



AEROSTAR S.A.
GRUP INDUSTRIAL AERONAUTIC-BACAU-ROMANIA

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Caiet de sarcini / *Tender Book-Specifications*

regarding the acquisition of a „Multifunctional Calibrator”

No.2. date 10.04.2023

I. CERINTE COMERCIALE/ COMMERCIAL REQUIREMENTS

A. Obiectul caietului de sarcini: Achizitie „Calibrator Multifunctional” pentru extinderea capabilitatii laboratorului Metrologie cu capabilitate masurarea marimilor electrice, a marimilor termice si a calibrarii osciloscoapelor.	A. Object of the specifications: <i>Acquisition of a „Multifunctional Calibrator” to expand the capabilities of the Metrology laboratory with the ability to measure electrical quantities, thermal quantities and oscilloscopes calibration.</i>
B. Tipul si durata contractului: Contract de achizitie, durata estimata 7 (sapte) luni.	B. Type and duration of the contract: <i>Purchase contract, estimated duration 7 (seven) months.</i>
C. Conditia de livrare: Livrarea (predarea) bunului se va face de către Vanzător la sediul Cumpărătorului.	C. Delivery terms: <i>Delivery (handing over) of the goods will be made by the Seller at the Buyer’s premises.</i>
D. Termenul de livrare: Livrarea, punerea in functiune si instruirea personalului se va finaliza cel mai tarziu pana pe data de 31.10.2023. Ofertantul a luat in considerare toate dificultatile pe care le-ar putea intampina si nu va invoca nici un motiv de intarziere sau costuri suplimentare. „Calibratorul Multifunctional” va fi livrat , testat si instalat la sediul Aerostar SA.	D. Delivery date: <i>The delivery, commissioning and staff training will be completed at the latest until 31.10.2023. The bidder has taken into account all the difficulties that he might encounter and will not invoke any reason for delay or additional costs. The „Multifunctional Calibrator” will be delivered, tested and installed at the headquarters of Aerostar SA.</i>
E. Conditia de plata: Plata se va face prin transfer bancar in termen 30 zile de la data comunicarii facturii. Plata urmand a fi achitata in termen de max. 30 de zile de la semnarea PVR-Procesului Verbal de Receptie.	E. Payment terms: <i>The payment will be made by wire transfer 30 days net after the invoice was issued. The payment will be made within max. 30 days after delivery and signing by both sides of the on-site acceptance form.</i>
F. Conditii de garantie: Ofertantul include in propunerea sa tehnica, metodologia de efectuare a serviciilor de asistenta tehnica si reparatii in perioada de garantie. Perioada garantiei nu poate fi mai mica de 12 luni din momentul receptiei echipamentului la sediul cumparatorului.	F. Warranty conditions: <i>The bidder includes in his technical proposal, the methodology for performing technical assistance services and repairs during the warranty period. The warranty period cannot be shorter than 12 months from the moment of receiving the equipment at the Buyer’s premises.</i>

**II. CERINTE TEHNICE/TECHNICAL REQUIREMENTS****Specificatiile tehnice / Technical specifications:****1. Cerințe tehnice minimale pentru echipamentul „Calibrator Multifunctional”
Minimum Technical requirements for the „Multifunctional Calibrator” equipment**

1.1. Generalitati / Overview		
Calibratoarele multifuncționale sunt aparate de măsurat și generat diverse mărimi electrice și termice (tensiune, intensitate, rezistență și temperatura). Totodata cu ajutorul acestora se etalonează multimetre, voltmetre, ampremetre, wattmetre, ohmetre, indicatoare digitale și analogice, calibratoare multifuncționale și osciloscopae).	<i>Multifunctional calibrators are devices for measuring and generating various electrical and thermal quantities (voltage, intensity, resistance and temperature). At the same time, multimeters, voltmeters, ammeters, wattmeters, ohmmeters are calibrated with their help and as well digital and analogical indicators, multifunctional calibrators and and oscilloscopes.</i>	
1.2. Propunerea tehnica / The technical proposal:		
Ofertantul va prezenta propunerea tehnica, astfel incat sa respecte in totalitate cerintele prevazute in Caietul de sarcini. Cerintele si specificatiile tehnice din Caietul de sarcini au caracter obligatoriu si vor fi sustinute de ofertant cu documentatie conforma cu originalul pentru produsele oferitate.	<i>The bidder will present the technical proposal, so that it fully complies with the requirements stipulated in the Specifications. The technical requirements and specifications in the tak book are mandatory and will be supported by the bidder with documentation in accordance with the original for the offered products.</i>	
1.3. Documente obligatorii ale propunerii tehnice / Mandatory documents of the technical proposal:		
Fisele tehnice de la producatorii de produse oferitate. La livrare produsul va fi insotit si de urmatoarele documente: - Aviz de insotire si factura fiscala - Declaratie de calitate - Certificatul de garantie - Documentatia tehnica - Certificatul de etalonare	<i>The technical sheets from the manufacturers of the offered products. When delivering the product, it will be accompanied by the following documents: - Accompanying notice and fiscal invoice - Quality declaration - Warranty certificate - Calibration certificate</i>	
1.4. Cerințe tehnice „Calibrator Multifunctional” pentru masurarea marimilor electrice, termice si pt. calibrare osciloscopae / „Multifunctional Calibrator” equipment for electrical, thermal quantities measurement and for oscilloscopes calibration		
Caracteristici tehnice / Technical specifications		
Mărimea/ Measurement	Domeniul/ Range	Incertitudinea absoluta . ± (ppm / % din setare +...) Absolute uncerntainty ± (ppm / % from settings +...)
1.4.1 Tensiune continua/ DC Voltage	0 – 1020 V	20 ppm + 1 μV pana la/ to 18 ppm + 1500 μV
1.4.2 Tensiune alternativa/ AC Voltage	1mV – 1020 V, 10 HZ – 500 KHz	800 ppm + 6 μV pana la/ to 300 ppm + 10000 μV, 800 ppm + 6 μV pana la/ to 2400 ppm + 600 μV



1.4.3 Curent continuu/ <i>DC Current</i>	0 – 20,5 A	150 ppm + 0,05 μ A pana la/ to 1000 ppm + 750 μ A
1.4.4 Curent alternativ/ <i>AC Current</i>	29 μ A – 20,5 A, 10 Hz – 30 kHz	0,2 % + 0,1 μ A pana la/ to 3,0 % + 5000 μ A, 0,2 % + 0,1 μ A pana la/ to 1,6 % + 0,4 μ A
1.4.5 Rezistenta / <i>Resistance</i>	0 – 1100 M Ω	40 ppm + 0,01 Ω pana la/ to 15000 ppm + 500 k Ω
1.4.6 Capacitate/ <i>Capacitance</i>	220 pF – 110 mF	0,5% + 10 pF pana la/ to 1,1% + 100 μ F
1.4.7 Frecventa/ <i>Frequency</i>	0,01 Hz 2,000 MHz	2,5 ppm + 5 μ Hz
1.4.8 Temperatura (simulare)/ <i>Temperature (simulation)</i>	-250 $^{\circ}$ C - +2316 $^{\circ}$ C, 11 tipuri de termocuple printre care (<i>type of thermocouples</i>): tip B, C, E, F, J, K, R, S, T, N Termorezistente / <i>Thermoresistance</i> (RTD) Pt 385 la 100 W, Pt 392 la 100W, PtNi 385.	0,63 $^{\circ}$ C pana la/ to 0,84 $^{\circ}$ C 0,25 $^{\circ}$ C pana la/ to 0,23 $^{\circ}$ C
1.4.9 Temperatura (masurare)/ <i>Temperature(measurement)</i>	-250 $^{\circ}$ C - +2316 $^{\circ}$ C, cu 11 termocuple printre care (<i>type of thermocouples</i>): B, C, E, F, J, K, R, S, T, N	0,63 $^{\circ}$ C pana la/ to 0,84 $^{\circ}$ C
1.4.10 Funcție pentru etalonarea osciloscoapelor / <i>Function for oscilloscope calibration</i>		
1.4.10.1 Tensiune/ <i>Voltage</i>	0 – 130 V	0,25 % + 40 μ V
1.4.10.2 Timp/ <i>Time</i>	2 ns – 5 s	2,5 ppm

2. RECEPTIA / RECEPTION

<p>Receptia produsului: Receptia se efectueaza pe baza de proces verbal de catre o comisie constituita din reprezentantii furnizorului si ai beneficiarului.</p>	<p>Product reception: <i>The reception is carried out based on the minutes prepared by a committee made up of representatives of the supplier and the beneficiary.</i></p>
<p>Efectuarea receptiei: - receptia cantitativa consta in verificarea existentei si a integritatii tuturor echipamentelor, respectiv a componentelor(accesorii- cabluri de alimentare, de conectare, de prelucrare date, etc.) - receptia calitativa consta in verificarea functionalitatii calibratorului, a caracteristicilor si a parametrilor aferenti.</p>	<p>Carrying out the reception: - the quantitative reception consists checking the existence and integrity of all equipment, respectively the components (accessories - power cables, connection, data processing, etc.) - the qualitative reception consists in checking the functionality of the calibrator, characteristics and the related parameters.</p>