

AMENDED OF QUOTATION NO – KDU/PRO/CAP/275/2021

01. Please be kind enough to pay your attention on following amendment.

File No – KDU/PRO/CAP/275/2021

Amendment – Above reference tender is to be amended tender open date as 2021.10.05 and amended specifications as follows,

Power System Simulation and Generator Parameter Determination

1. Work scope

The General Sir John Kotelawala Defence University (KDU) requires expanding its practical capabilities for the modules Power System and Electrical Machines and Drives. The main aim of the practicals that are being prescribed, is to give the undergraduates hands on experience in electrical concepts that are learnt in the classroom. Further, the experiments also include some that are conducted at Ceylon Electricity Board (CEB) on their generators. The same experiments are to be conducted in scaled down apparatuses so that the students will have the required knowledge. The SCADA system for the first four practicals is an essential to give the experience of a Control Room Operator (CRO) for the undergraduates.

After conducting the practicals the students are to have a sound knowledge and the experience on how the power system is controlled and how to measure the parameters of generators.

2. Laboratory experiments to be facilitated

- (1). Impact of Q flows on the voltage profile
- (2). Load sharing by two generators
- (3). Frequency variations under small signal disturbances
- (4). Dynamic voltage regulation with On-Line Tap Changer (OLTC)
- (5). Salient Rotor Generator Slip test
- (6). Cylindrical Rotor Generator open circuit and short circuit test
- (7). Test to determine the transient parameters of a salient rotor generator

3. Documents to be supplied (In English)

a. With the offer

- i. Comprehensive manufacturer's technical literature for the system.
- ii. Reference for the used cases at reputed academic institutions in similar or higher capacities.
- iii. Manufacturers Authorization.
- iv. Basic outline of each practical should be presented
- v. Manufactures certification on the OEM support/spare parts availability for 10 years from the date of supply of the item.
- vi. Company profile of the supplier with.

b. With delivery of the system,

- i. Comprehensive manufacturer's technical literature.
- ii. User Guides.
- iii. 03 sets of Instructor Guides.
- iv. 02 sets of students Manual for each module

4. Warranty

Minimum of one year comprehensive warranty (Excluding consumables) for all supplied items from the date of commissioning should be provided. If free services are provided, same should be clearly indicated. Warranty period will be extended by the total non-operational days owing to warranty defects.

5. Agreement

Successful bidders will be required to enter into an agreement with the KDU on matters pertaining to supply, installation, commissioning, warranty, and after sales service support for minimum of 10 years.

6. Training

03 No's Lectures/instructors are to be trained at local agent's workshop for a duration of minimum 03 working days on conducting laboratory modules on the system.

Onsite training program for 02 Technical Officers during installation.

Possibility to consult an expert at the manufacturer and in resolving specific problems that could arise in day-to-day operations

7. Place of Delivery

System to be delivered to the laboratory at, KDU, Ratmalana, along with the copy of order and relevant invoice. For quality control checks supplier should arrange a joint quality control check at the laboratory on completion of the installation.

8. Financial

- | | |
|---------------------|--|
| Validity period | - Bidders to indicate. (Shorter delivery period will be preferred.) |
| b. Validity period | - To be indicated by the bidders. |
| c. Discounts if any | - To be indicated by the bidders. |
| d. Any other taxes | - To be indicated by the bidders. |
| Other details | - VAT registration no/ exemption letter issued by department of inland revenue to be attached. |

Expansion of LabVolt Training System

1. Work scope

General Sir John Kotelawala Defence University (KDU) offers Electrical Machines and Drives Module for Electrical Engineering undergraduates. The module comprises of 3 phase IGBT inverters and induction motor drives. The current system comprises of numerous Electrical Machines practicals however, it does not facilitate driver experiments. Therefore, by this expansion the undergraduates will get hands on experience on three phase motor drives operation and control. Further, the expansion also facilitates the ability to conduct two practical sessions at the same time for modules such as Electrical Engineering Fundamentals, Electrical Measurements, etc.

2. Laboratory experiments to be facilitated

The proposed expansion in the LabVolt setup shall be able to perform experiments as follows.

- (1). The Single-Phase PWM Inverter
- (2). Power Diode Single-Phase Rectifiers
- (3). Power Diode Three-Phase Rectifiers
- (4). Three-Phase PWM Inverter
- (5). Three-Phase, Variable-Frequency Induction-Motor Drive
- (6). Three-Phase, Variable-Frequency Induction-Motor Drive with Constant V/f ratio
- (7). DOL Starters and Soft Starters
- (8). Advanced Features of Soft Starters

3. Documents to be supplied (In English)

- a. With the offer
 - i. Comprehensive manufacturer's technical literature for the system.
 - ii. Reference for the used cases at reputed academic institution in similar or higher capacities.
 - iii. Manufacturers Authorization.
 - iv. Brief description of the laboratory modules which can be carried out under the topics mentioned at above para 2.
 - v. Manufactures certification on the OEM support/spare parts availability for 10 years from the date of supply of the item.
 - vi. Company profile of the supplier with.
- b. With delivery of the system,
 - i. Comprehensive manufacturer's technical literature.

- ii. User Guides.
- iii. 03 sets of Instructor Guides.
- iv. 02 sets of students Manual for each module

4. **Warranty**

Minimum of one year comprehensive warranty (Excluding consumables) for all supplied items from the date of commissioning should be provided. If free services are provided, same should be clearly indicated. Warranty period will be extended by the total non-operational days owing to warranty defects.

5. **Agreement**

Successful bidders will be required to enter into an agreement with the KDU on matters pertaining to supply, installation, commissioning, warranty and after sales service support for minimum of 10 years.

6. **Training**

a. 03 No's Lectures/instructors are to be trained at local agent's workshop for a duration of minimum 03 working days on conducting laboratory modules on the system.

b. Onsite training program for 02 Technical Officers during installation.

c. Possibility to consult an expert at the manufacturer end in resolving specific problems that could arise in day-to-day operations.

7. **Place of Delivery**

System to be delivered to the laboratory at, KDU, Ratmalana, along with the copy of order and relevant invoice. For quality control checks supplier should arrange a joint quality control check at the laboratory on completion of the installation.

8. **Financial**


- | | |
|---------------------|--|
| a. Delivery period | - Bidders to indicate. (Shorter delivery period will be preferred.) |
| b. Validity period | - To be indicated by the bidders. |
| c. Discounts if any | - To be indicated by the bidders. |
| d. Any other taxes | - To be indicated by the bidders. |
| e. Vat details | - VAT registration no/ exemption letter issued by department of inland revenue to be attached. |

9. Required Equipment Specifications

Sr No	Item	Labvolt Part/Model No.	Quantity
1	Permanent Magnet DC Motor	8114247 (8213-10)	1
2	Resistive Load	763359 (8311-00)	1
3	Resistive Load	579512 (8311-05)	1
4	Filtering Inductors/Capacitors	579526 (8325-A5)	1
5	Three Phase Filters	579529 (8326-00)	1
6	Capacitive Load	579545 (8331-05)	1
7	Three-Phase Transformer Bank	579562 (8348-45)	1
8	Synchronizing Module / Three-Phase Contactor	579578 (8621-A5)	1
9	Lead-Acid Battery Pack	579591 (8802-10)	1
10	Power Supply	579614 (8823-05)	1
11	IGBT Chopper/Inverter	579626 (8837-B5)	1
12	Power Thyristors	763379 (8841-25)	1
13	Rectifier and Filtering Capacitors	579633 (8842-A5)	1
14	Timing Belt	579637 (8942-00)	1
15	Four-Quadrant Dynamometer/Power Supply	579665 (8960-E5)	1
16	Data Acquisition and Control Interface	579686 (9063-D0)	1
17	24 V AC Power Supply	579697 (30004-25)	1
18	Four-Pole Squirrel-Cage Induction Motor	586269 (8221-25)	1

Warranty: All the items shall be provided minimum one-year warranty

02. Thank you.


SA Kumaranayaka
LCdr(S)
Officer Commanding Logistics Service