Precision GP20PL Phoenix Phase Converters User Manual

Contents

Precision GP20PL Phoenix Phase Converters

Product Information

Specifications

- Model: GP20NL
- Power requirements: Single phase
- Idler Motor Breaker/Fuse: 40 MIN / 100 MAX

Product Usage Instructions

Power Requirements

Before installation, call your electric company to verify the KVA size of the transformer. The KVA number should be larger than the HP (Horsepower) of the idler motor. Make sure all connections, including factory connections to the power block, are secure. Recheck connections after a few weeks of using the converter.

Breaker and Wire Sizes

For motors, double the amps size of the machine. For example, if the equipment pulls 20 amps, use a 40 amp breaker. To determine the breaker size for multiple machines running at the same time, calculate the sum of the largest machine's amps and the amps of the other machines. For example, if you have a 20 AMP Lathe (20 amps), a 9 amp saw, and a 6 amp milling machine, the total would be 20 + 9 + 6 = 35 amps. In this case, use the next standard size breaker, which would be a 40 Amps two-pole breaker.

WIRE AND BREAKER SIZES (SINGLE PHASE)

- 4 AWG Copper under 50 feet

Connecting the Idler Motor Wires

This is just an illustration of what wires get connected together. Do not use wire nuts, use bolt-down lugs. Refer to the specific instructions for your motor:

- If you have 9 leads at the motor, follow the instructions provided.
- If you have 12 leads at the motor, follow the instructions provided.

Installation by a Licensed Electrician

The product must be installed by an industrial licensed electrician. Follow the specific instructions for your model and ensure that the motor load breaker is sized twice the full load amps of your equipment.

PHASE CONVERTER PANEL

Connect the 9-wire idler motor as follows: Lead 1,7 to L1. Lead 2,8 to L2. Lead 3,9 to L3. Lead 4,5,6 together.

SINGLE PHASE CIRCUIT BREAKER PANEL

Use a disconnect if your run is over 50 feet. Connect the 230V for NL and PL Models (low voltage) or the 460V for NH and PH Models (high voltage).

Idler/Generator Motor

Refer to the provided diagram and connect the 12-wire idler motor as follows: Lead 1,7,6,12 to L1. Lead 2,4,10,12 to L2. Lead 3,5,9,11 to L3.

FAQ

Q: Do I need to call my electric company before installation?

A: Yes, it is recommended to call your electric company to verify the KVA size of the transformer.

Q: Can I use wire nuts to connect the idler motor wires?

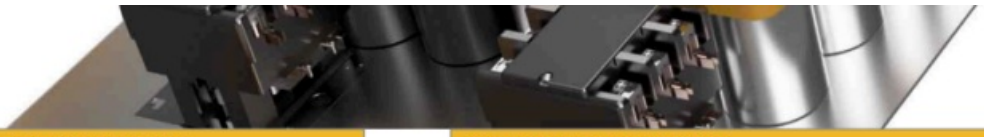
A: No, wire nuts should not be used. Bolt-down lugs are recommended for secure connections.

Q: Can I install the product myself?

A: The product must be installed by an industrial-licensed electrician.

GP20NL

ELECTRICAL SPECIFICATIONS SHEET



GENERAL SPECIFICATIONS	
HP	20
KW	14.9
KVA	17.35
HZ	50/60
ENCL	TEFC/NEMA 4
FRAME	256T
IDLER WEIGHT	330.75
PANEL WEIGHT	37

SINGLE PHASE ELECTRICAL SPECS	
VOLTAGE INPUT	208-250V
MOTOR LOAD BREAKER Minimum Size	40
MOTOR LOAD BREAKER Maximum Size	100
SERVICE KVA Minimum Size	37.5
SERVICE AMPS Minimum Size	156
COPPER WIRE Minimum Size	4

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	20
WIDTH	12
DEPT	10
MOUNTING	WALL MOUNT

THREE PHASE ELECTRICAL SPECS	
VOLTAGE OUTPUT	208-230 Volts Delta
MAX OUTPUT INDUCTIVE LOAD AMPS	54
MAX OUTPUT RESISTIVE LOAD AMPS	28
VOLTAGE BALANCING	+/- 2%
WIRE SIZE MIN Idler/Generator	6
LARGEST SPINDLE MOTOR START	10
LARGEST COMPRESSOR LOAD START	7.5
TOTAL COMBINED HORSEPOWER RUN	20

Optional Feature
- 208, 460 Volt Output (includes transformer)
- AutoStart and AutoOff with load detection
- PL Model (includes Start and Stop with Built-in Mag Starter)
- GPX Model (includes WFI Cloud Controls, Timers, Energy Monitor)
- Wireless Remote ON/OFF

PHOENIX PHASE CONVERTERS

800-417-6568

CAUTION
READ INSTRUCTIONS BEFORE OPERATING

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.

GP20

WIRE AND BREAKER SIZES	
SINGLE PHASE	4 AWG Copper under 50 feet
IDLER MOTOR	6 AWG COPPER
BREAKER/FUSE	40 MIN / 100 MAX

Mounting the Phase Converter Panel

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

Additional mounting brackets
and hardware are inside the enclosure.

Indoor or outdoor enclosure

CONNECTING THE IDLER MOTOR WIRES

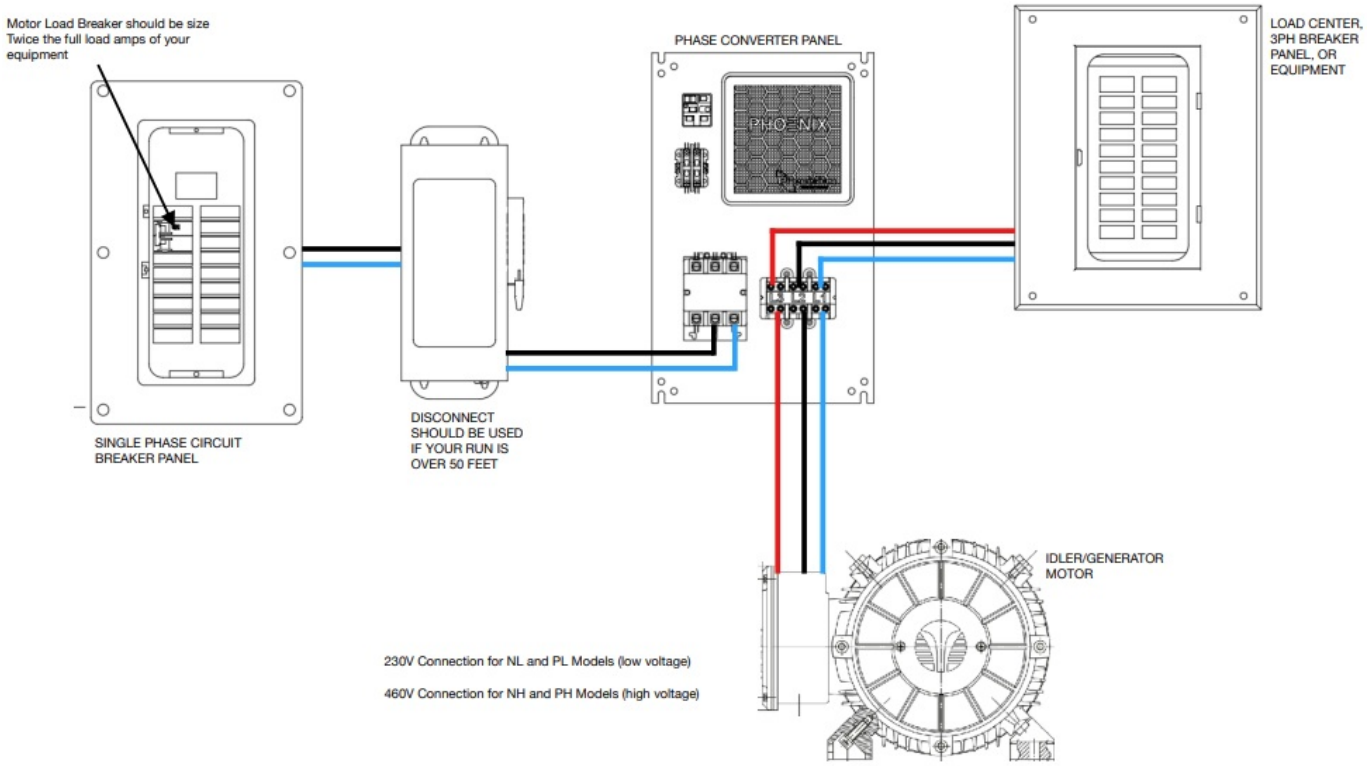
THIS IS JUST A ILLUSTRATION OF WHAT WIRES GET CONNECTED TOGETHER, DO NOT USE WIRE NUTS, USE BOLT DOWN LUGS

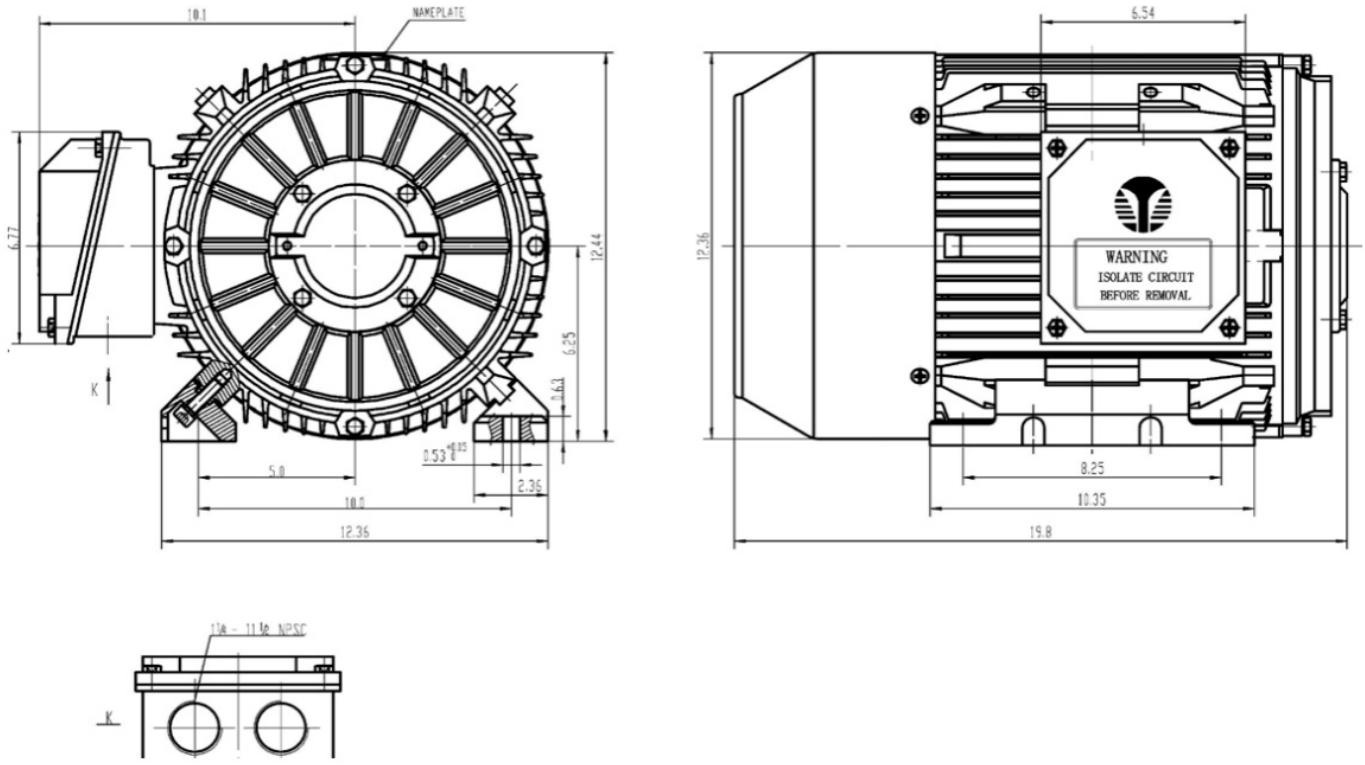
IF YOU HAVE 9 LEADS AT THE MOTOR CLICK HERE

IF YOU HAVE 12 LEADS AT THE MOTOR CLICK HERE

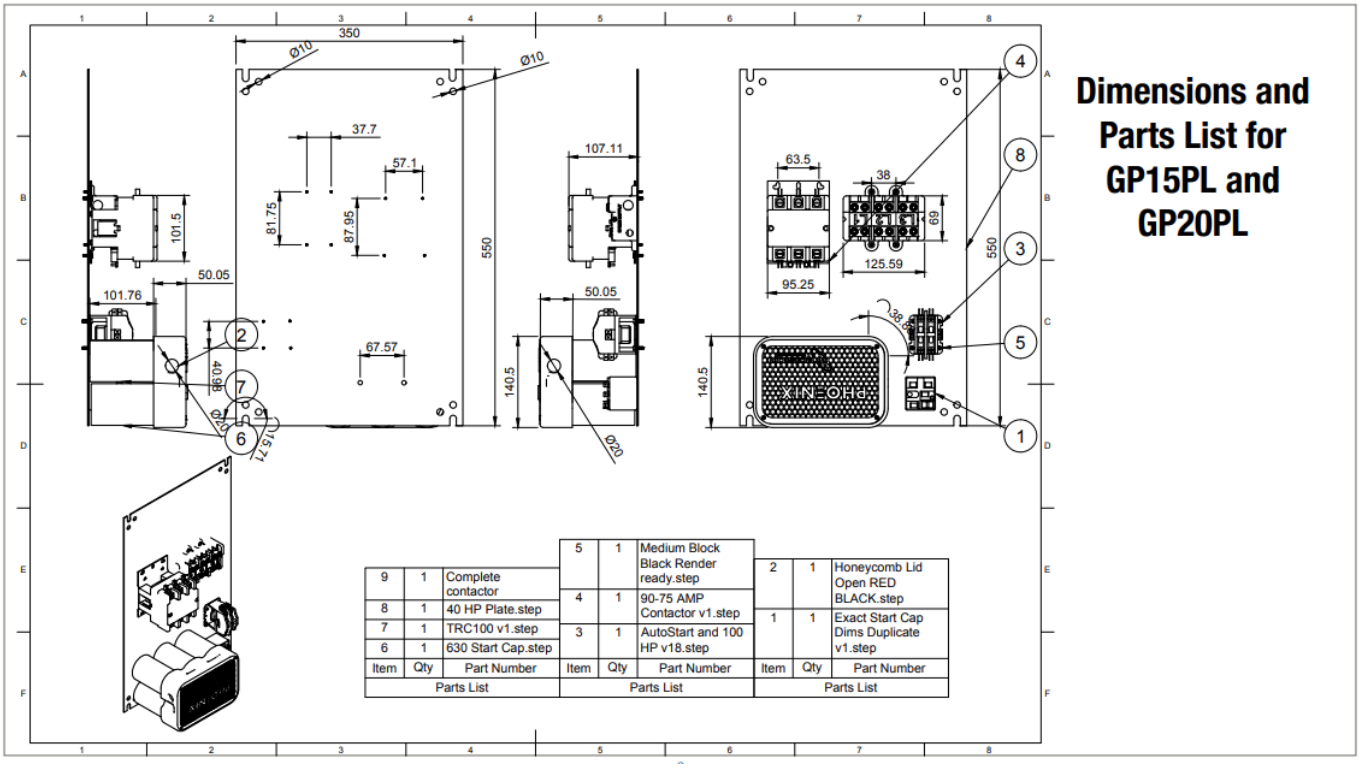
PL AND PH MODELS

MUST BE INSTALLED BY A INDUSTRIAL LICENSED ELECTRICIAN





Dimensions and Parts List for GP15PL and GP20PL



Item	Qty	Part Number
9	1	Complete contactor
8	1	40 HP Plate.step
7	1	TRC100 v1.step
6	1	630 Start Cap.step

Parts List

Item	Qty	Part Number
5	1	Medium Block Black Render ready.step
4	1	90-75 AMP Contactor v1.step
3	1	AutoStart and 100 HP v18.step

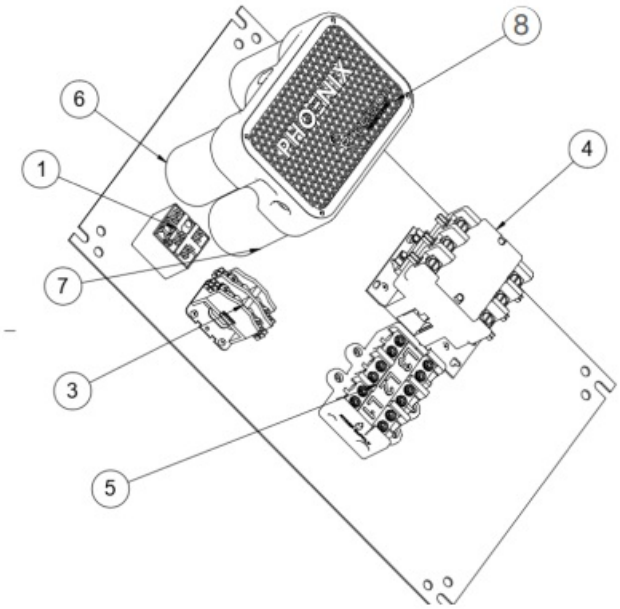
Parts List

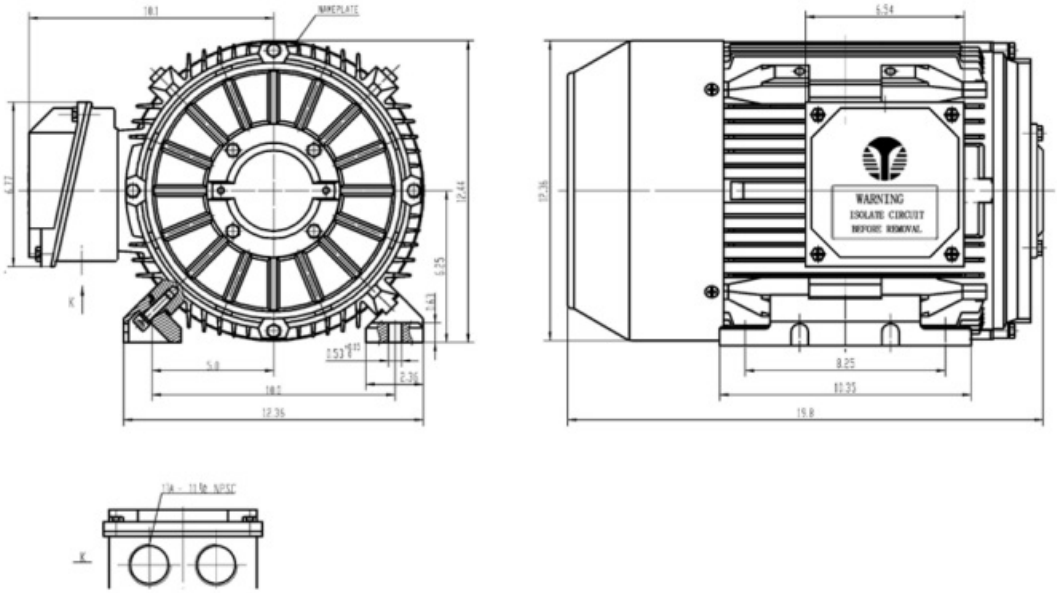
Item	Qty	Part Number
2	1	Honeycomb Lid Open RED BLACK.step
1	1	Exact Start Cap Dims Duplicate v1.step

Parts List

20 HP Rotary Phase Converter Components

20 HP Rotary Phase Converter Components				
Item Number	Description (Click on the description to visit the link to that item)	Quantity in Model	Price	SKU# (Click on 3D viewing)
1	Relay	1	47.00	GP90-66
3	2 Pole Contactor	1	28.00	GP2P30A
4	3 Pole Contactor 60 amp – 230V	1	52.84	C360C
5	3 Phase Power Block	1	45.00	CB409HO
6	630 MFD 220V Start Capacitor	2	24.14	PTMJ630
7	100 MFD 370V Run Capacitor	3	26.00	TRC100
8	Complete Capacitor Bank Assembly – Prewired	1	290.00	N/A
*	Complete Back Plate Assembly – Prewird PL Model. (with Start and Stop Button)	1	1231.00	N/A
*	Complete Panel with NEMA 4 Enclosure – Prewird PL Model (with Start and Stop Button)	1	1481.00	GP20PLPO
*	Idler Motor	1	1764.00	N/A
*	Complete Unit Phase Converter Panel (PL Model) and Idler/ Generator Motor	1	3111.00	GP20PL
*	9 Bank Start and Run Capacitor Holder Only with Base	1	239	N?A





Documents / Resources

	Precision GP20PL Phoenix Phase Converters [pdf] User Manual GP20PL Phoenix Phase Converters, GP20PL, Phoenix Phase Converters, Phase Converters, Converters

References

- Autodesk A360
- Replacement 100 HP Run Capacitor Bank | 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
- Phase Converter Panel | Phoenix Phase Converters
- User Manual