

REQUEST FOR QUOTATION
**** THIS IS NOT AN ORDER ****

Return Quotes To:

The University of Tennessee
 Purchasing Department
 5723 Middlebrook Pike
 Knoxville , TN 37921

Information	
Date:	11/19/2009
RFQ No:	6000037672
Collective No:	10033439
Return Quote By:	11/30/09 4:00 PM E.S.T.
Promised Ship Date: (Furnish)	_____
Payment Terms: (Furnish)	_____
FOB UT Dest Unless Otherwise Specified Below	

Buyer:	Bradley New
Phone:	865-974-3108
Fax:	865-974-2973

Vendor Address
Bidder # D99999
University of T
PARENT RFQ
UT TN

Item	Quantity	UM	Material/Description	Price Per Unit	Net Amount
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This is re-bid # 1

Reason: Change in bid to allow for demo equipment

Change: Reference award criteria in special bid condition 8.

The new bid opening date will be held on 11/30/09 at 4:00 PM E.S.T.

NOTE: Any potential bidder not otherwise notified by the University for this requirement must register at: <http://purchasing.tennessee.edu>. Scroll to "Bid & Proposal Advertisements" under Quick Links, and follow the instructions. Failure to do so will result in rejection of your bid.

Items to be Keithley or equal per attached specifications

NOTE: Any potential bidder not otherwise notified by the University for this requirement must register at: <http://purchasing.tennessee.edu>. Scroll to "Bid & Proposal Advertisements" under Quick Links, and follow the instructions. Failure to do so will result in rejection of your bid.

Items to be Keithley or equal per attached specifications

00001 1 EA PARAMETER ANALYZER (Demo) _____

Semi System W/2 MPSMU and FPD

Part # 4200-SCS/F

Manufacturer _____ # _____

Warranty _____

00002 2 EA HIGH POWER SOURCE-MEASURE UNIT (Demo) _____

Part # 4210

Manufacturer _____ # _____

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Item	Quantity	UM	Material/Description	Price Per Unit	Net Amount
			Warranty _____		
00004	2	EA	REMOTE PREAMP OPT 4200-SMU AND 4210-SMU	_____	_____
			Part # 4200-PA (Demo)		
			Manufacturer _____ # _____		
			Warranty _____		
00006	1	EA	4210 CAPACITANCE VOLTAGE UNIT 1KHZ-10MH	_____	_____
			Part # 4210-CVU (Demo)		
			Manufacturer _____ # _____		
			Warranty _____		
00007	1	EA	PARAMETER ANALYZER (New)	_____	_____
			Semi System W/2 MPSMU and FPD		
			Part # 4200-SCS/F		
			Manufacturer _____ # _____		
			Warranty _____		
00008	2	EA	HIGH POWER SOURCE-MEASURE UNIT (New)	_____	_____
			Part # 4210		
			Manufacturer _____ # _____		
			Warranty _____		
00009	2	EA	REMOTE PREAMP OPT 4200-SMU AND 4210-SMU	_____	_____
			Part # 4200-PA (New)		

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			Manufacturer _____ # _____		
			Warranty _____		
00110	1	EA	4210 CAPACITANCE VOLTAGE UNIT 1KHZ-10MH	_____	_____
			Part # 4210-CVU (New)		
			Manufacturer _____ # _____		
			Warranty _____		

DELIVERY MAY BE A FACTOR IN THE AWARD

Delivery is requested as soon as possible. Please state your best delivery in the space provided below:

Best delivery date _____

SPECIAL BID CONDITIONS

SBC 1 CONFLICT OF CONDITIONS
 In the event that there are any conflicts between the general bid conditions and these special bid conditions the special bid conditions shall take precedence.

SBC 2 BID AS SPECIFIED OR EQUAL
 The items on this request for quotations shall be as specified or equal. When the specifications specify a product by name of a manufacturer or vendor, or whenever the terms (similar to) and (equal to), or (approved equal) are used, the terms named are intended to set the standard for such materials or articles. The burden of proof shall rest solely with the supplier to prove that the proposed substitutes are equal to the materials or articles specified. The university shall be the sole judge as to whether the items submitted are equal to those specified.

SBC-3- SEALED BID
 The envelope in which quotations will be submitted should be identified by placing the required information on the outside of the envelope as follows: It is imperative that your name and address appear in the upper left corner of the envelope and that the collective number, due date and time of opening appear in the lower left corner. Bid openings shall be public, on the date and at the time specified on the bid form.

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All sealed bids must be received in the purchasing department on or before the date and hour specified for bid opening. Sealed bids that miss the deadline will be rejected and returned unopened or kept on file in the purchasing department. No qualifying letters or statements from vendors will be considered a justification for accepting late bids.

SBC-4 WARRANTY

Each bidder is required to attach to their quotation a detailed statement of warranty or guarantee. The statement should include the period of time involved as well as the specific details of the warranty

SBC-5- FOB

PLEASE QUOTE F.O.B. DESTINATION DELIVERED. TO INCLUDE ANY AND ALL FREIGHT CHARGES.

SBC 6 BID MUST BE IN ACCORDANCE WITH SPECIFICATIONS

Bidders are cautioned that unless otherwise stipulated in their bids, it will be assumed that they are bidding in strict accordance with the specifications and will be required to strictly comply therewith. Any deviations whatever from the specifications must be fully set forth and itemized in detail in a letter accompanying the bid. Generalized statements submitted with your bid in order to avoid complying with this requirement in full detail will not be accepted.

SBC 7 INTERPRETIATIONS AND ADDENDA

Any questions concerning conditions and specifications should be directed to the purchasing department in writing no later than five (5) days prior to the bid opening. Inquiries must reference the date of bid opening and RFQ number.

SBC-8 AWARD:

THE UNIVERSITY INTENDS TO AWARD TO A SINGLE VENDOR. LINES 1, 2, 4 AND 6 WILL BE AWARDED OR LINES 7, 8, 9, AND 10. THE DEMO EQUIPMENT SPECIFIED IN LINES 1, 2, 4 AND 6 ARE PREFERRED.

GENERAL BID CONDITIONS: All University of Tennessee general bid conditions apply to this bid. To view these conditions, which include protest procedures, please visit website "http://purchasing.tennessee.edu/general_bid_conditions.htm". If for some reason you are unable to access this website you may telephone (865) 974-3311 for a hard copy of these conditions.

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IF THE BIDDER TAKES EXCEPTION TO ANYTHING IN THE SPECIFICATIONS OR TERMS AND CONDITIONS THE EXCEPTION MUST BE LISTED BELOW IF NECESSARY. YOU MAY SUPPLEMENT YOUR COMMENTS WITH AN ATTACHEMENT LISTING YOUR EXCEPTIONS IF NO EXCEPTIONS ARE TAKEN WRITE 'NONE' IN THE AREA FURNISHED BELOW IF NO COMMENTS ARE FURNISHED IT WILL BE ASSUMED THAT NO EXCEPTIONS ARE BEING TAKEN

CERTIFICATION: MY COMPANY IS CLASSIFIED AS A:

NOTE: It will be assumed that business category is large if no response is furnished

LARGE BUSINESS _____ SMALL BUSINESS _____ WOMAN OWNED _____

PLEASE INDICATE BELOW ONLY IF YOUR FIRM IS AT LEAST 51 PERCENT OWNED BY A MEMBER(S) OF THE FOLLOWING GROUPS

BLACK AMERICAN _____ HISPANIC AMERICAN _____ ASIAN PACIFIC AMERICAN _____ NATIVE AMERICAN _____ ASIAN INDIAN AMERICAN _____

IT IS UNDERSTOOD AND AGREED THAT THIS BID WHEN CERTIFIED BY AN AUTHORIZED SIGNATURE SHALL CONSTITUTE AN OFFER WHICH WHEN ACCEPTED IN WRITING BY THE UNIVERSITY'S PURCHASING DEPARTMENT AND SUBJECT TO THE TERMS AND CONDITIONS OF SUCH ACCEPTANCE WILL CONSTITUTE A VALID AND BINDING CONTRACT BETWEEN THE UNIVERSITY OF TENNESSEE AND THE BIDDER/CONTRACTOR SUBMITTING SUCH OFFERING

WE OFFER TO SELL TO YOU THE ABOVE MATERIAL(S) OR SERVICES AT THE PRICE AND TERMS SPECIFIED HEREON AND IN ACCORDANCE WITH THE UNIVERSITY'S GENERAL AND ANY SPECIAL BID CONDITIONS FURNISHED AND INCORPORATED INTO THIS DOCUMENT ALL EXCEPTIONS ALTERNATIVE MATERIALS OR SPECIFICATIONS IF ANY HAVE BEEN CLEARLY INDICATED IF YOU HAVE ANY QUESTIONS ABOUT THIS REQUEST FOR QUOTATION CONTACT THE BUYER AT THE ADDRESS OR TELEPHONE NUMBER SHOWN ABOVE

WHEN OFFERING A "NO BID" PLEASE INDICATE YOUR REASON(S) BELOW AND RETURN THIS INFORMATION WITH YOUR RESPONSE

_____ DO NOT HANDLE THIS TYPE EQUIPMENT _____ CANNOT MEET SPECIFICATIONS

_____ CANNOT MEET REQUIRED DELIVERY _____ MATERIALS NOT AVAILABLE

_____ OTHER (SPECIFY) _____

IN COMPLIANCE WITH THE REQUIREMENTS OF CHAPTER 878 PUBLIC ACTS OF 2006 THE CONTRACTOR HEREBY ATTESTS THAT THE CONTRACTOR SHALL NOT KNOWINGLY UTILIZE THE SERVICES OF AN ILLEGAL IMMIGRANT IN THE PERFORMANCE OF THIS CONTRACT AND SHALL NOT KNOWINGLY UTILIZE THE SERVICES OF ANY SUBCONTRACTOR WHO WILL UTILIZE THE SERVICES OF AN ILLEGAL IMMIGRANT IN THE PERFORMANCE OF THIS CONTRACT

ALL FIRMS WISHING TO DO BUSINESS WITH THE UNIVERSITY MUST LIST THEIR FEDERAL TAX ID NO OR SOCIAL SECURITY NO (IF INDIVIDUAL) IN THE SPACE PROVIDED:
 TAX ID OR SSN: _____

 (Signature)

 (Date)

 (Printed Name and Company Name)

 (Title)

 (Telephone # Toll free if available)

 (FAX #)

 (E-Mail Address)

 (WEB Site Address)

CONDENSED SPECIFICATIONS

CURRENT SPECIFICATIONS

	Current Range	Max. Voltage	Measure		Source	
			Resolution ³	Accuracy ±(% rdg + amps)	Resolution ³	Accuracy ±(% rdg + amps)
4210-SMU ² High Power SMU	1 A	21 V	1 μA	0.100% + 200 μA	50 μA	0.100% + 350 μA
	100 mA	210 V	100 nA	0.045% + 3 μA	5 μA	0.050% + 15 μA
4200-SMU ² Medium Power SMU	100 mA	21 V	100 nA	0.045% + 3 μA	5 μA	0.050% + 15 μA
	10 mA	210 V	10 nA	0.037% + 300 nA	500 nA	0.042% + 1.5 μA
	1 mA	210 V	1 nA	0.035% + 30 nA	50 nA	0.040% + 150 nA
	100 μA	210 V	100 pA	0.033% + 3 nA	5 nA	0.038% + 15 nA
	10 μA	210 V	10 pA	0.050% + 600 pA	500 pA	0.060% + 1.5 nA
	1 μA	210 V	1 pA	0.050% + 100 pA	50 pA	0.060% + 200 pA
4200-SMU and 4210-SMU with optional 4200-PA PreAmp	100 nA	210 V	100 fA	0.050% + 30 pA	5 pA	0.060% + 30 pA
	10 nA	210 V	10 fA	0.050% + 1 pA	500 fA	0.060% + 3 pA
	1 nA	210 V	3 fA	0.050% + 100 fA	50 fA	0.060% + 300 fA
	100 pA	210 V	1 fA	0.100% + 30 fA	15 fA	0.100% + 80 fA
	10 pA	210 V	0.3 fA	0.500% + 15 fA	5 fA	0.500% + 50 fA
1 pA	210 V	100 aA	1.000% + 10 fA	1.5 fA	1.000% + 40 fA	

VOLTAGE COMPLIANCE: Bipolar limits set with a single value between full scale and 10% of selected voltage range

VOLTAGE SPECIFICATIONS

Voltage Range	Max. Current		Measure		Source	
	4200-SMU	4210-SMU	Resolution ³	Accuracy ±(% rdg + volts)	Resolution ³	Accuracy ±(% rdg + volts)
200 V ⁴	10.5 mA	105 mA	200 μV	0.015% + 3 mV	5 mV	0.02% + 15 mV
20 V	105 mA	1.05 A	20 μV	0.01% + 1 mV	500 μV	0.02% + 1.5 mV
2 V	105 mA	1.05 A	2 μV	0.012% + 150 μV	50 μV	0.02% + 300 μV
200 mV	105 mA	1.05 A	1 μV	0.012% + 100 μV	5 μV	0.02% + 150 μV

CURRENT COMPLIANCE: Bipolar limits set with a single value between full scale and 10% of selected current range

Additional Specifications

MAX. OUTPUT POWER: 22 watts for 4210-SMU and 2.2 watts for 4200-SMU (both are four-quadrant source/sink operation)

DC FLOATING VOLTAGE: COMMON can be floated ±32 volts from chassis ground

VOLTAGE MONITOR (SMU in VMU mode):

Voltage Range	Measure Resolution	Measure Accuracy ±(%rdg + volts)
200 V	200 μV	0.015% + 3 mV
20 V	20 μV	0.01% + 1 mV
2 V	2 μV	0.012% + 110 μV
200 mV	1 μV	0.012% + 80 μV

INPUT IMPEDANCE: >10⁹Ω

INPUT LEAKAGE CURRENT: <30pA

MEASUREMENT NOISE: 0.02% of measurement range (rms)

DIFFERENTIAL VOLTAGE MONITOR:

Differential Voltage Monitor is available by measuring with two SMUs in VMU mode or by using the low sense terminal provided with each SMU

GROUND UNIT

Voltage error when using the ground unit is included in the 4200-SMU, 4210-SMU and 4200-PA specifications. No additional errors are introduced when using the ground unit.

OUTPUT TERMINAL CONNECTION: Dual triaxial, 5-way binding post.

MAXIMUM CURRENT: 2.6A using dual triaxial connection; 8.5A using 5-way binding posts.

LOAD CAPACITANCE: No limit

CABLE RESISTANCE: FORCE ≤1Ω, SENSE ≤10Ω

NOTES

- All ranges extend to 105% of full scale
- Specifications apply on these ranges with or without a 4200-PA.
- Specified resolution is limited by fundamental noise limits. Measured resolution is 6½ digits on each range. Source resolution is 4½ digits on each range.
- Interlock must be engaged to use the 200V range.

CONDENSED AC SPECIFICATIONS

4205-PG2 PULSE GENERATOR SPECIFICATIONS

Standard pulse:	±20V into 50Ω ±40V into 1MΩ Period range: 20ns to 1s Programmable pulse width: 10ns to near DC
Arbitrary (ARB) waveform:	Depth: 256K points/channel Timebase: 20ns/point up to 1s/point, fixed timebase for entire waveform
Segment ARB™ waveform:	Depth: 1024 segments/channel Time per segment: 20ns to 1s, 10ns increments (each segment can have a different duration)

4200-PIV-A SPECIFICATIONS

Resolution:	100nA
Sample Rate:	1GS/s
DC Offset:	± 200V on drain
Pulse Source Voltage Range:	0 to ±5V into gate
Pulse Width:	40ns to 150ns

4200-CVU SPECIFICATIONS

Measurement Functions:	Measurement Parameters: Cp-G, Cp-D, Cs-Rs, Cs-D, R-jX, Z-theta.
Test Signal:	Frequency Range: 10kHz to 10MHz Minimum Resolution: 10kHz, 1MHz depending on frequency range. Source Frequency Accuracy: ±0.1% Signal Output Level Range: 10mV rms to 100mV rms. Resolution: 1mV rms Accuracy: ±(10.0% + 1mV rms) unloaded (at rear panel).
DC Bias Function:	DC Voltage Bias Range: ±30V Resolution: 1.0mV.
Sweep Characteristics:	Available Sweep Parameters: DC bias voltage, frequency.

KEY DIGITAL OSCILLOSCOPE SPECIFICATIONS

Bandwidth (50Ω):	DC to 750MHz
Channels:	2
Maximum sample rate:	1.25 giga-samples per second per channel 2.5 giga-samples per second one channel interleaved
On-board memory buffers:	Up to 1 mega-sample per channel

4200-PIV-Q TYPICAL SPECIFICATIONS

Gate and Drain Current Measure:	10pA resolution
Maximum Current Measure:	Gate: 100mA (into 50Ω) Drain: 760mA (into 50Ω)
Sample Rate:	200MS/s
Gate/Base Pulse Source:	-20V to +20V into 50Ω
Drain/Collector Voltage Range:	-38V to +38V into 50Ω
Pulse Width:	500ns to 999 ms

4200-FLASH SPECIFICATIONS

Pulse Source Voltage Range:	0 to ±20V into 50Ω 0 to ±40V into high impedance.
Pulse Width:	250ns to 1s
Switching time for DUT pin isolation:	100μs

C-V POWER PACKAGE TYPICAL PERFORMANCE

Measurement Parameters:	Cp-Gp, DCV, timestamp.
Ranging:	1pF to 1nF.
Test Signal:	100kHz to 10MHz, 10mV to 100mV.
DC Voltage Source:	±200V with 5mV resolution.
DC Current:	100mA or 300mA maximum.
Typical Cp Accuracy @ 1MHz:	1.0%.
DC Current Sensitivity:	10nA/V.
SMU Bias Terminals Supported:	4.

RAMP RATE QUASISTATIC C-V TYPICAL PERFORMANCE

Measurement Parameters:	Cp, DCV, timestamp.
Ranging:	1pF to 1nF.
Measurement Terminals:	Triaxial guarded.
Ramp Rate:	0.1V/s to 1V/s.
DC Voltage:	±200V.
Typical Cp Accuracy:	5% at 1V/s ramp rate