MASARYKOVA
UNIVERZITA

TENDER DOCUMENTS

Public tender identification

Name:	**Seismic registration instrumentation**
Public tender category:	Supplies
Type of procedure:	Small-scale contracting
Public tender URL address:	https://zakazky.muni.cz/vz00004674

Contracting authority ID

Name:	**Masaryk University, Faculty of Science**
Address:	Kotlářská 267/2, 611 37 Brno
ID number:	00216224
Represented by:	doc. RNDr. Jaromír Leichmann, Dr., dean

1. PREAMBLE

1.1. The contract is awarded in the tender procedure outside of the Act No. 134/2016 Coll., on Awarding Public Contracts, as amended, *(hereinafter referred to as **"the Act"**)*.

1.2. Funding:

☐ contracting authority seeks a subsidy on the performance of the public contract, programme name:

☒ contracting authority is a recipient of a subsidy on the performance of the public contract, programme name: Operational Programme Research, Development and Education, name of project CzechGeo/EPOS-Sci, project registration number CZ.02.1.01/0.0/0.0/16_013/0001800

☐ the public contract will be paid from the contracting authority´s own resources.

1.3. The contract is awarded via the electronic tool E-ZAK.

1.4. Contact person of the contracting authority for purposes of the tender procedure is:
phone number:

1.5. **Tender form**

a) The contracting authority submits a template of the tender form as Attachment which contains requirements prefilled by the contracting authority. Those requirements are necessary prerequisites for the supplier´s participation in the tender procedure.

b) Suppliers shall prove meeting of all requirements set down by the contracting authority (i.e. requirements on a subject-matter of the public contract, requirements to present all documentation relevant for a tender evaluation) by submitting the tender form inclusive of all relevant attachments or other equivalent documents.

2. SUBJECT-MATTER OF THE PUBLIC CONTRACT, CONTRACT PERFORMANCE CONDITIONS

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ATTACHMENT - TENDER FORM

Public tender identification

Name:	**Seismic registration instrumentation**
Public tender category:	Supplies
Type of procedure:	Small-scale contracting
Public tender URL address:	https://zakazky.muni.cz/vz00004674

Supplier's ID

Name :	**Kinemetrics, Inc.**
Address:	222 Vista Avenue, Pasadena, CA 91107, U.S.A.
ID number:	95-4326316
Represented by:	
Contact person:	
Phone number:	
E-mail address:	

☐ Several suppliers are participating jointly in the tender procedure, therefore I am listing ID information of all participating suppliers:	N/A, N/A, N/A.

All statements made in the tender form shall be made on behalf of all suppliers participating jointly.

The tender form is made in a format with restricted options of editing. Clauses which are supposed to be changed or filled out are editable. Those clauses contain yellow-highlighted spaces where you can write a text in.

1. OPENING PARTICIPANTS' DECLARATION

A participant in tender procedure hereby submits a tender form including all relevant attachments in order to prove that he meets all requirements of participation in the tender procedure set down by the contracting authority.

Supplier declares honestly and truthfully that

a) he has thoroughly acquainted himself with tender conditions, understands them and inter alia uses all terms and abbreviations according to the tender documents,

b) he accepts the electronic tool E-ZAK as an exclusive mean of communication in the tender procedure unless the contracting authority specifies for any act otherwise,

c) he has completed a registration in the electronic tool E-ZAK, eventually he will complete the registration immediately after the tender submission; the supplier acknowledges that without completing the registration he will not be able to take full advantage of the electronic tool E-ZAK and he is aware that he is fully responsible for all consequences related to the uncompleted registration,

d) the contact person of the participant is authorized to act on behalf of the supplier in matters related to the tender procedure. The contact person and its contact information shall correspond to that contact information provided in the electronic tool E-ZAK, eventually to those which will be provided in the electronic tool E-ZAK without delay; and

e) he acknowledges that all documents sent via the electronic tool E-ZAK shall be considered to be duly delivered on a day when they are delivered to the user account of the addressee of the document in the electronic tool E-ZAK; the participant agrees that the fact whether the document has been read by the addressee, or eventually, whether the electronic tool E-ZAK has sent a notification of delivery to the contact e-mail address shall not affect the document delivery day.

2. REQUIREMENTS ON A SUBJECT-MATTER OF THE PUBLIC CONTRACT, CONTRACT PERFORMANCE CONDITION

Supplier declares honestly and truthfully that he

a) meets all requirements on a subject-matter of the public contract set down by the contracting authority, and

b) is bound by technical, commercial and other contractual specifications set down by the contracting authority.

3. INFORMATION RELEVANT FOR EVOLUATION

Supplier declares honestly and truthfully that the following information are deemed to be relevant for tender´s:

Part 1

Criterion		
	Weightings of the partial criterion	**Supplier's offer**
Tender price	100 %	26,380 USD **CZK/EUR/USD** excluding VAT (select currency)

Part 2

Criterion		
	Weightings of the partial criterion	**Supplier's offer**
Tender price	100 %	N/A **CZK/EUR/USD** excluding VAT (select currency)

Part 3

Criterion		
	Weightings of the partial criterion	**Supplier's offer**
Tender price	100 %	N/A **CZK/EUR/USD** excluding VAT (select currency)

Part 4

Criterion		
	Weightings of the partial criterion	**Supplier's offer**
Tender price	100 %	6,130 USD **CZK/EUR/USD** excluding VAT (select currency)

Annexes:

- Technical specifications
- Delivery terms with date of delivery
- Warranty terms

Issued by: Regional Sales Manager Signature: .....

PŘÍRODOVĚDECKÁ
FAKULTA

Technical Specifications

All the seismic instrumentation equipments are ment for a modernization of the existing local seismic networks MONET and CRSN.

Part 1 - Seismic data logger (2 pieces)

Device meets following minimal requirements

Producer	Kinemetrics, Inc.
Type/Manufacturing code	**9015.80.8040**

Minimal technical requirement:	**Requirement fulfilled YES / NO or tech. specifications offered by supplier**
3 channel data input	**YES**
24bit A/D converter	**YES**
Input range 40V P-P at gain 1	**YES**
Input gain per channel: adjustable 1 and 32	**YES**
Composite input filters linear or minimum phase FIR	**YES**
Sampling rate 1000 – 1Hz	**YES**
Time base – precision TCXO locked to GPS	**YES**
Data transmission full duplex, low latency telemetry over serial and Ethernet	**YES**
Min guaranteed operating temperature -20°C to +50°C	**YES**
Sensor calibration signal generation step, sine, random	**YES**
Extended SOH channels (e.g., temperature, DC voltage and GPS status)	**YES**
RAM memory for seismic data 60MB	**YES**
Ethernet interface 10/100BT, full IP protocol stack	**YES**
Console port with serial interface	**YES**
Dual data storage, 2x USB memory stick 60GB	**YES**

Minimal technical requirement:	**Requirement fulfilled YES / NO or tech. specifications offered by supplier**
Real-time data telemetry to up to 3 independent central sites and internal USB storage system	**YES**
Dimensions 500 x 120 x 250mm maximum	**YES**
Average power consumption <1W for 3 channels	**YES**
Input impedance > 100 kohm, gain 1	**YES**
Input impedance > 1000 kohm, gain 32	**YES**
Active GPS antenna	**YES**
Web interface for configuration and control of the seismic system and the data storage	**YES**
SSH server for remote data retrieval from data storage	**YES**
Software for configuration and control of the seismic system and the data storage	**YES**
Software for data recording	**YES**
Software for viewing of stored data	**YES**
Sensor pigtail cable – 1 piece for one of the two dataloggers only	**YES**

Part 2: Seismometer - type 1; 1 piece

Device meets following minimal requirements

Producer	
Type/Manufacturing code	

Minimal technical requirement	**Requirement fulfilled YES / NO or tech. specifications offered by supplier**
Three directional seismometer (velocity sensor)	
Natural frequency 1Hz	
Minimum sensitivity 700 V/m/s, differential outputs	
Frequency band (-3 dB points): 1-100 Hz	
Damping: 0.7– critical	
Power supply 10-16 V DC	
Typical power consumption: < 0.2 W	
Dynamic range > 135 dB	
RMS noise for 1 Hz: < 3 nm/s	
Weight < 2 kg	
Min guaranteed operating temperature -15°C to +50°C	
Sensor cable 2 m with Reftek connector	

Part 3: Seismometer - type 2; 1 piece

Device meets following minimal requirements

Producer	
Type/Manufacturing code	

Minimal technical requirement	**Requirement fulfilled YES / NO or tech. specifications offered by supplier**
Three directional seismometer	
Frequency band (-3 dB points): 5 s - 50 Hz	
Minimum sensitivity 700 V/m/s, differential outputs	
Damping 0.7 - critical	
Power supply 10-16 V DC	
RMS noise at 1 Hz: < 1 nm/s	
Dynamic range > 135 dB	
Typical power consumption < 0.2 W	
Output voltage range 40 V peak to peak	
Min guaranteed operating temperature -15°C to +50°C	
Sensor cable 5 m to Quanterra dataloggers	

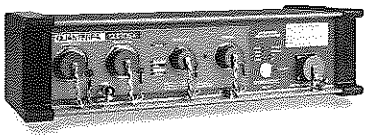
Part 4: Seismometer - type 3; 1 piece

Device meets following minimal requirements

Producer	Kinemetrics
Type/Manufacturing code	**9015.80.8040**

Minimal technical requirement	**Requirement fulfilled YES / NO or tech. specifications offered by supplier**
Three directional seismometer	**YES**
Frequency band (-3 dB points): 40 s - 100 Hz	**YES**
Minimum sensitivity 700 V/m/s, differential outputs	**YES**
Damping 0.7 - critical	**YES**
Calibration input	**YES**
Power supply 10-16 V DC	**YES**
Typical power consumption < 0.5 W	**YES**
Output voltage range 40 V peak to peak	**YES**
Min guaranteed operating temperature -30°C to +50°C	**YES**
Sensor cable 10 m to Quanterra dataloggers	**YES**

QUANTERRA



Q330S+

VERY LOW-POWER HIGH-RESOLUTION INTEGRATED SEISMIC SYSTEM

The Q330S+ is the newest member of the world-standard Q330 family, and is an advanced 3 or 6 channel broad-band, high resolution seismic system incorporating Quanterra's proven IP networking technology into a very low-power field package. The Q330S+ leverages Quanterra's extensive experience in ultra-reliable seismic systems design, and combines sampling up to 1kHz with ultra-high low-frequency resolution.

The Q330S+ supports real-time data telemetry to up to 3 independent central sites *and* internal, reliable local low-power USB recording system, *simultaneously*. Recording may be cycled to conserve power.

FEATURES

Low Power
Incorporating the latest low-power technology, the Q330S+ achieves integrated capability with an average power (cycled mode) requirement of ~0.75W, including recorder & GPS.

Internet-Ready Industry Standards
The telemetry protocols use industry-standard stateless IP communications over UDP or TCP transport layers, enabling the use of off-the-shelf IP equipment and service providers. The Q330S+ is designed for simple and powerful network maintenance and administration.

Comprehensive Sensor Control
The Q330S+ is a seismological instrument, not a digitizer alone. Sensor control & interface, including calibration, and sensor identification-tag support is built in.

SPECIFICATIONS

Channels	3, optional 6-channel
Dynamic Range	Typical~138dB wideband RMS
Format	32-bit integer, Level 2 compressed 1-second packets
Input Range	40V P-P at gain=1
Gain	Selectable per channel group: 1, 8, 32
Filtering	Linear or Minimum Phase FIR.
Sample Rate	1000, 500, 250, 200, 100, 50, 40, 20, 10, 1. Other rates available.
Time Base	Precision TCXO, locked to GPS. No adjustment.
Telemetry (real-time)	Full Duplex, low-latency efficient positive acknowledge with error control. UDP/IP over serial and Ethernet. Burst or continuous. Operates with major application software.
Temperature	Fully specified -20 to +50C Operative -40 to +70C

Continued

QUANTERRA

SPECIFICATIONS

Data Storage and Retrieval	2 PC/MAC/Linux-formatted removable USB media, 16G each (128G in development). Industry-standard. Standard HTTP, FTP and SSH servers for remote retrieval.
Sensor Control	Calibrate: step, low-THD sine, or random. Recenter, on-command.
Operational Data	Temp, DC voltage, GPS status, Sensor boom position (6 channels)
Memory	64MB RAM standard
Network	Ethernet (10/100BT) Full IP Protocol Stack (Linux)
Serial Ports	1 console ports up to 115kbaud.
Media	Dual USB up to 32G total, failover. -40 +70 rated media available.
Power	12VDC nominal ~0.7W avg. 3-channel (cycled) ~1.0W avg. 6-channel (cycled) ~2.4W avg. 6-channel (continuous)
Physical	Sealed, Aluminum, 17 X 4 X 6 in., 10 lbs., Rubber endcaps, Externally visible status and fault indicators.

USA 325 Ayer Rd. Harvard, MA
Tel (978) 772-4774 | www.kinemetrics.com

metrozet

A Kinemetrics Division

MBB-1

Triaxial Portable Mini-BroadBand Seismometer

The Mini BroadBand Seismometer (MBB-1) is the latest sensor offering from Metrozet for the vault or posthole installation. The MBB-1 offers high performance features in a smaller, rugged, low power and low cost system that is easy to install and deploy. Built with ease of installation in mind, the MBB-1 does not require mass lock, mass centering, and has a large operational tilt range which combines to reduce installation training, time, and cost.

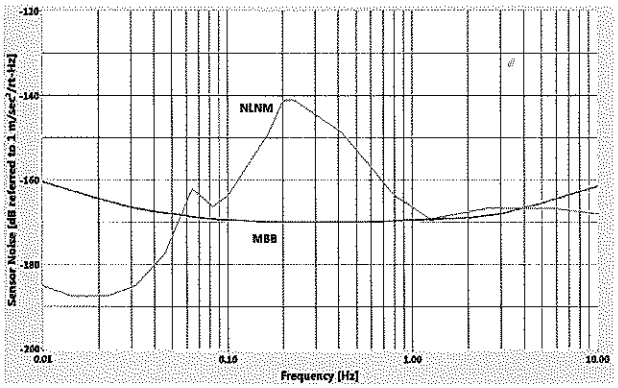
The MBB-1 was engineered from the ground up to deliver best-in-class performance. Thermal compensation and a sensor design with a truly linear motion combine to deliver the best high-fidelity data from a sensor in this class.

FEATURES

- No mass lock required
- No mass centering required
- Smaller, lighter than broadband sensors
- Designed with low thermal sensitivity
- Large operational tilt range
- Mil-Spec rugged, stainless steel design package
- Noise that is below the NLNM from 17sec to 5Hz

SPECIFICATIONS

Sensor Technology	Triaxial orthogonal, XYZ oriented feedback sensor elements with capacitive displacement transducer
Mass Centering	Not required
Sensitivity	750 V*sec/m nominal, trimmed to ± 0.5% precision
Bandwidth	-3dB points at 40sec and 100Hz
Operable Tilt Range	± 2.5 Degrees
Self-Noise	Below the NLNM from 17sec to 5Hz
Velocity Output	Industry standard 40V peak-to-peak differential output
Mass Position Output	Independent mass position output for each of the XYZ axes
Calibration	Calibration input for XYZ; Single digital control line to activate calibration on all three axes
Short Period Mode	2sec mode used for quick deployment; Digital control line enables short period mode on all 3 axes
Voltage Input	9-36 V DC input (internally isolated)
Electrical Protection	Over-voltage, reverse-voltage, and current overload protection
Operational Temp.	-40 to +60 °C
Power Draw	325mW
Posthole Orientation	Yoke adapter and orientation poles required
Physical Dimensions	Height: 4.5 inches (no connector) Diameter: 3.875 inches Weight: 4.5 pounds



Self-noise of the MBB-1 seismometer (vertical component)
New Low Noise Model (NLNM) Courtesy of USGS

Specifications subject to change without notice

Metrozet - 21143 Hawthorne Blvd., #456 Torrance, CA 90503
Tel (310) 684-2486 I www.metrozet.com

02-04-16

September 25, 2017

Included in this offer are the following Annexes as required:

1) Datasheet of the proposed instruments – separate attachments.

2) Delivery Terms: The delivery of the order will complete in 60 days or less from the time of awarding the contract.

3) Warranty: Standard equipment warranty is one year.

Regional Sales Manager
Kinemetrics, Inc.

MASARYK UNIVERSITY
FACULTY OF SCIENCE
INSTITUTE OF PHYSICS OF THE EARTH

KINEMETRICS INC.
Attn. Edelvays Spassov
222 Vista Avenue
Pasadena, CA 91107
USA

Purchase Order

No. 3199/0011/17

Dear Mr.

Brno, 25 October 2017

Referring to your quote in the tender "Seismic registration instrumentation" from September 25, 2017 we order **2pcs Q330S+ Seismic Data Acquisition System and 1pc MBB-1 Broadband Seismometer with accessories** as specified in the tender form enclosed to this letter. The total price including packing and transport is **32,510 USD.**

Our shipping address is:

Masaryk University, Institute of Physics of the Earth, attn. Radim Vlach,
Tvrdého 12, 602 00 Brno, Czech Republic.

Our invoice address is:

Masaryk University, Faculty of Science,
Kotlářská 2, 611 37 Brno, Czech Republic

Important notes:

Referring to the rules of the funder we ask you to comply with the following:

1) Please send back a short notice of acceptance with text „We hereby accept your order No. 3199/0011/17." by e-mail to *spacek@ipe.muni.cz*. We will then ask you within few days (after some necessary administrative steps) to issue the invoice.
Without written acceptation of this Order, the Contract shall not come into force.

2) Please include in the invoice one line with the following text:
"*CzechGeo/EPOS-Sci, project registration number CZ.02.1.01/0.0/0.0/16_013/0001800*"

Yours faithfully,

.....
doc. RNDr. Jaromír Leichmann, Dr.
Dean Faculty of Science, Masaryk University

MASARYKOVA UNIVERZITA
Přírodovědecká fakulta
611 37 Brno, Kotlářská 2
DIČ: CZ00216224

Enclosure: *Technical specifications from the tender*

KINEMETRICS
Advancement through Innovation

www.kinemetrics.com

222 Vista Ave. Pasadena, CA 91107 Tel: 626-795-2220 Fax: 626-795-0868

Company: Masaryk University Czech Republic
Delivery: 60 days after receipt of Order
Reference: E-Mail **Pro Forma Invoice**
Kinemetrics Reference: B1709ES023_C
Payment Terms: **Payment in Advance or L/C**
Project: **CzechGeo/EPOS-Sci, project registration number CZ.02.1.01/0.0/0.0/16_013/0001800**
Date: November 1, 2017
Prepared by: Edelvays Spassov
Approved by: Edelvays Spassov

Item	Qty	Model	P/N	Description	Unit Price $ USD	Extension $ USD
1.00	1	MBB-1	151200-PL	**Portable/Posthole Mini-Broadband Seismometer** * Triaxial orthogonal broadband seismometer, XYZ oriented feedback sensor elements with capacitive displacement transducer * Installation depth up to 30m * Self-Noise Below the NLNM from 17sec to 5Hz * Bandwidth, -3dB points at 40sec and 100Hz * Mass Centering Not required * Operable Tilt Range, ± 2.5 Degrees * Sensitivity, 750 V*sec/m nominal, trimmed to± 0.5% precision * Velocity Output, 40V peak-to-peak differential output * Independent mass position output for each of the XYZ axes * Calibration input for XYZ; Single digital control line to activate calibration on all three axes * Stainless Steel	$4,830.00	$4,830.00
2.00	1	Cable	151278-PL	Cable, MBB-1 to Q330/Rock+, 10m, Molded	$750.00	$750.00
3.00	2	Q330S+	112900-03-PL	Ultra-Low-Power High Resolution Network-Aware Seismic Data Acquisition System (3-ch), includes: * 24 bit A/D Converter * 64 Mbyte RAM * Up to 500 sps * 2 x USB Memory slot for removable Thumbdrive * 64Gbyte removable USB Memory Rated for -20C to +65C (P/N 790496-64) * GPS with 5 meter cable	$11,940.00	$23,880.00
4.00	2	Cable	112944-PL	Q330S+ DC Power Cable 6ft	$140.00	$280.00
5.00	1		504814-25-PL	Cable, Q330/Rock+ 3CH to Pigtails, 25ft	$380.00	$380.00
					FOB Pasadena, CA USA:	**$30,120.00**
					Shipping, cartage and documentation:	**$1,250.00**
					Insurance:	**$190.00**
					Total CIP Prague International Airport,Czech Republic:	**$31,560.00**

For Payment, please remit to:

Bank of the West
300 South Grand Avenue
Los Angeles, CA 90071
Beneficiary: KINEMETRICS INC.
(800) 488-2265 phone
(213) 972-0262 fax

A/C# 865-019558
ABA# 121100782
SWIFT: BWSTUS66

From: XXXXXXXXX [mailto:xxxxxxx@ipe.muni.cz]
Sent: Thursday, November 02, 2017 10:35 AM
To: XXXXXXXXXX
Subject: Re: purchase order

Dear XXXXXXXXXX,

thanks for solving the last misunderstanding. This is the final step to open the order:
We hereby accept the proposed changes of an agreement, based on your Pro Forma Invoice (Kinemetrics reference number B1709ES023_C) from 1st November. Please, confirm the reception of this e-mail).

This refers to the change of the price. Now we start the bank transfer.

Looking forward to future business

Best regards