



An ISO 9001  
Company

# Bharat Heavy Electricals Limited

(High Pressure Boiler Plant)

Tiruchirappalli – 620014, TAMIL NADU, INDIA

CAPITAL EQUIPMENT/ MATERIALS MANAGEMENT

<b>ENQUIRY</b>	<b>NOTICE INVITING TENDER</b>	Phone: +91 431 257 7980 Fax : +91 431 252 0719 Email : <a href="mailto:Insekar@bheltry.co.in">Insekar@bheltry.co.in</a> Web : <a href="http://www.bhel.com">www.bhel.com</a>
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TWO PART BID	Enquiry Number:	Enquiry Date:	Due date for submission of quotation:
Tender to be submitted in two parts.	2621400029	10.07.14	02.08.14

You are requested to quote the Enquiry number, date and due date in all your correspondences. This is only a request for quotation and not an order.  
Please note that under any circumstances both delayed offer and late offers will not be considered. Hence vendors are requested to ensure that the offer is reaching physically our office before 14.00 hrs on the Date of tender opening.

Item	Description	Quantity	Delivery
10	<b>Data Acquisition System</b> as per the technical specification, BHEL commercial terms & conditions applicable (to be downloaded from web site <a href="http://www.bhel.com">www.bhel.com</a> or <a href="http://tenders.gov.in">http://tenders.gov.in</a> )	4 sets	24.12.14

**Important points to be taken care during submission of offer**

1. Compliance Form to be duly filled and enclosed along with your offer, failing which the offer will not be considered for evaluation.
2. All updates, amendments, corrigenda, etc., (if any), for each tender will be posted only on the above websites from time to time, as and when required, until each tender is opened. There will be no publication of such updates, amendments, corrigenda, etc., through newspapers or any other media.

BHEL's General guidelines / instructions including bank guarantee formats and list of consortium banks, commercial compliance form can be downloaded from BHEL web site <http://www.bhel.com> or from the Government tender website <http://tenders.gov.in> (public sector units) Bharat Heavy Electricals Limited page) under Enquiry reference "2621400029".

<p>Tenders should reach us before 14:00 hours on the due date Tenders will be opened at 14:30 hours on the due date Tenders would be opened in presence of the tenderers who have submitted their offers and who may like to be present</p>	<p>Yours faithfully, For <b>BHARAT HEAVY ELECTRICALS LIMITED</b></p> <p><i>Kb Singh</i></p> <p>Engineer / MM / Capital Equipment</p> <p><b>KUMAR GAUTAM SINGH</b> Engineer MM / Capital Equipment BHEL, TRICHY - 620 014</p>
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### DATA ACQUISITION SYSTEM

Acquisition of data, which includes output of Power Transducers (mA), Pressure Transmitters (mA) and Thermocouples (Temperature) during boiler performance guarantee/evaluation tests. The system will be transported (by hand / courier service) and installed at different locations i.e. different power stations as a temporary testing system, whenever required. System should be capable of working in a dusty & rainy environment with ambient temperature of 5-50°C with low / high relative humidity.

### QUALIFICATION CRITERIA:

The BIDDER has to meet the following requirements to get qualified for consideration of the technical offer.

S. No.	REQUIREMENTS	VENDOR'S RESPONSE
1	Uncontrolled ambient conditions for field mounting unit: a) Operating Temperature: 5°C to 50°C b) Relative Humidity 20% to 100% c) Dusty (Coal/Ash), humid environment d) Open atmosphere	
2	Copy of certificate of 'Distributor Authentication Certificate' given by principal agency should be produced.	
3	The Technical offer should be supported by product Catalogues & Data sheets. Technical details of Bought-Out-Items with copies of Product catalogue should be made available to the maximum possible extent.	
3	Details on SERVICE-AFTER-SALES set-up in India including the address of Agents/Service centres in South India must be furnished.	
4	Name and postal address of customers or companies wherein similar system is installed & under operation.	
5	To evaluate offer, demo should be conducted free of cost at BHEL/Trichy unit, if required by BHEL.	
6	Complete Training on Operation & Maintenance of the offered items should be given to BHEL Engineers at BHEL Trichy unit.	
7	Offered items should be commissioned at BHEL works.	
8	If there are any issues with the system at site within warranty period, vendor representative should visit site personally and solve the issues, free of cost, as and when required by BHEL.	
9	Attached compliance report must be submitted along with the offer.	

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Deputy Manager  
Field Engineering Services  
BHEL, TRICHY - 620 014.

## DATA ACQUISITION SYSTEM

### **A. General Requirement**

1. Acquisition of data, which includes output of Power Transducers (mA), Pressure Transmitters (mA) and Thermocouples (Temperature) during boiler performance guarantee/evaluation tests. The system will be transported (by hand / courier service) and installed at different locations i.e. different power stations as a temporary testing system, whenever required. System should be capable of working in a dusty & rainy environment with ambient temperature of 5°C-50°C with low / high relative humidity.
2. System should be capable of handling a minimum of 400 nos. measurement points at a scanning frequency of 1 scan per sec.
3. The following main components shall be supplied as per system requirement.
  - a) Necessary software
  - b) Field mounting units
  - c) Cables & accessories
4. System should have the capability of accessing the field mounting units for adjustment of channel numbers, scanning frequency etc. through the software.
5. Each field mounting unit should be capable of operating stand alone and with other units in the system without the requirement of any additional controller / hardware/ software.
6. Software has to interact with the field mounting units by means of suitable communication cable.
7. System software shall be compatible with any Laptop and PC using Windows XP / Vista/ Windows 7/ Windows 8 & later versions.
8. System should operate in any laptop/ PC without requiring the installation of any additional hardware (interfacing card).
9. System should be able to connect with any PC/ Laptop through LAN (Ethernet) port.
10. System should operate without requiring any dongle key and/or software key number..
11. System should pose no restriction on the number of installations of the system software.
12. System software should be capable of being installed in any PC/ Laptop with copied CD from original CD (OEM).
13. No online registration or download should be required for installation / operation of the system and/or software.
14. The software shall be user friendly with facilities like
  - a) Data logging facility for desired interval of timings.
  - b) Retrieval & history mode operation / Report preparation facility.
  - c) Graphical mode.
  - d) Calculator mode with user defined formulae enabled.
  - e) Slot summary display.
  - f) Data output in Microsoft Excel format.



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**COMPLIANCE REPORT**

**DATA ACQUISITION SYSTEM**

BHEL SPECIFICATION		VENDOR 'S CONFIRMATION OFFER	DEVIATION IF ANY
<b>SYSTEM NAME --</b>			
<b>A) SYSTEM SOFTWARE</b>			
1	INPUT	Data from field mounting unit	
2	Nos. scanning points	400 points	
4	System compatible	Windows XP / Vista/ Windows 7/ Windows 8 & later versions.	
5	System connectivity	PC / Laptop through LAN(Ethernet) port.	
6	System & Field mounting unit	Capable to each field mounting unit should unit should be capable of operating stand alone and with other units in the system without the requirement of any additional controller / hardware/ software	
7	System installation	a. Multiple installation b. No dongle key c. No softkey number d. No online registration or download should be required for installation / operation of the system and/or software. e. Installation with copied CD from original CD	
8	Software facility	a. Data logging facility for desired interval of timings. b. Retrieval & history mode operation / Report preparation facility. c. Graphical mode. d. Calculator mode with user defined formulae enabled. e. Slot summary display. f. Data output in Microsoft Excel format.	



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**Requirement -- Total no. of system : 4sets**

**Requirement for one system**

1. Necessary software (capable of measuring a minimum of 400 points) for Data Acquisition System compatible with Laptop and PC running Windows XP/ Windows 7/ Windows 8 and later.
2. Field Mounting unit
  - a) 'K' type Thermocouple signal as input to channel -- 176 nos.
  - b) Watt Transducers & Pressure Transmitters signal (mA) as input to channel -- 64 nos.
3. Necessary Accessories & Cables
4. Power supply units, if required with input of 230V DC
5. Repeaters, if required
6. Necessary channel input connectors set.
  - a) For Thermocouples, 'K' type Omega flat pin Male & Female connectors
  - b) For mA signal 'Copper - Copper' Omega flat pin Male & Female connectors

**Note**

- a) Copy of certificate of 'Distributor Authentication Certificate' given by principal agency shall be produced.
- b) Details of Service After Sales facility to be indicated.
- c) Details of 'List of Indian users' to be produced.
- d) The Technical offer should be supported by product Catalogues & Data sheets. Technical details of Bought-Out-Items with copies of Product catalogues shall be made available to the maximum possible extent.
- e) To evaluate the offer, a demo should be conducted free of cost at BHEL-HPBP, Trichy unit, if required by BHEL.
- f) Complete Training on Operation & Maintenance of the offered items should be given to BHEL Engineers at BHEL Trichy unit.
- g) Offered items shall be commissioned at BHEL Trichy unit.
- h) If there are any issues with the system at site within warranty period, vendor representative should visit site personally and solve the issues, free of cost, as and when required by BHEL.
- i) Attached compliance report must be submitted along with the offer.



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## **B. Specification for Field Mounting unit**

### **1. Inputs**

- a. Capable of converting following analogue input signals
  - i. 0 to 200 mV DC
  - ii. 0 to 20 mA DC\*
- b. Output from K Type thermocouples with ambient temperature compensation

\*mA measurement may be given as a separate module/ using shunt resistance in mV channel slot.

### **2. Channels**

- a. No. of channels per Field mounting unit should be 16-24.
- b. Distance between individual Field mounting units and between the field mounting unit and the Laptop/ PC will be 1 km when summed.

### **3. Accuracy of measurement:**

- a. mV: +0.03%
- b. mA: +0.07%
- c. K-Type thermocouples <1.7 deg. C with ambient compensation.
- d. Ambient compensation response shall be less than 1 second.

### **4. Accessories**

- a) Necessary Accessories & Cables.
- b) Necessary software capable of measuring minimum 400 points.
- c) Power supply units, if required.
- d) Repeaters, if required.
- e) Necessary channel input connector sets.

### **5. Power supply to Filed mounting unit**

- a) Power supply to field mounting unit, if required - V DC
- b) Power supply unit input - 230V AC

### **6. Enclosure**

- a. Field mounting unit should be housed in water tight / fire proof enclosure.
- b. Operating Temp. Range: 5°C - 50°C.
- c. Enclosure should be made of light weight material rugged enough to withstand shock during transportation.
- d. Capable of protecting the system in open atmosphere from coal/ ash dust, wind & moisture.
- f. Size of enclosure should not be exceed 350 mm x 215 mm x 150 mm



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B) FIELD MOUNTING UNIT			VEDDOR'S CONFIRMATION	DEVIATION IF ANY.
Model Name --			OFFER	
BHELS SPECIFICATION				
1	Input	a) 0 to 200mV DC b) 0 to 20 mA DC c) 'K' type thermocouples inputs with ambient temperature compensation		
2	No. of channel per module	20 to 30 channel		
3	Accuracy of measurement	a) mV $\pm 0.03\%$ b) mA $\pm 0.07\%$ c) $< 1.7$ deg C with ambient compensation Compensation - ambient compensation and compensation response shall be less than 1 second		
4	Capability	Capable to each filed mounting unit should unit should be capable of operating stand alone and with other units in the system without the requirement of any additional controller / hardware/ software.		
5	Power to filed mounting unit	a) Power to field mounting unit by power supply unit - VDC b) Power supply unit input – 230AC		
6	Enclosure	Multiplexer / A/D converter shall be housed in water tight / fire proof enclosure and protect from dusty environment.		
7	Enclosure Material	Light-weight material rugged enough to withstand vibrations		
	Size of enclosure	Size of enclosure should not be exceed 350 mm x 215 mm x 150 mm		
8	Operating temp	0 °C to 50 °C		
9	Humidity	Operating humidity 20% to 100 %		

Note: Vendor has to fill and submit this form separately against all the model for which they are submitting offer. For each model, vendor has to submit separate form.



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