**INVITATION FOR BID**

**ATTENTION:** This is not an order. Read all instructions, terms and conditions carefully.

<table>
<thead>
<tr>
<th>INVITATION NO.:</th>
<th>K-0881-18</th>
</tr>
</thead>
<tbody>
<tr>
<td>Issue Date:</td>
<td>8-7-17</td>
</tr>
<tr>
<td>Title:</td>
<td>12 KV Breakers</td>
</tr>
<tr>
<td>Contracting Officer:</td>
<td>Jim Sutton</td>
</tr>
<tr>
<td>Phone:</td>
<td>859-257-5406</td>
</tr>
</tbody>
</table>

**RETURN ONE ORIGINAL COPY AND ONE CD OF BID**

**TO:**

UNIVERSITY OF KENTUCKY
PURCHASING DIVISION BID DESK,
BID # K-0881-18 BID DATE 8-22-17
322 PETERSON SERVICE BLDG.
411 South Limestone
LEXINGTON, KY 40506-0005

**IMPORTANT:** BIDS MUST BE RECEIVED BY 8-22-17 @ 3:00 P.M. LEXINGTON, KY TIME

The University’s General Terms and Conditions and Instructions to Bidders, viewable at www.uky.edu/Purchasing/terms.htm, apply to this Invitation for Bid. When the Invitation for Bid includes construction services, the University’s General Conditions for Construction and Instructions to Bidders, viewable at www.uky.edu/Purchasing/ccphome.htm, apply to the Invitation for Bid.

**AUTHENTICATION OF BID AND STATEMENT OF NON-COLLUSION AND NON-CONFLICT OF INTEREST**

I hereby swear (or affirm) under the penalty for false swearing as provided by Kentucky Revised Statutes (KRS) 523.040:

1. That I am the bidder (if the bidder is an individual), a partner, (if the bidder is a partnership), or an officer or employee of the bidding corporation having authority to sign on its behalf (if the bidder is a corporation);
2. That the attached bid has been arrived at by the bidder independently and has been submitted without collusion with, and without any agreement, understanding or planned common course of action with, any other vendor of materials, supplies, equipment or services described in the Invitation for Bids, designed to limit independent bidding or competition;
3. That the contents of the bid or bids have not been communicated by the bidder or its employees or agents to any person not an employee or agent of the bidder or its surety on any bond furnished with the bid or bids and will not be communicated to any such person prior to the official opening of the bid or bids:
4. That the bidder is legally entitled to enter into contracts with the University of Kentucky and is not in violation of any prohibited conflict of interest, including those prohibited by the provisions of KRS 164.390, 45A.330 to 45A.340.
5. That the Bidders, and its affiliates, are duly registered with the Kentucky Department of Revenue to collect and remit the sales and use tax imposed by Chapter 139 to the extent required by Kentucky law and will remain registered for the duration of any contract award.
6. That I have fully informed myself regarding the accuracy of the statement made above.

**COLLUSION PROHIBITED**

Any agreement or collusion among bidders or prospective bidders which restrains, tends to restrain, or is reasonably calculated to restrain competition by agreement to bid at a fixed price or to refrain from bidding, or otherwise, is prohibited, in accordance with KRS 45A.325.

**SWORN STATEMENT OF COMPLIANCE WITH CAMPAIGN FINANCE LAWS**

In accordance with KRS 45A.110(2), the undersigned hereby swears under penalty of perjury that he/she has not knowingly violated any provision of the campaign finance laws of the Commonwealth of Kentucky and that the award of a contract to a bidder will not violate any provision of the campaign finance laws of the Commonwealth of Kentucky.

**CONTRACTOR REPORT OF PRIOR VIOLATIONS OF KRS CHAPTERS 136, 139, 141, 337, 338, 341 & 342**

The contractor, by signing and submitting a bid on this invitation, agrees as required by KRS 45A.485 to submit final determinations of any violations of the provisions of KRS Chapters 136, 139, 141, 337, 338, 341 and 342 that have occurred in the previous five (5) years prior to the award of a contract and agrees to remain in continuous compliance with the provisions of these statutes during the duration of any contract that may be established. Final determinations of violations of these statutes must be provided to the University by the successful contractor prior to the award of a contract.

**ALL BIDS ARE TO BE "F.O.B. DESTINATION – FREIGHT PREPAID AND ALLOWED"**

**THIS AREA MUST BE COMPLETED**

<table>
<thead>
<tr>
<th>DELIVERY AFTER RECEIPT OF ORDER:</th>
<th>NAME OF COMPANY:</th>
<th>PHONE:</th>
</tr>
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<tbody>
<tr>
<td>FEDERAL EMPLOYER ID NO.:</td>
<td>ADDRESS:</td>
<td>FAX:</td>
</tr>
<tr>
<td>PAYMENT TERMS:</td>
<td>ADDRESS:</td>
<td>E-MAIL:</td>
</tr>
<tr>
<td>SHIPPING TERMS: F.O.B. DESTINATION – PREPAID AND ALLOWED</td>
<td>CITY, STATE &amp; ZIP CODE:</td>
<td>WEB ADDRESS:</td>
</tr>
<tr>
<td>DUNS #</td>
<td>SIGNATURE:</td>
<td>DATE:</td>
</tr>
</tbody>
</table>

**SIGNATURE REQUIRED:** This bid cannot be considered valid unless signed and dated by an authorized agent of the bidder. Type or print the information requested in the spaces provided.

Revised January 1, 2015
UNIVERSITY OF KENTUCKY
INSTRUCTIONS TO BIDDERS

All University of Kentucky bid solicitations are made upon and subject to the following conditions:

1 Preparation of Bids

1.1 All solicitations are subject to the provisions and requirements of any applicable Kentucky Revised Statutes, including the Kentucky Model Procurement Code, and the rules, regulations and policies of the University of Kentucky including the University of Kentucky’s General Terms and Conditions.

1.2 Bidders are expected to examine the complete bid and all attachments including drawings, specifications and instructions. Failure to do so is at bidder’s risk.

1.3 Bidders shall furnish information required by the solicitation in the form requested. The University reserves the right to reject bids with incomplete information or which are presented on a different form.

1.4 All bids must be legible. A legally authorized company representative shall sign all bids in the appropriate location. Erasures or other changes must be initialed by the person signing the bid. Signature on a bid certifies that the bidder has read and fully understands all bid specifications and bidder agrees to all terms and conditions stipulated in the Invitation For Bids (IFB).

1.5 Bid prices shall be entered in spaces provided on the bid form. All unit prices and mathematical extensions and totals shall be indicated where required. In cases of errors in extensions or totals the unit price will govern.

1.6 Should any potential bidder doubt the true meaning of any part of the solicitation, a written request for an interpretation may be submitted to the University. Requests for such interpretation shall be made in writing to the appropriate Contracting Officer identified in the solicitation. Every interpretation made shall be in the form of an “addendum” to the solicitation sent as promptly as is practicable to all prospective bidders to whom the solicitation has been issued. Failure by the University to send or any potential bidder to receive such interpretation(s) shall not relieve any bidder from any obligations under the bid solicitation or the bidder’s response. Any interpretations, corrections or changes to the solicitation made in any other manner, including oral explanations and instructions, are not binding upon the University.

1.7 Bidders or potential bidders are required to coordinate all discussions concerning solicitations through the appropriate Contracting Officer or other purchasing official within the University of Kentucky Purchasing Division. Bidders or potential bidders are not authorized to communicate with any University administrator, faculty, staff, or Board of Trustees member concerning this solicitation. Failure to comply with this requirement is grounds for the bidder’s disqualification.

1.8 Unless otherwise stipulated in a bidder’s response, the bidder’s offer is in strict accordance with the University’s specifications and terms and conditions of the Invitation For Bids. Any deviations must be fully itemized in detail. Any deviations from the requirements of this solicitation are at bidder’s risk and the University may determine the bid to be non-responsive.

2 Submission of Bids

2.1 Bids, and modifications thereof, shall be returned in a sealed envelope and submitted in such a manner as to ensure their arrival in the University of Kentucky Purchasing Division before the due date and time set forth in the solicitation. The time shown on the recording clock in the Purchasing Division is the official time. Unless otherwise indicated in the solicitation no oral, facsimile, e-mail or telephone bids will be accepted.

2.2 Bids may be modified or withdrawn in writing or in person by an authorized representative if done so prior to the exact time and date for receipt of the bids. Telephone and facsimile modifications or withdrawals are not permitted. Withdrawn bids may be resubmitted, with or without modifications, up to the solicitation due date and time. No bids may be withdrawn after the due date and time without the express authorization of the University of Kentucky Purchasing Division.
2.3 Bids received after the designated time and date in the solicitation will not be considered. Bids will or will not be publicly opened and read in accordance with the Invitation For Bids.

2.4 Bidders shall show the bid due date and time, the solicitation number, and the name and address of the bidder on the face of the bid envelope.

2.5 All bids will be considered firm for a period of forty-five (45) calendar days from the bid opening date.

3 **Specification Requirements**

3.1 Unless otherwise specified in the solicitation, all items bid are to be new, unused, and not remanufactured in any way.

3.2 Whenever a trade name, brand name, or model and catalog numbers followed by the words “or equal” or “approved equal” are used in the bid invitation it is for the purpose of item identification and to establish standards of quality, style, and features. Bids on equivalent items, substantially the same, are invited. However, to receive consideration, sufficient descriptive literature and/or specifications to clearly identify the item and provide for competitive evaluation must accompany the bid. The University will be the sole judge of equality and suitability. If bidder does not identify exceptions to the specifications shown in the IFB, bidder will be required to furnish the brand name(s), models, numbers, etc. specified in the IFB.

3.3 Unless stated otherwise in the solicitation, alternate bids will be considered. Alternate bids may be made in addition to responding to the solicitation or as the only response to the solicitation. However, the University is under no obligation to consider or accept an alternate bid and it reserves the right to reject any and all such bids.

3.4 The University reserves the right to request samples of any or all items bid in order to determine compliance with the specifications. The bidder must provide the samples within ten (10) days of the request and at no charge to the University. Samples are non-returnable. Failure to comply may be cause for rejection of the bid.

3.5 Bidders shall clearly delineate any deviations or exceptions from the bid specifications.

3.6 Except as otherwise provided in the solicitation, all bid prices must be firm. Prices subject to qualifications, such as escalation or other variables, may be rejected as non-responsive.

3.7 Unless otherwise stipulated in the solicitation, all quantities are estimates and do not represent a minimum guarantee. The University is obligated to purchase only those quantities needed during the term of the contract and it reserves the right to purchase more or less than the estimated quantities. The University is obligated only for those quantities ordered.

3.8 Proposed delivery dates shall be stated in number of calendar days after receipt of order.

3.9 All offers shall be F.O.B. destination, freight prepaid and allowed.

4 **Bid Evaluation and Award**

4.1 Bids will be evaluated and the award made to the lowest responsive, responsible bidder who offers the best value to the University and meets the terms, conditions and specifications of the Invitation For Bids.

4.2 The term “Responsible Bidder” means a person, company, or corporation who has the capability in all respects to perform fully the contract requirements and the integrity and reliability that will assure good faith performance. In determining whether a Bidder is responsible, the University may evaluate various factors including (but not limited to) financial resources; experience; organization; technical qualifications; available resources; record of performance; integrity; judgment; ability to perform successfully under the terms and conditions of the contract; and adversarial relationship between the Bidder and the University that is so serious and compelling that it may negatively impact the work performed under this Invitation for Bid; or any other cause determined to be so serious and compelling as to affect the responsibility of the Bidder.

4.3 The University reserves the right to accept or reject any and all bids or part of a bid and waive informalities, technical defects and minor irregularities in the bids received. Further, the University reserves the right to
make a single award, split awards, make multiple awards or no award whichever is in the best interest of the University.

4.4 Unless stated otherwise in the solicitation, the University reserves the right to award the contract to the lowest aggregate bidder for all items, on an item by item basis, or a group of like items whichever is found to be in the best interest of the University. The University will consider bids submitted on an “all or nothing” basis if the bid is clearly designated as such.

4.5 In accordance with KRS 45A.494, a resident bidder of the Commonwealth of Kentucky shall be given a preference against a nonresident bidder. In evaluating proposals, the University will apply a reciprocal preference against a bidder submitting a proposal from a state that grants residency preference equal to the preference given by the state of the nonresident bidder. Resident bidder and nonresident bidder shall be defined in accordance with KRS 45A.494(2) and 45A.494(3), respectively. Any Respondent claiming Kentucky residency status shall submit with its proposal a notarized affidavit affirming that it meets the criteria as set for in the above referenced statute.

4.6 The University shall issue a price contract or purchase order as its notification of award to the successful bidder(s). Until such date a price contract or purchase order is issued, nothing shall be construed to constitute a binding agreement between the University and the bidder.

5 Payment and Taxes

5.1 The successful bidder shall be paid, at the prices stipulated, for items or services delivered and accepted, upon the submission of proper invoices to the billing address shown on the purchase order. The University’s standard payment terms are net 30 days after acceptance.

5.2 Bidders may offer prompt payment discounts. The University will not consider any prompt payment discounts in determining the bid award.

5.3 The University utilizes a procurement card program as the preferred method of payment. The University assumes that all successful bidders will accept the University’s procurement card as a method of payment unless a specific exception is stated in the bidder’s response to the IFB. No additional charges may be added for acceptance of the procurement card.

5.4 The University is tax exempt from the provisions of the Kentucky Sales and/or Use Tax (Tax Exemption # A00276) on materials and equipment under this solicitation. The University is also entitled to exemption from the Federal Excise Tax. All bidders shall take this into consideration when submitting their bid. Exemption certificates will be furnished upon request. Bidders are informed that material purchased by the contractor for the performance of this contract for the University are not exempt from the provisions of the Kentucky Sales and/or Use Tax. All adjustments and allowances for the current sales and/or use tax shall be included in the bid price.

6. Kentucky’s Personal Information Security and Breach Investigation Procedures and Practices Act

To the extent Company receives Personal Information as defined by and in accordance with Kentucky’s Personal Information Security and Breach Investigation Procedures and Practices Act, KRS 61.931, 61.932 and 61.933 (the “Act”), Company shall secure and protect the Personal Information by, without limitation: (i) complying with all requirements applicable to non-affiliated third parties set forth in the Act; (ii) utilizing security and breach investigation procedures that are appropriate to the nature of the Personal Information disclosed, at least as stringent as University’s and reasonably designed to protect the Personal Information from unauthorized access, use, modification, disclosure, manipulation, or destruction; (iii) notifying University of a security breach relating to Personal Information in the possession of Company or its agents or subcontractors within seventy-two (72) hours of discovery of an actual or suspected breach unless the exception set forth in KRS 61.932(2)(b)2 applies and Company abides by the requirements set forth in that exception; (iv) cooperating with University in complying with the response, mitigation, correction, investigation, and notification requirements of the Act , (v) paying all costs of notification, investigation and mitigation in the event of a security breach of Personal Information suffered by Company; and (vi) at University’s discretion and direction, handling all administrative functions associated with notification, investigation and mitigation.
UNIVERSITY OF KENTUCKY
INVITATION FOR BID (IFB)
SPECIAL CONDITIONS

SCOPE

This Invitation for Bid is for the Purchase of 1200, three Phase, outdoor distribution circuit breakers for the University of Kentucky, Campus Physical Plant Division, Lexington, Kentucky.

TERMS AND CONDITIONS

The University’s General Terms and Conditions and Instructions to Bidders, viewable at www.uky.edu/Purchasing/terms.htm apply to this Invitation to Bid.

RESTRICTIONS ON COMMUNICATIONS WITH UNIVERSITY STAFF

From the issue date of this IFB until a Contractor is selected and a contract award is made, Bidders are not allowed to communicate about the subject of the IFB with any University administrator, faculty, staff, or members of the Board of Trustees except:

- The Purchasing Office representative, any University Purchasing Official representing the University administration, or others authorized in writing by the Purchasing Office and
- University Representatives during Bidders presentations.

If violation of this provision occurs, the University reserves the right to reject the Bidder’s proposal.

INVITATION SUBMISSION AND DEADLINE

The University of Kentucky accepts deliveries of IFB’s Monday through Friday from 8:00 am – 5:00 pm Lexington Kentucky time. However, IFB’s must be received by 3:00 pm Lexington Kentucky time on the date specified on the IFB in order to be considered.

NOTE: Bidders are requested to include a CD with their bid response in addition to the printed hard copy of the bid.

1.0 DESCRIPTION
These general specifications cover 1200- and 2000-amp, three-phase, outdoor distribution circuit breakers that utilize vacuum bottle technology as the method of arc suppression.

2.0 RATINGS

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<th>Identification</th>
<th>Ratings</th>
<th>Related Capabilities</th>
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<tr>
<td></td>
<td>Insulation Level</td>
<td>Current Amps</td>
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<tr>
<td></td>
<td>Rated Withstand Test Voltage</td>
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<tr>
<td>Rated Continuous Current at 60 Cycles</td>
<td>Nominal kV Class</td>
<td>Rated Max kV</td>
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<tr>
<td>1200 Amps</td>
<td>2.4-14.4</td>
<td>15.5</td>
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3.0 CONDITIONS

<table>
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<tr>
<th>ITEM</th>
<th>Unit</th>
<th>1200 Amp</th>
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<tr>
<td>Lightning Impulse Withstand Voltage</td>
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<td>Full Wave 1.2/50 psec</td>
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<td>Chopped Wave 2psec</td>
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<td>Chopped Wave 3psec</td>
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<td>Reclosing Time</td>
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<td>Permissible Tripping Delay</td>
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<tr>
<td>Closing Time</td>
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<td>Isolated Cable Charging</td>
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<tr>
<td>Isolated Capacitor Bank Switching</td>
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<td>Minimum Phase Spacing</td>
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<td>Minimum External Creep</td>
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<td>Minimum External Strike Terminal To Ground</td>
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<td>Dual Trip Coils Required</td>
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<td>Stored Energy</td>
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{ } Revisions 03 – 15 – 2017
4.0 PHYSICAL CHARACTERISTICS
   Frame-mounted, outdoor, three-pole, three-phase, 60 Hz, vacuum-interrupting type power circuit breaker.

4.1 Frame Mounted
   Frame extension shall provide nine (9) feet of minimum clearance from foundation to live bushing part.

4.2 Finish
   Breaker shall be equipped with rain guards, weather sheds, and gaskets on doors and cover plates to prevent the intrusion of inclement weather. Operating the door-closing handle shall compress the gaskets between the door and the breaker cabinet. Breaker shall have painted interior and exterior under coating on a clean, unblemished, and rust-free metal surface. Apply two coats of exterior light gray paint (finish color ANSI-70) inside and out.

5.0 BUSHING CHARACTERISTICS

5.1 1200 Amp Breakers
   Bushings shall be porcelain, 15 kV insulation class, 110 kV BIL, 1200 amps rated continuous current, ANSI-70 color. Bushings shall not be supplied with terminal connectors. The bushing stud terminal shall accommodate a 1.25-inch diameter terminal connector with 12 threads per inch.

6.0 CURRENT DEVICES

6.1 1200 Amp Breakers
   Three (3) 1200/5 multi-ratio bushing current transformers (CTs) shall be supplied on bushings 1-3-5. The accuracy class shall be C-200. Three (3) 2000/5 multi-ratio bushing CTs shall be supplied on bushings 2-4-6. The accuracy class shall be C-400. CT secondary wires shall be terminated in the breaker control cabinet on six short-circuit terminal blocks, with each block having six terminal locations (the last position being a ground). Wiring shall be terminated using ring lugs.

Breakers to be used as a Main Transformer Breaker or a Bus Sectionalizing Breaker will require a second set of 2000/5 multi-ratio bushing CTs, accuracy class C-400. This set of bushing CTs shall be installed on bushings 1-3-5. Attention to the purchase order will make this clear.
7.0 OPERATING MECHANISM

7.1 Closing Mechanism
The non-automatic re-closing breaker shall be equipped with a 125-volt DC operating mechanism. By using 240-volt AC coils and a universal motor for charging the spring, the operating mechanism may be operated with 120 volts AC in an emergency. Note: Use of a rectifier circuit and a DC closing coil are NOT acceptable. Mechanism shall include a motor-charged spring with provisions for manual charging. Provisions for manually closing the breaker shall also be included.

7.2 Tripping Mechanism
Breaker shall be equipped with 125-volt DC wet-cell battery trip coils. A manual trip device shall also be provided.

7.3 AUXILIARY SWITCHES AND ACCESSORIES
The following items shall be provided on all breaker sizes:
1. 10-Stage auxiliary switch with spare contacts wired out to terminal block for customer use
2. Latch check switch
3. Operation counter
4. Position indicator
5. Space heater with controls (100-watt minimum)
6. Two (2) two-hole ground terminal pads to accommodate a two-bolt connector

8.0 BREAKER CONTROL PANEL

8.1 Control Panel Equipment
The control panel shall be supplied with the following items:
1. Pistol-grip fixed-handle control switch with momentary contacts (Model SB or Type W)
2. Single-stage six-contact frame with targets and pull to lock in the trip position
3. Red and green LED indicator lights powered by the trip circuit
4. Clamps and retainers for mounting the control panel in breaker control cabinet

8.2 Note: The UK purchase order number shall be referenced on each shipment.

8.3 VENDOR-SUPPLIED CONTROL PANELS
A complete, standard, fabricated relay panel for closing and tripping the breaker is required from the supplier when the order is placed. The relay panel may include any or all of the following:
Three (3) indicating ammeters, 0-5 amp range
One (1) thermal ammeter with maximum indicator for measuring neutral current, 0-5 amp range
Three (3) phase over-current extremely-inverse relays (ABB CO-Hi – Lo Style number 265CO47A07 or equivalent) with time taps 1-12, including instantaneous attachment having a range of 6 to 144.
One (1) residual ground over-current relay (ABB CO-11 Style number 265CO47A07 or equivalent) with time taps 1-12, including instantaneous attachment having a range of 6 to 144.
Two (2) 7000-ohm resistors for LED indicator lamps.

8.3.05 kWh Metering and SCADA
One (1) Square D Power Logic CM8000 series meter, 0.2% accuracy, full instrumentation 3-phase, 4-wire Wye power and energy meter. Unit input voltage shall be (57V/LN/100VLL to 400V/LN/690VLL), 0.1% reading. Power supply shall be 125/300V DC or 90 – 415V AC ±10% control voltage. Meter shall feature dual port Ethernet and RS485 communication, three on-board digital status / counter inputs, one KY (form A) energy pulse output, PQ compliance reporting and basic analysis, date/time for event logging, 12-cycle waveform and capture in onboard non-volatile memory. Meter reference number METSEPM8244 DIN rail mounted meter w/remote display. Modular I/O accessories shall be two METSEPM89M2600 Square D I/O modules: 6 digital inputs and 2 relay outputs (total 12 digital inputs and 4 relay outputs). See section 9.1 for control function.

8.3.075 RS485 Signal Cable Surge Suppression
One (1) Edco PC642-series surge suppressor, a two-pair (four-wire) module implementing three-stage hybrid technology. This module addresses over-voltage transients with gas tubes and silicon avalanche components.
One (1) Edco PCB1B base
Miscellaneous wire and mounting hardware
One (1) ABB type FT test switch for Square D Power Logic Circuit Monitor current circuits, ABB style number 129A518G001
One (1) ABB type FT test switch for Square D Power Logic Circuit Monitor potential and contact inputs, ABB style number 129A501G001
One (1) three-pole fuse block to fuse bus potential metering circuit
One (1) four-post terminal block to terminate potential circuit from bus potentials in breaker control cabinet

8.3.1 1200-Amp Breakers
Typically, 1200-amp breakers used on feeder circuits will include all of the items listed in Section 8.1 and 8.3 above. Pricing for a relay panel including all of the items listed in Section 8.3 above shall be provided in quote.

8.3.2 2000-Amp Breakers
Typically, 2000-amp breakers are used for main transformer and bus sectionalizing protection and will not require all of the items listed in Section 8.3 on the relay panel. Pricing for a relay panel including all of the items listed in Section 8.3 excluding the thermal ammeter shall be provided in quote.

Breakers to be used as a Main Transformer Breaker or a Bus Sectionalizing Breaker will require a second set of 200/5 multi-ratio bushing CTs, accuracy class C-400. This set of bushing CTs shall be installed on bushings 1-3-5. Attention to the purchase order will make this clear.

9.0 ALTERNATIVE VENDOR-SUPPLIED ELECTRONIC CONTROLS

The vendor may quote microprocessor-based electronic relays as an alternate to the vendor supplied electro-mechanical relays as specified on the panel in Section 8.3 above. One electromechanical relay should be quoted for installation in the residual current circuit as a backup to the microprocessor-based electronic relays. The electronic relays should provide equivalent function to the electromechanical relays. Note: electronic controls should only be quoted as an alternative. Quotes for the vendor-supplied electromechanical relay panels are required.

9.1 SCADA EQUIPMENT
9.1.1 1200-Amp and-2000 Amp Breakers
SCADA equipment is specified for all medium voltage breakers. This is through the Square D CM8000 Circuit Monitor I/O accessory module METSEPM89M2600. The Square D I/O module has 6 digital inputs and 2 relay outputs. This CM8000 Circuit Monitor will require two modules for a total of 12 digital inputs and 4 relay outputs.

9.1.2 The CM8000 I/O module METSEPM89M2600 has two output relays that operate on 24-volt DC only. For this reason, a 130-volt DC to 24-volt DC regulated source will be required. The 130-volt DC power for this circuit should come from the same fuse from which the CM8000 is sourced. The power required to operate this device is small since it is only needed to operate three Potter & Brumfield type KRP relays. These relays will be de-energized except when it is necessary to operate the breaker remotely. The KRP relays should be equipped with indicator lights in the relay to help determine when the relay coil is energized.

9.1.3 One of the KRP relays in the remote control circuit should be labeled RC for “Remote Close”. It should operate to close the breaker when the CM8000 module contacts labeled [1] and [2] close. The normal closed state for the CM8000 module is labeled [1] and [3]. A contact from the KRP should be in the breaker close circuit and will cause the breaker to close when the CM8000 module relay contacts labeled [1] and [2] close.

9.1.4 One of the KRP relays in the remote control circuit should be labeled RT for “Remote Trip”. It should operate to trip the breaker when the CM8000 module contacts labeled [4] and [5] close. The normal closed state for this contact on the CM8000 module is labeled [4] and [6]. A contact from the KRP should be in the breaker trip circuit and will cause the breaker to trip when the CM8000 module relay contacts labeled [4] and [5] close.

9.1.4 One of the KRP relays in the remote control circuit should be labeled RTC for “Remote Trip/Close”. It should operate to supply 130-volt DC power to the RT and RC relays when the CM8000 module contacts labeled [7] and [8] close. The normal closed state for this contact on the CM8000 is labeled [7] and [9]. This relay is energized first to start the remote trip and close operation of the breaker. The RTC relay will hold itself in for 30 seconds or until the breaker operates. After 30 seconds, the remote control circuit will return to a de-energized state.
9.1.5 There should be a DPST-type toggle switch as an IEEE 43 mounted on the control panel, in line with the control switch. Half of this switch should be in the RT relay’s breaker trip circuit. The other half should be in the RC relay’s breakers close circuit. It shall be labeled Remote Control ON and Remote Control OFF.

10.0 STANDARDS AND TESTS

10.1 Standards
All circuit breakers supplied shall conform to the latest revisions of ANSI C37.04 and ANSI C37.06. Any variances or exceptions to the applicable portions of these standards shall be identified and explained.

10.2 Production Tests
All standard production tests specified in the latest revision of ANSI C37.09 shall be performed. The vendor shall supply a list of test that will be performed on each unit. A copy of the breaker mechanism motion-timing chart showing the trip and close curve is required. A copy of the breaker high voltage current path resistance for each breaker pole is required.

11.0 MISCELLANEOUS

The vendor shall provide four (4) complete sets of prints for each breaker ordered. The prints shall include the following: nameplate, outline, control, elementary and connection diagrams, instruction books (including items in section 10.2), and complete renewal parts lists.

The order shall be considered incomplete and payment may be withheld until all prints are received. Prints should be sent to:

University of Kentucky
Peterson Service Building, Room 211R
Lexington, KY 40506-0005
Attn: Facilities Management Department

Shipping instructions for the breakers will be on the individual purchase orders.

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<th>Item No.</th>
<th>Catalog No. / Description</th>
<th>Qty.</th>
<th>Unit Price</th>
<th>Extended Total</th>
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<tbody>
<tr>
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<td>1200 AMP Breaker</td>
<td>2 ea</td>
<td></td>
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GRAND TOTAL $__________