272010 - UNINTERRUPTED POWER SUPPLY

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Part 1 - GENERAL

1.1 Scope of Work

A. This document describes the requirements for the contractors, products and installation relating to furnishing and installing new UPS Electronics.

B. Contractor will provide a bid including all labor, materials, tools and equipment required for the complete installation of work called for on the Construction Drawings and described in this Document. If items stated in this document are not included in the Construction Drawings, include costs for such items as noted in these specifications. It is the responsibility of the Contractor to provide all material necessary to provide a complete and operable system. If the contractor feels that the system described is incomplete, they must address this in writing to the Owner/Owner's Representative before providing a bid.

C. All questions concerning non specified product and services will be address to the Owner's Representative before Contactor provides a bid. Owner expects that by accepting the Contractor's bid proposal that the Contractor has provided a competent bid for a complete solution.

D. Product specifications, general design considerations, and installation guidelines are provided in this document. Quantities, Part Numbers and Material Descriptions will be provided as an attachment to this document.

1.2 Regulatory References

A. Contractor will comply with all Federal, State, Local Codes/Regulations and Industries Standards.

1. Federal:
   - NFPA 70 - National Electric Code(NEC)
   - FCC: Part 15, Part 68
2. State of California:
   - CCR Part 3 - California Electrical Code
   - Title 8, Electrical Safety, State of California
3. Industry Standards:
   - Telecommunications Industry Associations/Electronics Industry Association (TIA/EIA)
   - Underwriters Laboratories Inc. (UL)

B. If there is a conflict between applicable documents, then the more stringent requirement shall apply. All documents listed are believed to be the most current releases of the documents. The Contractor has the responsibility to determine and adhere to the most recent release when developing the proposal for installation.

C. This document does not replace any code, either partially or wholly. The contractor must be aware of and comply with all local codes that may impact this project.

1.3 Contractor Qualifications/Quality Assurance

A. Safety and Indemnity

1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 270000 "1.5 A. Safety & Indemnity".

B. Contractor Qualifications

1. Contractors will submit the necessary documentation to demonstrate their compliance with Section 270000 "1.5 B. Contractor Qualification".

C. Quality Assurance

1. Contractor shall comply with all requirements as specified in Section 270000 "1.5 C. Quality Assurance".

D. Warranty
1. Contractor shall comply with all requirements as specified in Section 270000 “1.8. Acceptance & Warranties”.

1.4 Submittal Documentation

A. The successful contractor shall provide their submittal package in accordance with the Section 01 20 00 1.06 Submittal Schedule, and Section 270000 “1.6 Submittal Documentation”.

1.5 Equivalent Products

A. All Products described and Part Numbers given in this Specification are those of N1C

B. Equivalent products must be physically similar to products in this spec to ensure they will fit in the enclosures. Contractor is responsible to submit sufficient documentation for any products they want to submit as equivalent. It is Owner’s decision as to whether or not the product is equal.

A. Contractors wishing to approve a system other than those specified in this document shall do so in accordance with Section 270000 “:1.7 Equivalent Products”.

1.6 Technology Clause

A. As technology advances, it is understood that improved or enhanced products may supersede existing products in both price and performance and yet be essentially similar. This request for bids seeks to address the rapid advances in technology by allowing functionally similar or identical products that may be introduced in the future, during the term of this bid, to be included under the general umbrella of compatible product lines and are thus specifically included in this bid document.

B. Discontinued or end of life products shall be replaced with an equal product to the original specified product at no additional costs to the owner.

Part 2 - Products

2.1 Uninterrupted Power Supply (UPS)

A. Uninterrupted Power Supplies - UPS

1. Contractor will also include an external UPS for the network electronics systems, the UPS system shall be made up of “On-Line” componets.
2. Site MDF / main server room – shall have (1) “On-Line” UPS. The items described below are a minimum requirement.

   <u>On-Line UPS</u>

   Online UPS Systems provide the highest level of power protection for mission-critical applications. True on-line operation completely isolates connected equipment from all power problems: blackouts, brownouts, surges, line noise, even harmonic distortion. Double-conversion operation continually converts incoming AC power into DC power, and then resynthesizes it back into normal AC power.

   - 3000VA / 2.7 kVA high power density, online double conversion
   - Full load runtime 13 minutes (100%)
   - Half load runtime 27 minutes (50%)
   - Output Frequency (sync to mains) 50/60±2% (battery mode)
   - AC suppression response time Instantaneous
   - Full time multi-pole noise filtering: 0.3% IEEE surge let-through: zero clamping response time : meets UL 1449
   - Interface Port(s) DB-9 RS-232, USB, Contact Closure, Emergency Power Off (EPO)
   - Internal Bypass (Automatic and Manual)

- Input: NEMA L5-30P (120V) / Output: 4 NEMA5-15/20R and 1 NEMA5-20
- Unit Dimensions (HWD/in) 3.4 x 17.2 x 22.64
- Rack height: 2U
- The approved On-Line UPS shall be N1C # **N1C.L3000 (3kVA, 120V)**
- Unit is to be ordered with the remote monitoring card to allow for remote monitoring and control of the UPS by connecting it directly to the network.
- **Unit is to be labeled with the date of installation and warranty expiration dates (batteries and the unit itself).**
- Contractor to configure unit with IP address (assigned by Owner) so it is ready for connection to the network.
- Contractor is to connect and power the unit on in the MDF.
- Contractor is responsible to verify there is a power outlet in the MDF for this unit **before** Contractor orders it, unless otherwise noted on the plans as being added as part of the project.
- Contractor to configure unit with IP address (assigned by Owner) so it is ready for connection to the network.
- Add 220v UPS for Int/HS Sites, NEMA6-30P

3. IDF/cabinets – All IDF/cabinet locations shall have (1) “On-Line” UPS unit per rack.
   <u>On-Line UPS</u>
   - UPS Systems provide the highest level of power protection for mission-critical applications. True on-line operation completely isolates connected equipment from all power problems: blackouts, brownouts, surges, line noise, even harmonic distortion. Double-conversion operation continually converts incoming AC power into DC power, and then resynthesizes it back into normal AC power.
   - 1000VA / 1.0kVA “On-Line”, extended-run 2U rack UPS
   - Maintains sine-wave 120V nominal output over an input range of 79 to 147V
   - Network communications supported via USB port, serial port, SNMP/Web card slot and Emergency Power Off (EPO) interface.
   - Current monitoring and switched PDU control via 3 two-outlet load banks
   - Input: NEMA 5-15P (120V 15A) / Output: 8 NEMA 5-15R (120V)
   - Unit Dimensions (HWD/in) 3.5 x 18.5 x 13.5
   - Rack Height: 2U
   - Net Weight: 45.2 lbs
   - The approved UPS shall be N1C part # **N1C.L1000 L-Series 1000VA** with 10-year product warranty.
   - Unit is to be ordered with the remote monitoring card to allow for remote monitoring and control of the UPS by connecting it directly to the network.
   - **Unit is it be labeled upon installation with the installation date and warranty expiration dates (batteries and the unit itself)**
   - Contractor to configure unit with IP address (assigned by Owner) so it is ready for connection to the network.
   - Contractor to verify the dimensions of the cabinets to verify units will fit in them and close properly.
   - Contractor is to connect and power on the unit.
   - Add installation mounting location, at least 1RU from bottom of Rack/Cab

4. When ever posible the contractor shall provide bundled equipment UPS, Battery and SNMP monitoring card.

B. Contractor's price shall include the cost to install, program and configure all of the above equipment.

2.2 Miscellaneous Equipment

A. Equipment Rack Surge Suppression Power Strip
1. 12 outlets / 15-ft. cord
2. 3840 joule rating
3. All metal housing with LEDs
4. Adjustable rackmount hardware
5. Isolated filter banks
6. PLUG/OUTLETS: Input: NEMA 5-15P/Output: 12 NEMA5-15R (2 front & 10 rear)
7. ELECTRICAL: 120V AC, 50/60Hz, 15A (Requires NEMA 5-15R wall receptacle)
8. FORMAT: Supports 19 in. rackmount (uses 1 rack space/1U)
9. $25,000 Ultimate Lifetime Insurance
The approved Surge Suppression Power Strip shall be a: Tripp Lite # **ISOBAR12ULTRA**

B. Contractor's price shall include the cost to install, program and configure all of the above equipment in sections 2.1 and 2.2.

C. One Surge Protector is to be provided per rack in any IDF/MDF.

Part 3 - Execution

3.1 General

A. All Work described in this specifying document and on the Project drawings shall be performed in accordance with the acknowledged Professional and Industry standards and practices. All installed equipment shall meet and/or exceed the specified manufactures regulations.

B. The Contractor shall maintain a competent supervisor and Manufacture Certified Technician assigned to this installation for the duration of the Project.

C. Furnish and install all materials, devices, components and equipment required for a complete and operational system.

D. It is the contractor's obligation to inform the Owner and/or the Owner's Representative of any and all conflict's, between the project documents and the onsite conditions.

E. It is the Contractor's responsibility and obligation to coordinate with all necessary trades to ensure the integrity and compliance of the Manufacture and Industry standards are meet during the duration of the installation.

3.2 Programming

A. Contractor shall provide all necessary programming to provide a complete operating Local Area Network.

B. Contractor shall meet with owner and their Representatives to outline all specific programming including, but limited to:
- Notification to Contractor of the Approved IP Range.
- All individual restrictions and permissions.
- Contractor will address all concerns of the Owner and their Representatives.

C. Each UPS will include programming to support:
- Account Login and Password for all management ports
- Assigning the IP Address provided by the Owner
- Coordinate with Owner for per site networking information assigned to each UPS

D. Contractor will turn all system passwords and copies of management software over to the District at the completion of this project.

E. Contractor will address all concerns of the Owner and their Representatives.

F. After installation and programming, contractor will test and verify all programming configurations.

3.3 Testing

G. After installation and programming, contractor will test and verify all programming configurations. All units are to be powered on and ready for use.
H. Contractor will perform a District witnessed “ping” test for all new network devices installed as a part of this project.

3.4 Warranty & Support

A. Contractor will provide one year of “Liaison” service to the owner for all factory warranty claims. This service will be provided at no charge to the owner.
B. Contractor will provide a minimum of a 1 year Workmanship Warranty that includes Parts and Labor.
C. All equipment provided under this specification shall be warranted to be free from defects in materials and workmanship for a period of 12 months from the notice of completion.
D. The Contractor shall maintain regular service facilities and provide a qualified technician familiar with the work specified for this project. Contractor will respond to all notice of malfunction from the Owner within 24 hours of receiving trouble call. As part of this warranty, the Contractor shall provide, at no expense to the Owner, all material, devices, equipment, and personnel necessary and resolve malfunction and/or to provide alternate facilities, services, or equipment for the duration of repairs to any defective work as described in this section.
E. All repairs and service under warranty shall be at the jobsite unless in violation of manufacturer's warranty, wherein contractor shall provide substitute equipment for the duration of repairs. Transportation of substitute or test equipment and personnel to and from the jobsite shall be at no expense to the owner.
F. All repair and service work under warranty work, except emergency repairs can be performed during regular working hours of regular working days. Emergency repairs shall be made when a system or component malfunctions during use, and shall be performed on an immediate basis. All work shall be performed by personnel in the employ of contractor, having specific experience in the work of this specification and shall not be subcontracted or assigned to another company for service, unless Owner has approved such assignment in writing, in which event contractor shall nevertheless be responsible to the Owner for such work.

3.5 System Documentation

A. Upon completion of the installation, the electronics contractor shall provide four (4) full documentation sets to the Owner’s Representative/Engineer for approval, one (1) to be a hardcopy and three (3) to be electronic copies. Documentation shall include the items detailed in the sub-sections below.
B. Documentation shall be submitted within ten (10) working days of the completion of each testing phase. This is includes system single line drawings and maintenance and operation manuals, and all warranty information.
C. The Device Information documents are to be in an Excel spreadsheet format. Each device installed will have individual information entered in the spreadsheet including:
    - Manufacturer and Model of device
    - Physical Location (may include a digital picture), and mount type
    - Serial Number of device
    - IP Address(es) assigned to device
    - MAC address of the device
    - Firmware revision installed
    - Address and contact information of responsible staff

D. Each Device Configuration document shall be provided in both an electronic and text document format. One (1) to be a hardcopy print and three (3) to be electronic copies. The Device Configuration documents are to be in a text file format. Each device installed will have the following configuration information included (if applicable):
    - Manufacturer and Model of device
    - Current installed (running) configuration
    - Firmware revision installed
    - Installed modules, blades, or accessories

E. Equipment documentation shall include the items listed below:
    - Maintenance and Operations Manuals
    - All System Passwords and Management/Programming Software

F. The **As-Built** drawings are to include System Equipment Layout, and System Single Line Drawings for the complete Network Electronics System. The Owner will provide floor plans in paper and electronic (DWG, AutoCAD current version) formats on which as-built construction information can be added. These documents will be modified accordingly by the telecommunications contractor to denote as-built information as defined above and returned to the Owner.

G. As a part of the Close-Out Documentation the Contractor shall provide copies of all system warranty and certification documentation, a copy of the One year Workmanship Warranty, a list of telephone extensions with the name assigned to each and a copy of the bell schedule registry.

H. The Contractors shall annotate the base drawings and return a hard copy (same plot size as originals) and electronic form.

END OF SECTION