

**SPECIFICATION FOR MULTI PHASE HIGH PERFORMANCE POWER ANALYZER**

**Purpose:** - This Multi-phase high performance power analyzer is to be used for **measurement of total power** of 6pulse/12 pulse, 3-phase, dual winding VFD motor during testing of generators at Test Bed, Block-1.

**Technical Specification:-**

S.No.	Particulars	Requirement
1	Application	Measurement of <b>total power</b> of dual winding VFD motor. VFD motor can be operated by energizing single winding or both the windings simultaneously depending upon power requirement during generator testing. Each winding is 3-phase. <u>Motor Single Winding rating:</u> 7.1 MW,4.1 kV,1270 A,3000 rpm,6 pulse operation <u>Motor Dual Winding rating:</u> 12.0MW, 2x4.1 kV,2x1068 A, 3000rpm, 12pulse operation The instrument should have sufficient channels for both voltage & current to give total power when motor is operated by energizing both the windings simultaneously.
2	Voltage Range	Upto 1000 Vpeak (Direct Input for High Accuracy)
3	Current Range	Upto 30 Amp. peak (Direct Input for High Accuracy)
4	Measurement Bandwidth Range	DC, 0.1 Hz. To 1MHz
5	Voltage / Current Frequency Range	5 MHz
6	Power Measurement Accuracy	+/- 0.2 % or better (overall accuracy)
7	Measurement Parameters	Voltage, Current, Active Power, Reactive Power, Apparent Power, Power Factor, Phase Angle, Frequency, Peak Voltage, Peak Current, Crest Factor, Integration, (WH, Ah, VARH, VAH)
8	Display	TFT/LCD Color
9	Harmonic Measurement Function	Instrument should have the facility to measure Harmonic Measurements in Voltage, Current, Individual Harmonic Levels, Harmonic Distortion Rate, Individual Harmonic Content for the specified Input Channels/Element up to minimum of 100th Order.
10	Display Update Rate	0.5 sec or better
11	Power Supply	220 VAC, 50 Hz.

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सुरेश कुमार भारद्वाज  
अपर महाप्रबन्धक (ब्लॉक-1)/AGM (Block-1)  
बी.एच.ई.एल., हीम हरद्वार/BHEL, HEEP, Haridwar

Indent No.: C/6743/2014/1564T Rev 01  
**Specification No:-TB/BL-1/2014-15/03**



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12	Demonstration of performance of power analyser at BHEL works	Vendor to demonstrate performance of power analyser at BHEL works during Generator testing. The value of power shall be compared with PMD (Power measuring device) currently being used at BHEL works for power measurement.
13	Additional Standard Features in High Performance Power Analyzer	<ul style="list-style-type: none"> <li>• Standard USB Communication Interface for Data Logging to PC with requisite software.</li> <li>• Ethernet Communication for Remote Connection</li> <li>• Harmonic Data Values in the form of Bar Chart etc. should be available in the Software supplied with the instrument</li> <li>• Instrument should have facility for entering CT, PT &amp; shunt ratio in order to facilitate direct display of actual value.</li> </ul>
14	Warranty Certificate	Warranty Certificate required for minimum of 12 months from the date of dispatch against any manufacturing defects.
15	Calibration Certificate	Calibration Certificate document traceable to National accredited Lab is required
16	Standard accessories	<ul style="list-style-type: none"> <li>• Voltage Lead Set (one per input module)</li> <li>• Suitable power cord</li> <li>• CD containing all relevant documentation and translated user manuals</li> <li>• USB Host - to - Device interface cable</li> </ul>

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 बी.एच.ई.एल., हीप हरिद्वार/BHEL, HEER, Haridwar

**Indent No.: C/6743/2014/4598T Rev 00**  
**Pre-Qualifying Criteria (Technical)**

1.	Bidder must be an Original Equipment Manufacturer (OEM) of Power Analyser or their authorized dealer/distributor/agent.
2.	In case the bidder is an authorized dealer/ distributor/agent, bidder should submit a valid Authorization document from the Power Analyser manufacturer (OEM) along with the offer.
3.	OEM (i.e. manufacturer as above) must have experience of manufacturing & supplying at least one Power Analysers for multi-phase system in the past five years from the date of tender opening. Bidder shall submit list of customers & their order details to BHEL. In case the bidder being authorized dealer/distributor/agent, this condition shall be applicable for their principal, the details from the principal's customer can be accepted.
4.	Bidder should ensure after sales service support facilities in India, details of which along with documentary evidence should be submitted with the offer.
5.	BHEL reserves the right to verify information submitted by vendor. In case the information is found to be false/ incorrect, the offer shall be rejected.

*Anupam Chand*  
 21.01.15  
 Anupam Chand

Dy Manager (Testing, Bk-1)

*N S Rana*  
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AGM (Testing, Bk-1)

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AGM (Testing In charge, Bk-1)