

ONEAC[®]

Power Conditioner

Distributed by

POWERCOM

800-288-9807

CX Series
Power Conditioners
2 to 9.6 KVA

Important Safety Instructions

Save these Instructions -- This manual contains important instructions for the CX Series power conditioners, which should be followed during the unpacking, installation, and maintenance of this product.

Model Number _____

Part Number _____

Serial Number _____

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All specifications and ONEAC part numbers subject to change without notice.

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1.0 INTRODUCTION

Congratulations on owning the world's finest and most reliable power conditioner. Your ONEAC POWER CONDITIONER provides the ultimate in power conditioning and offers your system an electrically clean, quiet and stable environment. With your ONEAC power conditioner, optimum system reliability and productivity can be realized through the 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 ONEAC power conditioner cost efficient, system compatible and ideally suited for your system.

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

If you have any questions or problems regarding your Power Conditioner, please contact ONEAC's Technical Services. ONEAC offers 24 hour technical support. You can reach technical services at 1-800-327-8801 then select option # 3 or at 1-847-816-6000 extension 3.

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 ONEAC power conditioner.

1.2 SIZING INFORMATION

The rating label of your ONEAC power conditioner lists the 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 INSTALLATION OVERVIEW

Please Note!

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

For Plate Versions:

CX Plate mounted models are **UL/cUL Recognized** components, intended for installation in enclosures. Please see the installation instructions included in the packaging of your plate version power conditioner.

For Enclosure Versions:

CX Enclosures mounted models are **UL/cUL Listed** products.

Please see the installation label that is affixed to the inside of the door of the enclosure.



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.

The input requires two phase conductors and a ground conductor connection.

The use of **rigid** or **flexible steel** conduit is strongly preferred for these hardwire models.

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 wall conduit or flexible steel conduit with a continuous copper ground between your equipment and the power conditioner. Always include a ground wire for each 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 operation has been verified.

2.2 UNPACKING AND PLACEMENT

Upon arrival, inspect the unit and the shipping package for signs of damage. If damage is detected, immediately contact the freight company and ONEAC Technical Services. You can reach ONEAC Technical Services at 1-800-327-8801 then select option # 3 or at (847) 816-6000 extension 3.

ONEAC recommends that your power conditioner be left in its shipping package during handling. Remove the conditioner from the shipping package once it is as close as possible to its final installation location.

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.

2.3 INPUT CONNECTIONS



WARNING

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



WARNUNG

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

1. Follow the U.S. National Electrical Code® and your local electrical codes.
2. Remove the cover or open the door of the unit.
3. Locate and punch out the input conduit hole making sure to physically separate the input service wiring from the output equipment wiring. Keep all wiring away from the transformer and use wire rated to a minimum of 75°C.
4. Connect the input ground to the terminal block (G). Heavy gauge wire, equal to or larger in diameter than the current carrying conductors should be used to connect the safety ground. It is recommended that ground be wired back to the service ground.

NOTE: Do not rely on the conduit alone for connection to ground. ONEAC 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 codes.

5. Connect the input phase wires to the disconnect switch (Enclosure models) or the input fuse block (Plate models).
6. Torque all connections. Refer to the torque specifications in Section 3.0, “Maintenance”.
7. Proceed to Section 2.4, “Output Connections”.

Input Overcurrent Protection

All CX Series power conditioners are provided with input fuses. Refer to **Section 3.1, “Fuse Replacement”** for details on fuse replacement.

2.4 OUTPUT CONNECTIONS



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.

1. Follow the procedure for connecting the input connections, see **Section 2.3, “Input Connections”**.
2. Follow the U.S. National Electrical Code® and your local electrical codes.
3. 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.). Data cables should be kept as far away from any power cables as possible.
4. ONEAC recommends that power runs on the output of the conditioner be as short as possible, with a maximum length of 50 feet (15 m). Separate the input wiring to the ONEAC power conditioner from the output equipment wiring.
5. Use wire sizes as recommended by the U.S. National Electrical Code® for lengths up to 25 feet (7.6m).
6. Locate and punch out all output conduit holes making sure to physically separate the input service wiring from the output equipment wiring. Keep all wiring away from the transformer and use wire rated to a minimum of 75°C.

NOTE: The use of rigid or flexible steel conduit with a continuous copper ground will limit any outside interference and help to insure proper system performance.

7. Connect the output ground to the output terminal block (G). Heavy gauge wire, equal to or larger in diameter than the current carrying conductors should be used to connect the safety ground. Always include a ground wire for each output circuit.
8. **Do not rely on the conduit alone for connection to ground.** ONEAC discourages the down sizing of grounding conductors as allowed by various codes. If in doubt regarding wire size, consult the U.S. National Electrical Code®, Table 310-16, or your local electrical codes.
9. Connect the output phase wires to the output terminal block or circuit breakers.
10. Torque all connections. Refer to the torque specifications in **Section 3.0 “Maintenance”**.
11. Follow the procedure in **Section 2.5 “Verifying Your Installation”**.
12. Replace the unit cover or close the door.

Output Overcurrent Protection

Output fuses or circuit breakers are used to protect each individual output circuit. Refer to **Section 3.1 “Fuse Replacement”** for details on fuse replacement.

2.5 VERIFYING YOUR INSTALLATION

1. Verify that the installation follows the guidelines outlined in **Section 2.0, “Installation Overview”**.
2. Verify that the door to the enclosure is securely closed and the disconnect switch is in the ON position.



CAUTION

DANGEROUS VOLTAGES ARE PRESENT.



VORSICHT

STROMFÜHREND. EBENSGEFAHR!

3. Turn ON the main power source.
4. Use a voltmeter to determine if voltage is present at the input and output. The ONEAC power conditioner’s output voltage may run a few volts higher than the rating voltage until the load is switched on.
5. If the operating voltage matches that suggested by the equipment manufacturer, turn off the power conditioner and plug in the output equipment. Operate output equipment as usual. If variations in the operating voltages of the power conditioner are greater than manufacturer’s specifications, see **Section 4.0, “Troubleshooting an Installation”**.

3.0 MAINTENANCE

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



WARNING

Turn off the input and main output 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 Hauptausgangs-Leistungsschutzschalter am Leistungsanpassungsgerät abschalten. Vor dem nächsten Arbeitsschritt muß die Stromversorgung zum Leistungsanpassungsgerät am Wartungstrennschalter abgeschaltet werden.

Torque Specifications

Terminal and Fuse Block lug torque specifications - on terminal or fuse block label.

Location example	Bolt Size	Material	Torque (ft/lb) (in/lb) (Nm)		
Transformer Mounting	3/8	Steel	20	240	27
Wires	5/16	Steel	12	140	16.3
	1/4	Steel	6	75	8.1
Misc. Conn.	#10	Steel		32	3.6
	#8	Steel		20	2.3
	#6	Steel		11	1.2
	3/8	Brass	20	240	27
	5/16	Brass	11	132	14.9
	1/4	Brass	6	75	8.1
	#10	Brass		20	2.3
	#8	Brass		16	1.8
	#6	Brass		8	0.9

3.1 FUSE REPLACEMENT

Fuses are used to protect the primary, and for some CX units, the secondary of the main transformer. The primary fuses are energized whenever the power source supplying the power conditioner is turned ON. All fuses are located by removing the cover or opening the door to the power conditioner.

Fuse Replacement

1. Turn OFF the main power source supplying the power to the conditioner.

- Turn OFF the power conditioner's disconnect switch.



WARNING

Turn off the input and main output 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 Hauptausgangs-Leistungsschutzschalter am Leistungsanpassungsgerät abschalten. Vor dem nächsten Arbeitsschritt muß die Stromversorgung zum Leistungsanpassungsgerät am Wartungstrennschalter abgeschaltet werden.

- Remove the cover or open the door to the power conditioner. Locate and test each fuse (input and output) with an ohmmeter to verify proper working order. Replace any fuse that is “open” or inoperable with one of those in the list below for the particular CX model, fuse function and current rating. Current ratings are marked near each fuse in the power conditioner as well as on the fuse being replaced
- Replace the cover or close the door to the power conditioner.
- Follow the procedure in Section 2.1, “Verifying Your Installation”.

Input Fuses: Rated 600Vac

CX Model	Fuse Rating		Manufacturer and Part No.		
	Amps	Class	Bussmann	Littelfuse	Ferraz Shawmut
CX2120	15	CC	LP-CC-15	CCMR-15	ATDR15
CX2136	20	CC	LP-CC-20	CCMR-20	ATDR-20
CX2150	30	CC	LP-CC-30	CCMR-30	ATDR30
CX2172	50	RK5	FRS-R-50	FLSR50	TSR50R
CX2196	60	RK5	FRS-R-60	FLSR60	TSR60R
CX4120	8	CC	LP-CC-8	CCMR-8	ATDR8
CX4136	10	CC	LP-CC-10	CCMR-10	ATDR10
CX4150	15	CC	LP-CC-15	CCMR-15	ATDR15
“	20	CC	LP-CC-20	CCMR-20	ATDR20
CX4172	30	RK5	FRS-R-30	FLSR30	TSR30R
CX4196	40	RK5	FRS-R-40	FLSR40	TSR40R

Output Fuses: Rated 240 Vac

CX Model	Fuse Rating (Amp)	Bussman	Little Fuse	Gould Shawmut
Various	15	FNW15	FLM15	
Various	20	FNW20	FLM20	
Various	25	FNW25	FLM25	
Various	30	FNW30	FLM30	
CX2172,CX4172	80	FRN-R-80	FLNR80	TR80R
CX2196,CX4196	100	FRN-R-100	FLNR100	TR100R

4.0 TROUBLESHOOTING AN INSTALLATION

If there is power at the input with no power at the output, turn OFF the main power source, then turn OFF the disconnect switch specific to the unit in question.

Remove the cover or open the door and check the values specified on the nameplate.

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

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

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

The ONEAC Technical Services Department offers 24 hour technical support and can be reached at 1-800-327-8801, then select option # 3 or at (847) 816-6000 extension 3.

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

Correspondence and RMA's should be directed to:

ONEAC Technical Services
27944 North Bradley Road
Libertyville, IL 60048-9700
U.S.A.
Attention: RMA # _____

5.0 WARRANTY

ONEAC 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 ONEAC's option, any defective component, circuit board or module contained within the product only when it is returned with an ONEAC Return Material Authorization (RMA) number to ONEAC or to an ONEAC-designated repair facility. In all cases, shipping charges to and from ONEAC or the ONEAC-designated repair facility are at the customer's expense.

Certain modules or peripherals included with the product but not manufactured by ONEAC, including but not limited to batteries or battery packs, 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 ONEAC-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 ONEAC with reference to the products or their merchantability or fitness for any particular purpose. In no event shall ONEAC be liable for lost profits, goodwill or any other special or consequential damages.

If it becomes necessary to return a power conditioner, contact ONEAC 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 by the customer. Customers will be billed repair charges for shipping damages resulting from inadequate packaging of the product being returned.



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