

GENERAL CONDITIONS

DEFAULT: In case of default by the Contractor, the University of South Carolina reserves the right to purchase any or all items in default in the open market, charging the Contractor with any additional costs. The defaulting Contractor shall not be considered a responsible bidder until the assessed charge has been satisfied.

All amendments to and interpretation of this RFQ shall be in writing. The procurement officer shall not be legally bound by any amendment or interpretation that is not in writing.

Any contract entered into by the University of South Carolina or its agencies resulting from this quotation shall be subject to cancellation at the end of any fiscal or appropriated year unless otherwise provided by law.

Payment will be made in accordance with Section 11-35-45 of the South Carolina Consolidated procurement Code and Disbursement Regulations. Delay in receiving invoices, as well as errors and omissions on the invoices, will be considered just cause for withholding payment without losing discount privileges. The University reserves the right to withhold payment or make such deductions as may be necessary to protect the University from loss or damage because of defective work, claims, damages or to pay for repair of correction of materials furnished hereunder.

Quoted prices must remain firm for a period of thirty days beyond the Request for Quotation deadline. Unit prices will govern over extended prices unless otherwise stated.

The University of South Carolina shall consider payment discounts in the award of this contract when such discounts are for thirty days or more after final inspection and acceptance of contract requirements. Payment discounts for less than thirty days are encouraged but shall not be a factor in award determination. Please state your discount terms using the above referenced information as the University's position on the matter.

All materials and products offered must be guaranteed to meet and comply with the requirements all the specifications, terms and conditions indicated or referred to.

The award will be made in accordance with Section 11-35-1520 of the South Carolina Consolidated Procurement Code.

The University reserves the right to reject any and all quotations and to cancel the solicitation; waive any and all technicalities; the University reserves the right to reject any quotation in which the delivery time indicated to be of substantial length to cause disruption and/or delay in operation for which the item(s) is/are intended; ambiguous quotations which are uncertain as to terms, delivery, quantity or compliance with specifications may be rejected.

The contractor assumes sole responsibility and shall hold harmless the University of South Carolina, its directors, officers, employees and agents from and against any and all claims, actions or liabilities of any nature which may be asserted against them by third parties in connection with the performance of the bidder, its directors, officers, employees and agents under this agreement. The University of South Carolina agrees to accept responsibility for claims, actions or liabilities resulting from negligent acts of its employees occurring within the scope of their employment which may be asserted against them by third parties in connection with the performance of the University of South Carolina, its members, directors, officers, employees and agents under this agreement.

Contractor agrees not to refer to award of this contract in commercial advertising in such a manner to state or imply that the products or service provided are endorsed or preferred by the user.

Upon award of a contract under this quotation, the person, partnership, association or corporation to whom the award is made must comply with the laws of South Carolina that require such person or entity to be authorized and/or licensed to do business in this State. Notwithstanding the fact that applicable statutes may be exempt or exclude the successful quoter from requirements that it be authorized and/or licensed to do business in this State, by submission of this signed quote, the quoter agrees to subject itself to the jurisdiction and process of the courts of the State of South Carolina as to all matters and disputes arising or to arise under the contract and the performance thereof, including any questions as to the liability for taxes, licenses or fees levied by the State.

Termination: Subject to the provisions below, the contractor may be terminated for any reason by the University providing a thirty-day advance notice in writing is given to the contractor.

Termination for Convenience: In the event that this contract is terminated or cancelled upon request and for the convenience of the University may negotiate reasonable termination costs, if applicable.

Termination for Cause: Termination by the University for cause, default, or negligence on the part of the Contractor shall be excluded from the foregoing provisions; termination costs, if any, shall not apply. The thirty day advance notice requirement is waived and the default provision in this bid shall apply.

HIPAA Law: The Contractor agrees that to the extent that some or all of the activities within the scope of this Contract are subject to the Health Insurance Portability Accountability Act of 1996, P.L. 104-91, as amended ("HIPAA"), or its implementing regulations, it will comply with the HIPAA requirements and will execute such agreements and practices as the University of South Carolina may require to ensure compliance. Additional information may be viewed at: <http://www.sc.edu/hipaa/>

SPECIAL CONDITIONS

LICENSES, PERMITS, INSURANCE: All costs for required licenses, permits and insurance shall be borne by the Bidder.

The University of South Carolina requires all contractual activities to be performed in a manner that is consistent with all applicable federal, state and local laws, regulations, rules, rulings and ordinances. These include, but are not limited to: the Occupational Safety and Health Act, The Environmental Protection Act, The South Carolina Hazardous Waste Management Act.

IMPORTANT – Please Note – Vendors, we MUST have your Federal ID # (company) or Social Security # (individual) before processing any invoices for payment. Failure to provide this information will result in delay of payments until this information is received. Please include this information with your quote.

ADDITIONAL CONDITIONS

PREFERENCES - A NOTICE TO VENDORS (SEP. 2009): On June 16, 2009, the South Carolina General Assembly rewrote the law governing preferences available to in-state vendors, vendors using in-state subcontractors, and vendors selling in-state or US end products. This law appears in Section 11-35-1524 of the South Carolina Code of Laws. A summary of the new preferences is available at www.procurement.sc.gov/preferences. **ALL THE PREFERENCES MUST BE CLAIMED AND ARE APPLIED BY LINE ITEM, REGARDLESS OF WHETHER AWARD IS MADE BY ITEM OR LOT. VENDORS ARE CAUTIONED TO CAREFULLY REVIEW THE STATUTE BEFORE CLAIMING ANY PREFERENCES. THE REQUIREMENTS TO QUALIFY HAVE CHANGED. IF YOU REQUEST A PREFERENCE, YOU ARE CERTIFYING THAT YOUR OFFER QUALIFIES FOR THE PREFERENCE YOU'VE CLAIMED. IMPROPERLY REQUESTING A PREFERENCE CAN HAVE SERIOUS CONSEQUENCES.** [11-35-1524(E)(4)&(6)]

PREFERENCES - SC/US END-PRODUCT (SEP 2009): Section 11-35-1524 provides a preference to vendors offering South Carolina end-products or US end-products, if those products are made, manufactured, or grown in SC or the US, respectively. An end-product is the tangible project identified for acquisition in this solicitation, including all component parts in final form and ready for the use intended. The terms "made," "manufactured," and "grown" are defined by Section 11-35-1524(A). By signing your offer and checking the appropriate space(s) provided and identified on the bid schedule, you certify that the end-product(s) is either made, manufactured or grown in South Carolina, or other states of the United States, as applicable. Preference will be applied as required by law. Post award substitutions are prohibited. See "Substitutions Prohibited - End Product Preferences (Sep 2009)" provision.

PREFERENCES - RESIDENT CONTRACTOR PREFERENCE (SEP 2009): To qualify for the RCP, you must maintain an office in this state. An office is a nonmobile place for the regular transaction of business or performance of a particular service which has been operated as such by the bidder for at least one year before the bid opening and during that year the place has been staffed for at least fifty weeks by at least two employees for at least thirty five hours a week each. In addition, you must, at the time you submit your bid, directly employ, or have a documented commitment with, individuals domiciled in South Carolina that will perform services expressly required by the solicitation and your total direct labor cost for those individuals to provide those services must exceed fifty percent of your total bid price. [11-35-1524(C)(1)(iii)] Upon request by the procurement officer, you must identify the persons domiciled in South Carolina that will perform the services involved in the procurement upon which you rely in qualifying for the preference, the services those individuals are to perform, and documentation of the your labor cost for each person identified. If requested, your failure to provide this information promptly will be grounds to deny the preference (and, potentially, for other enforcement action).

PREFERENCES - RESIDENT SUBCONTRACTOR PREFERENCE (SEP 2009): To qualify for this preference, You must meet the following requirements. (1) You must -- at the time you submit your bid -- have a documented commitment from a single proposed first tier subcontractor to perform some portion of the services expressly required by the solicitation. (2) The subcontractor -- at the time you submit your bid -- must directly employ, or have a documented commitment with, individuals domiciled in South Carolina that will perform services expressly required by the solicitation and the total direct labor cost to the subcontractor for those individuals to provide those services exceeds, as applicable, either twenty percent for a 2% preference or forty percent of bidder's total bid price for a 4% preference. (3) You must identify the subcontractor that will perform the work, the work the subcontractor is to perform, and your factual basis for concluding that the subcontractor's work constitutes the required percentage of the work to be performed in the procurement. [11-35-1524(D)] You can stack this preference, i.e., earn

another 2% or 4% preference for each additional qualifying subcontractor, but the preference is capped. [11-35-1524(D)(4), (E)(7)] Upon request by the procurement officer, you must identify the persons domiciled in South Carolina that are to perform the services involved in the procurement upon which you rely in qualifying for the preference, the services those individuals are to perform, the employer of those persons, your relationship with the employer, and documentation of the subcontractor's labor cost for each person identified. If requested, your failure to provide this information promptly will be grounds to deny the preference (and, potentially, for other enforcement action). YOU WILL NOT RECEIVE THE PREFERENCE UNLESS YOU SPECIFY WHETHER YOU ARE CLAIMING THE 2% OR 4% PREFERENCE AND YOU PROVIDE THE INFORMATION REQUIRED BY ITEM (3) ABOVE.

PREFERENCES - RESIDENT VENDOR PREFERENCE (SEP 2009): To qualify for the RVP, you must maintain an office in this state. An office is a nonmobile place for the regular transaction of business or performance of a particular service which has been operated as such by the bidder for at least one year before the bid opening and during that year the place has been staffed for at least fifty weeks by at least two employees for at least thirty five hours a week each. In addition, you must either: (1) maintain at a location in South Carolina at the time of the bid an inventory of expendable items which are representative of the general type of commodities for which the award will be made and which have a minimum total value, based on the bid price, equal to the lesser of fifty thousand dollars [\$50,000] or the annual amount of the contract; or (2) be a manufacturer headquartered and having an annual payroll of at least one million dollars in South Carolina and the end product being sold is either made or processed from raw materials into a finished end product by that manufacturer or its affiliate (as defined in Section 1563 of the Internal Revenue Code).

SUBSTITUTIONS PROHIBITED - END PRODUCT PREFERENCES (SEP 2009): If you receive the award as a result of the South Carolina end product or United States end product preference, you may not substitute a nonqualifying end product for a qualified end product. If you violate this provision, the State may terminate your contract for cause and you may be debarred. In addition, you shall pay to the State an amount equal to twice the difference between the price paid by the State and your evaluated price for the item for which you delivered a substitute. [11-35-1534(B)(4)]

SUBCONTRACTOR SUBSTITUTION PROHIBITED - RESIDENT SUBCONTRACTOR PREFERENCE (SEP 2009): If you receive an award as a result of the subcontractor preference, you may not substitute any business for the subcontractor upon which you relied to qualify for the preference, unless first approved in writing by the procurement officer. If you violate this provision, the State may terminate your contract for cause and you may be debarred. In addition, the procurement officer may require you to pay the State an amount equal to twice the difference between the price paid by the State and the price offered by the next lowest bidder, unless the substituted subcontractor qualifies for the preference. [11-35-1524(D)(5)(c)]

MINORITY PARTICIPATION (JAN 2006)

Is the bidder a South Carolina Certified Minority Business? Yes NO

Is the bidder a Minority Business certified by another governmental entity? Yes NO

If so, please list the certifying governmental entity: _____

Will any of the work under this contract be performed by a SC certified Minority Business as a subcontractor? Yes NO

If so, what percentage of the total value of the contract will be performed by a SC certified Minority Business as a subcontractor? Yes NO

Will any of the work under this contract be performed by a minority business certified by another governmental entity as a subcontractor? Yes NO

If so, what percentage of the total value of the contract will be performed by a minority business certified by another governmental entity as a subcontractor? Yes NO

If a certified Minority Business is participating in this contract, please indicate all categories for which the Business is certified:

- Traditional minority
- Traditional minority, but female
- Women (Caucasian females)
- Hispanic minorities
- DOT referral (Traditional minority)
- DOT referral (Caucasian female)
- Temporary certification
- SBA 8 (a) certification referral
- Other minorities (Native American, Asian, etc.)

(If more than one minority contractor will be utilized in the performance of this contract, please provide the information above for each minority business.)

WARRANTY – STANDARD (JAN 2006): Contractor must provide the manufacturer's standard written warranty upon delivery of product. Contractor warrants that manufacturer will honor the standard written warranty provided.

CAT CONTACTOR BASED AUTOMATIC TRANSFER SWITCHES – LOW VOLTAGE
SECTION 16496G

SECTION 16496G
CONTACTOR BASED AUTOMATIC TRANSFER SWITCHES – LOW VOLTAGE

PART 1 GENERAL

1.01 SCOPE

- A. Furnish ~~the~~ the low voltage automatic transfer switches having the ratings, features/accessories and enclosures as specified herein and as shown on the contract drawings. *1200 AMP Three phase 208 volts NEMA 1 ENCLOSURE*

1.02 RELATED SECTIONS

1.03 REFERENCES

- A. The automatic transfer switches and all components shall be designed, manufactured and tested in accordance with the latest applicable standards of UL and NEMA as follows:
1. UL 1008 – Transfer Switches
 2. UL 991 - Tests for Safety-Related Controls Employing Solid-State Devices
 3. NFPA 70 – National Electrical Code
 4. NFPA 99 – Essential Electrical Systems of Health Care Facilities
 5. NFPA 110 – Emergency and Standby Power Systems
 6. NEMA ICS 10 – AC Transfer Switch Equipment
 7. IEEE 446 – Recommended Practice for Emergency and Standby Power Systems

1.04 SUBMITTALS – FOR REVIEW/APPROVAL

- A. The following information shall be submitted to the Engineer:
1. Front view and plan view of the assembly
 2. Schematic diagram
 3. Conduit space locations within the assembly.
 4. Assembly ratings including:
 - a. Withstand and Closing rating
 - b. Voltage
 - c. Continuous current rating
 - d. Short-Time rating if applicable
 - e. Short-circuit rating if ordered with integral protection
 5. Cable terminal sizes
 6. Product Data Sheets.
- B. Where applicable, the following additional information shall be submitted to the Engineer:
1. Busway connection
 2. Connection details between close-coupled assemblies

3. Composite front view and plan view of close-coupled assemblies

1.05 SUBMITTALS – FOR CONSTRUCTION

- A. The following information shall be submitted for record purposes:
1. Final as-built drawings and information for items listed in section 1.04
 2. Wiring diagrams
 3. Certified production test reports
 4. Installation information
 5. Seismic certification as specified
- B. The final (as-built) drawings shall include the same drawings as the construction drawings and shall incorporate all changes made during the manufacturing process.

1.06 QUALIFICATIONS

- A. The manufacturer of the assembly shall be the manufacturer of the major components within the assembly.
- B. For the equipment specified herein, the manufacturer shall be ISO 9001 or 9002 certified.
- C. The manufacturer of this equipment shall have produced similar electrical equipment for a minimum period of five (5) years. When requested by the Engineer, an acceptable list of installations with similar equipment shall be provided demonstrating compliance with this requirement.
- D. ³Provide Seismic qualified equipment as follows:
1. The equipment and major components shall be suitable for and certified ***by actual seismic testing*** to meet all applicable seismic requirements of the 2006 International Building Code (IBC). Equipment certification acceptance criteria shall be based upon the ability for the equipment to be returned to service immediately after a seismic event within the above requirements without the need for repairs.
 2. The following minimum mounting and installation guidelines shall be met, unless specifically modified by the above referenced standards.
 - a. The Contractor shall provide equipment anchorage details, coordinated with the equipment mounting provision, prepared and stamped by a licensed civil engineer in the state. Mounting recommendations shall be provided by the manufacturer based upon the above criteria to verify the seismic design of the equipment.
 - b. The equipment manufacturer shall certify that the equipment can withstand, that is, function following the seismic event, including both vertical and lateral required response spectra as specified in above codes.
 - c. The equipment manufacturer shall document the requirements necessary for proper seismic mounting of the equipment. Seismic qualification shall be considered achieved when the capability of the equipment, meets or exceeds the specified response spectra.

³ Note to Spec. Writer - Optional

CAT CONTACTOR BASED AUTOMATIC TRANSFER SWITCHES – LOW VOLTAGE
SECTION 16496G

TABLE 16496G-1			
TRANSFER SWITCH AMPERES	WITHSTAND RATING (SPECIFIC BREAKER) @ 480V	WITHSTAND RATING (SPECIFIC BREAKER) @ 600V	WITHSTAND RATING (SPECIFIC BREAKER) W/ BYPASS ISOLATION
40	30	30	50
80	30	30	50
100	30	30	50
200	30	30	50
225	50	42	50
260	50	42	50
400	50	42	50
600	65	65	65
800	65	65	65
1000	65	65	65
1200	65	65	65
1600A	65	65	CONSULT FACTORY

2.02 RATINGS

- A. The transfer switch shall have a specific breaker withstand and closing rating of 1200 KA at 208 volts, Three Phase.
- B. The transfer switch shall be 100% equipment rated for continuous duty.
- C. The voltage rating of the transfer switch shall be no less than the system voltage rating. The continuous current rating of the transfer switch shall be no less than the maximum continuous current requirements of the system.

· Note to Spec. Writer – Insert data in blanks

- D. The transfer switch shall be 100% equipment rated for continuous duty as shown on the drawings and shall conform to the applicable requirements of UL 1008 for emergency system total load.
- E. The automatic transfer switches shall be fully rated to protect all types of loads, inductive and resistive, from loss of continuity of power, without derating, either open or enclosed.

2.03 CONSTRUCTION

A. Power Switching Device – 40-1600 Amp Contactor Type

~~Switches rated 40-100A shall be wall mount construction.~~

2. Switches rated 600-1200A shall be floor standing and wall secured construction.

~~Switches rated 1000A shall be free standing construction.~~

4. Switching devices for 40 Amp through 1600 Amp transfer switches shall be Contactor type mechanisms. All Contactors shall be UL listed for application in their intended enclosures for 100% of their continuous ampere rating.

5. ~~[Switches shall have an in-phase monitor transition, which will permit a transfer or re-transfer between the normal and emergency sources that have a phase angle difference of +/- 8 degrees or less.]~~

~~-OR-~~

~~[Switches shall operate with a time delay in the neutral position, adjustable from 0 to 120 seconds.]~~

-OR-

[Switches shall have an in-phase monitor transition, which will permit a transfer or re-transfer between the normal and emergency sources that have a phase angle difference of +/- 8 degrees or less. In the event that the switch cannot transfer in-phase, the switch will default to a time delay in neutral transfer adjustable 0-120 seconds.]

- 6. The automatic transfer switch shall be of double throw construction operated by a reliable electrical mechanism momentarily energized. There shall be a direct mechanical coupling to facilitate transfer in 6 cycles or less.
- 7. Contactors or components thereof not specifically designed, as an automatic transfer switch will not be acceptable.
- B. The switching panel shall consist of a separate control or transformer panel. Control power for all transfer operations shall be derived from the line side of the source to which the load is being transferred.
- C. Each transfer switch shall be positively interlocked both mechanically and electrically to prevent simultaneous closing of both sources under either automatic or manual operation. Main contacts shall be mechanically held in position in both normal and emergency positions.
- D. Transfer switches will be supplied with a manual-operating handle. Manual operation shall only be performed with the switch de-energized.
- E. On transfer switches requiring a fourth pole for switching the neutral, the neutral shall be identical to the other power poles. Switched neutral poles which are add-on or overlap, or that are not capable of breaking full rated load current are not acceptable.

- I. The bypass isolation transfer switch shall be electrically interlocked to prevent cross connection of sources when operated either automatically, or manually
 - J. Customer connections shall be wired out to a single terminal block mounted inside the enclosure.
 - K. The front panel of the bypass isolation transfer switch shall contain instructions on the operation of the bypass and isolation functions. Indicating lights shall be provided for Source Available and Source Connected for the operation in Auto or Bypass.
 - L. The ATS shall be capable of being racked-out with the enclosure door closed using a single motion. An indicating light shall be mounted on the door to indicate when the switch is isolated from the power and when the switch is in the racked-out position. A key interlock shall be provided to prevent the transfer switch from being racked out while the transfer switch is still powering the load.
 - M. The bypass isolation transfer switch shall have three positions: “Connected”, “Isolated”, and “Racked-Out”. In the “Connected” position, the ATS is racked-in and is being actively monitored by the ATC controller indicated solid green light. In the “Isolated” position, the finger clusters on the ATS have been removed from the bus stabs and is indicated by a solid red light and in the “Racked-Out” position the ATS has been completely racked-out and disconnected from control power and is indicated by a flashing red light.
 - N. The Bypass Isolation transfer switch shall be interlocked to prevent the racking-in of either the ATS or the Bypass switch in a closed state.
 - O. The bypass isolation transfer switch shall have a 2-position Test/Manual selector switch. The “Test” position shall only be active while the ATS is in the Isolated or Racked-out position. This feature is used to test the electrical operation of the ATS. The “Manual” position shall be operable only when operating on the Bypass switch, while the ATS is in the Isolated or Racked-Out position and the automatic controller is deactivated. This feature is used to manually transfer the Bypass.
 - P. A detached handle shall be provided for manual operation of the switches in the Racked-Out position.
 - Q. The ATS and the Bypass switch compartments are factory interconnected with silver plated copper bus.
 - R. Bypass Isolation transfer switch shall be painted ANSI 61 grey with white interior.
- 2.05 MICROPROCESSOR LOGIC
- A. The transfer switch shall be equal to a Cat ATC type microprocessor-based controller. The controller shall be hardened against potential problems from transients and surges. Operation of the transfer switch and monitoring of both sources shall be managed by the controller.
- 2.06 REFERENCES
- A. The automatic transfer switch controllers shall meet or exceed the following standards in addition to the basic switch standards:
 - 1. IEC 61000-4-2 - EMC Testing and Measurement Techniques - Electrostatic Discharge Immunity Test

CAT CONTACTOR BASED AUTOMATIC TRANSFER SWITCHES – LOW VOLTAGE

SECTION 16496G

2. IEC 61000-4-3 - EMC Testing and Measurement Techniques - Radio-frequency, Electromagnetic Field Immunity Test
3. IEC 61000-4-4 - EMC Testing and Measurement Techniques - Electrical Fast Transient/Burst Immunity Test
4. IEC 61000-4-5 - EMC Testing and Measurement Techniques - Surge Immunity Test
5. IEC 61000-4-6 - EMC Testing and Measurement Techniques - Immunity to Conducted Disturbances, Induced by Radio-frequency Fields
6. IEC 61000-4-11 - EMC Testing and Measurement Techniques - Voltage Dips, Short Interrupts and Voltage Variations Immunity Tests
7. CISPR11, Class B - Industrial, Scientific and Medical Radio-frequency Equipment - Electromagnetic Disturbance Characteristics - Limits and Methods of Measurement
8. FCC Part 15, Subpart B, Class B

Note to Spec. Writer *(SELECT ONE):

Contactor Based Transfer Switches have models of Microprocessor-Based Controller units available:

~~ATC-100, Select Open transition Contactor based transfer switches, 40-100A~~

~~{This controller is equipped with the basic features and is suited for light commercial, agricultural or residential type applications. There is an easy-to-read display with fixed or jumper selectable settings.}~~

~~ATC-600, Select Open transition Contactor based transfer switches 40-1000A~~

~~{This Controller has the same capabilities allowing for most of most standard commercial and industrial applications. This system status display and full feature set is necessary for high capacity applications from the LCB and monitoring panel. (The same features as the ATC-100.)}~~

ATC-800, Open Closed transition Contactor based transfer switches 1200 AMP

{This controller is full featured and available for use in either Open or Closed transition applications. This controller also has a second set of engine start contacts for Generator to Generator applications. . It features a communications interface for connection to Power monitoring or building automation control systems through a gateway}

2.07 MICROPROCESSOR-BASED CONTROLLER (ATC-800 OPEN [REDACTED] TRANSITION)

- A. The microprocessor-based logic controller shall be door mounted and shall provide the operator with an overview of the transfer switch status, parameters, and diagnostic data. The controller shall have a voltage range of 0-700 volts (50/60 Hz) and an accuracy of +/- 1% of nominal input voltage. The controller shall have a frequency range of 40-80 Hz and an accuracy of +/- 0.1 Hz. Control power input range shall be from 65 Vac – 160 Vac RMS 50/60 Hz. The controller's programmable set points shall be modifiable by placing the toggle switch located on the back panel of the controller in Program mode. The controller shall be listed under UL Standard 1008
- B. Controller shall be Cat type ATC-800 *[Open] [REDACTED]] transition or approved equal.
1. The microprocessor-based controller shall include an LCD display, and shall be capable of displaying the following:
 - a. Connected Source and Load voltages on all phases
 - b. Connected Source and Load frequency
 - c. Condition status – Under-voltage, under-frequency, etc...
 - d. Real time clock for Time / Date stamp
 - e. Historical data
 - f. Programming and set point information
 - g. Timer countdown for each timer while functioning
 - h. Help function for detailed description of displayed messages
 2. The microprocessor-based controller shall include individual LED's for indicating the following:
 - a. Mimic Bus Diagram showing Availability status of NORMAL source {Feature 12G}
 - b. Mimic Bus Diagram showing Availability status of EMERGENCY source {Feature 12H}
 - c. Mimic Bus Diagram showing Connection status of NORMAL source {Feature 12C}
 - d. Mimic Bus Diagram showing Connection status of EMERGENCY source {Feature 12D}
 - e. Mimic Bus Diagram showing Preferred status of NORMAL source
 - f. Mimic Bus Diagram showing Preferred status of EMERGENCY source
 - g. Mimic Bus Diagram showing Energized status of LOAD
 - h. Automatic mode
 - i. Test mode
 - j. Program mode
 - k. Display Navigational indicators for Status, Source 1, Source 2, History, Time/Date and Set Points
 - l. The microprocessor-based controller shall contain the following features:
 1. Programming protection

* Note to Spec. Writer – Select one

2. Set points shall be stored in Non-Volatile memory, and use of an external battery source to maintain operation during “dead” periods shall not be required.
3. Shall be capable of communicating to monitor all set points and operational characteristics over the following network protocol:
 - a. RS232
 - b. RJ45 (10 Base T)
 - c. Ethernet
 - d. USB
 - e. Modbus via RS485
 - f. Modbus RTU
 - g. Selector Switch for “PROGRAM” or “RUN”
4. Historical Data Storage to include:
 - a. Engine Run Time
 - b. NORMAL source Available time
 - c. EMERGENCY source Available time
 - d. NORMAL source Connected time
 - e. EMERGENCY source Connected time
 - f. LOAD Energized Time
 - g. Number of Transfers
 - h. Date, Time and Reason for Last Sixteen (16) transfers
5. The microprocessor-based controller shall contain the following voltage and frequency features:
 - a. The voltage of each phase of the NORMAL source and the EMERGENCY source shall be monitored, with under-voltage dropout adjustable from 78% to 97% of nominal and pickup adjustable from dropout setting +2% to 99% of nominal. {Feature 5J & 26J}
 - b. The voltage of each phase of the NORMAL source and the EMERGENCY source shall be monitored, with over-voltage dropout adjustable from 105% to 110% of nominal and pickup adjustable from dropout setting -2% to 103% of nominal. {Feature 5K & 26K}
 - c. The frequency of the NORMAL source and the EMERGENCY source shall be monitored with under-frequency dropout adjustable from 90% to 97% of nominal and pickup adjustable from dropout setting +1 Hz to 99% of nominal. {Feature 5J & 26J}
 - d. The frequency of the NORMAL source and the EMERGENCY source shall be monitored, with over-frequency dropout adjustable from 103% to 110% of nominal and pickup adjustable from dropout setting -1 Hz to 101% of nominal. {Feature 5K & 26K}
6. The microprocessor-based controller shall contain the following time delay features:
 - a. A time delay shall be provided on transfer to EMERGENCY source, adjustable from 0 to 1800 seconds. TDNE – Time Delay Normal to Emergency {Option 1}
 - b. A time delay shall be provided to override a momentary power outage or voltage fluctuation, adjustable from 0 to 120 seconds. TDES – Time Delay engine Start {Feature 2}

CAT CONTACTOR BASED AUTOMATIC TRANSFER SWITCHES – LOW VOLTAGE
SECTION 16496G

- c. A time delay shall be provided on retransfer from EMERGENCY source to NORMAL source, adjustable from 0 to 1800 seconds. TDEN – Time Delay Emergency to Normal {Feature 3}
 - d. A time delay shall be provided after retransfer that allows the generator to run unloaded prior to shutdown, adjustable form 0 to 1800 seconds. TDEC – Time Delay Engine Cool down {Feature 4}
 - e. A time delay shall be provided for engine failure to start, fixed setting of 6 seconds. TDEF – Time Delay Engine Fail {Feature 7}
 - f. All delays shall be field adjustable from the microprocessor-based controller without the use of special tools.
7. The microprocessor-based controller shall contain the following features:
- a. “HELP”, “INCREASE”, “DECREASE”, “STEP” and “DISPLAY SELECT” pushbuttons
 - b. Plant exerciser, selectable – 7-day interval, adjustable 0-600 minutes, load or no-load with Failsafe {Feature 23J}
 - c. System Test Pushbutton {Feature 6B}
 - d. ∃A programmable Preferred Source Selector with LED light indication for “Utility to Utility” or “Utility to Generator” systems {Option 10B}
 - e. ∃A programmable Preferred Source Selector with LED light indication for “Generator to Generator” systems. Provides dual engine starting circuits {Option 10D}
 - f. ∃Alternative Transfer Mode of Operation Switch. Provide a 2-Position Selector Switch, maintained contact, marked: “AUTOMATIC” and “NON-AUTOMATIC”. Transfer switch will be labeled as UL Non-Automatic {Option 29G}
 - g. ∃Alternative Transfer Mode of Operation Switch. Selectable via programming and LED display marked: “AUTOMATIC” and “NON-AUTOMATIC” for full automatic operation or non-automatic retransfer operation with failsafe. {Option 29J}
 - h. ∃Load Sequencing for up to ten (10) loads {Option 45}
8. The microprocessor-based controller shall contain the following input/output contacts:
- a. One (1) Form C contact for closure of the Generator start circuit. The contacts shall be of silver alloy with gold flashing. The contacts shall be rated for 5-Amp at 250-Vac and 5-Amp at 30-Vdc.
 - b. ∃One (1) Form C contact for PRE-TRANSFER SIGNAL. The contacts shall be rated for 10-Amp at 250-Vac and 10-Amp at 30-Vdc. {Option 35A}
 - c. ∃One (1) Form C contact for ALARM SIGNAL. The contacts shall be rated for 10-Amp at 250-Vac and 10-Amp at 30-Vdc {80a}

2.08 WIRING/TERMINATIONS

- A. Terminal blocks shall conform to NEMA ICS 4. Terminal facilities shall be arranged for entrance of external conductors from the top or bottom of the enclosure. The main transfer switch terminals shall be suitable for the termination of conductors shown on the plans.

2.09 ∃CUSTOMER METERING {OPTION 18}

- A. Where indicated on the drawings, provide customer metering to include the following:

Note to Spec. Writer:

∃ Note to Spec. Writer - Optional

Select devices as required for item 2.07 B. Refer to section 16901 for detailed specification for metering as follows:

Power Xpert Series (Paragraph 2.02A)
 IQ Analyzer 6000 Series (Paragraph 2.02B)
 IQ DP-4000 Series (Paragraph 2.02C)
 IQ 250/260 (IQ 200 series Paragraph 2.02E)

~~3. SURGE PROTECTION DEVICES~~

~~A. Where indicated on the drawings, provide a surge protector for~~

~~1. [OVX 50KA Surge Device Series 1 (Option 51D1)] [OVX 100KA Surge Device Series 1 (Option 51E1)]~~

2.11 ³REMOTE ANNUNCIATOR AND CONTROLLER:

1. Monitoring Functions

- a. Display shall be a touchscreen color display capable of monitoring up to 8 transfer switches on one screen.
- b. General screen shall include a mimic bus display for each transfer switch with indication of source availability, based on controller pickup and dropout settings, and switch position.
- c. Each mimic bus display shall be marked with the designation of the transfer switch monitored.
- d. Display shall include indication of switch in test mode, manual retransfer status, and go to emergency status.
- e. Shall include the ability to view source data and event logs for each transfer switch.

2. Control Functions

- a. Control functions shall be password protected and shall include:
 1. Initiate engine test.
 2. Initiate a failsafe transfer to source 2.
 3. Initiate manual retransfer.
 4. Alarm silence

3. Alarms

- a. Remote Annunciator shall provide audible and visual alarm when on source 2.
- b. Visual alarm upon failure of communication link.

4. Mounting: Flush, modular, unless otherwise indicated.

5. Communications capability to be compatible with ATS controller.

2.12 ENCLOSURE

A. Each transfer switch shall be provided in a ^{*}[NEMA 1] ~~[NEMA 12] [NEMA 3R] [NEMA 4X]~~ enclosure suitable for use in environments indicated in the drawings.

~~1. ³Space heater with thermostat rated for 100 watt. (Option 41A)~~

³ Note to Spec. Writer - Optional

* Note to Spec. Writer – Select one

2. Steel hinged and padlockable cover (Option 06A) for a device panel.
3. Steel hinged and padlockable cover (Option 06B) for the controller.

2.13 FINISH

- A. NEMA 1, 2, 3R, or 4 enclosures shall be painted with the manufacturer's standard light gray ANSI 61 paint.

PART 3 EXECUTION

3.01 EXAMINATION

3.02 FACTORY TESTING

- A. The following standard factory tests shall be performed on the equipment provided under this section. All tests shall be in accordance with the latest version of UL and NEMA standards.
1. Insulation check to ensure the integrity of insulation and continuity of the entire system
 2. Visual inspection to ensure that the switch matches the specification requirements and to verify that the fit and finish meet quality standards
 3. Mechanical tests to verify that the switch's power sections are free of mechanical hindrances
 4. Electrical tests to verify the complete electrical operation of the switch and to set up time delays and voltage sensing settings of the logic
- B. The manufacturer shall provide a certified copy of factory test reports.
- C. Transfer switch shall include a label indicating order number, catalog number and date

3.03 INSTALLATION

- A. The Contractors shall install all equipment per the manufacturer's recommendations and the contract drawings
- B. All necessary hardware to secure the assembly in place shall be provided by the contractor

3.04 FIELD QUALITY CONTROL

- A. ³ Provide the services of a qualified factory-trained manufacturer's representative to assist the contractor in installation and start-up of the equipment specified under this section for a period of 1 working days. The manufacturer's representative shall provide technical direction and assistance to the contractor in general assembly of the equipment, connections and adjustments, and testing of the assembly and components contained therein.

³ Note to Spec. Writer - Optional

Note to Spec. Writer – Insert data in blanks

3.05 MANUFACTURER'S CERTIFICATION

- A. [∃]A qualified factory-trained manufacturer's representative shall certify in writing that the equipment has been installed, adjusted and tested in accordance with the manufacturer's recommendations.
- B. The Contractor shall provide a copy of the manufacturer's representative's certification.

3.06 TRAINING

- A. [∃]The [Contractor] OR [Manufacturer's qualified representative] shall conduct a training session for up to five (5) owner's representatives for 1 normal workdays at a jobsite location determined by the owner. The training program shall consist of the instruction on the operation of the transfer switch and the major components within the assembly.

3.07 FIELD SERVICE ORGANIZATION

- A. The manufacturer of the ATS shall also have a national service organization that is available throughout the contiguous United States and is available on call 24 hours a day, 365 days a year.
- B. The Automatic Transfer Switch shall be warranted against defective workmanship for a period of two years, including parts and labor.

[∃] Note to Spec. Writer - Optional
· Note to Spec. Writer – Insert data in blanks

BID SCHEDULE

COMMODITY (MATERIAL)

(Do not include tax, this will be included separately)

Item	Qty	Unit of Measure	Description	Unit Price
1	1	Each	Emergency Transfer Switch as specified in this solicitation.	\$ _____

Resident Vendor Preference _____

SC End Product Preference _____

US End Product Preference _____

NOTE: The commodity preferences do not apply to a single unit of an item with a price in excess of \$50,000 or a single award with a total potential value in excess of \$500,000. [11-35-1524(E)(2)]

Please refer to the preference clauses listed in the terms and conditions of this solicitation to ensure that you qualify to select the above preferences.