

Liebert UPS / Power / Battery Services:

- We are the Original Equipment Manufacturer and the experts on Liebert equipment with access to updates and changes, knowledge of engineering specifications, current issues and how to fix them correctly.
- Our factory trained service force is twice the size of the next largest competitor with over 650 customer engineers and field technicians in the United States alone; everywhere in the US the most knowledgeable engineers and technicians available, will cover you.
- With the most advanced tooling and instrumentation available, each CE has over \$10,000 in gear with him at all times, so any issue can be resolved in the least amount of time possible.

Cooling Services:

- Liebert Service is your only choice for factory direct services on your Liebert Precision Cooling products including; equipment start-ups, preventive maintenance, emergency service, legacy control upgrades, energy efficiency upgrades and site assessments.
- We have the ability to apply the latest technology with the required engineering depth and understanding of the systems and how they operate / integrate into your overall facility. Factory-trained service technicians are the best qualified to set-up, maintain and optimize these systems and controls.

2-Year Proposal

City of Ann Arbor
42301 E. Huron St.
 Ann Arbor, MI, 48107
 Q03010961

Tag #	Description	Model #	Annual PM Qty.	Coverage Type (Coverage Dates)	Coverage Amount
1517492	FND DIST CAB	FDC4424SB118895	1	ESSENTIAL (1/23/2020) - (1/22/2022)	\$1,347.62
1517493	FND DIST CAB	FDC4424SB118895	1	ESSENTIAL (1/23/2020) - (1/22/2022)	\$1,347.62
1517494	NX 80-120	38SA120A0A00	2	ESSENTIAL (1/23/2020) - (1/22/2022)	\$10,796.17
1517495	SEALED BATTERY	38BP120XR1BNS	2	BASIC 8x5 (1/23/2020) - (1/22/2022)	\$2,303.61
1517496	SEALED BATTERY	38BP120XR1BNS	2	BASIC 8x5 (1/23/2020) - (1/22/2022)	\$2,303.61
1517497	NX BDC 125	FXA12C6NNG6S895	1	ESSENTIAL (1/23/2020) - (1/22/2022)	\$2,313.10
1521816	DS AIR	DS070KDA0EI357A	2	ESSENTIAL (1/23/2020) - (1/22/2022)	\$5,422.13
1564481	DS AIR	DS070KDA0EI357A	2	ESSENTIAL (1/23/2020) - (1/22/2022)	\$5,422.13

Site 62834, E. Huron St. Total \$31,256.00
Total annual billing \$15,628.00

City of Ann Arbor
4251 Stone School Road
 Ann Arbor, MI, 48107
 Q03010961

Tag #	Description	Model #	Annual PM Qty.	Coverage Type (Coverage Dates)	Coverage Amount
1340819	SEALED BATTERY	37BP080XR1BNL	2	BASIC 8x5 (1/23/2020) - (1/22/2022)	\$4,198.22
1340820	MBC/SLIM LN CAB	37MB0800AC61Q	1	ESSENTIAL (1/23/2020) - (1/22/2022)	\$1,281.30
1581113	NPOWER 65-80	37SA080A0C6EA04	2	ESSENTIAL (1/23/2020) - (1/22/2022)	\$11,862.48

Site 136885, Stone School Rd Total \$17,342.00
Total annual billing \$8,671.00

Total price not including tax: USD \$48,598.00
any tax required must be included in customer purchase order
Payment Terms: Net 30 Days

SCOPE OF WORK

PRECISION COOLING SERVICES

(FLOORMOUNT, CEILING, WALLMOUNT & HEAT REJECTION)

ESSENTIAL SERVICE - 2 PM

SERVICE SUMMARY

Feature	Detail
On-Site Service	Includes 2 Preventive Maintenance Services, scheduled by the customer between 8am-5pm, Monday-Friday (excluding national holidays).
Response Time	Guaranteed 4-hour on-site emergency response, 7 days/week, 24 hours/day, within 150 miles of a Vertiv's Service City.
Customer Support	Includes access to the Customer Resolution Center (1-800-543-2378) and the Vertiv Customer Services Network Online Internet portal.
Parts	Includes parts coverage (limits may apply; see Assumptions and Clarifications, as applicable, for more details).
Labor & Travel	Includes 100% labor and travel coverage 7 days/week, 24 hours/day, within the 48 contiguous states.
Service Professional	Performed by Vertiv factory trained and authorized technician. Vertiv is the OEM service provider for Liebert products.

SERVICE PERFORMED

Filters

1. Check for restricted airflow.
2. Replace air filters as needed.
3. Examine filter switch.
4. Wipe entire section clean.

Blower Section

1. Verify that impellers are free of debris and move freely.
2. Check belt for condition and proper tension.
3. Replace belts as needed.
4. Verify that the bearings are in good condition.
5. Check the fan safety switch for proper operation.
6. Check the pulleys and motor mounts for tightness and proper alignment.

Air Cooled Condenser (If Applicable)¹

1. Verify condenser coil cleanliness.
2. Brush clean and spray using hose and nozzle connected to local water source (if local water source is available).
3. Chemical cleaning of outdoor condensing unit is excluded from normal scheduled maintenance and can be performed on a time and material basis.

¹Applies to Air Cooled units only

4. Examine motor mounts for tightness. Tighten if necessary.
5. Verify that the bearings are in good working order.
6. Confirm that the refrigerant lines are properly supported.

Water/Glycol Condenser (If Applicable)²

1. Check cleanliness of copper tubing.
2. Confirm that the water regulating valves are functioning properly.
3. Check the glycol solution level.
4. Check glycol freeze protection level.
5. Check for water/glycol leaks.

Glycol Pump³

1. Examine for any glycol leaks.
2. Determine proper pump operation.

Steam Generating Humidifier (If Applicable)

1. Check the canister for any deposits.
2. Check the condition of all steam hoses.
3. Examine the water make-up valve for any leaks.
4. Check and adjust potentiometers for optimal performance.

Infrared Humidifier (If Applicable)

1. Check the pan drain for any type of blockage.
2. Examine the humidifier lamps for proper operation.
3. Check the pan for any type of mineral deposits.

Refrigerant Cycle/Section⁴

1. Examine refrigerant lines for leaks or damage.
2. Using the sight glass, check lines for moisture.
3. Monitor suction pressure.
4. Monitor head pressure.
5. Monitor discharge pressure.
6. Check superheat.

Electric Panel, Controls, and Ancillary Items

1. Check fuses.
2. Check electrical connections.
3. Check contactors for pitting.
4. Using microprocessor controls, ensure proper operation of the unit components.
5. Inspect leak detection cabling (if connected to unit).

Chilled water units - additional checks (if Applicable):⁵

1. Inspect chilled water valve and actuator for proper operation.
2. Adjust/ tighten linkage if necessary.

²Applies to Water Cooled, Glycol Cooled, and GlyCool units only

³Applies to Water Cooled, Glycol Cooled, and GlyCool units only

⁴Applies to Air Cooled, Water Cooled, Glycol Cooled, and GlyCool units only

⁵Applies to Chilled Water units and units with free cooling only.

3. Inspect internal chilled water piping and coil for leaks.

ASSUMPTIONS AND CLARIFICATIONS

Parts coverage excludes: piping external from the unit, replacement of outdoor condensing unit, components showing physical damage, component failure due to irregular voltage conditions, pumps external to the unit, fire suppression system, unit control upgrades, network panels external to the unit, and leak detection panels. Rental of temporary spot coolers is also excluded.

Inspect Prior to Contract

CUSTOMER RESPONSIBILITIES

In order to provide timely, accurate and thorough execution of the services described herein, Vertiv requests the following:

- **Point of Contact:** Provide an authorized point of contact(s), specific for the scope of work, for scheduling and coordination purposes.
- **Scheduling:** Make dates available for scheduling service. All visits must be requested 10 business days in advance of need by contacting the Vertiv Customer Resolution Center at 1-800-543-2378.
- **Site Access:** Prior to time of scheduled work, provide site access including any customer required escort, security clearance, safety training and badging for Vertiv service personnel.
- **Equipment Access:** Convenient access to the equipment covered by the Scope of Work. Prior to scheduled time of work, notify Vertiv service personnel of any special requirements for equipment access including lifts, ladders, etc.
- **Shutdown:** Service may require shutdown of load to ensure electrical connection integrity.
- **Notification:** If for any reason the work cannot be performed during scheduled time, notify Vertiv service personnel 24-hours prior to scheduled event.

SCOPE OF WORK

SEALED VRLA BATTERIES

BASIC 8X5 SERVICE - 2 PM

SERVICE SUMMARY

Feature	Detail
On-Site Service	Includes 2 Preventive Maintenance Services, scheduled by the customer between 8am-5pm, Monday-Friday (excluding national holidays).
Response Time	Guaranteed 4-hour on-site emergency response, 7 days/week, 24 hours/day, within 150 miles of a Vertiv's Service City.
Customer Support	Includes access to the Customer Resolution Center (1-800-543-2378) and the Vertiv Customer Services Network Online Internet portal.
Labor & Travel	Does not include labor or parts coverage for full-string or partial-string replacement. Includes minor corrective labor and travel coverage Monday-Friday, 8am-5pm, within the 48 contiguous states and Hawaii.
Service Professional	Performed by Vertiv factory-trained and authorized technician equipped with Vertiv Proprietary tools and software. Vertiv CEs and Vertiv Partners are the only approved OEM service providers for Vertiv products.

SERVICE PERFORMED

Semi-Annual Service

1. Inspect the appearance and cleanliness of the battery and the battery room. Clean normal cell top dirt accumulation (to be done only with battery off line).
2. Measure and record the total battery float voltage and charging current.
3. Measure and record the overall AC ripple voltage.
4. Measure and record the overall AC ripple current.
5. Visually inspect the jars and covers for cracks and leakage.
6. Visually inspect for evidence of corrosion.
7. Measure and record the ambient temperature.
8. Verify the condition of the ventilation equipment, if applicable.
9. Verify the integrity of the battery rack/cabinet.
10. Measure and record 100% of the cell temperatures.
11. Measure and record the float voltage of all cells.
12. Measure and record all internal impedance readings.
13. Provide a detailed written report noting any deficiencies and corrective action needed, taken and/or planned.
14. Verify approval for Battery Life program.

Annual Service (include the above, plus)

1. Re-tighten all connections to the battery manufacturer's specifications.

2. Measure and record all battery connection resistances in micro-ohms, when applicable.

Corrective Maintenance Performed as Required

1. Refurbish cell connections as deemed necessary by the detailed inspection report.

ASSUMPTIONS AND CLARIFICATIONS

Does not include labor or parts coverage for full-string or partial-string replacement.

CUSTOMER RESPONSIBILITIES

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- **Point of Contact:** Provide an authorized point of contact(s), specific for the scope of work, for scheduling and coordination purposes.
- **Scheduling:** Make dates available for scheduling service. All visits must be requested 10 business days in advance of need by contacting the Vertiv Customer Resolution Center at 1-800-543-2378.
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SCOPE OF WORK

UNINTERRUPTIBLE POWER SYSTEMS

ALL 3-PHASE MODELS

ESSENTIAL SERVICE - 2 PM

SERVICE SUMMARY

Feature	Detail
On-Site Service	Includes 1 Annual and 1 Semi-Annual Preventive Maintenance Services, scheduled by the customer between 8am-5pm, Monday-Friday (excluding national holidays).
Response Time	Guaranteed 4-hour on-site emergency response, 7 days/week, 24 hours/day, within 150 miles of a Vertiv's Service City.
Customer Support	Includes access to the Customer Resolution Center (1-800-543-2378) and the Vertiv Customer Services Network Online Internet portal.
Parts	Includes parts coverage (limits may apply; see Assumptions and Clarifications, as applicable, for more details).
Labor & Travel	Includes 100% labor and travel coverage 7 days/week, 24 hours/day, within the 48 contiguous states and Hawaii.
Service Professional	Performed by Vertiv factory-trained and authorized technician equipped with Vertiv Proprietary tools and software. Vertiv CEs and Vertiv Partners are the only approved OEM service providers for Vertiv products.

VERTIV PROPRIETARY SERVICE TOOLS AND SOFTWARE

Vertiv Customer Engineers (CEs) are the only authorized, factory-trained and OEM-supported service providers for Vertiv equipment with access to Vertiv's proprietary service tools and software to ensure optimal equipment performance.

1. Using proprietary software Ppvis™, Paramset™, and WinSVT™ CEs apply Vertiv's knowledge base to diagnose, configure and optimize your Vertiv equipment.
2. Vertiv is the only authorized source for critical proprietary firmware updates providing your equipment the latest version of operational firmware to ensure equipment is running at optimal performance and efficiency levels.
3. Vertiv exclusively enables:
 - Access to OEM engineering support and product enhancements.
 - Optimized methods of procedure for efficient service supported by proprietary documentation.
 - Improved MTBR and MTTR.
 - Root cause forensic analysis.
 - Continual improvements with tested and certified updates for software and hardware improvements throughout the equipment's lifecycle.
 - CEs to be equipped with proprietary service documentation that provides access to the latest method of procedures and event data to return equipment online in the most efficient manner possible.
 - Benchmarking against the entire service population to identify service trends and provide solutions rapidly or before they occur, reducing or eliminating customer events and outages.

4. Vertiv Services CEs are trained in NFPA and OSHA best practices, and all processes and procedures strictly comply with NFPA 70A and 70E industry standards.

SERVICE PERFORMED

UPS Full Preventive Maintenance Service

Semi-Annual Service

- Perform temperature check on all breakers, connections, and associated controls. Repair and/or report all high temperature areas.
- Perform a complete visual inspection of the equipment including subassemblies, wiring harnesses, contacts, cables, and major components.
- Check air filters for cleanliness. (if applicable)
- Check rectifier and inverter snubber boards for discoloration.
- Conduct diagnostic review with proprietary access to internal event logs.
- Record all voltage and current meter readings on the module control cabinet or the system control cabinet.
- Measure and record the dc float voltage at the UPS and at the battery
- Measure and record the ripple voltage and current

Annual Service

1. Check power capacitors for swelling or leaking oil (if applicable).
2. Check for DC capacitor vent caps that have extruded more than 1/8" (if applicable).
3. Measure and record harmonic trap filter currents (if applicable).
4. Check the inverter and rectifier snubbers for burned or broken wires.
5. Check all nuts, bolts, screws, and connectors for tightness and heat discoloration.
6. Check fuses on the DC capacitor deck for continuity (if applicable).
7. With customer approval, perform operational test of the system, including unit transfer and battery discharge.
8. Calibrate and record all electronics to system specifications.
9. Check or perform Engineering Field Change Notices (FCN) as necessary.
10. Measure and record all low-voltage power supply levels.
11. Record phase-to-phase input voltage and currents.
12. Record real and apparent power for each phase.
13. Review system performance with customer to address any questions and to schedule any repairs.

Battery Inspection Service - Performed During the UPS Annual PM Service

1. Check integrity of battery cabinet (if applicable).
2. Perform a visual inspection of the battery, battery cabinet or rack and battery room and note any deficiencies and recommendations.

ASSUMPTIONS AND CLARIFICATIONS

Parts coverage excludes batteries, air filters, proactive full bank capacitor replacement and fan replacement.

Customer should check air filters monthly for cleanliness and replace as necessary.

Maintenance does not include System Control Cabinet, Power Tie, Breaker Cabinets, Load Bus Sync or Maintenance Bypass Cabinets.

The Battery Inspection Service listed above is only a visual inspection and is not intended to replace a full preventive maintenance program for the battery system.

Modular designed UPS systems may have less accessibility to listed “if applicable” checks above due to the design and usage of certain UPS systems.

CUSTOMER RESPONSIBILITIES

In order to provide timely, accurate and thorough execution of the services described herein, Vertiv requests the following:

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- **Scheduling:** Make dates available for scheduling service. All visits must be requested 10 business days in advance of need by contacting the Vertiv Customer Resolution Center at 1-800-543-2378.
- **Site Access:** Prior to time of scheduled work, provide site access including any customer required escort, security clearance, safety training and badging for Vertiv service personnel.
- **Equipment Access:** Convenient access to the equipment covered by the Scope of Work. Prior to scheduled time of work, notify Vertiv service personnel of any special requirements for equipment access including lifts, ladders, etc.
- **Shutdown:** Service may require shutdown of load to ensure electrical connection integrity.
- **Notification:** If for any reason the work cannot be performed during scheduled time, notify Vertiv service personnel 24-hours prior to scheduled event.

SCOPE OF WORK

POWER DISTRIBUTION SYSTEMS

ALL MODELS

ESSENTIAL SERVICE - 1 PM

SERVICE SUMMARY

Feature	Detail
On-Site Service	Includes 1 Preventive Maintenance Service, scheduled by the customer between 8am-5pm, Monday-Friday (excluding national holidays).
Response Time	Guaranteed 4-hour on-site emergency response, 7 days/week, 24 hours/day, within 150 miles of a Vertiv Services' Service City.
Customer Support	Includes access to the Customer Resolution Center (1-800-543-2378) and the Vertiv Customer Services Network Online Internet portal.
Parts	Includes parts coverage (limits may apply; see Assumptions and Clarifications, as applicable, for more details).
Labor & Travel	Includes 100% labor and travel coverage 7 days/week, 24 hours/day, within the 48 contiguous states and Hawaii.
Service Professional	Performed by Vertiv factory trained and authorized technician. Vertiv Services is the OEM service provider for Liebert products.

SERVICE PERFORMED

Full Preventive Maintenance Service

1. Perform a complete visual inspection of the interior and exterior of equipment for any damaged or broken components.
2. Verify equipment is properly grounded and that the phase, neutral and ground wiring is in accordance with the Installation manual.
3. Check for proper clearance around the unit.
4. Clean interior of equipment for dirt and debris.
5. Inspect all circuit breaker(s), terminal blocks, and ground/neutral bus bar connections for tightness.
6. Inspect junction box terminals for tightness (if applicable).
7. Conduct a thermal scan of interior components, assemblies, and connectors for evidence of overheating and/or burnt components.
8. Inspect all option assemblies, associated cabling/wiring, and connectors for tightness (if applicable).
9. Verify all installed options are operating properly (if applicable).
10. Verify continuity of all fuses (if applicable).
11. Measure voltage and current at each panelboard main input breaker (phases, neutral and ground).
12. Verify all monitoring options (if applicable) are displaying values within preset parameters.
13. Check or perform Engineering Field Change Notices (FCN) as necessary.
14. Configuration of the LDM/LDMF (For Newly installed branch circuit breakers).

Verify firmware and update as required.

Verify the location, alarm set points, number of poles, and address of every newly installed breaker.

Verify the CT ratio for every newly installed breaker.

Demonstrate use of software tools. (if applicable)

(Excludes interoperability with SiteScan and Building Management Systems)

Save the configuration file to a laptop as a backup for customer. (If applicable)

ASSUMPTIONS AND CLARIFICATIONS

Parts coverage excludes branch circuit breakers.

CUSTOMER RESPONSIBILITIES

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5. Shutdown: Service may require shutdown of load to ensure electrical connection integrity.
6. Notification: If for any reason the work cannot be performed during scheduled time, notify Vertiv service personnel 24-hours prior to scheduled event.

Order Number: Q03010961

Purchase Order must be assigned to:
Vertiv Corporation
1050 Dearborn Dr.
Columbus, OH 43085
FID# 31-0715256

Payment remittance address:
Vertiv Corporation
PO Box 70474
Chicago, IL 60673

PO should be e-mailed or faxed with signed proposal to:
Vertiv Corporation c/o KELLI STUART
Attn: KELLI STUART
Email: kstuart@access-inc.com
Fax: (248) 616-8980

Please complete the following information (All fields are required):

Purchase Order Number: _____ Purchase Order attached: Yes No

If PO **NOT** attached, please specify reason: _____

Invoice Delivery Method: Web Billing (Attach Instructions) Mail Other _____
 Accounts Payable Email _____ @ _____

Billing Contact Person: _____ Phone: _____

Email: _____ Fax #: _____

Bill-To Company Name: _____ Bill-To Address: _____

Federal Tax ID # _____ Bill-To City, ST Zip: _____

Tax Exempt: Yes (Attach tax exempt certificate) No

Site Services/IT Contact Person: _____ Phone: _____

**** COVERAGE DETAILS ****

For equipment not currently under a Service Agreement or for equipment for which the warranty has expired in excess of thirty (30) days, parts required to bring equipment back to manufacturers specifications are the responsibility of the Buyer and billable at the time of the first preventive maintenance visit or Service call. All pricing is valid only for Service coverage stated and is subject to change if this Proposal is modified in any way. This Proposal is valid for 30 days from the date of this Proposal unless otherwise noted. INFORMATION TO BUYER: This order between the Buyer and Seller is limited to Seller's Terms and Conditions located at termsconditions.vertivco.com unless a formal agreement governing this Purchase Order/transaction has been executed by the parties, in which case the Terms and Conditions of the signed agreement shall govern. Seller hereby objects to all Buyer's terms and conditions received by Seller and/or issued by Buyer.

Signature of this agreement authorizes Seller to invoice for Services mentioned herein and to utilize the provided purchase order number. If a purchase order number is not used, then the Buyer authorizes and guarantees Seller the payment of such invoices by authority of the signature below.

Thank you for your business.

Proposed By:

Accepted By:

Kelli Stuart *12/16/19*

KELLI STUART Date _____

Buyer Signature Required Date _____

Printed Name

Title

Phone

