



KERALA ELECTRICAL & ALLIED ENGINEERING CO. LTD.

(GOVERNMENT OF KERALA UNDERTAKING)

Registered & Corporate Office –Mamala PO ,Ernakulam

KUNDARA UNIT –Kundara PO, PB NO 8,KOLLAM ,691501

TENDER No. KEL/FL/ MMD/K326/E PROC/26-27

Date: 21.08.2026

NOTICE INVITING TENDER

Kerala Electrical & Allied Engineering Co. Ltd. (KEL) invites e-tender for the Supply, Installation, Testing and Commissioning of 250 kW Variable Speed Drive (VSD) Panel for Test Bed from eligible and experienced manufacturers/system integrators.

SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 250 kW VARIABLE SPEED DRIVE (VSD) PANEL FOR TEST BED		
01	Tender inviting Authority, Designation and Address	Deputy General Manager KEL Kundara Kollam
02	a) Name of the Work/Service	SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF 250 kW VARIABLE SPEED DRIVE (VSD) PANEL FOR TEST BED
	b) Tender reference	KEL/FL/MMD/K /EPROC/26-27
	c) Material	250 kW Variable Speed Drive Panel, 415 V AC, 50 Hz
	d) Quantity	1 LS
	e) Place of Delivery	KEL Kundara
	f) Delivery Schedule	As per schedule issued by KEL
03	Earnest Money Deposit	Rs 50,000/- (Fifty Thousand rupees only)
04	Tender documents available	As mentioned in the Tender details www.etenders.kerala.gov.in
05	Tender Publishing Date	As mentioned in the Tender Details (www.etenders.kerala.gov.in)
06	Tender Submission date and Time	As mentioned in the Tender details www.etenders.kerala.gov.in)
07	Tender Closing Date and Time	As mentioned in the Tender details www.etenders.kerala.gov.in)
08	Tender opening date and Time	As mentioned in the Tender details www.etenders.kerala.gov.in)

09	Tender Opening Place	KEL,KUNDARA PO KOLLAM
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This tender is invited in 2 cover system from the registered and eligible firms through e-procurement portal of Government of Kerala (<https://www.etenders.kerala.gov.in>). Prospective bidders willing to participate in this tender shall necessarily register themselves with above mentioned e-procurement portal.

The tender timeline is available in the critical date section of this tender published in www.etenders.kerala.gov.in.

1. Online Bidder registration process:

- a. Bidders should have a Class II or above, Digital Signature Certificate (DSC) to be procured from any Registration Authorities (RA) under the Certifying Agency of India. Details of RAs will be available on www.cca.gov.in. Once, the DSC is obtained, bidders have to register on www.etenders.kerala.gov.in website for participating in this tender. Website registration is a one-time process without any registration fees. However, bidders have to procure DSC at their own cost.
- b. Bidders may contact e-Procurement support desk of Kerala State IT Mission over telephone at 0471-2577088, 2577188, 2577388 or 0484-2336006, 2332262 and through email: etendershelp@kerala.gov.in & eprocsupport.ker@nic.in for assistance in this regard.

2. Online Tender Process:

The tender process shall consist of the following stages:

- a. **Downloading of tender document:** Tender document will be available for free download on www.etenders.kerala.gov.in. However, tender document fee shall be payable at the time of bid submission as stipulated in this tender document.
- b. **Publishing of Corrigendum:** All corrigendum will be published on www.etenders.kerala.gov.in, which will be a part of the tender.
- c. **Bid submission:** Bidders have to submit their bids along with supporting documents to support their eligibility, as required in this tender document on www.etenders.kerala.gov.in. No manual submission of bid is allowed and manual bids shall not be accepted under any circumstances.
- d. **Opening of Technical Bid and Bidder short-listing:** The technical bids will be opened, evaluated and shortlisted as per the eligibility and technical qualifications. All documents in support of technical qualifications shall be submitted (online).

Failure to submit the documents online will attract disqualification. Bids shortlisted by this process will be taken up for opening the financial bid.

- e. Opening of Financial Bids:** Bids of the qualified bidder's shall only be considered for opening and evaluation of the financial bid.

3. SUBMISSION PROCESS:

- a.** For submission of bids, all interested bidders have to register online as explained above in this document. After registration, bidders shall submit their Technical bid and Financial bid online on www.etenders.kerala.gov.in along with online payment of tender document fees and EMD.
- b.** For page by page instructions on bid submission process, please visit www.etenders.kerala.gov.in and click "Bidders Manual Kit" link on the home page.
- c.** It is necessary to click on "Freeze bid" link/ icon to complete the process of bid submission otherwise the bid will not get submitted online and the same shall not be available for viewing/ opening during bid opening process.

4. CATEGORIES OF BIDDERS FROM WHOM BIDS ARE SOLICITED:

Indian Manufacturers or System Integrators of AC Variable Speed Drives having the required experience in supply, testing and commissioning of similar Variable Speed Drive panels.

5. ELIGIBILITY CRITERIA

Eligibility criteria to participate in the tender

- a. The bidder should be a manufacturer or system integrator of AC Variable Speed Drives and should have supplied, tested and commissioned a minimum of 4 Nos. of similar panels of 180 kW and above during the last three financial years, i.e., 2023-24, 2024-25 and 2025-26, in India. The supplied panels should be in satisfactory operation.
- b. If the bidder is an authorized system integrator, a valid authorization letter from the OEM shall be submitted.
- c. The experience of the OEM will be considered subject to the following terms
 - 1) The OEM shall approve the final drawing.
 - 2) OEM service engineer shall be available at site for commissioning

6. TECHNICAL SPECIFICATION OF VARIABLE SPEED DRIVE PANEL

6.1) Motor Details

Sl. No.	Parameter	Specification
1	Application	Traction Alternator Test Bed
2	Motor rating	250 kW
3	Voltage	415 V AC
4	Current	407 A
5	Speed	3000 RPM

6.2) Panel Operation

The panel shall have the following modes of operation:

Panel Mode

- a) Start and Stop from the control panel.
- b) Rotary switch for enabling motor forward and reverse rotation.
- c) Speed increase and decrease from the control panel using potentiometer.
- d) Emergency Stop.
- e) Reset push button.

Multifunction meter shall be provided for displaying electrical parameters.

LED Indications

The following LED indications shall be provided:

- a) Cumulative Fault.
- b) Drive Ready.
- c) Status of all phases- R, Y, B.
- d) Motor Running.

One push button shall be provided for LED lamp testing.

6.3) Drive and Panel Requirements

- a) Advanced operator panel for the drive shall be provided on the control panel door for parameter setting and viewing different drive alarms in the drive.
- b) Control supply ON/OFF switches and emergency push buttons shall be provided.
- c) Output choke shall be provided in the panel.
- d) MCCB shall be provided for isolation and protection of the panel at the supply side.
- e) MCBs shall be provided in control circuits.
- f) Glass fuses and HRC fuses shall be avoided in control circuits.

7. GENERAL SPECIFICATIONS OF THE PANEL

7.1 Drive Control

- a) Microprocessor-based digital regulation and control shall be provided for precise speed and torque control.

- b) Adjustment of system variables and modification of control blocks shall be possible through user-friendly software.
- c) Apart from built-in panel door mounted console, basic parameter programming, drive diagnostics and troubleshooting software shall be supplied.
- d) The drive shall have RS232 / USB / TCP/IP port for connection to a computer having the diagnostic software installed. The computer is excluded from the scope of supply.
- e) If the drive has any other communication port, a converter of reputed make shall be provided in the panel.

7.2 Panel Construction

- a) Minimum panel dimension: 2000 (H) × 1200 (W) × 800 (D) mm.
- b) Self-standing, full-height sheet-steel fabricated panel.
- c) The cubicles shall be fabricated from CRCA sheets of minimum 2.0 mm thickness and powder coated with Siemens grey.
- d) Power and control wiring shall be segregated and 30% spare control terminals shall be provided.
- e) Drive manufacturer's guidelines shall be strictly followed while mounting the Variable Speed Drive.
- f) Sufficient space shall be available at all the sides of drive as per manufacturer's guideline.
- g) Necessary panel lighting, cooling fans and air filters shall be provided.
- h) The thermal heating of the panel shall be calculated and sufficient cooling fans shall be selected accordingly.
- i) The panel is supposed to be mounted in a non-air-conditioned room. All the panel accessories and electronics shall be suitable to operate for an ambient condition of 0-50° C and 5-85% humidity.

7.3 Contactors and Relays

- a) All the control contactors shall be AC 15 category and use of changeover relays shall be avoided in the panel except for direct the output from VFD.
- b) All contactors connected to 'VFD digital outputs' shall be wire

with snubber circuit for protection.

7.4 Wiring

- a) The minimum size of the power cables shall be as per the applicable IEC standards.
- b) The control wiring shall be done with 1.5 sq.mm. cables.
- c) All the cables and bus bars shall be of copper.
- d) The control wiring for VFD I/Os shall be wired with cables as per OEM recommendation.

Control Wiring Color Code

Sl. No.	Signal	Color
1	Analog Signal +ve	Orange
2	Analog Signal –ve	White
3	24V +ve	Brown
4	24V -ve	Blue
5	Phase	Red
6	Neutral	Black
7	Earth	Yellow with Green lines
8	Other control wiring	Grey

- a) Any voltage other than mentioned here can be carried out with other separate colors.
- b) PVC cable trays shall be selected so that 50% spare space remains available in the panel after successful commissioning.
- c) All terminal blocks shall be minimum 4 sq. mm size.
- d) The incoming and outgoing cables of drive shall be as per the Drive Manufacturer catalogue.

8. DRAWING APPROVAL AND FAT

- a) The supplier shall submit the detailed Wiring and GA Drawing for approval before commencement of panel fabrication.
- b) Factory Acceptance Test (FAT) shall be conducted before delivery of the panel.
- c) All components shall be selected from the preferred makes specified in the tender.

9. PREFERRED MAKES

Sl. No.	List of accessories	Preferred makes
1	Panel enclosure	Rittal
2	VFD	Siemens/ABB/Fuji/Danfoss/Allen Bradely /Schneider/Yaskawa
3	MCCB	Siemens/ABB/ telemecanique
4	Panel fan	EBM NADI
5	MCB	ABB/ Schneider/Siemens/Legrand
6	Selector switch	Schneider/Lapp/Teknic
7	Pushbutton	Schneider/Lapp/Teknic
8	Choke	Elmas/CSE/TS international
9	Power contactor	telemecanique /Siemens/ABB
10	Control contactor	telemecanique /Siemens/ABB
11	Overload relay	Schneider/Siemens
12	Digital Meters	Schneider/ABB/L&T/ ELMEASURE
13	Analog meter	Conserve/Rishab/AE
14	Ammeter/Voltmeter Selector switch	Kaycee / Salzer

15	Current Transducer	Pyrotech
16	Multi function meter	ELMEASURE, EN 8400 eNAVIGATOR
17	Semiconductor Fuse	Bussman
18	Rotary switches/Selector switch	Kaycee / Salzer/Teknic
19	Current transformer	Kappa/AE
20	Door limit switch	Reputed
21	Terminal Blocks	Pheonix/Connectwell/Wago
22	SFU/SDU/Change over switch	ABB/Siemens
23	LED	Siemens/Lapp/Schneider
24	Overload relay	ABB/ telemecanique /Siemens
25	Power/Control cable	Lapp

10.DOCUMENTATION

The supplier shall provide both soft and hard copies of the required documents in English.

The successful bidder shall submit the following documents during engineering for approval:

1. GA drawing of the panels.
2. Bill of Materials with make and part number.
3. Wiring diagram of the panels.
4. Drive Manual.
5. Heat Load Calculation.

After successful commissioning, 3 sets of as-built documents shall be submitted:

1. GA drawing of the panels.
2. Bill of Materials with make and part number.
3. Wiring diagram of the panels.
4. Drive Installation and Commissioning Manual.

5. List of Drive Parameters.
6. Soft copy of all the above documents (Drawings shall be submitted in AutoCAD format).

11. TECHNICAL BID/ COMMERCIAL BID

Technical bid proposal shall contain the scanned copies of the following documents which every bidder has to upload:

- i. Notice Inviting Tender duly signed.
- ii. Preferred Makes duly signed- (Annexure A).
- iii. Technical catalogue/datasheet of the VSD Panel.
- iv. Power Line and GA drawing of the VSD Panel.
- v. Catalogues of the drive and drive mounting details.
- vi. Bill of Materials (BOM) of the Panel, with make and part number
- vii. Wiring diagram of the VSD Panel
- viii. Drive Installation and Commissioning Manual
- ix. List of Drive Parameters
- x. Heat load calculation
- xi. Any other relevant documents.
- xii. Experience Documents: Copies of 4 Purchase Orders for supply of similar VSD Panels of 180 kW and above, supplied, tested and commissioned in India during the last three financial years, i.e., 2023-24, 2024-25 and 2025-26. The supplied panels shall be in satisfactory operation. Supporting documents evidencing satisfactory operation/commissioning shall also be submitted, wherever applicable.
- xiii. Relevant test certificates / performance certificates from at least 2 clients, wherever applicable.
- xiv. Manufacturer's authorization certificate, wherever applicable
- xv. Other Pre –Qualification Requirements
 - Financial statements for the last two years

- GST registration details
- Company registration proof (CIN/valid certificate).
- Undertaking – no legal/vigilance/CBI cases.
- Proof of experience – certificates/invoices/work orders.
- Self-certification – not blacklisted/debarred; no contract terminated/EMD forfeited.
- Banker's name, Account no. PAN card. etc.

12. PRICE BID

The Bidder shall upload the Price bid as per format given in cover 2:-

- a. The prices quoted shall be for Supply of complete 250 kW VSD Panel, Drive monitoring and programming software, Interconnection cable, Local push-button station, Testing, FAT, Supervision of commissioning and all accessories required for satisfactory operation of the panel at KEL, Kundara Unit, Kollam District on for destination basis.
- b. The GST and any other statutory levies shall be clearly mentioned in the Price bid.
- c. The rate quoted in the BoQ shall be for one No only.
- d. The bidder shall upload the price break up sheet also in price bid.

13. Tender Document Fees and Earnest Money Deposit (EMD):

- a. The Bidder shall pay, Tender fee: ₹ 2,950/- ; EMD: ₹ 50,000/- to safeguard against bidder default.
- b. EMD of unsuccessful bidders will be refunded automatically; for successful bidders, refund is after submission of Security Deposit (SD).
- c. Successful bidders must submit SD of 5% of contract value within 10 days (via DD or Bank Guarantee).
- d. SD is waived for existing suppliers and must be revised if contract value increases.
- e. SD bears no interest and may be adjusted or forfeited for non-performance, delays, or risk purchase.
- f. SD will be refunded only after full contract completion.
- g. The requirement of Security deposit is waived off for existing

suppliers.

- h. MSME suppliers are exempt from EMD.

14. GENERAL CONDITIONS

- a. The offered Variable Speed Drive (VSD) Panel shall strictly comply with the technical specifications, scope of supply and other requirements specified in the tender. KEL reserves the right to inspect and test the offered panel/components before dispatch and/or during commissioning.
- b. The supplier shall ensure that the VSD Panel and all associated components supplied are new, unused and free from defects in design, material and workmanship.
- c. The supplier shall be responsible for ensuring compatibility of the VSD Panel with the 250 kW, 3-phase induction motor and the 520 kW Traction Alternator Test Bed. Any additional accessories/components required for satisfactory and safe operation of the supplied panel, which are within the supplier's scope as per the approved design, shall be provided by the supplier without additional cost.
- d. The supplier shall provide all required technical documentation, including GA drawings, wiring diagrams, BOM, VFD manuals, drive parameter lists, test reports and as-built drawings, as specified in the tender.
- e. Any deviation from the technical specifications shall be clearly indicated in the technical bid. Deviations not specifically declared by the Tenderer shall be deemed to be in conformity with the tender requirements.
- f. The supplier shall provide a warranty for the VSD Panel and all associated components. Any defect arising during the warranty period due to defective materials, workmanship, or manufacturing defects shall be rectified or the defective component/equipment shall be repaired or replaced by the supplier at no additional cost to KEL.
- g. The successful Tenderer shall ensure proper packing, transportation and safe delivery of the VSD Panel and shall be responsible for any damage caused due to inadequate packing or

handling during transportation.

- h. Tenderers will not be entitled to claim any costs for preparing or submitting the bid. Firms that failed to meet previous KEL contractual obligations, resulting in short closure/cancellation (not due to KEL), or those blacklisted, are ineligible for two years.
- i. The Tenderer shall bear all taxes, Stamp duties, License fees and other such levies imposed except GST. GST will be paid extra if it is applicable.
- j. KEL may modify or amend the tender terms before the e-tender closes. Any updates, corrections, or additional conditions published on www.etenders.kerala.gov.in are binding. Bidders must regularly check the website for corrigenda.
- k. Participation implies acceptance of all terms; complaints post-submission will not be entertained
- l. Purchase Orders with delivery schedule will be placed as per the requirement during the rate contract period. The supplier should adhere to the delivery schedule indicated in the P.O.
- m. KEL reserves the right to reject any or all tenders or cancel the tender at any stage without assigning any reasons thereof.
- n. If the performance of the supplied VSD Panel is not satisfactory or if the supplier fails to comply with the contractual requirements, KEL shall have the right to forfeit the Security Deposit remitted in favour of KEL, with an option to claim further damages, if any, from the Tenderer.
- o. Since KEL is a public sector undertaking fully owned by the Government of Kerala, the applicable government policies, procedures and directions from time to time will also be the basis for deciding on the procurement.
- p. Tenderers who fail to comply with earlier contractual obligations of KEL which resulted in short closure/cancellation of any contract are not eligible to participate in this tender.
- q. The denomination of quote should be INR only.
- r.** Payment for the supply will be made against receipt of the bills for

the quantity accepted by us as per our records (Goods Receipt Note).

- s. The company reserves the right to accept or reject any or all the tenders without assigning any reasons whatsoever.
- t. We reserve the right to suspend or terminate contract at any time during the pendency of the contract by giving prior notice to the supplier.
- u. Submission of false, dubious, forged or tampered documents by the tenderers shall lead to the disqualification of the tender and action as deemed fit (including forfeiture of EMD) by the KEL shall be taken against such erring tenderer.
- v. It should be clearly understood by the tenderer(s) that no opportunity shall be given to him/them to modify or withdraw his/their offer after the date & time stipulated for submission of tender. In case of modification or withdrawal of the offer by any bidder after the date & time stipulated for submission of tender, the EMD submitted with tender shall be forfeited.
- w. The tenderer has to indemnify KEL for any losses, accrued to alteration/modification made/observed in the terms and conditions, including General Conditions of the tender downloaded from the website (www.etenders.kerala.gov.in).
- x. If at any stage any change/modification is noticed in the downloaded tender document, tenderer will abide by the original terms and conditions, including General Conditions of the tenderer, failing which, KEL reserves the right to reject the tender and/or terminate the contract.
- y. KEL reserves the right to call all or any of the tenderer for clarification and seek additional information/documents.
- z. KEL reserves the right not to consider parties having any dispute arising out of any omission/ commission/ negligence etc. resulting into any type of loss to KEL during the last five years, in order to protect KELs interest. KEL reserves the right to reject any or all tenders or cancel the tender at any stage without assigning any reasons thereof.

15. ADDITIONAL TERMS AND CONDITIONS

- a.** Any disputes, claims out of or in connection with this order shall be subjected to the jurisdiction of Courts at Kollam, Kerala.
- b.** Delayed supply attracts liquidated damages of 0.5% per week (max 10% of undelivered value), subject to force majeure, without affecting KEL's right to terminate under Risk Purchase.
- c.** If either party cannot perform obligations due to events beyond their control (e.g., war, civil unrest, natural disasters, government restrictions, strikes, epidemics) the performance timeline will be extended. If such circumstances exceed three months, either party may terminate the contract without claiming damages. The affected party must notify the other within 15 days, and proof from authorities or Chambers of Commerce will suffice. Material or financial unavailability alone is not an excuse.

Bidders are requested to contact mmd.kundara@kel.co.in for any further clarifications, drawing etc.

For Kerala Electrical & Allied Engineering Co. Ltd.
Sd/-

HOD (Materials)

Sign and Seal of the bidder