

**PURCHASE ENQUIRY**

To M/s	Our E-mail : <a href="mailto:smb@bhelpswr.co.in">smb@bhelpswr.co.in</a>	
	<b>ENQUIRY No :</b>	<b>12034 E</b>
	<b>ENQ.DATE</b>	<b>13.10.2012</b>
	<b>DUE DATE</b>	<b>03.11.2012</b>

Dear Sir,

Kindly submit your sealed quotation by Speed Post / Registered Post / Courier / Air Mail in **two bids viz. (1) Technical cum Commercial Bid & (2) Price Bid** for the material indicated below confirming acceptance to the terms and conditions enclosed, so as to reach our office on or before 3.00 PM on the due date. Quotation may be sent by Fax only if asked so by BHEL / with prior permission of BHEL.

S.No.	Description of Material	Unit	Qty	Delivery Schedule	Material Required at (Destination)
01	<b>SUPPLY OF SECONDARY INJECTION KIT AS PER ANNEXURE-I</b>	Nos.	01	<b>WITHIN 02 MONTHS FROM PO. DATE</b>	REGIONAL SERVICE CENTRE 568/1, PARPIA COMPOUND, R.C. DUTT ROAD, VADODARA-390 007 (GUJARAT)

**A) GENERAL TERMS AND CONDITIONS OF CONTRACT**

Cl. No.	DESCRIPTION
01	Each tender should be sent in a double cover, inner cover should be sealed with tenderer's distinctive seal. The outer cover should bear the address of this office and super scribed with correct Enquiry No. and Due Date. Tender should be free from CORRECTION AND ERASURES. Corrections, if any must be attested. All amounts shall be indicated both in words as well as in figures. Where there is difference between amount in figures and words, amount quoted in words shall prevail.
02	Technical cum Commercial bid will be opened at 3.30 PM on Due Date. The Technical cum Commercial bid should accompany copy of documents like authorized dealership certificate, earlier supply order details of similar equipment and their performance feedback from customers, company profile and present status, product catalogue of the models offered, technical specifications of the product, commercial Terms & Conditions and other relevant documents etc.
03	Price bid of technically accepted bidders only will be opened. No revision of prices will be entertained after Tenders are opened, unless mentioned in our enquiry / asked so by BHEL.
04	Manufacturer's name, Trade Mark or Patent No. if any, shall be specified in the Technical cum Commercial Bid
05	Please mention the relevant national / international standard code of the product quoted for in the Technical cum Commercial bid.
06	The purchaser shall be under no obligation to accept the lowest or any other tender and shall be entitled to accept or reject any tender in part or full without assigning any reason whatsoever.
07	Late tenders received after Due Date & time shall not be accepted in any circumstances.
08	Price quoted shall be valid for 90 days from the date of opening
09	Price shall be quoted as per enclosed 'Price Format' only. Quotations not accompanying filled in 'Price Format' are likely to be rejected. Please fill in all the columns of all formats

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10	The price quoted should be as applicable to DGS & D (Govt. of India) and other Govt. Organizations. In case DGS & D rate / Running Contract is not existing, but a contract is in vogue with any BHEL Unit, reference of the same shall be furnished and same may be applicable to this contract.
11	<b>SECURITY DEPOSIT:</b> The supplier shall have to furnish Security Deposit (Cash/DD/Bank Guarantee from a Scheduled Bank) if so specified in the tender under Special Terms & Conditions.
12	<b>PACKING AND MARKING:</b> The supplier shall arrange for secure protective packing of the goods suitable for tropical conditions to avoid loss, damage, atmospheric action during handling and transit. The packing standards will comply with relevant national standard/carrier's conditions of packing or established practice. If any damage is sustained and the carrier or underwriter attributes it to improper packing, the seller shall be liable to replace the material or reimburse the value of the loss notwithstanding any transit insurance arranged by him or not. The following marking shall be made on each package in black bold letters. NAME & ADDRESS OF CONSIGNEE, DIMENSION OF PACKAGE, WEIGHT DETAILS: GROSS, TARE & NETT These markings should be stenciled or written in bold letters on the package. Should the package be small, suitable cards/metal tags giving these details may be tagged or nailed
13	<b>INSPECTION:</b> Final inspection will be carried out the destination/site/Purchaser's works by the authorized inspecting Officer, if so specified in the tender under Special Terms & Conditions. Whenever preliminary or stage inspection is to be carried out at supplier's works the same is subject to final acceptance after receipt of the material at the destination/Purchaser's works and the decision of the purchaser shall be final. The propriety of goods shall not pass until final acceptance by the purchaser
14	<b>REJECTION:</b> The seller shall intimate the purchaser in writing within 15 days (after being intimated about rejection of goods) regarding disposal action of the rejected material. If no advice is received within this time the purchaser shall be at liberty to return the material at the cost and risk of the seller after receiving the cost if any paid by the Purchaser including inward freight and other incidental charges. The Purchaser will not be responsible for the rejected material thereafter and no claim will rest on him.
15	<b>Delivery:</b> Purchaser shall not be liable to receive and pay for any supply made after delivery date stipulated in the order unless the delivery date is formally extended by the purchaser. Wherever the terms of delivery of the order is other than F.O.R. destination, delivery date will be reckoned as the date of dispatch or the date of readiness after inspection of the material where the Purchaser has agreed for inspection or collection.
16	<b>Test certificate:</b> The seller shall carry out such tests as prescribed by the purchaser / as required in accordance to the relevant national or international standards, in his works and/or other places as stipulated in the order. Necessary test certificate shall be submitted with delivery of materials. The seller shall also provide at no extra cost the required number of catalogues, drawing and other manuals related to materials under this order.
17	<b>TERMS OF PAYMENT:</b> Payment will normally be made within a month of receipt of material in good condition at destination. Any other payment terms have to be mutually agreed. The seller shall send dispatch documents, invoice etc. in such quantum and a manner as provided in the order. (I) It is expressly understood that in the event of rejection of the materials for which payment has been made against document's through bank the Purchaser reserves the right to claim from the seller the amount paid and the incidental charged incurred in the same manner i.e. negotiating return dispatch documents, through Bank and the Seller shall honour such claim and retire the documents from the Bank. (ii) Bank charges for any payment claimed through Bank shall be borne by the seller and the seller shall also agree to bear any demurrage or other charges arising out of any delay in retirements or documents from Bank due to delayed, insufficient incorrect information furnished. (iii) The seller shall also ensure that the Carriers do not delay dispatch of the consignment once the carrier's receipt is obtained.
18	<b>GUARANTEE WARRANTY:</b> The materials shall be warranted for design material and workmanship and also for performance warranty as specially stipulated by the purchaser in the order in its annexure.
19	<b>INSURANCE:</b> Wherever specifically agreed to and directed, the supplier will insure the goods for all transit risks upto delivery of the goods at the final destination. In all other cases supplier must furnish particulars of dispatch for each consignment immediately after the dispatch of goods. Failure to do this will make the supplier responsible for making good any loss, which otherwise might have been recovered from underwriters.

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20	<p><b>DELIVERY FAILURE, TERMINATION &amp; LIQUIDATED DAMAGE:</b> The parties hereto agree that the timely dispatch/delivery and completion of the other schedules as stipulated in order/contract shall be the essence of the Order/Contract. If the seller/contractor fails to complete the dispatch/ delivery and other schedules within the time period stipulated in the order/contract, or within any extension of time granted by the purchaser, it shall be lawful for the purchaser to recover damages for the breach of order/contract without prejudice to any other rights and/or remedies provided for, in order/contract and hereunder.</p> <p>The purchaser reserves the right to recover from the Seller/Contractor, as agreed liquidated damages and <b>not by way of penalty</b>, a sum equivalent to half percent {½% of the total contract price per week part thereof, subject to a maximum of ten percent @ 10%} of the total contract price excluding elements of taxes, duties and freight, if seller/contractor has failed to deliver any part of the goods within the period stipulated in the Order/Contract.</p> <p>The purchaser reserves the right to purchase from elsewhere on account of and at the risk and cost of the seller /contractor without notice to the seller /contractor of goods not so delivered or their equivalent , without canceling the order/contract in respect of the goods not yet due for delivery.</p> <p>The purchaser reserves the right to cancel the order/contract or a portion thereof for the goods not so delivered at the risk and cost of the seller/contractor and the seller/contractor shall be liable to the purchaser for any excess costs thereof.</p>
21	<p><b>RISK PURCHASE :</b> In the event the supplier has failed to deliver or dispatch whole of the goods or any part within the time stipulated or if the same were not available in his stock, the best and the nearest available substitute thereof may be purchased/arranged by purchaser from elsewhere at the risk and the cost of the seller. The purchaser at his option will be entitled to terminate the contract and seller shall be liable for any loss which the purchaser may sustain by reason of such risk purchases in addition to penalty at the rate mentioned in clause 20 above.</p>
22	<p><b>PREFERENTIAL DELIVERY :</b> It should be noted that if an Order is placed on a higher tenderer as a result of this invitation to tender, in preference to the lowest acceptable offer in consideration of the earlier delivery, the seller will be liable to pay the purchaser the difference between the contract rate and that of the lowest acceptable tender on the basis of final price F.O.R. destination including all elements of freight, sales tax, duties and other incidentals in case of failure to complete supplies in terms of such contract within the date of delivery specified in the tender and contract.</p>
23	<p>This order or any part thereof shall not be sub-contracted without the purchaser's consent.</p>
24	<p><b>METRIC SYSTEM:</b> Supplier is requested to indicate metric system measurements in all documents.</p>
25	<p><b>INDEMNITY:</b> The Seller shall indemnify the Purchaser against any claim due to any breach of patent, negligence, defective material or injury to seller or his agent.</p>
26	<p>In the event of any reduction in the price, due to change of Govt. duties after award to the work and before delivery commencement, purchaser is entitled to such reduction and may negotiate fresh price at its discretion.</p>
27	<p><b>GENERAL:</b> The purchaser reserves the right to split up the tender and place orders for individual item on different suppliers and also increase or decrease the quantity.</p>
28	<p><b>DISPUTES &amp; ARBITRATION:</b> All cases of disputes will be resolved according to the Indian Arbitration Act 1940</p>
29	<p><b>FORCE MAJEUR:</b> Acts of God, Acts of Government, War, Sabotage, Riots, Civil commotion, Police action, Revolution, Natural Calamities, Epidemic and other similar causes over which the supplier has no control, will amount to Force Majeur. Delay attributable to Force Majeur will be condoned; however the onus of establishing the reason of delay lies with the Supplier.</p>

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30	<p><b>Important Note:</b></p> <p><b>1) IF L-1 BIDDER IS OTHER THAN Micro and Small Scale Enterprises (MSEs).</b></p> <p>a) In tender, participating Micro and Small Scale Enterprises (MSEs) quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply up to 20% of total tendered value. In case of more than one such MSE (L1+15%), L-3 onwards bidders will be given opportunity to match the L-1 prices, provided their predecessors in terms of Price standing refuses to match L-1 prices.</p> <p>b) Total tendered quantity shall be divided as follows: In the ratio of 80:16:4 (if L-1 bidder is non MSE), where 80% order will be placed on L-1 bidder, 16% on MSE and 4% on MSE (owned by SC/ST) subjected to following conditions: I. MSEs Matches L-1 price. II. If no MSE owned by SC/ST has participated in the tendering process, portion earmarked (4%) will be awarded entirely to other MSE (not owned by SC/ST) i.e. total 20% will be awarded to them.</p> <p>c) If no MSE matches the L-1 price, than entire order shall be awarded to L-1 bidder.</p> <p><b>2) IF L-1 BIDDER IS Micro and Small Scale Enterprises (MSEs) (NOT OWNED BY SC/ST).</b> In tender, participating MSEs, owned by SC/ST, quoting price within price band of L1+15% shall also be allowed to supply a portion of requirement by bringing down their price to L1 price. MSE (owned by SC/ST) shall be allowed to supply up to 20% of total tendered value/quantity. In case of more than one such MSE (L-1+15%), L-3 onwards bidders will be given opportunity to match the L-1 prices, provided their predecessors in terms of Price standing refuses to match L-1 prices.</p> <p><b>3) IF L-1 BIDDER IS Micro and Small Scale Enterprises (MSEs) (OWNED BY SC/ST).</b> 100% order will go to the L-1 bidder.</p> <p><b>4) Participating MSEs should be registered with District Industries Centers or Khadi and Village Industries Commission or Khadi and Village Industries Board or Coir Board or National Small Industries Corporation or Directorate of Handicrafts and Handloom and their ownership is established in case they are claiming the portion earmarked for MSEs owned by SC/STs.</b></p> <p><b>5) Bidder who is claiming 4% of the quantity earmarked for MSEs owned by SC/STs are required to submit the documentary evidence to establish the ownership of MSE firm. Bidder should also mention the same in their techno-commercial bid. After opening of Price bids no such claim shall be entertained.</b></p> <p><b>6) MSEs will be given tender documents free of cost and are exempted from payment of earnest money (EMD).</b></p>
31	<p>In case of any contradictions between General and special terms and conditions, the provisions in Special Terms &amp; Conditions will prevail.</p>

Yours faithfully,  
For Bharat Heavy Electricals Ltd

Engineer/Purchase

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**B) SPECIAL TERMS AND CONDITIONS OF CONTRACT**

CI No.	Description
01	Bidder should be manufacturer / authorized dealer/distributor for the quoted product. (In case of authorized dealer/distributor: Authorization certificate should be enclosed.
02	Bidder must necessarily comply with the technical specification of Secondary Injection kit as per Annex-I. Bidders offer shall be disqualified in nonconformance to Annex-I.
03	<b>Clause no. 30 of General Terms &amp; Conditions of Contract shall not be applicable for this tender. Total items as mentioned in this tender shall be placed on L-1 bidder.</b>
04	Tender should be submitted in two parts (1) technical bid comprising product catalogue, copy of relevant Indian Standards and Commercial Terms and conditions as enclosed. And (2) Price bid in prescribed price format in a separate sealed envelope. (Split up of Basic rate, Excise Duty, Sales tax / VAT must be furnished in the price bid)
05	<b>Payment Terms: 80% payment of Supply value shall be made within 45 days from the date of receipt of material at destination and on submission of complete documents to BHEL-PSWR Hqr., Nagpur. Balance 20% shall be released on submission of Performance Bank Guarantee (PBG) valid for 30 days beyond the Warranty period by supplier from any of the consortium Banks of BHEL for 10 % of total PO value in prescribed format. The PBG confirmation charges shall be borne by vendor.</b>
06	Bidder to submit "Un Priced Price format" duly filled and signed along with the technical bid. The price should be quoted as specified in the price format with split up details.
07	Bidder must confirm whether <b>Excise Invoice shall be given or not</b> . In case bidder confirms that excise invoice shall be given, then the evaluation of bid shall be on the basis landed cost to BHEL <b>excluding</b> Excise Duty.
08	In case bidder fails to supply the material as per delivery schedule of this tender, LD shall be levied as per clause no.20 of GCC of this tender specification.
09	BHEL reserves the right to reject or accept the tender without assigning any reasons whatsoever.
10	The offers of the bidders who are on the banned list as also the offer of the bidders, who engage the services of the banned firms, shall be rejected. The list of banned firms is available on BHEL web site (www.bhel.com - --> Tender Notification ---> List of Banned Firms )
11	Octroi at destination, if applicable, will be paid by BHEL on submission of original Octroi receipt.
12	<b>Earnest Money Deposit (EMD):</b> Refundable, Non-interest bearing <b>EMD of Rs.60,000/-</b> (Rs. Sixty Thousand only) is applicable for supply of control panels mentioned in Annex-1. EMD shall be paid ONLY by Account Payee <b>Demand Draft</b> in favor of "Bharat Heavy Electricals Limited" payable at Nagpur. Bidder shall submit the EMD along with the technical bid. In case of foreign bidders e-payment may also be accepted as EMD. <b>MSEs are exempted from EMD.</b>
<p><b>13) This is to inform you that BHEL has switched on to payment through Electronic Fund Transfer (EFT)/ RTGS. The following details are to be furnished by you pertaining to your Bank Accounts where proceeds will be transferred through our Banker:</b></p> <ol style="list-style-type: none"> <li>1. Name of the Company</li> <li>2. Name of Bank</li> <li>3. Name of Bank Branch &amp; Branch Code</li> <li>4. City</li> <li>5. Account Number</li> <li>6. Account type</li> <li>7. IFSC code of the Bank Branch</li> <li>8. MICR Code of the Bank Branch</li> </ol>	

Thanking you,

Yours faithfully,  
For BHARAT HEAVY ELECTRICALS LTD.

Engineer/Purchase

**BHARAT HEAVY ELECTRICALS LIMITED**

**PSWR: HQ: NAGPUR**

**TECHNO-COMMERCIAL TERMS & CONDITIONS: (PART OF TECHNICAL CUM COMMERCIAL BID) Page 6 OF 12**

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SN	DESCRIPTION OF T & C	TERMS & CONDITIONS AS QUOTED IN THIS TENDER
01	DELIVERY TERMS	<b>F.O.R. DESTINATION ONLY</b>
02	PLACE OF DELIVERY	REGIONAL SERVICE CENTRE, 568/1, PARPIA COMPOUND, R.C. DUTT ROAD, VADODARA (GUJARAT)
03	DELIVERY PERIOD FROM THE DATE OF ORDER	<b>WITHIN 02 MONTHS FROM PO. DATE</b>
04	CURRENCY OF PAYMENT	INR
05	PACKING & FORWARDING CHARGES	<b>Included @ _____% (or) Extra@ _____% (or) NA</b>
06	EXCISE DUTY/CVD (% RATE)	<b>Included @ _____% (or) Extra@ _____% (or) NA</b>
07	EXCISE /CVD INVOICES	<b>WILL BE PROVIDED/ NOT PROVIDED</b>
08	<b>CST/ VAT WITHOUT CONCESSIONAL FORMS "C" / "D" (% RATE)</b>	<b>Included @ _____% (or) Extra@ _____%</b> <b>NO "C" OR "D" FORM WILL BE ISSUED BY BHEL</b>
09	OCTROI / ENTRY TAX AT DESTINATION	<b>Extra, if applicable shall be paid by BHEL on submission of original receipt.</b>
10	FREIGHT CHARGES UP TO DESTINATION	<b>Included @ _____% (or) Extra@ _____% (or) NA</b>
11	TRANSIT INSURANCE CHARGES	<b>BY BHEL. SUPPLIER HAS TO INTIMATE THE DISPATCH DETAILS TO BHEL'S UNDERWRITERS AS SOON AS THE MATERIAL DISPATCHED.</b>
12	ANY OTHER CHARGES (please specify here the nature of charge)	<b>(AMOUNT TO BE SPECIFIED IN THE PRICE FORMAT)</b>
13	PAYMENT TERMS (Specify scope of Banker's Charges at both ends / Demand Draft Charges)	<b>Payment Terms: 80% payment of Supply value shall be made within 45 days from the date of receipt of material at destination and on submission of complete documents to BHEL-PSWR Hqr., Nagpur. Balance 20% shall be released on submission of Performance Bank Guarantee (PBG) valid for 30 days beyond the Warranty period by supplier from any of the consortium Banks of BHEL for 10 % of total PO value in prescribed format. The PBG confirmation charges shall be borne by vendor.</b>
14	MODE OF DISPATCH	BY ROAD / RAIL / SHIP / AIR / CARGO COURIER / SPECIAL MESSENGER / HAND DELIVERY
15	NAME OF THE GOODS MANUFACTURER / PRINCIPALS	
16	TRADE NAME / MODEL NUMBER OF GOODS	
17	AUTHORIZED DEALERSHIP CERTIFICATE	CERTIFICATE OF MANUFACTURER/PRINCIPALS: ENCLOSED/ NOT ENCLOSED
18	WARRANTY / GUARANTEE CONDITIONS	TWO YEARS
19	Weather Micro/Small Scale Enterprise	Yes/No, In case of Yes enclose certificate as specified in clause no.30 of General Terms & Conditions
20	PRODUCT CATALOGUE / WRITE UP	ENCLOSED / NOT ENCLOSED
21	CONTACT PERSON'S NAME, E-MAIL ID, PHONE NO	

SIGNATURE & SEAL OF TENDERER

**This sheet should be sent dully filled and signed as a part of technical bid. Otherwise the offer will not be considered for further processing**

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**ANNEXURE-I**

**TECHNICAL SPECIFICATION FOR SECONDARY INJECTION KITS**

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Sr.No.	Description	Bidder's Confirmation
<b>1</b>	<b>Test objects to be tested</b>	
	Distance relays (ground & phase distance)	
	Over current Relays (directional & non-directional, definite time & inverse time – all characteristics as well as user defined )	
	Frequency relays (over-and-under-)	
	Voltage Relays (over-and-under-)	
	Power Relays (directional)	
	Differential Relays (incl. harmonic restraint & basic Characteristic)	
	Other associated protection relay functions: auto-reclose function, power swing, sync-check. etc.	
	Multi-function relays & Transducers	
<b>2</b>	<b>Hardware Specification</b>	
<b>2.1.</b>	<b>General – Mechanics</b>	
	Hardware units not to exceed:16Kg	
	Unit Dimensions not to exceed: 460x155x410 mm	
	No moving elements or elements that are susceptible to damage, i.e. controls elements or displays on the front plate.	
<b>2.2</b>	<b>Amplifiers</b>	
	The amplifier stages are to be fully electronic. Range switching is not permissible.	
	All current amplifiers to be fully overload-, overburden-, over temperature-protected and proof.	
	All amplifiers to use linear amplification elements and to be DC-coupled. Able to generate DC and AC.	
	The amplifiers neutrals, the binary inputs and the main power supply to be galvanically isolated from each other.	
<b>2.2.1</b>	<b>Internal Voltage Amplifiers (4 phases)</b>	
	<b>Setting Range</b> : 4 x 0...300Vrms (PhN)/phase with V4 automatically calculated (i.e. V0) Or free programmable.	
	<b>Output Power</b> : 85 VA/Phase at 85...300Vrms with maximum 4x50VA	
<b>2.2.2</b>	<b>Internal Current Amplifiers (6 phases)</b>	
	<b>Setting Range:</b> 6 x 0...12.5A/phase or 3 x 0...25A/phase or 1 x 0...75Amps	
	<b>Output Power:</b> 6 x 70 VA/phase at 7.5 Arms (1x280 VA at 7.5Arms)	

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<b>2.2.3</b>	<b>Low-level signal Generators</b>	
	6 additional independent analog low-level signals to control external amplifiers or to test relays with low-level input. Together with 10 internally used signal generators the system to provide 16 signal channels in total.	
	<b>Output range:</b> 0...5Vrms	
	The quantities displayed in the software must be scalable.	
<b>2.3</b>	<b>Signal generation</b>	
	All outputs to be continuously & independently adjustable in amplitude, phase (0 to $\pm 360^\circ$ ) and frequency.	
	Maximum error to be less than 0.1% of scale and distortion (THD+N) not to exceed 0.05% for voltage and 0.1% for current outputs.	
	Able to generate continuous sine waves with a frequency between 10 and 1000 Hz and to generate transient files with a bandwidth from DC up to 3KHz.	
	Frequency error to be less than 1ppm. Phase resolution to be less than 4" (sec. of degree)	
	Specifications to be maximum & guaranteed figures over a temperature range of $23^\circ\text{C} \pm 5^\circ\text{C}$ .	
	Interface to the PC : See note at the end	
<b>2.4</b>	<b>Timer/measuring inputs section (minimum 10, selectable binary/Analog input) Binary inputs</b>	
	<b>Mode/Trigger criteria:</b> -Pick –up and drop-out of potential-free contacts or DC Voltages of up to $\pm 600\text{V DC}$ . Trigger levels to be adjustable.	
	<b>Max. error :-</b> $< 120 \mu\text{s}$	
	Max. Measuring time:-infinite	
	Counting function :- $< 3\text{kHz}$ , at pulse width $> 150\mu\text{s}$	
	<b>A) Analog AC-DC measuring inputs</b>	
	Type:- AC+DC analog Voltage inputs	
	Nominal input ranges:- min. 100mV –max.600Vrms	
	Bandwidth:- DC...10kHz	
	Sampling frequency:- min. 9kHz	
	<b>B) Dedicated counter inputs</b>	
	Max. frequency:- 100kHz	
	Number :- minimum 2	
<b>2.5</b>	<b>Analog measuring inputs for transducers</b>	
	<ul style="list-style-type: none"> <li>• Number 2</li> <li>• Direct current range <math>0 \dots \pm 20\text{mA}</math></li> <li>• Direct voltage range <math>0 \dots \pm 10\text{V}</math></li> <li>• Max. error <math>&lt; 0.05\%</math></li> </ul>	

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<b>2.6</b>	<b>Binary Outputs</b>	
	Relays • Number 4 Transistors • Number 4	
<b>2.6.1</b>	<b>Auxiliary DC supply</b>	
	• Voltage output 0...264Vdc • Power Maximum 50W	
<b>2.7</b>	<b>Power Supply</b>	
	• Nominal input voltage 110-240V AC, Single Phase • Range input Voltage 99-264 V AC • Frequency 50/60 Hz • Permissible range 47-63 Hz	
<b>2.8</b>	<b>Temperature Range:</b>	
	• Operating 0...50°C • Storage -25.... +70°C	
<b>2.9</b>	<b>Humidity Range:0....90%RH,non-condensing</b>	
<b>2.1</b>	<b>Certification/standards complied with :</b>	
	EMC: Emission CE conform,IEC 801-2/3/4,FCC subpart B of part 15 class A	
	Immunity EN 55011/3,1991/group 1/classA	
	Safety : IEC 1010-1,UL 3111-1,EN 61010-1,EN 60950+ A1: 1993-05	
<b>3</b>	<b>Software specification</b>	
<b>3.1</b>	<b>General features</b>	
	No programming to be necessary to test any application entry of setting parameters to set up & perform a test with failed/passed evaluation	
	User interface for application to be standard ,similar to that of latest Microsoft windows application	
	Future expansions in functionality by means of software updates. Firmware updating to be handled by the software, i.e. exchange of EPROMs is not possible.	
	Mouse support and On-line help	
	Automatic generation of test report. All graphics & text to be printable including relay parameters used during testing and assessment of the test result. Capability to export report to word processor program (i.e.MS word)	
	All testing to be closed loop	
	Test programs based on test modules to be easily generated (test wizard) & serving simultaneously for test template & test report	

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<b>3.2</b>	<b>General purpose test module</b>	
	For direct control of all the functions of the test and connected amplifier	
	Output value to be entered numerically or specified in vector diagram	
	Continuous monitoring of up to 10 binary inputs	
	Time counter from injection start of voltages and/or current qualities till binary input activated	
	Step variation capabilities in voltage,current,angle and frequency	
<b>3.2.2</b>	<b>Test module for multifunction relay</b>	
	generation of test sequences(>100) with, for each test sequence, possibility to define up to 16 voltage and current signals in amplitude, angle and frequency and full state control of the binary inputs and output.	
	Assessment(passed-failed) of each function of the relay under test according to measurement and tolerance conditions	
	overall display of test signals (current and voltage) and up to 10 binary inputs status versus time.	
	prepared to be used with a GPS signal.	
<b>3.2.3</b>	<b>Test module for distance relay</b>	
	manual and automatic test in impedance plane and Z/t grading diagram.	
	test module supported : constant current & constant voltage for all fault loop:single phase ,two phase and three phase	
	Ability to simulate dc offset. Control of angle of fault incidence.	
	RIO file format for the transfer of relay setting parameters to be supported	
	Impedance characteristics (theoretical with tolerance) to be displayed graphically (both quadrilateral & Mho and any combination)	
	feedback signals: up to 10 binary inputs. Graphical display of contact response vs time.	
	Graphical display of waveforms injected to the relay.	
	prepared to be used with a GPS signal.	
<b>3.2.4</b>	<b>Test module for frequency, voltage, current and power relay etc.</b>	
	Automatic testing	
	generation of up to 5 Amps for amplitude. Phase angles frequency of signal, with capability to amps up to two magnitude simultaneously.	
	pick-up and drop out ratio calculation	
	Result assessment: passed- failed	
	Graphic display of relay pick -up and drop -out vs. time and quantities	
	feedback signals: up to 10 binary inputs.	
<b>3.2.5</b>	<b>Test module for differential relays</b>	
	Manual and automatic testing	
	Selection of 2nd up to 20th harmonic (50Hz) for restraint test.	
	Result assessment: passed- failed	
	Graphic display of relay characteristics with tolerances	

**BHARAT HEAVY ELECTRICALS LIMITED**  
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	feedback signals: up to 10 binary inputs.	
<b>3.2.5</b>	<b>Test module for differential relays</b>	
	Manual and automatic testing	
	Selection of 2nd up to 20th harmonic (50Hz) for restraint test.	
	Result assessment: passed- failed	
	Graphic display of relay characteristics with tolerances	
	feedback signal: up to 10 binary inputs	
<b>3.2.6</b>	<b>module for transient playback</b>	
	IEEE COMTRADE (C37.111-1991 & P37.111/D11)	
	Synchronisation to GPS and other digital timing pulses.	
	Voltage and current traces as well as digital signals and relay responses to be displayed graphically	
<b>3.2.7</b>	<b>Module for harmonic signals generation</b>	
	Easy generation in COMTRADE format of harmonic signals and phase angle for the requested harmonics with respect to the fundamental	
	Ability to generate signals containing up to the 50th harmonics (50Hz)	
<b>3.2.8</b>	<b>Communication ports of protocols</b>	
	The kit should have following Ethernet interfaces (option separately quoted)	
	10/100 Mbit/s (10/100 base -TX,auto-sensing,auto- crossover, RJ45connector for CAT5 twisted pair cable)	
	10/100 Mbit/s (10/100 base -FX,OMTR/connector). support for specific substation protocols such as the GOOSE/GSSE messaging according to IEC 61850-8-1 or UCA 2.0	
	<b>Note:</b>	
<b>1</b>	This attachment uses the slot for DVD R/W drive hence every time to read or write a CD/DVD the attachment have to be reshuffled	
<b>2</b>	As the kit would be required to travel a lot, the DVD drive may get damaged/ unusable hence a laptop having an LPT & COM port other than the IBM machine is required this would further facilitate the usage of same laptop for testing of Siemens and Micom relays	
<b>3</b>	<b>Calibration:</b> the instruments should be calibrated at NABL accredited lab before delivery & calibration certificate should be sent with the instrument.	
<b>4</b>	<b>Guarantee/warranty: Certificate required</b>	
<b>5</b>	Instruction manual required.	

**NOTE:** Bidders should submit the signed copy of this technical sheet as token of acceptance.

**PRICE FORMAT**  
**BHARAT HEAVY ELECTRICALS LIMITED**  
**POWER SECTOR: WESTERN REGION: NAGPUR**

NAME OF THE TENDERER: \_\_\_\_\_

SELLER'S REF. No. \_\_\_\_\_ DATE : \_\_\_\_\_

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DATED:13.10.12

**DUE DATE: 03.11.12**

SL.	DESCRIPTION	PRODUCT-1
A.	ITEM DESCRIPTION AS PER ENQUIRY (PLEASE QUOTE THE BRAND NAME AND MODEL NUMBER)	
B.	QTY OFFERED	01
C.	UNIT RATE	
D.	CURRENCY	
E.	DISCOUNT (%AGE & AMOUNT)	
F.	DISCOUNTED UNIT RATE	
G.	DISCOUNTED BASIC PRICE (G = B x F)	
H.	PACKING & FORWARDING CHARGES	
I.	EXCISE DUTY /CVD (PERCENTAGE AND AMOUNT)	
J.	IMPORT DUTY (PERCENTAGE & AMOUNT)	
K.	SALES TAX AS APPLI. WITHOUT C-FORM (PERCENTAGE & AMOUNT)	
L.	FREIGHT UPTO DESTINATION	
M.	TRANSIT INSURANCE	<b>BY BHEL</b>
N.	OCTROI CHARGES / ENTRY TAX AT DESTINATION	<b>Extra, if applicable at actual on production of original receipt.</b>
<b>O.</b>	<b>TOTAL PRICE AT DESTINATION ( SUM of 'G' to 'N')</b>	

NOTES:

- PLEASE USE ADDITIONAL SHEETS IF NECESSARY
- FURNISH FURTHER BREAK UP OF PRICE IF NECESSARY

**SIGNATURE OF THE TENDERER WITH SEAL**