

	<p>भारतीय प्रौद्योगिकी संस्थान पालक्काड  <b>Indian Institute of Technology Palakkad</b>  अहलिआ एकीकृत कैम्पस, कोज़िहपारा  Ahalia Integrated Campus, Kozhipara  पालक्काड- 678557  Palakkad – 678 557</p>	<p>दूरभाषसंख्या/ Phone no:  04923 – 226300/590/586  ईमेल/ Email :  purchase@iitpkd.ac.in</p>
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Ref No: IITPKD/ELE/AA/040/2017

Date: 04.10.2017

Due Date of the tender: 20.10.2017 @ 3 PM

**TENDER FOR INVITING QUOTATIONS**

Dear Sirs,

On Behalf of Indian Institute of Technology Palakkad quotations are invited for “**Data Acquisition Systems for Electrical Machines Lab**” confirming to the specification in the Annexure.

1. **Preparation of Bids:** - The tenders should be submitted **under two-bid system** (i.e.) Technical bid and Financial bid. The technical bid should consist of all technical details along with commercial terms and conditions. No prices should be included in technical bid. Financial Bid should indicate item – wise prices for the items mentioned in the technical bid. The technical and the financial bids should be put in separate cover and sealed. Both sealed covers should be put into a bigger cover.
2. The Quotations duly sealed and superscribed on the envelope **with the reference No. and due date, should be addressed to the undersigned so as to reach him on or before the due date stipulated above. Fax and Email quotation are not acceptable.**
3. The price should be quoted per unit and packing and delivery charges should be indicated separately. The offer/bids should be exclusive of Taxes and Duties, which will be paid by the purchaser as applicable. However the percentage and of taxes and duties as on date should be clearly indicated.
4. The Quotations should be valid for **sixty days** from the due date and the period of delivery required should also be clearly indicated.
5. If the item is under DGS&D Rate contract No. and the price must be mentioned. It may also please be indicated whether the supply can be made direct to us at the Rate contract price (Please note that we are not Direct Demanding Officers). If so please send copy of the RC.
6. **Local Firms:** Quotations should be for free delivery to this Institute. If Quotations for Ex-Godown delivery charges should be indicated separately.
7. Outside Palakkad: Quotations should be for **F.O.R. at IIT Palakkad**. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If Ex-Godown, packing, forwarding and freight charges must be indicated.

8. Goods shall not be supplied without an official supply order.
9. **Custom Duty:** Custom Duty which will be paid at a concessional rate against duty exemption certificate.
10. **Payment:** Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later. No advance payment will be made. The Tenderer have to furnish the bank details along with tender like Account No, Account Name, IFSC Code, Bank address etc.
11. **Submission of Bids:** Quotation should be sent to the following address “**The Registrar, Indian Institute of Technology Palakkad, Ahalia Integrated Campus, Kozhipara, Palakkad -678 557, Kerala**”, Phone No: **04923 226 586/590**, Email: [purchase@iitpkd.ac.in](mailto:purchase@iitpkd.ac.in).
12. **Delivery Period:** The quotation should indicate clearly when delivery and installation to be made.
13. **Delay in Supply or Liquidate damages:** If the supplier fails to deliver the stores within the time specified in the purchase order, the purchaser will recover from the supplier as liquidated damages a sum of one- half of one percent (0.5%) of the P.O value of the undelivered stores for each calendar week of delay. The total liquidated damages shall not exceed five percent (5%) of the P.O price of the unit or units so delayed. Stores will be deemed to have been delivered only when all their component parts are also delivered. If certain components are not delivered in time, the stores will be considered as delayed until such time as the missing parts are delivered.
14. **Late offer:** The quotation received after due date will not be considered. Please ensure that your offer is sent well in advance to reach the Institute by the due date.
15. **Loading and unloading charges will be borne by the supplier.**
16. **Warranty:** Warranty Clause should be indicated clearly.
17. **Acceptance and Rejection:** IIT Palakkad has the right to accept the whole or any parts of the Tender or portion of the quantity offered or reject it in full without assigning any reason.

Yours faithfully,

Encl: Specifications

**Registrar, IIT Palakkad**

## Specifications for Data Acquisition Cards For Electrical Machines Lab

### A. Who can participate?

1. Bidder should be either an Original Equipment Manufacturer (OEM) of data acquisition cards/allied systems OR an authorized dealer having purchase and support agreement with such an OEM. Proof of authorization needs to be provided. IIT Palakkad reserves the right to determine if the field is allied or not and its decision will be final.
2. The bidder should be a company registered under the Companies Act, 1956/2013 OR a Limited Liability Partnership (LLP) OR a registered partnership firm OR a sole proprietorship entity. Appropriate Registration/ incorporation certificate to be submitted.
3. Bidder must be in existence in the business of data acquisition or allied fields for a minimum period of 2 previous financial years (i.e., before or since 01-April-2015). Documentary evidence of experience must be provided.
4. **Compliance sheet for the specification & OEM Brochure has to be attached along with Technical bid. Vendor has to fill the compliance sheet and mention page number or reference number in OEM brochure. Unfilled / partial filled sheets lead to disqualification**

### B. Technical Specification

#### 1. Overview

- a. Number of Data Acquisition Boards : 16
- b. Power supply : via USB (v 2.0 or higher)
- c. Communication with host PC (Windows) : via USB(v 2.0 or higher). Appropriate Windows 10 compatible GUI based interface software must be provided. The license agreement for this software must allow IIT Palakkad to use the software perpetually.
- d. Inputs and Outputs :
  - i. Analog Inputs : at least 16 (single ended) / 8 (differential)
  - ii. Analog Outputs : at least 2
  - iii. Digital Inputs : at least 4
  - iv. Digital Outputs : at least 4
  - v. Isolation : All inputs and outputs must have atleast 60 V (CAT-1) isolation built-in.
  - vi. General Purpose Counter Timer : at least 2
  - vii. Frequency Generator : at least 1
- e. Must be fully controllable and programmable via NI-LabView.
- f. System must have Self Test and Self Calibration supported.

- g. Data acquisition board must have suitable protective enclosure. All standard accessories (including cables and connectors etc.) need to be included in the quote.
- h. **At least three year Warranty must be provided.**
- i. Bidder must have a Standard Service Program for Hardware repair. Any additional cost for this service must be included in the price bid.

**2. Detailed Specifications :**

a. Analog Inputs :

ii.	Number of Channels	Single Ended Operation : at least 16 Differential Operation : at least 8
b.	Analog-Digital-Converter Resolution	At least 16 bits
iii.	Sampling Rate	Single Channel Operation : at least 250 kS/s Multi-channel operation : at least 250 kS/s as aggregate over all channels
iv.	Small signal Bandwidth	At least 450 kHz
v.	Input range	+/- 0.2V to atleast +/- 10 V ; must be programmable by user
vi.	Absolute accuracy	Less than 3000uV at 10V range Less than 100uV at 0.2V range
vii.	Input Coupling	DC
viii.	CMRR for differential inputs	At least 100 dB
ix.	Input impedance	> 5 G Ohm when powered ON > 1 k Ohm when powered OFF
x.	Overvoltage protection	At least +/- 20 V for upto two Analog Input Pins

b. Analog Outputs:

iii.	Number of Channels	At least 2
ii.	Digital-Analog-Converter resolution	At least 16 bits
iii.	Update Rate	Single Channel Operation : at least 250 kS/s Multichannel Operation : at least 250 kS/s per channel
iv.	Slew Rate	At least 5V/us
v.	Output range	At least +/- 10V
vi.	Output Coupling	DC
vii.	Output impedance	At most 0.2 ohm
viii.	Output drive	At least +/- 2 mA
ix.	Waveform modes	Non-periodic waveform, periodic waveform regeneration mode to deliver programmable waveform capability.

c. Digital Inputs :

i.	Number of Channels	At least 4
ii.	Voltage levels	Compatible with TTL logic

d. Digital Outputs :

i.	Number of Channels	At least 4
ii.	Voltage levels	Compatible with TTL logic

e. Frequency Generator :

i.	Number of Channels	At least 1
ii.	Voltage levels	Compatible with TTL logic
iii.	Base Clocks	10 MHz, 100 kHz
iv.	Divisors	1 to 16

f. General purpose Counter/Timer :

i.	Number of counter/timer	At least 2
ii.	Voltage levels	Compatible with TTL logic
iii.	Resolution	At least 32 bits
iv.	Internal Base Clock	At least upto 80 MHz.

g) External Trigger : Software programmable for analog input / analog output and counter / timer functions.