



CITY OF ANTIGO

PUBLIC WORKS COMMITTEE MEETING

COUNCIL CHAMBERS

Wednesday, July 24, 2024

CITY HALL, 700 EDISON STREET

5:30 PM

Call to Order

Minutes Approval

1. Approval of Minutes from June 26, 2024 Meeting

Discussion and Action May Occur on Any of the Following Agenda Items:

1. Wastewater Treatment Plant (WWTP) Partial Plant Review Contract in the Amount of \$9,700
2. MSA Administration & Construction Service Contract for the Expansion of the Walking Trail Along Charlotte Street and Hogan Street for the Estimated Cost of \$127,200
3. Approval of Donation for Highway 45/64 Traffic Light Battery Backup from TSI Power
4. Four Way Stop Signs at Edison Street and Fifth Avenue & Dorr Street and Fifth Avenue referred by Alderperson Edwards

Any Other Matters Authorized by Law to be Considered

Adjournment

Upon reasonable notice, efforts will be made to accommodate disabled individuals through appropriate aids and services. For additional information, contact clerk treasure's office, 700 Edison Street, Antigo, Wisconsin 54409. (715) 623-3633 extension 100. Members of and possibly a quorum of members of other governmental bodies may be in attendance to gather information. Any governmental body other than that specifically referred to above will take no action.

DATE MAILED: July 18,2024

THOMAS BAUKNECHT



To: Mayor and City Council
From: Charley Brinkmeier, Land Surveyor/Project Manager
Date: July 24, 2024
Re: Wastewater Treatment Plant (WWTP) Partial Plant Review Contract in the Amount of \$9,700

With the possibility of future local manufacturing expansions and determining the capacity for sanitary flows and bio-solids at the Wastewater Treatment Plan (WWTP), there is a need to better understand the capacity of the plant. Requests for proposals for a partial plant review were sent to three firms. After interviewing each firm and reviewing the cost we recommend entering into a contract with Strand & Associates for the amount of \$9,700 with the funds to come from the Sanitary Sewer Utility account. Strand & Associates has completed other work at our WWTP and has done a very good job.

April 16, 2024

Mr. Charley Brinkmeier
Director of Public Works
City of Antigo
700 Edison Street
Antigo, WI 54409

Re: Wastewater Treatment Plant

Dear Mr. Brinkmeier:

On behalf of Strand Associates, Inc.®, we are pleased to provide our proposal for professional engineering and planning-related services for the City of Antigo's WWTP RFP. This proposal includes our *Project Understanding*, *Project Approach*, proposed *Scope of Services*, *Project Experience*, *Project Fee*, and *Anticipated Schedule* for this project. We have also provided an attached qualifications statement with details on our significant wastewater experience and unique qualifications for this project. Randy Langer will serve as the Project Manager and Nick Bartolerio will assist with the evaluation.

Project Understanding

We understand that Sartori Cheese has approached the City regarding a potential expansion to its facility that could result in significantly more flows and loading being discharged to the City's WWTP. Initial indications are that these additional flows could be as high as 200,000 to 300,000 gallons per day with high loadings of BOD, ammonia, total suspended solids, and phosphorus.

The City is requesting assistance to determine existing capacity of each treatment process and the ability to accommodate these additional flows and loads. The City is also interested in understanding how these additional loads may affect biosolids production, and the associated ability to process, store, and dispose of these additional biosolids. Furthermore, the City has requested a review of the existing blowers as well as a high-level review of possibly converting to class A biosolids production.

Project Approach

We have worked with several municipalities in very similar capacities. It is very common for current or prospective industries to inquire about the ability of the respective community's WWTP to accept additional flows and loads from a new or expanding industry. As we have discussed with City staff, we propose an interactive approach to this review, starting with the high-level evaluation. This will provide an understanding of approximate capital and operational costs to accommodate this new waste stream. This information can then be used by the City for further discussions with Sartori Cheese. If the costs developed in this high-level evaluation are amenable to both parties, a more detailed conversation can commence to refine costs and design criteria.



Antigo desires to understand how increased flows and loads from Sartori Cheese could affect liquid and biosolids treatment processes, and the corresponding costs of necessary improvements.

Attachment: Strand Proposal (7061 : WWTP Partial Plant Review Contract)

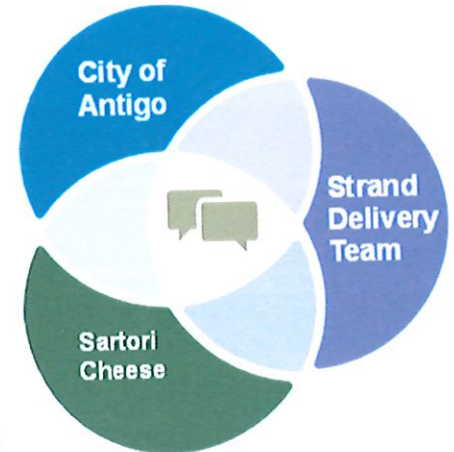
Mr. Charley Brinkmeier
City of Antigo
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We also understand the City wishes to share these costs with Sartori – this approach is very sensitive to cost and allows this arrangement to be favorable to both parties.

Our approach will include a review of each process at the WWTP (including blowers) and a high-level identification of need to accommodate this new waste stream. We will then develop costs to remedy these deficiencies by comparing to our numerous other projects with similar components, contacting vendors for equipment quotes, or a combination of both.

We will also provide the City with a review of potential costs for transitioning to class A biosolids. Based on our experience planning, designing, and administering construction for numerous other facilities that produce class A biosolids, we can very efficiently determine which process or processes would be most cost effective and practical at Antigo's WWTP and then develop high-level budgetary costs for those.

It is important to note that the City is contemplating completing a more in-depth facilities plan to evaluate each process more thoroughly at the WWTP and provide a long-term plan to address the aging facilities and future needs. This highlights two important points: 1) the results of this evaluation must clearly delineate needs associated with the proposed increases in flow and loads from Sartori, while not becoming skewed by needs associated with existing processes that are simply reaching or past their useful life; and 2) the efforts associated with this evaluation should be such that they can provide useful information for the future facilities plan.



Our approach provides the necessary communication between Sartori Cheese and the City of Antigo.

Proposed Scope of Services

The services proposed for this project include the following tasks:

1. Submit a request for data and documentation that we have not already received as part of the water project that we recently completed. Review information provided by the City.
2. Attend an on-site kickoff meeting with the City to review project scope, available information, project goals, funding options, schedule, and unit process review procedures. We will also use this kickoff meeting to review each process at the WWTP and discuss current deficiencies with staff.
3. Attend a virtual meeting with Sartori Cheese to better understand timing and magnitude of proposed increase in flows and loads.
4. Assist the City with development of waste load and flow forecasts. This will include a review of the previous 3 years of influent flow and loading data. Department of Administration projections indicate that the population of Antigo is expected to decrease. Therefore, the projected flows and loadings for planning purposes will simply be the sum of existing flows and loads with the proposed increases from Sartori.
5. Provide commentary regarding future regulatory parameters related to the WWTP discharge and potential for more stringent limits.
6. Summarize the existing WWTP. This will include a brief narrative summary of the existing WWTP processes.
7. Review the capacity of the WWTP treatment processes to determine if hydraulic and treatment capacity is adequate for the increased flows and loadings. A list of potential deficiencies will be developed.
8. Identify proposed improvements for each process (as necessary) to accommodate increased flows and loadings. Provide high-level costs for potential improvements.
9. Provide commentary on potential funding (loan and grant) programs that may be available to assist with implementation of necessary projects.
10. Summarize the results of items 1 through 8 in a brief report.
11. Meet with the City to review findings and the report.

Attachment: Strand Proposal (7061 : WWTP Partial Plant Review Contract)

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At the time of the facilities plan, the Village did not yet have a stringent phosphorus limit in its Wisconsin Pollutant Discharge Elimination System (WPDES) permit. However, in anticipation of this requirement, we completed a preliminary evaluation of alternatives that would enable the Village to meet the future, more stringent limit of 0.075 mg/L. We wanted the design of the new facilities to be flexible enough to facilitate cost-effective compliance with the low-level phosphorus limit. The preliminary plan included retrofitting the existing traveling bridge sand filters with cloth disk filtration. The exiting filters were removed from service, but the basins were retained. Hydraulics through the plant were also designed to facilitate future construction of disk filters, when required for phosphorus compliance.

Client Reference:

John Klein
Wastewater
Superintendent
(608)437-3101
2450 Sand Rock Road
Mount Horeb, WI 53572

With very limited space available on the existing site and the need to significantly expand facilities because of a growing population, the facilities planning process identified construction of new oxidation ditches, final clarifiers, return activated sludge (RAS) pumping, and an administration building as the most cost-effective long-term alternative. Because of space constraints, these facilities were constructed on an adjacent site.



Creative reuse of existing facilities saved Village of Mount Horeb millions in construction costs.

To retain as much value from the existing processes and structures as possible, the existing site was repurposed, utilizing nearly all the existing tanks and buildings. The existing aeration basins were converted into digesters, the existing primary clarifiers into fermentation basins, the existing chlorine contact basins into ultraviolet (UV) disinfection, the existing plant sewer pumping station into a digested sludge pumping station, and the existing liquid biosolids storage facilities were reused. The existing screening and grit removal processes remain in service and were previously constructed via a project we designed in 2013.

In addition to disk filtration, water quality trading (WQT) on adjacent land (approximately 100 acres) that the Village owns will also be used for phosphorus compliance. A portion of this land was used for construction of new secondary treatment facilities. Construction of this project was completed in early 2020.

Marshfield Wastewater Treatment Plant – Marshfield, WI

This 7.9 MGD average flow (28 MGD peak hydraulic capacity) advanced secondary wastewater treatment plant replaced the previous facility, which was inadequate to meet future needs. The project bid for a construction cost well within the budget identified during the project planning stage.

Client Reference:

Mark Kivela,
Superintendent
City of Marshfield
(715)591-2022
P.O. Box 727
Marshfield, WI 54449

A simple process approach was selected, which includes influent screw pumps; fine mechanical bar screens (1/8-inch bar opening) with screen washing and compaction; oxidation-ditch- activated-sludge pretreatment utilizing two basins with two, two-speed mechanical aerators/mixers in each basin; three final clarifiers; and postaeration. The activated sludge layout includes an automatic aeration basin influent flow relief scheme, where flows to the basins are limited during extreme infiltration/inflow-induced peak flow events to prevent solids washout from the process.

Project requirements required compliance with stringent effluent limitations for BOD₅, TSS, and ammonia, and include the requirement for a chemical addition system for effluent phosphorus control. Because of the long sludge



Marshfield Wastewater Treatment Plant.

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ages involved in the activated sludge process, no sludge digestion step was required. Waste activated sludge was handled by gravity belt thickening and storage in reinforced concrete storage vessels prior to contract removal to agricultural land as part of the City's biosolids beneficial reuse program. New administrative, laboratory, maintenance, and other support facilities were also provided at the new plant site. The site plan was developed for effective utilization of the new plant site and to provide the maximum opportunity for future upgrading and expansion.

We provided all planning, design, and construction-phase assistance for this \$28 million capital cost project, including a new major intercepting sewer to serve the new plant, and a major investigation of the collection and intercepting sewer system using portable metering and other techniques to identify sources of excessive infiltration/inflow (I/I) and to establish plant design flows. The selected plant configuration was chosen following a detailed evaluation of alternative wastewater treatment and solids handling and stabilization processes.

Project Fee

Our project fee is based on the scope of services described previously. We propose to provide these services for a lump sum of \$9,700. We feel this level of effort is appropriate for the circumstances and provides an effective balance between cost and the desired level of detail for the evaluation. We can easily modify our scope and associated fee should the City wish to evaluate the WWTP or a specific process in more or less detail.

Anticipated Schedule

The RFP states the selected engineer will receive authorization to proceed, in the form of a signed engineering services agreement, in early May of 2024. Following the agreement, we anticipate completing the kickoff meeting in mid-May, followed soon after by a meeting with Sartori. Assuming we have the necessary data from the City and Sartori, we anticipate completing the evaluations in summer 2024 and developing the report by early fall.

This proposal is not to be considered an agreement between Strand Associates, Inc.® and City of Antigo but, rather, as a general discussion of the type of tasks and proposed fee for a project of this nature. If this proposal is acceptable, we will prepare an Engineering Services Agreement and submit to the City for review and signature. Once the Engineering Services Agreement is executed, work on the project will begin.

We look forward to working with the City of Antigo again and continuing our relationship with City staff. We thoroughly enjoyed working with you and your staff on the recent WWTP Potable Water project. If there are any questions, please contact me directly at Randy.Langer@strand.com or (608)251-4843.

Sincerely,

STRAND ASSOCIATES, INC.®



Randy J. Langer, P.E.

P240.301/RJL:beh

Attachment: Strand Proposal (7061 : WWTP Partial Plant Review Contract)



To: Mayor and City Council
From: Beth McCarthy, Building Inspector/Zoning Administrator
Date: July 24, 2024
Re: MSA Administration & Construction Service Contract for the Expansion of the Walking Trail Along Charlotte Street and Hogan Street for the Estimated Cost of \$127,200

We will be expanding our walking trail along Charlotte Street and Hogan Street this year. Construction is to begin around the beginning of August. We would like to have MSA, the engineer for the project, also do contract administration and inspection for the project. They have submitted an estimate of \$127,200 for those services to be completed to assure Wisconsin Department of Transportation (WisDoT) compliance. We are recommending approval of the contract with the funds to be coming from Parks, Cemeteries, and Recreation Capital Equipment/ Improvement Plan (CIP) and Street Construction CIP.



Professional Services Agreement

MSA Project Number: 00058107

This AGREEMENT (Agreement) is made effective July 3, 2024 by and between

MSA PROFESSIONAL SERVICES, INC (MSA)

Address: 146 North Central Ave, Marshfield, WI 54449

Phone: (715) 384-2133

Representative: Daniel Borchardt, PE

Email: dborchardt@msa-ps.com

CITY OF ANTIGO (OWNER)

Address: 700 Edison Street, Antigo, WI 54409

Phone: (715) 627-7099

Representative: Terry Brand, Mayor

Email: mayor@antigo-city.org

Project Name: City of Antigo - Springbrook Trail Construction Services

The scope of the work authorized is: See Attachment A: Scope of Services

The schedule to perform the work is: Approximate Start Date: July 2024
Approximate Completion Date: June 2025

Fee

The lump sum fee for the construction administration is: \$43,600

The estimated fee for the construction observation work is: \$83,600

The estimated fee for the work is: \$127,200

All services shall be performed in accordance with the General Terms and Conditions of MSA, which is attached and made part of this Agreement. Any attachments or exhibits referenced in this Agreement are made part of this Agreement. Payment for construction administration services will be on a lump sum basis. Payment for the construction observation services will be on a time and expense basis. Attachment B: Rate Schedule is attached and made part of this Agreement

Approval: Authorization to proceed is acknowledged by signatures of the parties to this Agreement.

CITY OF ANTIGO

MSA PROFESSIONAL SERVICES, INC.

Tom Bauknecht

Mayor

Date: _____

Daniel Borchardt, PE

Team Leader Engineering

Date: 7-2-2024

OWNER ATTEST: *(optional, delete lines if not applicable)*

Kaye Matucheski, Clerk/Treasurer

Date: _____

**MSA PROFESSIONAL SERVICES, INC. (MSA)
GENERAL TERMS AND CONDITIONS OF SERVICES (PUBLIC)**

1. **Scope and Fee.** The scope of Owner's Project (the "Project"), scope of MSA's services (the "Work"), for those services are defined in Attachment A. The scope and fee constitute a good faith estimate of the tasks and associated fees required to perform the services defined in Attachment A. This agreement upon execution by both parties hereto, can be amended only by written instrument signed by both parties. For those projects involving conceptual or process development service or involve renovation of an existing building or structure, activities often cannot be fully defined during initial planning. As the Project progresses, facts uncovered may reveal a change in direction which may alter the Work. MSA will promptly inform the OWNER in writing of such situations so that changes in this agreement can be made as required.

2. **Owner's Responsibilities.**

(a) Project Scope and Budget

The OWNER shall define the scope and budget of the Project and, when applicable, periodically update the Project budget, including that portion allocated for the cost of the Work. The Project budget shall include contingencies for design, development, and, when required by the scope of the Project, construction of the Project. The OWNER shall not significantly increase or decrease the overall Project scope or schedule, the portion of the budget allocated for the cost of the Work, or contingencies included in the overall budget or a portion of the budget, without the agreement of MSA to a corresponding change in the Project scope, quality, schedule, and compensation of MSA.

(b) Designated Owner Representative

The OWNER shall identify a Designated Representative who shall be authorized to act on behalf of the OWNER with respect to the Project. OWNER's Designated Representative shall render related decisions in a timely manner so as to avoid unreasonable delay in the orderly and sequential progress of MSA's services. MSA shall not be liable for any error or omission made by OWNER, OWNER's Designated Representative, or OWNER's consultant.

(c) Tests, Inspections, and Reports

When required by the scope of the Project, the OWNER shall furnish tests, inspections, and reports required by law or the Contract Documents, such as planning studies; preliminary designs; structural, mechanical, or chemical tests; tests for air, water, or soil pollution; and tests for hazardous materials.

(d) Additional Consultants

MSA's consultants shall be identified in Attachment A. The OWNER shall furnish the services of other consultants other than those designated in Attachment A, including such legal, financial, accounting, and insurance counseling services as may be required for the Project.

(e) OWNER Provided Services and Information

MSA shall be entitled to rely on the accuracy and completeness of services and information furnished by the OWNER, Designated OWNER Representative, or Consultant. MSA shall use reasonable efforts to provide prompt written notice to the OWNER if MSA becomes aware of any errors, omissions, or inconsistencies in such services or information.

3. **Billing.** MSA will bill the OWNER monthly with net payment due upon receipt. Balances due past thirty (30) days shall be subject to an interest charge at a rate of 18% per year from said thirtieth day. In addition, MSA may, after giving seven days written notice, suspend service under any agreement until the OWNER has paid in full all amounts due for services rendered and expenses incurred, including the interest charge on past due invoices.

4. **Costs and Schedules.** Costs (including MSA's fees and reimbursable expenses) and schedule commitments shall be subject to change for delays caused by the OWNER's failure to provide specified facilities or information or for delays caused by unpredictable occurrences including, without limitation, fires, floods, riots, strikes, unavailability of labor or materials, delays or defaults, by suppliers of materials or services, process shutdowns, pandemics, acts of God or the public enemy, or acts of regulations of any governmental agency. Temporary delays of services caused by any of the above which result in additional costs beyond those outlined may require renegotiation of this agreement.

5. **Access to Site.** Owner shall furnish right-of-entry on the Project site for MSA and, if the site is not owned by Owner, warrants that permission has been granted to make planned explorations pursuant to the scope of

Attachment: 00058107 MSA Construction Services PSA 07.03.24 (7064 : MSA Administration & Construction Service Contract)

services. MSA will take reasonable precautions to minimize damage to the site from use of equipment, but has not included costs for restoration of damage that may result and shall not be responsible for such costs.

6. **Location of Utilities.** Owner shall supply MSA with the location of all pre-existent utilities and MSA has the right to reasonably rely on all Owner supplied information. In those instances where the scope of services require MSA to locate any buried utilities, MSA shall use reasonable means to identify the location of buried utilities in the areas of subsurface exploration and shall take reasonable precautions to avoid any damage to the utilities noted. However, Owner agrees to indemnify and defend MSA in the event of damage or injury arising from damage to or interference with subsurface structures or utilities which result from inaccuracies in information of instructions which have been furnished to MSA by others.

7. **Professional Representative.** MSA intends to serve as the OWNER's professional representative for those services as defined in this agreement, and to provide advice and consultation to the OWNER as a professional. Any opinions of probable project costs, reviews and observations, and other recommendations made by MSA for the OWNER are rendered on the basis of experience and qualifications and represents the professional judgment of MSA. However, MSA cannot and does not warrant or represent that proposals, bid or actual project or construction costs will not vary from the opinion of probable cost prepared by it.

8. **Construction.** When applicable to the scope of the Project, the OWNER shall contract with a licensed and qualified Contractor for implementation of construction work utilizing a construction contract based on an EJCDC construction contract and general conditions appropriate for the scope of the Project and for the delivery method. In the construction contract, the OWNER shall use reasonable commercial efforts to require the Contractor to (1) obtain Commercial General Liability Insurance with contractual liability coverage insuring the obligation of the Contractor, and name the OWNER, MSA and its employees and consultants as additionally insureds of that policy; (2) indemnify and hold harmless the OWNER, MSA and its employees and consultants from and against any and all claims, damages, losses, and expenses ("Claims"), including but not limited to reasonable attorney's fees and economic or consequential damages arising in whole or in part out of the negligent act or omission of the contractor, and Subcontractor or anyone directly or indirectly employed by any of them. This agreement shall not be construed as giving MSA, the responsibility or authority to direct or supervise construction means, methods, techniques, sequence, or procedures of construction selected by the contractors or subcontractors or the safety precautions and programs incident to the work, the same being the sole and exclusive responsibility of the contractors or subcontractors.

9. **Standard of Care.** In conducting the services, MSA will apply present professional, engineering and/or scientific judgment, which is known as the "standard of care". The standard of care is defined as that level of skill and care ordinarily exercised by members of the same profession practicing at the same point in time and in the same or similar locality under similar circumstances in performing the Services. The OWNER acknowledges that "current professional standards" shall mean the standard for professional services, measured as of the time those services are rendered, and not according to later standards, if such later standards purport to impose a higher degree of care upon MSA.

MSA does not make any warranty or guarantee, expressed or implied, nor have any agreement or contract for services subject to the provisions of any uniform commercial code. Similarly, MSA will not accept those terms and conditions offered by the OWNER in its purchase order, requisition, or notice of authorization to proceed, except as set forth herein or expressly agreed to in writing. Written acknowledgement of receipt, or the actual performance of services subsequent to receipt of such purchase order, requisition, or notice of authorization to proceed is specifically deemed not to constitute acceptance of any terms or conditions contrary to those set forth herein.

10. **Municipal Advisor.** MSA Professional Services, Inc. is not acting as a 'Municipal Advisor' to the owner pursuant to Section 15B of the Exchange Act. For financial advice related to the corresponding project, the client is encouraged to discuss their finances with internal and/or external advisors and experts before making decisions incurring debt and/or supporting those obligations. MSA desires to serve each client well by providing the best information publicly available and is providing information as part of its engineering responsibilities to inform client options. The information is not intended to provide financial advice or recommendations and is not bound by the formal Municipal Advisor fiduciary duty.

11. **Conduct Expectations.** Owner and MSA understand their respective obligations to provide a safe, respectful work environment for their employees. Both parties agree that harassment on the job (unwelcome verbal, physical or other behavior that is related to sex, race, age, or protected class status) will not be tolerated and will be addressed timely and in compliance with anti-harassment laws.

12. Electronic Documents and Transmittals. Owner and MSA agree to transmit and accept project related correspondence, documents, text, data, drawings and the like in digital format in accordance with MSA's Electronic Data Transmittal policy. Each party is responsible for its own cybersecurity, and both parties waive the right to pursue liability against the other for any damages that occur as a direct result of electronic data sharing.

13. Building Information Modelling (BIM). For any projects, and not limited to building projects, utilizing BIM, OWNER and MSA shall agree on the appropriate level of modelling required by the project, as well as the degree to which the BIM files may be made available to any party using the Electronic Document Transmittal provisions of section 12 of this Agreement.

14. Construction Site Visits. If the scope of services includes services during the Construction Phase, MSA shall make visits to the site as specified in Attachment A– Scope of Services. MSA shall not, during such visits or as a result of such observations of Contractor's work in progress, supervise, direct or have control over Contractor's work nor shall MSA have authority over or responsibility for the means, methods, techniques, sequences or procedures of construction selected by Contractor, for safety precautions and programs incident to the work of Contractor or for any failure of Contractor to comply with laws, rules, regulations, ordinances, codes or orders applicable to Contractor's furnishing and performing the work. Accordingly, MSA neither guarantees the performance of any Contractor nor assumes responsibility for any Contractor's failure to furnish and perform its work in accordance with the Contract Documents.

15. Termination. This Agreement shall commence upon execution and shall remain in effect until terminated by either party, at such party's discretion, on not less than thirty (30) days' advance written notice. The effective date of the termination is the thirtieth day after the non-terminating party's receipt of the notice of termination. If MSA terminates the Agreement, the OWNER may, at its option, extend the terms of this Agreement to the extent necessary for MSA to complete any services that were ordered prior to the effective date of termination. If OWNER terminates this Agreement, OWNER shall pay MSA for all services performed prior to MSA's receipt of the notice of termination and for all work performed and/or expenses incurred by MSA in terminating Services begun after MSA's receipt of the termination notice. Termination hereunder shall operate to discharge only those obligations which are executory by either party on and after the effective date of termination. These General Terms and Conditions shall survive the completion of the services performed hereunder or the Termination of this Agreement for any cause.

This agreement cannot be changed or terminated orally. No waiver of compliance with any provision or condition hereof should be effective unless agreed in writing and duly executed by the parties hereto.

16. Betterment. If, due to MSA's error, any required or necessary item or component of the Project is omitted from the construction documents, MSA's liability shall be limited to the reasonable costs of correction of the construction, less what OWNER'S cost of including the omitted item or component in the original construction would have been had the item or component not been omitted. It is intended by this provision that MSA will not be responsible for any cost or expense that provides betterment, upgrade, or enhancement of the Project.

17. Hazardous Substances. OWNER acknowledges and agrees that MSA has had no role in identifying, generating, treating, storing, or disposing of hazardous substances or materials which may be present at the Project site, and MSA has not benefited from the processes that produced such hazardous substances or materials. Any hazardous substances or materials encountered by or associated with Services provided by MSA on the Project shall at no time be or become the property of MSA. MSA shall not be deemed to possess or control any hazardous substance or material at any time; arrangements for the treatment, storage, transport, or disposal of any hazardous substances or materials, which shall be made by MSA, are made solely and exclusively on OWNER's behalf for OWNER's benefit and at OWNER's direction. Nothing contained within this Agreement shall be construed or interpreted as requiring MSA to assume the status of a generator, storer, treater, or disposal facility as defined in any federal, state, or local statute, regulation, or rule governing treatment, storage, transport, and/or disposal of hazardous substances or materials.

All samples of hazardous substances, materials or contaminants are the property and responsibility of OWNER and shall be returned to OWNER at the end of a project for proper disposal. Alternate arrangements to ship such samples directly to a licensed disposal facility may be made at OWNER's request and expense and subject to this subparagraph.

18. Insurance. MSA will maintain insurance coverage for: Worker's Compensation, General Liability, and Professional Liability. MSA will provide information as to specific limits upon written request. If the OWNER requires coverages or limits in addition to those in effect as of the date of the agreement, premiums for additional

insurance shall be paid by the OWNER. The liability of MSA to the OWNER for any indemnity commitments, or for any damages arising in any way out of performance of this contract is limited to such insurance coverages and amount which MSA has in effect.

19. Reuse of Documents. Reuse of any documents and/or services pertaining to this Project by the OWNER or extensions of this Project or on any other project shall be at the OWNER's sole risk. The OWNER agrees to defend, indemnify, and hold harmless MSA for all claims, damages, and expenses including attorneys' fees and costs arising out of such reuse of the documents and/or services by the OWNER or by others acting through the OWNER.

20. Indemnification. To the fullest extent permitted by law, MSA shall indemnify and hold harmless, OWNER, and OWNER's officers, directors, members, partners, consultants, and employees (hereinafter "OWNER") from reasonable claims, costs, losses, and damages arising out of or relating to the PROJECT, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of MSA or MSA's officers, directors, members, partners, employees, or Consultants (hereinafter "MSA"). In no event shall this indemnity agreement apply to claims between the OWNER and MSA. This indemnity agreement applies solely to claims of third parties. Furthermore, in no event shall this indemnity agreement apply to claims that MSA is responsible for attorneys' fees. This agreement does not give rise to any duty on the part of MSA to defend the OWNER on any claim arising under this agreement.

To the fullest extent permitted by law, OWNER shall indemnify and hold harmless, MSA, and MSA's officers, directors, members, partners, consultants, and employees (hereinafter "MSA") from reasonable claims, costs, losses, and damages arising out of or relating to the PROJECT, provided that any such claim, cost, loss, or damage is attributable to bodily injury, sickness, disease, or death, or to injury to or destruction of tangible property (other than the Work itself) including the loss of use resulting therefrom but only to the extent caused by any negligent act or omission of the OWNER or the OWNER's officers, directors, members, partners, employees, or Consultants (hereinafter "OWNER"). In no event shall this indemnity agreement apply to claims between MSA and the OWNER. This indemnity agreement applies solely to claims of third parties. Furthermore, in no event shall this indemnity agreement apply to claims that the OWNER is responsible for attorneys' fees. This agreement does not give rise to any duty on the part of the OWNER to defend MSA on any claim arising under this agreement.

To the fullest extent permitted by law, MSA's total liability to OWNER and anyone claiming by, through, or under OWNER for any cost, loss or damages caused in part or by the negligence of MSA and in part by the negligence of OWNER or any other negligent entity or individual, shall not exceed the percentage share that MSA's negligence bears to the total negligence of OWNER, MSA, and all other negligent entities and individuals.

21. Accrual of Claims. To the fullest extent permitted by Laws and Regulations, all causes of action arising under this Agreement will be deemed to have accrued, and all statutory periods of limitation will commence, no later than the date of Substantial Completion; or, if Engineer's services do not include Construction Phase services, or the Project is not completed, then no later than the date of Owner's last payment to Engineer.

22. Dispute Resolution. OWNER and MSA desire to resolve any disputes or areas of disagreement involving the subject matter of this Agreement by a mechanism that facilitates resolution of disputes by negotiation rather than by litigation. OWNER and MSA also acknowledge that issues and problems may arise after execution of this Agreement which were not anticipated or are not resolved by specific provisions in this Agreement. Accordingly, both OWNER and MSA will endeavor to settle all controversies, claims, counterclaims, disputes, and other matters thru mediation with a mutually agreed upon mediator. Demand for mediation shall be filed in writing with the other party to this Agreement. A demand for mediation shall be made within a reasonable time after the claim, dispute or other matter in question has arisen. In no event shall the demand for mediation be made after the date when institution of legal or equitable proceedings based on such claim, dispute or other matter in question would be barred by the applicable statute of limitations. Neither demand for mediation nor any term of this Dispute Resolution clause shall prevent the filing of a legal action where failing to do so may bar the action because of the applicable statute of limitations. If despite the good faith efforts of OWNER and MSA any controversy, claim, counterclaim, dispute, or other matter is not resolved through negotiation or mediation, OWNER and MSA agree and consent that such matter may be resolved through legal action in the court having jurisdiction as specified in this Agreement.

23. Exclusion of Special, Indirect, Consequential and Liquidated Damages. MSA shall not be liable, in contract or tort or otherwise, for any special, indirect, consequential, or liquidated damages including specifically, but without limitation, loss of profit or revenue, loss of capital, delay damages, loss of goodwill, claim of third parties, or similar damages arising out of or connected in any way to the Project or this contract.

24. Limitation of Liability. Neither MSA, its Consultants (if any), nor their employees shall be jointly, severally, or individually liable to the OWNER in excess of the amount of the insurance proceeds available.

25. Successors and Assigns. The successors, executors, administrators, and legal representatives of Owner and Engineer are hereby bound to the other party to this Agreement and to the successors, executors, administrators and legal representatives (and said assigns) of such other party, in respect of all covenants, agreements, and obligations of this Agreement. Neither party may assign, sublet, or transfer any rights under or interest (including, but without limitation, claims arising out of this Agreement or money that is due or may become due) in this Agreement without the written consent of the other party, which shall not be unreasonable withheld, except to the extent that any assignment, subletting, or transfer is mandated by law.

26. Notices. Any notice required under this Agreement will be in writing, and delivered: in person (by commercial courier or otherwise); by registered or certified mail; or by e-mail to the recipient, with the words "Formal Notice" or similar in the e-mail's subject line. All such notices are effective upon the date of receipt.

27. Survival. Subject to applicable Laws and Regulations, all express representations, waivers, indemnifications, and limitations of liability included in this Agreement will survive its completion or termination for any reason.

28. Severability. Any provision or part of the Agreement held to be void or unenforceable under any Laws or Regulations will be deemed stricken, and all remaining provisions will continue to be valid and binding upon Owner and MSA.

29. No Waiver. A party's non-enforcement of any provision will not constitute a waiver of that provision, nor will it affect the enforceability of that provision or of the remainder of this Agreement.

30. State Law. This agreement shall be construed and interpreted in accordance with the laws of the State of Wisconsin.

31. Jurisdiction. OWNER hereby irrevocably submits to the jurisdiction of the state courts of the State of Wisconsin for the purpose of any suit, action or other proceeding arising out of or based upon this Agreement. OWNER further consents that the venue for any legal proceedings related to this Agreement shall be Sauk County, Wisconsin.

32. Understanding. This agreement contains the entire understanding between the parties on the subject matter hereof and no representations. Inducements, promises or agreements not embodied herein (unless agreed in writing duly executed) shall be of any force or effect, and this agreement supersedes any other prior understanding entered into between the parties on the subject matter hereto.

ATTACHMENT A: SCOPE OF SERVICES

PROJECT DESCRIPTION

The project consists of multi-use path construction utilizing Federal Funds from the Wisconsin Department of Transportation Alternative Program (TAP) and with funds from the City of Antigo. The project involves the new construction of an approximately 4,970 lineal feet of 10-foot wide asphalt bike path with 2 feet wide topsoiled shoulders, 2,700 lineal feet of 8-foot wide asphalt sidewalk with 2 feet wide topsoiled shoulders along Charlotte Street, paving of 5ft wide roadway shoulders for approximately 1,500 feet of Charlotte Court and associated appurtenances. The trail will be constructed on Charlotte Street, Charlotte Court, Prosser Place, Hogan Street, and the east side of the Remington Stormwater Detention Pond.

The construction of approximately 1.74 miles of bike and pedestrian facilities consist of the following segments.

The west trail area would consist of:

- Hogan Street Segment (1st Ave. to STH 64) Approximately 3,800 FT
10-foot-wide paved off street trail starting at 1st Avenue and located adjacent to the east side of the Remington Stormwater Detention Pond, then along the west side of Hogan Street to the north side of STH 64

The east trail area would consist of:

- Charlotte Street (North Ave. to STH 64/52) Approximately 2,700 FT
8-foot-wide paved off street trail on the back of the east side curb along Charlotte Street from North Avenue to STH 52/64.
- Charlotte Court (STH 64/52 to North Termini) Approximately 1,500 FT
Road widening and resurfacing to include a 5-foot-wide shoulder on Charlotte Court from STH 52/64 to north termini.
- Prosser Place (begin point 450 feet east of US 45 (end of curbed section) to Charlotte Court) Approximately 1,170 FT
10-foot-wide paved off street trail at north edge of right of way along Prosser Place from to Charlotte Court.

The work includes; erosion control, clearing & grubbing, unclassified excavation and grading, granular borrow, culvert pipe, aggregate base, asphalt surface, curb and curb ramps, construction staking, water and sewer water valve/manhole adjustments seeding, striping and signage.

SCOPE OF SERVICES

MSA will provide services as set forth below.

1. Construction Administration

- Project Administration: Manage and coordinate project team, budget and schedules. Maintain communication with Owner and stakeholders on project.
- QA/QC: Employ documented quality-assurance/quality-control procedures throughout project.
- Construction Progress Meetings: Facilitate and attend bi-weekly meetings (maximum 7 meetings)
- Contractor Communication: Respond to Contractor Requests for Information and assist in interpretation of contract documents in person, in writing, or by telephone.

- Submittal Review: Review Contractor Shop Drawings, Submittals, Schedules and Samples for compliance with Construction Documents.
- Site Visits: Make periodic site visits to observe contractor's work in progress (maximum 8 visits).
- Change Orders: Review Change Order requests from Contractor; recommend Change Orders to Owner as appropriate.
- Applications for Payment: Review Contractor Applications for Payment; make payment recommendation to Owner as appropriate. (maximum 4 applications for payment)
- Project Closeout: Prepare punch list (items to be completed or corrected), and Substantial Completion Certificate. Review Contractor work and completion documents for compliance with construction contract and readiness for final payment (*includes warranty documentation and lien waiver review*).
- Record Drawings: Prepare Record Drawings based on addenda, Field Orders, Change Orders and Contractor's Records

2. Construction Observation

- **TAP Project Requirements**
 - MSA will comply with the following requirements specific to federally funded TAP projects as outlined in the Sponsor's Guide:
 - Provide project leader familiar with the WisDOT Construction and Materials Manual.
 - Provide project leader familiar with the WisDOT Standard Specifications.
 - Pre-construction meeting that conforms to CMM Chapter 2.26.
 - Review of the contractor's posting board to ensure it complies with state and federal wage requirements.
 - Coordinate with WisDOT labor compliance to ensure the proper provisions are met (CMM Chapter 2.24 will be used as guidance).
 - Maintain records comparable to those that WisDOT maintains in Field Manager (via MSA's daily diaries, measurement documentation, and pay application review),
 - Materials Information Tracking (via MSA's materials review and documentation), and Field Information Tracking (via MSA's daily diaries and completion of EJCDC construction administration documents throughout the project).
 - The following documentation will be maintained and assembled into a deliverable at project completion:
 1. Copy of the Contract Proposal (Copy of the Contract)
 2. As-Built Plans (Record Drawings)
 3. Project Diaries (Daily Reports)
 4. Source Documents (Delivery Tickets, Survey Notes, Unit Item Measurements, Computations, etc.)
 5. Material Records and Test Results (where applicable)
 6. Pictures and Videos
 7. Correspondence Records
 8. Contractor Applications for Payment
 9. Justifications for Non-Conforming Work or Materials (if needed)
 10. Labor Compliance
 11. Buy America (where applicable)
 - Work with WisDOT to monitor progress of DBE requirements.
 - Coordinate with WisDOT staff during their site visits and respond to their correspondence as necessary.

- Adhere to the construction project records section of the Sponsor's Project File
- Checklist for Local Let Contract Projects.
- **Duties and responsibilities of the Construction Observer include:**
 - Observe the progress and quality of the Contractor's work on the Project as well as conformance to the project schedule.
 - Inspection, materials acceptance, record keeping, measurement of quantities, enforcement of plans and specifications,
 - Monitoring of DBE utilization, Labor Compliance and finals documentation.
 - Erosion control requirements compliance with environmental permits including the documentation of erosion control activities during the project.
 - Attend meetings with Contractor, such as preconstruction conferences and progress meetings.
 - Assist in communication between Engineer, Contractor and Owner, especially when additional information, interpretation, or clarification is needed regarding existing conditions or contract documents.
 - Conduct on-Site observations of Contractor's work in progress to assist Engineer in determining if the Work is in general proceeding in accordance with the Contract Documents.
 - Verify that tests are conducted and documented appropriately.
 - Maintain orderly files and prepare a daily report recording Contractor's hours and activities at the site.
 - Review applications for payment with regard to Work completed, and materials and equipment delivered at the Site.
 - Participate in visits to the Project to determine punch list items, and readiness for Substantial Completion and Final Completion.
 - Document Curb Ramp compliance with WisDOT Survey 1,2,3 application
- The estimated fee for services is based on 55 days of Construction Observation for 10 hours per day at the site (550 hours total).

DELIVERABLES

MSA will provide the following deliverables:

1. Construction Observation Reports and Measurement & Payment Documentation
2. Record Drawings: one (1) paper copy, and one PDF file.

ADDITIONAL SERVICES

Services that are not included in the above Scope of Services can be provided under separate contract or by amending the scope and fee listed in this Agreement. Examples of additional services that may be needed or desired for completion of the project include:

1. Additional meetings not specifically listed in the scope.
2. Updates to Owner's electronic Geographic Information System to reflect changes from project.
3. Construction Staking: Provide line and grade stakes for construction.

PROJECT SCHEDULE

MSA anticipates the following estimated project schedule:

Date	Milestone
July 2024	Owner approves Professional Services Agreement
July 2024	MSA begins work
July 2024 – November 2024	Construction
June 2025	(Corrective Action and Retainage Processing)

OWNER'S RESPONSIBILITIES

- Owner is responsible for accuracy and completeness of the information provided to MSA.
- Owner will provide MSA with full information as to Owner's requirements for the project.
- Owner will operate Owner's systems (hydrants, valves, manholes, etc.) as needed for MSA to obtain required information for the completing project.
- Owner will provide timely response to questions and review of submittals (pay applications).
- Owner will authorize necessary pay applications and reimbursement requests.

ATTACHMENT B: RATE SCHEDULE

<u>CLASSIFICATION</u>	<u>LABOR RATE</u>
Administrative	\$ 75 – \$150/hr.
Architects	\$ 75 – \$215/hr.
Community Development Specialists	\$135 – \$185/hr.
Digital Design	\$175 – \$195/hr.
Environmental Scientists/Hydrogeologists	\$105 – \$185/hr.
Geographic Information Systems (GIS)	\$ 95 – \$185/hr.
Housing Administration	\$ 95 – \$170/hr.
HR	\$ 135 - \$150/hr.
Inspectors/Zoning Administrators	\$105 – \$130/hr.
IT Support	\$175 – \$195/hr.
Land Surveying	\$ 75 – \$185/hr.
Landscape Designers & Architects	\$ 75 – \$215/hr.
Planners	\$ 75 – \$205/hr.
Principals	\$210 – \$315/hr.
Professional Engineers/Designers of Engineering Systems	\$150 – \$200/hr.
Project Managers	\$150 – \$230/hr.
Real Estate Professionals	\$135 – \$165/hr.
Staff Engineers	\$ 75 – \$145/hr.
Technicians	\$ 95 – \$150/hr.
Wastewater Treatment Plant Operator	\$ 90 – \$115/hr.
 <u>REIMBURSABLE EXPENSES</u>	
Copies/Prints	Rate based on volume
Specs/Reports	\$10
Copies	\$0.12/page
Plots	\$0.006/sq.in.
Flash Drive	\$10
GPS Equipment	\$20/hour
Dini Laser Level	\$30/per day
Mailing/UPS	At cost
Mileage – Reimbursement	IRS Rate – IRS Rate + \$5/day
Mileage – MSA Vehicle	\$0.75 mile standard/ \$0.67 mile for DOT
Nuclear Density Testing	\$25.00/day + \$10/test
Organic Vapor Field Meter	\$100/day
PC/CADD Machine	Included in labor rates
Robotic Survey Equipment	\$20/hour - \$15/hour for DOT
Stakes/Lath/Rods	At cost
Travel Expenses, Lodging, & Meals	At cost
Traffic Counting Equipment & Data Processing	At cost
Geodimeter	\$30/hour
Drone Flight	\$375/flight

Labor rates represent an average or range for a particular job classification. These rates are in effect until December 31, 2024.



To: Mayor and City Council
From: Kirk Packard, Street Commissioner
Date: July 24, 2024
Re: Approval of Donation for Highway 45/64 Traffic Light Battery Backup from TSI Power

David Nystrom, President TSI Power Corporation, reached out to me regarding a donation which could provide long duration backup to the traffic lights at the intersection of Highway 45 and 64.

I am providing a copy of the email as well as the proposal, datasheet, mechanical drawing and quick start guide he provided to me.

Jaime L. Horswill

From: David Nystrom <david@tsipower.com>
Sent: Wednesday, May 29, 2024 2:16 PM
To: Kirk Packard
Cc: Jaime L. Horswill
Subject: Outdoor UPS Donation Proposal (Re: 45 & 64 Traffic Light Battery Backup)
Attachments: Quotation DN-24-05-29-1.pdf; Outdoor XUPS-1000-0780 Datasheet for Antigo Street Department.pdf; 28x24x16 Cabinet with Mounting Options-Dims REV. 3.pdf; SG01022 REV. 3 'Outdoor XUPS-600-1000-0780; Start-up Guide'.pdf; Ground Side.jpg; 1.jpg; Front Right.JPG; 2.jpg; _DSC2691.JPG; OPEN FRONT.jpg

Kirk,

Thank you for taking the time to meet me this morning as well as touring our factory. It's good to get to know our neighbors, and we are looking forward to helping the city so that Friday's events never repeat themselves.

Attached you will find:

- Our formal proposal (a zero Dollar quote)
- Abridged datasheet for this unit (page numbers are screwy as I deleted all of the other XUPS units from the datasheet for your convenience)
- Mechanical drawing
- Quick-start guide
- Some photos of this system (photos are of the similar 3 kVA model)

This proposal is for a pad-mounted system, but if you want the wall/unistrut mounting option instead we can of course provide that.

This system provides up to 840 watts of output power, which is more than double your requirement to be on the safe side (we have a smaller 500 watt system available--savings if purchased are only \$40).

The estimated backup time for 4 A is seven (7) hours. For a 2.5 - 3 A load it would be 11 hours.

I understand that as a public servant you may have some approvals to go through, but we are prepared to get started immediately.

On Tue, May 28, 2024 at 5:25 PM Kirk Packard <kpackard@antigo-city.org> wrote:

Yes, David lets meet I would like to involve our electrician from Schocking solution's.

We called him today to look at wiring them for a generator, I would definitely like to get together to talk about your uninterruptible power supply.

Attachment: Donation (6981 : Donation)

I think that Cody was going to try to come on Thursday not sure on a time I can let you know if that works for you. If not we can set something up for next week also.

Thanks

Kirk Packard

Street Commissioner

City of Antigo Street Department

1020 W Pierce

Antigo WI 54409

715-623-4754 Ext 124

kpackard@antigo-city.org

From: David Nystrom <david@tsipower.com>
Sent: Tuesday, May 28, 2024 3:39 PM
To: Kirk Packard <kpackard@antigo-city.org>
Cc: Jaime L. Horswill <jhorswill@antigo-city.org>
Subject: 45 & 64 Traffic Light Battery Backup

Good Afternoon,

This is David Nystrom of TSI Power Corporation. We are located directly across the street from the Street Department and have been making power quality solutions in Antigo for 25 years.

The City of Antigo has been good to us, and we'd like to give back.

Attachment: Donation (6981 : Donation)

We would like to provide you with an outdoor which could provide long duration backup to the traffic lights at the intersection of US-45 and WI-64.

This would have prevented the signal outage that took place on Friday afternoon.

We will make this system in our facility on 1103 W Pierce Ave and help you install it. While no maintenance is required other than battery replacement (every five years is recommended), our local staff of Antigo residents will be available to provide you with support.

Attached is a case study from Wake Electric Coop in North Carolina which has been successfully using our products for over a decade to provide backup power to their traffic signals.

Let me know when a good time to meet would be to discuss your requirements.

--

Regards,

David Nystrom

President
TSI Power Corporation
1103 West Pierce Avenue
Antigo, WI 54409 USA
Tel: 800-874-3160 Int: +1 715-623-0636

ISO 9001:2015 Registered

CERTIFICATE NO. 32029240

TSI Power Corporation manufactures and sells the world's best electric power quality solutions for industrial, enterprise, commercial, and sovereign customers. Our product portfolio includes:

- Raptor technology platform family
- VRP series precision automatic voltage regulators
- VRX series outdoor precision automatic voltage regulators

- ATS series automatic transfer switches
- Outdoor XUPS line-interactive AC outdoor uninterruptible power supplies
- Outdoor DC-UPS ac-to-dc outdoor uninterruptible power supplies
- ILC-MED hospital-grade isolation line conditioners

TSI Power also makes custom solutions for all applications derived from our extensive technology portfolio.

--

Regards,
David Nystrom
President
TSI Power Corporation
1103 West Pierce Avenue
Antigo, WI 54409 USA
Tel: 800-874-3160 Int: +1 715-623-0636

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TSI Power also makes custom solutions for all applications derived from our extensive technology portfolio.



TSI Power Corporation
1103 West Pierce Avenue
Antigo, WI 54409-3103 USA

Quotation

Date: May 29, 2024

[Ref. No: DN-24-05-29-1]

To:	Submitted by:
Kirk Packard Street Commissioner City of Antigo Street Department 1020 W Pierce Antigo WI 54409 715-623-4754 Ext 124 kpackard@antigo-city.org	David Nystrom +1 715 623 0636 #102 david@tsipower.com

Item No.	Model	Description	Unit Price	Qty	Line Total
1	Outdoor XUPS-1000-0780	1,000 VA 115 V 60 Hz "LARGE" Outdoor XUPS - Estimated 7 hours backup time with 4 A load 28" x 24" x 16" NEMA-3R weather-proof powder coated 5052H aluminum chassis, multiple mounting options -40°* to +122°F temperature range - Made in Antigo, Wisconsin	\$0.00	1	\$0.00
2	BH5	34 watt battery heater pad *Extends low temperature range from -10° to -40°F - Two required	\$0.00	2	\$0.00
3	PAD2	Pad-mounting kit *Preinstalled pad-mounting kit 4" tall C-channels with anchor points - Wall/Unistrut (less money) & pole-mounting kits also available (more money)	\$0.00	1	\$0.00
4	Maintenance Bypass Switch	Maintenance Bypass Switch - Three (UPS, bypass, off) or four position (UPS, generator, bypass, off) depending on installation decisions - Part number pending above	\$0.00	1	\$0.00
4	Support	Installation Support & Training - TSI Power technicians and engineers will provide onsite installation support - Optional XUPS training for Street Department & Shocking Solutions	\$0.00	1	\$0.00
Total					\$0.00

Attachment: Donation (6981 : Donation)





TSI Power Corporation
1103 West Pierce Avenue
Antigo, WI 54409-3103 USA

Shipping and Payment terms

Payment terms	Delivery schedule	Shipping incoterms
N/A	5 weeks ARO	EXW factory (FOB Origin)

Notes to this Quotation.

1. Validity of this quote is 30 days from the date of this quotation.
2. This is not a work for hire. TSI Power retains all intellectual property rights.
3. The acceptance of order/orders by TSI Power is subject to TSI Power Terms and Conditions. For full Terms and Conditions, visit: <http://www.TSIpower.com/customer-support>
4. Purchase orders to be issued directly to TSI Power Corporation
5. Prices are quoted in US dollars.
6. LIMITED WARRANTY shown below.

Limited Warranty for International Customers (outside of US and Canada)

TSI Power warrants this product to be free from defects in materials and workmanship for two (2) years* from the date of purchase from TSI Power or its authorized representatives. * Excluding batteries. Battery manufacturer's warranty applies to batteries. TSI Power will repair (or at its option, replace) any defective component(s) during this warranty period. To make a request or claim for service under this limited warranty, the customer making a claim must contact TSI Power with the date of purchase and both the name and serial number of the product. Warranty does not cover transportation costs. Damage by misuse, accident or unauthorized tampering of the product is not covered by the warranty. NO OTHER WARRANTIES ARE EXPRESSED OR IMPLIED. TSI POWER IS NOT LIABLE FOR CONSEQUENTIAL DAMAGES. LIMITATION OF LIABILITY: IN NO EVENT SHALL TSI POWER OR ITS AFFILIATES BE LIABLE FOR ANY DAMAGES WHATSOEVER (INCLUDING WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR OTHER PECUNIARY LOSS) ARISING OUT OF THE USE OR INABILITY TO USE THIS PRODUCT, EVEN IF TSI POWER OR ITS AGENT HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

Terms and Conditions of Sale

All quotations and sales by TSI Power Corporation, ("TSI") are subject to these terms and conditions; provided, however, that in the event that you, the customer, have a written contractual agreement with TSI regarding your purchase of TSI products, then the terms and conditions contained in that agreement (supplemented by the non-conflicting terms contained in these Terms and Conditions) shall govern the quotations and sales of products purchased from TSI.

1. Default payment terms are 100% prepayment. For purchase orders exceeding \$50,000, TSI Power will accept 50% prepayment at the time of order with the balance to be paid prior to shipment.
2. Prices are FOB TSI's facility (INCOTERMS: Ex Works); and prices do not include any taxes, freight, handling, duty or other similar charges, payment of which will be the sole responsibility of customer. Prices are conditioned upon timely payment and any past due balance will accrue interest at the monthly rate of one percent per month until a maximum interest rate of 12% is reached





TSI Power Corporation
1103 West Pierce Avenue
Antigo, WI 54409-3103 USA

(assessed on the principal only). Freight charges may be constructed on the basis of standard carrier tariffs and may not reflect actual transportation costs. TSI reserves the right to modify terms prior to shipment, require payment in advance, or delay or cancel any shipment or order by reason of customer's creditworthiness or should customer fail to fulfill any obligation when due. You may receive an e-mail or mechanized document from TSI describing your order details. That e-mail/document legally suffices as your purchase order. It will also represent TSI's confirmation of your order. TSI may revoke its acceptance of such purchase order for any reasonable reason, including your inability to provide TSI with adequate comfort that you (i) will comply with all relevant laws, such as export regulations, or (ii) are, in TSI's sole discretion, credit worthy.

3. In the absence of prior agreement as to shipping, TSI may select a carrier. TSI's responsibility for any loss or damage ends, and title passes, when products are delivered to the carrier, to customer, or to customer's agent (including, without limitation, any test house or value added service provider), whichever occurs first. Customer will pay for storage charges if TSI holds products at customer's request pending instructions or rescheduled delivery.

4. TSI warrants products manufactured by TSI against defects pursuant to the terms and conditions of TSI's LIMITED WARRANTY. All other products, and the components and materials utilized in any assembled or customized products, are covered by, and subject to, the terms, conditions, and limitations of the manufacturer's standard warranty, which warranty is expressly in lieu of any other warranty, express or implied, of or by TSI or the manufacturer. Customer's exclusive remedy, if any, under these warranties is limited, at TSI's election, to any one of (a) refund of customer's purchase price, (b) repair by TSI or the manufacturer of any products found to be defective, or (c) replacement of any such product. Customer acknowledges that except as specifically set forth or referenced in this paragraph, THERE ARE NO REPRESENTATIONS OR WARRANTIES OF ANY KIND (INCLUDING, WITHOUT LIMITATION, IN ADVERTISING MATERIALS, BROCHURES, OR OTHER DESCRIPTIVE LITERATURE) BY TSI OR ANY OTHER PERSON, EXPRESS OR IMPLIED, AS TO THE CONDITION OR PERFORMANCE OF ANY PRODUCTS, THEIR MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE, OR OTHERWISE. Use of the customer's part number on any document or on any products is for convenience only and does not constitute any representation by TSI with respect to the performance, specifications, or fitness of any part for any purpose.

5. TSI retains a purchase money security interest in all products sold by TSI to customer, and in the proceeds of any resale of such products, until the purchase price and any other charges due to TSI have been paid in full. Upon any breach by customer of these terms and conditions, TSI will have all rights and remedies of a secured party under applicable law, which rights and remedies will be cumulative and not exclusive. Customer is responsible for all costs and expenses incurred by TSI in collecting any sums owing

by customer (which may include, but are not limited to, collection agency and reasonable attorneys' fees). TSI shall have the right to offset any sum owed by TSI to Customer against any sum owed by Customer to TSI. All transactions are governed by the laws of the State of Wisconsin. The parties waive any right to trial by jury.

6. Products are deemed accepted by customer unless customer notifies TSI in writing within 10 days of delivery of product shortages, damage or defect. No returns may be made for any reason without a Return Authorization Form issued by TSI. If customer refuses to accept tender or delivery of any products or returns any products without authorization from TSI, such products will be held by TSI awaiting customer's instruction for 20 days, after which TSI may deem the products abandoned and dispose of them as it sees fit, without crediting customer's account.

7. TSI will not be liable for any failure or delay in its performance or in the delivery or shipment of products, or for any damages suffered by customer by reason of such failure or delay, when such failure or delay is caused by, or arises in connection with, any fire, flood, accident, riot, earthquake, severe weather, war, governmental interference or embargo, strike, shortage of labor, fuel, power, materials or supplies, delay in delivery by TSI's suppliers or any other cause or causes beyond TSI's reasonable control. TSI reserves the right to cancel without liability any order, the shipment of which is or may be delayed for more than 30 days by reason of any such cause. TSI reserves the right to allocate in its sole discretion among customers or potential customers, or defer or delay the shipment of, any product which is in short supply.

8. This document, and not any purchase order or other customer document (which, if construed to be an offer is hereby rejected), will be deemed an offer or counteroffer and is a rejection of any other terms or conditions. Customer, by accepting any products, making any payments or ordering any products having previously received these terms and conditions, will be deemed to have assented to these terms and conditions, notwithstanding any terms contained in any prior or later communication from customer and whether or not TSI will specifically or expressly object to any of customer's terms. TSI's failure to object to any document, communication or act of customer will not be deemed a waiver of any of these terms and conditions. Any addition or change to these terms and conditions must be specifically agreed to in writing by a duly authorized officer of TSI before becoming binding on TSI.





TSI Power Corporation
 1103 West Pierce Avenue
 Antigo, WI 54409-3103 USA

9. If customer's order is placed under a contract with the United States Government, TSI agrees to comply only with those contract provisions and regulations with which, pursuant to law, it must comply and of which customer has, at the time of order placement, placed TSI on written notice. In no event will United States Government Cost Accounting Standards apply. All rights in technical data, drawings, schematics, designs, trade marks and software, firmware, assembly language code owned or licensed by TSI or the manufacturer are hereby reserved and deemed restricted or limited. Unless specifically otherwise agreed in writing by TSI, customer acknowledges that products sold by TSI are not intended for and will not be used in life support systems, human implantation, nuclear facilities or systems or any other application where product failure could lead to loss of life or catastrophic property damage. Customer will indemnify and hold TSI harmless from any loss, cost or damage resulting from customer's breach of the provisions of this paragraph.

10. Products may be subject to export or resale restriction or regulation, and customer acknowledges that it will comply with such restrictions and regulations. Any statement as to product country of origin, Export Control Classification Number, or compliance with applicable law (including, without limitation, that products are lead-free or RoHS compliant) is as provided to TSI by its suppliers, and TSI does not warrant its accuracy and will not be liable for any error with regard to same. Customer uses such information at its own risk. Customer understands that the commodities, software, and/or technology it purchases may be subject to export, re-export, or other restrictions under the laws of the country of manufacture, the country of the seller/distributor, and the country in which the Customer resides. Therefore, Customer, on behalf of itself, its subsidiaries and affiliates, warrants and agrees to abide by all applicable laws and regulations relating to the export and re-export of such commodities, software, and/or technology and the direct products thereof in relation to goods obtained by Customer and its subsidiaries and affiliates. In particular:

a. You understand that U.S. origin commodities, software, and/or technology, exported from the U.S., and/or foreign manufactured products made with U.S. origin technology or more than de-minimis U.S. component content are subject to U.S. re-export laws. In the event of re-export, You agree to ensure that the required permissions (license, license exception, etc., as applicable) will be obtained.

b. You certify that the commodities, software, and/or technology will not be used, sold, re-exported or incorporated into products used directly or indirectly, in the design, development, production, stockpiling, or use of chemical or biological weapons, nuclear programs (including activities related to nuclear explosive devices, nuclear reactors, and nuclear fuel-cycle activities), missiles (including cruise and ballistic missile systems, space launch vehicles, sounding rockets, target drones, remotely piloted vehicles,

and reconnaissance drones), and maritime nuclear propulsion projects except as authorized under applicable laws and regulations relating to the export and/or re-export of these items.

c. You certify that the commodities, software, and/or technology will not be sold, re-exported or incorporated into products for use by military, police, or intelligence entities, or for any space applications except as authorized under applicable laws and regulations relating to the export and/or re-export of items to such entities.

d. You certify that the commodities, software, and/or technology will not be used directly or indirectly, sold, reexported or incorporated into products for the foreign vessels or aircraft except as authorized under applicable laws and regulations relating to the export and/or re-export of these items.

e. You certify that the commodities, software, and/or technology will not be used directly or indirectly, sold, reexported or incorporated into products for the benefit of certain countries, entities, or any other persons named by the U.S. government on the Entity List at Part 744 of the Export Administration Regulations, to persons designated by the U.S. government as Specially Designated Global Terrorists (SDGTs), Specially Designated Terrorists (SDTs), or Foreign Terrorist Organizations (FTOs) on the Specially Designated National (SDN) list.

f. You certify that the commodities, software, and/or technology will not be used directly or indirectly, sold, reexported or incorporated into products that constitute general purpose microprocessors for military end-uses or military end-users except as authorized under applicable laws and regulations relating to the export and/or re-export of items to such items.

g. You certify that no commodities, software, and/or technology obtained from TSI Power Corporation, its subsidiaries and/or affiliates, or of U.S. origin will be exported or re-exported (directly or indirectly), diverted, or transshipped to or via any country in violation of U.S. unilateral or U.N. economic embargo.

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h. TSI also reserves the right to cancel any order, the shipment of which would require an export license. 11. TSI certifies that it complies with all applicable requirements of Sections 6, 7 and 15 of the Fair Labor Standards Act, as amended, and of regulations and orders of the United States Department of Labor issued under Section 14 thereof.

12. Except for the warranty coverage referenced in paragraph 3, above, NEITHER TSI NOR ITS SUPPLIERS WILL HAVE ANY LIABILITY OR OBLIGATION TO CUSTOMER OR ANY OTHER PERSON FOR ANY CLAIM, LOSS, DAMAGE, OR EXPENSE CAUSED IN WHOLE OR IN PART, DIRECTLY OR INDIRECTLY, BY THE INADEQUACY OF ANY PRODUCTS FOR ANY PURPOSE, BY ANY DEFICIENCY OR DEFECT IN ANY PRODUCT (WHETHER OR NOT COVERED BY ANY WARRANTY), BY THE USE OR PERFORMANCE OF ANY PRODUCTS OR BY ANY FAILURE OR DELAY IN TSI'S PERFORMANCE HEREUNDER, OR FOR ANY SPECIAL, DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE DAMAGES, HOWEVER CAUSED, INCLUDING, WITHOUT LIMITATION, PERSONAL INJURY OR LOSS OF BUSINESS OR PROFIT, WHETHER OR NOT CUSTOMER WILL HAVE INFORMED TSI OF THE POSSIBILITY OR LIKELIHOOD OF ANY SUCH DAMAGES.

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14. TSI may assign accounts receivable to a TSI affiliate. In order to defray the cost of customer account administration, any credit balance or other sum owed to customer which remains unclaimed by customer for a period of twelve months will become the property of TSI.

15. No order or Customer obligation may be cancelled, rescheduled, reconfigured, or assigned without TSI's prior written authorization and, in such event, customer will be liable to TSI for any additional costs and expenses incurred by TSI. Prices are subject to change by TSI upon customer rescheduling or reconfiguration of orders. Prices are also subject to change in response to supplier price increases or if a price has been quoted in error, whereupon, customer may cancel the undelivered portion of any affected order by delivering written notice to TSI prior to the shipment thereof and within 10 days of its receipt of notice of the price increase.

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XUPS

Outdoor UPS with Voltage Regulation



| Single Phase 600 VA - 3 kVA |

Attachment: Donation (6981 : Donation)

Ensuring continuous uninterrupted power for your mission critical loads, requires a carefully designed and reliable **Uninterruptible Power Supply (UPS) product.**

The challenge gets tougher when your loads are installed in harsh outdoor environments, where dust, extreme temperatures and humidity are often present.

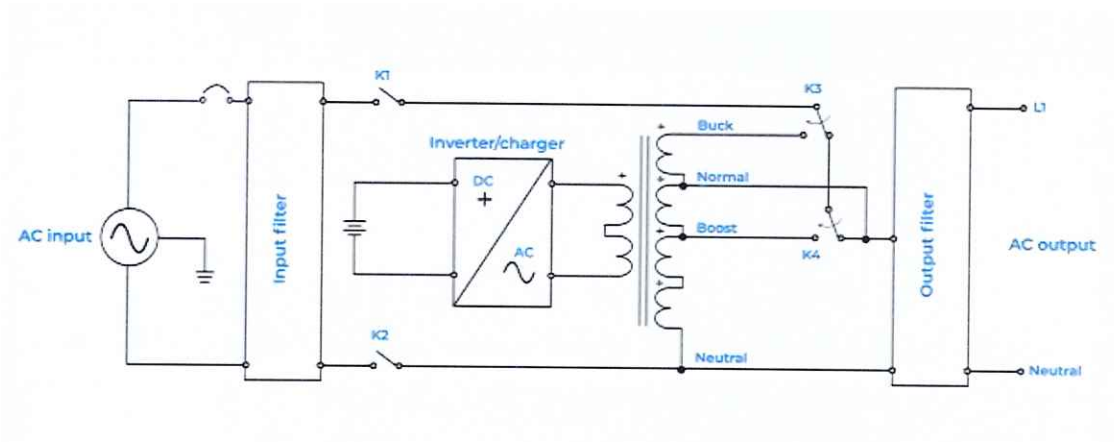


TSI Power, with more than 20 years designing and installing power protection products, specializes in outdoor UPS products. Thousands of outdoor UPS products are installed and proven in many mission critical sites globally.

XUPS Outdoor UPS with Voltage Regulation

TSI Power's outdoor XUPS is a series of line interactive Uninterruptible Power Supplies (UPS), equipped with wide-temperature, pure lead, gel batteries and housed in a weather-protected enclosure. It offers line-interactive automatic voltage regulation, over/under voltage protection, surge protection with heavy duty noise filtering, communications capability and optional extended battery backup.

XUPS Block Diagram



Features and Benefits

<i>Built-in automatic voltage regulation enables a wide-input voltage window to deliver power while preventing unnecessary battery drain.</i>	<i>The XUPS uses wide temperature, pure lead, gel batteries and internal cooling fan to extend battery life and protect electronic components.</i>
<i>Precise output current limiting permits start of induction motors and other difficult loads.</i>	<i>Internal bypass switch provides power if UPS fails and prevents unnecessary shutdown of connected equipment.</i>
<i>Cabinet can be pad, pole or wall mounted for utmost mounting flexibility.</i>	<i>Rugged enclosures to withstand harsh environments.</i>
<i>Designed to UL 60950-22 standard for outdoor equipment with UL-50E rain - tested enclosure.</i>	<i>Heavy-duty surge protection and noise filtering protects load and UPS.</i>
<i>The XUPS is easy to repair because internal circuit board assemblies are connectorized.</i>	<i>The XUPS includes a two-year limited warranty.</i>
<i>Conformal coating of electronic boards for moisture resistance</i>	<i>Quiet - ideal for use in locations with noise ordinances.</i>

Type of XUPS

The XUPS family of products consists of five different groups, that are designed for various power rating, back up time and mounting options.

	Compact Dimension (W x H x D) 16.5 x 20.5 x 9.5" (419 x 521 x 241 mm) [W x H x D] Power range 500 – 1540 W Runtime range 12 – 32 minutes Mounting option Wall, Pole
	Plus Dimension (W x H x D) 24.0 x 24.0 x 12.0" (610 x 610 x 305 mm) [W x H x D] Power range 500 – 1050 W Runtime range 29 minutes – 1 hour 27 minutes Mounting option Wall, Pole, Pad
	Extended Dimension (W x H x D) 24.0 x 24.0 x 17.1" (610 x 610 x 434 mm) [W x H x D] Power range 500 – 2250 W Runtime range 38 minutes – 5 hours 9 minutes Mounting option Wall, Pole, Pad
	Large Dimension (W x H x D) 28.8 x 24.0 x 17.1" (732 x 610 x 434 mm) [W x H x D] Power range 500 – 2250 W Runtime range 56 minutes – 7 hours 28 minutes Mounting option Wall, Pole, Pad
	XL Dimension (W x H x D) 36.0 x 36.0 x 13.5" (914 x 914 x 343 mm) Power range 500 – 2250 W Runtime range 2 hours 23 minutes - 15 hours 27 minutes Mounting option Wall, Pole, Pad

Large

115V, 60 Hz

Technical Specifications*

Model	XUPS-600-0780	XUPS-1000-0780	XUPS-1500-0780	XUPS-2200-0780	XUPS-3000-0780
AC Input					
Nominal voltage	115 V, 60 Hz				
Operating voltage	96 V - 136 V (without transferring to inverter)				
Frequency range	57 – 63 Hz				
Current at 96 V and max charging current	8.6 A	12 A	15 A	20 A	27 A
Input Circuit Breaker rating	10 A	15 A	15 A	20 A	30 A
Surge voltage withstand rating	ANSI/IEEE: 6 kV, 1.2 x 50 us / 3kA, 8 x 20 us combination waveform				
Remnant voltage	L-N: 450V & L-G: 300V				
AC Output					
Power	500 W	840 W	1050 W	1540 W	2250 W
Maximum current	4.3 A	7.3 A	9.1 A	13 A	20 A
Voltage	115 V ± 8%				
Crest factor	3:1				
Waveform and THD	Sine wave, < 3% THD with linear load				
Power efficiency (under full load conditions)	Line: 97% Inverter: 85%	Line: 97% Inverter: 85%	Line: 97% Inverter: 87%	Line: 97% Inverter: 87%	Line: 97% Inverter: 87%
Transfer time	¼ to ½ cycle (typical)				
Battery					
Type x quantity	8G31 x 4	8G31 x 4	8G31 x 4	8G31 x 4	8G31 x 4
Battery circuit breaker	30 A	60 A	40 A	60 A	80 A
Temperature range fully charged °F / °C	-4° to +140° F / -20° to +60° C (-40° to +140° F / -40° to +60° C with optional battery heater)				
Battery heater pad	2 x BH5	2 xBH5	2 x BH5	2 x BH5	2 x BH5
Rated load runtime @ 25° C	6 hr 6 min	3 hr 18 min	2 hr 48 min	1 hr 42 min	1 hr 6 min
Recharge time to 90 %	30 hr				
Mechanical					
Enclosure	Light gray powder coat aluminum cabinet with swing out front door, NEMA 3R / IP 44 rated				
Dimensions	W: 28.8" / 732 mm x H: 24.0" / 610 mm x D: 17.1" / 434 mm				
Weight with batteries lbs(kg)	360 (163)	360 (163)	380 (172)	380 (172)	390 (177)
Mounting	Wall-Mount: (with w/6 mounting feet); Pole-Mount: (with Pole-Mount Bracket PM4) Pad-mount: (with Pad-mount bracket PAD2)				
Environmental					
Operating Temperature Range	14° to +113° F (-10° to +45° C)				
Protection Against Moisture and Dust	Circuit boards are conformal coated				
Installation environment	Sun shade over north facing enclosure required to avoid solar heating (Not included). Enclosure must be located at least 2 km from ocean				
Safety					
Safety listing	ETL/cETL	ETL/cETL	ETL/cETL	ETL/cETL	ETL/cETL
Warranty					
Two-year limited warranty on parts and labor; One-year manufacturer warranty on batteries.					

*NOTE: Due to continuous product improvement, specifications are subject to change without notice.

Model Number Selection Guide

XUPS-□□□□-□-□-□-□

Options

0	Standard
1-9	Options
A-Z	Options

Standard cabinet size

0	Non-standard type
2	Compact (OD. approx. = 16.5"W x 20.5"H x 9.5"D)
4	Plus (OD. approx. = 24"Wx24"Hx13.75"D)
6	Extended (OD. approx. = 24"Wx24"Hx17.13"D)
8	Large (OD. approx. = 28"Wx24"Hx17.13"D)
9	XL (OD. approx. = 36"Wx36"Hx13.75"D)

Standard Battery Type / Battery quantity

0	Non-standard type
1	NP18-12 / quantity: 4
2	8GU1 / quantity: 2
3	8GU1 / quantity: 4
4	8G24FT / quantity: 2
5	8G24FT / quantity: 4
6	8G31DT / quantity: 2
7	8G31DT / quantity: 4
8	8G4D LTP / quantity: 4

Rated AC voltage and frequency

0	115 V, 60 Hz
1	208 V, 60 Hz
2	220 V, 60 Hz
3	230 V, 50 Hz
4	240 V, 60 Hz
5	230 V, 60 Hz
6	115 V, 50 Hz
7	127 V, 60 Hz

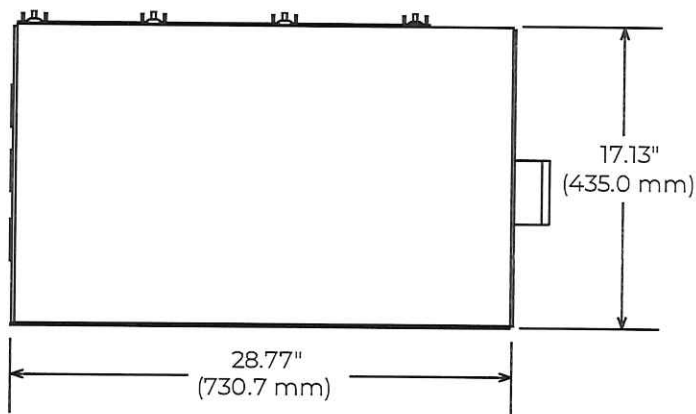
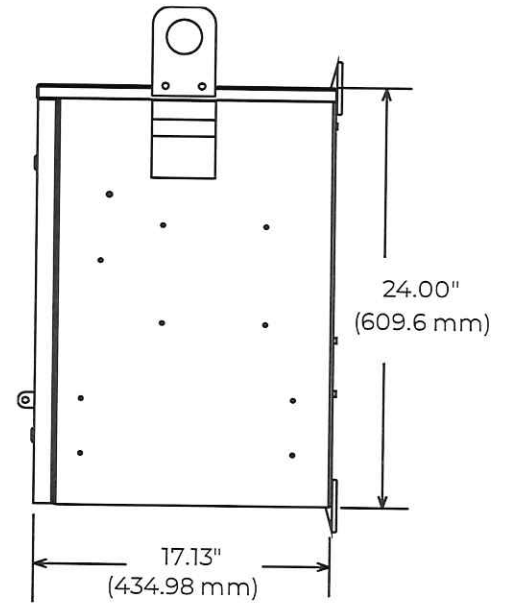
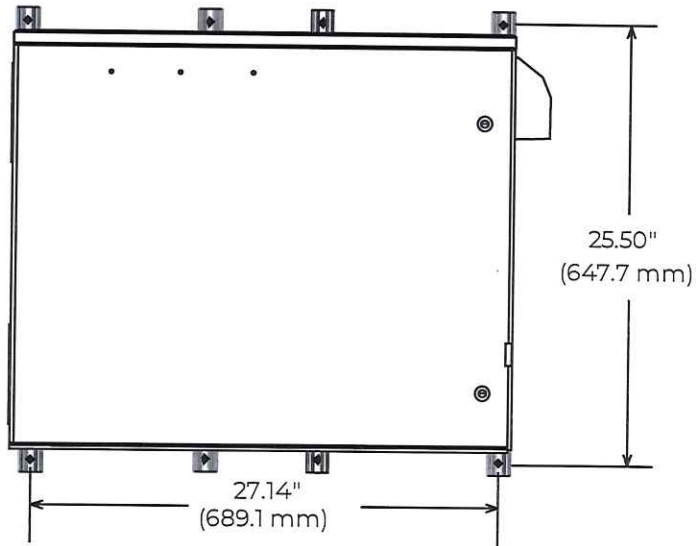
Series

600	500 W with 24 VDC Battery Bank
1000	840 W with 24 VDC Battery Bank
1200	1200 W with 48 VDC Battery Bank
1500	1050 W with 48 VDC Battery Bank
2200	1540 W with 48 VDC Battery Bank
3000	2250 W with 48 VDC Battery Bank

Dimensions

Dimensions shown are for standard wall mount type. For other mounting, please contact us for details

Large

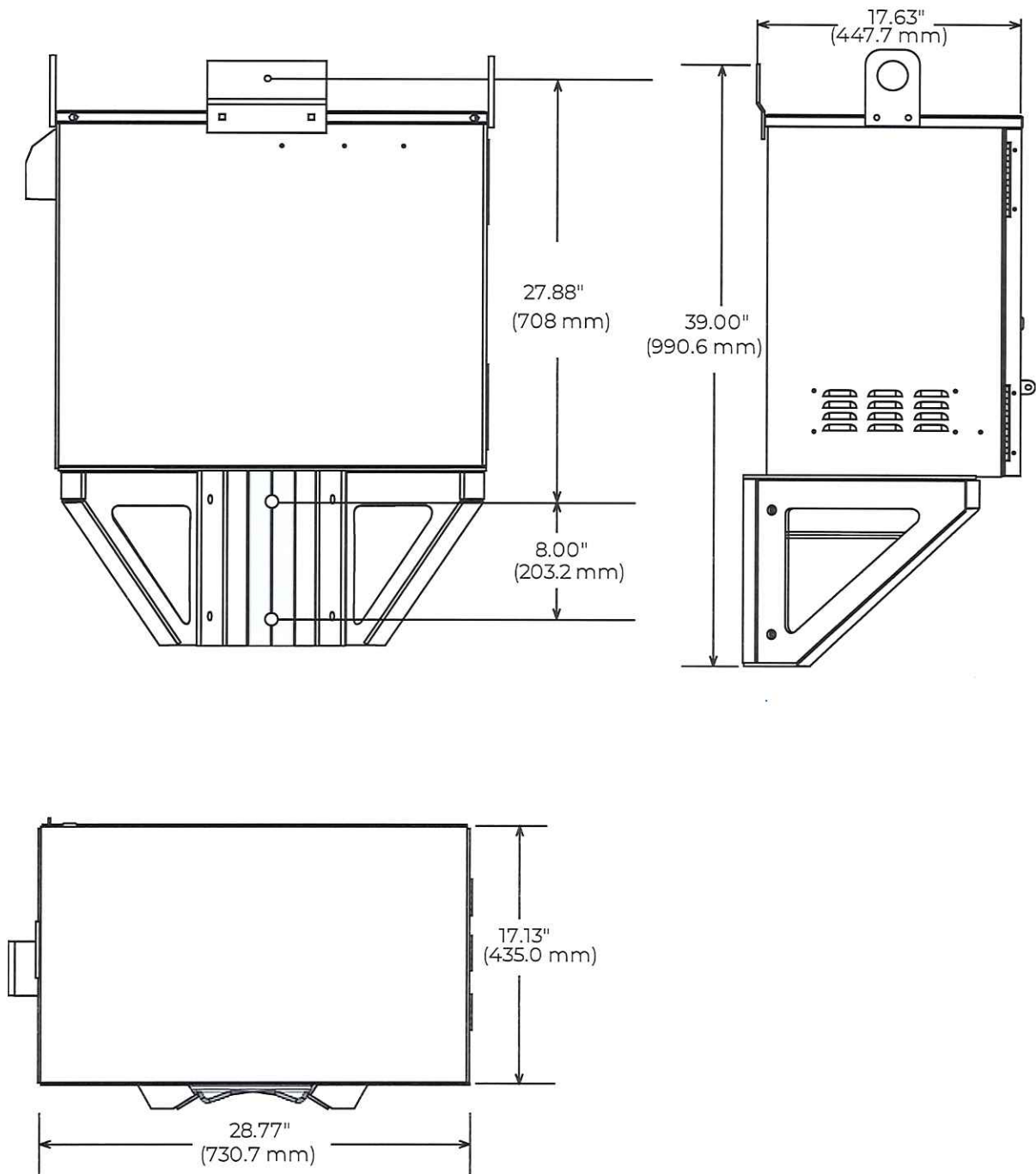


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Dimensions

Dimensions shown are for pole mount type. For other mounting, please contact us for details

Large

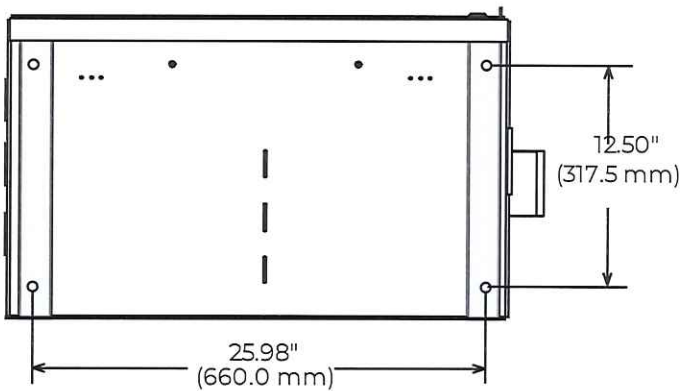
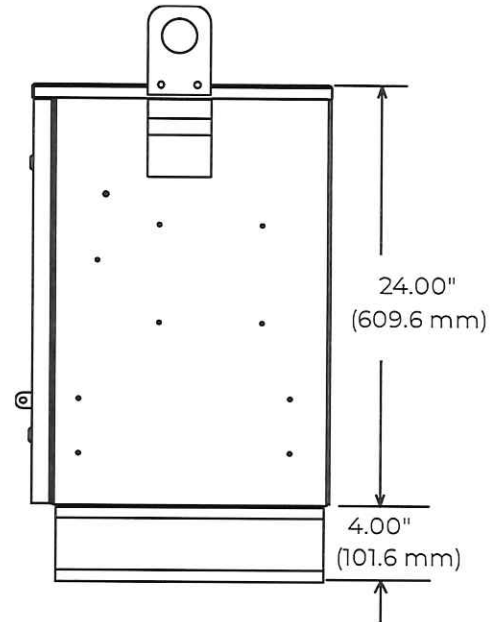
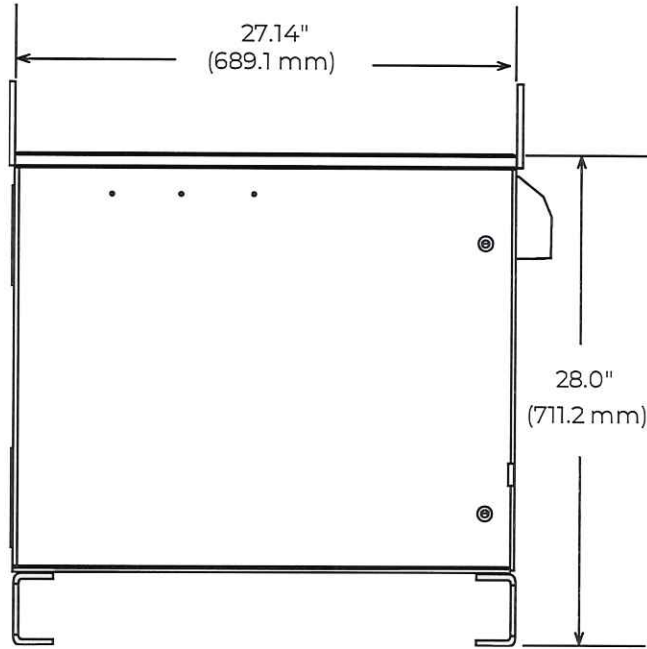


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Dimensions

Dimensions shown are for pad mount type. For other mounting, please contact us for details

Large



Attachment: Donation (6981 : Donation)

Backup time with different battery bank

The different XUPS products provides the required backup time according the application requirements and load factor. The following tables show the backup time for the various XUPS products for different load.

These run times are estimates at 25 °C, and are subject to change.

	Compact 24 V	Compact 48 V	Plus	Extended	Large	XL
Batteries	2 x 8GU1	4 x NP18-12	4 x 8GU1	4 x 8G24	4 x 8G31	4 x 8G4D
10 W	20 hr	20 hr	56 hr	140 hr	230 hr	500 hr
25 W	8 hr 4 min	8 hr	23 hr	57 hr	95 hr	200 hr
50 W	4 hr	4 hr	11 hr	28 hr	47 hr	100 hr
100 W	2 hr	2 hr	5 hr 37 min	14 hr	24 hr	51 hr
250 W	48 min	48 min	2 hr 15 min	5 hr 40 min	9 hr 27 min	20 hr
500 W	34 min	39 min	1 hr 27 min	4 hr 20 min	6 hr 5 min	12 hr
840 W	14 min	19 min	40 min	2 hr 25 min	3 hr 20 min	6 hr 45 min
1050 W	-	13 min	33 min	2 hr	2 hr 45 min	5 hr 40 min
1540 W	-	8 min	-	1 hr 10 min	1 hr 40 min	3 hr 30 min
2250 W	-	-	-	38 min	1 hr 3 min	2 hr 15 min

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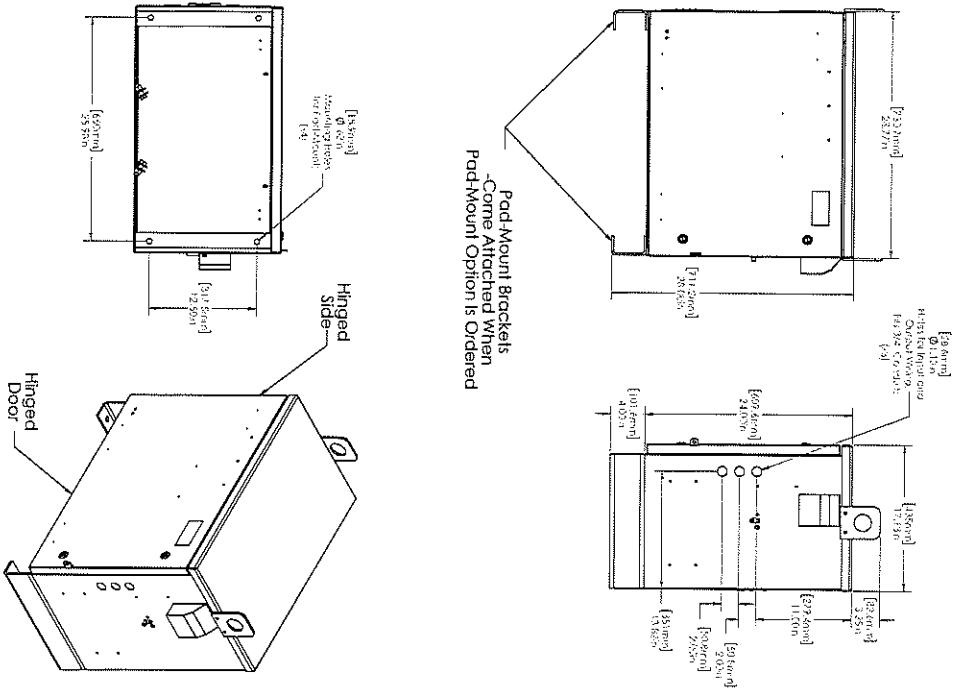


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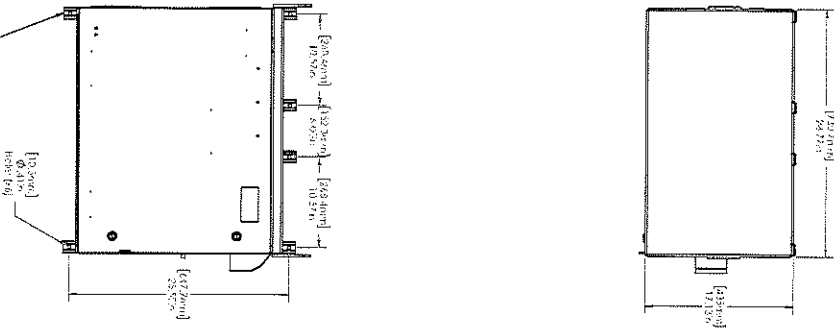
Pad-Mount Option [PAD2]

Pad-Mount Brackets
-Come Attached When
Pad-Mount Option Is Ordered



Wall-Mount Option (Standard) [ZC00194]

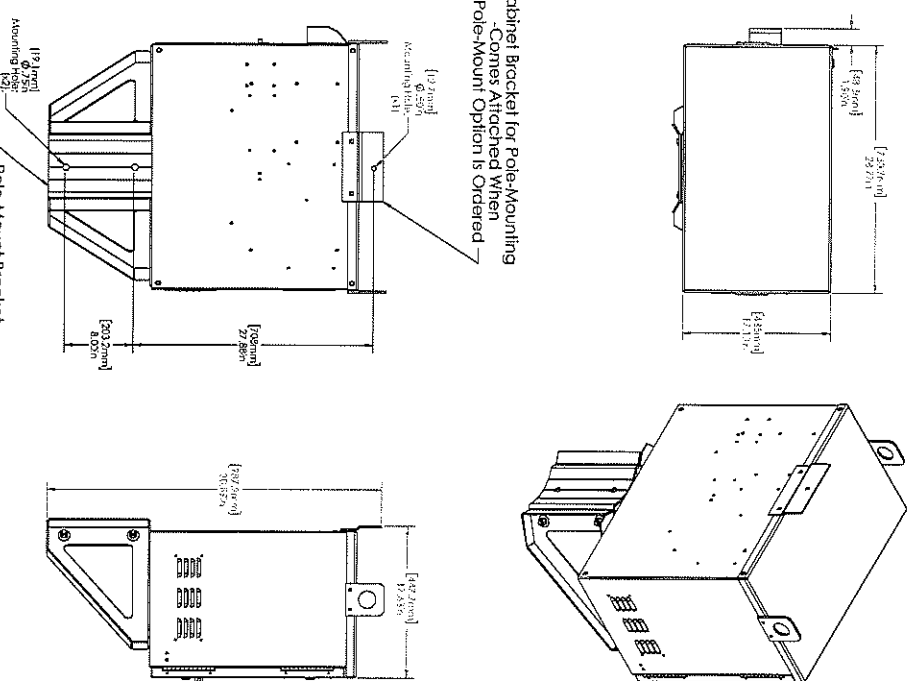
8 Wall-Mounting Ears
-Come Attached When
Standard Unit Is Ordered



Pole-Mount Option [PM4]

Cabinet Bracket for Pole-Mounting
-Comes Attached When
Pole-Mount Option Is Ordered

Pole-Mount Bracket
-Comes Separate When
Pole-Mount Option Is Ordered.
(Attachment to unit after bracket is attached to the pole)





START-UP GUIDE

TSI Power Model Number: **OUTDOOR XUPS-600/1000-0780**

AC input voltage: 96–136 V

Maximum input current, -600 / -1000: 8.6 A / 12.1 A

Frequency: 60 Hz

Output voltage: 115 V

Maximum output current, -600 / -1000: 4.3 A / 7.3 A

Output power, -600 / -1000: 500 W / 840 W

Battery bus: 24 VDC

Battery Type: 8G31DT, Quantity: 4



⚠ DANGER:
Make sure unit is de-energized before beginning.

⚠ CAUTION:
These instructions must be followed or board failure will result.

BATTERY STORAGE NOTES: Important! When storing UPS, charge the batteries to 100%.
Important! Always recharge every 6 to maximum 8 weeks.
Failure to follow this procedure may result in battery failure and will void the manufacturer's warranty.

Caution: No user serviceable parts.

Caution: Only a trained engineer, electrician or technician should perform this procedure.

Caution: For personnel safety, remove metallic watches and rings.
Always wear protective eye glasses, insulated gloves and insulated shoes.

Warning: Because battery acid is highly corrosive, never touch eyes after touching a battery.
Always wash hands thoroughly with water & soap after touching a battery.

IMPORTANT SAFETY INSTRUCTIONS: SAVE THESE INSTRUCTIONS – This manual contains important instructions for the Outdoor XUPS-600/1000-0780 that should be followed during installation and maintenance of the UPS and batteries.

Please inspect the unit for visible shipping damage (such as damaged case or broken parts)

Table of Contents	Page
Tools and Test Equipment Required.....	2
Cabinet Grounding Instructions.....	2
Battery Installation Instructions.....	2
Battery Wiring Instructions.....	4
Alarm and Status Connections.....	5
Power-Up Procedure.....	5
Contact Information	6

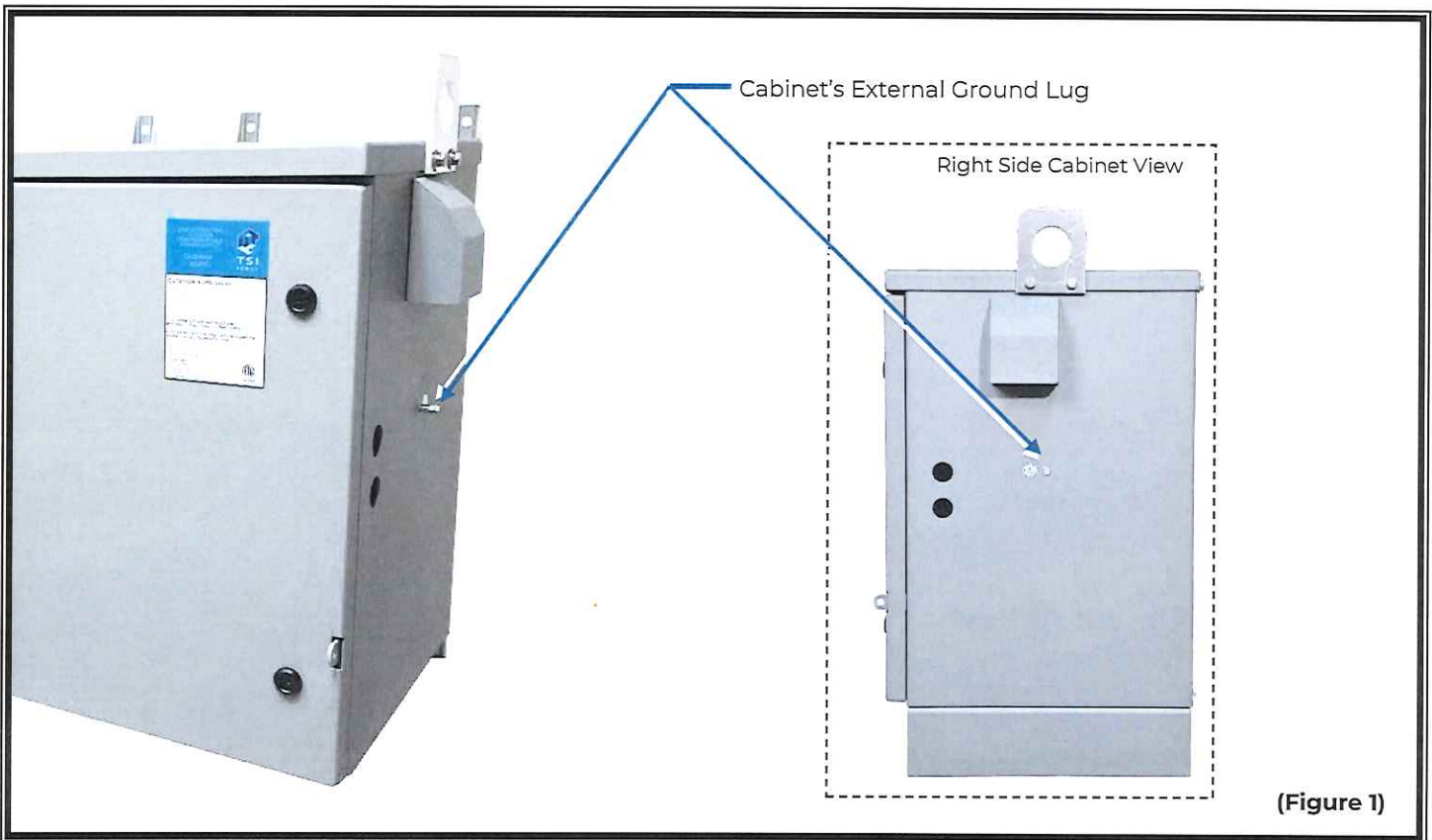
Tools and Test Equipment Required

- Medium and small size slotted screwdriver
- Tools for wiring batteries (see battery manufacturer's instruction)
- Miscellaneous hand tools
- DMM (digital voltmeter)

Cabinet Grounding Instructions

Tools: A medium size slotted screwdriver.

1. Locate the Cabinet's External Ground Lug (see Figure 1).
2. Fasten a # 6 AWG (16 mm²) ground wire to the Ground Lug. Torque approximately 25 in-lb (2.8 to 2.9 Nm).
3. Connect the other end of the # 6 AWG (16 mm²) ground wire per local or company standards.



Battery Installation Instructions

⚠ DANGER: The servicing or replacement of batteries should be restricted to qualified and experienced personnel.

- Use extreme care when handling the batteries.
- When lifting the batteries wear heavy gloves and safety glasses at all times.
- Do not wear rings, metal wrist bands, or bracelets.
- Do not allow metal objects to come in contact with the terminal side of the batteries.
- Use tools with insulated handles.
- Disconnect charging source prior to connecting or disconnecting battery terminals.
- Determine if battery is inadvertently grounded. If inadvertently grounded, remove source from ground. Contact with any part of a grounded battery can result in electric shock. The likelihood of such shock can be reduced if such grounds are removed during installation and maintenance.

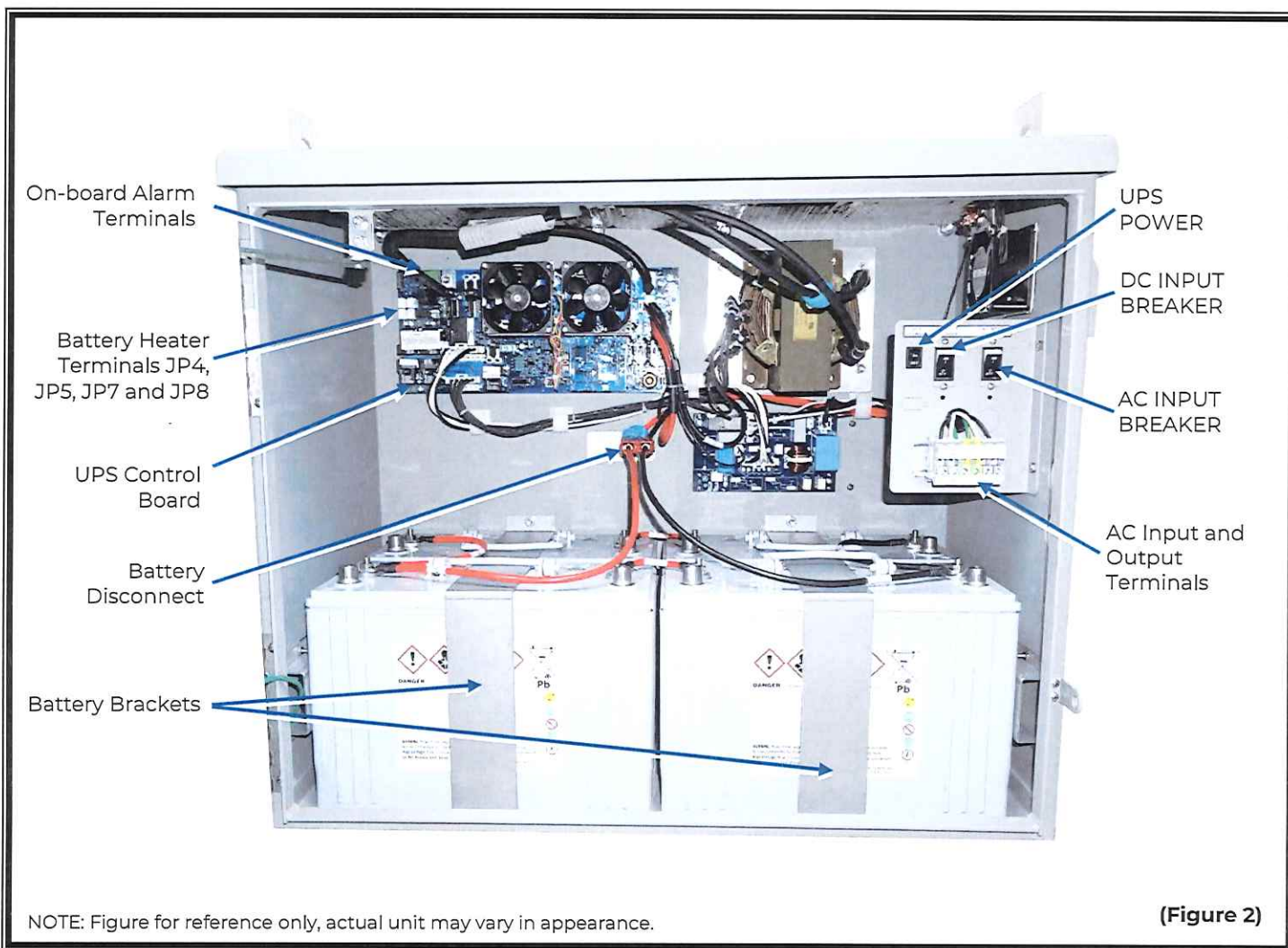
- ⚠ **CAUTION:** Do not dispose of batteries in a fire. The batteries may explode.
- ⚠ **CAUTION:** Do not open or mutilate batteries. Released electrolyte is harmful to the skin and eyes. It may be toxic.
- ⚠ **CAUTION:** A battery can present a risk of electric shock and high short-circuit current.

AVERTISSEMENT: Ne jetez pas les batteries dans un feu. Elles pourraient exploser.

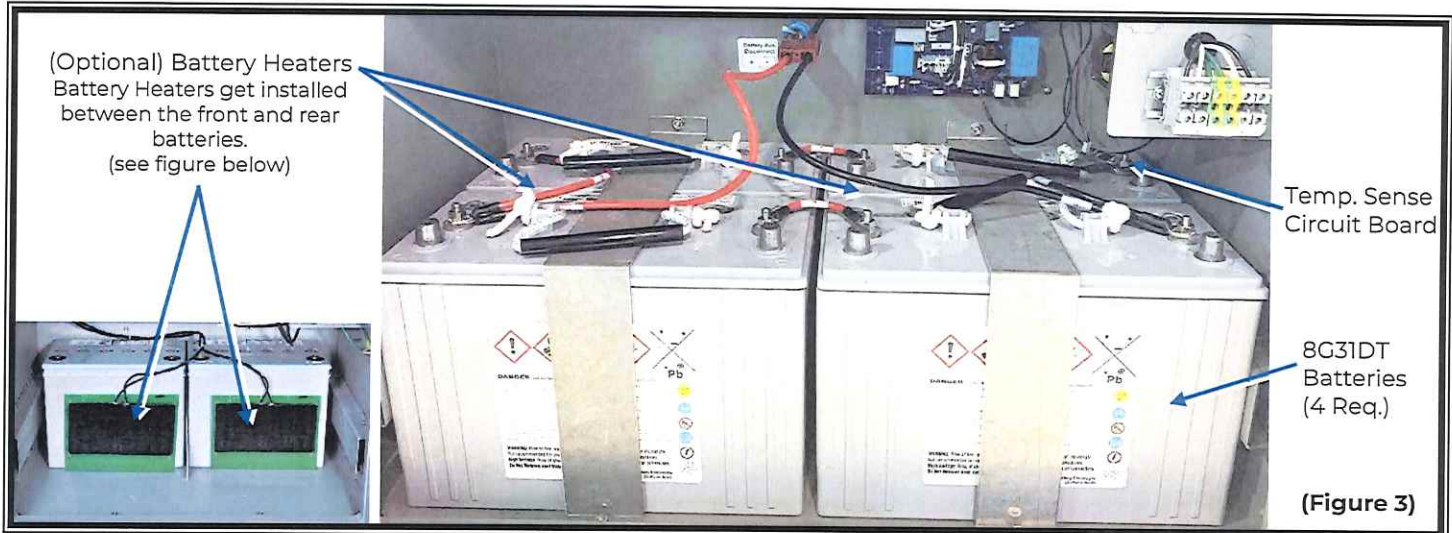
AVERTISSEMENT: N'ouvrez pas et n'altérez pas physiquement les batteries. La solution électrolyte qui sera libérée est dangereuse pour la peau et des yeux. Elle pourrait même être toxique.

ATTENTION: Une batterie peut présenter un risque de décharge électrique et un fort courant de court-circuit.

1. Make sure **UPS POWER** switch, **AC INPUT BREAKER** and **DC INPUT BREAKER** are switched off (see Figure 2).
2. Using a DMM, measure voltage of each and every battery. All battery voltages must be 12 VDC or higher. Voltage difference between batteries must be less than 0.3 VDC.
3. If your UPS came with batteries installed inside the cabinet proceed to step 8 (Battery Wiring Instructions) Page 4.
4. Remove Battery Brackets if provided (see Figure 2).
5. Install four MK Battery 8G31DT batteries as shown in Figure 3.



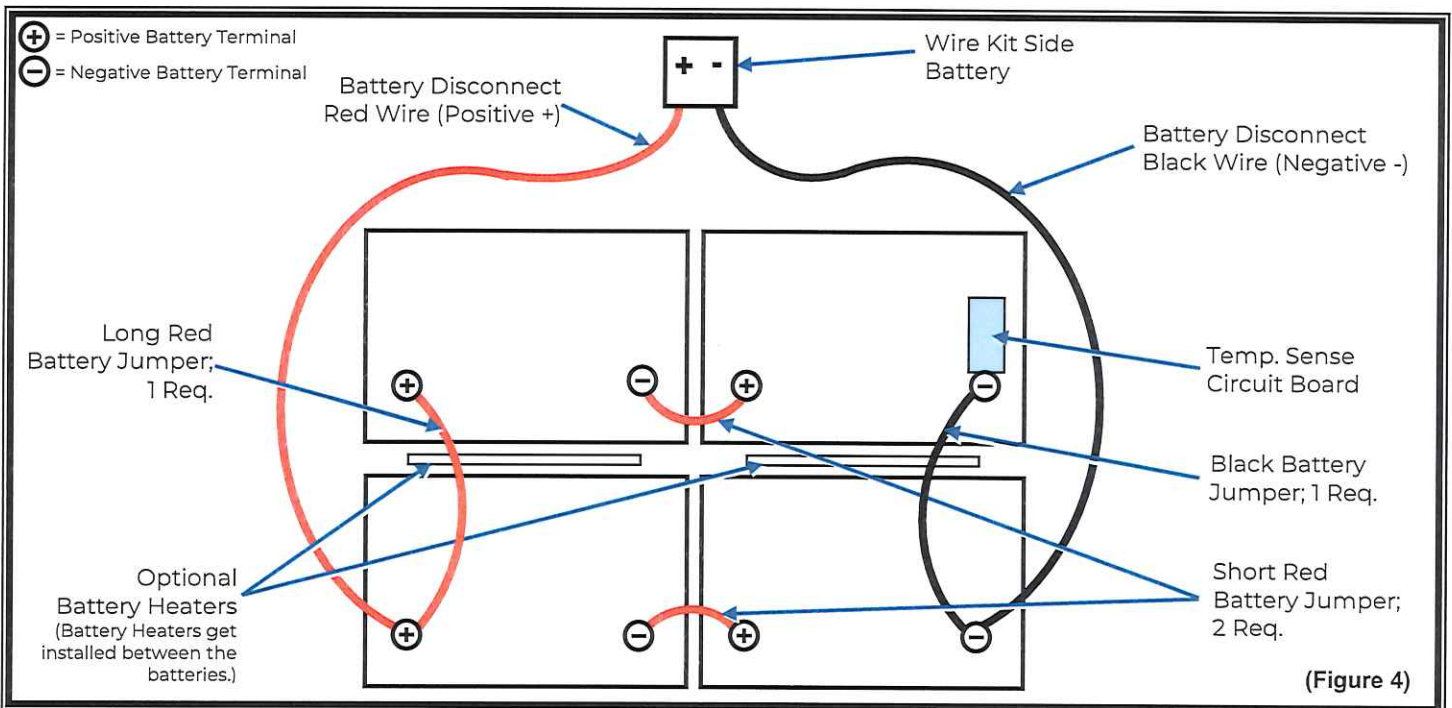
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6. (Optional) Install Battery Heaters (if provided) as shown in Figure 3. Battery Heaters plug into JP4, JP5, JP7 or JP8 of the UPS Control Board (see Figure 2).
7. Reinstall the Battery Brackets (see step 4).

Battery Wiring Instructions

8. Using hardware supplied with the batteries and wire kit sent along with UPS, install the battery wires as shown in Figure 4. **Note: Make sure that the Battery Temp. Sense Circuit Board is NOT installed between the Battery Post and the Jumper Wire terminal. Jumper wire is to be connected directly to the battery post.** If your UPS came with batteries installed inside the cabinet, remove the black protective material from the loose ends of the battery wires and attach the battery wires to the batteries as shown in Figure 4. Torque bolts in accordance with battery manufacturer's specifications.



9. Using a Digital Voltmeter, verify that the voltage across the Battery Bank is approximately 24 VDC (Note Figure 4) and that the polarity is correct, Red = Positive (+), Black = Negative (-).
10. Plug the Wire Kit Battery Disconnect into the Cabinet Side Battery Disconnect (see Figure 2).
11. Unit is now ready to be powered up using Power-Up Procedure (page 5).

Alarm and Status Connections

The remote alarms monitor the battery voltage level and input AC. (See On-board Alarm Terminals in Figure 2.)

LOW BATTERY = Pin 1 (NO), Pin 2 (COM), Pin 3 (NC)

- **When the battery bus voltage is in specification (Battery OK);**
 - There is an open circuit between pin 1 and pin 2.
 - There is a closed circuit between pin 3 and pin 2.
- **When the battery bus voltage is out of specification (Low Battery);**
 - There is a closed circuit between pin 1 and pin 2.
 - There is an open circuit between pin 3 and pin 2.

AC FAILURE = Pin 4 (NO), Pin 5 (COM), Pin 6 (NC)

- **When the AC Input is in specification (AC OK);**
 - There is an open circuit between pin 4 and pin 5.
 - There is a closed circuit between pin 6 and pin 5.
- **When the AC input is out of specification (AC Failure);**
 - There is a closed circuit between pin 4 and pin 5.
 - There is an open circuit between pin 6 and pin 5.

Power-Up Procedure

1. Make sure that the AC input supply voltage is de-energized and that the **AC POWER** switch, **AC INPUT BREAKER** and **DC INPUT BREAKER** are in the off position.
2. Perform a visual inspection of the unit for visible shipping damage (such as damaged case, broken parts or loose wire).
3. Make sure that AC input is wired correctly to LI, NI and G (AC input terminals). Torque terminations from min. 13.28 in.-lb to max. 15.93 in.-lb (min. 1.5 Nm to max. 1.8 Nm).

Between LI & NI, voltage must be 96 – 136 V.
Between LI & G, voltage must be 96 – 136 V.
Between NI & G, voltage must be less than 1 V.

LI = Line Input
NI = Neutral Input
G = Earth Ground

LO = Line Output
NO = Neutral Output

4. Turn on the **DC INPUT BREAKER**.
5. Turn on the **UPS POWER** switch & wait for 10 seconds until yellow INV LED is ON.
6. Measure the UPS output voltage between LO & NO of the output terminal block. It must be about 115 V (this is AC power produced by INVERTER & battery).
7. Energize the AC input supply voltage and turn on the **AC INPUT BREAKER**.
8. Relays must click on and AC OK green LED must turn ON within about 10 seconds.
9. Measure output voltage between LO & NO of the output terminal block. It must be 115 V $\pm$ 8% (regulated AC output voltage).
10. Turn OFF **AC INPUT BREAKER** to simulate a power outage. Measure the UPS output voltage between LO & NO of the output terminal block. It must be about 115 V.
11. Repeat steps (7) through (9) which simulates AC restoration after a power outage.
12. UPS is operating correctly. Turn off the **AC INPUT BREAKER**, then the **UPS POWER** switch, then the **DC INPUT BREAKER**. The UPS is now turned OFF.
13. Connect the load equipment to LO, NO and G output terminals. Torque terminations from min. 13.28 in.-lb to max. 15.93 in.-lb (min. 1.5 Nm to max. 1.8 Nm).
14. Turn the UPS back on using steps (4) through (9).
15. Load equipment is now operating with uninterrupted 115 VAC output from the UPS.
16. End.

Should you have any questions or encounter problems during the power up procedure, contact TSI Power's technical support staff immediately.

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Hours of operation are from 8AM to 5PM (Central Standard Time), Monday through Friday
TSI Power will try to reply to E-mail (or fax) requests for technical support within 24 hours.

REVISIONS		
REV.	DATE	REASON FOR REVISION
0	June, 2017	Initial release
1	June, 2018	Revised for (ETL)[SR1], new revision pictures.
2	November, 2019	Revised to [SR2]. (Added Temp. Sense Board.)
3	August, 2023	Added battery storage information on page 1. Added Alarm information to page 5. New TSI logo and font. Removed fax information.