



आईएसओ 9001-2015 पत्तान
AN ISO 9001-2015 PORT

MORMUGAO PORT AUTHORITY
ENGINEERING MECHANICAL DEPARTMENT
ELECTRICAL HARBOUR SECTION

NOTICE INVITING BUDGETORY OFFERS

Name of Work	"Providing Automatic Voltage Regulator at Compact Substation ".
Date of submission of budgetary quotation	On or Before 27/01/2023 at 15:00 Hrs.
Address for communication:	Executive Engineer (E-HR), 2nd floor, Mechanical Engineering Department, Mormugao Port Authority, Admin. Building, Headland sada Vasco-de-Gama Goa - 403804
Contact Details	Phone : (0832) 2594207, 2594577 Email : mohamed.shaik@mptgoa.gov.in
Website	www.mptgoa.gov.in

EXECUTIVE ENGINEER (E-HR)
MORMUGAO PORT AUTHORITY



आईएसओ 9001-2015 पत्तान
AN ISO 9001-2015 PORT

MORMUGAO PORT AUTHORITY
ENGINEERING MECHANICAL DEPARTMENT
ELECTRICAL HARBOUR SECTION

Sub: "Providing Automatic Voltage Regulator at Compact Substation " .

Ref: Budgetary Quotation No. CME/XEN (E-HR)/ 22/H-12/B7

Mormugao Port Authority intends to carryout work of "Supply, Installation, Testing and Commissioning of 1000 KVA, 415V, Outdoor type Automatic Voltage Regulator (AVR) at Compact substation to feed steady shore supply to panels at Breakwater berth, Harbour.

As such, it is requested to kindly furnish budgetary quotation for the same (Scope of work, technical specifications are enclosed at Annexure-I and Price Schedule enclosed at Annexure- II).

Your budgetary quotation should reach to this office on or before **27/01/2023 at 15:00 Hrs.**

Thanking you,

Yours sincerely,

EXECUTIVE ENGINEER (E-HR)

Annexure-I

TECHNICAL SPECIFICATION

1. 1.0 GENERAL:

Mormugao Port Authority intends to carryout work of “Design, Supply, Installation, Testing and Commissioning of 1000KVA, 415V, Outdoor type Automatic Voltage Regulator (AVR) at Compact substation to feed steady shore supply to panels at Breakwater berth, Harbour.

2. SCOPE OF WORK

The brief scope of work involves,

- a) Design, Supply, Installation, Testing and Commissioning of 1000 KVA, 415 V, Outdoor type Automatic Voltage Regulator.
- b) Supply and laying of 1C X 1000 Sq.mm aluminum cable including end termination from 1000 KVA transformer inside Compact Substation to AVR incoming side and from AVR outgoing side to incoming side of LT distribution panel inside Compact Substation.
- c) Constructing shed and providing fencing for the 1000 KVA Automatic Voltage Regulator (AVR).
- d) Providing earthing system and laying GI strip for AVR and shed.

3. TECHNICAL SPECIFICATIONS:-

3.1 1000 KVA, 415 V Outdoor type Automatic Voltage Regulator (AVR)

- a) Supply of 1000 KVA Outdoor type Automatic Voltage Regulator (AVR) along with MCCB, Bypass Switch.

The brief technical specifications of AVR given below:

Sr.No.	Description	Specification
General		
1.	Capacity	1000 KVA
2.	Input voltage range	310 – 480 V

3.	Output voltage	415 V+/- 1%
4.	Input factory range	47 – 53 Hz
5.	Class of insulation (Windings)	Class H
6.	Cooling	OIL
7.	Duty-Cycle	Continuous
8.	Type of Servo Control	Micro Controller based True RMS sensing and correction
9.	Servo Motor Drive	Traic based drive for AC Step Synchronous motor
10.	Rate of correction	10 V/sec
11.	Short Circuit Protection	Through 3 Pole ACB at input
12.	Under Voltage Protection	Provide through ACB at Output. Overload Cut off CT based/Electronic cut off circuit with graded time delay set @ 110% of rated full load current
13.	Over Voltage Protection	
14.	Over Load Protection	
15.	Single Phasing Protection	
16.	Phase Reversal Protection	
17.	Resetting Mode	Manual /Auto with programmable time delay
18.	Display Type	2 Line LCD Panel
19.	Parameters Displayed	Input & Output Voltages (Line & Phase), Output currents & Frequency
20.	Input/output Terminations	Aluminium bus bar terminals
21.	Stabilizer Bypass Switch	Essential
22.	IP Class	IP 65

b) Installation, Testing and commissioning of above Outdoor type Automatic Voltage Regulator (AVR)

The 1000 KVA, 415V, Outdoor type Automatic Voltage Regulator (AVR) shall be installed at designated location as per Engineer In charge following OEM and IS standards.

Suitable foundation of minimum 60 cm height shall be provided for AVR installation. The AVR shall be properly leveled on the foundation and suitable stoppers shall be provided for the AVR wheels. Before charging the AVR, all the tests shall be carried out as per relevant IS standards including di-electric strength of oil. If required the contractor shall filter the AVR oil at his own risk and cost.

3.2 Supply and Laying of 1 coreX1000 sq.mm. Aluminum cable

The Contractor shall supply cable of 1C X 1000 sq.mm as per technical specifications and quantity indicated in BOQ.

8 runs (2 runs per phase and neutral) of 1C X1000 sq.mm cable shall be laid from secondary side of 1000 KVA Transformer to incoming of AVR and 8 runs (2 runs per phase and neutral) of 1C X1000 sq.mm cable from AVR outgoing to main distribution LT panel inside Compact Substation. Trench of size 100 cm width x 60 cm depth shall be excavated and each run of cable laid side by side, covered with sand and bricks and back filled with excavated soil and leveled with cement mortar if needed. The cable shall be terminated by using suitable gland and lugs. The work shall be carried out as per the relevant IS standard.

3.3. Earth Pits and Earthing:

Supply & Installation of 5 nos of maintenance free chemical earthing using earthing compound and copper electrode of size 80 mm dia., 03 meter long complete in all respect. Construct a chamber of 450mm x 450mm with 125mm wall thickness. The depth of the masonry work will be not less than 600mm below the ground level and suitable cover on the chamber shall be provided. Connect the earthing rod to the GI strips of size 50 x 5mm. The GI strip shall be laid and connected to AVR and shed with Stainless Steel nut-bolts. Interconnections and joints for earth conductors shall be riveted / soldered for retaining low resistance. The voltage between Neutral & Earth not to exceed 2 volts. The earth resistance shall be as per IS 3043.

3.4 Fabrication of shed for AVR:

A rain protection shed of size 3Mtr.(L) X 2.5m (W) X 4Mtr.(H) fabricated with Galvalume sheet for roof and G.I. Class 'B' pipe supports of 110mm dia, G.I. angles 50 x 50 x 6mm as cross/ support members, etc. shall be constructed. Back side of shed of size (3Mtr.(L) X 4Mtr.(H)) shall be covered with Galvalume sheet. The contractor shall carryout the work complete in all respect including civil foundation work as required.

3.5 Providing Fencing for AVR

Fencing with lockable gate shall be provided for AVR on the front side with GI channels/angle frame of 25X25X5 mm, GI chain link mesh and lockable gate, size of the fencing shall be (3Mtr.(L) X 4Mtr.(H)). The fencing should be provided at front side. However, the work shall be carried out as per the site condition.



4. Special terms And Condition:

- i. The contractor is advised to visit MPT site at his own cost before quoting.
- ii. The work should be carried out with utmost safety precaution with minimum possible disruption of power supply.
- iii. The installation of the various equipment's shall be carried as per IER and relevant standards amended upto date. The work shall be carried out as per the site condition and as directed by the Engineer In Charge.
- iv. All the material required for execution of the work has to be arranged by contractor at his own cost.

BILL OF QUANTITIES

Name of the work: Providing Automatic Voltage Regulator at Compact Substation

Sr. No.	Description of work	Unit	Qty.	Rate per Unit (Rs.)	Total Amount (Rs.)
1.	Supply, installation, testing and commissioning of 1000KVA, 415V, Outdoor type Automatic Voltage Regulator(AVR) as per technical specification				
	a) Supply	No.	1		
	b) Installation, testing and commissioning.	No.	1		
2	a) Supply of LT 1C X 1000 Sq.mm. XLPE U.G. Alu. Cable	Mtr.	500		
	b) Laying of LT 1C X 1000 Sq.mm. XLPE U.G. Alu. Cable	Mtr.	500		
	c) Excavating cable trench in hard earth as per technical specification	Mtr.	20		
	d)Termination of 1000 sqmm cable by supplying suitable lugs and Glands	No.	32		
4	a) Providing Chemical earthing including masonry work.	No.	5		
	b) Supply and Laying 50 X 5 mtrs GI galvanized earthing strips.	Mtr	60		
	c)Supply and installation of earth chamber cover and Mansony work with material	No.	6		



आईएसओ 9001-2015 पत्तान
AN ISO 9001-2015 PORT

MORMUGAO PORT AUTHORITY
ENGINEERING MECHANICAL DEPARTMENT
ELECTRICAL HARBOUR SECTION

6	Fabrication of shed and Providing fencing for AVR as per technical specification.	LS	1		
Total					

(In words Rupees

_____ only)

Note: a. The prices offered should Shall be exclusive of GST(%) . GST will be paid extra as applicable.