



# ROTARY PHASE CONVERTERS

240 VOLT SERIES

Model: EZ

# OPERATION & INSTALLATION MANUAL

**American Rotary, LLC**  
[www.AmericanRotary.com](http://www.AmericanRotary.com)

2014

# **EZ Phase / American Rotary**

**2 / 5 / LIFETIME**

## **LIMITED WARRANTY**

### **Rotary Phase Converters**

All American Rotary rotary phase converter control panels are warranted against defects in material and workmanship for a period of 5 years. This warranty covers both control panel parts and labor for 2 years, after 2 years, only parts are warranted. The American Rotary Baldor Idler / Generator is covered by Baldor's 2 year warranty. The rotor is warranted for lifetime against defects in material and workmanship to the original owner. Warranty is from the date of purchase by the original owner. American Rotary will repair or replace (at our option), at no charge, any part(s) found to be faulty during the warranty period specified. The control panel warranty repairs must be performed by/at American Rotary's facility. Baldor Idler repairs or replacements must be performed by/at American Rotary's facility, or at a Baldor Authorized Service Center. Baldor Idler repairs or replacements must also be pre-authorized in writing by American Rotary.

#### **Obligations of the Original Owner**

1. The original Bill of Sale must be present in order to obtain "in-warranty" service
2. Transportation of control panels to American Rotary is the responsibility of the original purchaser. Return transportation is provided by American Rotary when the control panel is "in-warranty"
3. Repair or replacement control panels "out of warranty" will not be returned without pre-payment. Shipping to and from American Rotary is the responsibility of the customer.
4. American Rotary will not accept Baldor Idler returns or repairs sent to American Rotary. All Baldor issues are handled by Baldor Authorized Service Centers.

#### **Exclusions of the Warranty**

This warranty does not cover any of the following: accident, misuse, fire, flood, and other acts of God, acts of terrorism, nor any contingencies beyond the control of American Rotary, including water damage, incorrect line voltage, improper installation, installation where this unit will not meet local electrical codes, missing or altered serial numbers, and service performed by an unauthorized facility. American Rotary's liability for any damages caused in association with the use of American Rotary's equipment shall be limited to the repair or replacement only of the American Rotary's equipment. No person, agent, distributor, dealer, or company is authorized to modify, alter, or change the design of this merchandise without express written approval of American Rotary.

Liability Limitation: In no event shall American Rotary be liable or responsible for consequential, incidental or special damages resulting from or related in any manner to any American Rotary product, third party installation(s), manufactured or distributed, or parts thereof. A licensed electrician must perform all installations. Not all American Rotary phase converters are UL listed, this is an option the customer must specify and additional charges will apply. American Rotary is not responsible for meeting, complying with or insuring installation inspections. American Rotary does not accept returns on units that have been installed or energized.

**INSTALLATIONS MUST COMPLY WITH ALL NATIONAL AND LOCAL ELECTRICAL CODE REQUIREMENTS AND MUST BE INSTALLED BY A QUALIFIED LICENSED ELECTRICIAN. CUSTOMER IS RESPONSIBLE FOR MAKING SURE THIS PHASE CONVERTER CAN PASS INSPECTION WHERE INSTALLED.**

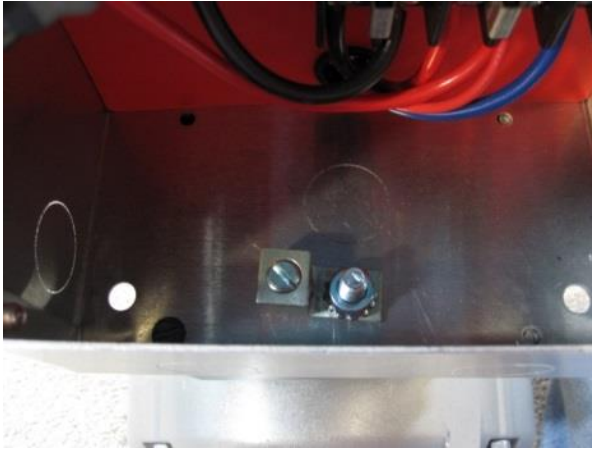
#### **American Rotary Converter™**

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## EZ Phase Installation Instructions



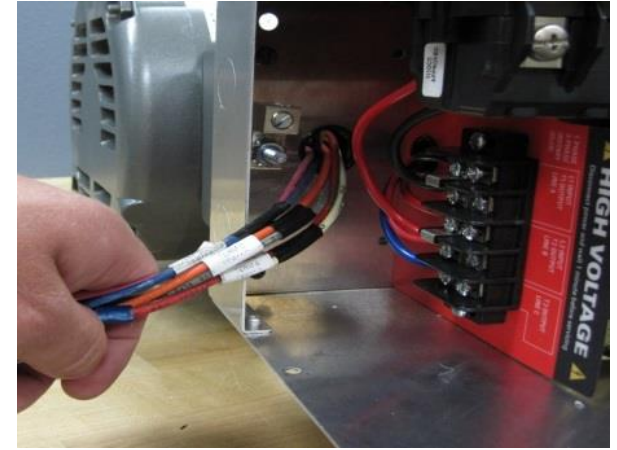
### 1. Install Ground Lug:

Choose one of the 3 mounting holes to use for the ground lug. Secure the ground lug with the flush head (captive) bolt and nut provided.



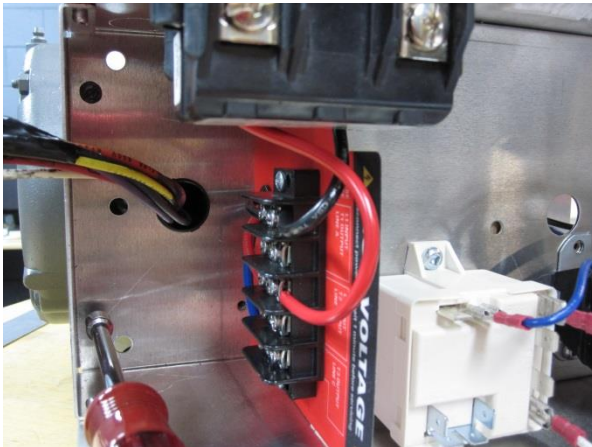
### 2. Mount Enclosure (Wall):

Use the other two mounting holes in the wiring compartment and any of the upper 3 mounting holes to secure the enclosure to the wall.



### 3a. Mount Enclosure (Idler/floor) & Idler Wires:

Remove idler conduit cover and pull the idler wires through the enclosures rear hole after installing the snap bushing.



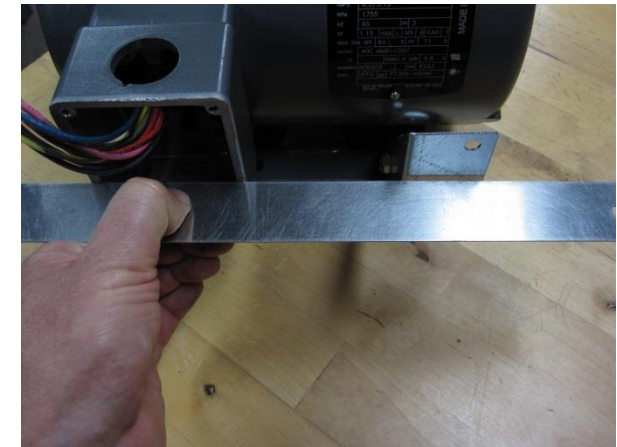
### 3b. 7.5 and 10 HP

Use the cover screws to secure the enclosure to the idler conduit box. Do step 4b first for 7.5 and 10 HP units. 5HP units only use 2 screws and the bracket as in step 4a. All other units use all 4 screws.



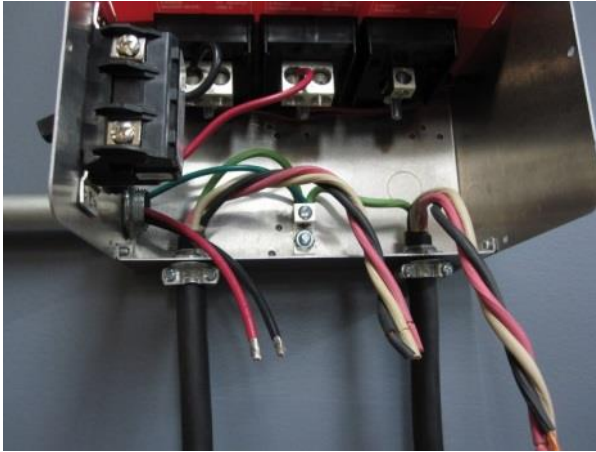
### 4a. 5 HP Idler/floor Bracket:

Loosely secure the bracket to the idler base flange as shown. Bolt the upper half of the bracket to the back of the enclosure. (5HP only). Bolt the two bracket halves together and then tighten the base flange and enclosure connections.



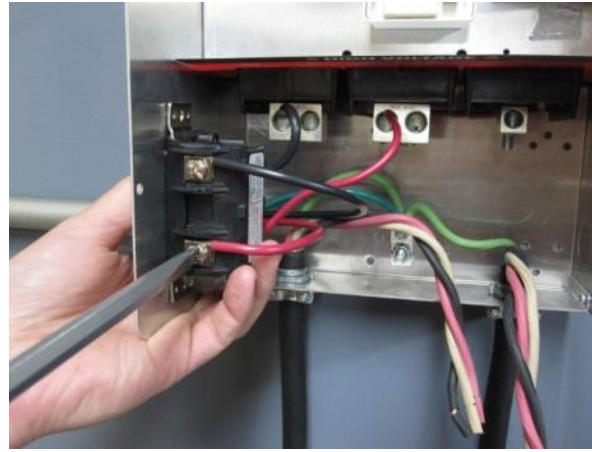
### 4b. 7.5 & 10 HP Idler/floor Bracket (7.5 & 10HP)

Align and tighten the bracket to the idler flange as shown, leaving approximately a 1/16 inch gap from the plane of the idler conduit box face. Apply the double side tape to the face of the bracket to that it will seat flat to the back of the enclosure. (*enclosure removed for clarity*)



#### 5. Conduit Fittings:

Use one of the 4 laser knockouts to secure your conduit fittings. Pull the single phase input and three phase output wires being sure to leave enough to reach the terminals.



#### 6. Single phase connection:

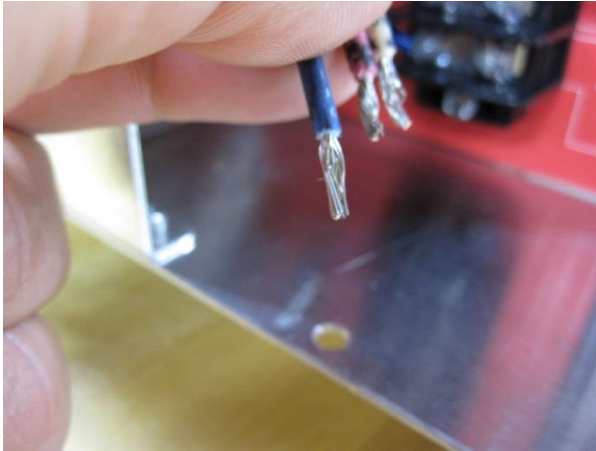
Connect the 240 volt single phase wires to the terminals on the switch. Connect the single phase ground to the ground lug. (Disconnect Single Phase Power before working inside the enclosure)



#### 7. Idler connection Floor Mount (1-5 HP):

The idler comes with ring lugs. Bolt wires 4,5 & 6 together with the hardware supplied and insulate using electrical tape. Cut off the remaining ring lugs and strip the wire ends to 1/4 inch.

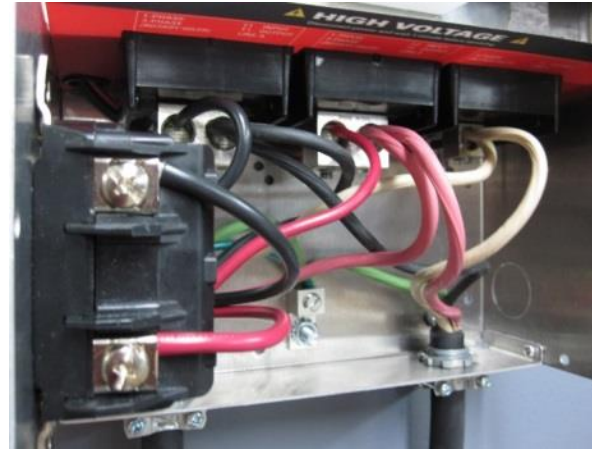
Connect wires 1 & 7 to Terminals labeled Line A.  
Connect wires 2 & 8 to Terminals labeled Line B.  
Connect wires 3 & 9 to Terminals labeled Line C.  
Run a ground wire from the Idler conduit box to the enclosure ground.



#### 8. Idler connection Wall Mount (7.5-10 HP):

The idler comes with ring lugs. Bolt wires 4,5 & 6 together with the hardware supplied and insulate using electrical tape. Use the ring lugs to connect to the terminal blocks using the nuts provided (remove the nuts that are on the terminal blocks and reuse them).

Connect wires 1 & 7 to Terminals labeled Line A.  
Connect wires 2 & 8 to Terminals labeled Line B.  
Connect wires 3 & 9 to Terminals labeled Line C.  
Run a ground wire from the Idler conduit box to the enclosure ground.



#### 9. Secure Load Wires:

Use the remaining terminals for the 3 phase output lines T1, T2 & T3. Secure a ground wire from the load to the enclosure ground.

#### 10. Test the Phase Converter:

With the motor starter switch OFF, turn on the single phase power and measure the voltage at the switch input terminals. With the Load OFF, turn on the phase converter using the motor starter switch. The converter should start in less than one second and should be very quiet. If it does not start, turn off the converter and trouble shoot the installation. Finally secure the cover.

**Congratulations!**  
**You now have utility quality 3-phase power.**



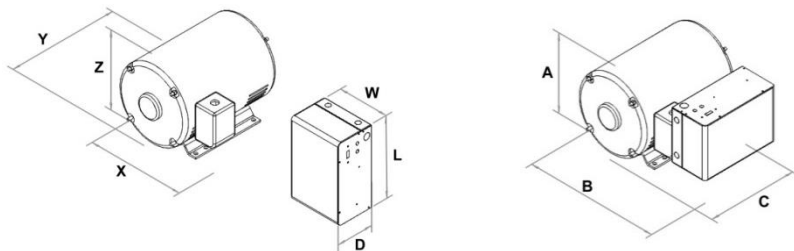
## EZ Phase Installation Data

	1 $\phi$	3 $\phi$	Panel to Idler
<b>Wire Size</b>	1-5HP: 12ga 7.5-10HP: 10ga	12ga	12ga
<b>Breaker</b>	1-5HP: 30amp MAX (based on 12ga Wire) ~2x load 3 $\phi$ amps 7.5-10HP: 40amp MAX (based on 10ga Wire) ~2x load 3 $\phi$ amps	MIN=load 3 $\phi$ amps x 1.25  MAX=30amp (based on 12ga wire)	N/A
<b>Safety Disconnect Switch</b>	30amp (optional)	30amp (optional)	N/A

Amps @ Operating Voltage		
208V	240V	480V
=HP X 3.2 =(kw X 3.2)/PF = Kva/3.2	=HP X 2.8 =(kw X 2.8)/PF = Kva/2.75	=HP X 1.4 =(kw X 1.4)/PF = Kva/1.4

## Dimensions & Weights

Part Number AR AD ADX	1	2	3	5	7.5	10
<b>L (in.)</b>	10	10	10	10	12.5	12.5
<b>W (in.)</b>	5.5	5.5	5.5	5.5	8.25	8.25
<b>D (in.)</b>	5.75	5.75	5.75	5.75	5.75	5.75
<b>X (in.)</b>	9.0	9.0	9.5	11.5	13	12.5
<b>Y (in.)</b>	9.0	9.75	11	12	12.5	12
<b>Z (in.)</b>	7.25	7.25	7	8.5	9.5	10
<b>A (in.)</b>	7.25	7.25	7.25	8.5	10.75	10.75
<b>B (in.)</b>	14.75	14.75	14.75	12	13.25	14.25
<b>C (in.)</b>	11.5	11.5	11.5	12	13.25	14.25
<b>Weight (lbs.)</b>	35	42	51	72	93	119



General Specification						
Part Number AR AD ADX	1	2	3	5	7.5	10
<b>kW of Generator (based on FLA)</b>	0.75	1.5	2.2	3.7	5.6	7.5
<b>Idler/Generator FLA</b>	3	6	9.6	14	21	28
<b>Frequency (Hz)</b>	60					
<b>Generator Type</b>	GENTEC/Variable Impedance					
<b>Magnetic Starter</b>	Included (remote start ready)					
<b>Panel Enclosure</b>	NEMA 1					
<b>Temperature rating</b>	40 C Ambient					
<b>Wave Form</b>	Pure Sinusoidal Analog					
<b>Phase Angle</b>	120 degrees					
<b>Efficiency</b>	97%					

Three Phase Output Specifications (continuous)						
<b>Output voltage</b>	equals input voltage					
<b>Voltage tolerance</b>	meets IEEE Std. 241-1990 utility					
<b>3-phase output configuration</b>	3-wire delta					
<b>Service factor</b>	1.15					
<b>Output Frequency (Hz)</b>	Input Frequency					
<b>-Output Current-</b>						
<i>(use for resistive &amp; rectified loads, i.e. Welder, CNC, VFD, Power-supply)-amps @ 240V</i>						
<b>3-phase output current recommended for best balance</b>	1.5	3	4.8	7	11	14
<b>Max. current for IEEE Std. utility line</b>	1.9	3.8	6	9	13	17
<b>-Starting Motor Loads- (HP/kW)</b>						
<b>Maximum HP start (Light Load)</b>	.75/.56	1.5/1.1	2/1.5	3/2.2	5/3.7	7.5/5.6
<b>Maximum HP start (Moderate Load) Type 1</b>	.5/.37	1/.75	1.5/1.12	2.5/1.9	3/2.2	5/3.7

Single Phase Input Specifications (continuous)						
<b>Voltage Input</b>	208-250					
<b>Input Frequency (Hz)</b>	60					
<b>1-ph amps</b>	3 Phase Amps x 1.6					
<b>Power Consumption (kW)</b>	0.02	0.04	0.05	0.08	0.11	0.15
<b>Cost to Run (@.10/kW/HP)</b>	\$0.02/hr	\$0.04/hr	\$0.05/hr	\$0.08/hr	\$0.11/hr	\$0.15/hr
<b>Minimum Breaker Size</b>	2 x load current					

\*Conductors should be sized according to Minimum Breaker Size and NEC requirements