LAPC PRO
User's Manual

Local Area Power Center
2kVA & 3kVA Models (LAPC 2.1 & LAPC 3.1)

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Thank you for your purchase of the AMETEK Powervar Local Area Power Center (LAPC PRO). The product you have purchased is the most advanced solution available today to protect and provide clean power to your system. We've prepared this document to help familiarize you with the functions and controls of this product.

AMETEK Powervar is a global provider of power management systems, headquartered in Waukegan, Illinois, with international sales and distribution offices in United Kingdom, Germany, Canada, and Mexico. The company's primary products include transformer-based power conditioners and uninterruptible power supplies (UPS). It is ISO 9001:2015 registered and continues to lead the industry by creating higher standards for power quality to support the increasing use of technology in business, government, and nonprofit sectors.

More information about AMETEK Powervar and its product line can be found at www.powervar.com.

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Danger- The danger symbol is used to indicate imminently hazardous situations, locations, and conditions which, if not avoided, WILL result in death, serious injury, and/or severe property damage.

Caution- The caution symbol is used to indicate potentially hazardous situations and conditions which, if not avoided, mayresult in injury. Equipment damage may also occur.

Warning- The warning symbol is used to indicate potentially hazardous situations and conditions which, if not avoided, COULD result in serious injury or death. Severe property damageCOULD also occur.

Attention- The attention warning symbol is used to indicate situations and conditions that can cause operator injury and/orequipment damage.

Other warning symbols may appear along with the Danger and Caution symbol and are used to specify special hazards. Thesewarnings describe particular areas where special care and/or procedures are required in order to prevent serious injury and possible death.

Electrical Warnings- The electrical warning symbol is a lightningbolt mark enclosed in a triangle. The electrical warning symbol is used to indicate high voltage locations and conditions may cause serious injury or death.

Explosion Warnings- The explosion warning symbol is an explosion mark enclosed in a triangle. The explosion warning symbol is used to indicate locations and conditions where molten,exploding parts may cause serious injury or death if the proper precautions are not observed.

Protective Earth (Ground)

Connection point for the neutral conductor on PERMANENTLYINSTALLED EQUIPMENT

Earth Ground

ATTENTION

All Connections to the terminal blocks inside the LAPC should be tightened securely. The recommended torque specification is from 10.6 lb in. to 12.3 lbs. in.

CAUTION

To reduce the risk of fire, connect only to a circuit provided with 20 amperes maximum branch circuit over-current protection in accordance with the national electric code, NSI/NFPA 70.

LOCAL AREA POWER CENTER BENEFITS

Convenience - Space is frequently a valuable commodity in the small store format. The LAPC permits all critical equipment within the small store environment to receive conditioned, uninterruptible power without the need for distributed UPS or power conditioners.

- Assures that all connected loads are on the same phase/circuit
- Provides for true isolated power from other noise sources
- Easier maintenance - the bypass/transfer switch allows for removal of the UPS for maintenance or service without disrupting power to the critical electronic loads
- Input and output power status indicators make diagnostics easy
- Optional RPO (REMOTE POWER OFF) provides for remote disconnection of the UPS

1.0 INSTALLATION: RETROFITS

1. Determine which “critical circuit breakers” feed power to the remote receptacles and/or hard-wired loads that are required to be tied into the power isolation and battery backup of the LAPC. This will typically be the POS network receptacles and related equipment, office computer, telephone system, security system, etc.

2. Remove the panel board covers for the “critical circuit breakers”. Use an amprobe or other current measuring device to amp out all the hot conductors connected to the “critical circuit breakers”. The total amp load for the summation of all the “critical circuit breakers” must be 12 amps or less.

3. Locate a convenient wall location as close to the electrical panels as possible where there is adequate wall space to mount the LAPC/shelf assembly and the AMETEK Powervar Uninterruptible Power Manager (UPS) A space measuring 23.75” H x10.25” W x 19.0”D, plus additional spacing to access switches, cords, etc., is required for the entire assembly. If the shelf and the AMETEK Powervar UPS are mounted separately from the LAPC they must be within approximately 4 feet of each other in order for the plug and receptacle cables to connect between these two primary product component

4. Attach the LAPC/shelf assembly to the wall using hex head lag screws that are a minimum of 1/4 inch diameter and a minimum of 1 1/2 inches long. If the assembly cannot be attached to building framing members such as studs, it is the responsibility of the installer to use anchoring devices that are appropriate for the surface material to which the assembly is being mounted. Total assembly weight (LAPC, shelf, and UPS) is 135 pounds.

5. Select a 120V, 15 or 20 amp, single pole, circuit breaker in one of the panel boards to feed power to the LAPC. This may be one of the “critical circuit breakers” that is currently feeding one of the “critical circuits”. **DO NOT use “GROUND FAULT CIRCUIT**

INTERRUPT" (GFCI) TYPE BREAKERS to feed power to the LAPC. GFCI type breakers will trip when putting the LAPC into bypass mode.

6. Using EMT conduit, flexible conduit, or 15 amp minimum MC cable, run a single circuit (Hot – Black, Neutral – White, and Safety Ground – Green) to feed power to the LAPC on terminals "L", "N", and "G" in the lower right hand corner of enclosure on terminal block TB2. This circuit is considered "dirty power" since it has not been conditioned yet by the AMETEK Powervar UPS and should not be run in the same conduit as the "clean power" circuits that will feed power to all the "critical circuits". Conductor size should be 14 AWG minimum.

7. Using EMT conduit, flexible conduit, or 15 amp minimum MC cable, run a single circuit (Hot – Black, Neutral – White, Safety Ground – Green,) for each of the output circuits from the LAPC to the panel boards. Conductor size should be 14 AWG minimum and 12 AWG for the Ground circuit.

8. Terminate each output circuit to the LAPC on terminals "LD 1 – LD 4", "H", "N", and "G" on terminal block TB1.

9. Before proceeding to step 10, be sure to communicate with local management that the "critical circuits" will have to be shut off temporarily to perform the system tie in. Local management may want to power down certain computers and other equipment before turning off the "critical circuit breakers".

10. Turn off all the "critical circuit breakers" and verify that the equipment plugged into the "critical circuits" goes off.

11. Remove the hot conductor (black) from the breaker, neutral conductor (white) from the neutral bar, and safety ground (green) from the ground bar. Use wire nuts or butt connectors to splice each set of output branch conductors to each set of output conductors coming from the LAPC.

12. Remove all existing surge strips, filters, and / or UPS devices

plugged into the output equipment receptacles.

13. Turn the Transfer Switch on the LAPC CLOCKWISE to the “Bypass” position. Turn on the circuit breaker feeding input power to the LAPC. Both the “Input” and “Output” pilot lights should be illuminated, and all the connected “critical circuit” equipment shouldcome back on.

14. Plug the AMETEK Powervar UPS into the receptacle located on the REAR side exterior of the LAPC. Plug the cable coming from the bottom of the LAPC into one of the receptacles on the back of the AMETEK Powervar UPS.

15. Turn on the AMETEK Powervar UPS by pressing the “on/off” switch (LEFT hand of front panel) and holding for several seconds until therow of 6 status indicator lights at the bottom of the bezel begins to illuminate. Allow the UPS to go through the self-test mode, which is finished when the green indicator light with the AC power symbol (2nd from left) illuminates continuously and all the others go off. See the AMETEK Powervar UPS manual if any conditions other than the one described occurs.

16. **IMPORTANT NOTE: If the input circuit breaker to the LAPC trips off during the startup of the AMETEK Powervar UPS, it is typically not a problem with the UPS but with the circuit breaker itself. The circuit breaker should be replaced with one that is rated for High Magnetic inrush loads.**

17. Turn the Transfer Switch on the LAPC COUNTER-CLOCKWISE to the“Normal” position.

18. Reinstall the LAPC side cover using the ten screws removed in step 4.

INSTALLATIONS: NEW

For all new installations, follow the previous instructions except for Step 7 and Step 11. In new installations, output branch circuits can be piped directly into the LAPC and connected directly to the LAPC terminal block TB2.

IMPORTANT NOTE:

For maximum performance, Powervar recommends power conditioning be placed at the point of load. In applications where the load is non-standard in length, please consult a Powervar professional for specific application assistance

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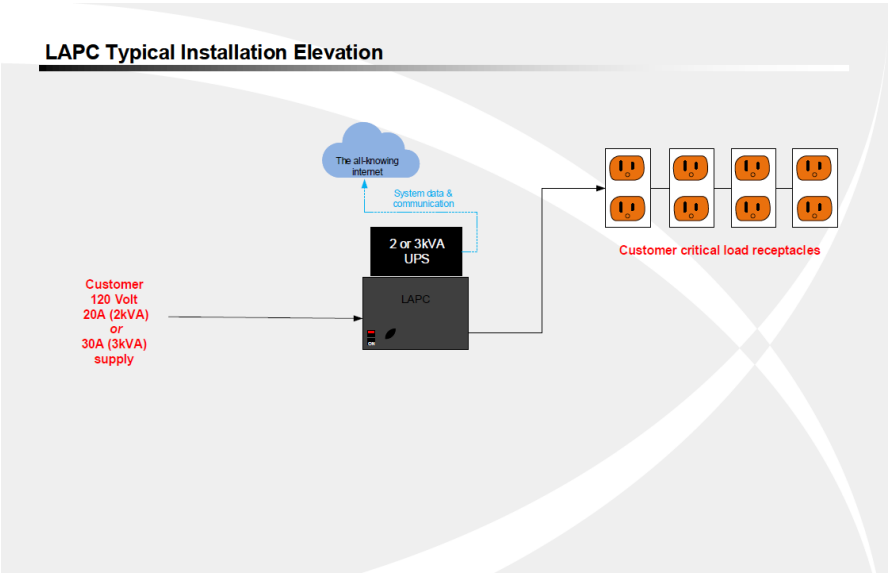
LAPC Typical Installation Elevation



2.0 DESCRIPTION OF OPERATIONS

- 120 VAC, 1f input power (15A circuit) supplied to LAPC
- Input power status light is illuminated
- Power routed within LAPC to Normal/Bypass transfer switch

In Normal mode

- Power routed from Normal/Bypass switch to the AMETEK Powervar UPS
- AMETEK Powervar UPS conditions power and provides battery backup
- 120 VAC, 1f power conditioned UPS output is wired back to the LAPC
- Output power status pilot light is illuminated
- LAPC provides power conditioned, battery backup source to dedicated, hardwired receptacles and equipment

In Bypass Mode

- Power is routed from Normal/Bypass switch directly to dedicated receptacles and equipment, bypassing the UPS
- Output power status pilot light remains illuminated and does
- not flicker during the transfer (make before break)

Remote Power Off (RPO) Switch - 15 amp “push/pull” type mush-room switch wired through the normally closed (NC) contacts

- When RPO is pushed, output power from the UPS is disconnected from the dedicated receptacles/equipment
- When the RPO is pulled, output power from the UPS is reconnected to the dedicated receptacles/equipment

3.0 THEORY OF OPERATION

Isolated ground (IG) receptacles (identified by their orange color or an orange triangle) are used with sensitive electronic systems to provide a separate ground reference point from the safety or chassis ground required to protect personnel from fault currents that might arise out of short circuit in the load.

Typically, the IG conductor must be run back to the electrical service entrance grounding terminal of the facility, which can result in common mode voltage arising from induced noise voltages from other parallel conductors in the same raceway and panel boards.

The National Electrical Code (NEC) allows for an alternative method of eliminating common mode noise disturbances through the use of a “separately derived system.” The AMETEK Powervar UPS constitutes a separately derived system because its internal, low impedance, isolation transformer has its output neutral bonded to ground.

The LAPC provides the necessary power interface between the output of the UPS and the remote, hard wired receptacles. There are other practical operational and maintenance features as well.

4.0 SPECIFICATIONS

- 2kVA: Power rating of 16.7 amps @ 120V (2000VA/1850W)
- 3kVA: Power rating of 24 amps @ 120V (3000VA/2740W)
- On-line double conversion technology with a pure sine wave output
- High input power factor (1.0) and low input THDi.
- Battery backup time - 5 min. full load/14 min. @ half load
- Extremely wide AC input voltage (80 – 138V) capability minimizes the need to switch to batteries.
- High Crest Factor (3:1) capability makes it ideal for computer loads while eliminating the need to oversize the UPS system.

Power Interface Panel

LAPC 2.1

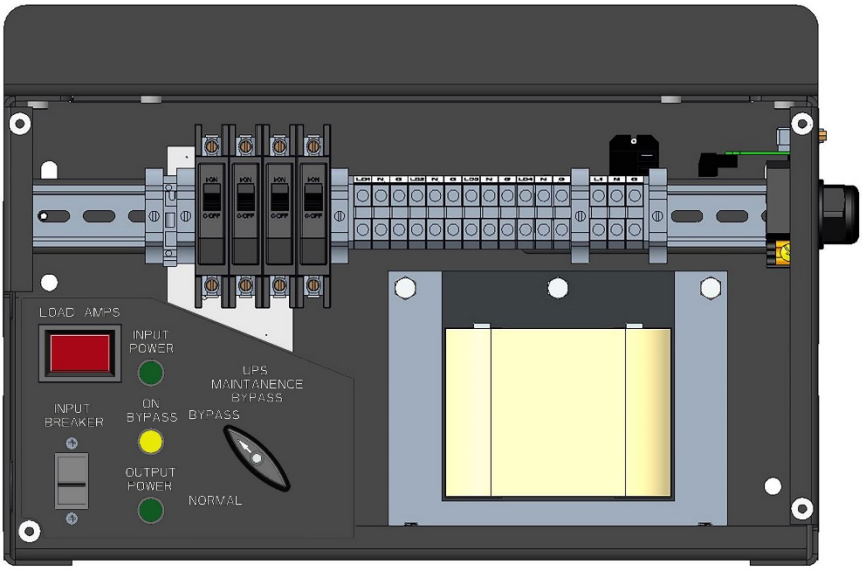
- Requires (1) 120 VAC source at (20 amps)
- Requires one (1) POWERVAR 2000 VA UPS
- Maximum load of 16.7amps @ 120 VAC (2000 VA)

LAPC 3.1

- Requires (1) 120 VAC source at (30 amps)
- Requires one (1) POWERVAR 3000 VA UPS
- Maximum load of 24amps @ 120 VAC (3000 VA)

LAPC 2.1 and 3.1

- Pilot light status indicators for input/output power
- Bypass make before break bypass/transfer switch
- Internal low impedance isolation transformer
- Internal terminal blocks for input and output power
- Averaging digital current meter



LAPC 2.1/3.1 – Version with (4) Circuit Breakers Shown

5.0 NUISANCE TRIPPING OF INPUT CIRCUIT BREAKER

Some reports from field installations indicate that the 15 amp, single pole circuit breaker feeding main power to the Local Area Power Center (LAPC) will sometimes trip off upon startup of the AMETEK Powervar UPS. In all cases, factory testing has indicated that this problem is not associated with defects in the AMETEK Powervar UPS. AMETEK Powervar's investigation has revealed that when the LAPC is located in close proximity to the panel board (approximately 10 feet), the current inrush caused by the initial start-up of the UPS can trip the panel board branch circuit breaker due to high magnetic inrush even when it is not overloaded. The solution to this problem is to replace the circuit breaker with one that can withstand the high magnetic inrush of the UPS startup. Listed below are the approved circuit breakers for various panel board manufacturers that are designed to withstand this high magnetic inrush.

6.0 WARRANTY INFORMATION

AMETEK Powervar warrants the Local Area Power Center (known hereafter as the “product”) to be free from defects in material and workmanship for a period of two years from the date of shipment. AMETEK Powervar warrants its Sinergy III UPS or Uninterruptible Power Supplies series (known hereafter as “the product”) to be free from defects in material and workmanship for a period of two years (two years on batteries) from the date of shipment. The product will be repaired or re- placed at no charge during this warranty period. There are no other warranties, expressed or implied, of merchantability, fitness for a particular purpose, performance, condition, capacity or otherwise. AMETEK Powervar is not liable for incidental or consequential damages, monetary loss, loss of sales, or loss of business resulting from the failure or malfunction of the product. Warranty is void on product that is misused, misapplied, abused, altered by unauthorized personnel or where evidence of tampering exists.

TECHNICAL SUPPORT

Technical service Support and service assistance is available in North America betweenthe hours of 8:00 a.m. and 5:00 p.m. Central Time by calling 800-369-7179.

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Access additional product information and support on the web at www.powervar.com

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