American Rotary™
PHASE CONVERTERS

OPTIONS + ACCESSORIES MANUAL

American Rotary™
PHASE CONVERTERS

WE ARE AMERICAN MADE!

American Rotary has been making premium rotary phase converters for more than a decade. We provide industry leading telephone support for technical, application and sizing issues. We stand behind our products with the best warranty in the industry. We use premium components to ensure that our products perform for you. American Rotary is a UL Certified Control Panel Builder, and our rotary phase converters are available UL Listed to US and Canadian Safety Standards. We have partnered with Baldor Electric one of the world's largest and most respected manufacturers to supply our custom-engineered idler/generators. American Rotary is listed with D&B as well as the Better Business Bureau, and we are committed to high ethical and privacy standards.

American Rotary's Wisconsin based team is dedicated to technical support, customer service and delivering value to its customers. With in-house R&D, engineering, tech support and manufacturing, American Rotary delivers what you need. American Rotary is committed to providing you with a great buying experience. American Rotary challenges you to compare our warranties to any other manufacturer's – American Rotary stands behind its units!

INDEX

PHASE MONITORS

IDLER MOUNT PANEL

STEP 1

This is what the idler will look like once the brackets are installed, using the nylock nuts provided. Adjust brackets so that the top surfaces of the brackets are parallel to each other and level with the ground. Remove all lift rings. You may need to adjust idler thru bolts before mounting bracket.

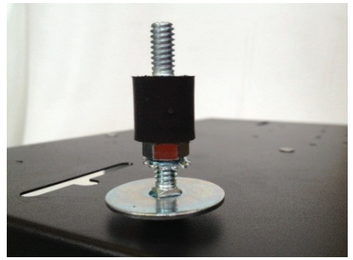
STEP 2

When installing brackets on Rotary Phase Converters 5HP - 15 HP, four extra nuts are provided. These bolts need to be installed as shown here to protect the idler from the brackets.

STEP 3

Locate the 4 slotted knockouts on the bottom of the control panel enclosure. Be sure to completely remove the remnant strip. If remnant strip drops into enclosure, maneuver enclosure until remnant strip can be removed.

STEP 4

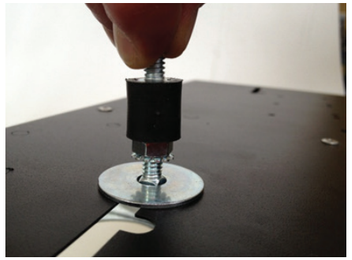


Tilt carriage bolt on an angle to slide into notched part of knockout.

STEP 5

Slide each mounting bolt to approximate position in each slot. Loosely tighten lock nut and rubber isolation mount so adjustments can be made.

STEP 6



This is how the unit will look once the panel has been mounted.

STEP 7

Insert 1/4 inch washer and lock nut onto the isolator stud and tighten.

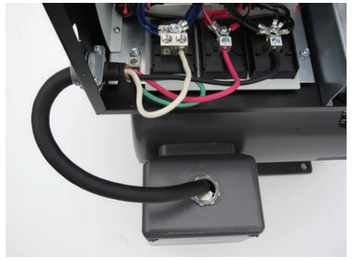
STEP 8

The supplied idler cable has ring lugs at one end, which go to the idler. The other end goes to the panel. Refer to main installation manual when making these connections.

STEP 9

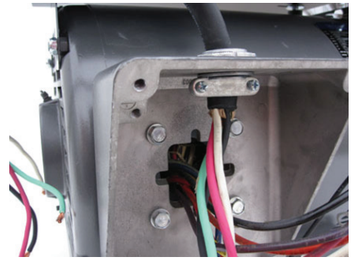
Showing the connections at the idler.

STEP 10



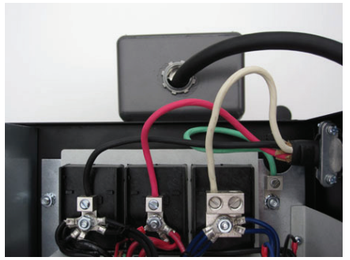
The supplied idler cable has ring lugs at one end, which go to the idler. The other end goes to the panel. Refer to main installation manual when making these connections.

STEP 11



Showing the connections at the idler.

STEP 12

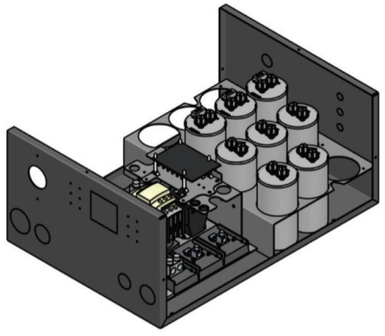


Showing the connections at the panel.

PANEL MOUNT RECEPTACLE

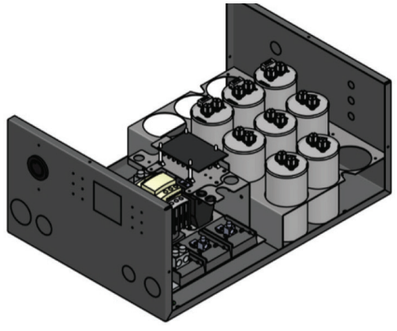
NOTE: Disconnect single phase power before installing or servicing.

STEP 1



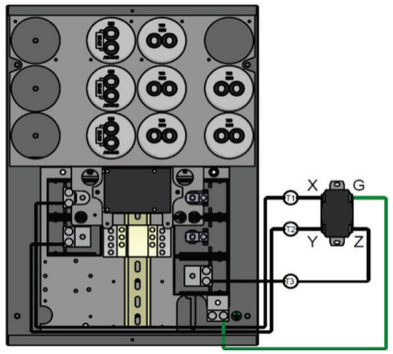
Remove the round knockout in the center of the receptacle pattern along with the smaller knockouts for the screws. Thes are on the end of the converter enclosure.

STEP 2



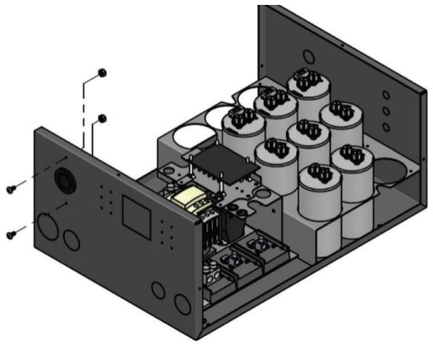
Test fit the receptacle to ensure proper alignment with designated holes.

STEP 3



Install wires from T1, T2, and T3 of the converter to the terminals on the receptacle. Ground the receptacle using the ground lug in the converter enclosure.

STEP 4

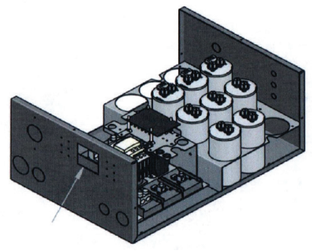


Install the receptacle into the enclosure using the two machine screws and locknuts provided.

PANEL MOUNT BREAKER

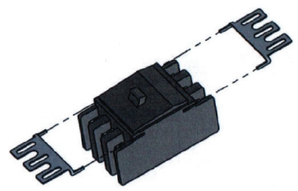
NOTE: Disconnect single phase power before installing or servicing.

STEP 1



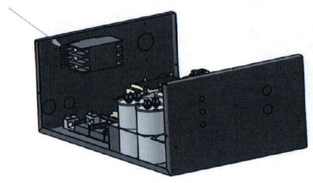
Remove the square knockout on the end of the converter enclosure.

STEP 2



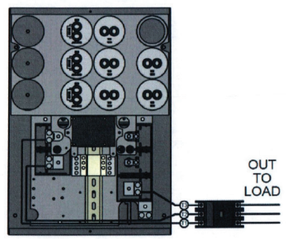
Insert the mounting tabs into the slots on each side of the breaker.

STEP 3



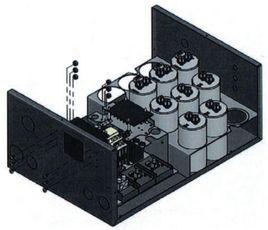
Test fit the breaker and determine which mounting holes line up with the mounting tabs. remove these knockouts (not all enclosures have multiple hole sets.

STEP 4



Install wires from T1, T2, and T3 of the converter to one side of the circuit breaker. Connect wires from the output of the breaker to the 3 phase load. Make sure the wires are long enough to allow the breaker to be bolted into place.

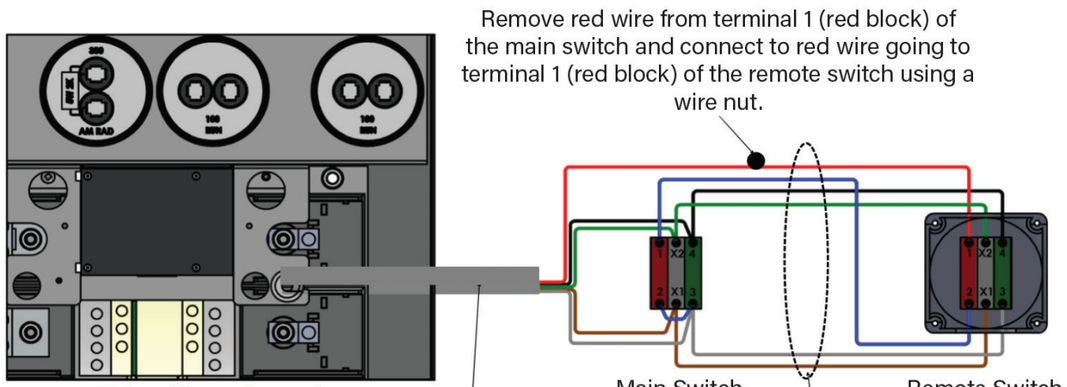
STEP 5



Install the breaker into the enclosure using the six machine screws and lockouts provided.

WIRED REMOTE START

NOTE: Disconnect single phase power before installing or servicing.



NOTES

- Six leads are required to hook up a remote switch with a functioning light at both locations.
- Terminals X1, X2, 3, and 4 are wired in parallel.
- Wiring the switches as shown above will provide starting, stopping, and lamp indicator functions at both locations.
- Use at least 22 gauge wire. Go up a gauge for every 50 feet.

IMPORTANT

This schematic is intended as a guide only. All wiring must be done by a licensed electrician familiar with single and three phase wiring and rotary phase converter operation. All wiring must meet or exceed National Electric Codes.

WIRELESS REMOTE START

NOTE: Disconnect single phase power before installing or servicing. Factory installed only.

PROGRAMMING INSTRUCTIONS

The wireless remote start comes preprogrammed from the factory. If you need to reprogram the remote please follow the instructions below.

1. Turn on the single phase power. A light on the remote receiver will turn on indicating that the receiver has power. This light is indicated by the 'PWR' notation.
2. Press and hold the ⏭ button on the receiver until the Q1 LED light is blinking then release and press the 'OK' button. This will change the light from a fast blink to a slow blink.
3. Press the 'STOP' (red) button on the remote three times.
4. The yellow light at Q1 should turn off and the 📶 LED light will blink. This indicates a successful program of the stop button.
5. Press and hold the ⏭ button on the receiver until the Q1 LED light is blinking then release and press ⏭ again until the Q2 LED blinking. Then press the 'OK' button. This will change the light from a fast blink to a slow blink.
6. Press the 'START' (green) button three times.
7. The yellow light at Q2 should turn of and the 📶 LED light will blink. This indicates a successful program of the stop button.

Once both the start and stop button are programmed. Press the Green start button to ensure the phase converter starts and then press the Red Stop button to ensure the phase converter turns off. Then at the control panel test the factory switch to ensure that it still functions as normal as well. If both function, you have successfully installed your wireless remote switch!

PHASE MONITORS

STANDARD PHASE MONITOR RELAY

OVERVIEW

The American Rotary phase monitor relay is an accessory that can be added to a rotary phase converter (RPC) to add a level of protection to your three phase equipment. The phase monitor relay continuously monitors the output of the phase converter and only allows operation of the three phase equipment when there is proper 3 phase power present. In the event of a phase converter shutdown or malfunction, the phase monitor will shutdown the three phase equipment before damage can result.

FEATURES

- Equipped with a form C contact (1-normally open/1-normally closed) that is rated for 10A at 277V. See diagram on phase monitor for details
- Monitors operation of converter and protects equipment from phase loss
- Simple two wire connection required between phase monitor and load controls
- Prevents starting of the load before the phase converter is running
- Will shut down in the event of a phase loss
- Will shut down if phase converter is accidentally turned off

DANGER: HIGH VOLTAGE

Electric shock could result in death or injury. Please consult qualified personnel for installation.

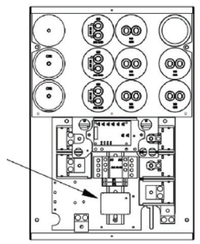
The manual is to serve the purpose of providing recommendations for proper performance but is not to supersede or replace local or national electronic codes. Installation should be done by a licensed electrician who is familiar with phase converter installations.

INSTALLATION

NOTE: Disconnect single phase power before installing or servicing. All phase converter controlls are 240V.

STEP 1

Open the phase converter and locate the phase monitor relay.



STEP 2

Remove the phase monitor relay from its mounting base by pulling straight up. This is a pin and socket connection with no locking tabs.

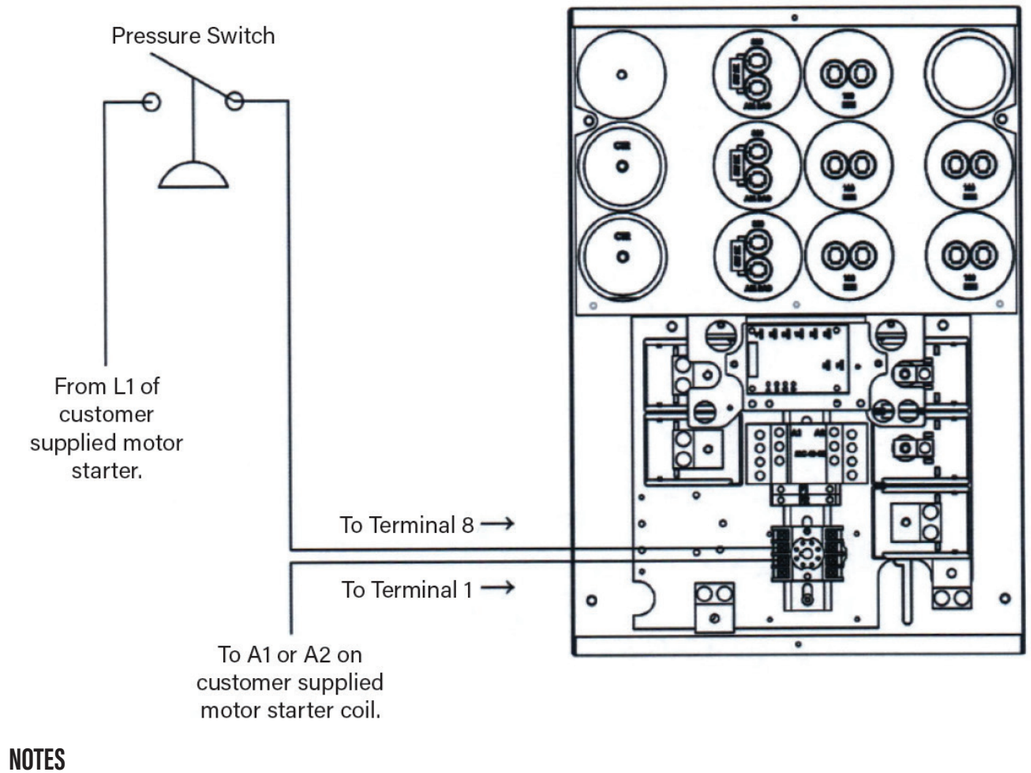
STEP 3

On the 3 phase equipment, locate the wires connecting the on/off switch/pressure switch/thermostat to the motor contactor. Remove the wire connecting the switch to terminal 8 of the phase monitor relay. Run a wire from terminal 1 of the phase monitor relay to the motor contactor coil on 3-phase load. See example diagram on page 13 for reference.

STEP 4

Plug the phase monitor relay back into the base. Reconnect power supply and start the phase converter. The LED on the phase monitor will blink green for a few seconds followed by a solid green once the phase converter is operating and ready for the load to be started.

AIR COMPRESSOR WIRING EXAMPLE



NOTES

- Phase monitor/timer circuit connections must be 208V-250V regardless if the phase converter is 240V or 480V.
- Terminal 8 on the phase monitor must receive 208V-250V power from L1 as shown in the above diagram in order for the RPC to start.

PHASE MONITOR WITH TIMER KIT

OVERVIEW

The American Rotary timer kit w/ phase monitoring is an accessory that can be added to a rotary phase converter (RPC) to add automatic on demand starting and stopping of the RPC. The phase monitor relay continuously monitors the output of the phase converter and only allows operation of the three phase equipment when there is proper three phase power present. In the event of a phase converter shutdown or malfunction, the phase monitor will shutdown the three phase equipment before damage can result.

FEATURES

- Can be wired into load controls to start phase converter automatically before load starts
- Will keep the phase converter running for .3 to 30 minutes after load is shut down
- Monitors operation of converter and protects equipment from phase loss
- Two wire connection required between phase monitor and load controls
- Prevents starting of the load before the phase converter is running
- Will shut down load if phase converter shuts down or malfunctions
- Will shut down load if phase converter is accidentally turned off

DANGER: HIGH VOLTAGE

Electric shock could result in death or injury. Please consult qualified personnel for installation.

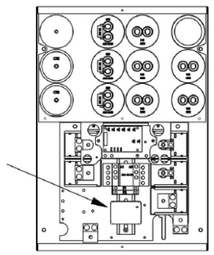
This manual is to serve the purpose of providing recommendations for proper performance but is not to supersede or replace local or national electric codes. Installation should be done by a licensed electrician who is familiar with phase converter installations.

INSTALLATION

NOTE: Disconnect single phase power before installing or servicing. All phase converter controls are 240V.

STEP 1

Open the phase converter and locate the phase monitor relay.



STEP 2

Remove the phase monitor relay from its mounting base by pulling straight up. This is a pin and socket connection with no locking tabs.

STEP 3

On the 3 phase equipment, locate the wires connecting the on/off switch/pressure switch/thermostat to the motor contactor. Remove the wire connecting the switch to terminal 8 of the phase monitor relay. Run a wire from the switch to terminal 1 of the phase monitor relay to the motor contactor coil on 3-phase load. See example diagram on page 15-16 for reference.

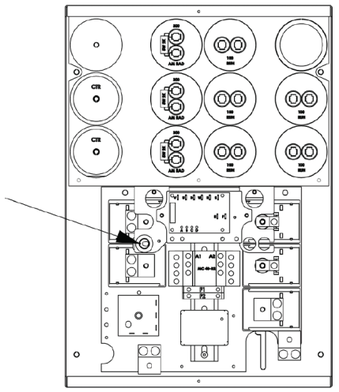
STEP 4

Plug the phase monitor relay back into the base. Set the operation mode outlined on page 2 and reconnect the power supply.

OPERATION

The timer system has two operating modes that can be chosen.

The toggle switch to chose between the two modes is located next to the circuit board inside the RPC.



MANUAL:

In manual mode the start/ stop button on the cover of the RPC will operate the RPC independently of the 3 phase equipment. The phase monitor is still operational and will protect the equipment from being started before the RPC is running.

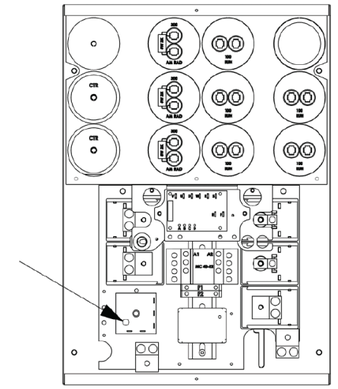
AUTOMATIC:

In auto mode the RPC will automatically start when the 3 phase equipment is switched on. The start/stop switch on the RPC is disabled. When the 3 phase equipment is switched off the RPC will continue to run for the duration designated on the timer module. This time delay can be set between .3 - 30 minutes. The start up time sequence is not adjustable.

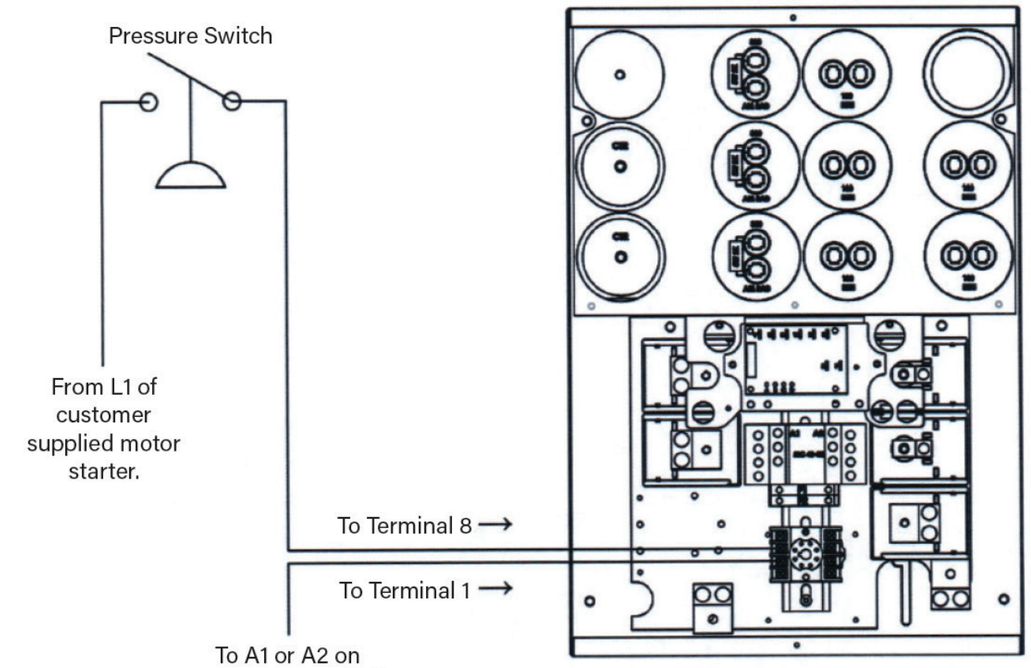
ADJUSTMENT

To adjust the RPC off delay locate the blue knob on the time delay module. The time delay ranges from .3 minutes min to 30 minutes max. This module controls how long the RPC will keep running after the 3 phase equipment has been switched off.

In either mode, once the RPC is started, the LED on the phase monitor will blink green for a few seconds followed by a solid green once the phase converter is operating and ready for the load to be started.



AIR COMPRESSOR WIRING EXAMPLE



NOTES

- Phase monitor/timer circuit connections must be 208V-250V regardless if the phase converter is 240V or 480V.
- Terminal 8 on the phase monitor must receive 208V-250V power from L1 as shown in the above diagram in order for the RPC to start.
- There should already be a black wire in terminal 8 of the phase monitor. Do not remove this wire when making field connections.

PHASE MONITOR WITH TIMER KIT - MULTIPLE LOADS

OVERVIEW

The American Rotary timer kit w/ phase monitoring is an accessory that can be added to a rotary phase converter (RPC) to add automatic on demand starting and stopping of the RPC. The phase monitor relay continuously monitors the output of the phase converter and only allows operation of the three phase equipment when there is proper three phase power present. In the event of a phase converter shutdown or malfunction, the phase monitor will shutdown the three phase equipment before damage can result.

FEATURES

- Can be wired into load controls to start phase converter automatically before load starts
- Will keep the phase converter running for .3 to 30 minutes after load is shut down
- Monitors operation of converter and protects equipment from phase loss
- Prevents starting of the load before the phase converter is running
- Will shut down load if phase converter shuts down or malfunctions
- Will shut down load if phase converter is accidentally turned off

DANGER: HIGH VOLTAGE

Electric shock could result in death or injury. Please consult qualified personnel for installation.

This manual is to serve the purpose of providing recommendations for proper performance but is not to supersede or replace local or national electric codes. Installation should be done by a licensed electrician who is familiar with phase converter installations.

INSTALLATION

NOTE: Disconnect single phase power before installing or servicing. All phase converter controls are 240V.

STEP 1

Open the phase converter and locate the terminal strips for the load control interface.

STEP 2

A DPST maintained switch must be used to apply 240V to the load control input terminal strip. The source voltage for this must come from L1 to prevent damage to timer. This switch should also control the respective load that needs to be operated. A double pole switch or disconnect must be used to prevent all loads starting when one switch is turned on. Connect all loads in this manner. See wiring diagram on page 19 for details.

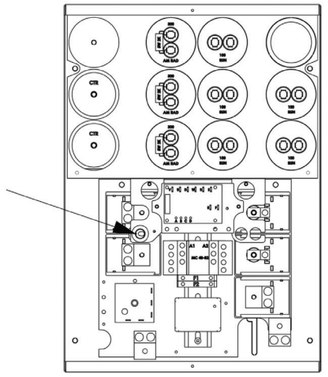
STEP 3

Wire the A2 coil connection on the load contactor to the load control output terminal strip. This will prevent the equipment from starting before the phase converter is running.

OPERATION

The timer system has two operating modes that can be chosen.

The toggle switch to choose between the two modes is located next to the circuit board inside the RPC.



MANUAL:

In manual mode the start/ stop button on the cover of the RPC will operate the RPC independently of the 3 phase equipment. The phase monitor is still operational and will protect the equipment from being started before the RPC is running.

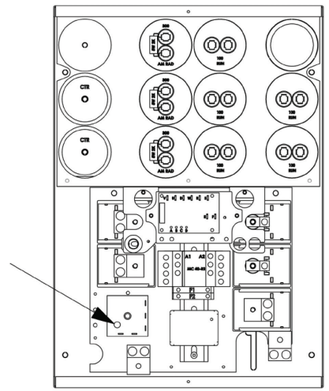
AUTOMATIC:

In auto mode the RPC will automatically start when the 3 phase equipment is switched on. The start/stop switch on the RPC is disabled. When the 3 phase equipment is switched off the RPC will continue to run for the duration designated on the timer module. This time delay can be set between .3 - 30 minutes. The start up time sequence is not adjustable.

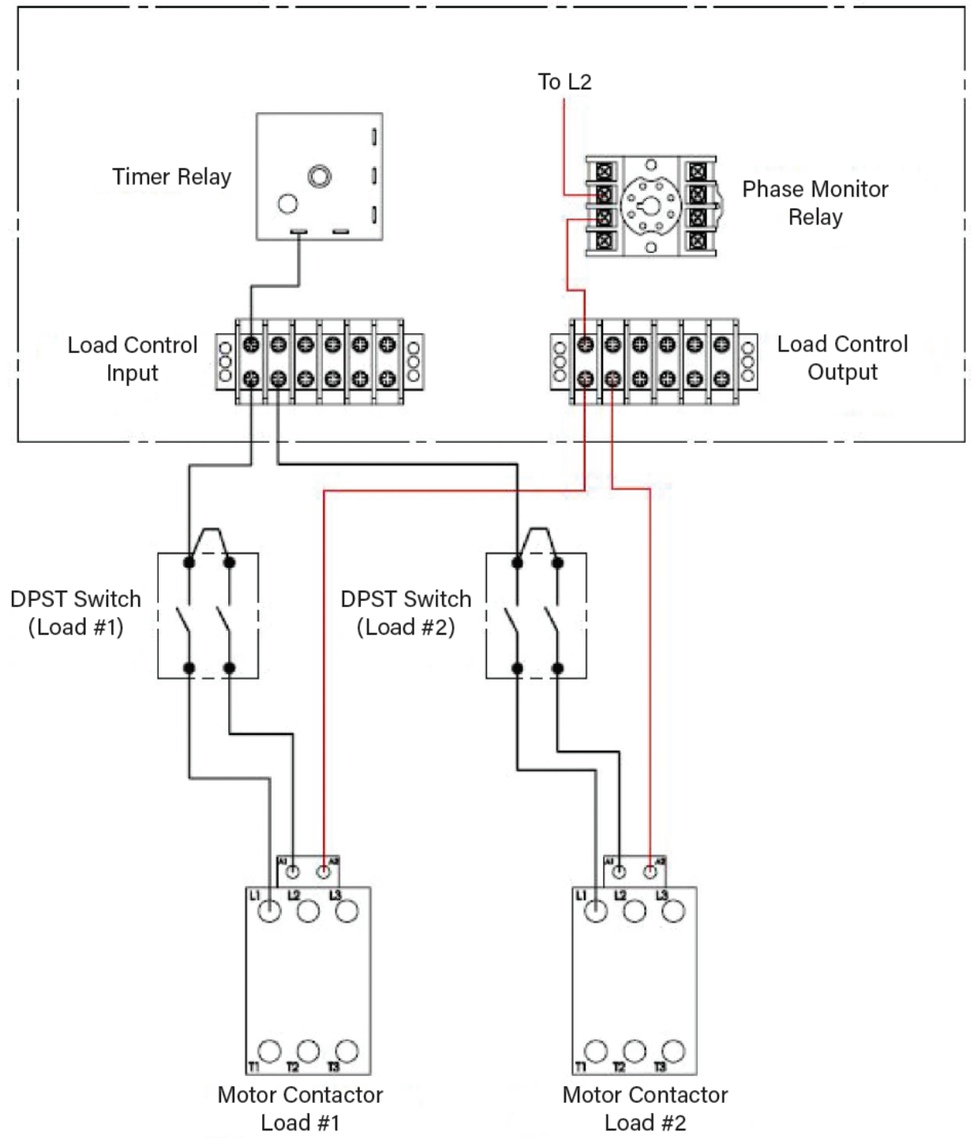
ADJUSTMENT

To adjust the RPC off delay locate the blue knob on the time delay module. The time delay ranges from .3 minutes min to 30 minutes max. This module controls how long the RPC will keep running after the 3 phase equipment has been switched off.

In either mode, once the RPC is started, the LED on the phase monitor will blink green for a few seconds followed by a solid green once the phase converter is operating and ready for the load to be started.



FACTORY INSTALLED WIRING EXAMPLE



NOTES

- Phase monitor/Timer circuit connections must be 208V-250V regardless if the phase converter is 240V or 480V.
- Two or more machines may be connected in this manner provided that total current draw for the load control output circuit does not exceed 10 amps.

PHASE MONITOR RELAY FOR AUTOMATIC CONTACTOR CONTROL

OVERVIEW

This setup is designed to disconnect the three-phase power on all three legs when power is disconnected or power is lost. The system has voltage and phase monitoring so that the external contactor will only latch when voltage and all three phases are present. If a phase drops out or voltage gets too low, the contactor will release cutting power to the three-phase load.

FEATURES

- Equipped with a main contactor that will break all 3 lines the event of a phase loss
- Monitors operation of converter and protects equipment from phase loss
- Prevents starting of the load before the phase converter is running
- Will shut down load if phase converter shuts down or malfunctions
- Will shut down load if phase converter is accidentally turned off

DANGER: HIGH VOLTAGE

Electric shock may result in death or injury. Please consult qualified personnel for installation and ensure proper safety measures are taken during installation and service of the equipment.

NOTE: The manual is to serve the purpose of providing recommendations for proper performance but is not to supersede or replace local or national electric codes. Installation should be done by a licensed electrician who is familiar with phase converter installations. A contactor is not considered a disconnect. The use of a manual disconnect may need to be added for servicing.

INSTALLATION

*Disconnect single phase power before installation.
*All controls are 240v.

Follow the phase converter installation guide for installation of the phase converter itself. Once that is installed, leave the single-phase power off until the installation of the Automatic Controller contactor is complete.

GENERAL LOAD WIRING

STEP 1

Mount the enclosure in its desired location.

STEP 2

Take your three phase load lines from the phase converter, (T1,T2,T3), and route to the Automatic Controller enclosure. Run the lines through the knockout on the bottom of the panel. Connect the wires into L1,L2,L3 on the Automatic Controller contactor.

STEP 3

Route the wires on the secondary side of the contactor (T1,T2,T3) to your load center panel.

STEP 4

Inside the Automatic Controller panel there is a red wire that goes from A2 and should also be connected into 3L2. This is factory installed.

CONTROL LINE WIRING

There are white wires in the following terminals in the Automatic Controller that are snipped. These are there only for a guide and should be removed. Do not splice into these wires.

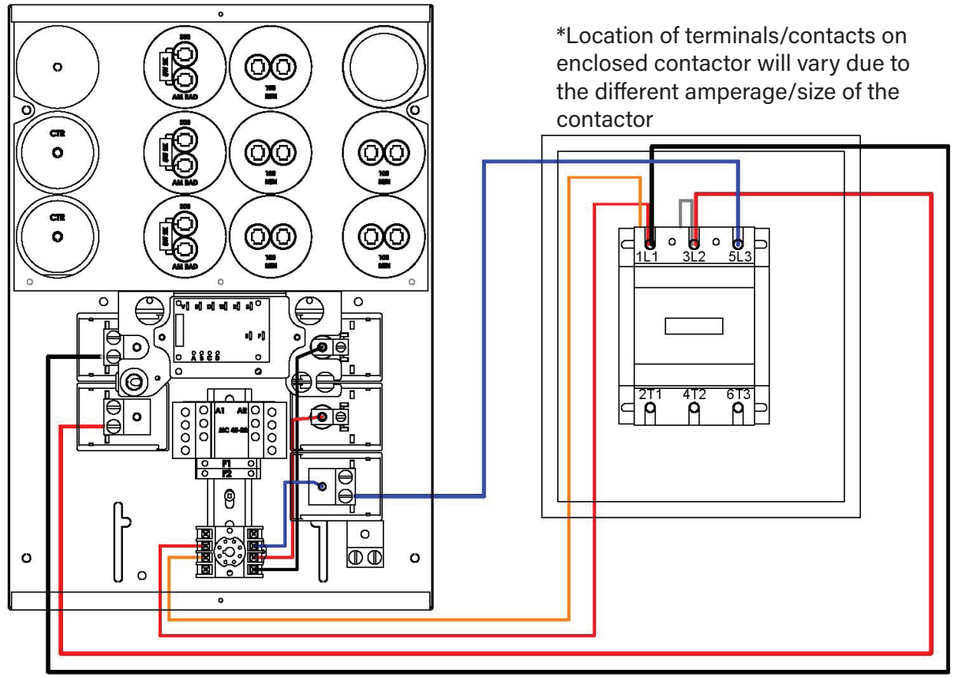
STEP 1

Run a control wire from A1 in the Automatic Controller to terminal 1 located in the phase converter panel on the Phase Monitor terminal block.

STEP 2

Run a control line from L1 in the Automatic Controller to terminal 8 located on the Phase Monitor terminal block.

WIRING EXAMPLE



*Location of terminals/contacts on enclosed contactor will vary due to the different amperage/size of the contactor

NOTES

- Phase monitor/Timer circuit connections must be 208V-250V regardless if the phase converter is 240V or 480V.

NOTES