



**Government of India
Central Water & Power Research Station
Khadakwasla, Pune – 411 024**

No.708/1/EE(C)/WCS/PCDAS/15

Date : 17.12.2015

TENDER NOTICE

Executive Engineer (Civil) CWPRS, Pune for and on behalf of the President of India, invites, sealed tenders from eligible suppliers for the supply of following stores:

Sr No	Item	Quantity	Earnest Money Deposit in Rupees
	Supply, Installation and Commissioning of PC based Data acquisition system including load cell, signal conditioner, stepper motor and its drive (Specifications enclosed- Annexure I,II,III,IV)	One unit	10,000/- (Rupees Ten Thousand only)

Tender forms could be obtained from the office between 0930 hrs and 1600 hrs upto 01.01.2016 on payment of a non-refundable fee of Rs 500/- in cash or in the form of DD drawn in favour of Executive Engineer (Civil), CWPRS payable at Pune. Tender form can also be downloaded from CWPRS Website : www.cwprs.gov.in and should be submitted alongwith tender form fee of Rs 500/- in the form of DD drawn in favour of Executive Engineer (Civil), CWPRS payable at Pune. Bids received without exact EMD and Tender form fee will be summarily rejected.

Reputed Firms may send their lowest offers for the same in Sealed Envelopes superscribing Bid for the above mentioned item in person / by post so as to reach Executive Engineer (Civil), CWPRS, Pune 411 024 (India) on or before 04.01.2016 upto 1430 hours, the Bids would be opened at 1500 hours on 04.01.2016.

Executive Engineer (Civil)



**Government of India
Central Water & Power Research Station
Khadakwasla, Pune – 411 024**

TENDER DOCUMENT

FOR

Work of Supply, Installation and Commissioning of PC based Data acquisition system including load cell, signal conditioner, stepper motor and its drive - 1Unit.

SIGNATURE AND SEAL OF BIDDER

Phone: 24103220 / 24103267
Email: ee_civil@cwprs.gov.in

Fax : 020- 24381004
Website : www.cwprs.gov.in

**GOVERNMENT OF INDIA
MINISTRY OF WATER RESOURCES, RIVER DEVELOPMENT
& GANGA REJUVENATION
CENTRAL WATER & POWER RESEARCH STATION,
KHADAKWASLA, PUNE-24**

**THIS DOCUMENT FROM PAGE 2 ONWARDS SHOULD BE RETURNED IN
ORIGINAL DULY SIGNED**

BID DOCUMENT FOR

**Work of Supply, Installation and Commissioning of PC based
Data acquisition system including load cell, signal conditioner,
stepper motor and its drive - 1 Unit.**

INQUIRY NO. : 708/1/EE(C)/WCS/PCDAS/15
NAME OF BIDDER :

PHONE :
FAX :
LAST DATE FOR RECEIPT OF BIDS : 04.01.2016 UPTO 1430 HOURS
DATE OF OPENING OF BIDS : 04.01.2016 UPTO 1500 HOURS

THIS BID DOCUMENT CONTAINS THE FOLLOWING:

- TENDER NOTICE
- TERMS & CONDITIONS AND DOCUMENTS TO BE ENCLOSED
ALONGWITH BIDS.
- MANNER OF SUBMISSION OF BIDS
- BILL OF QUANTITY
- TECHNICAL SPECIFICATIONS
- COMPLIANCE STATEMENT

**THE BIDDER SHOULD READ ALL THE INSTRUCTIONS IN THE DOCUMENT
THOROUGHLY BEFORE SUBMITTING THE BID AND ADHERE TO THE DATES
GIVEN.**

SIGNATURE AND SEAL OF BIDDER

EXECUTIVE ENGINEER (CIVIL)



**Government of India
Central Water & Power Research Station
Khadakwasla, Pune – 411 024**

No.708/1/EE(C)/WCS/PCDAS/15

Date : 17.12.2015

TENDER NOTICE

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Sr No	Item	Quantity	Earnest Money Deposit in Rupees
	Supply, Installation and Commissioning of PC based Data acquisition system including load cell, signal conditioner, stepper motor and its drive (Specifications enclosed- Annexure I,II,III,IV)	One unit	10,000/- (Ten Thousand only)

Tender forms could be obtained from the office between 0930 hrs and 1600 hrs upto 01.01.2016 on payment of a non-refundable fee of Rs 500/- in cash or in the form of DD drawn in favour of Executive Engineer (Civil), CWPRS payable at Pune. Tender form can also be downloaded from CWPRS Website : www.cwprs.gov.in and should be submitted alongwith tender form fee of Rs 500/- in the form of DD drawn in favour of Executive Engineer (Civil), CWPRS payable at Pune. Bids received without exact EMD and Tender form fee will be summarily rejected.

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Executive Engineer (Civil)

SIGNATURE AND SEAL OF BIDDER

2.0 TERMS AND CONDITIONS

A) GENERAL

1. **ADHERENCE TO ALL THE TERMS AND CONDITIONS:** The bidder should adhere to all the terms and conditions. If there is any discrepancy in complying with any term and condition laid down, the bid is liable to be rejected and decision of the competent authority would be binding on the bidder.
2. **DUE DATE :** The bid received after the due date and time will be rejected.
3. **BID CLARIFICATION :** The bidder may obtain the required clarification if any, before presenting the bid. No clarification will be sought after opening of the tender.
4. **DOCUMENTS REQUIRED:** The documents of valid registration, contracts, authorization, dealership certificate for arranging supply of stores / instruments etc. should be supplied or it is likely that the bids would not be evaluated.
5. **UNDERTAKING BY THE OM:** A letter of undertaking from each of the Original Manufacturer (OM) for the machine / equipment supplier that in case the bidder authorized by them defaults in execution of this tender the OM(s) will take all steps for successful execution of the tender without any additional cost to the Govt.
6. **DETAILS OF TIE-UP WITH OM:** The bidder to give details of tie-up, in terms of supply, support, servicing and warranty etc. with OM(s). In case of a bidder quoting a product without proof of backing from OM their tender will be rejected without giving any notice.
7. **REJECTION OF BID :** The competent authority reserves the right to accept or reject any or all the bids without assigning any reasons therefore.
8. **LOWEST BIDDER (L1):** L1 vendor (bidder) shall be decided on the comprehensive total cost of all items in Technical specifications of material. Single option with most economical prices for the machine / equipment meeting specification ONLY will be accepted. Financial evaluation on common platform i.e. the cost incurred by CWPRS in getting the goods at their premises (concessional custom duty, transport and insurance) shall be included in arriving at the lowest bidder L1. Exchange rate on the date of opening of financial bid will be considered.
9. **BILL OF QUANTITY :** The quantities of procurement are stated in %Bill of Quantity+.

SIGNATURE AND SEAL OF BIDDER

10. **VALIDITY OF THE BID** : The bid for the work / supply shall remain open for a period of 180 days from the date of opening of bids. The Government shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the earnest money if any bidder withdraws his bid before that date or makes any modification in the terms and conditions of the bid which are not acceptable to the department, and to forfeit whole of the earnest money if the bidder, whose bid is accepted, fails to commence the work / supply specified in the NIQ (along with changes in scope, if any) in prescribed time or abandons the work / supply before its completion.

11. **AMENDMENTS TO THE BIDS** : The amendments shall be notified in writing or by FAX to all prospective bidders on the address intimated at the time of purchase of the bid document from CWPRS and these amendments will be binding on them.

12. **MODIFICATION AND WITHDRAWAL OF BIDS:** - The bidder may modify or withdraw his bid after submission, provided that the written notice of the modification or withdrawal is received by the purchaser prior to the deadline prescribed for submission of bids. The bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched as required in the case of bid submission.

13. **BID OPENING:** -

- a) CWPRS shall open bids in the presence of bidders or their authorized representatives who choose to attend, on due date. The bidder's representatives, who are present, shall sign an attendance register. Authority letter to this effect shall be submitted by the bidders before they are allowed to participate in bid opening.
- b) A maximum of two representatives of any bidder shall be authorized and permitted to attend the bid opening.
- c) The bidder's names, Bid prices, modifications, bid withdrawals and such other details as CWPRS, at its discretion, may consider appropriate will be announced at the time of opening.
- d) The date fixed for opening of bids, if subsequently declared as holiday by the CWPRS, the revised date of schedule will be notified. However, in absence of such notification, the bids will be opened on next working day, time and venue remaining unaltered.

14. **REPLIES TO QUERIES** : All the queries may please be replied point to point, so as avoid back reference.

15. **PLACEMENT OF ORDER** : CWPRS shall consider placement of orders for commercial supplies only on those eligible bidders whose offers have been found technically, commercially and financially acceptable and whose goods have been type approved / validated by CWPRS.

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16. TERMINATION FOR DEFAULT:- CWPRS may, without prejudice to any other remedy for breach of contract, by written notice of default, sent to the supplier, terminate this contract in whole or in part :-

- a) If the supplier fails to deliver any or all of the goods within the time period(s) specified in the contract, or any extension thereof granted by CWPRS.
- b) If the supplier fails to perform any other obligation(s) under the Contract; and
- c) If the supplier, in either of the above circumstances, does not remedy his failure within a period of 15 days (or such longer period as CWPRS may authorise in writing) after receipt of the default notice from CWPRS.

17. ARBITRATION :-

In case of dispute the decision of the Director, CWPRS, Pune will be binding.

18. Resultant Contract will be interpreted under Indian laws.

19. OTHER TERMS AND CONDITIONS : Any other conditions not mentioned shall be dealt as per / GFR 2005 and CPWD Works Manual 2003.

B) TECHNICAL

1. TECHNICAL EVALUATION : Technical evaluation of the bid will be done strictly on the basis of compliance of quoted machine / equipment as mentioned in the technical specification enclosed with this bid document.

2. TESTING, COMMISSIONING AND TRAINING : Testing, commissioning and training, if any, should be undertaken by the supplier within sixty days from the receipt of material at CWPRS. It would be open to the competent authority to take serious action against the supplier, if timely action is not taken by the supplier.

3. TESTING OF MACHINE / EQUIPMENT: The machine / equipment shall be tested for important parameters and test results are to be submitted after commissioning.

4. CDs AND MANUALS : Supply of all original diskettes or CDs, all original manuals (in duplicate) and reference documentation should be done along with the machine / equipment.

5. WARRANTY: Warranty of ONE YEAR from the date of installation and commissioning / acceptance at CWPRS. Technical support and Customer support should be free during the warranty period.

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The supplier shall warrant that the stores to be supplied shall be new and free from all defects and faults and materials used, workmanship and manufacture and shall be of the highest grade and consistent with the established and generally accepted standards for material of the type ordered and shall perform in full conformity with specifications and drawings. The supplier shall be responsible for any defect that may develop under the conditions provided by the contract and under proper use, arising from faulty material, design or workmanship such as corrosion of the equipment, inadequate quantity of material to meet equipment requirements, inadequate contact protection, deficiencies in circuit design and / or otherwise and shall remedy such defects at his own cost when called upon to do so by CWPRS who shall state in writing in what respect the stores are faulty. This warranty shall survive inspection or payment for / and acceptance of goods, but shall expire (except in respect of complaints notified prior to such date) twelve months after the stores have been taken over. The supplier, free of all charges at site including freight, insurance and other incidental charges, shall make replacement under warranty clause.

6. AFTER SALES SERVICE: The terms & conditions and scope of after sales services, maintenance, repairs, replacement, installation, commissioning, annual maintenance charges after warranty period etc. may be indicated.

7. SINGLE SUPPLIER: The total system satisfying above specifications from a single supplier will only be considered.

8. LIST OF USERS: The address of the users of the quoted machine / equipment in India may be given. Any relevant document which would support the credibility, competence of the bidder may be submitted.

Quotation should be submitted by Original Equipment Manufacturer (OEM) or its authorized dealer / supplier. Authorization letter in this regard must be submitted along with the bid document.

C) FINANCIAL

1. RATES TO BE QUOTED : All the rates may be quoted in Indian Rupees. The cost to be indicated for each item should be the landed cost inclusive of all taxes, levies, freight, etc. However rate amount of Excise Duty, Custom Duty, Sales tax or any other chargeable levies will be shown separately to make for the landed cost. The benefit of reduction in cost due to decrease in taxes etc. before the delivery will be passed on to the user. Vague term such as taxes as applicable etc. shall not be acceptable.

2. DISCREPANCY IN RATES: The rates quoted shall be written in ink, both in figures and in words, If there is any discrepancy in the rates quoted in figures and words, the rates quoted in words would be considered.

3. **CUSTOM DUTY AND EXCISE DUTY EXEMPTION** : Excise duty exemption certificate and incase of imported items customs duty exemption certificate will be supplied by CWPRS, if applicable, under notification No 10/97 and 51/96 .

4. **DELIVERY OF MACHINE / EQUIPMENT**: The Machine / equipment is to be delivered, installed and commissioned at CWPRS, Pune. In the event of material / equipment(s) being supplied by road-transport under specific instructions to this effect, Octroi Exemption Certificate is not required as CWPRS is out of Pune Municipal Corporation limits.

5. **TERMS OF PAYMENT**: In case of indigenous supplies, 100% payment will be made through E-payment within 30 days after receipt of Machine / equipment and successful installations / commissioning as the case may be. No payment will be made for goods rejected at site on testing.

6. **SECURITY DEPOSIT**: Successful contractor / suppliers will have to deposit security deposit at the rate of 10% of the total Supply Order in the form of FDR, from Nationalised Bank drawn in favour of Executive Engineer (Civil), CWPRS, Pune-24 within 20 days of the receipt of acceptance of tender along with acknowledgement copy of supply order, failing which CWPRS will presume that the bidder is unable to accept the tender.

If the firm fails or neglects to observe or perform any of his obligations under the contract, it shall lawful for CWPRS to forfeit, either in whole or in part, the security deposit furnished by the firm. Save as aforesaid, if the firm duly performs and completes the contract in all respect and presents absolute **“NO DEMAND CERTIFICATE”** in the prescribed form and returns in good conditions, the specifications, drawing and samples or other property belonging to CWPRS, CWPRS shall refund the security deposit to the firm after deducting all costs and other expenses that CWPRS may have incurred and all dues and other moneys including all losses and damages which CWPRS is entitled to recover from the firm.

7. **INCIDENTAL CHARGES** : All other incidental charges, if any may be indicated.

8. **DELIVERY PERIOD** : Delivery period shall be maximum 12 weeks and adhered to after receipt of supply order from CWPRS.

9. DELAYS IN THE SUPPLIERS'S PERFORMANCE :

a) Delivery and installation of the machine / equipment and its performance of the services shall be made by the Supplier in accordance with the time schedule specified by CWPRS in its purchase order. Also in case the supply is not completed in the stipulated delivery period, as indicated in the Purchase Order, CWPRS reserves the right either to short close / cancel this purchase order and / or recover liquidated damage charges. The cancellation / short closing of the

SIGNATURE AND SEAL OF BIDDER

order shall be at the risk and responsibility of the supplier and CWPRS reserves the right to purchase balance unsupplied item at the risk and cost of the defaulting vendors.

b) Delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to any or all of the following sanctions: forfeiture of its performance security as per CPWD Works Manual 2003 and imposition of liquidated damages and / or termination of the contract for default as defined under clause 15 below.

c) If at any time during the performance of the contract, the supplier encounters condition impeding timely delivery of the machine / equipment and performance of service, the Supplier shall promptly notify to CWPRS in writing the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the supplier's notice, CWPRS shall evaluate the situation and may at its discretion extend the period for performance of the contract (by not more than 20 weeks)

10. FORCE MAJEURE : If, any time, during continuance of this contract, the performance in whole or in part by either party of any obligation under this contract is prevented or delayed by reasons of any war or hostility, acts of the public enemy, civil commotion, sabotage, fires, floods, explosions, epidemics, quarantine restrictions, strikes, lockouts or act of God (hereinafter referred to as events) provided notice of happenings of any such eventually is given by either party to the other within 21 days from the date of occurrence thereof, neither party shall by reason of such event be entitled to terminate this contract nor shall either party have any claim for damages against other in respect of such non-performance or delay in performance, and deliveries under the contract shall be resumed as soon as practicable after such an event come to an end or cease to exist, and the decision of CWPRS as to whether the deliveries have been so resumed or not shall be final and conclusive. Further that if the performance in whole or part of any obligation under this contract is prevented or delayed by reasons of any such event for period exceeding 60 days, either party may, at its option, terminate the contract.

Provided, also that if the contract is terminated under this clause, CWPRS shall be at liberty to take over from the Supplier at a price to be fixed by CWPRS, which shall be final, all unused, undamaged and acceptable materials, bought out components and stores in course of manufacture which may be in possession of the supplier at the time of such termination or such portion thereof as CWPRS may deem fit, except such materials, bought out components and stores as the supplier may wish with the concurrence of CWPRS elect to retain.

11. LIQUIDATED DAMAGES: The supplier shall carry out supply and installation of machine / equipment, associated peripherals according to the delivery and installation schedule stipulated in the Supply order. The time frame and the date

SIGNATURE AND SEAL OF BIDDER

of delivery and installation mentioned in the delivery schedule shall be deemed to the essence of the Supply order and delivery must be completed not later than the date specified therein. In the event of failure of the supplier to deliver and install the said machine / equipment, supply of related licensed software, associated peripherals within the stipulated time, the Government of India shall at their option be entitled to recover from the Supplier as agreed liquidated damages, and not by way of penalty, a sum of **1% (One percent)** of the price of agreed total cost of supply of machine / equipment, associated peripherals as aforesaid for every week or part thereof, during which the delivery and installation of machine / equipment, associated peripherals may be in arrears. The suppliers liability for delay shall not exceed **10% (Ten per cent)** of the ordered price. Such damages shall be in full satisfaction of the Suppliers liability for the delay. If the delay is longer than **10 weeks** the Government of India shall, except as provided hereinafter, be entitled to cancel the order in full or in part at their sole discretion without any financial repercussions on Government of India.

12. RISK AND EXPENSE CLAUSE: In case any item is not supplied or rejected and the supplier is unable to provide replacement the total supply order will be deemed as rejected. In such an event CWPRS will be at liberty to procure the same from another source and in case the cost of the item is higher than the present ordered cost, the extra cost shall be recovered from the contractor through deductions from bills pending or by means of deposit of the same by the suppliers in the Government treasury.

13. CERTIFICATION AND SIGNING OF BID DOCUMENTS : All certificates and brochure submitted with the bid must bear the stamp of the company and these should be self certified by the authorized signatory on each page. CWPRS shall not take cognizance of documents that do not fulfill these conditions.

3.0 MANNER OF SUBMISSION OF BIDS

Bidders may please note that they have to submit their bids in two separate envelopes marked as **Envelope "A"** for technical bid and **Envelope "B"** for financial bid. The technical bid **should not** contain any financial information.

Envelope should be sealed with lak etc.

Documents to be enclosed in Envelopes ~~A~~ & ~~B~~ are given below :

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Documents to be enclosed along with Bids:-

TECHNICAL BID in Envelope 'A'

1. Bidder covering letter
2. Tender form fee of Rs 500/- drawn in the form of DD drawn in favour of Executive Engineer (Civil), CWPRS, Pune. **Bids received without exact Tender Form fee will be summarily rejected.**
3. **EARNEST MONEY DEPOSIT** : EMD of **Rs 10,000/- (Ten Thousand Only)** in Indian Rupees in the form of Demand Draft / Fixed Deposit Receipt on any Scheduled Bank drawn in favour of Executive Engineer (C), CWPRS, Khadakwasla, Pune - 411 024 should be enclosed. No interest will be paid on the amount of EMD. Exemption from payment of EMD will be granted wherever applicable on submission of necessary valid documents along with the tender. **Tender document received without EMD & Tender Document Fee (Rs 500/-) will be rejected.**
4. Technical bid with printed literature on all the items quoted giving specifications, details & accessories clear mention should be made of deviation in specification between the printed literature & quoted item. Without this bid is liable to be rejected.
5. The Technical bid should accompany **signed compliance statement** of the bidder, specifying compliance to each and every item of the specifications at Annexure I. The bid is liable to be **rejected** if compliance statement, duly signed is not supplied with the technical bid. The bidder should enclose the latest technical literature, detailing specifications, along with the technical bid. **It may please be noted that merely stating 'Yes' in compliance statement in any column will not be accepted. The actual numbers / description should be re-stated explicitly in all columns of the compliance statement.** Normally, the same should also be seen in the technical literature of the items supplied with the bid. In case where the same is not available in the technical literature, the relevant pages of the manual should be submitted. The bids not satisfying with the above requirements are liable for rejection without any further correspondence with the bidder concerned.
6. A list of customers to whom similar supply in India has been made including the cost & the present status. Documentary evidence (list of users in India) in respect of the above should be submitted with the offer.
7. Dealership / Agency certificate from the manufacturer / Principals for supply through dealers / Agents. A letter of undertaking firm each of the original manufacturer (OM) for equipment that in case the bidder authorized by their defaults in execution of this tender the OM (C) will take all steps for successful execution of the tender without any additional cost to the Govt.

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8. The detail of tie-up in terms of supply, support, servicing & warranty etc. with OM (C). Any other information that will establish credibility, reliability / capability of the suppliers to undertake the proposed supply.

9. Bid document from page 2 onwards in original duly signed by the bidder.

10. Copy of Agency agreement entered into with principals indicating the nature of after sales services of Indian Agents, precise relationship & mutual interest in the business (applicable for foreign cases only)

Financial bids of only those suppliers qualifying the Technical Bid will be considered for financial bid opening.

FINANCIAL BID in Envelope 'B'

1. Price schedule for machine / equipment to be supplied inclusive of cost of Installation, Commissioning and Testing charges (if any) and cost of Training.

2. Annual Report for the last 3 years.

The supplier should specifically note that he is not expected to put any conditions in his covering letter and further that if any such a condition is included in the covering letter, the bid may be rejected outright treating the same as a conditional bid.

There should be a separate marking on each of the two envelopes viz. "A-Technical Bid" and "B-Financial Bid". The two envelopes duly sealed should be put in one large envelope and the same should be submitted duly written at the top

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The bid should be submitted to:

**Executive Engineer (Civil) (Room No. 208) Central Water and Power
Research Station P.O. Khadakwasla Research Station
Pune - 411024, India**

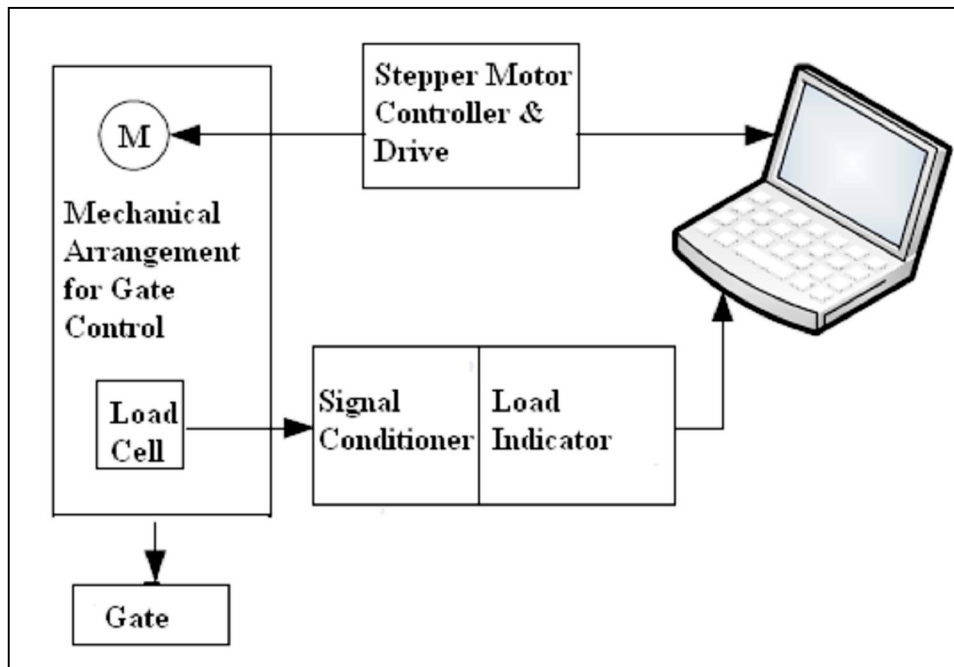
Fax : 91-020-24381004

Phones : 91 - 020- 24103220 / 91 - 020- 24103267

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Description of the System:

The purpose of the system is to operate the gate using stepper motor and to monitor the load (0 to 100Kg) on the gate using load cell. To move the gate a stepper motor (Maximum torque 87 Kg-Cm) and appropriate motor drive should be provided. The motor movement should be controlled by a controller coupled with Laptop. The Load on load cell should be measured and transmitted through serial communication for logging of data into the Laptop. The schematic diagram of the systems is shown in the following figure.



Deliverables:

Gate Control System and Load Monitoring System with Laptop.

#	Description	
1	Stepper Motor	Specifications enclosed in Annexure-1
2	Stepper Motor Controller and Drive	Specifications enclosed in Annexure-2
3	Load Cell	Specifications enclosed in Annexure-3
4	Signal Conditioner & Load cell Indicator	Specifications enclosed in Annexure-4
5	PC Based Data Acquisition System	Specifications enclosed in Annexure-4

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Specification for D.C. Stepper Motor		
Sr. No.	Description	
1.	Holding torque	87 Kg. Cm.
2.	Maximum Dynamic Torque	60 Kg. Cm.
3.	Step. Angle	1.8 Degree \pm 5 % non cumulative
4.	Rated Current	6 A/Ph.

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Specification for Stepper Motor Drive		
Sr. No.	Description	
1.	Input Voltage	230 volts, 1 phase
2.	Working Voltage	90 VDC.
3.	Rated Current	6 A/Ph.
4.	Mode of Driving	Bipolar
5.	Rated Current	6 A/Ph.
	Input Signals Required(TTL Compatible)	
a.	Clock Pulse for speed control	
b.	Logic Level for direction control	
c.	Logic Level for Enable/Disable	
	Features	
1.	Torque-Speed characteristics will depend on motor inductance and other qualitative aspects.	
2.	Efficient cooling arrangement using cooling fan	
3.	Switch selectable Remote/Manual modes	
4.	Front Panel	
	i) Remote/Manual Modes select switch/Key Pad	
	ii) Speed Pot /Key Pad	
	iii) CW/CCW switch/Key Pad	
	iv) Jog/Slew Switch/Key Pad	
	v) Start/Stop Push Button/Key Pad	
	vi) LED indications	
	For a) ON and OFF status of each winding	
	b) Status of Mode selected	
5.	Remote mode facilities:	
	i) TTL Compatible clock and direction signals on back panel	
	ii) Opto- isolator for clock and direction input	
6.	Rear panel connectors:	
	i) MS 3106 series four pin female connector for connections to motor	
	ii) 5-meter long PVC cable with receptacles for connections between motor and drive.	
7.	Fuses will be provided for all windings and mains/ DC supply and will be located on back side.	

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Specification for Cylindrical Type Load Cell

Sr. No.	Discription	Specification range
1.	Load cell for measurement of both tensile and compressive forces acting axially load cell is to be mounted between two vertical BSW threaded rods of size $\frac{3}{8}$ inch. Therefore it should be provided with suitable top and bottom mounting plates. Load cell should be water proof and corrosion proof.	
2.	Range and quantity	± 100 Kgf each one number
3.	Type	1.Cylindrical-1No.
4.	Sensitivity	1 mv/v or better
5.	Excitation	Up to 10 V
6.	Maximum over loading	At least 100% of the range
7.	Natural frequency	100 Hz or better
8.	Temperature compensation	Load cell should have internal temperature compensation
9.	Thermal error	Less than 0.5 %
10.	Combined hysteresis and non linearty	Less than 0.5 %
11.	Repeatability	Less than 0.5 %
12.	Creep	Less than 0.5 %
13.	Overall accuracy	1.0% or better
14.	Operating temperature	5-50 degree or better
15.	Self weight of load cell	About 2 Kg

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Specifications

A complete Data Acquisition System of Signal Conditioner.

Which includes .

- A) Signal conditioner: 1 No .**
 Signal conditioner should be compatible with the Load cell as mentioned in Annexure (3).
 No. of channels : 16
 Electrical excitation: suitable for Load cell mentioned in Annexure (3).
 Input Range: Suitable for Load cell mentioned in Annexure (3).
Output Voltage should be linear function of the measurement.
 Output should be compatible for connecting to the Data acquisition system mentioned in Part (C). All necessary Hardware, Software including cables, connectors etc. should be included in the bid.
 Temperature: Operating 10 to 50 degree centigrade
- B) Data Acquisition System: 1 No .**
 Data Acquisition System should be compatible with signal conditioner mentioned in Part (A).
Data Acquisition System should includes A/D, PC based chassis and Software for Acquisition, Display and Processing.
- Analog to Digital Converter:**
- a. No. of Channels: 16 (analog input)
 - b. Sampling Rate: 10 KS/sec per channel (simultaneous sampling)
 - c. Resolution: at least 12 Bit
 - d. Over-voltage Protection
- C) PC based Data Acquisition Chassis 1 No .**
 Display: 17+(TFT / LCD)
 Processor: 2.2 GHz (Intel Processor Core 2 duo) or higher
 RAM: 2 GB or Higher
 HDD: 200 GB or Higher
 DVD: +-RW Drive
 USB: 2 Nos
 Power Supply: 230 V AC +/- 10% @ 50 Hz
 Operating System: **Windows 7 Professional or Combitable with system.**
 Operating Temperature: 10 to 50 DegC

Note: This should be an Industrial PC Based system, compatible with the A/D Converter specified above.

D) Data Acquisition Software

- a. The software should allow acquisition, storage, display, and processing and printing software package.
- b. Capabilities: Data Storage to data format MS OFFICE Excel / Access format and Export, Printing and Report functions.

Note: Data Acquisition system along with software should continuously acquire data with Sampling interval 1 msec. , for 10 channels (simultaneous) and for 30 minutes interval. Same data should have capability for storing and display with respect to time.

Optional Software: FFT Analysis, Probability analysis.

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COMPLIANCE STATEMENT

Supply, Installation and Commissioning of PC based Data acquisition system including load cell, signal conditioner, stepper motor and its drive.

Purpose :

The purpose of the system is to operate the gate using stepper motor and to monitor the load (0 to 100Kg) on the gate using load cell. To move the gate a stepper motor (Maximum torque 87 Kg-Cm) and appropriate motor drive should be provided. The motor movement should be controlled by a controller coupled with Laptop. The Load on load cell should be measured and transmitted through serial communication for logging of data into the Laptop. The detailed specifications of each of the component are given below.

A) SPECIFICATIONS :

Annexure-1

Specification for D.C. Stepper Motor			
Sr. No.	Description		Compliance, Deviations if any (Yes / No) with Descriptive Values
1.	Holding torque	87 Kg. Cm.	
2.	Maximum Dynamic Torque	60 Kg. Cm.	
3.	Step. Angle	1.8 Degree± 5 % non cumulative	
4.	Rated Current	6 A/Ph.	

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Specification for Stepper Motor Drive			
Sr. No.	Description		Compliance, Deviations if any (Yes / No) with Descriptive Values
1.	Input Voltage	230 volts, 1 phase	
2.	Working Voltage	90 VDC.	
3.	Rated Current	6 A/Ph.	
4.	Mode of Driving	Bipolar	
5.	Rated Current	6 A/Ph.	
	Input Signals Required(TTL Compatible)		
a.	Clock Pulse for speed control		
b.	Logic Level for direction control		
c.	Logic Level for Enable/Disable		
	Features		
1.	Torque-Speed characteristics will depend on motor inductance and other qualitative aspects.		
2.	Efficient cooling arrangement using cooling fan		
3.	Switch selectable Remote/Manual modes		
4.	Front Panel		
	i) Remote/Manual Modes select switch/Key Pad		
	ii) Speed Pot /Key Pad		
	iii) CW/CCW switch/Key Pad		
	iv) Jog/Slew Switch/Key Pad		
	v) Start/Stop Push Button/Key Pad		
	vi) LED indications		
	For a) ON and OFF status of each winding		
	b) Status of Mode selected		
5.	Remote mode facilities:		
	i) TTL Compatible clock and direction signals on back panel		
	ii) Opto- isolator for clock and direction input		
6.	Rear panel connectors:		
	i) MS 3106 series four pin female connector for connections to motor		
	ii) 5-meter long PVC cable with receptacles for connections between motor and drive.		
7.	Fuses will be provided for all windings and mains/ DC supply and will be located on back side.		

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Specification for Cylindrical Type Load Cell

Sr. No.	Discription		Compliance, Deviations if any (Yes / No) with Descriptive Values
1.	Load cell for measurement of both tensile and compressive forces acting axially load cell is to be mounted between two vertical BSW threaded rods of size $\frac{1}{2}$ -5/8+. Therefore it should be provided with suitable top and bottom mounting plates. Load cell should be water proof and corrosion proof.		
2.	Range and quantity	± 100 Kgf each one number	
3.	Type	Cylindrical-1No.	
4.	Sensitivity	1 mv/v or better	
5.	Excitation	Up to 10 V	
6.	Maximum over loading	At least 100% of the range	
7.	Natural frequency	100 Hz or better	
8.	Temperature compensation	Load cell should have internal temperature compensation	
9.	Thermal error	Less than 0.5 %	
10.	Combined hysteresis and non linearity	Less than 0.5 %	
11.	Repeatability	Less than 0.5 %	
12.	Creep	Less than 0.5 %	
13.	Overall accuracy	1.0% or better	
14.	Operating temperature	5-50 degree or better	
15.	Self weight of load cell	About 2 Kg	

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Sr. No	Discription		Compliance, Deviations if any (Yes / No) with Descriptive Values
	A complete Data Acquisition System of Signal Conditioner. Which includes ---		
A	Signal conditioner	1 No.	
	Signal conditioner should be compatible with the Load cell as mentioned in Annexure (3).		
	No. of channels : 16		
	Electrical excitation: suitable for Load cell mentioned in Annexure (3).		
	Input Range: Suitable for Load cell mentioned in Annexure (3).		
	Output Voltage should be linear function of the measurement.		
	Output should be compatible for connecting to the Data acquisition system mentioned in Part (C). All necessary Hardware, Software including cables, connectors etc. should be included in the bid.		
	Temperature: Operating 10 to 50 degree centigrade		

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Sr. No	Discription	Compliance, Deviations if any (Yes / No) with Descriptive Values
B	Data Acquisition System:	1 No
	Data Acquisition System should includes A/D, PC based chassis and Software for Acquisition, Display and Processing.	
	Analog to Digital Converter:	
	a. No. of Channels: 16 (analog input)	
	b. Sampling Rate: 10 KS/sec per channel (simultaneous sampling)	
	c. Resolution: at least 12 Bit	
	d. Over-voltage Protection	
C	PC based Data Acquisition Chassis	1 No
	Note: This should be an Industrial PC Based system, compatible with the A/D Converter specified above.	
	Display: 17+(TFT / LCD)	
	Processor: 2.2 GHz (Intel Processor Core 2 duo) or higher	
	RAM: 2 GB or Higher	
	HDD: 200 GB or Higher	
	DVD: +-RW Drive	
	USB: 2 Nos	
	Power Supply: 230 V AC +/- 10% @ 50 Hz	
	Operating System: Windows 7 Professional or Combitable with system.	
	Operating Temperature: 10 to 50 Deg C	
D	Data Acquisition Software	1 No
	a. The software should allow acquisition, storage, display, and processing and printing software package.	
	b. Capabilities: Data Storage to data format MS OFFICE Excel / Access format and Export, Printing and Report functions.	

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Technical Condition

- i) **TESTING COMMISSIONING AND TRAINING:** Testing, commissioning and training, if any, should be undertaken by the supplier within 30 days from the receipt of material at CWPRS. It would be opened to the competent authority to take serious action against the supplier, if timely action is not taken by the supplier.
- ii) **TECHNICAL LITERATURE:** The bid should accompany detailed technical literature and leaflets of the model quoted. No deviations from the above mentioned specifications would be accepted. Any deviation between the equipment/machine offered and the literature supplied should be clearly specified.
- iii) **TESTING OF EQUIPMENT:** The machine/ equipment shall be tested and calibrated at the CWPRS.
- iv) **ESSENTIAL ACCESSORIES:** A complete list of items supplied as essential accessories may be furnished.
- v) **CONSUMABLE ITEMS:** Specification of all expendable/consumable items may be given.
- vi) **MANUALS:** All Technical Manuals, operation and Maintenance manual should be supplied in duplicate with the equipment.
- vii) **TOOL KIT AND CARRYING CASE:** Calibration and Tool Kit and carrying case should be supplied with the equipment. Also a recommended list of spares may be given.
- viii) **WARRANTY:** Warranty of ONE YEAR from the date of installation and commissioning / acceptance of the equipment at CWPRS. Warranty shall include replacement of all unserviceable parts. If warranty of any parts cannot be provided the same may be clearly mentioned while submitting the technical bids. The supplier shall warrant that the stores to be supplied shall be new and free from all defects and faults. This warranty shall survive inspection or payment for /and acceptance of goods, but shall expire (except in respect of complaints notified prior to such date) twelve months after the stores have been taken over. The supplier free of all charges at site including freight, insurance and other incidental charges shall make replacement under warranty clause.
- ix) **AFTER SALES SERVICE: TWO YEARS annual maintenance contract has to be signed The terms & conditions and scope of after sales services, maintenance, repairs, replacement, installation, Commissioning etc. may be indicated.**

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