Precision GP5PL Phoenix Phase Converters User Manual

Contents

Precision GP5PL Phoenix Phase Converters

Product Information

Specifications

- Model: GP5PL VER 1.1.0
- Power Requirements: Single Phase
- Idler Motor: 5 HP

GENERAL SPECIFICATIONS	
HP	5
KW	3.3
KVA	4.43
HZ	50/60
ENCL	TEFC/NEMA 4
FRAME	184T
IDLER WEIGHT	110.25
PANEL WEIGHT	18

SINGLE PHASE ELECTRICAL SPECS	
VOLTAGE INPUT	208-250V
MOTOR LOAD BREAKER Minimum Size	10
MOTOR LOAD BREAKER Maximum Size	20
SERVICE KVA Minimum Size	15
SERVICE AMPS Minimum Size	30
COPPER WIRE Minimum Size	10

CONSTRUCTION, DIMENSIONS, WEIGHT	
ELECTRICAL PANEL	
ENCLOSURE TYPE	NEMA 4
ENCLOSURE CERTIFICATIONS	UL 508A (CSA C22.2 No. 14-13.), TUV, CE.
COLOR	Light Gray
HEIGHT	12
WIDTH	12
DEPT	4
MOUNTING	Wall Mount

THREE PHASE ELECTRICAL SPECS	
VOLTAGE OUTPUT	208-230 Volts Delta
MAX OUTPUT INDUCTIVE LOAD AMPS	14
MAX OUTPUT RESISTIVE LOAD AMPS	7
VOLTAGE BALANCING	+/-2%
WIRE SIZE MIN Idler/Generator	10
LARGEST SPINDLE MOTOR START	1
LARGEST COMPRESSOR LOAD START	1
TOTAL COMBINED HORSEPOWER RUN	3

Product Usage Instructions

Power Requirements

Before installation, it is important to verify the KVA size of the transformer with your electric company. The KVA number should be larger than the HP of the idler motor.

Checking Connections

Ensure that all connections, including factory connections to the power block, are secure. It is recommended to recheck connections after a few weeks of using the converter.

Understanding Speed and Shutdown

If you experience any issues with the speed of the phase converter, it is important to shut it down immediately. Failure to do so may result in damage to the idler motor, which will not be covered under warranty. If you are unsure, please contact us or a qualified electrician for assistance.

Breaker and Fuse Sizes

For motors, it is recommended to double the amp size of the machine when selecting a breaker. For example, if the equipment pulls 20 amps, use a 40 amp breaker. When running multiple machines simultaneously, calculate the
total amps by adding the amp size of the largest machine to the lamps of the other machines. For example, if you have a 20 AMP lathe, a 9 amp saw, and a 6 amp milling machine, the calculation would be: 20 X 2 = 40 + 9 + 6 = 45 amps. In this case, use the next standard size breaker, which would be a 50 Amps two-pole breaker.

For rural areas, it is recommended to increase the minimum size breaker by 20%.

Wire and Breaker Sizes

For single-phase connections:

- 8 AWG Copper should be used for distances under 50 feet.
- Idler motor wire should be 10 AWG copper.
- The breaker/fuse size should be 15 amps minimum and 30 amps maximum.

Connecting the Idler Motor Wires

Refer to the illustrations provided in the manual for connecting the idler motor wires. Do not use wire nuts; instead, use bolt-down lugs.

Installation by a Licensed Electrician

The installation of the product must be carried out by an industrial licensed electrician. Ensure that the motor load breaker is sized twice the full load amps of your equipment.

For PL and PH models, connect the idler motor wires as follows:

- Lead 1,7 to L1
- Lead 2,8 to L2
- Lead 3,9 to L3
- Lead 4,5,6 together

For single-phase circuit breaker panels, a disconnect should be used if the run is over 50 feet.

For NL and PL models (low voltage), use a 230V connection. For NH and PH models (high voltage), use a 460V connection.

READ FIRST – BEFORE INSTALLATION

- Most important step to know.
- NEVER Start the phase converter with a load, this includes transformers.
- Make sure you have the incoming service to start the phase converter, call your electric company verify the KVA size of the transformer, that KVA number should be larger then the HP of the idler motor.
- DO NOT use WIRE NUTS for any connection, use the bolt down lugs.
  Check all make sure all connections even factory connections to the power block are secure, also recheck connections after a few week of using the converter.
- When powering up the unit, if the idler does NOT come up to FULL SPEED, then shut the phase converter down right away. If you don’t understand then call us or a qualified electrician. if you do not turn the unit off you have a chance to damage the idler motor that will not be covered under warranty.
- Must be installed by a license industrial electrician, our guidelines are not to supersede local and state laws.

Power requirements

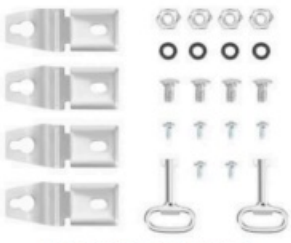
- You will need to use a motor load type breaker. NOT a quick blow or trip breaker.
- Sizing a breaker for a single machine with an inductive load (motors) double the amps size of the machine.

Example if the equipment pulls 20 amps use a 40 amp breaker.

- Sizing the equipment for multiple machine double the amp of the largest machine and add the the other machine that will run at the same time. Example; 20 AMP Lathe. 9 amp saw, 6 amp milling machine. 20 X 2 = 40 +9 + 6 = 45 amps, use the next standard size breaker which would be 50 Amps two pole breaker.
- Use the chart to make sure you don't go over or under the Minimum and maximum size allowed. For rural areas increase the minimum size breaker by 20% Click on the next picture to see this chart.

WIRE AND BREAKER SIZES	
SINGLE PHASE	8 AWG Copper under 50 feet
IDLER MOTOR	10 AWG COPPER
BREAKER/FUSE	15 MIN / 30 MAX

Mounting the Phase Converter Panel



Additional mounting brackets and hardware are inside the enclosure.

Indoor or outdoor enclosure

Mount the enclosure first, to a non-vibrating surface, there are two options provided for mounting, next install the back plate with the four nuts provided. Mounting the phase converter panel near the breaker panel is

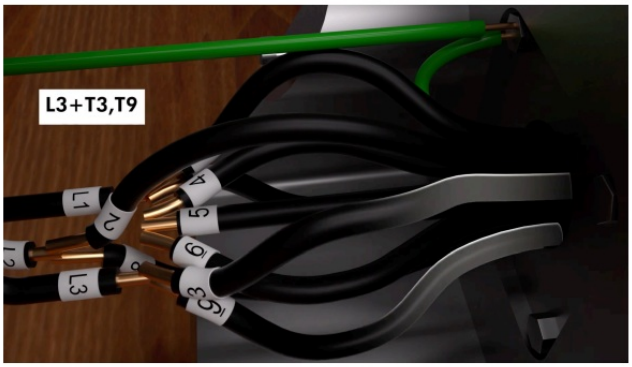
recommended the larger wire is your single phase line, so that is best to keep it as short as possible. Every 50 feet you will need to increase the size of the single-phase wire.

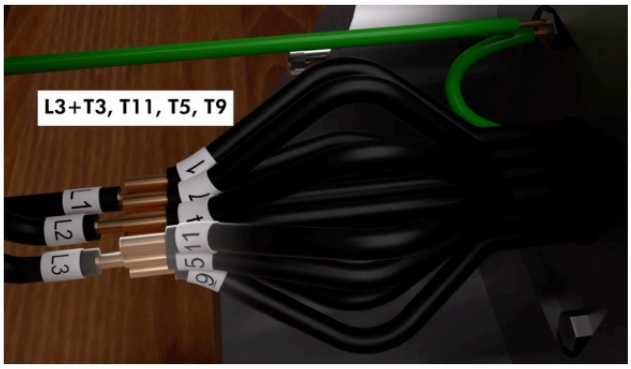
CONNECTING THE IDLER MOTOR WIRES

THIS IS JUST A ILLUSTRATION OF WHAT WIRES GET CONNECTED TOGETHER, **DO NOT USE WIRE NUTS**, USE BOLT DOWN LUGS

IF YOU HAVE 9 LEADS AT THE MOTOR CLICK HERE

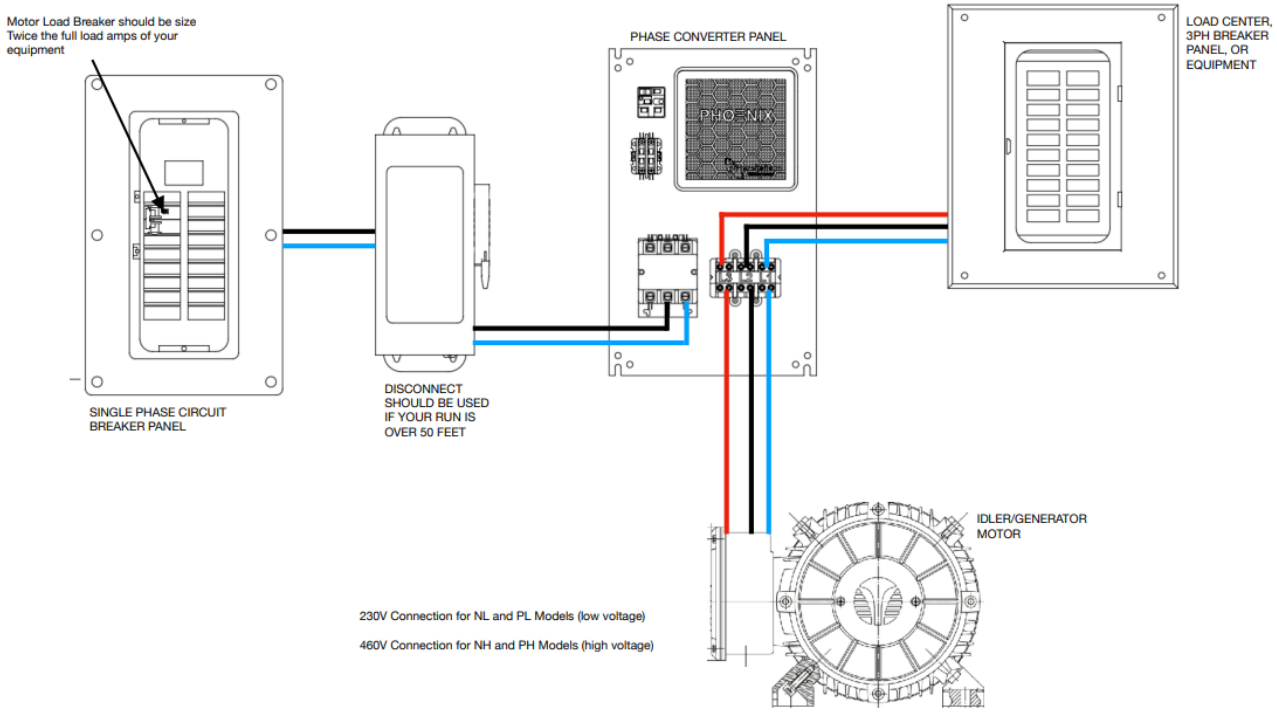
IF YOU HAVE 12 LEADS AT THE MOTOR CLICK HERE

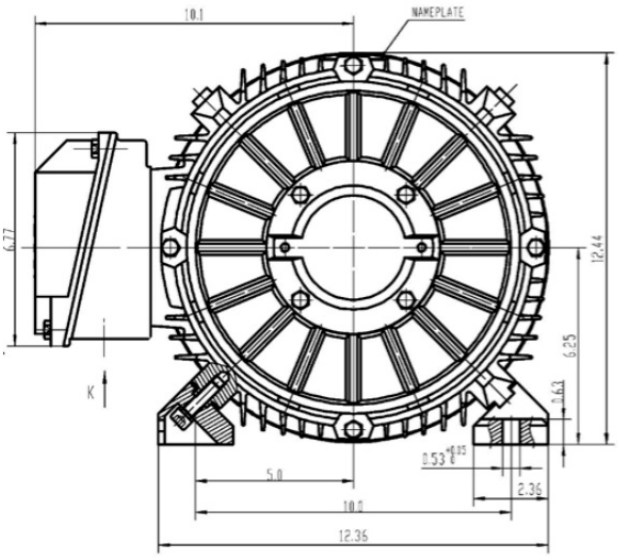


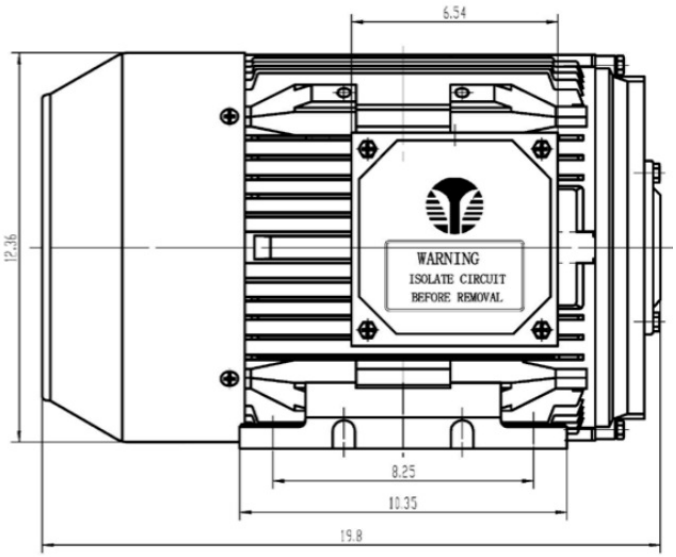


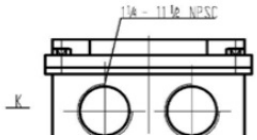
PL AND PH MODELS

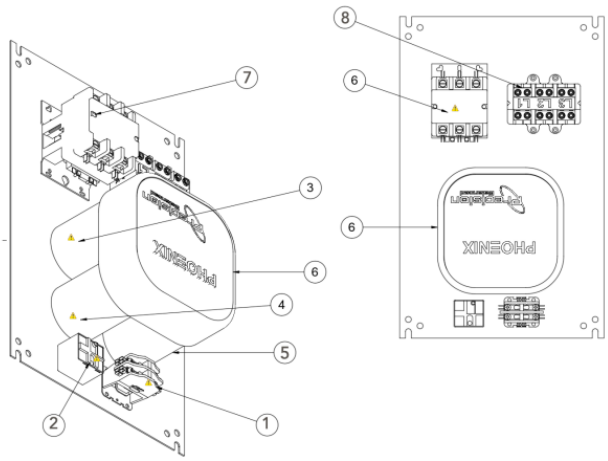
MUST BE INSTALLED BY A INDUSTRIAL LICENSED ELECTRICIAN











5 HP Rotary Phase Converter Components				
Item Number	Description (click on the description to visit the link to the item)	Quantity in Model	PRICE	SKU# Click SKU for 3d Viewing
1	Two Pole Contactor - 230 Volts 30-40 Amps	1	28.00	GP2P30A
2	Relay 90-66	1	47.00	GP90-66
3	100 MFD 370V Run Capacitor (SILVER CAP)	2	26.00	
4	630 MFD 220V Start Capacitor (BLACK LARGER CAP)	1	24.14	
5	270-324 MFD 220V Start Capacitor (BLACK SMAL CAP)	1	18.00	
6	Capacitor Holder and Lid	1	115.00	
7	3 Pole Contactor 50-60 AMP 230 Volts	1	52.84	C375C
8	5 HP 3 Pole Power Block	1	45.00	

FAQ

Q: Can I install the product myself?

A: No, the product must be installed by an industrial-licensed electrician.

Q: What is the power requirement for the idler motor?

A: The idler motor is a 5 HP motor.

Q: What wire size should I use for single-phase connections?

A: For distances under 50 feet, use 8 AWG copper wire. For the idler motor, use 10 AWG copper wire.

Documents / Resources

	Precision GP5PL Phoenix Phase Converters [pdf] User Manual GP5PL Phoenix Phase Converters, GP5PL, Phoenix Phase Converters, Phase Converters, Converters

References

- Autodesk A360
- Autodesk A360
- 100 MFD Round Motor Run Capacitor (370V) – Phoenix Phase Converters
- 630-750 MFD - 250V Start Capacitor – Phoenix Phase Converters
- CONTACTOR 3 POLE 60 AMPS 208/240 COIL VOLTAGE – Phoenix Phase Converters
- Potential Relay 90-66 | Phoenix Phase Converters
- Power Block fit 25 HP to 40 HP Rotary Phase Converters – Phoenix Phase Converters
- Two Pole Contactor 230 Volts - 30 Amps | Phoenix Phase Converters
- User Manual