**SHORT TIME ENQUIRY**

**BIT/PUR/STT/EEE/21-22//IC000365/2021 DATE:13/09/2021**

To,

 **M/s. ..............................................**

Dear Sir,

Subject : Request for Quotation for Procurement PROGRAMMABLE SOLAR PV EMULATOR INTEGRATED WITH PROGRAMMABLE NEW CONVERTERS

You are requested to submit most competitive rates(s) for the following item(s) as per details given below (Sealed Quotations may be sent by hand or by post):

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| Last date and time for submissions of complete Quotations by Email to dr.purchase@bitmesra.ac.in, purchase2@bitmesra.ac.in sealed quotations can be submitted to the under mentioned address. | **04.10.2021 15:00 Hrs.**( If all LTE Vendors submit the quotation prior to the submission date, the quotations will be opened prior to last date of submission.) |

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| Sr.No. | Item Description | **Quantity** |
| 1 | PROGRAMMABLE SOLAR PV EMULATOR INTEGRATED WITH PROGRAMMABLE NEW CONVERTERS'' 4kW Solar Emulator integrated with Bi-Directional converter and accessories Solar PV Emulator:" KEY FEATURES:" Emulator is a programmable power supply designed to emulate solar panels " Short Circuit Current (Isc)/ Channel Range: 0-20 A" Open Circuit Voltage (Voc)/ Channel Range: 0-50V" Max Output Power/Channel : 4KW" Voltage Slew Rate Range: 0.01 V/ms - 2 V/ms" Current Slew Rate Range: 0.01A - 1 A/ms" No. of Channels: 4" Effect of shadow or cloud conditions on PV Panel" Calculation of Mpp, Fill Factor, Impp, and Vmpp" Efficiency vs load characteristics of a PV Panel" Implementation of series and parallel Solar PV Panel Connection" Effect of temperature under different irradiance condition s" Simulation of I-V characteristics" Simulation of P-V characteristics" Simulation of dynamic Irradiation intensity with Series Resistance" Simulation MPPT efficiency testing of PV inverters and charge controller" IV-PV graphs can be seen using the proprietary software" Data can be saved in csv file " Graphs can be saved in image formats" AC input voltage range : (180 - 230) V AC" PV SYSTEM CONSISTS" Analog Voltmeter" Analog Ammeter" Keys for PC/Standalone mode" GLCD Display Interface " Programmable power supply" Power full Arm processor used " US B Interface" Lab view software use for front end with control.'' Above PV emulator should be integrated with an existing Wind Emulator setup in smart grid lab.DC-DC-BUCK BOOST CONVERTER FOR MPPT TRACKING:2000W DC-Dc Buck Boost converter Switching device SEMIKRON based IGBT Rating @600v,100A ,20khz with proper heatsink and snubber circuit Used to form power circuit." I/P voltage range BOOST Mode:" -min : 300v Dc" O/P voltage range" -max : 650V Dc" I/P voltage range BUCK Mode:" -min : 450v Dc" O/P voltage range max : 150V Dc" Output power : 2000W(max)" Switching Frequency---5-20khz" SKYPER 32 short circuit protection driver circuit used " One Hall effect current sensor used to sense Inductor current and over load trip purpose." One hall effect voltage sensor used to sense the o/p voltage." Voltage and current sensor o/p terminated in front panel bs2 connector." Over load fuse protection available." Over temperature protection will be provided" One no of 4inch cooling fan used to dissipate switching device heatAccessories:-" DSO-50MHz" SPECIFICATIONS"Display: 5.7 TFT LCD with 65536 colors"Resolution: 320 × 234 Pixel" Size : 303 mm × 154 mm × 133 mm" Weight : 2.5 kg" Channels: 2" Real-time sample rate: 1 GSa/s real time" Bandwidth : 50 MHz" Sampling mode : Normal, average (2, 4, 8, 16, 32, 64, 128, 256), peak detect" Mathematics :A+B, A-B, A×B, FFT (Fast Fourier Transform)" FFT windows : Rectangle, Hanning, Hamming, Blackman" Max. Input voltage : 300 Vrms CAT I" Real-time sample rate : 13 Sa/s to 1 GSa/s real time" Time base : 5 ns/Div. to 50 s/Div. (Steps 1 - 2 - 5)" Memory : 1M Mpts (1 channel) 512K Mpts (2 channels)" Vertical : Analog digital converter (A/D)With the resolution of 8 bits, make sampling on both channels synchronously." Sensitivity range (V/div) : 2 mV/Div to 10 V/Div." Displacement range : ±10 Div. (2 mV - 10 V)" Trigger : Channel 1, Channel 2, Ext, Ext / 5, AC Line Signal system and line/field frequency (Video triggering mode) Support the NTSC, PAL and SECAM broadcasting systems of any field or line frequency." Measurement " Cursor measurement : Manual, Track and Auto Measure modes" Auto measurement : Vpp, Vamp, Vmax, Vmin, Vtop, Vbase, Vavg, Vrms, Overshoot, Preshoot, Freq, Period, Rise Time, Fall Time, +Width, -Width, +Duty, -Duty, Delay1-2 (rise), Delay1-2(fall) | **01 Nos.** |

Sealed Quotation may be submitted superscribed with reference number as appended hereunder:-

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| Quotation for Supply of ---- Ref.No. -------- **BIT/PUR/STT/EEE/21-22//IC000365/2021** To,Dy. Registrar (Purchase) Birla Institute of Technology From : M/s----------------------------------------Mesra , Ranchi , Jharkhand Address : ----------------------------------------835215 Contact No. ------------------------------------- Email ID---------------------------------------  |

GST Exemption: The Institute is partially exempted from the payment
of GST vide GOI Notification No.45/2017-Central Tax (Rate), dated
14.11.2017 and 47/2017-Integrated Tax (Rate), dated: 14.11.2017 the applicable IGST will be at the rate of 5%. Necessary documents (DSIR) and related certification will be provided.

1. HSN code of the material should be mentioned in quotation.
2. All entries in the quotation should be typed or computer printed without any ambiguity and should be free from correction etc. Hand written offers will be rejected.
3. Late and delayed tenders will not be considered. In case any unscheduled holiday occurs on prescribed closing date the next working day shall be the prescribed date of closing.
4. The quotation should be submitted with descriptive literature & drawing. The make of the items offered should be clearly specified.
5. Material should be confirming to our specification. The deviations if any should be clearly indicated in the quotations.
6. Successful bidder has to furnish the OEM test certificates along with the materials (if applicable).
7. Rate /Price: The offered price shall be on **FOR BIT Mesra on Door Delivery basis**.
8. No Advance payment will be considered at any circumstances.
9. If offered Price Term is other than the FOR-Destination term, approximate Freight & forwarding charges along with the applicable Insurance charges may be mentioned.
10. Details of GST registration, PAN No. should be furnished along with quotations.
11. Road Permit: The supplier shall arrange Road Permit on his own for transportation material to BIT Mesra and any additional tax liability on this account shall be borne and paid by the supplier.
12. Purchaser will not pay separately for transit insurance/taxes (if any) and the supplier will be responsible until the stores arrive in good condition at the destination.
13. Warranty: Period of warranty should be clearly mentioned and also the parts covered under it. Warranty will be applicable from the date of successful installation.
14. Service Facility: Supplier must mention about the service set up in India & confirm effective after sales service.
15. BIT Mesra is not bound to accept the lowest or any quotation for whatsoever reason and reserve its right to accept or reject in whole or in part any or all the quotations received without assigning any reason.
16. Applicable taxes shall be quoted separately for all items and levies payable by the supplier under the contract shall be included in the unit price.
17. Each bidder shall submit only one quotation and sealed quotation to be submitted / delivered at the address. (Alternatively it can be email at purchase2@bitmesra.ac.in or dr.purchase@bitmesra.ac.in) or deliver by hand.
18. Training clause ( if any )to be mentioned.
19. Delivery period should be mentioned clearly in the quotation.
20. Conditional tenders will not be considered.
21. Authorized dealership certificate should be submitted in case principal manufacturing company is not quoting directly.
22. Customs Duty: The Institute is exempted from payment of Customs Duty Vide GOI Notification No. 51/96 Customs, dated 23.07.1996 & No.24/2007-Customs dated 01.03.2007 with registration no 11/161/90-TU-V dated 24.07.2019. Sd/-

Dy. Registrar Purchase

BIT Mesra Ranchi-835215