

**Sub: Qualifying Requirements (QR) for Vendor Enlistment for supply of Temperature Transmitters**

A	<b>MEG Details</b>	
	1.0 MEG No.	
	2.0 MEG Description	Temperature Transmitters
	3.0 Responsibility Centre	VDC
B	<p><b>Technical Criteria of QR:</b></p> <ol style="list-style-type: none"> <li>1. The Applicant should be a manufacturer of Temperature Transmitters.</li> <li>2. The Applicant should have successfully executed the supply of Temperature Transmitters during the last five (5) years, as on the date of application. The Temperature Transmitters should have been in satisfactory operation for at least one (1) year in thermal power station having unit rating of 200 MW or above prior to the date of application.</li> </ol> <p><b>Note</b> - The word "executed" mentioned above means that the Applicant should have achieved the criteria specified above, even if the total contract is started earlier and/or is not completed/ closed.</p>	
C	<p><b>Documents required in support of meeting QR:</b></p> <ol style="list-style-type: none"> <li>1. Latest annual report OR NSIC / SSI / MSME registration certificate / BIS license / ISO certificate / Certificate of registration from the concerned excise department / any other statutory document as a proof of being manufacturer of Temperature Transmitters. Brief details of manufacturing facilities or standard published Catalogue for Temperature Transmitters are also to be given.</li> <li>2. The PO in support of award and completion certificate/copies of invoice to establish successful execution of the supply of Temperature transmitters as per QR.</li> </ol>	
D	<p><b>Documents to be submitted to find executed value of orders:</b></p> <p>In addition to the documents required in support of meeting technical requirements as stated above, following documents are required to be submitted by the Applicants applying for enlistment: -</p> <ol style="list-style-type: none"> <li>1. Three (3) POs of the highest executed values of similar work (see definition at point E: Note-1 below) during previous five (5) years from the date of application. Copy of Invoice / Completion certificate from the concerned buyer/s in support of successful execution of supply against the POs to be submitted. These will be required for calculation of Execution capability.</li> <li>2. Audited balance sheet including Profit &amp; Loss statement for the previous three (3) completed financial years reckoned from the date of application. In cases where audited results for the last financial year as on the date of application are not available, the financial results certified by a practicing Chartered Accountant shall be considered acceptable</li> <li>3. GSTIN certificate, PAN, Power of Attorney, Letter of Undertaking, works information etc. as mentioned in enlistment application pages of website <a href="http://www.vendor.ntpc.co.in">www.vendor.ntpc.co.in</a>.</li> <li>4. NTPC can request for other documents as necessary during the course of evaluation.</li> </ol>	

E	<p><b>Note-1</b> - Similar works means: Supply of Temperature Transmitters or Electronic Transmitters for Pressure, Diff Press and DP based Flow / Level measurements to any Power Plants / Petroleum Refinery / Fertilizer Plants / Steel / Aluminum Industry within last five (5) years from the date of application for enlistment.</p> <p><b>Note-2</b> - The executed value means Basic value of quantity of similar works executed/supplied against the reference PO (also applicable to partly executed POs as on date of application). Where PO value is composite (i.e. including Taxes etc.), the applicant to give item-wise break-up of Composite PO value mentioning Basic Value, Taxes etc.</p>
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## Technical Specifications

### 1. Single Input Temperature Transmitter

**Material Code: M9442035009 (TEMP.TRANSMTTR-I/P: UNIV, O/P:4-20MA, HART)**

**Instrument:** Single Input Temperature Transmitter

**Type:** SMART, HART Compatible

**Mounting:** DIN Rail Mount

**Input Type:** Universal input (Single Input, RTD: PT-100 (2, 3 or 4 wire RTD) or Thermocouple: K type, S type or R type)

**Input Selection:** Through HART communicator

**Input Isolation:** Minimum 500 VAC or better

**Power Supply:** 24 V DC +/- 10%

**Electromagnetic compatibility:** as per EN 61326

**Output:** 2-Wire (loop powered i.e. Power supply from input card of control system) 4-20 mA output with superimposed HART protocol signal

**Measuring Range:** -200 to 800 Deg C for PT-100 or better  
-150 to 1350 Deg C for K Type or better  
0 to 1500 Deg C for S type or better  
0 to 1500 Deg C for R type or better

**Cold Junction Compensation:** In-built PT100 OR PT1000

**Cold junction Accuracy:** +/- 1 Deg C or better for Thermocouple

**Accuracy:** RTD: =<0.25% of 0-250 Deg C span or better  
T/C-K type: =<0.2% of 0-600 Deg C span or better

**Operation Conditions:** Ambient Temperature: -10 to 80 Deg C or better  
Humidity: 0 to 95% RH (non-condensing) or better

**Burn Out output:** In case of failure of sensor output should go to extreme HIGH or LOW value (selectable by HART)

**Update Time:** <= 1 sec or better

**Protection Class:** IP20 or better

**Damping:** Minimum 10 sec or better (Adjustable through HART)

**Shape:** Rectangular

**Other Requirements:**

- Vendor/supplier must supply minimum 5-point calibration report of temperature transmitter.
- Reverse polarity protection.
- Fault signal on sensor break or short circuit

## **2. Dual Input Temperature Transmitter**

**Material Code: M9442165304 (TEMP.TRANSMTTR:0-1500DEG C, UNIV(DUAL),4WR)**

**Instrument:** Dual Input Temperature Transmitter

**Type:** SMART, HART Compatible

**Mounting:** Field mounting with 2-inch pipe bracket

**Input Type:** Universal input (Dual Input, both input RTD: PT-100 (2, 3 or 4 wire RTD) or both input Thermocouple: K type, S type or R type)

**Input Selection:** Through HART communicator

**Input Isolation:** Minimum 500 VAC or better

**Power Supply:** 24 V DC +/- 10%

**Electromagnetic compatibility:** as per EN 61326

**Output:** 2-Wire (loop powered i.e. Power supply from input card of control system) 4-20 mA output with superimposed HART protocol signal

**Measuring Range:** -200 to 800 Deg C for PT-100 or better  
-150 to 1350 Deg C for K Type or better  
0 to 1500 Deg C for S type or better  
0 to 1500 Deg C for R type or better

**Cold Junction Compensation:** In-built PT100 OR PT1000

**Cold junction Accuracy:** +/- 1 Deg C or better for Thermocouple

**Accuracy:** RTD: =<0.25% of 0-250 Deg C span or better

T/C-K type: =<0.2% of 0-600 Deg C span or better

**Diagnostics & display:** Self-Indicating feature and digital display on transmitter

**Operation Conditions:** Ambient Temperature: -10 to 70 Deg C or better

Humidity: 0 to 95% RH (non-condensing) or better

**Back-up function:** Bumpless changeover facility to Second Sensor in case of failure of first sensor

**Burn Out output:** In case of failure of sensor output should go to extreme HIGH or LOW value (selectable by HART)

**Update Time:** <= 1 sec or better

**Protection Class:** IP67 or better

**Other Requirements:**

- Vendor/supplier must supply minimum 5-point calibration report of temperature transmitter.
- Reverse polarity protection.
- Fault signal on sensor break or short circuit.
- 2-inch pipe bracket for mounting.