

#2 **DO NOT connect** any power, 240V or a ground or neutral to line 3 of the terminal block. This will cause instant failure. A ground or neutral is not required for operation, however, a ground should be attached to the conduit box. Holes are provided for this. All resistive and or single phase loads should use lines 1 and 2 (same as the incoming single phase lines).

#3 **Equipment with controls or magnetic switch gear MUST operate** the controls from the single phase lines T1 and T2 (terminals 1 and 2). To find these lines, apply single phase 240 volts to any two of the three machine terminals. The magnetics will work when the correct two lines are found. Line 3 should go to the remaining terminal **ONLY AFTER LINES COMING FROM TERMINALS 1 & 2 ARE IN THE PROPER PLACE ON THE MACHINE**. The direction of the motor can be reversed by switching the two single phase lines.

#4 **The Red indicator lamp** indicates that the start circuit is in. This lamp should only stay on for 2-3 seconds. Any longer and permanent damage can result. Always wait until the lamp is off before walking away from converter. If your machine has not started in 2-3 seconds, turn off the machine immediately and troubleshoot the installation.

#5 **When first testing** the phase converter operation, take the machine out of gear or put it into the lowest possible gear in order to reduce the starting load. If the machine does not start within 2-3 seconds, turn it off and troubleshoot.

#6 **DO NOT use fuses** between the phase converter and the motor. They may be used on the single phase side. A three phase breaker or magnetic starter may be used between the phase converter and the motor so that all three lines break at the same time.

#7 **Heavily Loaded Applications** compressors, pumps, blowers, etc. Should reduce gearing by 30% or increase the motor size by 50%. Method number 2 or 3 should be tried. A GENTEC or American Rotary rotary phase converter is ideal for such applications.

4. Troubleshooting

#1 **Humming noise when converter is off** is normal.

#2 **Motor runs backwards** can be reversed by switching lines 1 and 2 after the converter.

#3 **Motor does not start or come up to full speed** Check the following:

- A. Motor wired for 460 volts.
- B. Converter is too large for the motor. (Call for assistance in decreasing power)
- C. Converter is too small for the motor. (Call for assistance in increasing power)
- D. Controls for machine must be hooked up to lines 1 and 2.

GENTECTM
PHASE CONVERTERS

STATIC PHASE CONVERTER(adjustable power) OPERATION & INSTALLATION MANUAL & WARRANTY

During the time periods and subject to the conditions hereinafter set forth, **American Rotary (AR)** will repair or replace to the original user or consumer any portion of your new **AR product which proves defective due to defective materials or workmanship of AR**. Contact your nearest authorized **AR** dealer for warranty service. At all times **AR** shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components. Damage due to equipment, environment or conditions beyond the control of **AR** are NOT COVERED BY THIS WARRANTY. Due to the nature of this product, once the original packaging is opened, the converter may not be returned. Carefully read These installation instructions carefully to insure damage will not occur to the converter. Due to the large variations in motor types and loads, additional capacitors may need to be purchased to fine tune the converter for proper operation.

WARRANTY PERIOD

Static Phase Converter: 12 months from the date of purchase. Static phase converters are non-returnable.

LABOR, COSTS: AR shall IN NO EVENT be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or reaffixing any **AR** product, part or component thereof.

THIS WARRANTY WILL NOT APPLY: (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures resulting from abuse, accident, or negligence; (c) to normal maintenance services and the parts used in connection with such service; (d) to units which are not installed in accordance with applicable codes, ordinances and good trade practices; or (e) to unit used for purposes other than for what it was designed and manufactured, and (f) if the red light on the front of the converter is kept on for more than 3 seconds. This can be determined by the failure of a starting capacitor inside the box.

RETURN OR REPLACED COMPONENTS: any item to be replaced under this Warranty must be returned to **AR** at Port Washington, Wisconsin, or such place as **AR** may designate, freight prepaid. All returns are subject to a minimum 25% restocking charge plus the cost of replacement parts and labor as determined by American Rotary. All parts for repair or replacement converters must be prepaid until cause and determination of failure is determined in writing by **AR**.

PRODUCT IMPROVEMENTS: **AR** reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and /or shipped prior to such change or improvement.

WARRANTY EXCLUSIONS: as to any specific **AR** product, after the expiration of the time period of the warranty applicable thereto as set forth above. THERE WILL BE NO WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. No warranties or representations at any time made by any representative of **AR** shall vary or expand the provisions hereof.

LIABILITY LIMITATION: IN NO EVENT SHALL **AR** BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY **AR** PRODUCT OR PARTS THEREOF. **ALL INSTALLATION MUST BE PERFORMED BY A LICENSED ELECTRICIAN.**

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

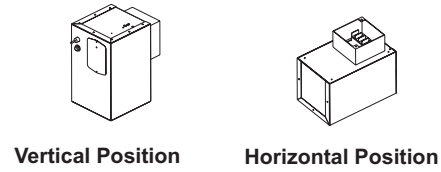
This Warranty gives you specific legal rights and you may also have other rights which vary from state to state. In the absence of other suitable proof of this installation date, the effective date of this Warranty will be based upon the date of manufacture plus one year. Direct All Notices To:

Warranty and Product Service Department

WARNING: The red light on the front of the unit can only be on for **2-3 seconds**. Turn the machine OFF after 3 seconds if it does not start! Failure to do this will result in permanent damage to the converter. This is not covered in the warranty!

1.0 Mounting Positions

Two mounting tabs and sheet metal screws are provided for mounting the enclosure. The converter may be mounted in any vertical position, and horizontally with the conduit box on the **TOP**.



2.0 Hook Up Options

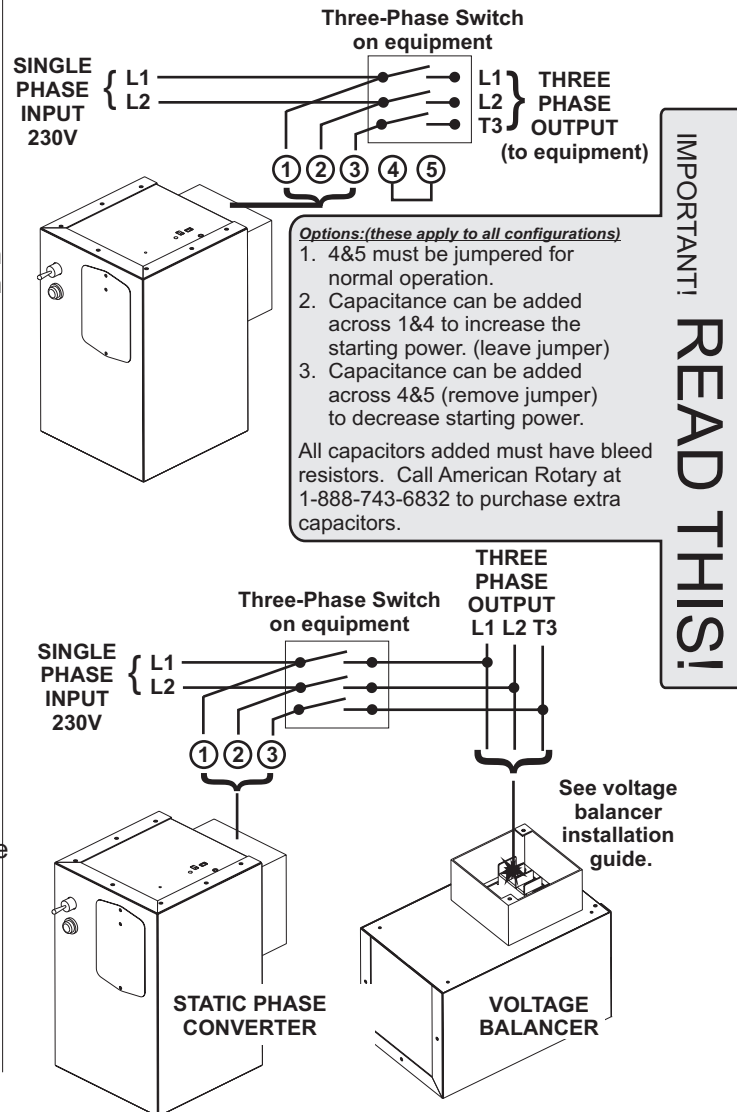
Method 1: Most common method
Produces 2/3 power, 1/2 power for delta wound motors

Three phase output goes directly into machine switch. Voltage from 1 to 3 and 2 to 3 will be lower than the single phase voltage.

Please Visit www.AmericanRotary.com for voltage balancers!

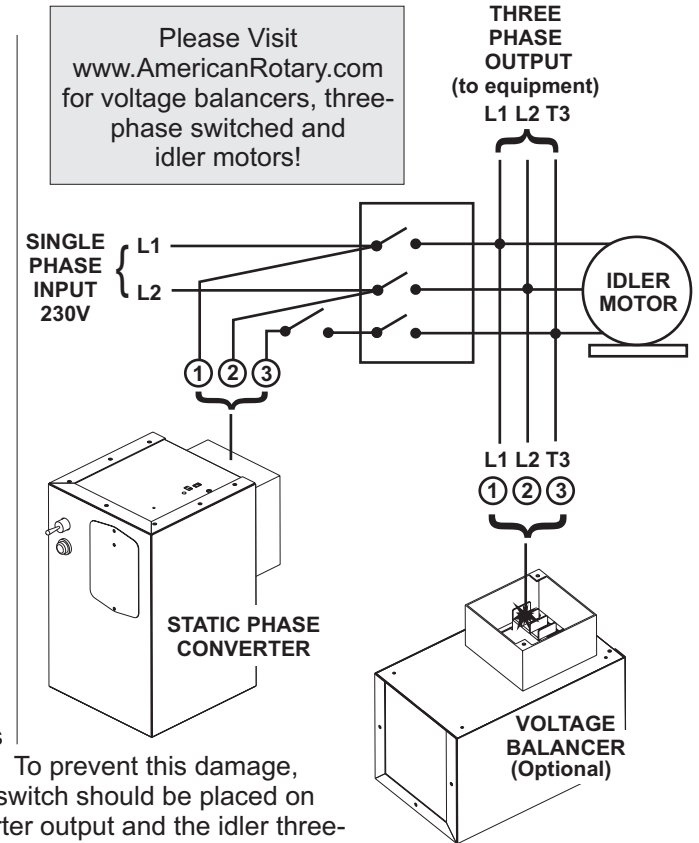
Method 2: Balanced voltage/ power factor corrected method
Can produce more power than method #1

Three phase output goes directly into machine switch. Voltage balancer is hooked up in parallel with three-phase output. Voltage can be balanced. Motor is capable of more power than in method 1. Machine runs quieter



Method 3: Idler motor method w/ optional voltage balancer
Can produce up to 100% power.

Close to full horsepower can be produced by machine when a three-phase motor is run in conjunction with the static phase converter. Sizing this system is similar to sizing a rotary phase converter. Multiply the machine motor size by at least 1.5 for moderate loads and by 2.0 for heavy loads. Start the idler motor before starting the load. Use lines L1 and L2 (1 & 2 on the terminal block) for all controls



CAUTION: Heavy loads may cause the static phase converter to engage its starting circuit while running. This can damage the phase converter. To prevent this damage, a single phase safety disconnect switch should be placed on line T3 between the phase converter output and the idler three-phase switch (as shown in the diagram to the right). This switch has to be closed to start the idler, and should be opened before starting the load and after the indicator lamp has gone out. NEVER turn the switch back on while running. This will cause damage to the phase converter.

3.0 Installation Notes

#1 **Properly Size Phase Converter and Wire.** The HP of the first motor to start must be between the ratings of the phase converter. Motors smaller than the first motor may be started after the first motor is started. Smaller motors may then be kept running even while the first motor is stopped and/or restarted. Trying to start a smaller motor than the converter is rated for can over-excite the motor and cause damage to the converter and/or motor. A larger static phase converter will not provide more power. Wires should be sized for the maximum rated peak current of the motor or machine, which ever is greater. Going up one size wire for every 50 feet of run helps in motor starting. **Local Codes** should be used to ensure proper wire size. Installation must be performed by a licensed electrician. **Properly ground all electrical equipment!**