instructions

HES LLC Conveyors- including Custom and Specialty Conveyors

Conveyor Styles

HES LLC provides standalone and integrated conveyors for multiple applications. For integrated conveyors, please consult the appropriate manual for the equipment model to ensure proper operation. This manual is dedicated to standalone conveyors.

Conveyors are used for multiple applications. Flat conveyors can be used to transport filled containers to an unloading area, inclined conveyors can be used to fill hoppers with loose media, some conveyors are V-shaped to deliver higher quantities of media, and some conveyors have cleats for various purposes. Conveyors are purpose built for specific applications and take into account the customer needs. Some conveyors have special equipment attached, such as chemical hoppers, fertilizer dispensers, potting tables, or topping hoppers.

SAFETY FEATURES

Depending on the style of conveyor, the safety features and considerations may change. As a rule of thumb, follow all of the safety protocols below.

DANGER

- Never stick hands, clothes, hair, jewelry, or any body part inside a conveyor during operation. Keep loose clothing, jewelry, and hair away from the conveyor. Clear any obstructions from the machine and conveyor area before starting.
- Do not allow anyone to sit on the conveyor.
- Do not attempt to bypass any safety devices.
- Do not set tools or other hard objects on the conveyor not intended in your application. Tools or other heavy objects can end up entering a machine hopper or falling from an incline conveyor resulting in damage or injury.
- Properly disconnect power and lock out- tag out the machine when attempting to service, perform maintenance, or inspect any internal crevice of a hopper or panel.
- When using an incline or overhead conveyor, ensure that it is safely secured with appropriate latching and follows all local, state, and national ordinances.

- Ensure the proper voltage and plug type is used with your conveyor.
- Always place conveyors on level surfaces and adjust legs to ensure the system is sturdy and firmly placed.
- Make sure the conveyor belt does not contact any sharp objects during travel.

Setting Conveyor Height

HES LLC conveyors may be equipped with adjustable height legs and bolt holes in the feet so that the conveyor can be secured to the ground. The image below demonstrates how to best use the functions. For flat conveyors, it is recommended to use a level when adjusting the feet. Support the conveyor weight with a lift prior to adjusting the feet.

Leg Bolts- First secure the weight of the conveyor. Use a level to adjust each foot until the conveyor is at the proper height. To adjust, loosen both bolts and move the foot up or down as needed. When at the proper height, fasten both bolts securely back into place.
DANGER!- Do not loosen the bolts without first supporting the conveyor’s weight.



Bolt Hole- A bolt can be used through this hole to secure the conveyor to the ground.

CONTROLS

Standalone conveyors typically have three different control options. A conveyor will have either an On/Off switch, a Variable Speed Control, or a Control Panel.

ON/ OFF SWITCH

Conveyors for filling hoppers and moving media will often run a single speed. These conveyors have a single Start/ Stop switch. Start the conveyors with the Start button.



VARIABLE SPEED CONTROL

A variable speed control will allow the conveyor belt to be set at a user defined speed. Variable Speed Controls are operated either from a drive or a potentiometer for custom conveyors. On a drive, the Green Start button will turn the belt on. The Red Stop button will stop the conveyor belt. The Up button will increase the speed. The Down button will decrease the speed. The setting can be accessed from the menu, but these should ONLY be changed with the guidance of HES LLC Tech Support personnel. Incorrect changes can cause equipment to fail or damage equipment and motors. Conveyors with multiple motors may have multiple speed controls.



Conveyors with Variable Speeds are either drive controlled or controlled from a dial, as with custom conveyors. For drive equipped models, the conveyor is controlled from the buttons on the drive. For custom conveyors with a dial, adjust the speed with by turning the dial up or down.



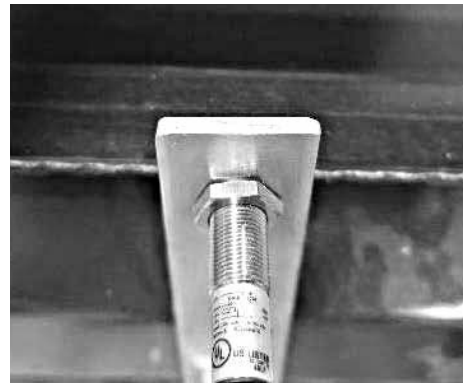
***See instructions on page 12

Custom Conveyors

Custom conveyors for specialty operations have numerous applications. These conveyors will have features not commonly used on a standard conveyor. These components are explained below.

Container Sensor

Several conveyors have applications that only run when a container is present. Vermiculite Hoppers, Water Bars, and other applications only start when a container is detected to avoid wasting material. The sensor should be wiped with a clean, soft non-abrasive cloth if dirty. The sensor will activate the attached feature when a container is detected.



Vermiculite or Chemical Hopper

The Vermiculite or Chemical Hopper option added to a conveyor adds a light coating to the top of trays. A typical Conveyor with Vermiculite or Chemical Hopper will have two variable speed controls, as mentioned above. The first speed control will drive the belt speed that moves the containers. The second speed control will drive the roller that delivers media from the Vermiculite or Chemical Hopper.



1. Fill Hopper with Vermiculite or fertilize.
2. The sight glasses on the side of the Hopper will allow visual confirmation of material levels.
3. Use the Hopper roller speed control to set the appropriate flow for the tray to be covered as desired for the speed the belt is moving containers. Adjusting the container belt speed will require an adjustment to the Hopper flow speed.
4. Once the sensor (see above) detects a tray, the Vermiculite or Chemical Hopper roller will begin dispensing media onto the trays.
5. Once the Hopper reaches the bottom sight glass, refill with proper media.

Water Tunnels

HES LLC Water Tunnels are conveyors manufactured with a stainless-steel frame with a solid bottom that allows for water to collect out of a single drain. The standard drain size is 3" NPT, but custom drain sizes may be ordered from the factory. The standard water supply for a HES LLC Water Tunnel would be a standard 3/4 GHT hose. This hose is used because of it is common and universal, however custom input connections can be specified from the factory. In a standard Water Tunnel configuration, a container will travel across a sensor equipped conveyor (see above) under multiple water heads. Once the sensor detects a container, the water will activate for a set amount of time.

A timer dial on the control panel will determine how long the Water Tunnel will disperse water once the sensor is activated.

Setting the water timing on a Water Tunnel

A HES LLC Water Tunnel has two factors to consider when watering a plant - the length of time for the water to run and the belt speed. At slower speeds, the water timer should be increased so that the container is watered by every water head. To reduce the water flow, cut off the water flow to any unneeded water bars, or increase the speed of the belt. Adjust the timer to end the water flow once the container passes the last open water head.



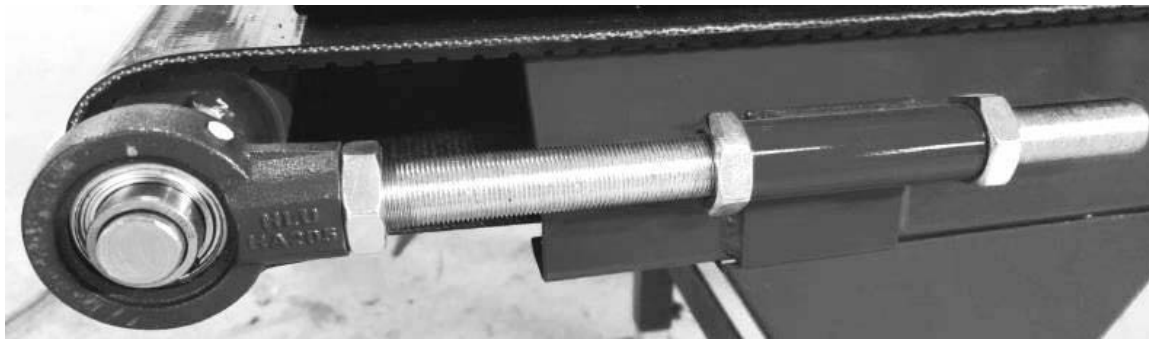
Water Tunnel Water Delivery

Each water supply on the HES LLC Water Tunnel is Dramm Product to provide an even flow. Each Water Head has a cut off. To reduce the volume of water for trays or smaller pots without changing the timing, turn the top valve leading to the desired Water head to the OFF position so that water will not flow from that head.

Adjusting Conveyor Belt

To ensure proper tension, a conveyor belt will need to be tightened from time to time. This is especially true of new belts which will stretch to the full size under a load. When the belt slips or does not seem to pull a load, it is recommended to check the tension on the belt and tighten as necessary.

NOTE: When adjusting a conveyor belt, try to adjust each side equally to keep the belt centered. ALWAYS ADJUST THE END OPPOSITE THE MOTOR DRIVING THE CONVEYOR.



THIS DIRECTION TO TIGHTEN



THIS DIRECTION TO LOOSEN



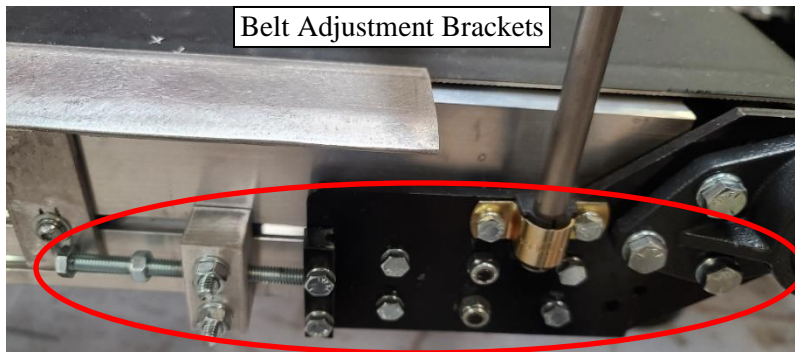
Make sure the unit is powered down and unplugged. Loosen the locking nut and adjust forward to tighten the belt. Adjust each side evenly to keep the belt centered. Run the conveyor to ensure the belt is still tracking centered prior to adding a load to the unit. If the belt begins tracking or running to one side, tightening one side will drive the belt in the opposite direction. If a belt is overtightened, adjust the bearing back toward the conveyor. Tighten all lock nuts back in place when the belt is properly tightened and running centered.

NOTE: Always make small and incremental changes to avoid over tightening or getting off center.

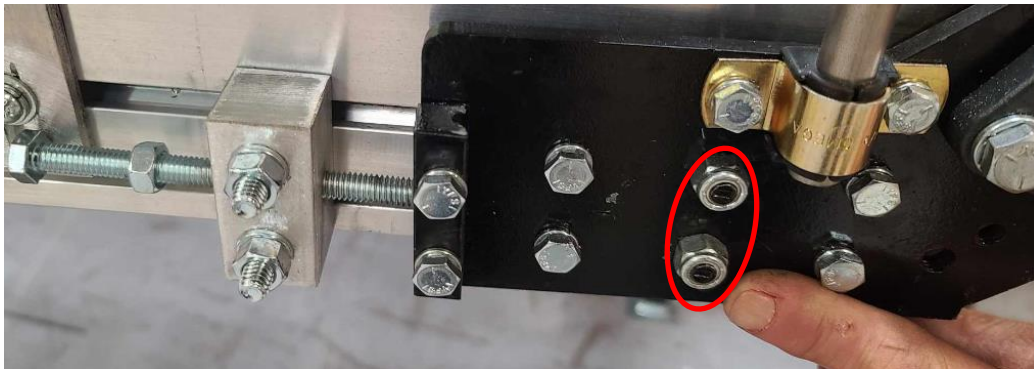
Adjusting Belt on Aluminum Conveyors

Belts on any conveyor will loosen with time. New belts tend to stretch after running with a load. If the belt on any conveyor seems to be slipping when the roller is turning, adjust the belt out to tighten.

The Aluminum Conveyors use a different mechanism for tightening the belt than standard conveyors. To adjust the belt on an aluminum conveyor, you will find the belt adjustment on one end of the conveyor. Both sides should be adjusted equally to keep the belt tracking in the center.



To adjust the belt length, first loosen the two nuts on the set bolts shown below.



Adjust the conveyor in or out using the two nuts on the back of the bracket. The nut closest to the bracket will lock the setting in place.



Once the belt is adjusted, tighten both the set bolt nuts and the adjustment nuts back down. Run the conveyor to ensure the belt is tracking centered. Adjust each side equally to avoid pulling to one side. Adjust the right or left side to adjust if not tracking centered.

CONVEYOR BELT Q&A

How often should they be checked and inspected? *Answer: Daily or prior to using*

How many grease points on the conveyor? *Answer: N/A. There are no grease points on the conveyor. The conveyor belts do NOT require grease.*

How tight do the belts need to be? *Answer: Only tighten enough to move with material on belt. Always tighten and loosen belts on the end opposite the motor.*

What is the estimated life of the belts? *Answer: Depends on use and care of the belt, but typically 2-3 years. With caution and proper care and maintenance, a belt may last 5-6 years or more. Cleaning media out from under the belts regularly as needed will help extend the life of the belt.*

Can we purchase a replacement belt from the factory? *Answer: Yes! HES LLC can provide belts for any conveyor it manufactures, as well as most other conveyor belts. It may be a good idea to order a spare belt once cracks appear or the belt reaches the end of its operable life as manufacturing times for a custom belt can take a week or more.*

If you have any other questions or concerns, please contact HES LLC by phone at 1-931-607-4170 or email arowe@horthequipment.com for support.

KBAC SERIES QUICK-START INSTRUCTIONS

FOR TECHNICAL ASSISTANCE
CONTACT OUR SALES DEPARTMENT AT 954-346-4900
CALL TOLL FREE 800-221-6570

For Complete Details and Instructions, See the
KBAC Installation and Operation Manual Online

**SEE SAFETY WARNING
ON REVERSE SIDE**



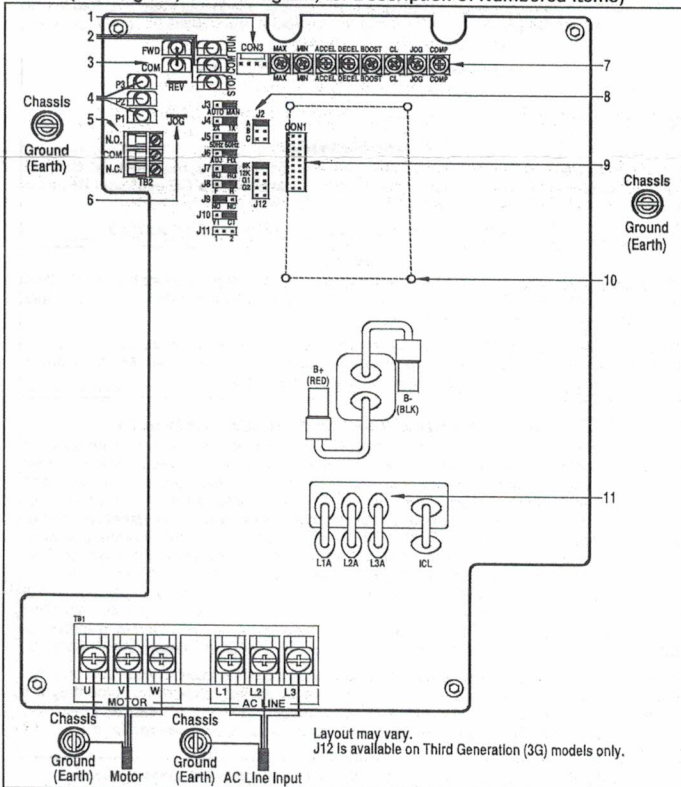
Scan this QR Code

1 - INITIAL SETUP AND CONNECTIONS

Wire the drive in accordance with National Electrical Code requirements and other local codes that may apply to the application. [Factory jumper settings shown in bold.]

1. Set Jumper J1 (Models KBAC-24D, 27D only) to the corresponding AC Line Input voltage (230V, 115V).
2. Set Jumper J2 to the corresponding position for the motor being used.
3. Set Jumper J3 for Automatic Ride-Through or Manual Start Mode (A, M).
4. Set Jumper J4 to the motor frequency multiplier (1X, 2X).
5. Set Jumper J5 to the rated motor frequency (60 Hz, 50 Hz).
6. Set Jumper J6 to the desired Boost Mode (FIX, ADJ).
7. Set Jumper J8 to the desired Run/Fault Output Relay Operation (R, F).
8. Set Jumper J9 for the Stop Contact type being used (NO, NC).
9. Set Jumper J10 to the desired Torque Mode (CT, VT).
10. Jumper J11 is for factory use only.
11. Set Jumper J12 (Third Generation (3G) models only) to the desired Switching Frequency or GFCI selection (8K, 12K, G1, G2).
12. Connect the AC Line input to Terminals L1, L2 (1-phase) or L1, L2, L3 (3-phase).
13. Connect the motor to Terminals U, V, W.
14. Connect the ground(s) (earth) to the green ground screw(s) (chassis).

DRIVE LAYOUT AND GENERAL CONNECTION DIAGRAM (See Legend, Below Diagram, for Description of Numbered Items)



LEGEND: 1. Connector for diagnostic LED board. 2. Terminals for factory installed Start/Stop Switch. 3. Terminals for optional Forward-Stop-Reverse Switch. 4. Terminals for factory installed Main Speed Potentiometer. 5. Terminal block for Run/Fault Relay Output Contacts. 6. Terminal for optional Run-Stop-Jog Switch. 7. Adjustable trimpots. 8. Selectable jumpers. 9. Interface connector for accessories. 10. Four mounting holes for accessories. 11. Terminals for factory installed On/Off AC Line Switch and RFI Filter.

THESE QUICK-START INSTRUCTIONS COVER MODELS

KBAC-24D 2G and 3G⁴ (Part Nos. 9987¹ / 9988²), KBAC-27D 2G and 3G⁴ (Part Nos. 9520¹ / 9667^{1,3} / 9521² / 9669^{2,3}), KBAC-29 (Part Nos. 9528¹ / 9529²), KBAC-29 (1P) (Part Nos. 10001¹ / 10011^{1,3} / 10002²), KBAC-45 (Part Nos. 9530¹ / 9531²), KBAC-48 (Part Nos. 9540¹ / 9541²), KBAC-217 (Part Nos. 8868^{1,4} / 8879^{2,4}), KBAC-217S (Part Nos. 8863^{1,4} / 8855^{2,4}), KBAC-217F (Part Nos. 8861^{1,4} / 8853^{2,4}), KBAC-217SF (Part Nos. 8869^{1,4} / 8880^{2,4}), KBAC-416 (Part Nos. 8870^{1,4} / 8881^{2,4}), KBAC-416S (Part Nos. 8864^{1,4} / 8856^{2,4}), KBAC-416F (Part Nos. 8874^{1,4} / 8883^{2,4}), KBAC-416SF (Part Nos. 8871^{1,4} / 8882^{2,4})

Notes: 1. Gray case. 2. White case (FDA approved finish). 3. Factory programmed for GFCI operation. 4. Third Generation (3G) models have selectable Jumper (J12) for frequency and GFCI selection.

2 - AC LINE FUSING

All fuses should be Littelfuse 312/314, Bussmann ABC, or equivalent.

CAUTION! Do not fuse motor leads.

The drive does not contain AC Line fuses. Most electrical codes require that each ungrounded conductor contain circuit protection. Do not fuse neutral or ground connections. It is recommended to install a fuse or a circuit breaker (Square D QOU or equivalent) in series with each ungrounded conductor.

3 - AC LINE, MOTOR, AND GROUND CONNECTIONS

See the Drive Layout and General Connection Diagram. Download the Installation and Operation Manual by scanning the QR Code at the top left column of this page.

WARNING! High Voltage! Read Safety Warning before using the drive. Disconnect the main power before making connections to the drive. To avoid electric shock, be sure to properly ground the drive.

CAUTION! The rated AC Line voltage of the drive must match the actual AC Line input voltage. On Models KBAC-24D, 27D the setting of Jumper J1 must match the AC Line input voltage.

AC LINE INPUT: Wire the AC Line input to Terminals L1, L2 (1-phase) or L1, L2, L3 (3-phase).

MOTOR: Wire the motor to TB1 Terminals U, V, W.

GROUND: Connect the ground(s) (earth) to the green ground screw(s) (chassis).

4 - ADJUSTABLE TRIMPOTS

The drive contains trimpots which have been factory set for most applications. Some applications may require readjustment of the trimpots in order to tailor the drive for a specific requirement.

Read Safety Warning.

MAXIMUM SPEED (MAX): Sets the maximum speed of the motor when the Main Speed Potentiometer is set fully clockwise. **Units:** % Frequency Setting

MINIMUM SPEED (MIN): Sets the minimum speed of the motor when the Main Speed Potentiometer is set fully counterclockwise. **Units:** % Frequency Setting

ACCELERATION (ACCEL): Sets the time for the motor to accelerate from zero speed to full speed. **Units:** Seconds

DECELERATION (DECCEL): Sets the time for the motor to decelerate from full speed to zero speed. **Units:** Seconds

DC INJECTION BRAKE (DECCEL): When the drive is set for DC Injection Brake (J7 set to the "INJ" position), the DECCEL Trimpot is used to set the amount of time the DC current is applied to the motor. **Units:** Seconds

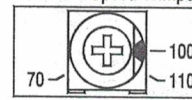
BOOST (BOOST): When the drive is set for Adjustable Boost (J6 set to the "ADJ" position), the BOOST Trimpot can be used to adjust the amount of boost voltage to the motor. **Units:** Volts

MOTOR OVERLOAD (I²) WITH RMS CURRENT LIMIT (CL): Sets the current limit (overload), which limits the maximum current to the motor, which prevents motor burnout and eliminates nuisance trips. **Units:** % Full Load

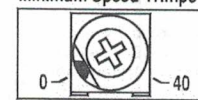
JOG (JOG): Provides a jog speed, which can be used to index a machine into position. It can also be used as a secondary speed setting. Must be used with the optional Run-Stop-Jog Switch (Part No. 9340 or 8889). **Units:** % Frequency Setting

SLIP COMPENSATION (COMP): Sets the amount of Volts/Hz to maintain set motor speed under varying loads. **Units:** Volts/Hz

Maximum Speed Trimpot



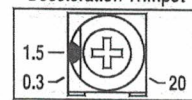
Minimum Speed Trimpot



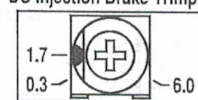
Acceleration Trimpot



Deceleration Trimpot



DC Injection Brake Trimpot



Boost Trimpot



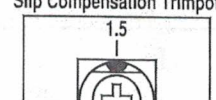
CL Trimpot



Jog Trimpot



Slip Compensation Trimpot

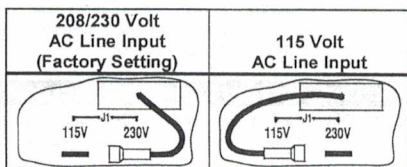


5 - JUMPER SETTINGS

The drive has selectable jumpers which must be set before it can be used.

WARNING! HIGH VOLTAGE! Disconnect the AC Line before changing position of jumpers.

J1 (KBAC-24D, 27D ONLY) (AC LINE INPUT VOLTAGE): J1 is factory installed on Terminal 230V for 208/230 Volt AC Line input. For 115 Volt AC Line input, the jumper must be removed and installed on Terminal 115V.



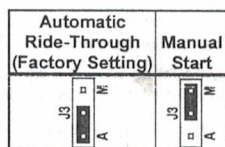
J2 (MOTOR HORSEPOWER): Set J2 to the corresponding position for the motor being used.

KBAC-	24D	27D	29*	29 (1P)*	45*	48*	217 Series*	416 Series*
<input type="checkbox"/>	1	2**	A 3***	3	3	5	5	10
<input type="checkbox"/>	3/4	1 1/2**	B 2***	2	2	3	3	7.5
<input type="checkbox"/>	1/2	1	C 1 1/2	1 1/2	1 1/2	2	2	5
<input type="checkbox"/>	1/4	3/4	D 1	1	1	1 1/2	—	—
<input type="checkbox"/>	1/8	1/2	E 3/4	3/4	3/4	1	—	—

The factory setting is shown in bold.

*J2 on KBAC-29, 29 (1P), 45, 48 is labeled "A, B, C, D, E" and on KBAC-217, 416 Series is labeled "A, B, C", **KBAC-27D is rated 1 1/2 HP maximum with 115 Volt AC Line input and 2 HP maximum with 208/230 Volt AC Line input. ***KBAC-29 is rated 2 HP maximum with 1-phase AC Line input and 3 HP maximum with 3-phase AC Line input.

J3 (AUTOMATIC RIDE-THROUGH OR MANUAL START)*: J3 is factory set to the "A" position for Automatic Ride-Through. If the power is interrupted for up to 2 seconds, the drive will shut down and then "ride-through" and automatically return to the set frequency. If J3 is set to the "M" position, the drive will have to be manually restarted for a momentary power loss using the Start/Stop Switch.

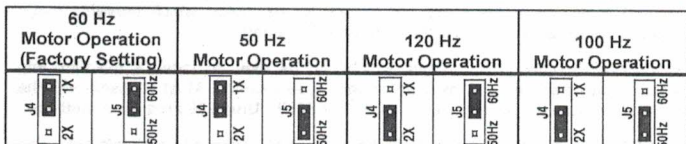


*On KBAC-217, 416 Series and Model KBAC-24D J3 is labeled "AUTO" and "MAN".

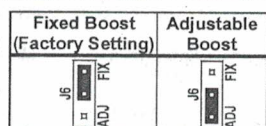
J4 AND J5 (60 HZ AND 50 HZ MOTOR OPERATION AND DRIVE OUTPUT FREQUENCY): Both jumpers must be set for the appropriate motor nameplate frequency rating.

60 Hz and 50 Hz Motor Operation: The drive is factory set to operate 60 Hz motors. J4 is factory set to the "1X" position and J5 is factory set to the "60Hz" position. For 50 Hz motors, set J5 to the "50Hz" position, and J4 to the "1X" position.

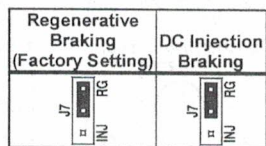
Two Times Rated Motor RPM: The drive can operate motors up to two times the rated RPM. However, constant horsepower will result when operating the drive in the "2X" mode above the motor rated frequency. For 120 Hz output with 60 Hz motor, set J4 to the "2X" position and J5 to the "60Hz" position. For 100 Hz output with 50 Hz motor, set J4 to the "2X" position and J5 to the "50Hz" position.



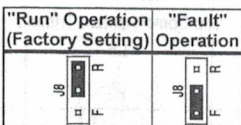
J6 (BOOST MODE): J6 is factory set to the "FIX" position for Fixed Boost. For Adjustable Boost using the BOOST Trimpot, set J6 to the "ADJ" position.



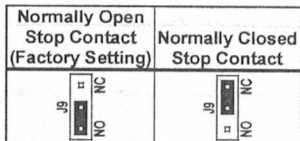
J7 (BRAKING MODE): J7 is factory set to the "RG" position for Regenerative Braking. For DC Injection Braking, set J7 to the "INJ" position. When the Injection Brake Mode is selected, the DECEL Trimpot is used to set the amount of time the DC current is applied to the motor.



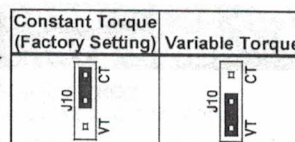
J8 (RUN/FAULT RELAY OPERATION): J8 is factory set to the "R" position for "Run" operation. For "Fault" operation, set J8 to the "F" position.



J9 (STOP CONTACT): J9 is factory set to the "NO" position for a normally open stop contact. For remote normally closed stop contact, set J9 to the "NC" position.



J10 (TORQUE MODE): J10 is factory set to the "CT" position for Constant Torque Mode, which is desirable for most machine applications. For Variable Torque Mode, used for HVAC and fan applications, set J10 to the "VT" position.



J11: Not used.

J12 (SWITCHING FREQUENCY AND GFCI) (Third Generation (3G) Models Only): J12 is set to the "8K" position for a switching frequency at the motor of 8 kHz. For 12 kHz switching frequency, set J12 to the "12K" position. This jumper also allows the drive to be used on standard ("G1"/"GF1" position) or sensitive ("G2"/"GF2" position) GFCIs. **Note:** GFCI operation may increase audible noise.

Third Generation (3G) Models	
<input type="checkbox"/> 8K	8 kHz Switching Frequency*
<input type="checkbox"/> 12K	12 kHz Switching Frequency
<input type="checkbox"/> G1	Standard GFCI
<input type="checkbox"/> G2	Sensitive GFCI
<input type="checkbox"/> E	Not Used

KBAC-217, 416 Series	
<input type="checkbox"/> GF2	Sensitive GFCI
<input type="checkbox"/> GF1	Standard GFCI
<input type="checkbox"/> 12K	12 kHz Switching Frequency
<input checked="" type="checkbox"/> 8K	8 kHz Switching Frequency*

*Factory setting.

6 - OPTIONAL ACCESSORIES

See the KBAC Series Installation and Operation Manual for a complete list and description of optional accessories that are available.

To Validate the 18 Month Warranty, Register this Product Online

KBelectronics.com/registration.htm

HIGH VOLTAGE DIELECTRIC WITHSTAND TEST (HI-POT TEST)

WARNING! Disconnect all AC power before performing hi-pot test.

Testing agencies such as UL, CSA, etc., usually require that equipment undergo a Hi-Pot Test. In order to prevent catastrophic damage to the control, which has been installed in the equipment, it is recommended that the procedure outlined in the Installation and Operation Manual (viewable online and downloadable) be followed.

Do not exceed 1500 VAC for 115 VAC controls.
Control damage may result if hi-pot voltage is exceeded.

Note: Controls have been factory hi-pot tested in accordance with UL508C Standard.

CE INFORMATION

This product complies with all CE directives pertinent at the time of manufacture. Contact our Sales Department for Declaration of Conformity. Installation of a CE approved RFI filter is required. Additional shielded cable and/or AC Line cables may be required.

Note: To meet CE requirements, a separate CE approved filter must be installed.

UL NOTICE

230 Volt Drives: Suitable for use on a circuit capable of delivering not more than 5 kA RMS symmetrical Amperes. 230 Volts maximum. Use copper conductors rated 75 °C. Suitable for operation in a maximum surrounding air temperature of 40 °C.

460 Volt Drives: Suitable for use on a circuit capable of delivering not more than 5 kA RMS symmetrical Amperes. 460 Volts maximum. Use copper conductors rated 75 °C. Suitable for operation in a maximum surrounding air temperature of 40 °C.

SAFETY WARNING! - PLEASE READ CAREFULLY!

This product must be installed and serviced by a qualified technician, electrician, or electrical maintenance person familiar with its operation and the hazards involved. Proper installation, which includes electrical connections, fusing or other current protection, and grounding, can reduce the chance of electrical shocks, and/or fires, in this product or products used with this product, such as electric motors, switches, coils, solenoids, and/or relays. Do not use this drive in an explosion-proof application. Eye protection must be worn and insulated adjustment tools must be used when working with drive under power. This product is constructed of materials (plastics, metals, carbon, silicon, etc.) which may be a potential hazard. Proper shielding, grounding, and filtering of this product can reduce the emission of radio frequency interference (RFI) which may adversely affect sensitive electronic equipment. It is the responsibility of the equipment manufacturer and individual installer to supply this Safety Warning to the ultimate end user of this product. (SW 8/2012)

The control contains electronic Start/Stop circuits, which can be used to start and stop the control. However, these circuits are never to be used as safety disconnects since they are not fail-safe. Disconnect the input power for this purpose. Be sure to read and follow all instructions carefully. Fire and/or electrocution can result due to improper use of this product.

The information contained in these instructions is intended to be accurate.

However, the manufacturer retains the right to make changes in design which may not be included herein.



KB Electronics, Inc.
12095 NW 39th Street, Coral Springs, FL 33065-2516
Phone: (954) 346-4900 • Fax: (954) 346-3377
Call Toll Free: (800) 221-6570
E-Mail: info@kbelectronics.com • Website: www.kbelectronics.com

COPYRIGHT © 2018 KB Electronics, Inc.
(A40810) - Rev. B00 - 1/24/2018

Jumper Settings are continued at the top right column of this page.