



University of Calcutta
Dept. of Applied Physics
92 APC Road, Kolkata 700009

Tender Notice

Enq No.: AP/UGC-SAP-DRS-II/JNB/ENQ/19-20/12

Date: 31/10/2019

To

The All Interested Parties

Dear M/s.

Please submit sealed quotation within **11/11/2019 (4 PM)** at the Office of the Department of Applied Physics for the following item.

Please enclose the copy of the following papers along with the quotation.

1. Trade License, 2. PAN Card, 3. VAT & Service Tax Registration wherever necessary

1. Introduction

Department of Applied Physics, University of Calcutta (CU) invites sealed bids from GST compliant bidders for a turnkey contract based jobs

2. Background

Department of Applied Physics, University of Calcutta (CU) wants to make a smart power system lab, which is a part of smart grid test bed system, will facilitate hardware based simulation of power systems phenomena including major features of smart grid, testing and analysis for experiments and research purpose. The requirement envisages supplies to be made as modular components and future expansion of the modules to be integrated with the present scope to further introduce additional components for necessary analysis and testing.

3. Requirement for this Tender

Supply & commissioning of **Phasor Measurement Unit (PMU)** for power phasor monitoring on simulated 1500 KM AC transmission line, along with installation and commissioning services for the entire system.

Original Equipment Manufacturer (OEM) should directly quote for the supply item complying to the specifications given hereunder.

4. Scope of Work.

Supply, Commissioning & Installation of customised Phasor Measurement Unit (PMU) :1 Unit

- I. The scope of work will cover design, engineering, transportation to site, handling, erection, testing, trial run and commissioning of offered system to be interfaced with the smart grid test bed to act as Phasor Monitoring System at sending end and receiving end of a simulated 1500 KM transmission line.

- II. The PMU will comprise of following features:
PMU will have 3 Analogue Current Input from CT secondary, 3 Analogue Voltage input from PT for each end of the transmission line. Suitable CT and PT both to be supplied. Data generation for PMU must be 60 messages/ second minimum (instantaneous current and voltage), with storage memory for 1 hour as real time clock series database. The data output should be suitable for visualization in Node-red. Local display of instantaneous and rms current and voltage values to be provided. PMU should have **provision** for synchronizing with externally driven GPS clock through NTP or SNTP.
The PMU should ensure better than 1 microsecond resolution of timestamp matching for both the bay signals.

Communication module for RS485/LAN/Profibus based remote data acquisition through PLC or any other custom made networking are to be provided.

ROCOF information (following IEC60850) must be available from the customised module and must be included in the message.

Remote GUI for display of the parameter in the custom made graphical format is to be provided.

- III. Site survey for understanding the technical requirements.
- IV. Existing equipment to be relocated, if required.
- V. The modules should be portable, with provision for laying cable suitably (Tenderer to visit site for offering suitable solution). Necessary power terminals to be provided for external interfacing.
- VI. GI, conduits pipes, tools and tackles, cable trays racks, junction box, foundation bolts, inserts and anchor etc. and all the required materials fittings, and accessories to be provided as necessary.
- VII. Spares and consumables for commissioning of the total system.
- VIII. Any small civil work if necessary during erection.
- IX. Drawing documents to be furnished.
- X. Tenderer should supply required power cables and control cables. Communication cable will not be part of this supply.

5. General terms of supply.

- XI. Power tapping source will be within 10 metres from the location of modules
- XII. Power supply will be 3 phase, 415 VAC, 50 Hz.
- XIII. Experts to be provided by the bidder for installation and commissioning till handover.

For
Professor Jitendranath Bera, Coordinator,
UGC SAP DRS-II Program
Dept of Applied Physics
University of Calcutta

For queries, please contact: jitendrabera@rediffmail.com; jnbaphy@caluniv.ac.in
Mobile: 09231513793