

<i>GRI</i>	<b>PIEZOELECTRIC ACCELEROMETER AND ACCESSORIES</b>	GRI NO.: GRI/27/06/08-09 DATE : 20.05.2009 PAGE : 1 of 3
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INDENT NO . : C/T/4100/20091415

DATED : 20.05.2009

### **PIEZOELECTRIC ACCELEROMETER AND ACCESSORIES :**

These accelerometers shall be charge signal output, piezo-electric type to be used for multipoint vibration monitoring of stator end winding in air cooled, H<sub>2</sub> / water cooled generators upto 1000 MW. Along with basic accelerometers party to quote for all the accessories required for installation of the accelerometers as detailed below.

Quantity of each item required is listed as in annexure-1

#### **A. ACCELEROMETERS:**

##### **SPECIFICATIONS :**

1. Voltage sensitivity : Min. 2.5 mV / ms<sup>-2</sup>
2. Charge sensitivity : 3.0 ± 15 % pC / m sec<sup>-2</sup>  
(Output polarity may be indicated)
3. a)Weight : ≤ 25 gms  
b)Dimension - Height : ≤ 25 mm
4. Mounted Resonance Frequency : Beyond 6.5 kHz
5. Frequency Range : At least 1 to 1000 Hz
6. Max. transverse Sensitivity : less then 6.0 %
7. a) Magnetic Sensitivity : less then 2.0 ms<sup>-2</sup> / Tesla
8. a)Insulation Resistance: Min. 10 GΩ at 28 ° C
9. These accelerometers should be able to perform satisfactorily under following operating environmental conditions.  
a) Ambient Temp. 0 to 160 ° C  
b) Humidity : 80 %
10. Max. shock along main axis : 1000 g
11. Min. continuous sinusoidal Acceleration : 500 g

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12. Base Material : Non-magnetic - Titanium / Stainless steel
13. Mounting Arrangement : Accelerometer should have a tapped 10 – 32 UNF thread (female) in their base for stud mounting with maximum accelerometer mounting torque clearly indicated. Any other type of mounting arrangement may be indicated.
14. Connector: Co-axial side connector with 10-32 UNF thread and safety wire holes.
15. Grounding: Signal return connected to case.
16. Sealing: These accelerometer should have thorough sealing to avoid ingress of moisture affecting its performance . May please indicate level / quality of seals. Preferably it should be hermetic/welded type sealing.

**B. ACCESSORIES:** All the accessories including following may be quoted: -

1. **Miniature Connectors:** Miniature Connectors compatible with Co-axial connector with 10-32 UNF threads of accelerometers in (A) above and cables as specified in Spec.no.GRI/27/10/08-09. These miniature connectors assembled to the cables, should show insulation resistance of more than 10 MΩ. (These should be able to withstand max. ambient temperature of 160°C & humidity of 70 % .)
2. **Extension connectors / Couplers compatible with miniature connector in B1.**
3. **Assembly tools kit for termination of cables as specified in Spec.no.GRI/27/10/08-09 with microdot / miniature connectors in B1.**
4. **BNC to 10-32 UNF Adapter .**

**General requirements :**

1. Prices should be quoted for individual items separately.
2. Detail calibration chart for each accelerometer with all the details like frequency response curve, dynamic range, sensitivity, capacitance etc. be furnished.
3. **Sensitivity of the accelerometer as reported in the calibration chart should be within  $\pm 15\%$  of typical sensitivity in the manufacturer catalog. Further sensitivity of all accelerometer should be within  $\pm 10\%$  of the mean sensitivity of all the accelerometers.**

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4. These accelerometers / accessories be guaranteed for the satisfactory performance for at least 24 months period from the date of commissioning.
5. Make, type /part No., detail specification/catalog and assembly/ installation details of the items quoted be provided. Miniature connector assembly procedure should be provided.
6. Party should indicate operating / environmental requirement for safe and trouble - free operation of the items and also any specific requirements of the system for continuous operation over prolonged periods as may be required in process monitoring/control applications.
7. Required quantity of accelerometer and accessories is indicated in Annex.-1 at I
8. Pre-Qualifying Requirement : The equipment offered ( mainly Piezoelectric accelerometer )shall be of proven design. Party should send reference list of customers (last 5 years )to whom they have supplied such items .

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ITEM DESCRIPTION: PIEZOELECTRIC ACCELEROMETER AND ACCESSORIES

**LIST OF ITEMS REQUIRED****I. PIEZOELECTRIC ACCELEROMETER AND ACCESSORIES**

Sl.No.	Item Description	Qty.
1.	Accelerometers	48 Nos.
2.	Miniature Connectors ( Set of 25 connector )	05 Sets
3.	Extension connectors/ Couplers compatible with reinforced cable with miniature connector in Sl.No.3 ( Set of 25 extension connector )	03 Sets
4.	Assembly tools kit for termination of cables B1 above with microdot/ miniature connectors in B2.	02 Set
5.	BNC to 10-32 UNF Adapter	32 Nos