

**Pre-Qualification Requirements (PQR) for  
Fiber optical based generator end winding vibration monitoring sensors**

Material code no. W90418109192, W90418109206 & W90418109176

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Purpose of System: FO- GEWVMS is used in Power plant applications for measuring Gen stator winding overhang vibration with fiber optics sensors.

- 1) Bidder shall be manufacturer or authorized supplier of Fiber optical based generator end winding vibration monitoring system (FOB GEWVMS). Letter of authorization or suitable documents shall be submitted for the same.
- 2) The Vendor shall have supplied above system for at least two Turbo-Generators of 250MW or above rating and system must be working for one year to the satisfaction of end customer.

In support of above, customer satisfaction letter from at least one end customer or 'Installation and commissioning' report of at least two installations should be provided by Vendor. The report shall not be older than last 7 years from date of enquiry.

**OR**

Successful execution of at least one order for BHEL Haridwar for Generator End Winding Vibration Monitoring System within last 7 years from date of enquiry.

- 3) FO based sensor should be suitable to work under high magnetic fields (1 Tesla) and high voltage approx. 27KV area.
- 4) FO based sensor should meet following requirements: -
  - a) Frequency range:- 30-350Hz,
  - b) Amplitude range: 1000 micro meter (pk-pk)/ 360m/s<sup>2</sup> @ 100Hz.
  - c) Sensitivity:-100 mV/g or more.
  - d) Power & current: - with 24VDC, current 35 mA max for each sensor.
  - e) Ignition protection: - ATEX EX // 3Gmb / C T4.
- 5) System shall consist of signal conditioner to convert FO signal to 4-20mA signal. This conditioner shall be mounted on Generator Lead-in plate. FO based sensor conditioner shall be flange type with M18x1 thread size. Vendor to confirm
- 6) Specification sheet for FO based sensor to be submitted for BHEL review.
- 7) Offered junction box shall be Ignition protection class-II, division-2, For gas and duct, suitable for EEx ell T6

**Notes: -**

- 1) Vendor to furnish their complete reference/ experience list for our review.
- 2) BHEL reserves the right to verify information submitted by vendor. In case the information is found false/ incorrect, the offer shall be rejected.

MANUFACTURER'S NAME AND ADDRESS			QUALITY PLAN					TO BE FILLED BY BHEL		TO BE FILLED BY BHEL				
BHEL	VENDOR'S NAME	ITEM			QP NO.									
					REV									
		DRG. NO.	AS PER PO											
		SPEC.	AS PER PO											
		REV				Page 1 of 1								
SL. NO.	COMPONENT & OPERATIONS	CHARACTERISTICS		CLASS	TYPE OF CHECK	QUANTUM OF CHECK	REFERENCE DOCUMENT	ACCEPTANCE NORMS	FORMAT OF RECORDS		AGENCY			REMARKS
											M	B	N	
1	2	3		4	5	6	7	8	9	D	10			11


MANUFACTURER/SUBCONTRACTOR		LEGEND:	FOR CUSTOMER USE	APPROVED BY
		! RECORDS IDENTIFIED WITH ‘TICK’ SHALL BE ESSENTIALLY INCLUDED BY CONTRACTOR IN QA DOCUMENTATION.		
		M: MANUFACTURER / SUBCONTRACTOR    B: BHEL / NOM. INSPECTION AGENCY N: CUSTOMER INDICATE ‘P’ PERFORM ‘W’ WITNESS AND ‘V’ VERIFICATION ALL ‘W’ INDICATED IN COLUMN ‘N’ SHALL BE ‘CHP’ OF CUSTOMER		