



PRASAR BHARATI  
(INDIA'S PUBLIC SERVICE BROADCASTER)  
O/o ADDITIONAL DIRECTOR GENERAL (E) (WZ)  
ALL INDIA RADIO & DOORDARSHAN  
P.B. ROAD, WORLI, MUMBAI-30.



NO.ADG (E)(WZ)/AIR-P/50 KVA AVR/ 2024-25

Dated. 28/05/2024

**Subject:** - INVITATION OF BUDGETARY QUOTE FOR THE PROCUREMENT OF 50 KVA AIR COOLED AUTOMATIC VOLTAGE REGULATOR AT AKASHVANI AMBEJOGAI (MAH.), RADHANPUR (GUJ.), DEVBHUMI DWARKA (GUJ.) AND JAGDALPUR (C.G.).

1. The budgetary quote Form of the upcoming tender is enclosed herewith to offer comments, (if any) by prospective bidders/firms with budgetary quote.
2. Bidders/firms may please submit the above detail/ their quote on or before due date by e-mail to **[pmkhapke@prasarbharati.gov.in](mailto:pmkhapke@prasarbharati.gov.in)** and **[jpgupta@prasarbharati.gov.in](mailto:jpgupta@prasarbharati.gov.in)** or at following address.

Sh. P.M.KHAPKE  
Assistant Director(E),  
O/o Additional Director General (E-WZ)  
Akashvani & Doordarshan, 2<sup>nd</sup> floor, A.O.A building,  
Doordarshan Complex, Worli, Mumbai – 400030  
Mobile No.: 9653622677

e-mail id: **[pmkhapke@prasarbharati.gov.in](mailto:pmkhapke@prasarbharati.gov.in)**  
**[jpgupta@prasarbharati.gov.in](mailto:jpgupta@prasarbharati.gov.in)**

**Due Date to offer Comments: 09-06-2024**

**Enclosed:**

1. Budgetary Quotation form of the upcoming tender is enclosed herewith.

(P.M. KHAPKE)  
Assistant Director(E),  
For Add. Director General (E), WZ  
MUMBAI



PRASAR BHARATI  
(INDIA'S PUBLIC SERVICE BROADCASTER)  
O/o ADDITIONAL DIRECTOR GENERAL (E) (WZ)  
ALL INDIA RADIO & DOORDARSHAN  
P.B. ROAD, WORLI, MUMBAI-30.



NO.ADG (E)(WZ)/AIR-P/50 KVA AVR/ 2024-25

Dated. 28/05/2024

**Budgetary Quotation Form**

**Subject:** - INVITATION OF BUDGETARY QUOTE FOR THE PROCUREMENT OF 50 KVA AIR COOLED AUTOMATIC VOLTAGE REGULATOR AT **AKASHVANI AMBEJOGAI (MAH.), RADHANPUR (GUJ.), DEVBHUMI DWARKA (GUJ.) AND JAGDALPUR (C.G.)**.

**Last date of receipt of budgetary quotation in this office: 09-06-2024 up to 15:00Hrs.**

Please read carefully the terms and conditions given the enquiry quotation form.

S. No.	Description	Qty	Rates	Amount
1.	SUPPLY OF 50 KVA , 3 PHASE, 50 Hz, 4 WIRE AIR COOLED AUTOMATIC VOLTAGE REGULATOR (FOR VHF FM TRANSMITTER SET UP)  (Specifications of 50 KVA AVR to be procured is attached with this form.)	4 nos. (1 no. for each Site)		
	Total			
	GST @			
	Grand Total			

**Note:**

1. Consignee: Installation officer, Akashvani, HPT DD site Ambejogai, Radhanpur, Devbhumi Dwarka and Jagdalpur.
2. Time of execution as per permission of engineer in charge at Akashvani HPT DD site Ambejogai, Radhanpur, Devbhumi Dwarka and Jagdalpur.
3. The bidder must be experienced in same kind of scope.
4. Specifications of the item to be procured is attached with this form, filling the budgetary quote specifications should be considered extensively.
5. Supply has to be done as per the terms and conditions in upcoming tender documents.
6. Quantity of Material & Scope may increase or decrease as per actual requirement/constraints at site.
7. Validity: 120days
8. Declaration: We declare that all the conditions as given in the quotation form have been read by us.

Name (in capital)-

(Seal & Signature of the Bidder)

# **SPECIFICATION FOR 50 KVA, 3 PHASE, 50 Hz, AIR COOLED AUTOMATIC VOLTAGE REGULATOR**

## **GENERAL**

The unit shall be self-contained, compact, efficient and highly reliable for 100% duty cycle at full load, working round-the clock, 365 days a year and based on field-proven design using modern technology. All materials used in the construction shall be of high quality and as per relevant Indian Standard Specifications. The manufacturer of equipment should have ISO 9001.

### **1. SCOPE**

This specification covers the supply of automatic voltage regulator of 50 KVA capacity 3 phase, 50 Hz 4 wire for FM transmitter & associated broadcasting equipment in All India Radio.

### **2. GENERAL TERM & CONDITION**

- 2.1** Payment terms, taxes and duties, insurance cover, validity, tender acceptance, initial inspection at manufacturer/tenderer's works, transportation /dispatch of materials, testing of equipment, guarantee terms, delivery period, penalty for delay and other commercial terms would be applicable as per All India Radio (AIR)'s terms and condition on the subject.
- 2.2** The offered equipment shall conform to the Technical Specifications as given in various sections of this specification. Should a tenderer desire to depart in any respect from the given specifications either on account of manufacturing practice or for any other reason, he must specifically bring out the modifications in a covering letter explaining in detail each and every departure he proposes to make. Unless otherwise stated, the equipment offered shall be deemed to satisfy these specifications.
- 2.3** The equipment shall be designed for efficient and trouble-free service for long periods of continuous operations. The units shall be designed for easy maintenance, repairs/replacements and complete safety to operating personnel. All materials used in the construction shall be of high quality and conform to the relevant IS specifications.
- 2.4** The equipment offered shall be capable of withstanding rigorous use and rough handling including during transportation.

### **3. INFORMATION TO BE SUPPLIED WITH TENDER**

Sufficient information should be furnished with the tender to enable the full merit of the offer to be assessed. The tender and associated information must be submitted in duplicate and include the following:

- 3.1** Comments on each and every clause of specifications in the order in which they appear in the specifications indicating whether the equipment offered complies with the individual specifications. Wherever necessary, the tenderer shall state whether or not he agrees to the stated conditions.
- 3.2** Descriptive information giving complete details of equipment offered with photographs.
- 3.3** A circuit diagram showing the circuit details of the equipment being offered.
- 3.4** A general undertaking to accept the guarantee which will be furnished by the tenderer. Authenticated by OEM
- 3.5** Two complete sets of instructions manuals for operation, maintenance and servicing of equipment for the consignee and two sets are to be sent to the Indenter.
- 3.6** The tenderer should be either the manufacturer of equipment offered or their authorized agent. In case the tenderer is authorized agent, a certificate from the original equipment manufacturer that the tenderer is authorized agent should be enclosed with the tender.
- 3.7** The tenderer shall submit printed technical literatures of the equipment. Incomplete offers will be rejected. The tenderer may be required to demonstrate the functioning clearly specifying all parameter of specification of the tendered unit at the time of technical evaluation, for above demonstration the load etc. will be arranged by the tenderer. Non-compliance of equipment demonstration shall disqualify the tenderer.

- 4. DEPARTURE FROM SPECIFICATION:** Clause by clause compliance with the specifications shall be indicated. Each and every departure from the specifications shall be specifically brought out in the covering letter of the tender. The tenderer should specify if the departure is due to manufacturing process or any other reason.

- 5. GURANTEE:** The equipment will be guaranteed for a minimum period of **Three** year from the date of receipt at site. The equipment shall be serviced at site free of cost including supply of failed components within the guarantee period. Tender shall mention in his offer minimum period required for making equipment functional. The down time beyond one week shall not be acceptable.

### **6. TECHNICAL DOCUMENTATION (TO BE SUBMITTED AFTER ACCEPTANCE OF TENDER)**

The successful tenderer shall submit the following within three weeks of acceptance of the tender for approval. Two sets will be returned after approval.

Z:\New Upcoming projects for 2023-24\Gem Purchase\50KVA AVR\letter and budgetary quote with specs final 29 05 2024.docx

- 6.1 Six copies of the drawings showing the physical arrangement and dimensions, location of accessories, circuit identification markings, nameplate etc.
- 6.2 Control circuit and schematic including size and capacity of equipment/cables proposed to be used and any other drawing necessary for the job.

## 7. TECHNICAL DOCUMENTATION (TO BE SUBMITTED AT TIME OF DELIVERY)

Following documents shall be supplied to the consignee along with equipment at the time of delivery:

- 7.1 Two copies of the book of instructions & drawings regarding installation, testing, operation and maintenance and servicing of the equipment with all the relevant data sheets, spare parts catalogue and workshop procedure for repairs, assemblies and adjustments.
- 7.2 Two copies of Factory test certificates showing the results of the tests actually carried out on the LT switch-gear.
8. **INSPECTION:** The successful tenderer will have to get AVR inspected by a person authorized by competent authority at (tenderer's) workshop/factory before dispatch. An acceptance test procedure shall submit for approval for PDI.
9. **DELIVERY:** The supply shall be completed within a period of three months effective from the date of acceptance of the tender and shall be independent of any other factors.

## 10. SAILENT FEATURE

- a) Modular construction of control circuitry for easy replacement.
- b) Control voltage device designed using solid-state electronic circuits.
- c) High-speed step-less correction of output voltage using A.C synchronous motors, without hunting or overshooting.
- d) Independent controls for each of the three phases to avoid unbalance in output load voltage in any phase affecting the output of AVR.
- e) Built-in overload and short-circuit protection.
- f) Should not introduce waveform distortion.
- g) Front access for installation and servicing.
- h) Compact size. (One of the base dimensions be restricted to 600 mm.)
- i) Full complement of meters, controls, alarms and indicators as required to demonstrate parameter of specification.
- j) All moving contacts designed to give long and trouble free service for design life of 15 years.
- k) Rugged construction and field-proven design requiring minimum maintenance. MTBF of the equipment to be specified.
- l) Suitable for continuous use in tropical climatic conditions.

## 10. TECHNICAL REQUIREMENTS

1. Capacity of AVR : 50 KVA (continuous)
2. Input/output voltage
- 2.1 Input voltage : 320 V to 480 V A.C Three phase 50 Hz, 4 wire
- 2.2 Output Voltage : 400 V +/-1% A.C Three Phase 50 Hz. (230 volts Phase to neutral), voltage shall be adjustable to +/-5% with control located on front panel.
- 2.3 Voltage Regulation : +/-1% from no load to full load.
- 1.3 Frequency : AVR should work satisfactorily with input frequency range of 50 Hz +/-6%

1.4	Distortion	: It should not introduce any output distortion.
1.5	AVR Type	: Indoor, free-floor standing, servo-controlled or any Other state-of-the –art technology (sensing and control Details to be indicated) with individual phase sensing and control for regulating unbalanced incoming voltage and suitable for unbalanced loads. The unbalance in load can be of the order of 50% of rated load. The output voltage stability with this unbalance (up to 50%) should be within +/-5% of the Nominal output voltage.
1.6	Speed of correction	: 6 volts/second or better.
1.7	Efficiency	: The efficiency of AVR shall be 95% or better
1.8	Transformer Winding	: Electrolytic prime grade copper.
1.9	Insulation Class	: As per IS amended up to date
1.20	Insulation level rated short Duration power fluctuation Withstand voltage	: As per IS amended up to date
1.21	Metering & indications	:i) Digital meters shall be provided with selector switches for measurement of Phase to Phase & Phase to Neutral voltage on all three phases for Input and Output. ii) Digital ammeter in output on all three phases. iii)Indications, on control panel shall be provided for input/output voltage status.
1.22	Standby Manual	: Facility should also be available to use AVR as a simple manually operated voltage regulator in case of failure of automatic control system. Selector switches for selection of mode of operation (AUTO/MANUAL) and other necessary control switches for this purpose may be provided on the front panel.
1.23	Type of Cooling	: Natural air Cooled
1.24	Electrical Protection	: AVR shall be protected against over loads, short-circuit surge voltage due to system faults, switching Operations, and hotspot temperature. Complete details of protections (standard as well as optional) are to be Furnished with the tender. MCCB of reputed makes (Siemens/L&T/EE only) are to be provided at the INPUT/OUTPUT.
1.25	Main Selector Switch	: A four-position heavy-duty switch shall be Provided for the following operations:
a)	OFF	: The input supply is cut off.
b)	TEST	: Input supply is through but output is cut off.
c)	ON	: Input and output both are through.
d)	BY-PASS	: AVR gets isolated and the input gets directly connected to output.
1.26	Working Temperature	: AVR shall work satisfactorily under ambient Temperature of 0-45 deg.C. and relative humidity of 95% non-condensing at 40 deg C.
1.27	Time-Delay Switching	: An adjustable time delay device shall be pro vided so That the output is connected to load about 15 to 30 seconds(adjustable) after the input is/switched on/ restored after Power Supply failure or momentary interruption during which period the AVR output

		voltage will stabilize to the desired pre-set value.
1.28	Designation Labels	: Suitable designation labels for all controls etc. shall be engraved on the panel and shall be distinctly visible.
1.29	Connections	: Star with insulated neutral.
1.30	Terminal arrangement	: Cable end boxes for input & output to be provided for upto 3 ½ core 70 sq.mm LT cable
1.31	Temp. Rise	: To be indicated
1.32	Component Loses	
	a) No load loss (Watts) at 400V & 50 Hz frequency	: To be indicated
	b) Max. loss(W) at full load current at winding temp. of 75 deg. C and 400 V & also at 340V (Phase to phase input voltage)	: To be indicated
1.33	Approximate weight	
	a) Core & Windings	: To be indicated
	b) Tank fittings and accessories	
	c) Total weight in Kg.	
1.34	Overall Dimensions	: To be indicated
	a) For AVR	
	b) For Control Panel	
	c) One of the base dimensions should be restricted to 600 mm .	
2.	<b><u>MECHANICAL CONSTRUCTION</u></b>	
2.1	Enclosure	: The body of AVR shall be made of MS sheet of minimum 16 SWG thickness capable to with stand transit hazards and to provide mechanical protection to the sensitive parts
2.2	Facility for movement	: The AVR will be provided with sturdy wheels for ease of movement.
2.3	Outer Finish	: First quality paint after the initial primer coat shall be used to prevent rusting, corrosion etc.
2.4	Technical Literature	: Two sets complete with circuit details.
3.	Accessories	: All the accessories like earthling terminals, lifting hook, terminal marking plate, diagram plate, rating plate, etc.as may be required for installation, operation & Maintenance shall be supplied along with the AVR. Optional accessories, if any, may be quoted separately.