

Purchase Contract

No. SML/6468/2016

concluded pursuant S. 2079 and Act No. 89/2012 Coll., Commercial Code.

I. Contracting Parties

Buyer: **Centrum dopravního výzkumu, v. v. i.**
Registered office/place of business: Líšeňská 2657/33a, 636 00 Brno - Líšeň
Company Identification Number: 44994575
VAT Identification Number: CZ44994575
Bank details: KB Brno – město, č. účtu: 100736621 /0100
Authorized person to act: Ing. Jindřich Frič, Ph.D., ředitel
Responsible person: RNDr. Michal Bíl, Ph.D.
Registered: registered in the Register of Public Research Institutes established by the Ministry of Education, Youth and Sports
Phone: 541 641 795
Email: michal.bil@cdv.cz

(hereinafter referred as Buyer)

Seller: **e-obs GmbH**
Registered office/place of business: Obehachinger Str. 38, 82031 Grünwald, Germany
Company Identification Number: DE263523660
VAT Identification Number: DE263523660
Bank details: HypoVereinsbank, IBAN: DE45 7002 0270 0665 137740
Authorized person to act: Franz Kümmeth, Managing Director
Responsible person for realization: Franz Kümmeth
Registered in Commercial Register: Amtsgericht Munchen, HRB 177691
Phone: +49 (0)89-6494 8610
Email: franz.kuemmeth@e-obs.de

(hereinafter referred as Seller)

Preamble

Buyer has performed a tender for commissioning a small-scale public contract with a title **VR 14-16: Roe Deer Collars** based on supply of new goods, whose technical parameters are specified in detail in Annex 1, which is an integral part of this contract. Based on the evaluation and assessment of offers within the above mentioned tender procedure, buyer awarded tender to seller.

Buyer is interested in supply of goods in the extent specified in Section II and in Annex 1 of this contract, while seller is fully aware of buyer's interest and is ready to duly satisfy buyer's interest.

II. Contract subject matter

1. Under conditions determined by this contract, seller undertakes to supply goods specified in Annex 1 of this contract and transfer ownership rights to the goods to buyer. Seller

undertakes to duly supply the goods, including transport to place of performance (hereinafter referred to as "subject matter").

2. Together with the supply of the subject matter, seller delivers to buyer certificates of warranty, operation manuals, licenses, and other documents necessary for the operation of the subject matter. Operation manuals shall be delivered in Czech and English language. Under conditions specified by this purchase contract, buyer undertakes to meet conditions of the subject matter, including accompanying documents, to accept and pay the purchase price for the subject matter to seller as specified in Section IV of this purchase contract and by the method specified in Section IV of this purchase contract.

III. Place and time of performance

1. Seller undertakes to duly supply the subject matter within 2 months as of the conclusion of this contract.
2. Acceptance and delivery of the subject matter of the contract becomes effective with the actual physical delivery of goods in the place of performance in accordance with this contract, confirmed by a delivery note or another similar document certifying buyer's acceptance of goods.
3. Seller undertakes to inform buyer of exact delivery date in writing or by email within 10 calendar days prior delivery, through buyer's responsible person (person responsible for the realization), who is specified in Section I of this contract.
4. Place of performance of this contract is registered office of Centrum dopravního výzkumu, v. i., Wellnerova 1215/3, Olomouc, 779 00, Czech Republic.

IV. Price and payment terms

1. Buyer undertakes to pay seller the agreed purchase price:

Total price excl. VAT: EURO 17.308,00

(in words: Seventeen thousand three hundred eight EURO).

VAT shall be charged in the amount in accordance with legal regulations valid as of the date of the chargeable event. The price is the highest permissible price and may not be exceeded under any circumstances with the exclusion of changes in VAT. The price includes all seller's necessary costs.

2. Invoice must include buyer's contract number.
3. Invoicing shall take place on the basis of an invoice issued by seller after goods delivery in accordance with Section III (2) of this contract.
4. Invoice is due within 14 calendar days of its delivery to buyer on condition that it is issued in compliance with payment terms and complies with all the above mentioned requirements concerning the issued invoice. In case invoice is not issued in compliance with payment terms or fails to comply with the requirements, buyer has the right to return such invoice to seller; such invoice expires upon return.
5. Regarding the deadline for invoice due date, payment is considered settled on the day buyer's account is debited and the payment is transferred to seller's account.

V. Contractual penalties

1. In case seller fails to meet goods delivery deadline agreed in accordance with Section III (1) of this contract, seller pays buyer contractual penalty amounting to 0.05% of purchase price for each day of delay.

VI. Product liability

1. Seller undertakes that the goods, delivered and received in accordance with this contract, is, on the day of goods acceptance, fully functional, without faults, complies with technical parameters specified in Annex 1 of this contract, and is of adequate quality and design. Seller bears full responsibility for this commitment.
2. Seller undertakes to provide quality warranty for goods for 24 months. Warranty period commences on the day of delivery and reception of goods.
3. Applying the rights for product liability shall not affect the right to damages.
4. Seller undertakes to deal with the complaints within after-sales service free of charge.
5. In case seller is unable to remove the faults within 30 working days from the date of finding the extent of the complained faults, seller provides buyer with an adequate substitute device which will replace the faulty part of the system.
6. Warranty period is not applicable for the time buyer is unable to use the goods due to the faults for which seller is responsible.

VII. Withdrawal from contract

1. In case goods with fault are delivered, buyer has the right:
 - a) to withdraw from contract
 - b) for fault removal by delivery of new faultless goods, or by delivery of missing goods
 - c) for fault removal by goods repair
 - d) to an appropriate discount of purchase price.
2. Buyer informs seller which of the rights they choose without undue delay after fault notification.
3. Until the fault is removed, buyer is not obliged to pay the part of purchase price which is estimated to correspond with their right to discount.
4. For the needs of this contract, goods are considered faulty in case they fail to have properties or/and technical parameters required by this contract or the goods cannot be properly used due to their limited function. A fault is also understood a delivery of other goods or discrepancy in documents necessary for the use of goods.

VIII. Conditions of delivery of subject matter

1. The risk of damage of goods and ownership rights are transferred to buyer at the moment of acceptance of goods.

2. In case proper use of the subject matter of the contract includes installed SW technologies, or the technologies are required for proper and full function of the goods, they are included in agreed purchase price.

IX. Final provisions

1. Within the performance of the contract and after its termination, seller undertakes not to disclose any facts they come to know from buyer regarding the performance of the contract.
2. Issues not specified in this contract are governed by provisions of the Act No. 89/2012 Coll., Commercial Code.
3. Contract is made in four original copies and each of contracting parties keeps two copies.
4. Contracting parties undertake to deal with potential disputes primarily by agreement. Potential litigations shall be applicable depending on buyer's place of business, applicable law shall be the law of the Czech Republic.
5. This contract enters into force on the date of signatures of authorized representatives of both contracting parties.
6. This contract can be changed or cancelled only by mutual agreement of both contracting parties, only in writing by amendments numbered in ascending order signed by authorized representatives of seller and buyer. Contracting parties declare by their signatures that they are aware of the content of the contract and they conclude the contract based on their free will, neither at distress, nor at unequal terms and in witness whereof they add signatures of their authorized representatives.
7. Contracting parties understand that this contract, together with potential amendments, shall be published on a publicly available contract register. The contract shall be published in the contract register by buyer. Seller declares that contract neither contains their trade secret, personal data of seller's persons, nor any other information and facts that would prevent publishing.

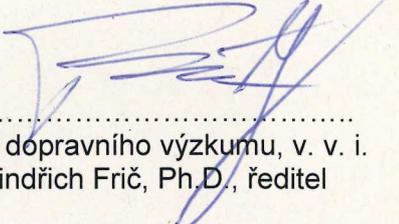
The following annexes are integral parts of this contract:

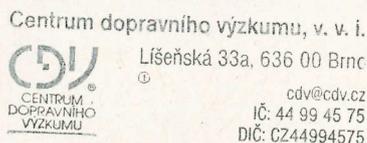
Annex No. 1: Technical specification of the subject matter

In Brno on 16th December 2016

16.12.2016

.....
e-obs GmbH
Franz Kümmeth, Managing Director


.....
Centrum dopravního výzkumu, v. v. i.
Ing. Jindřich Frič, Ph.D., ředitel



Annex No. 1 – Technical specification of the roe deer collars

Parameters of the roe deer collars:

- 10 items of GPS collar for tracking of roe deer
- Maximum weight 350 grams
- GPS VHF transmitter
- UHF data communication
- Accelerometr recording with 3 Axis
- Minimum records of GPS position 30 000
- Minimum battery life 1 year
- Continual record of the GPS positions

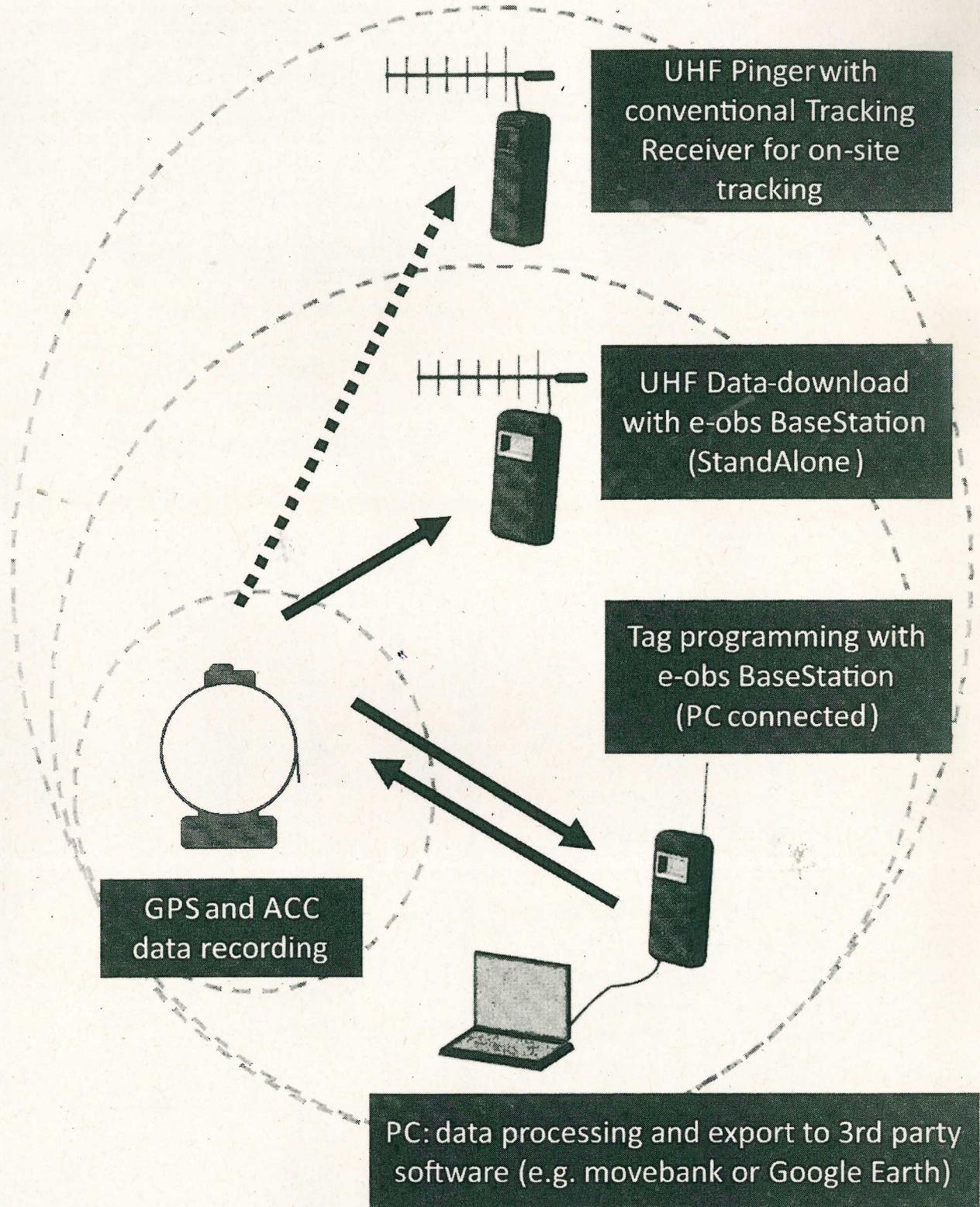


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System Overview



Sensor Features



Courtesy and copyrights: Prof. Dr. Roland Kays, USA. Map showing a (ACC-informed) GPS movement map from of a tagged fisher (*Martes pennanti*)

GPS

- Locomotion
- Home-range calculation
- Habitat selection

GPS Burst (optional)

Continuous 1Hz GPS series at each scheduled GPS fix point

- Direction
- Speed
- Small scale movement

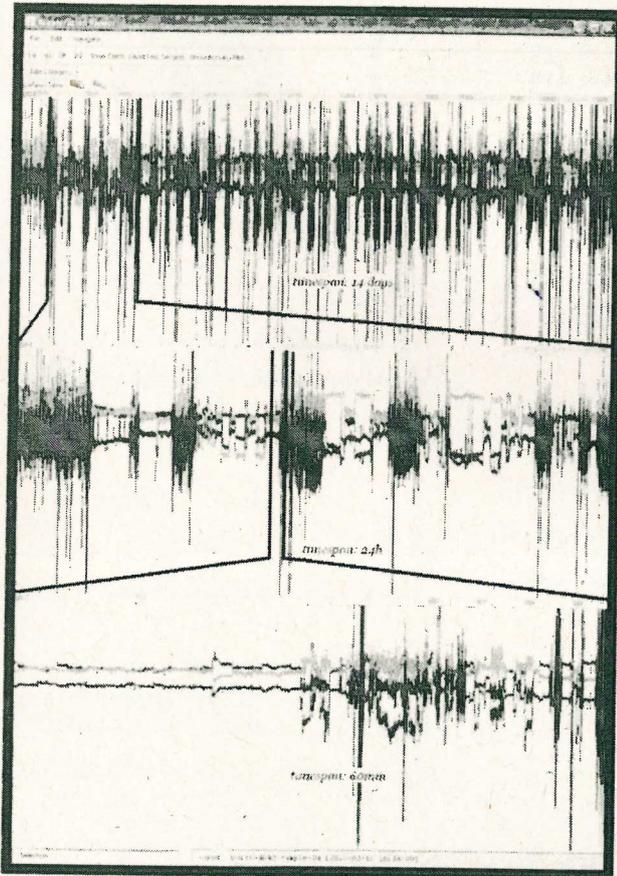
GPS Optimisation:

- Accelerometer informed GPS (activity as trigger for HighRes GPS)

Accelerometer (ACC)

with up to 100 Hz raw data recording on 3 axis for

- Activity analysis
- Behaviour classification
- Energy budgeting
- Animal well-being



Courtesy and copyrights: FVA Baden-Württemberg, GERMANY. Figure showing a roe deer (*Capreolus capreolus*) ACC data plot with zoom in from weeks to hours to be checked for rhythmicities (24h) and to classify behaviours (highest resolution).

Memory and data storage

- Nonvolatile memory of 64MB (~ 1million data sets)
- Complete download frees memory

Communication Features

Tracking Receiver
(e.g. AOR AR8200)



UHF PINGER

VHF Tracking equivalent

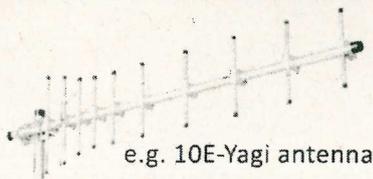
- Species on-site tracking
- Frequency band :
(Version A) 868 MHz or (Version B) 916 Mhz

e-obs BaseStation



UHF data communication

- On-site data download
- On-site tag configuration
- Frequency band :
(Version A) 868 MHz or (Version B) 916 MHz



e.g. 10E-Yagi antenna

Both systems need a Yagi-antenna for long range tracking and data downloading

Setup	Download range	NOTE: The range depends on many factors such as tag design (tag type), surrounding artificial radio noise sources, the micro-habitat, animal behaviour and tracking & antenna material used
Hilltop to Hilltop or airborne searches	10-15 km	
Open and flat habitat	1 - 2 km	
Dense forest	200 - 500m	

The tracking range (UHF-pinger) will be significantly higher, roughly double the range.

Collar 1D

Robust GPS-ACC-UHF collar for species with a weight above 10kg and researchers having at least temporal access to the tags for data download.

Technical Details

- Electronic housing: Reinforced POR
- UHF Antenna: external and/or internal one
- Belt material: flexible
- Typical neck size: 30cm
- Typical weight: 300g
- Battery casing: Reinforced and tight fitting POR
- Battery: 1 D-cell battery with 15000 mAh

Collar 1D with external antenna and leather belt material (customized solution)



Tag	Electronic Dimension (LxHxW in mm)	Battery Dimension (LxHxW in mm)	Belt circumference (cm)	Weight	Battery size	Minimum number of GPS fixes
Collar 1D	66 x 32 x 20	67 x 41 x 39	28 - 45	~300g	15.000 mAh	30.000 fixes

Recommended settings for a 1 year(+) deployment:

Collar settings: 1) GPS settings: 24 GPS Bursts / day (LowRes, TTF 60s) and 60 GPS Bursts (HighRes, TTF 30s) all with 10 consecutive fixes each 2) ACC: 4s Bursts (16Hz, 3 axes) every 30 seconds 3) Pinger: 2h/day 4) UHF download: 24h/day

Deployment time	388 days
Recorded GPS data	325.920 fixes (32.592x10)