



Annexure A

NOTICE INVITING TENDER

Ref: BAP/PUR/FAN/ATP/52 dt 25.09.2015

(a) Technical Requirement for Supply of ANGULAR POSITION TRANSMITTER

Sealed Bids (Two Part Basis) are invited from prospective suppliers for supply of **ANGULAR POSITION TRANSMITTER** as per specification.




SI No	Material Code	Description	Qty	
1	R55330110000	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02. RANGE SHALL BE CALIBERATED FROM 0 TO 119.4 DEGREES.	4 NO	24112015
2	R55330120000	ANGULAR POSITION TRANSMITTER FOR ID FAN AS PER REF TECI:GEN:APT:REV 02. RANGE SHALL BE CALIBERATED FROM 0 TO 90.6 DEGREES.	4 NO	24112015
3	R55330130000	ANGULAR POSITION TRANSMITTER FOR PA FAN AS PER SPEC REF TECI:GEN:APT:REV 02. RANGE SHALL BE CALIBERATED FROM 0 TO 100.8 DEGREES.	4 NO	24112015
4	R55330150000	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 CALLIBERATION TO 0 TO 119.4 DEGREES .	6 NO	24112015
5	R55330160000	ANGULAR POSITION TRANSMITTER FOR ID FAN AS PER REF TECI:GEN:APT:REV 02 CALLIBERATED 0 TO 152.8 DEGREES.	6 NO	24112015
6	R55330170000	ANGULAR POSITION TRANSMITTER FOR PA FAN AS PER SPEC REF TECI:GEN:APT:REV 02 CALLIBERATED 0 TO 106.6 DEGREES.	6 NO	24112015
7	R55330390001	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR ID FAN RANGE SHALL BE	2 NO	24112015



		CELIBERATED FROM 0 TO 79 DEGREE CLOCKWISE.		
8	R55330390002	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR FD FAN RANGE SHALL BE CELIBERATED FROM 0 TO 119.4 DEGREE COUNTER CLOCKWISE.	2 NO	24112015
9	R55330390003	ANGULAR POSITION TRANSMITTER FOR PA FAN RANGE SHALL BE CELIBERATED FROM 0 TO 110.2 DEGREE COUNTER CLOCKWISE.	2 NO	24112015
10	R55330400001	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR ID FAN RANGE SHALL BE CELIBERATED FROM 0 TO 90.6 DEGREE CLOCKWISE.	4 NO	24112015
11	R55330400002	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR FD FAN RANGE SHALL BE CELIBERATED FROM 0 TO 85.6 DEGREE COUNTER CLOCKWISE.	4 NO	24112015
12	R55330400003	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR PA FAN RANGE SHALL BE CELIBERATED FROM 0 TO 111.4 DEGREE COUNTER CLOCKWISE.	4 NO	24112015
13	R55536070001	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR ID FAN RANGE SHALL BE CALIBERATED FROM 0 TO 180 DEGREE	4 NO	24112015
14	R55536070002	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR FD FAN RANGE SHALL BE CALIBERATED FROM 0 TO 180 DEGREE	4 NO	24112015



15	R55536070003	ANGULAR POSITION TRANSMITTER AS PER SPECIFICATION TECI:GEN:APT:REV 02 FOR PA FAN RANGE SHALL BE CALIBERATED FROM 0 TO 180 DEGREE	4 NO	24112015
16	R55536110000	ANGULAR POSITION TRANSMITTER FOR FANS AS PER SPEC: TECI:GEN:APT:REV 02. CALIBERATED FROM 0 TO 180 DEGREE .	12 NO	4-24.03.16 6-24.05.16 2-24.07.16

PRODUCT STANDARD EDC-ECI BAP/BHEL/RANIPET – 632 406				
TITLE : TECHNICAL SPECIFICATION FOR BOUGHT ITEMS FOR FAN				
ITEM : ANGULAR POSITION TRANSMITTER				
CUSTOMER : NTPC & NON NTPC				
NAME		DESIGNATION	SIGNATURE	DATE
PREPARED	K SANKARASUBRAMANIAN	SAE-I		16.06.2015
CHECKED	M.JEYAMURUGANAND	DGM		16.06.2015
APPROVED	S.JAYAPRAKASAM	AGM		16.06.2015
ISSUED BY				
EDC – ECI				
REVISION NO: 01		INITIAL RELEASE: 25.04.2013		
REVISION NO: 02 - CL NO . 2.13 to 2.15 ADDED/ Revised.				

1.0 SCOPE OF SUPPLY:

The scope of supply of Angular Position Transmitter includes design, manufacturing, testing, inspection, packing and delivery as per this specification.

2.0 TECHNICAL REQUIREMENTS:

2.1 Version of the transmitter	:	Standard
2.2 Sense of rotation	:	Counter Clock wise / clock wise as per Enquiry / Purchase order
2.3 Measuring range	:	0...180°
2.4 Calibration range	:	As specified in the Enquiry / Purchase order It shall be possible to calibrate the transmitter at field to any range within the measuring range .(Vendor to confirm)
2.5 Output signal	:	4...20 mA, 2-wire connection .
2.6 Power supply	:	Maximum 48 V DC. (Vendor to specify voltage range)
2.7 Mounting mode	:	Without foot, without flange. Mounting as Shown in the typical drawing attached. (Page 4)
2.8 Transmitter rear cover	:	Metal / Plastic (Metal preferred)
2.9 Routing of connecting cable	:	Routed to the rear.
2.10 Cable connection	:	Through Connector or Compression type metallic Cable gland suitable for 2 Pair- 1.5 sqmm Copper, stranded cable with Outer Dia. 20mm.
2.11 Special features if any	:	Vendor to specify.
2.12 Settings (span adjustment)	:	Extended setting range + 5% / – 60%
2.13 Climatic condition	:	Heavily dusty with abrasive particles, tropical, conducive to fungus growth environment as prevalent in Coal / Oil fired thermal power station
2.14 Ambient temperature range	:	-25 to + 70 °C.
2.15 Humidity	:	Annual mean relative humidity ≤ 95 %
2.16 Degree of protection	:	Minimum IP 66 as per IS / IEC

3.0. General Mounting Requirements: As per drawing EDC FANS/ MATLS/APT on Page 5

3.1.0 DIMENSIONAL DRAWINGS :

Required shaft dia min 10mm. Other dimensions as per vendor standard And to be specified in the offer.

4.0 ELECTRICAL CONNECTIONS : Vendor to provide for the model quoted.

5.0 DOCUMENTS TO BE SUBMITTED :

- A) The supplier shall furnish the following along with the offer.
- Compliance to the technical specification.
 - Technical catalogue indicating GA Drawing, technical particulars of the model quoted, characteristic curves, TB connection details, operating voltage etc. for review.
 - Typical packing drawing followed by vendor
- B) For the item ordered, the supplier shall furnish the following for Approval
- a) GA drawing.
 - b) Technical data sheet
 - c) Power supply & Output connection drawing
 - d) Quality plan
 - e) Packing drawing

6.0 INSPECTION.

The Angular position transmitter item will be inspected at vendor works by BHEL / Authorized Inspectors as per the following documents.

- a) BHEL Purchase order
- b) BHEL Approved Vendor documents

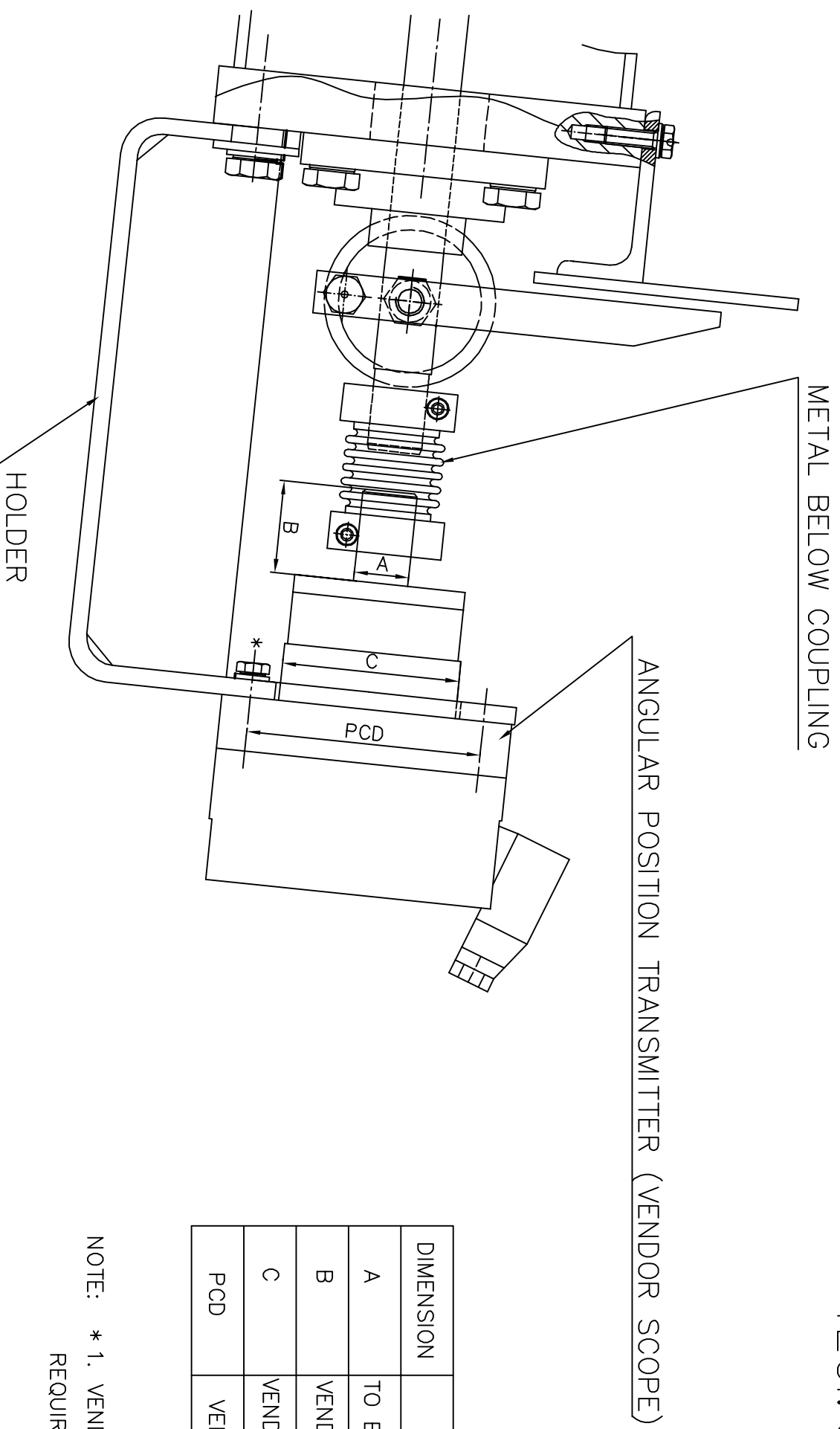
7.0 Packing

As per vendor packing drawing approved by BHEL.

8.0 Data to be submitted along with offer : Refer page 4

(offers without the filled up format on page 4 will be liable for rejection)

Sl.No	Specification	Requirement	Make (Vendor to specify)	
			Technical Details of Model quoted	Remarks
	TECI:GEN:APT:Rev. as referred in Enquiry	Compliance		
1	Basic Model series	Vendor to specify		
2	Version	Standard		
3	Sense of rotation	clockwise /Counter clock wise as in Enquiry		
4	Method of change of direction	Through Programmable/ Dip switch / keys -vendor to specify		
5	Mechanical angle range (fully rotatable)	360 Deg		
6	Measuring range-Deg	0 to 180		
7	Output signal	4 to 20 mA		
8	Out put charecteristic	Linear		
9	Out put signal type	Load independent (do not change with connected load impedance)		
10	Connection	2 wire		
11	Power supply	Any voltage between 12 to 30V DC		
12	Zero adjustment	Required		
13	Span adjustment	Required		
14	Span adjustment Settings	Required		
15	Zero &Span adjestment	Independent (Zero setting do not affect span setting and vice versa)		
16	Calibration at site	Required		
17	Climatic rating Deg.C	Minus 20 to Plus 70 Deg C		
18	Degree of protection	Minimum IP65		
19	Mounting	Direct, Without foot, With out flange		
20	Housing	Metallic		
21	Special feature	Required (vendor to Specify other features available)		
22	Shaft diameter in mm	Minimum 10mm		
23	External cable termination	screw terminal		
24	Metallic Cable gland	Required		
25	Measuring Principle	To specify		
26	Additional gear	With out gear		
27	Commissioning tool / Accessories	Required, if applicable (vendor to specify)		
28	Weight in KG	Vendor to specify		
29	Measuring principle	Vendor to specify		
30	Model number	Vendor to specify		



DIMENSION	
A	TO BE GREATER THAN 10MM & SHOULD BE INDICATED IN OFFER.
B	VENDOR SHOULD INDICATE DURING OFFER.
C	VENDOR SHOULD INDICATE DURING OFFER.
PCD	VENDOR SHOULD INDICATE DURING OFFER.

NOTE: * 1. VENDOR SHOULD INFORM THE SIZE & NO.OF THREADED HOLES REQUIRED TO MOUNT THE APT.

2. VENDOR SHOULD INDICATE THE WEIGHT OF APT.

3. THE ABOVE MOUNTING ARRANGEMENT OF THE APT IS APPLICABLE FOR FD, ID & PA FAN.

MOUNTING ARRANGEMENT FOR ANGULAR POSITION TRANSMITTER