

POWERVER

Power Conditioner

ABC10I Series
User Manual
Models
ABC10I

Important Safety Instructions

Save these Instructions -- This Manual contains important instructions for ABC Series, Models ABC10I which should be followed during the unpacking, installation and maintenance of these power conditioners.

Model Number ABC10I

Part Number _____

Serial Number _____

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1.0 INTRODUCTION

Congratulations on owning the world's finest and most reliable power conditioner. Your AMETEK POWERVAR POWER CONDITIONER provides the ultimate in power conditioning and offers your system an electrically clean, quiet and stable environment. With the ABC series of conditioners, optimum system reliability and productivity can be realized through the distribution unit's ability to attenuate external impulses and decouple noisy system loads. The excellent noise and transient attenuation coupled with low impedance benefits and excellent efficiency makes the ABC series cost efficient, system compatible, and ideally suited for your systems.

This user manual contains important information about the proper unpacking, installation and operation of your POWERVAR power conditioner. Please read this manual before attempting to unpack your power conditioner any further.

If you have any questions or problems regarding your ABC Series Power Conditioner, please contact POWERVAR's Technical Services. POWERVAR offers 24 hour technical support. You can reach technical services at 1-800-369-7179 or at 1-847-596-7000.

1.1 What Equipment Needs Power Conditioning?

Only your electronic based equipment requires conditioned power. Fans, air conditioners and motors do not require power conditioning. Placing fans, air conditioners, motors or other noise generators between the conditioner and the electronics introduces electrical interference into the already conditioned power. In order to minimize electrical noise, each piece of equipment should be individually wired back to the output of the POWERVAR power conditioner.

1.2 Sizing Information

The rating label of your POWERVAR power conditioner lists the ABC model's current rating, nominal input and output voltage and serial number. The combined steady state RMS current draw of all your equipment must not exceed the power conditioner's output current rating.

2.0 INSTALLATION

2.1 PRINCIPLE OF OPERATION

The following brief description of the ABC power conditioner's principle of operation is provided to assist in the proper installation and operation of your POWERVAR power conditioner.

1. AC power is supplied to the power conditioner by hard wiring to the input power block located below the input circuit breaker behind the front cover panel. A $\frac{3}{4}$ inch conduit hole is provided immediately below the input power block.
2. The power block is connected to the input circuit breaker, CB1. An optional feature available on the ABC power conditioner utilizes an input circuit breaker equipped with an undervoltage release accessory used for emergency mains OFF (EMO) operation.
3. An optional separate multi-tapped primary, 24 Vac secondary control transformer is utilized for power control, and supplied from the input power block. The primary of this control transformer is fuse protected (2 – 0.4 A, 500 V rating).
4. An optional 24 Vac circuit energizes an undervoltage release accessory within the input circuit breaker and provides an Emergency Mains OFF (EMO) feature. The undervoltage release accessory must be energized before the input circuit breaker can be turned ON. An optional red mushroom turn-to-release pushbutton is physically installed between the input and output circuit breakers on the front of the power conditioner. An external NC switch or string of series connected NC contacts can be connected to the optional EMO circuit by connection to pins J1-1 and J1-2 of the circular plastic connector (CPC), located below the optional red mushroom pushbutton on the front panel, between the input and output circuit breakers. (See Section 2.8 for more details of the optional EMO circuit operation.)
5. When the main input circuit breaker is turned ON, power is applied to the primaries of the Main transformer and the main output circuit breaker. Power is also applied to any optional convenience receptacles, individually circuit breaker protected, at this time. The optional input power indicator LED is illuminated when power is applied to the power conditioner.
6. The secondaries of the Main transformer are connected to the Virtual Kelvin Ground®.
7. When the main output circuit breaker is turned ON, power is available to the output power block and to the optional output distribution circuit breakers located on the back panel. The optional output power indicator LED is illuminated. A $\frac{3}{4}$ inch and a $\frac{1}{2}$ inch conduit holes are provided for hardwiring the load to the output power block.

NOTE: **The power conditioner is originally shipped from POWERVAR configured as stated on the temporary label attached to the input power block.**

2.2 INSTALLATION OVERVIEW

Please Note!

Only qualified electricians should install an POWERVAR POWER CONDITIONER. Follow local codes (such as the U.S. National Electrical Code®), good wiring practice and this User Manual.

1. Unpack the ABC series power conditioner (see Section 2.5).
2. Move the power conditioner to the desired installation location.
3. Select the appropriate disconnect and overcurrent protection device (see Section 2.7) for your specific installation location. For cord and plug unit, make sure proper sized, wired and protected receptacle is installed.
4. Connect the input wires (see Sections 2.7). Use a grounding conductor that is equal to or larger than the current carrying conductors.
5. Verify that the power conditioner's input is configured for the correct source voltage (see Section 7.0). The power conditioner's rating label designates the operating voltage originally shipped from POWERVAR. The input power block is tagged as such.
6. Turn on the power feed to the input .
7. Turn on the input circuit breaker.
8. Turn on the output circuit breaker.
9. Verify the correct operation of the power conditioner (see Section 2.4).
10. Turn off the input and output circuit breakers and the input power feed.
11. Connect your equipment to the output power block via conduit landing holes provided (see Section 2.9).
12. Turn on the power feed to the input.
13. Turn on the input circuit breaker.
14. Turn on the output breaker.
15. Turn on your equipment.
16. Start normal operation of your system.

2.3 IMPORTANT INSTALLATION GUIDELINES

Only qualified electricians should install or retrofit this power conditioner.



WARNING

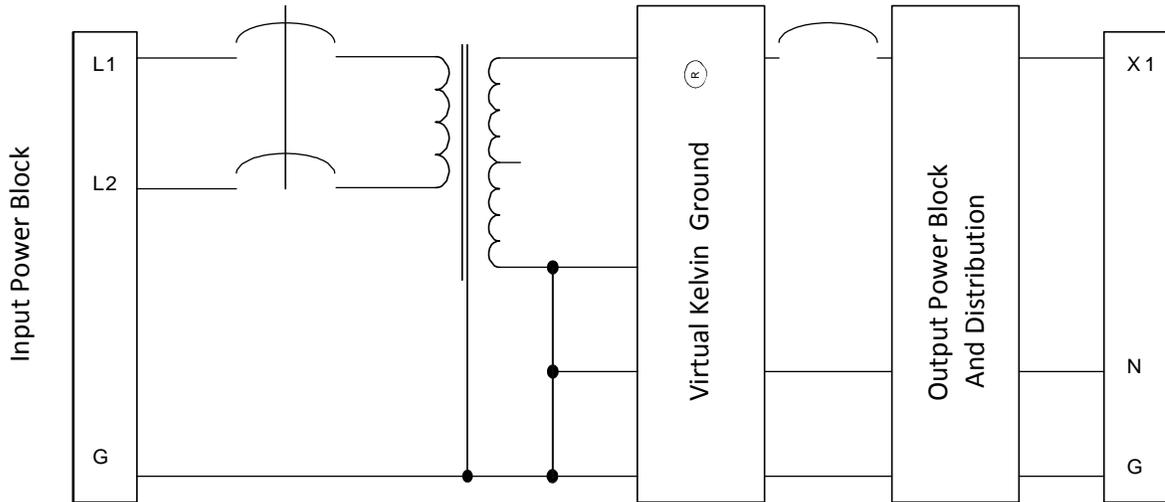
This power conditioner contains DANGEROUS VOLTAGES. Accidental contact can result in serious electrical shock. Always follow The U.S. National Electrical Code® or your local electrical codes and good wiring practice.



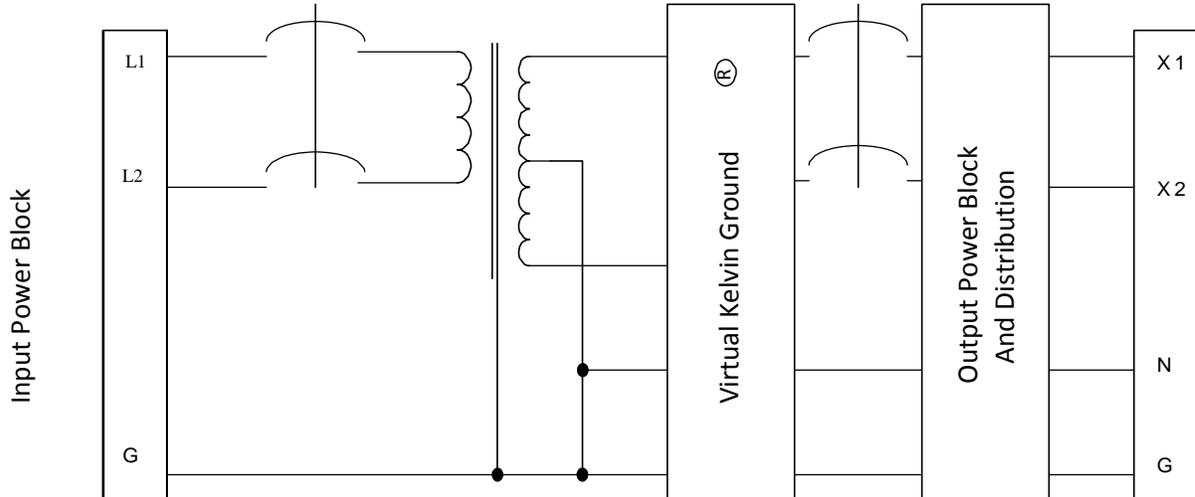
WARNUNG

Dieses Leistungsanpassungsgerät führt lebensgefährliche Spannung. Stromschlaggefahr! Bitte beachten Sie die in Ihrem Land geltenden Vorschriften über die Verdrahtung und Beschaltung.

ABC10I 230V L-N



ABC10I 240V L-L



The input requires only 2 phase wires and a grounding conductor connection.
The use of **steel or flexible** conduit is strongly preferred for this model.

Physically separate the input power connections to the power conditioner from the equipment power connections on the output. Data cables should be kept as far away as possible from any power cables.

For Maximum Performance,

Use steel or flexible steel conduit when hardwiring equipment to the power conditioner. Always include a ground wire for each auxiliary circuit on the output of the power conditioner. Do not use extension cords or power strips. Do not connect your equipment to the power conditioner's output until the input connections have been made and proper power conditioner configuration and operation has been verified.

2.4 VERIFYING YOUR INSTALLATION

1. Turn OFF the input and main output circuit breakers on the power conditioner. Verify that the installation follows the guidelines outlined in section 2.3, **Important Installation Guidelines**.
2. With your equipment still **not** connected to the power conditioner, turn ON the main power source.
3. Place the power conditioner's input circuit breaker in the ON position.
4. Place the power conditioner's output circuit breaker in the ON position.



CAUTION

Dangerous Voltages Are Present.



VORSICHT

Stromführend. Ebensgefahr!

Use a voltmeter to determine if voltage is present at the input and the output. Check the voltage at the Output power block with the distribution circuit breakers turned off. The POWERVAR power conditioner's output voltage may run a few volts higher than the input voltage until the load is switched on.

If the operating voltage matches that suggested by the equipment manufacturer, turn OFF the main input and output circuit breakers on the power conditioner, connect your equipment, and turn ON the main input circuit breaker followed by the main output circuit breaker. Your equipment can now be turned ON and operated as usual.

If voltage variations greater than the manufacturer's specifications exist, a tap selection may be made to adjust the voltage level (see Section 7.0, **Changing the Operating Voltage**).

If there is **power** at the input with **no power** at the output;

1. Turn OFF the main output circuit breaker.
2. Turn OFF the main input circuit breaker.
3. Turn OFF the main power source supplying the power conditioner.
4. Follow the procedure in Section 8.0, **Troubleshooting An Installation**.

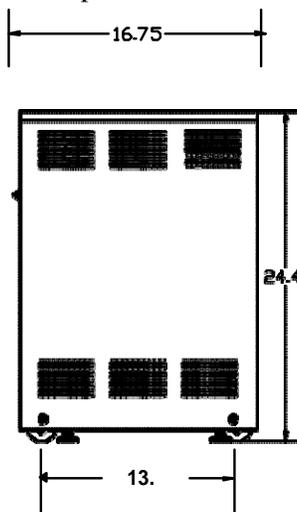
2.5 UNPACKING AND PLACEMENT

Your POWERVAR ABC power conditioner is delivered in a wooden crate. Upon arrival, inspect the unit and crate for signs of damage. The crate has two types of shipping indicators. Check these indicators for signs of shipping stress. If damage is detected, immediately contact the freight company and POWERVAR Technical Services. You can reach POWERVAR Technical Services at 1-800-369-7179

POWERVAR recommends that your power conditioner be left on the crate's pallet during handling. Remove the conditioner from the pallet once it is as close as possible to its final installation location. Unbolt the power conditioner and remove the shipping brackets and remove it from the pallet.

(See **Figure 1_Ramp instructions**)

Do not use the seismic anchoring holes on the side of the unit for lifting the POWERVAR power conditioner into place.



The actual physical placement of the power conditioner should be as close as possible to your equipment. The power conditioner should be installed inside the room containing your equipment. Allow at least 2 inches (5.1 cm) around all sides of the POWERVAR power conditioner. Do not allow the conditioner to be installed where direct contact with water is possible.

Once the location of your power conditioner has been determined, carefully roll it into place. Lower and adjust the glides on the power conditioner so that the unit is level and stable. You may use the holes on the unit sides for seismic anchoring. There are two (2), 3/8"-16 size seismic anchoring holes on each side of the POWERVAR power conditioner. The seismic anchoring holes are for anchoring only. **Do not use the seismic anchoring holes for lifting the POWERVAR conditioner into place.**

The ABC series power conditioners will not adversely impact system air conditioning. See section 4.0, **SPECIFICATIONS** for the air conditioning load per hour for your POWERVAR ABC power conditioner.

RAMP INSTRUCTION **ABC10I SERIES**

The shipping container consists of two parts; a pallet and a crate. Remove the crate by removing all wood screws along the bottom perimeter of the crate and vertically lift the crate off of the pallet. .

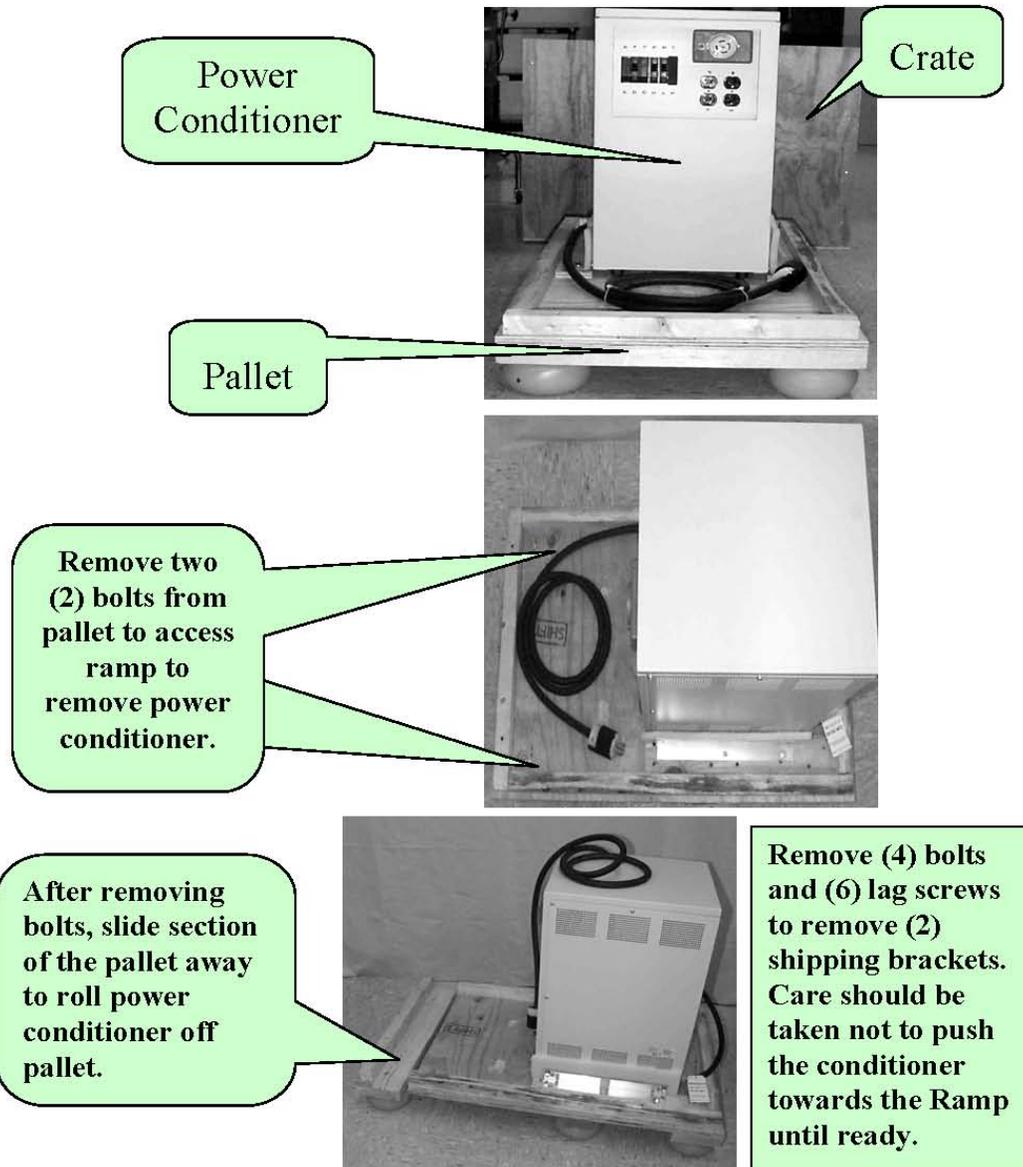
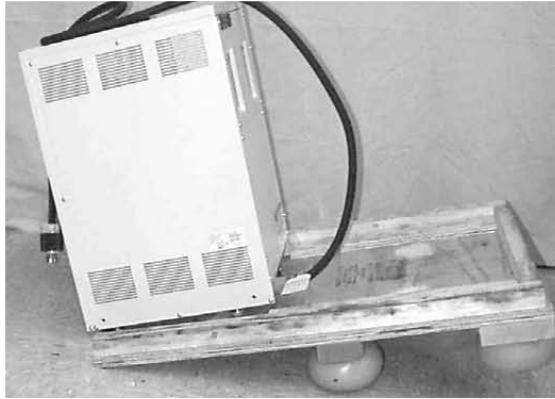


Fig. 1



Roll the power conditioner off of the ramp SLOWLY while supporting its weight.



CAUTION

To Avoid Injury: Keep Hands and Feet clear of ramp/pallet during removal of power conditioner.



When the power conditioner is completely off the ramp/pallet, the pallet will tip back horizontal again due to its weight distribution.

Fig. 1

2.6 INPUT CIRCUIT BREAKER

This feature is needed to protect your equipment and the POWERVAR power conditioner. Make sure the branch circuit breaker feeding the power conditioners input, at the service disconnect, has ratings that are equal to or better than those listed below.

| Input Overcurrent Protection | | | |
|------------------------------|---------------------|--|--|
| Model | Input Voltage (Vac) | Circuit Breaker Current Rating Amps | Interrupting Rating (Minimum RMS Symmetrical Amps) |
| ABC10I | 200 - 240 | 50 | 10,000 |
| | 400 - 480 | 25 | 18,000 |

2.7 INPUT CONNECTIONS

This feature is used for connecting the input AC power connections to the ABC10I power conditioner. The internal input power block is located in the lower left front of the conditioner, below the main input circuit breaker. The power block will accept wire size 14 - 2 AWG (2.7 - 34 sq. mm). There is a ¾ inch conduit hole on the bottom of the power conditioner, directly underneath the input power block. Supply access to the power conditioner is accomplished from the front side through this bottom conduit hole.



WARNING

Turn off the main power source supplying the power conditioner at the service disconnect before proceeding.

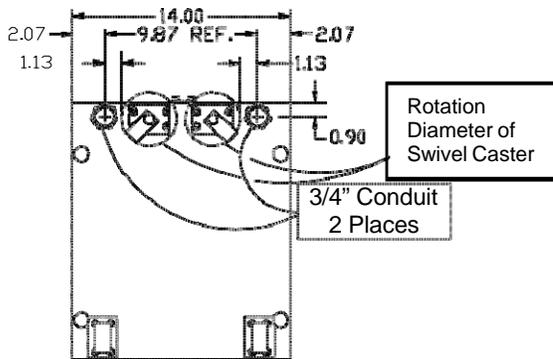
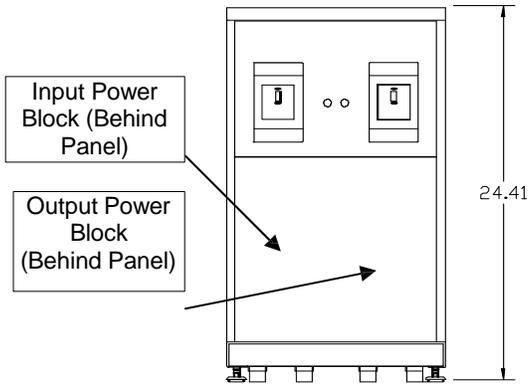


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Vor dem nächsten Arbeitsschritt muß die Hauptnetzversorgung zum Leistungsanpassungsgerät am Wartungstrennschalter abgeschaltet werden

Remove the lower front cover panel, directly below the input and output circuit breakers, to access the internal input power block connections.

Install an appropriate conduit and fitting to the power conditioner. A ¾ inch conduit hole is provided.



Connect the input ground to the grounding lug (G). Heavy gauge wire, equal to or larger in diameter than the power carrying conductors should be used to connect the safety ground. It is recommended that ground be wired back to the service ground.

Do not rely on the conduit alone for connection to ground.

POWERVER discourages the down-sizing of grounding conductors as allowed by various codes.

If in doubt regarding wire sizing, consult the U.S. National Electrical Code®, Table 310-16, or your local electrical code.

Connect the input phase wires to the input terminals. Refer to the wiring chart on the page below.

Follow the procedure in section 2.4, **VERIFYING YOUR INSTALLATION.**

Minimum Wire Sizes

| | Input Voltage | Input Wire Size | Input Grd. Wire Size |
|---------------------|---------------|-----------------|----------------------|
| Model ABC10I | 200 - 240 | 8 AWG | 8 AWG |
| | 400 - 480 | 10 AWG | 10 AWG |

Use wire rated for 75°C minimum.

2.8 EMERGENCY MAINS OFF (EMO)

This optional feature will allow you to control or shut down your POWERVAR power conditioner by pushing the turn-to-release red mushroom button located between the input and output circuit breakers (only on units with EMO circuitry) of the unit or momentarily opening the user-supplied normally closed remote emergency off switch.

After the EMO circuit has been deployed, the input circuit breaker will need to be reset (switched to the OFF position, then the ON position) to resume normal operation.



CAUTION

HAZARDOUS VOLTAGES ARE STILL PRESENT WITHIN THE POWER CONDITIONER EVEN AFTER THE MAINS OFF HAS BEEN DEPLOYED.



VORSICHT

AUCH NACH ABSCHALTEN DER STROMVERSORGUNG IST IM LEISTUNGSANPASSUNGSGERÄT WEITERHIN SPANNUNG VORHANDEN. STROMSCHLAGGEFAHR.

You must turn off the power source supplying the power conditioner at the service disconnect to remove all hazardous voltages (input power block is still live) before servicing or working within power conditioners that employ this type of EMO circuit.

The EMO circuitry is integrated with the input circuit breaker with a 24 Vdc undervoltage release (UVR) accessory and controlled by a 24 Vac transformer and subsequent 24Vdc power source which is located in the front top of the conditioner. The transformer is powered before the input circuit breaker from the input terminal block and is protected by two fuses (F1, F2: 0.4 A, 500 V) located below main input circuit breaker, behind the lower front panel.

The primary of the EMO transformer requires change for changes in the input voltage tap. See the schematic, found in Section 4.2 of this manual for this optional configuration, for additional information. This EMO transformer has taps at 208, 240, 380, and 480 V. Use the 208 V tap (H2) for input voltages of 200 and 208 V. Use the 240 V tap (H3) for 220, 230, and 240 V input voltages, the 380 volt tap (H5) for 400 – 415 V input, and the 480 V tap (H6) for 420 – 480 V input.

A series connected string of NC contacts maintains 24 Vdc across the UVR coil. This string contains the red mushroom pushbutton located on the power conditioner and all external NC contacts connected between Pins J1-1 & J1-2 of the front panel CPC connector (see table below for CPC specifics). A shorting plug is shipped with the unit to allow for setup and installation verification without the user's equipment connected. Pins P1-1 & P1-2 of the shorting plug are jumpered.

Pins J1-3 & J1-4 of the front panel CPC are connected to the 24 Vac portion of this circuit as shown in Figure 1. This auxiliary 24 Vac circuit is fused (F3) rated at 1A, 250 Vac.

Installed in power conditioner

| | |
|------------------------|-------------------------------|
| CPC receptacle (J1) | AMP #206430-1 |
| Terminals: sockets (4) | AMP #66360-4 (#18-#14 AWG) |

Mating external parts

| | |
|---------------------|-------------------------------|
| CPC connector (P1) | AMP #206429-1 |
| CPC cable clamp | AMP #206062-3 |
| Terminals: pins (4) | AMP #66361-4 (#18-#14 AWG) |

2.9 INSTALLATION: OUTPUT CONNECTIONS



WARNING

Turn off the main power source supplying the power conditioner at the service disconnect before proceeding.



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Warnung Vor dem nächsten Arbeitsschritt muß die Hauptstromversorgung zum Leistungsanpassungsgerät am Wartungstrennschalter abgeschaltet werden.

Turn OFF the service panel circuit breaker supplying power to the power conditioner and connect your equipment to the ABC10I power conditioner's output. The output power block, located in the lower right front of the conditioner can be used for full power loads for ABC10I power conditioner.

Turn OFF the equipment power circuit breaker or switch before turning ON the main output circuit breaker on the POWERVAR power conditioner.

Turn ON the appropriate circuit breaker(s) on the power conditioner's output and then turn ON the protected equipment power switch or circuit breaker.

Each power run should be unique to each piece of equipment in the system. The use of temporary power taps should be avoided. Even the use of duplex receptacles should be avoided in the case of electrically noisy loads (i.e. laser printers, phase regulated power supplies, etc).

Do not rely on the conduit alone for connection to ground.

POWERVAR discourages the down sizing of grounding conductors as allowed by various codes. If in doubt regarding wire sizing, consult the U.S. National Electrical Code®, Table 310-16, and your local electrical code.

POWERVAR recommends that power runs on the output of the conditioner be as short as possible, with a maximum length of 50 feet (15.2 m).

Torque all connections. Refer to the torque specifications in section 6.0, **MAINTENANCE**. Follow the procedure in section 2.4, **VERIFYING YOUR INSTALLATION**.

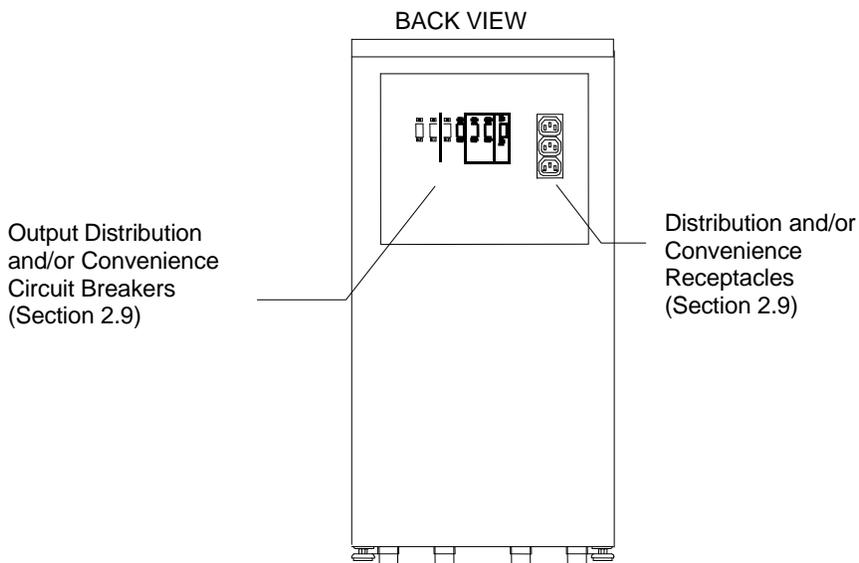
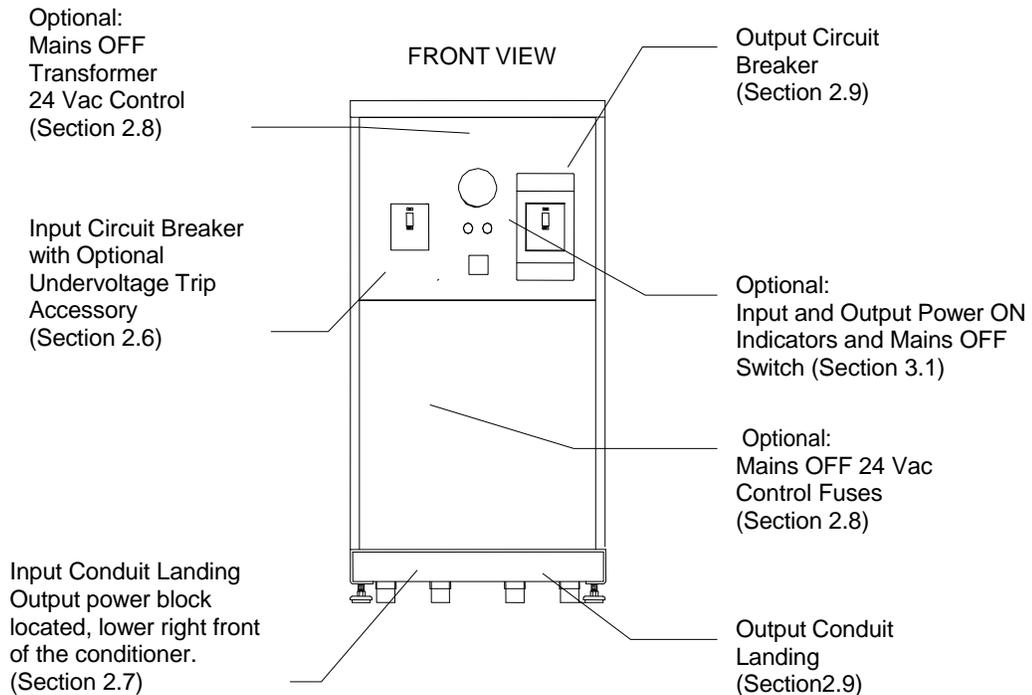
If you wish to connect the secondary side grounded conductor (neutral) of the power conditioner to a grounding electrode system (local building steel, water pipes, made electrodes, etc.) you can do so by connecting a grounding electrode conductor to the 1/4-20 x 3/4 inch stud referred to as the Environmental Reference Ground®. This pressed-in stud is electrically referenced to the secondary side grounded conductor through an internal bonding jumper and is located just below and left of the main output power block.

3.0 FEATURES AND CONTROLS

3.1 INPUT AND OUTPUT FEATURES AND CONTROLS

The input features and controls, standard and optional, are outlined in the drawings on this page. Refer to the section number identified for information on the operation, installation and modification of each feature or control.

FIELD RETROFITTING REQUIRES YOUR SYSTEM POWER TO BE SHUT DOWN.



4.0 SPECIFICATIONS

4.1 ABC10I SPECIFICATIONS

| | |
|---|--|
| Output rating (kVA) | 9.6KVA |
| Load Current Rating (Amps / phase) | 40/40 |
| Frequency | 50/60 Hz |
| Width inches (cm) | 14.0 (35.6) |
| Height inches (cm) | 24.0 (61.0) |
| Depth inches (cm) | 17.0 (43.2) |
| Floor footprint - sq. inches (square cm) | 238 (1538) |
| Shipping weight - lb. (kg) | 280 (127) |
| Unit weight - lb. (kg) | 250 (113) |
| RF 50 Ohm Insertion Loss (line-load & load-line) | |
| 60 kHz to 400 kHz (typical) | 50 dB |
| 25 kHz to 800 kHz (typical) | 40 dB |
| 10 kHz to 2 MHz (typical) | 30 dB |
| 1kHz Forward Transfer Impedance (Ohms) | |
| 240 V output | < 2.4 |
| 120 V output | < 0.7 |
| Efficiency at Rated Load (%) | > 97 |
| Thermal Dissipation at 80% Load (BTU/Hr.) * | 800 |
| Load Power Factor Range(Crest Factor) | 0.3 leading to 0.3 lagging. |
| Surge Voltage Withstand Capability | ANSI/IEEE C62.41 Category A&B, 6 kV/ 200, 500 and 3000 Amp, 100 kHz ringwave and impulse. |
| Normal & Common Mode Clamping Response Time | Instantaneous. |
| Surge Voltage Let-Through (max.) ANSI / IEEE C62.41 Cat. A, 6 kV | less than 10V Normal mode (L-N), less than 0.5V Common mode (N-G) |
| Overload Capability tolerated without degradation | 10 times rated output for 0.5 cycle, 5.5 times rated output for typically 1 second, 3.5 times rated output for 5 seconds. |
| Distortion | < 1% THD added into a resistive load. |
| Load Regulation Response Time | < 2 msec for a 50% change in load. |
| Interruption Response Time | Output voltage will track input voltage in less than 2 msec at power-off and power-on for a single-cycle asynchronous notch. |
| Ambient Operation | 10,000 ft (3,000 meters) max elevation, 0-95 % humidity non-condensing, 32-104°F (0-40° C). |
| Approvals | UL/cUL, CE. |

* BTU is based on the Watt loss times 3.41.

All specifications subject to change without notice.

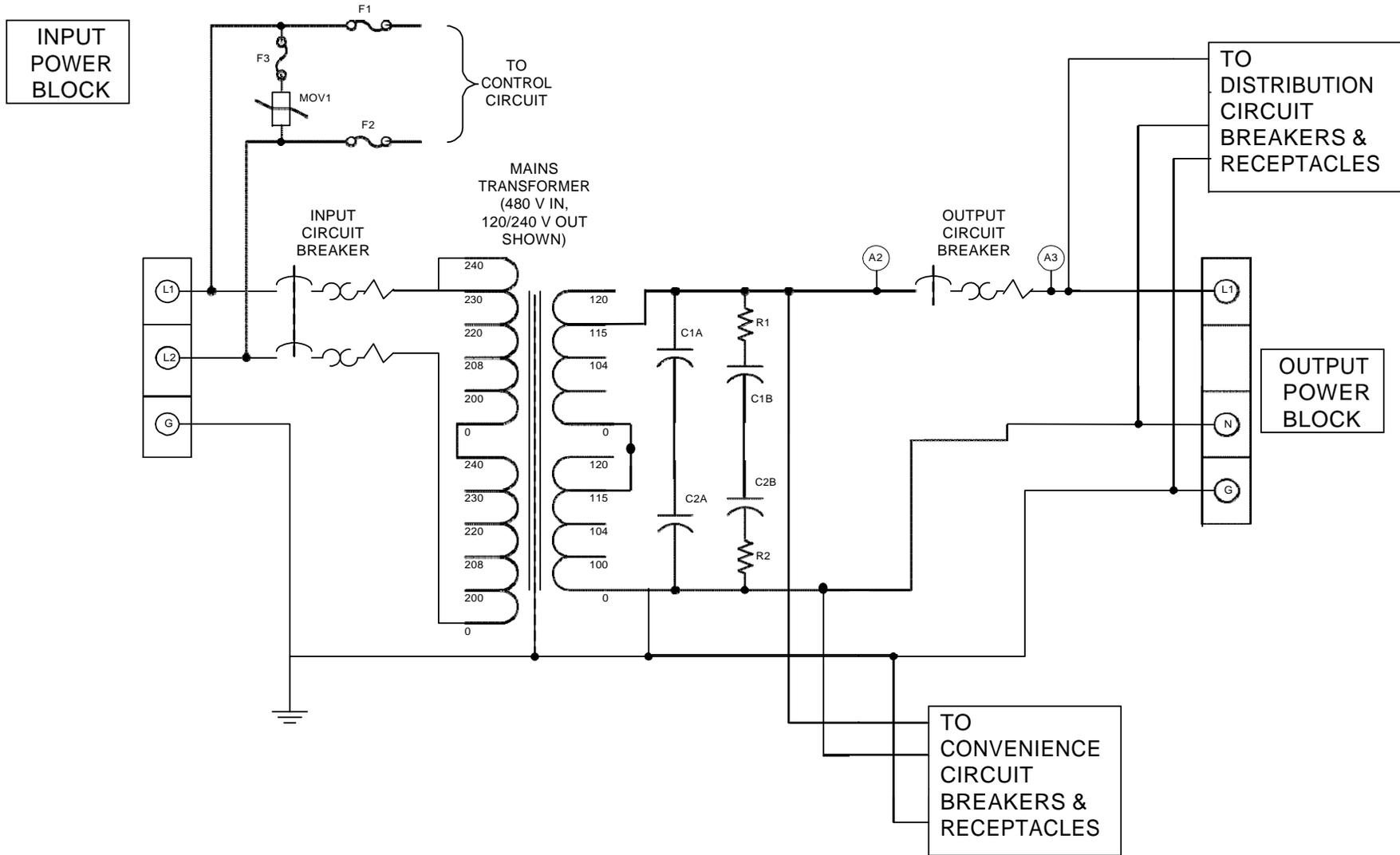
4.1 ABC10I SPECIFICATIONS (CONT'D)

| | | |
|-------------------------------------|---|---------------|
| Model | ABC10I | ABC10I |
| Input Voltage Range * | 200-240. | 400-480 |
| Input Circuit Breaker | 50A | 25A |
| EMO control circuit | (Optional) 24 V circuit comprised of undervoltage release accessory integrated into the input circuit breaker. | |
| 24 VAC transformer. | (Optional) Powers EMO control circuit. Primary connected to the Input power block. Multiple primaries for various inputs from 200 - 480 Vac. Primary protected by two fuses; 500V, 0.4 A. | |
| Output Voltage | 120 Vac, 240 Vac, or 120/240 Vac, Split-phase. 230V L-N IS AVAILABLE AS SPECIAL ORDER | |
| Input Termination | Accepts wire size #2 - 14 AWG Conduit feed from bottom of unit, 3/4inch (1.91 cm) conduit hole in base, or shim or punch to size. | |
| Hard Wire - internal terminal block | | |
| Indicators | (Optional) Input Power ON and Output Power ON. Located on the front upper panel of the conditioner. | |
| Warranty | 5-year materials and workmanship. | |

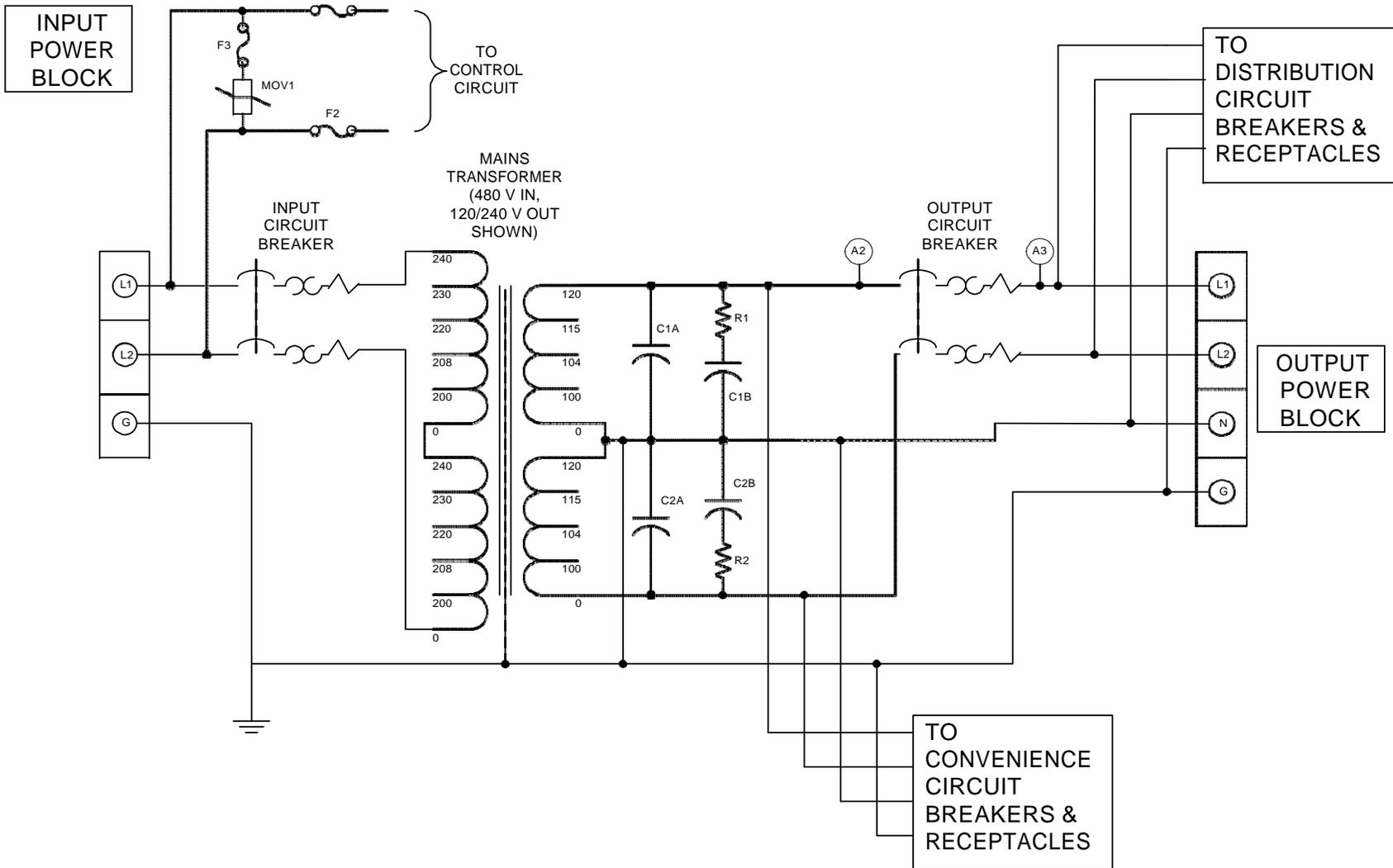
* All CSR power conditioners are tagged with input voltage configuration on the input power block or input cord. Discrete taps available at 200, 208, 220, 230, and 240 Vac for the 200 – 240 V range and 400, 415, 440, 460, and 480 Vac for the 400 – 480 V range.

All specifications subject to change without notice.

4.2 ABC10I 230V L-N SCHEMATICS



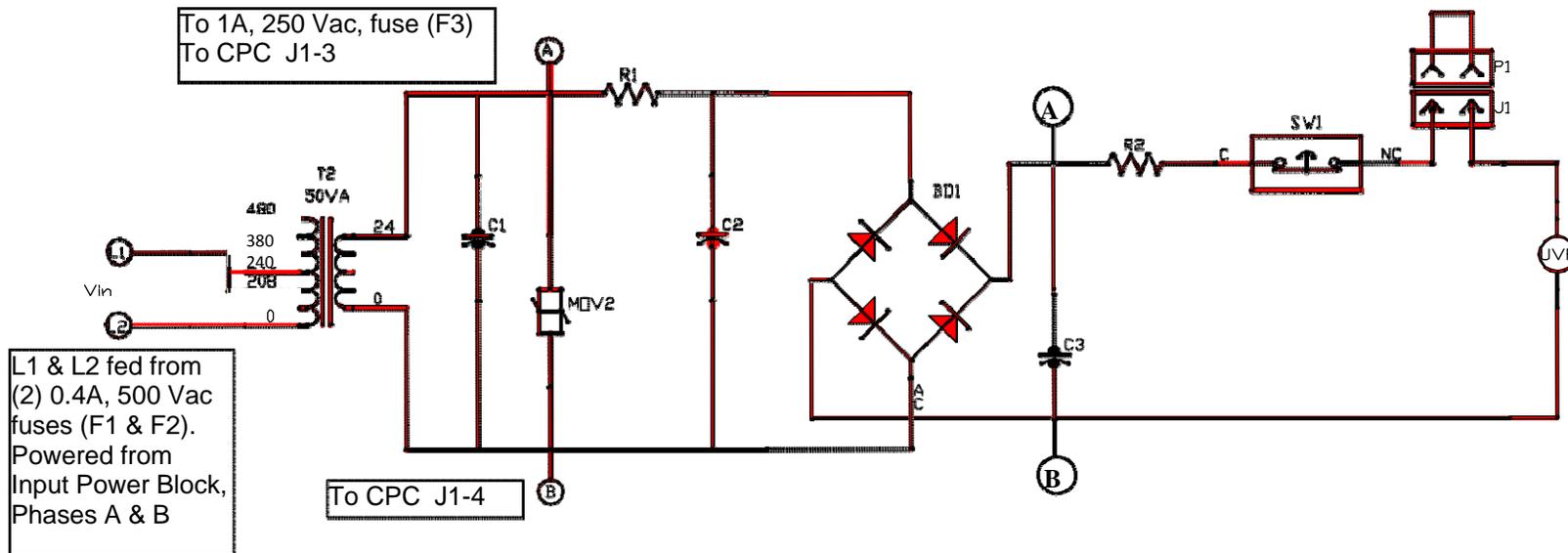
ABC10I 240V L-L SCHEMATICS



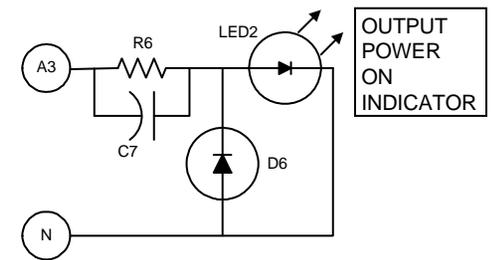
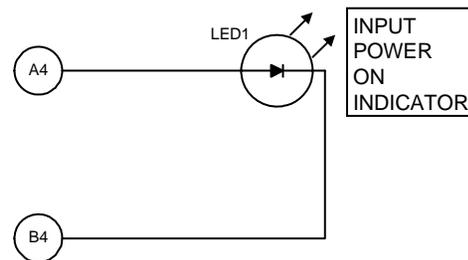
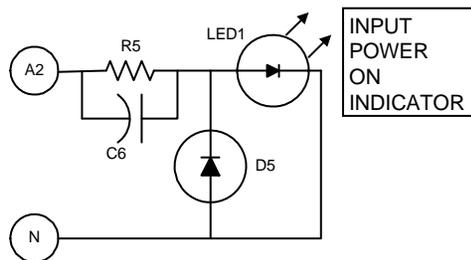
ABC Series Schematic

Optional 24V Control Circuit Schematic Designed for SEMI-S2 and SEMI-F47 Compliance.

CPC (J1)
Pins 1 & 2

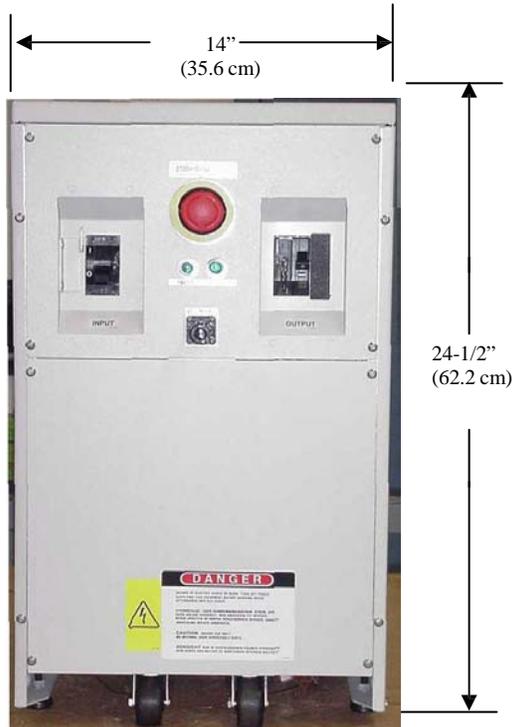


Optional Status Indicator LEDs Configurations

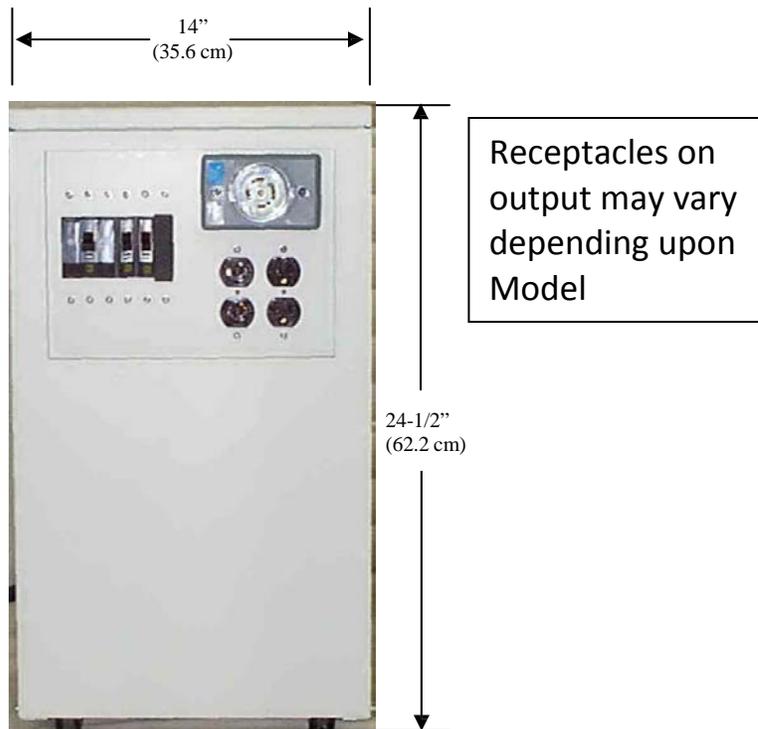


5.0 PHYSICAL VIEWS

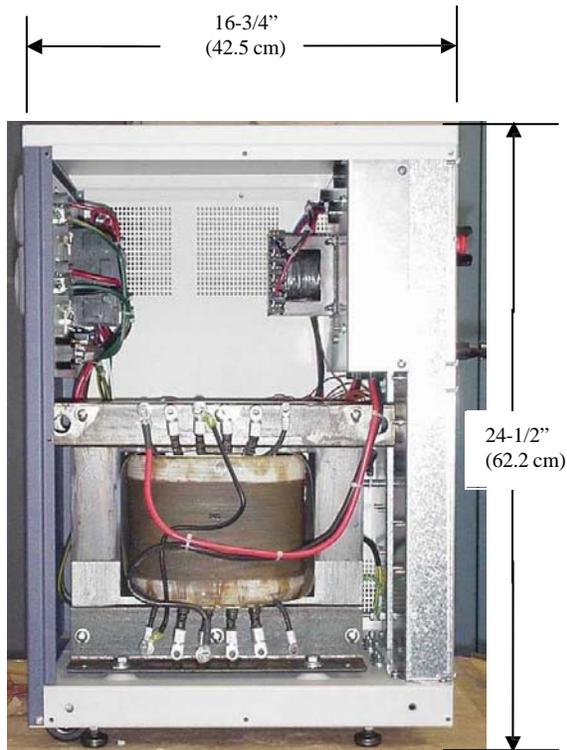
FRONT VIEW



BACK VIEW

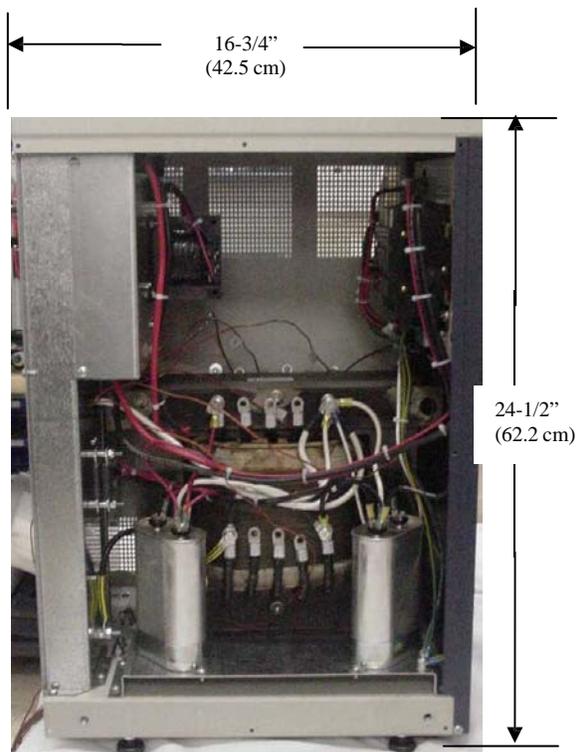


LEFT VIEW



LEFT COVER REMOVED
(Shown Tapped for 415 Vac Input)

RIGHT VIEW



RIGHT COVER REMOVED
(Shown 120/240 Vac, Split-Phase Output)

6.0 MAINTENANCE

Maintaining the correct operation of your POWERVAR Power Conditioner is limited to annually checking the operating voltage and torquing all the connections.



WARNING

Turn off the input and main power circuit breakers on the power conditioner. Turn off the power source supplying the power conditioner at the service disconnect before proceeding.



WARNUNG

Die Eingangs- und Hauptausgang-Leistungsschalter am Leistungsanpassungsgerät abschalten. Vor dem nächsten Arbeitsschritt muß die Stromversorgung zum Leistungsanpassungsgerät am Wartungstrennschalter abgeschaltet werden.

Torque Specifications

Circuit Breakers torque specification – on circuit breaker label

| Bolt Size | Material | Torque | | |
|--------------|----------|---------|---------|------|
| | | (ft/lb) | (in/lb) | (Nm) |
| 3/8 | Steel | 20 | 240 | 27 |
| 5/16 | Steel | 12 | 140 | 16.3 |
| 1/4 | Steel | 6 | 75 | 8.1 |
| #10 | Steel | | 32 | 3.6 |
| #8 | Steel | | 20 | 2.3 |
| #6 | Steel | | 11 | 1.2 |

6.1 FUSE REPLACEMENT

The ABC10I with the optional EMO control circuit requires fuses.

The EMO control circuit fuses are service personnel replaceable only. Since these fuses are located behind a secured panel or cover limiting access to hazardous voltages, only qualified electricians should replace them. The fuse specification is as follows:

| Location | Input (Vac) | Fuse Current Rating | Source : | Part Number |
|------------|-------------|---------------------|------------------------|----------------|
| EMO | F1 & F2 | 500VAC, 0.4 Amps | Bussmann | FNQ-4/10 |
| | | | Littelfuse | FLQ-4/10 |
| | | | Ferraz-Shawmut | ATQ-4/10 |
| | F3 | 600VAC, 10 Amps | Bussmann | KTK-10 |
| | | | Littelfuse | KLK-10 |
| | | | Ferraz-Shawmut | ATM-10 |
| 24 Vac Out | F4 | 250 Vac, 1 Amps | Bussmann Littelfuse | FNM-1 FLM-1 |

FUSE REPLACEMENT



WARNING

Turn off the power source supplying the power conditioner at the service disconnect before proceeding.



WARNUNG

Vor dem nächsten Arbeitsschritt muß die Stromversorgung zum Leistungsanpassungsgerät am Wartungstrennschalter abgeschaltet werden

OPTIONAL EMO CONTROL CIRCUIT FUSES (FRONT PANEL ACCESS)

1. Turn OFF the power conditioner's output circuit breaker.
2. Turn OFF the power conditioner's input circuit breaker.
3. Turn OFF the power conditioner's input power feed.
4. To replace the Optional EMO fuse(s) – Remove the lower front panel cover of the power conditioner.
5. Remove and replace the fuse(s) as needed.
6. Replace the cover panel.
7. Follow the procedure in Section 2.4 **VERIFYING YOUR INSTALLATION.**

7.0 CHANGING THE OPERATING VOLTAGE

The purpose of tap selection is to provide supply voltage flexibility over a range of input voltage configurations. Tap selection provides a permanent adjustment to the input voltage level. Multiple input primary taps allow for a wide variety of input voltage configurations as presented around the world. Field tap selection is not available on the output.

VOLTAGE TAP SELECTION

1. Turn OFF the power conditioner's output circuit breaker.
2. Turn OFF the power conditioner's input circuit breaker.
3. Turn OFF the power conditioner's input power at the service disconnect.



WARNING

Turn off the power source supplying the power conditioner at the service disconnect before proceeding.



WARNUNG

Vor dem nächsten Arbeitsschritt muß die Stromversorgung zum Leistungsanpassungsgerät am Wartungstrennschalter abgeschaltet werden

4. Remove the left side panel to expose the primary side of transformer. The input voltage is raised or lowered within a voltage range by moving the winding jumper lead(s) on the primary side of the transformer. Do not change the location of any wires which are connected to the transformer's primary circuit breaker or to the transformer secondary. The ABC10I can be input voltage configured for the following voltages: LV range - 200, 208, 220, 230, or 240 V; or HV range - 400, 415, 440, 460, or 480 V. In order to change to a desired configuration, the black #8 gage wire should be moved to the primary terminal lug marked with the desired input voltage. The red #8 gage wire is not moved. The red #10 gage wire, used in the LV range, remains connected between the 0 V taps of the upper and lower coils. The black #10 gage wire, used in the HV range, connects the upper and lower coils of the primary in series. (See the inset figure as an example of a 415 V input voltage configuration). If your ABC10I power conditioner includes the optional EMO circuit, the primary of the control transformer may require retapping. This EMO transformer has taps at 208, 240, 380, and 480 V. Use the 208 V tap (H2) for input voltages of 200 and 208 V. Use the 240 V tap (H3) for 220, 230, and 240 V input voltages, the 380 volt tap (H5) for 400 – 415 V input, and the 480 V tap (H6) for 420 – 480 V input. The black #14 gage wire is connected to the H1 tap for all input voltages.

5. Re-install the left panel.
6. Mark any nominal voltage changes on or near the rating nameplate.
7. Follow the procedure in Section 2.4, **VERIFYING YOUR INSTALLATION.**



8.0 TROUBLESHOOTING AN INSTALLATION

If there is power at the input with no power at the output, turn OFF the output circuit breaker and then the input power to the conditioner at the main power source or service disconnect or unplug if cord and plug unit.

Check the value specified on the nameplate

Verify that your main power source is correct for the power conditioner's input voltage configuration.

Verify that the power conditioner's input voltage has not been changed in the field.

If everything seems correct, disconnect the line and ground input wires and then contact your local POWERVAR Sales Representative or POWERVAR Technical Services Department.

The conditioner is designed for repair ONLY by personnel trained to repair this model. POWERVAR Corporation does NOT recommend repair by any other personnel.

The POWERVAR Technical Service Department offers 24 hour technical support and can be reached at 1-800-369-7179.

If your POWERVAR power conditioner needs repair or replacement which cannot be done on site, POWERVAR's Technical Services will issue you a Return Material Authorization (RMA) number along with instructions on how to return the conditioner. Please check with POWERVAR's Technical Services Department before attempting to repair or return any POWERVAR product.

Correspondence and RMA's should be directed to:

AMETEK POWERVAR
1450 Lakeside Dr.
Waukegan, Il. 60085
U.S.A.

Attention: RMA # _____

9.0 WARRANTY

POWERVAR warrants its products to be free from defects in materials and workmanship for a period of five years. This warranty is limited to repairing or replacing, at POWERVAR's option, any defective component, circuit board or module contained within the product only when it is returned with an POWERVAR Return Material Authorization (RMA) number to POWERVAR or to an POWERVAR-designated repair facility. In all cases, shipping charges to and from POWERVAR or the POWERVAR-designated repair facility are at the customer's expense.

Certain modules or peripherals included with the product but not manufactured by POWERVAR are warranted for ninety days or to the extent of the manufacturer's warranty, whichever is longer.

Limitations of Warranty – This limited warranty does not cover any losses or damage resulting from shipment to or from the customer, or from improper installation, environment or abuse, or from any modifications, adjustments or repair by other than POWERVAR-authorized personnel.

Exclusive Remedies – Except as set forth herein and except as to title, there are no warranties, express or implied, or any affirmations of fact or promises by POWERVAR with reference to the products or their merchantability or fitness for any particular purpose. In no event shall POWERVAR be liable for lost profits, goodwill or any other special or consequential damages.

If it becomes necessary to return a power conditioner, contact POWERVAR for a Return Material Authorization (RMA) number. This number must be marked on the shipping carton and packing slip of the unit being returned. Shipping charges are to be borne buy the customer. Customers will be billed repair charges for shipping damages resulting from inadequate packaging of the product being returned.



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