

ELECTRONICS CORPORATION OF INDIA LIMITED
CONTROL AND AUTOMATION DIVISION
Materials Management Division

ECIL/CAD/MMS/2013-14

Dt.05/11/2013

Sub: Tender through "tenders.gov.in" and "ECIL Website" – Reg.
Ref: Indent No.19-64-451436, Dt.21/09/2013.

...
This request may please be put under the heading "TENDERS".

Enclosed herewith enquiry calling quotations for "Portable Field Signal Simulator" through "tenders.gov.in" and "ECIL Website".

Matter to be written in tenders column:

Manufacturers/ Authorized Distributors of "Portable Field Signal Simulator" is invited to quote.

Due date : 28 /11/2013

Data that is to be put on website consists of 10 pages is enclosed here with.

You are requested to publish on website "tenders.gov.in" & "ECIL Website".

Y. Hemalatha
(Y.HEMALATHA)
SM/PUR

THROUGH: (G.MOHAN RAO)
I/C,MMS

HEAD,RPD
6-11-13

DIRECTOR (P)
6/11/2013

To
Shri M.P.Ranga Rao/ Shri A.C.Rao, SDGM
Administrator EC Net
ECIL.

वी.एस.बी.बाबु
V.S.B. BABU
निदेशक (कार्मिक)
Director (Personnel)

सि (कॉ), की आवक / अगस्त में
DIP) IN/OUT No.
दिनांक/Date. 06.11.13

Phone : +91-40-2718 6619, 2718 2395 & 2718 2242, 2712 1013
Fax : +91 -40-2712 1013 / 2712 3762
E-mail : yhemalatha@ecil.co.in, rrc@ecil.co.in, cadmms@ecil.co.in



19 F 12-004 R0

Electronics Corporation of India Limited
A Government of India Enterprise
CONTROL & AUTOMATION DIVISION-PURCHASE
ECIL Post, Hyderabad - 500 062.

ENQUIRY No. EC/PUR/CAD/ 1964/451436
DATE: 2013.10.01
DUE DATE: 2013.11.28

e-mail:
OFFICE COPY

Contact: YHL(SM), yhemalatha@ecil.co.in

Dear Sir(s),

Kindly submit you quotation in a Sealed Envelope Superscribing Enquiry No. and Due Date for the supply of the following items as per terms and conditions overleaf to PURCHASE MANAGER - CONTROL & AUTOMATION DIVISION ECIL, HYDERABAD-62. QUOTATIONS AGAINST EACH TENDER SHALL BE SENT IN SEPARATE ENVELOPE. QUOTATIONS RECEIVED AFTER THE DUE DATE AND TENDERS SENT IN OPEN/UNSUPERSCRIBED ENVELOPE WILL BE REJECTED. PLEASE SEND REGRET LETTER, IF YOU ARE NOT ABLE TO QUOTE TO CONTINUE TO KEEP YOUR NAME IN OUR MAILING LIST.

IMPORTANT INSTRUCTIONS

Parties must give the following information otherwise offer may be rejected.

1. Unit Rate and Terms of price
2. Quantity discount if any
3. Rate of Excise Duty, Sales Tax if any
4. Firm Delivery schedule
5. Mode of despatch
6. Estimated Packing and Forwarding Charges
7. Validity of quotation
8. Terms of payment
9. Sales Tax Registration Number/
VAT and Service Tax Regn. No
10. SSI/NSI Regn. No.

Sl.No.	Material Description and Specification	Estimated Requirement	
		Unit Code	Quantity
1	PORTABLE FIELD SIGNAL SIMULATOR(PFSS) as per Scope of work, Technical Specifications & Terms and Conditions enclosed as per the following Annexures. Annexure-1: Introduction & Scope of work Annexure-2: Technical Requirements Annexure-3: Special Terms & Conditions. Annexure-4: Instructions and Commercial conditions. <u>Special Notes.</u> 1. OUR PAYMENT TERMS ARE 90 DAYS CREDIT. PLEASE QUOTE WITH THE SAME TERMS. 2. PLEASE SEND CATALOGUES AND DATA SHEETS ALONG WITH YOUR OFFER. 3. PLEASE QUOTE TERMS OF PRICE AS FREE DELIVERY TO OUR STORES 4. THE ABOVE MATERIALS ARE URGENTLY REQUIRED. PLEASE QUOTE EARLIEST DELIVERY DATE. 5. IF YOU ARE ANABLE TO QUOTE, SEND REGRET LETTER POSITIVELY BY FAX/MAIL. OUR FAX NO 27121013 ANAD MAIL ID yhemalatha@ecil.co.in. TO ENABLE US TO KEEP YOU IN MAILING LIST. 6. THIS IS TWO PART BID MECHANISM	Sets	1.00

- NOTE:**
1. CERTIFICATE OF COMPLIANCE/BATCH CERTIFICATE/CCOE/CMRI/ATX/WARRANTY TEST CERTIFICATE SHALL BE FURNISHED. PLEASE CONFIRM.
 2. DATA SHEETS (CATALOGUES) SHALL BE SUPPLIED WITH THE QUOTATION.
 3. IF THE MATERIAL IS COVERED UNDER DGS & D RATE CONTRACT. PLEASE QUOTE THE RATES ACCORDINGLY.
 4. IF THE MATERIAL IS COVERED UNDER EXCISE, FURNISH EXCISE TARIFF NUMBER AND CLASSIFICATION.

For Electronics Corporation of India Limited

वाई. हेमलता / Y. HEMALATHA
वरिष्ठ प्रबंधक / Senior Manager
सीएडी-क्रय/CAD-PURCHASE
ई सी आई एल, हैदराबाद
ECIL, HYDERABAD-500 062

Indent NO: 451436-

Annexure-1

Portable Field Signal Simulator

I Introduction:

ECIL is interested in procuring Portable Field Signal Simulators (PFSSs) to simulate field signals like RTD – PT100, K-Type Thermocouples, variable DC voltage 0-10 V, variable DC currents 4-20 mA, Digital Inputs etc. The Simulator should also read variable currents of 4-20 mA and 24 DC voltage signals for processing as per the Test system requirements.

The detailed Technical Specifications as per enclosed Annexure- 2.

II Scope of Work:

1.0 The vendor should design, develop, supply, development of software, integration and commissioning at PFBR, Kalpakkam for feeding/accepting signals from SPC/ RTU cabinets.

SPC- These are the Electronic cabinets designated as |Signal Processing Cabinets

RTU- These cabinets are located in the field for processing field signals and are designated as Remote Terminal Units.

2.0 Identification of hardware modules, Rack with wheels, card frames, fan modules, power supplies, back-planes types, interface modules for connecting the cables, software packages required for simulating the field signals/parameters mentioned in Annexure-2. Integration of hardware modules, software packages and development of test software with operator interface with host PC (Industrial PC) is also to be undertaken.

3.0 Design, development of generic software for selecting various I/Os covered by PFSS. The I/O software should contain Tag No, Type of I/O, Engineering Units, Max & Min Values, Alarm values, etc. The channel numbers of various I/Os should be able to map to Various Tag Nos. The software should also involve various Logic symbols. This software is required for development of application software by ECIL/ BHAVINI Engineers involving various logics.

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Annexure-2

III Technical Requirements.

1. System Configuration.

The PFSSs should be designed based on open standard modular instrumentation platforms like VME/cPCI/PXI/LX/VXI/GPIB etc. VME boards must be used for generating K Type Thermocouple Signals and all other signals shall be generated or accepted by cPCI/PXI/LXI/VXI/GPIB based systems. IEEE/ANSI standards for modular instrumentation platforms are preferable.

2. Output Signals from PFSSs.

Signals	No of Signals	
	PFSS1	PFSS2
K Type T/C Signals	110	110
0-10 Volts.	40	40
4-20 mA	35	35
RTD	30	0
Digital Output	150	150

The supplier should develop Software modules for all the above Outputs from the PFSS.

3. Input Signals to PFSSs.

Signals	No of Signals	
	PFSS1	PFSS2
Digital Inputs	75	75
4-20 mA	8	8

The supplier should develop Software modules for accepting above Inputs from SPC/RTU cabinets

4. I/O Accuracy and Protection.

- All the signals should have short or open circuit proof, Minimum of 250 V AC isolation.
- Temperature measurement should be ± 0.5 Deg Celsius.
- RTD measurement should be ± 0.5 Ohms.

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- d. Analog Output: Output should be stable and maximum variation should be + / - 5mV DC.
- e. Digital Outputs: Potential Free contact should drive resistive and inductive loads of 1 amp at 240 V AC, 50 Hz. The system should have 250 V AC channel to channel isolation. The system should provide the status of the each channel through LED for all the channels.
- f. Digital Inputs: Current sinking / sourcing type, 24 V or 48 V DC as contact interrogation voltage. Field to logic isolation should be 250 V AC including channel to channel. LED status indication for all the contacts are required for diagnostic purposes.

5. Portable and Compact PFSSs.

The PFSS should be housed in two independent rack units. The maximum dimensions of each cabinet should be 800 mm (W) * 1500 mm (H) * 1000 mm (D). Each cabinet should contain approximately 50% of all types of signals. These cabinets will be designated as PFSS1 and PFSS2. Both the PFSS1 & PFSS2 should work independently with independent controllers. The PFSS1 & PFSS2 will be independently used to testing various SPC and RTU cabinets.

Some of the SPC / RTU cabinets require more signals i.e. more than 50% of some types of signals. In such case, PFSS1 & PFSS2 should be combined into a single unit. One of the systems will be defined master controller and the other cabinet will act as slave. This should be achievable with minimum change in wiring/software/hardware.

PFSSs should be compact mobile units, housed in standard 19" racks. The PFSS should go into various LCC rooms / Field at PFBR Kalpakkam site for testing SPC/RTU cabinets. The maximum dimensions of the unit should be 800 mm (W) * 1500 mm (H) * 1000 mm (D). The unit shall have wheels for easy movement and should also have anchoring facility.

*In some of the areas of PFBR plant the approach for SPC/RTUs are so narrow that an operator cannot take PFSS cabinet (dim 800 mm (W) * 1500 mm (H) * 1000 mm (H)) near to UUT. To ease this problem one of PFSSs i.e. PFSS2 should be so designed that cPCI/PXI/VME/LXI/VXI racks should be removable from PFSS2 cabinet (800 mm (W) * 1500 mm (H) * 1000 mm (H)) along with interconnecting hardware and the looms. These two racks i.e. cPCI/PXI/VME/LXI/VXI racks should be available as individual as well as combine unit. In combined format the system should work as a single unit. The bidder may contact ECIL for any further clarification on this aspect. On receipt of the bids, it is deemed that the supplier has well understood this point and submitted the offer. Any extra claim on this account or any other account will not be entertained.*

6. Test Software.

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All the inputs / outputs should be user selectable. ON/OFF control for individual Digital inputs and outputs should be provided. Voltage variation mimics for all analog inputs and outputs. Temperature variation for thermocouple, resistance variation for all RTDs etc should be displayed and user should be able to change the values for all the channels. System wise, operator wise, test results should be generated and stored in the **cPCI/PXI/VME/LXI/VXI based** system and transferrable through Ethernet.

7. Connectivity with UUT.

The connectivity between PFSSs and Unit Under Test (SPC/RTU cabinets) should be high quality wires with MIL grade dis-connectable connectors at both ends i.e. at PFSS and cabinet ends with unique identity. The wire length should be minimum of 10 meters without compromising the accuracy of the signal. However, the length of the wires should be maximum possible without compromising the accuracy of the signal.

8. System Architecture.

The PFSSs should be housed in IEC standard rack with standard 19" card frames. The system should work on single phase 240 V, 50Hz AC power supply. The PFSSs should be portable and modular construction for moving to various LCC locations of PFBR, Kalpakkam. PFSSs should be based on cPCI/PXI/VME/LXI/VXI modular instrument platforms with a main controller or as deemed suitable and with combination of cPCI/PXI/VME/LXI/VXI/O boards. The PFSS should also have Industrial Computer connected to main system with a high speed Ethernet link for controlling the PFSS systems(s). Operating temperature of 0- 55 Deg Celsius. The system should be completely modular and minimizing the mean time to repair. COTS products are only to be used and proprietary hardware will not be considered.

9. Control.

A standard operating system should run in the Host PC (Industrial Computer), on which the application software shall be executed. All resources shall be managed by a development package; hence any standard application development environment (ADE) like C, C++, C#, VB, LABVIEW, Agilent VEE, Matlab etc) can be used to control the instrumentation hardware. Universal Plug-play (Upnp) drivers should be supplied with all hardware modules such that it supports all popular Application development environments. Hardware of various manufacturers' should seamlessly work in the application development environment (ADE). The software developed using any of the ADEs should be backward and forward compatible with change in versions. Fresh licensing should be avoided.

Instrument CPU/ controller shall control the card cage/chassis and shall act as interface between operator interface (Industrial PC) and Instrumentation platform. The CPU should communicate with instrument modules in industry standard & open architecture protocols (proprietary architecture and protocols will not be considered). It should also provide the master clock source for test of the instrumentation in that chassis/ card

cage to maintain tight time synchronization between all I/O. The CPU / Controller must perform basic tasks like On-board Resource Management, Power-On-Self-Test (POST) etc. and should report any hardware malfunctions.

10. Time Synchronization.

Standard protocol shall be used to synchronize the timing across multiple cPCI/PXI/LXI/VME/VXI chassis and Industrial host PC. The physical connectivity shall be standard Gigabit Ethernet and all Timing Synchronization protocols shall be run on it, as a protocol (UDP-PTP) to ensure the system wide time synchronization. An optional PCI add-on card can be added to synchronize the PC to the rest of PFSSs.

A system-wide trigger bus with few independent trigger lines should be implemented, such that any instrument can utilize & distribute the triggers for entire PFSS. The PFSS should also accept external triggers from UUTs (Unit Under Test) as well as send triggers to it. This will form a uniform handshake system between PFSS and UUT, so that no data is lost. However the PFSS should also be able to asynchronously generate the signals, as commanded by the application software.

11. I/O Connections.

The various looms/wires should be color-coded for different types of signals and labeled for easy identification. Interconnections between the cabinets/racks should be incorporated with standard interface modules.

12. Airflow.

The airflow management should guarantee enough cooling capacity to satisfy even the most power-hungry applications. The cooling direction should follow traditional airflow conventions for instrument rack.

13. Maintenance.

The modules/sub-assemblies, cable assemblies should be completely modular and easily accessible/removable and minimizing the mean-time-to-repair.

Special Terms and Conditions

1. The scope of work is Design, Supply, Installation and Commissioning of Portable Filed Signal Simulators for testing the SPC/RTU cabinets at PFBR, Kalpakkam Site. As per the detailed specifications enclosed as Annexure-2.
2. Bidders should be either reputed manufacturer or authorized system integrator of precision modular & scalable instrumentation products for electronic signal distribution, data acquisition and monitoring, ATEs etc. They should be capable to integrate / automate the functional testing of complex electronic systems using COTS hardware and software architectures..
3. The bidder should have experience of supplying and commissioning of similar PFSS system or should have supplied & commissioned systems used for testing, control, automation, etc in the last 3 years. The order should be of value Rs. 1 Crore and proof of having such experience may be submitted.
4. This is a Two Part bid the bidder has to submit the offer as (i) Techno-commercial bid in Part-A and (ii) Price Bid in Part-B. The Part-A bid should contain complete offer – **except prices**. The Part-B bids of the bidders who qualify in Part-A bids will **ONLY** be further processed. Also the bidder should submit Part-A bid soft copy in a CD.
5. The bidder may quote in Foreign exchange / INR.
6. The PFSS has to be installed / commissioned at PFBR Project, Kalpakkam 70 KM south of Chennai.
7. The bidder should offer the PFSS as a complete package on single point responsibility basis. Any hardware / software required for complete system is in the scope of the bidder. The bidder has to quote for fabrication and supply of any additional hardware or software to meet the functional requirements of the system.
8. It is deemed that the bidder has thoroughly understood the system requirements and to make the system work he has to consider all the other associated hardware / software and interfaces required for the system. If the bidder has got any doubts, he can get clarifications with ECIL in writing before submission of the offers. On receipt of the bids, it is deemed that the supplier has well understood all requirements of PFSS. Any extra claim of money/time on this account or any other account will not be entertained.
9. The bidder has to quote for all the tools and test equipment required for the

10. The bidder should submit General Arrangement and Bill of Materials of all the items he is offering. They will have to provide detailed Instrumentation Schematics, Wiring Diagram, etc.

11. The bidder should quote for sufficient spares for 5 (five) years operation of the PFSS.

12. The PFSS should have on-site warranty for a period of 5 years from the date of commissioning. Any extra charges required for this may be addressed in the price bid.

13. The supplier should prepare (a) Quality Assurance Plan (QAP) and (b) Inspection Procedure (IP) and submit the same for our approval. The approved QAP and IP will be followed for inspection.

14. The system will be inspected at source/PFBR Site (Acceptance Test) by ECIL or our representatives. Approved Inspection Procedure as above will be followed

15. The bidder should arrange Training for 12 persons from ECIL or our representatives in operation and maintenance of the system. The duration is for one week.

16. ECIL prefers that the PFSS System should be supplied within 6 months from the date of PO and complete installation & commissioning within 45 days from the date of giving clearance. Bidder may however quote his delivery and commissioning timelines.

17. The bidder should provide point wise compliance for all the points covered in Annexure-1, Annexure-2 and Annexure-3.

18. Documentation: The bidder should provide 25 copies of Instruction Manuals as hard copies and 5 soft copies for System. The bidder should indicate the details of contents that they propose to give in the manuals.

20. The supplier shall provide 3 copies of Certificate of Compliance (COC) stating that the material supplied is as per the specifications mentioned.

21. Payment terms:

A. For Indigenous Items:

- 70% plus taxes /duties against receipt and acceptance of the system at site.
- 25% on commissioning and acceptance of the system at site.
- 5% on submission of complete documentation against PBG.

B. For Imported Items:

- 100% against irrevocable LC
- ECIL will provide CD exemption certificate for all imported items
- ECIL may procure the hardware items directly from vendor

22. If any ambiguity is there among the clauses referred in various documents the stringent clause as per the discretion of the purchaser (ECIL) will be enforced.
23. Performance Bank Guarantee shall be executed for 5% of the order value during Warranty Period.
24. Confidentiality: The supplier should sign Non-disclosure Agreement if the order is placed on him.
25. All imported material will be cleared at Hyderabad Customs by ECIL. The bidder may note this point while quoting and hence may quote all the imported items in FE.
26. After clearing the imported material ECIL will issue the material to the supplier as a free issue material. The supplier should submit a Bank Guarantee for the value of free issue material. The value should include Customs Duty in INR.
27. Packing & Forwarding charges if any are to be borne by the vendor.
28. Terms of Price: EX-works for imported material and FOR PFBR site for Indigenous material.
29. The supplier should not have any objection for amending the PO for increase or decreasing in quantities of various items ordered in PO (if awarded to the supplier) or re-ordering of additional quantities at the same price, if ordered during execution of order or up to within one year from the date of execution of PO.

INSTRUCTIONS AND COMMERCIAL CONDITIONS
ENQUIRY NO: 451436

1. The Quote is to be submitted by courier in Duplicate.
2. We require validity for at least 60 days from the date of your Price Bid.
3. The Standard Liquidated Damages clause is applicable for delayed deliveries. The Clause Read as "In the event of any delay in Deliveries beyond 06 months of receipt of Purchase Order. Liquidated Damages will be recovered @ ½% per week subject to maximum of 5% on undelivered portion.
4. The standard Risk Purchase Clause is applicable to this requirement. The Clause Read As "In the event of failure to comply with the Purchase Order Terms & Conditions, ECIL has Right to cancel the order and proceed with an alternate source. In such case, you shall have to bear the extra cost incurred by us which will be recovered from your available Credits. Please convey your acceptance in your quote.
5. Arbitration: All disputes or differences whatsoever arising between the parties out of or relating to the construction meaning and operation or effect of this contract or the breach thereof shall be settled by arbitration in accordance with the rules of arbitration of the Indian council of arbitration, the venue of arbitration being in India and the award made in pursuance thereof shall be binding on the parties.
6. EMD: Earnest Money Deposit shall be submitted in the form of Bank Guarantee/DD for Rupees 5 Lakh along with the quotation in a separate envelope.
7. Please comment on each of above Clauses in your quote without fail and also comment on technical specifications in your quote.