

# CSIR - NATIONAL PHYSICAL LABORATORY

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From: Director, CSIR-NPL  
Tender No. 14-VI/SY(1152)23PB/T-201

Dated: 24.01.2024

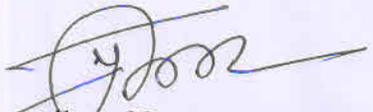
## CORRIGENDUM

With reference to NPL's Global Tender ID: **2024\_CSIR\_740701\_1**, Pre-Bid Conference (PBC) was concluded on 23.01.2024 for "**Multi Product Calibrator**". Consequent upon the outcome of PBC, **some changes have been made in the technical specification of captioned tender. Revised specifications are as follows:**

S.No.	Parameters	Specifications
1.	Functional Requirement	The offered Calibrator shall be able to source AC/DC voltage, AC/DC current, frequency, resistance, capacitance. It should have the capability to simulate thermocouple and RTDs. It should have the capabilities to calibrate multimeters, frequency meters, thermocouple & RTDs indicators, oscilloscope, medical equipment simulators and analyzers (reference equipment used in the calibration of medical equipment, their simulators and analyzers).
2.	Calibrator Source Requirements:	
2.1	DC Voltage	Range: 0 to $\pm 1000$ V or better Best 1 year Accuracy: $\pm (50 \text{ ppm} + 2 \mu\text{V})$ or better Resolution: $0.1 \mu\text{V}$ or better @ minimum
2.2	DC Current	Range: 0 to $\pm 30$ A Best 1 year Accuracy: $\pm (0.012\% + 0.06\mu\text{A})$ or better Resolution: $0.1 \text{ nA}$ or better @ minimum
2.3	AC Voltage	Range: 20 mV to 1000 V Frequency Range: 10 Hz to 500 kHz Best 1 year Accuracy: $\pm (0.15\% + 20 \mu\text{V})$ or better Resolution: $1 \mu\text{V}$ or better @ minimum
2.4	AC Current	Range: 20 $\mu\text{A}$ to 30 A or better Frequency Range: 10 Hz to 30 kHz or better Best 1 year Accuracy: $\pm (0.25\% + 0.3 \mu\text{A})$ or better Resolution: $10 \text{ nA}$ or better @ minimum
2.5	Frequency	Range: 1 Hz to 1 MHz

		Best 1 year Accuracy: $\pm 5$ ppm or better
2.6	Resistance	Range: 0 to 1000 M $\Omega$ Best 1 year Accuracy : $\pm (100 \text{ ppm} + 15 \text{ mOhm})$ or better Resolution: 100 $\mu\Omega$ or better @ minimum
2.7	Capacitance	Range: 1 nF to 100 $\mu\text{F}$ Best 1 year Accuracy: $\pm 0.25\%$ or better
2.8	Resistance Temperature Detectors (RTDs)	Range: $-200^\circ \text{C}$ to $800^\circ \text{C}$ (type PT100) Best 1 year Accuracy: $\pm 0.07^\circ \text{C}$ or better Best Resolution: 0.01 or better
2.9	Thermocouple	Range: $-200^\circ \text{C}$ to $2315^\circ \text{C}$ (type J, K, R, T, S, B, E, N, C, L, U) Best 1 year Accuracy: $\pm 0.15^\circ \text{C}$ or better Best Resolution: 0.01 or better
3	Compliance Standards	Must comply IEC 61326-1, IEC 61010-1 standards
4	Specification confidence level	95% or better
5	Interfaces	GPIB (IEEE-488) and USB 2.0
6	Operating Temperature & Humidity	Temp: $10^\circ \text{C}$ to $40^\circ \text{C}$ RH: <80% non condensing
7	Power Supply	Single Phase (230 V, 50 Hz ) $\pm 10 \%$
8	Calibration Certificate	ISO/IEC 17025 Accredited calibration certificate with Data Traceable to NMI should be supplied along with the Multiproduct Calibrator
9	Accessories	All essential standard accessories required to operate the equipment such as test lead set (01 set), Control Software, GPIB interface cable (01 No.), thermocouple & RTD copper test cable (01 No.), PC interface cable (01 No.), carrying case (01 No.) should also be provided with the equipment.
10	Documents	One set of technical, operation, safety and maintenance manual shall be supplied along with the system
11	Support	Should have an OEM/authorized partner for service/repair in India
12	Warranty	1 year
13	Installation & Training	Supplier should install the equipment at NPL within 1 month of supply and provide training of 1 day duration on its operation and maintenance after successful installation.

All other terms & conditions of said tender will remain the same.

  
 Sr. Controller of Stores & Purchase

**FORM TO BE USED BY TSC FOR FINALISING PRE-BID MINUTES**

**File No: 14-VI/SY(1152)23PB**

**Date: 23.01.2024**

**TSC Minutes**

Based on the Pre-bid meeting and recommendation of I/O, following changes have been made in the specifications:

<b>Original Specifications (page no. 28-29 of tender document)</b>	<b>Final Specifications (Annexure 1)</b>
1. Functional Requirement: The offered Calibrator shall be able to source AC/DC voltage, AC/DC current, frequency, resistance, capacitance. It should have the capability to simulate thermocouple and RTDs. It should have the capabilities to calibrate multimeters, frequency meters, thermocouple & RTDs indicators, oscilloscope, medical equipment simulators and analyzers (reference equipment used in the calibration of medical equipment, their simulators and analyzers).	1. Functional Requirement: The offered Calibrator shall be able to source AC/DC voltage, AC/DC current, frequency, resistance, capacitance. It should have the capability to simulate thermocouple and RTDs. It should have the capabilities to calibrate multimeters, frequency meters, thermocouple & RTDs indicators, oscilloscope, medical equipment simulators and analyzers (reference equipment used in the calibration of medical equipment, their simulators and analyzers).
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2.2 DC Current Range: 0 to $\pm 30$ A Best 1 year Accuracy: $\pm (0.012\% + 0.04\mu\text{A})$ or better Resolution: 0.1 nA or better @ minimum	2.2 DC Current Range: 0 to $\pm 30$ A Best 1 year Accuracy: $\pm (0.012\% + 0.06\mu\text{A})$ or better Resolution: 0.1 nA or better @ minimum
2.3 AC Voltage Range: 20 mV to 1000 V Frequency Range: 10 Hz to 500 kHz Best 1 year Accuracy: $\pm (0.15\% + 20 \mu\text{V})$ or better Resolution: 1 $\mu\text{V}$ or better @ minimum	2.3 AC Voltage Range: 20 mV to 1000 V Frequency Range: 10 Hz to 500 kHz Best 1 year Accuracy: $\pm (0.15\% + 20 \mu\text{V})$ or better Resolution: 1 $\mu\text{V}$ or better @ minimum
2.4 AC Current Range: 20 $\mu\text{A}$ to 30 A or better Frequency Range: 10 Hz to 30 kHz or better Best 1 year Accuracy: $\pm (0.25\% + 0.3 \mu\text{A})$ or better Resolution: 10 nA or better @ minimum	2.4 AC Current Range: 20 $\mu\text{A}$ to 30 A or better Frequency Range: 10 Hz to 30 kHz or better Best 1 year Accuracy: $\pm (0.25\% + 0.3 \mu\text{A})$ or better Resolution: 10 nA or better @ minimum
2.5 Frequency Range: 1 Hz to 1 MHz Best 1 year Accuracy: $\pm 5$ ppm or better	2.5 Frequency Range: 1 Hz to 1 MHz Best 1 year Accuracy: $\pm 5$ ppm or better
2.6 Resistance Range: 0 to 1000 M $\Omega$ Best 1 year Accuracy : $\pm 100$ ppm or better Resolution: 100 $\mu\Omega$ or better @ minimum	2.6 Resistance Range: 0 to 1000 M $\Omega$ Best 1 year Accuracy : $\pm (100 \text{ ppm}+15\text{mohm})$ or better Resolution: 100 $\mu\Omega$ or better @ minimum
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10	Documents: One set of technical, operation, safety and maintenance manual shall be supplied along with the system	10	Documents: One set of technical, operation, safety and maintenance manual shall be supplied along with the system
11	Support: Should have an OEM Repair centers in India	11	Support: Should have an OEM/authorized partner for service/repair in India
12.	Warranty: 1 year	12.	Warranty: 1 year
13.	Installation & Training: Supplier should install the equipment at NPL within 1 month of supply and provide training of 1 day duration on its operation and maintenance after successful installation.	13.	Installation & Training: Supplier should install the equipment at NPL within 1 month of supply and provide training of 1 day duration on its operation and maintenance after successful installation.

The file is forwarded to Purchase Section for uploading the final specifications and TSC minutes on the website and CPPP Portal.

Declaration: We hereby declare that we have no conflict of interest with any of the bidder in this tender