

# OWNER'S MANUAL

## ISOCENTER-2™ SERIES

### RACKMOUNT SHIELDED ISOLATION TRANSFORMER AND POWER DISTRIBUTION CENTER



**PATENT NUMBER  
8,542,506**

#### THANK YOU

Thank you for purchasing the IsoCenter Rackmount Shielded Isolation Transformer and Power Distribution Center. Please read these instructions thoroughly before installing this product.

#### KEY BENEFITS:

- Newly derived reference ground helps prevent ground loops and provides the lowest possible noise floor for high gain.
- Four 20A branch circuits, two of which are hardwired, providing the means to extend the ground reference benefits provided by the IsoCenter out to remote systems/locations
- All circuits on the same phase - not "split 240VAC"
- 100,000A 2-stage Surge & Spike Protection with dry contact status notification, protects connected devices against power line surges & spikes
- Provides effective AV system isolation from electrical noise such as lighting dimmers
- Very high efficiency toroidal transformer – greater than 98% efficient
- Saves labor and material cost by using a higher voltage feeder and integrated power distribution circuit breakers
- Negligible magnetic leakage, less than half that of a standard plug in power brick allows the unit to be installed right in the rack
- Inaudible acoustical noise (27dB, C-weighted, 1 meter)
- Helps prevent impact of voltage induction on ground wire feeder
- 5KVA capacity is sized for multi-rack systems
- Plugs directly into a standard L6-30R receptacle

For more info, please visit  
[www.middleatlantic.com/power/IsoCenter.htm](http://www.middleatlantic.com/power/IsoCenter.htm)

| Part #           | Description  |
|------------------|--|
| ISOCTR-5R-240-2  | 5kVA rackmount isolation transformer & load center - 240VAC 1Ø input |
| ISOCTR-5R-208-2  | 5kVA rackmount isolation transformer & load center - 208VAC 1Ø input |
| ISOCTR-5R-240-NS | (Call for Information)   |
| ISOCTR-5R-208-NS | (Call for Information)   |

ETL Listed to standard UL 1012

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# WARNINGS AND SAFETY INSTRUCTIONS

## *READ AND SAVE THESE INSTRUCTIONS*



### **ATTENTION**

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance



### **DANGEROUS VOLTAGE**

The lightning flash with the arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated dangerous voltage within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons



**WARNING:** Confirm input supply voltage prior to plugging the unit in



**WARNING:** The supplied NEMA L6-30P plug can be used for either 208VAC or 240VAC supply. Be sure to verify that the voltage rating of the IsoCenter matches the feeder circuit



**CAUTION:** To reduce the risk of fire, use only on circuits provided with 30A branch-circuit protection in accordance with the National Electrical Code



**CAUTION:** The IsoCenter weighs approximately 105 lbs. To reduce the possibility of injury or equipment damage, be sure to have adequate personnel to assist during installation



**CAUTION:** Do not run cord under carpeting. Do not cover cord with throw rugs, runners or similar coverings. arrange cord away from traffic area and where it will not be tripped over



**WARNING:** Do not place combustible material on or near unit



**WARNING:** For use indoors in dry locations only



**WARNING:** Danger hazardous voltage



**WARNING:** Disconnect power before servicing

## COMPLIANCE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

# GENERAL DESCRIPTION

IsoCenter™ Rackmount Isolation Transformer™ systems provide protected, same-phase, 120VAC circuits to power commercial AV systems.

A newly derived AV reference ground helps prevent ground loops and provides the lowest possible noise floor for high gain applications. Operating at efficiencies greater than 98% and performing an automatic shutdown if hazardous input voltage conditions are detected, IsoCenter provides the critical foundation for optimal system performance. Negligible audible noise & negligible magnetic leakage (less than half that of a standard power brick) means that IsoCenter can be installed directly inside the equipment rack.

| PRODUCT SPECIFICATIONS  |                                 |   |                 |
|-------------------------|---------------------------------|---|-----------------|
|                         |                                 | ISOCTR-5R-240-2   | ISOCTR-5R-208-2 |
| <b>Electrical</b>       | Load Capacity                   | 5kVA (41.5A)  |                 |
|                         | Input Voltage                   | 240VAC  | 208VAC          |
|                         | Faraday Shield                  | Yes   |                 |
|                         | Input Connection                | 30A Male Twist-Lock Plug, NEMA L6-30P, 10ft Cord  |                 |
|                         | Main Cutoff Breaker             | 20A 2-Pole  | 25A 2-Pole      |
|                         | Circuit breaker guard           | Yes   |                 |
| <b>Output Circuits</b>  | Total Number of Load Circuits   | <b>4 x 20A</b><br>2 x Local (6 outlets each)<br>2 x Hardwired<br>All circuits un-switched   |                 |
|                         | Isolated Ground Receptacles     | All circuits  |                 |
|                         | Load Circuit Voltage            | 120VAC  |                 |
|                         | Load Circuit Phase              | All Same Phase  |                 |
| <b>Safety</b>           | Surge/Spike Protection          | 100,000A - Primary Side   |                 |
|                         | Input Voltage Monitoring        | Yes - with out-of-range auto shutdown   |                 |
|                         | Control System Notification     | Surge Status  |                 |
|                         | Safety Auto Shutdown            | Yes   |                 |
|                         | Auto-restart                    | Yes   |                 |
| <b>General</b>          | Magnetic Leakage                | Negligible (typically 20 milligauss at 2" from chassis)   |                 |
|                         | Acoustical Noise                | Negligible (27db C-weighted at 36" from chassis)  |                 |
|                         | External Ground Busbar          | 7 position - screw type   |                 |
|                         | Local display                   | Surge Status, Input Voltage Status  |                 |
|                         | Chassis                         | Black Powder Coated Steel   |                 |
|                         | Dimensions                      | 19.00" Wide, 7.00" High, 14.4" Deep   |                 |
|                         | Rear rackrail mounting range    | 17.9" to 24.9"  |                 |
|                         | Weight                          | 105 lbs   |                 |
| <b>Surge protection</b> | Nominal line voltage            | 208/240VAC  |                 |
|                         | Maximum line current            | 24A @ 208VAC, 20A @ 240VAC  |                 |
|                         | Maximum allowable voltage       | 275VAC (RMS) - Maximum continuous voltage differential applied between L1 and L2  |                 |
|                         | Surge protection mode: L1 to L2 | <ul style="list-style-type: none"> <li>● Peak impulse current (8/20 micro seconds):                             <ul style="list-style-type: none"> <li>- 100,000A, one time</li> <li>- Maximum multiple impulse current derated per spec</li> </ul> </li> <li>● Maximum clamping voltage: 475VAC @ 100A</li> <li>● Response time: instantaneous (Less than 1 nanosecond)</li> </ul> |                 |
|                         | EMI/RF Suppression              | > 20dB<br>- Calculated L1 to L2, 100KHz to 1 MHz suppression based upon nominal impedance   |                 |
|                         | Surge energy dissipation        | 1190 Joules (10/100 micro seconds)  |                 |
|                         | Surge protection                | 2 Stage with status indicators for each stage   |                 |
|                         | Surge protection circuit        | Does not contaminate ground   |                 |

# GENERAL ELECTRICAL REQUIREMENTS

- The IsoCenter system requires a 30A feeder circuit, with #10 feeder conductors (minimum) terminated with a NEMA L6-30R twist-lock receptacle. A dedicated, insulated grounding conductor (run with the feeder wires) is also required. The supply voltage shall be a single phase 3 wire circuit, and is model dependent:
  - Model # ISOCTR-5R-208-2 requires 208VAC (nominal)
  - Model # ISOCTR-5R-240-2 requires 240VAC (nominal)

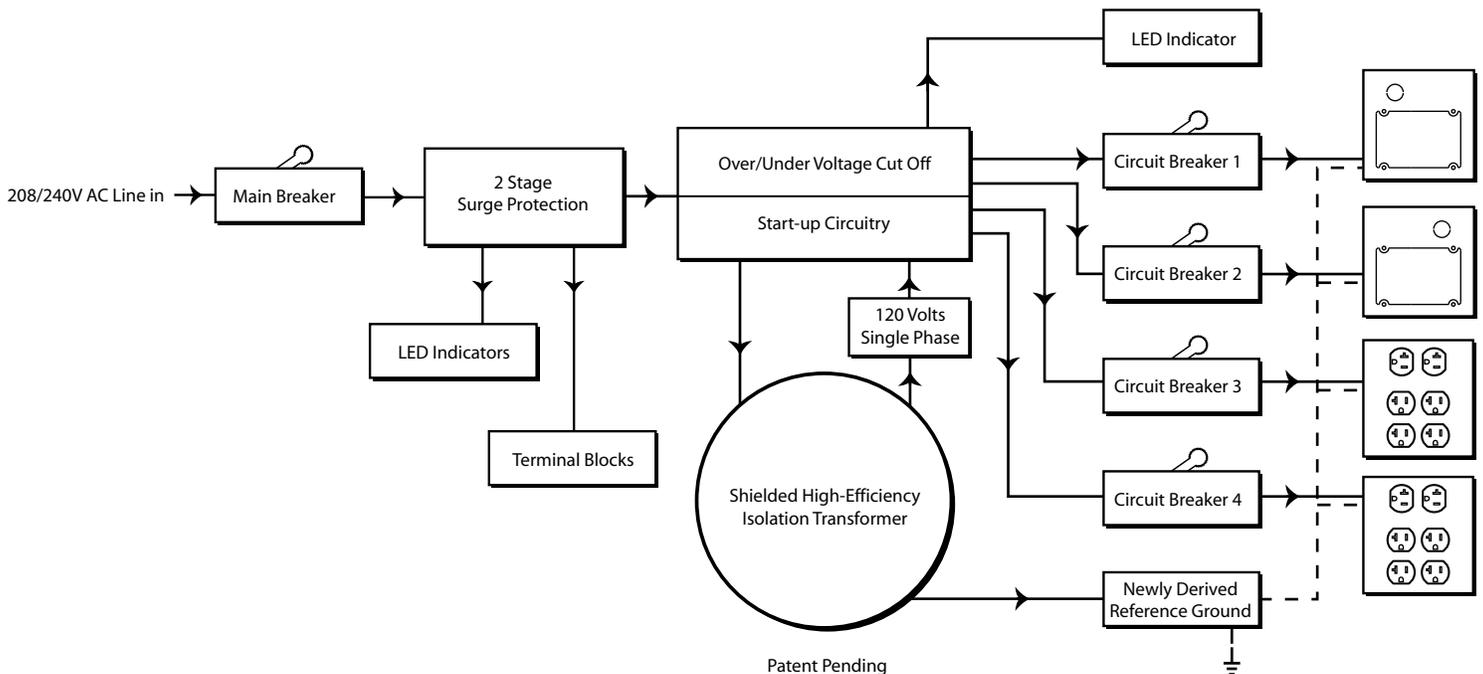


**DANGER HAZARDOUS VOLTAGE**  
**DANGER FORTE TENSION**

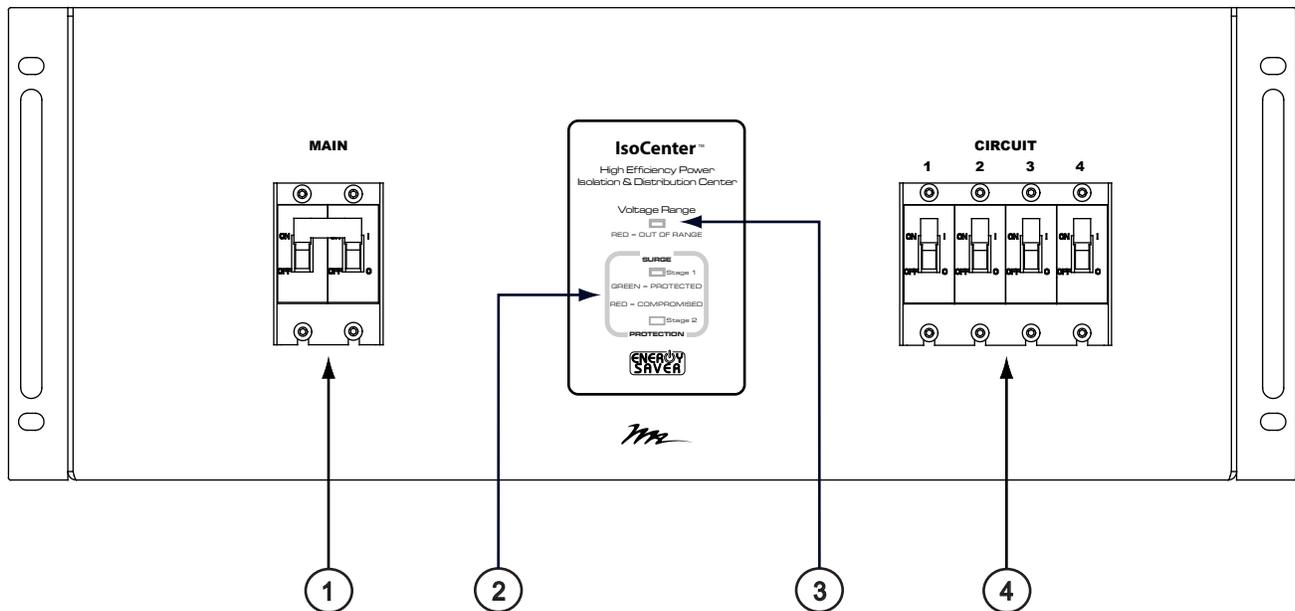
TO BE USED INDOORS IN DRY LOCATION ONLY  
 UTILISEZ SEULEMENT DANS UN EDROIT SEC

DISCONNECT POWER BEFORE SERVICING  
 DEBRANCHEZ LE COURANT AVANT L'UTILISATION

## BLOCK DIAGRAM



# FRONT PANEL



① Main Circuit Breaker: (2-pole, 25A for 208VAC, 20A for 240VAC)

② Surge Protection:

The Surge and Spike has two stages of protection, both stages are locally and remotely monitored. There are two status LEDs on the front of the unit that will indicate if the two stages of surge protection are working properly or if they have been compromised

### Status LEDs:

Green: Indicates that the surge protection is operating properly

Red: Indicates that the surge protection has been compromised

③ Voltage Range, Red/Green LED: If the input voltage is out of range the “Voltage Range” LED will switch from green to red and power to the transformer secondary will be automatically disconnected. The power will automatically be re-connected when proper voltage is sensed

### • 240VAC RANGE

- Low voltage automatic disconnect - 210VAC (105VAC @ output)
- Low voltage automatic reconnect - 214VAC (107VAC @ output)
- Over voltage automatic disconnect - 266VAC (133VAC @ output)
- Over voltage automatic reconnect - 262VAC (131VAC @ output)

### • 208VAC RANGE

- Low voltage automatic disconnect - 181VAC (105VAC @ output)
- Low voltage automatic reconnect - 185VAC (107VAC @ output)
- Over voltage automatic disconnect - 229VAC (133VAC @ output)
- Over voltage automatic reconnect - 225VAC (131VAC @ output)

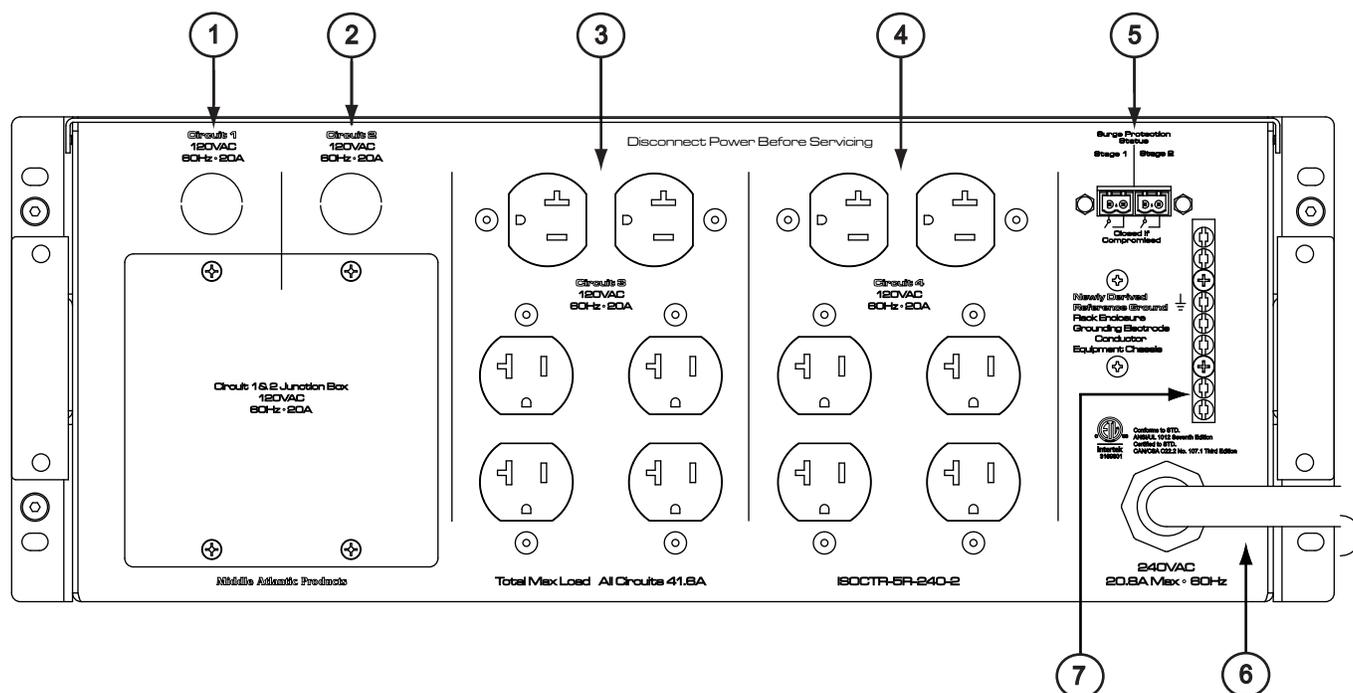
④ Four 20A Branch Circuit Breakers: Circuits 1 and 2 - Hardwired  
Circuits 3 and 4 - Duplex receptacles

## (FRONT PANEL CONTINUED)

### CIRCUIT BREAKER FEATURES

- The circuit breakers (main and branch circuits), will trip in the event of an overload, short circuit or ground fault. In the tripped condition the actuator handle will switch to the off position. To reset the circuit breakers return the handle to the “on” position. These circuit breakers are the “trip free” type. This means that even if the handle is manually held in the “on” position the internal trip mechanism will still operate.
- Built-in circuit breaker guards are equipped with holes, for the insertion of a locking pin, or screw and nut (not provided) to lock the circuit breakers in the “on” or “off” position.

## REAR PANEL



- 1 20A Branch Circuit 1: Hardwired
- 2 20A Branch Circuit 2: Hardwired
- 3 20A Branch Circuit 3: Six Outlets (3 duplex receptacles)
- 4 20A Branch Circuit 4: Six Outlets (3 duplex receptacles)
- 5 Surge Status Notification Dry Contacts: There are two sets of N/O terminals on the back of the unit. If the surge protection is compromised on either stage one or two the respective terminal will close a dry contact for remote monitoring
- 6 10 Foot, 10-3 flexible cord terminated with a NEMA L6-30P plug
- 7 External Ground/Bond Terminal Bus: A seven position ground bus is provided to allow a single point connection to enclosures and associated equipment in order to provide an equipotential ground plane. The bus is also the connection point for a grounding electrode conductor, if required by local electrical codes

# INSTALLATION

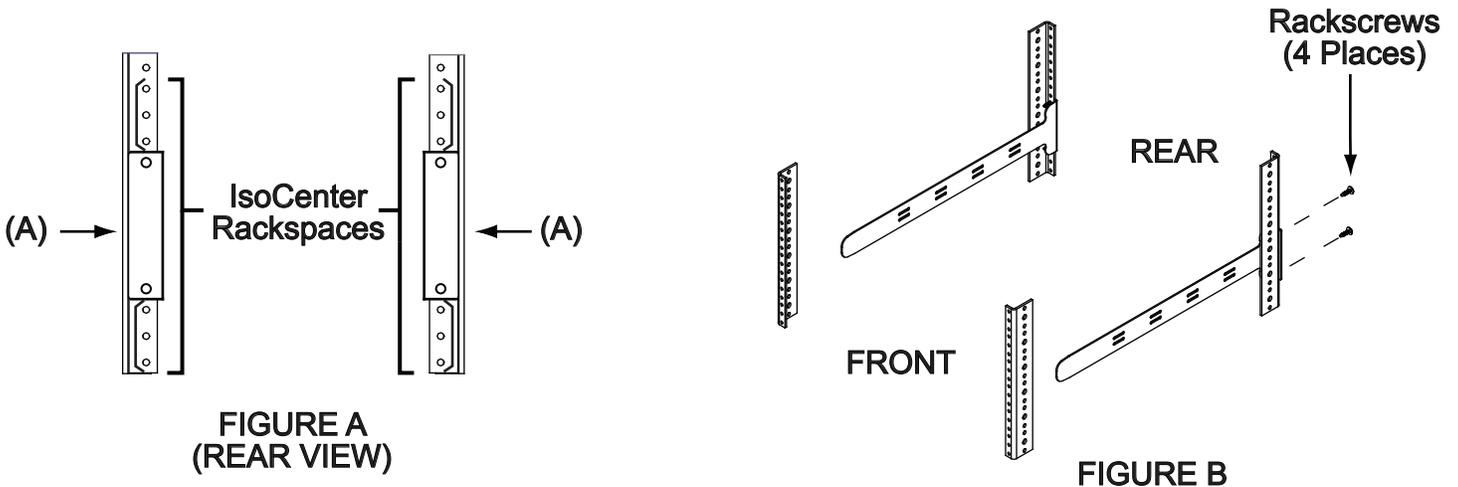


**CAUTION: THIS UNIT IS HEAVY, TWO MAN LIFT REQUIRED**

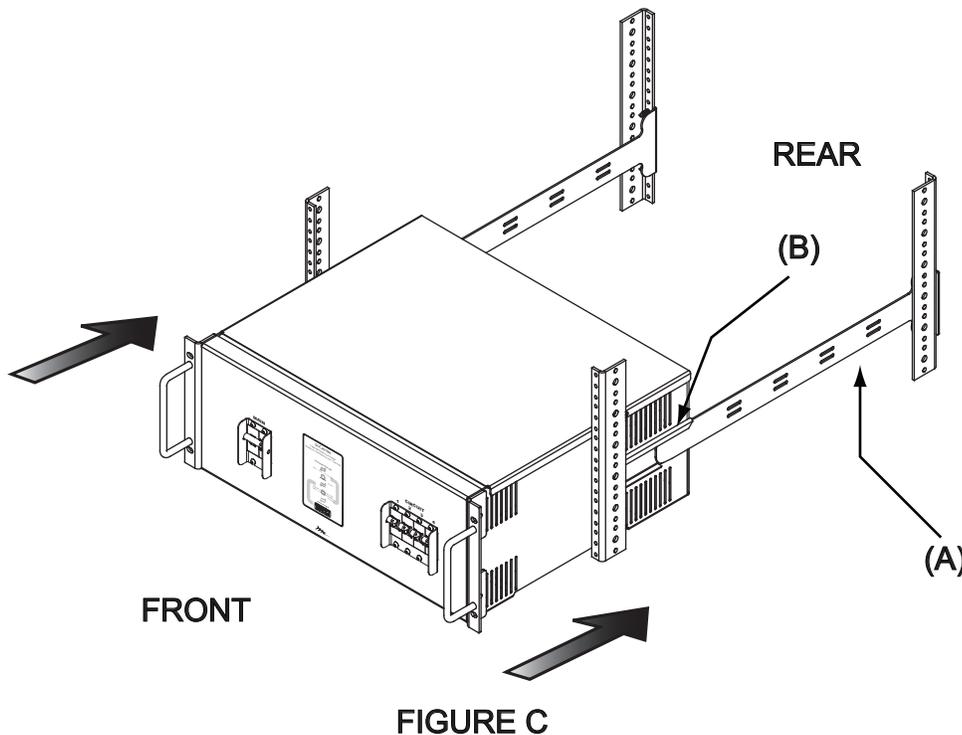
**CAUTION:** Tipping Hazard. Mount the unit in the lower 1/3 of the enclosure. Mount in a location where all cables to be connected to the unit can easily reach.

**CAUTION:** DO NOT leave the unit hanging on the Rear Mounting Brackets, this can cause the Brackets to bend and possible cause the unit to fall.

- 1) The IsoCenter is four rackspaces tall. Install the Rear Mounting Brackets (A) in the corresponding center two rackspaces on the rear of the enclosure (**FIGURE A**). Install the Rear Mounting Brackets (A) to the rear rackrail as shown. (**FIGURE B**)



- 2) Carefully lift the unit into position. Place the Rear Mounting Brackets (A) into the Chassis Mounted Support Ears (C) and slide the IsoCenter towards the rear of the enclosure. (**FIGURE C**)



# INSTALLATION CONTINUED

3) Install the Rackscrews into the front of the unit as shown. (FIGURE D)

**NOTE:** The factory installed handles can be removed with a #2 Phillips driver if they interfere with closing an enclosure door. The handles can be removed at anytime

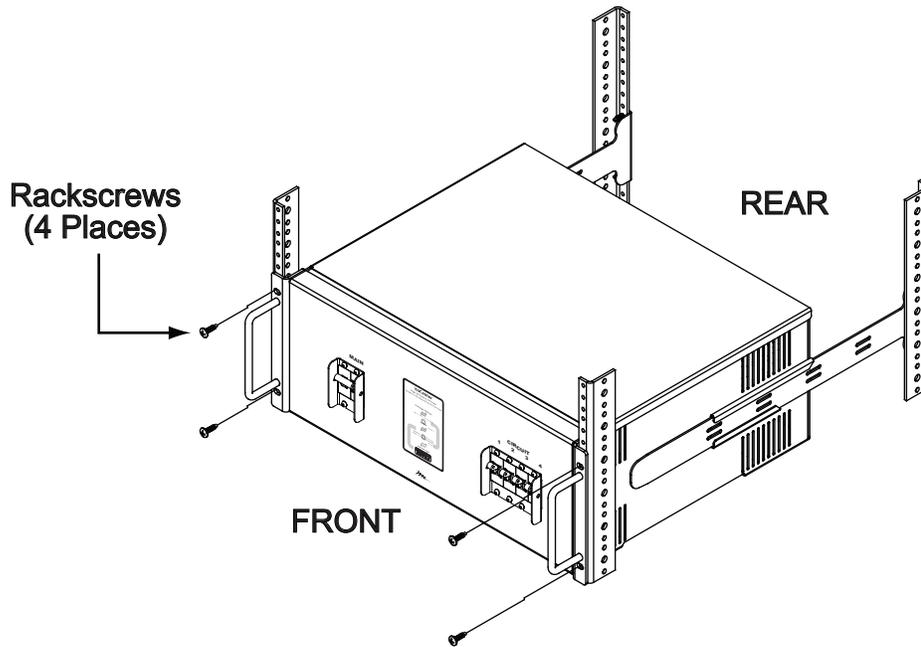


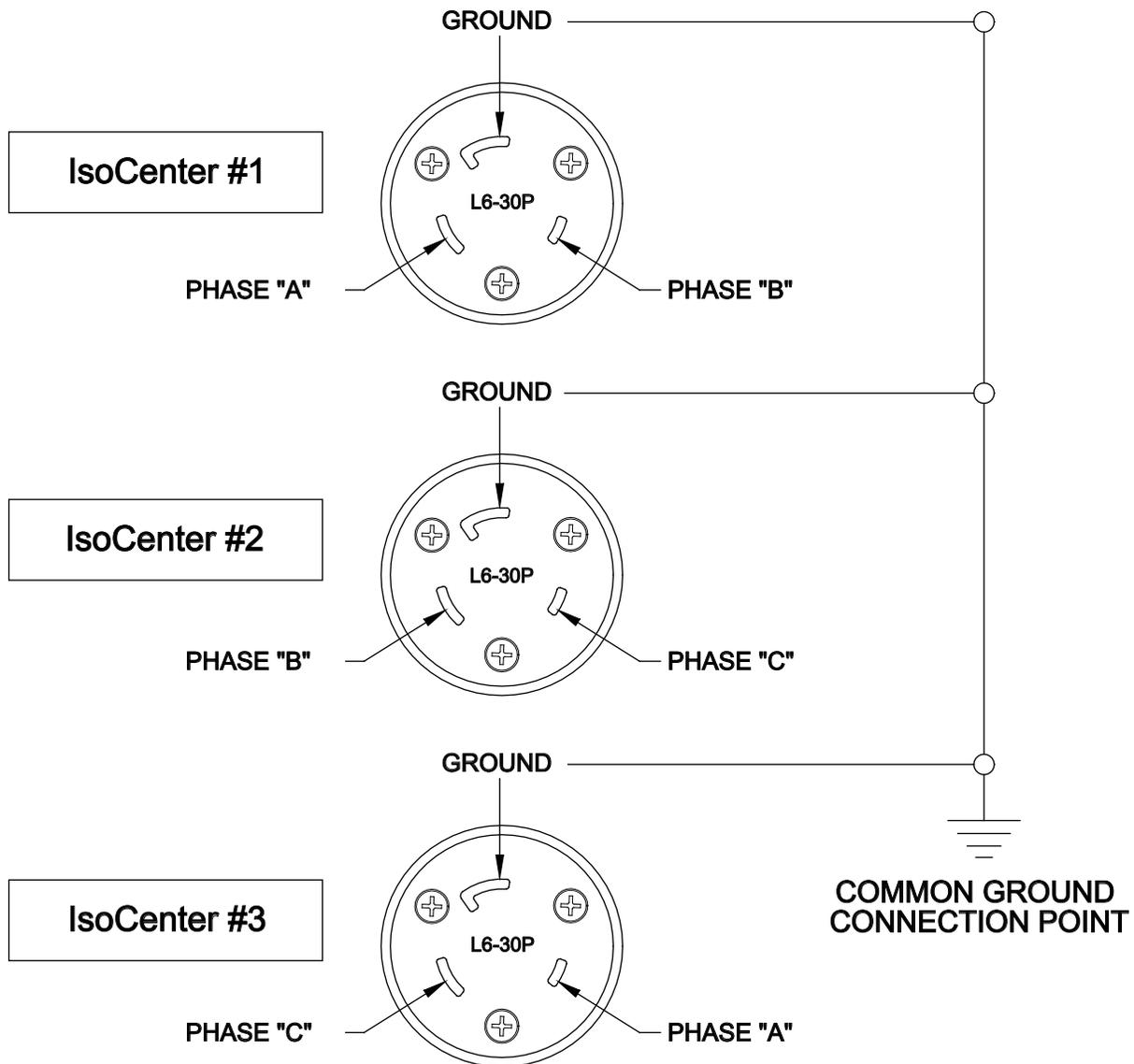
FIGURE D

 **WARNING**

Confirm input supply voltage prior to plugging the unit in

# CONNECTING MULTIPLE ISOCENTERS

- If connecting multiple IsoCenters to a three-phase supply, it is important to distribute the power as evenly as possible among the phases. A typical three unit system is shown below



 **WARNING**

The plug included with the IsoCenter is a L6-30P. It can be used with both 208VAC and 240VAC Supply. Verify that the supply voltage matches the IsoCenter requirements

**WARRANTY INFORMATION:**

Middle Atlantic Products, Inc. (The "Company") warrants the IsoCenter product for 5 (five) years (transferable) as follows:

The Company warrants that *IsoCenter* is free from defects in material and/or factory workmanship under normal and intended use for a period of 5 years from the date of purchase. Operation of the product under conditions exceeding the Company's specifications, or negligence in use of the product, or removal of the Company's nameplate or serial number (where applicable) from the product will void this warranty in its entirety. Overhaul or modification of the product will void this warranty in its entirety.

This warranty is transferable. This warranty does not cover defects caused by or damages resulting from improper installation, misuse or alterations made to the product. We offer no warranty in cases of damage in transit, inadequate care or neglect, abuse, abnormal use, misuse, accidents, normal wear and tear, damage due to environmental or natural elements, failure to follow product instructions, immersion in water, battery leakage or improper installation, improper storage or maintenance of the products, or improper service or causes not arising out of defects in materials and workmanship.

There are no other warranties which extend beyond the description of the face of this limited warranty, and to the full extent permitted by law, and any and all implied warranties, including implied warranties of merchantability or fitness for a particular purpose or arising from any course of dealing or usage of trade, are hereby expressly disclaimed and excluded, as well as all other obligations or liabilities on the part of the Company, its agents, representatives, distributors or designates not otherwise expressly covered under this limited warranty.

**LIMITATION OF LIABILITY:**

The Company's sole liability and the Customer's sole remedy for a failure of this product to perform as warranted shall be limited to the repair or replacement thereof, at the Company's discretion, upon return to the Middle Atlantic Products Inc. factory at 300 Fairfield Rd. Fairfield, NJ 07004, transportation prepaid.

**MATERIAL RETURN POLICY:**

No product may be returned without the seller's prior written approval. Transportation charges are to be prepaid by the buyer. Returned item(s) are subject to the manufacturer's inspection and acceptance. Seller may, at its discretion, replace any or all return items within a reasonable time after seller determines that returned item(s) are not in accordance here within; and in such event, seller shall not be liable for any damage arising from the defective delivery or delay caused thereby. When authorized by the seller in writing, unused products may be returned to the seller, subject to service handling, restocking, and if necessary rebuilding charges to "as new" condition.

Call the customer service department at 1-800-266-7225 for a return material authorization (RMA) number. No items will be accepted without an RMA number.



**Middle Atlantic Products**

# IsoCenter™ Shielded Isolation Transformer Power Distribution System

Thank you for purchasing IsoCenter™ by Middle Atlantic Products. To register your 5 (five) year transferable warranty, please accurately complete all of the fields and mail or fax to the address shown below. Alternatively, go to <http://newweb/mapweb2/isocenter/warranty/registration.aspx> to submit electronically.

Thank you for choosing Middle Atlantic Products. None of the information provided below will be disclosed to any third party.

**INTEGRATOR / FACILITY REPRESENTATIVE:**

**Last Name** \_\_\_\_\_  
required

**First Name** \_\_\_\_\_  
required

**Company Name** \_\_\_\_\_  
required

**E-mail address** \_\_\_\_\_  
either e-mail or phone is required

**Phone** \_\_\_\_\_

**INSTALLED LOCATION: (if different than above)**

**Last Name** \_\_\_\_\_  
optional

**First Name** \_\_\_\_\_  
optional

**Company Name** \_\_\_\_\_  
optional

**Address** \_\_\_\_\_  
required

**City** \_\_\_\_\_  
required

**State** \_\_\_\_\_  
required

**ZIP** \_\_\_\_\_  
required

**PRODUCT INFORMATION:**

**Model #**    ISOCTR-5R-208-NS    ISOCTR-5R-240-NS  
circle one    ISOCTR-5R-208-2    ISOCTR-5R-240-2

**Purchase Date** \_\_\_\_\_

**Serial Number** \_\_\_\_\_  
required

**MAIL FORM TO:**

**or FAX TO:**

Middle Atlantic Products  
Customer Service - Warranty Registration  
300 Fairfield Rd, Fairfield NJ 07004  
USA

Attention: Customer Service Warranty Registration  
800 - 392 - 3955