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**PURCHASE CONTRACT**  
**SYSTEM FOR MEASURING THE EXCHANGE OF GREENHOUSE  
GASES (GAS ANALYZERS 2019, PART No. 3)**

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**SELLER**

Name **LI-COR GmbH**  
Registered office **Bad Homburg, Germany**  
Comp. No (IČO) ..... VAT No (DIČ) **DE 213 054 107**  
Incorporated in: **Bad Homburg** court in: **Bad Homburg** Section ..... record **HRB6992**  
Represented by **Mr. Glen McMurdo, European Managing Director**

**AND**

**BUYER**

Name **Ústav výzkumu globální změny AV ČR, v. v. i.  
(Global Change Research Institute)**  
Registered office **Bělidla 986/4a, Brno, 603 00 Brno, Czech Republic**  
Comp. No (IČO) **86652079** DIČ **CZ86652079**  
Incorporated in **Register of public research institutes**  
Represented by **prof. RNDr. Ing. Michal V. Marek, DrSc., dr. h. c., Director**

According to section 2079 of Civil Code, the above parties conclude the following contract:

**I. SUBJECT MATTER OF CONTRACT**

1. The seller undertakes that it will hand over the subject matter of purchase to the buyer and the seller undertakes that it will enable the buyer to acquire the ownership rights for the subject matter of purchase and the buyer undertakes to take over the subject matter of purchase and pay the purchase price for it to the seller.
2. The seller also undertakes to hand over the documents concerning the subject matter of contract.

**II. SUBJECT MATTER OF PURCHASE**

1. The subject matter of purchase is a System for measuring the exchange of greenhouse gases, which consists of:
  - 1.1. Analyser for measurement of CO<sub>2</sub> and H<sub>2</sub>O fluxes (1 piece)
  - 1.2. CH<sub>4</sub> gas analyzer (1 piece)

- 1.3. Dew point generator (1 piece)
2. The subject matter of purchase is specified in more details in Annex No. 1 to this contract.
3. The part and accessories of the subject matter of purchase are specified in more detail in Annex No. 1 of this contract.
4. The subject matter of purchase will be handed over in compliance with the following documents (ordered according to the degree in which they are binding):
  - a) This contract.
  - b) Written instructions from the buyer.
  - c) Technical standards concerning the materials and activities performed on the basis of this contract
5. Together with the subject matter of purchase, the seller will hand over to the buyer the documents necessary for the handover and use of the subject matter of purchase. These documents include mainly the following:
  - a) Certificates and declarations of conformity for materials and products used.
  - b) Detailed instructions or manuals for use of the subject matter of purchase.
  - c) Detailed instructions or manuals for maintenance of the subject matter of purchase.The documents will be prepared in Czech or English language.
6. The Seller undertakes to perform servicing of the subject matter of purchase for the time of duration of the guarantee period.

### **III. HANDOVER OF THE SUBJECT MATTER OF PURCHASE**

1. The complete and faultless subject matter of purchase will be handed over latest **within 5 weeks from the signature of the contract**.
2. Earlier fulfilment is allowed.
3. The subject matter of purchase will be handed over at the workplace of the buyer at **Bělidla 986/4a, 603 00 Brno, Czech Republic**, unless the parties agree otherwise.
4. If the seller supplies more items than agreed, the purchase contract is also concluded for the excessive amount and the price of the excessive amount is included in the total purchase price.
5. The seller undertakes to hand over the subject matter of purchase unused and without any legal or material defects.
6. The effect of the handover do not occur before the moment when the buyer is allowed to handle the subject matter of purchase at the place of handover.
7. Latest within 5 working days from the day on which the subject matter of purchase is handed over, the buyer will inspect it and check its apparent properties and quantity. Within the same deadline, the buyer will either confirm takeover of the subject matter of purchase or state its objections concerning the quantity and apparent properties of the subject matter of purchase. If the buyer neither confirms takeover of the subject matter of purchase nor states its objections concerning the quantity and apparent properties of the subject matter of purchase, it is understood that the buyer took the subject matter of purchase over and that it does not have any objections concerning its apparent properties and quantity.
8. The fulfilment cannot be refused, even if the conditions of section 1912 (1) of Civil Code are met (mutual fulfilment).

### **IV. PURCHASE PRICE**

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1. Price for fulfilment according to this contract was agreed: **CZK 2.527.853 excl. VAT**
2. The price is agreed as the highest permissible price including all the costs of the seller for fulfilment of this contract and price influences in the course of fulfilment of this contract.
3. VAT of the statutory rate will be added to the price excluding VAT.

#### **V. PAYMENT TERMS**

1. The price for the delivery of the subject matter of purchase and service performed will be paid based on one invoice, unless specified otherwise by the buyer. An annex of the invoice will be a copy of the handover of the subject matter of purchase.
2. All the invoices shall include the particulars of a tax document.
3. If the seller becomes an unreliable VAT payer pursuant to section 160a of VAT act, the seller is obliged to inform the buyer about this fact in writing immediately, latest the next workday after the decision about this fact comes into legal force. In the same way, the seller is obliged to inform the buyer that proceedings have been commenced against it pursuant to section 106a of VAT act.
4. The buyer will pay VAT to the account of the relevant tax administrator in the following cases:
  - a) If the seller publishes information that it is an unreliable VAT payer as of the day of taxable supplies or
  - b) If the seller becomes an unreliable VAT payer before the price is paid or
  - c) In case of any doubts of the buyer whether the seller is an unreliable VAT payer or not.
5. The due date of all the invoices is 25 days from the day on which the invoice is issued.
6. The buyer is entitled to return an invoice with defects within the due date period. The seller is obliged to submit a new invoice or a corrected invoice with a new due date specified.
7. The seller is obliged to deliver the invoice to the address of the registered office of the buyer latest within 5 working days from the day on which the confirmation of the subject matter of purchase handover.
8. An invoice is paid on the day when the corresponding amount is written off the buyer's account.
9. No advance is provided. No deposit is provided.

#### **VI. GUARANTEE OF QUALITY AND COMPLAINTS**

1. The seller provides a guarantee for quality of the subject matter of purchase. For the whole duration of the guarantee period, the subject matter of purchase:
  - a) will be fit for use for the purpose stipulated in this contract.
  - b) will be fit for use for the usual purpose.
  - c) will keep its usual properties.
2. The seller provides a **guarantee for quality** for a period from **12 months**.
3. The guarantee period starts to run on the day when the subject matter handover is confirmed. The guarantee period is extended by the time starting from the day when a complaint is made and ending on the day when the defect is rectified.
4. The buyer is not in delay with claiming a defect if the right for the defect which the subject matter of purchase has at the moment of its handover is claimed in writing within 30 days from the day on which the buyer learns about the defect.

5. The Seller is not in delay with rectification of a defect if the seller starts to perform activities aiming at the defect rectification without any unnecessary delay after the defect is claimed; continues this activity duly and **latest within 25 workdays from the moment when the defect is claimed** it rectifies the defect or replaces the subject matter of purchase with a defect-free one.

#### **VII. INTERESTS ON OVERDUE PAYMENTS AND CONTRACTUAL PENALTIES**

1. The party which is in delay with payment of a debt can be asked by the other party, if it fulfils duly its contractual and statutory obligations, to pay an interest on overdue payment, with the exception of the cases when the party which is in delay is not responsible for the delay. The parties agree on an **interest on overdue payment** at the amount of **0.025 % from the due amount per day**.
2. The buyer will charge a **contractual penalty of CZK 8,400.00 per day** in the following cases:
  - a) Delay of the seller with handover of the subject matter of purchase.
  - b) Delay with rectification of a defect on the subject matter of purchase at the moment of its handover.
  - c) Delay with rectification of a guarantee defect.
3. The buyer will charge a contractual penalty of CZK 50,000.00 in case the seller does not inform the buyer that the seller has become an unreliable VAT payer or that proceedings have been commenced against the seller pursuant to section 106a of VAT act.
4. A separate invoice will be issued for the contractual penalty with the due date of 30 days. The day of taxable supplies is considered to be the day on which the invoice is issued.
5. The parties agree that the obligation to pay a contractual penalty does not affect the right for damage compensation at the amount at which it exceeds the contractual penalty. If a contractual penalty is decreased by the court, the right for damage compensation remains at the amount at which the damage exceeds the amount determined by the court as adequate, without any other limitations.

#### **VIII. CONTRACT TERMINATION**

1. The contract can be terminated by a written agreement.
2. The buyer can withdraw from the contract in case of its significant breach by the seller. A significant breach of the contract is considered to be among others:
  - a) Delay of the seller with handover of the subject matter of purchase by more than 30 days.
  - b) Commencement of bankruptcy proceedings in which the seller is in the position of the debtor.
  - c) If it is established that untrue data were included in the bid from the seller in connection with the public contract.
3. The seller can withdraw from the contract in case of its significant breach by the buyer. A significant breach of the contract is considered to be among others:
  - a) Commencement of bankruptcy proceedings in which the buyer is in the position of the debtor.
  - b) Delay of the buyer with settlement of an invoice by more than 30 days.
4. Withdrawal must be made in writing and it becomes valid when delivered to the other party.
5. Withdrawal from the contract does not cancel the mutual vindicatory liability of the parties.

**IX. RESPONSIBLE PERSONS OF THE PARTIES**

1. The representative of the buyer is Mgr. Marian Pavelka, Ph.D., [pavelka.m@czechglobe.cz](mailto:pavelka.m@czechglobe.cz), +420 511 192 255. This representative of the buyer can act on behalf of the buyer in connection with this contract in any respect, but he is not allowed to change or terminate this contract.
2. The representative of the seller is **Mr Glen McMurdo**. This representative of the seller can act on behalf of the seller in connection with this contract in any respect, but he is not allowed to change or terminate this contract.

**X. JOINT PROVISIONS**

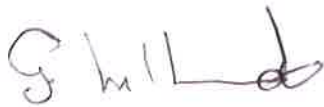
1. The right of ownership for the subject matter of purchase is transferred at the moment when the subject matter of purchase is handed over to the buyer.
2. Without written consent from the other party, none of the parties is allowed to transfer a receivable or liability arising from this contract to a third party.
3. Each of the parties accepts the risk of a change of circumstances pursuant to section 1765 of Civil Code for its debts arising on the basis of this contract.
4. No rights and obligations can be inferred from practices introduced by the parties or customs observed as a standard, both generally and in the particular field, concerning the subject matter of fulfilment of this contract.
5. If any of the provisions of this contracts becomes imaginary (petty), the impact of this defect on the other provisions of this contract will be assessed similarly according to section 576 of Civil Code.
6. The parties exclude application of the following provisions of Civil Code to this contract: section 557 (contra proferentem rule).
7. The seller is aware of the fact that it is a person obliged to cooperate during financial inspection. The seller is obliged to bind all its subcontractors to cooperate during a financial inspection.
8. The parties agree that the court competent to negotiate and decide all the potential disputes arising between the buyer and the seller pursuant to this contract or in connection with it is the general court of the buyer.

**XI. FINAL PROVISIONS**

1. This contract is governed by Czech legal regulations with the exception of colliding provisions. All the connected negotiations are held in Czech, Slovak or English.
2. This contract does not depend on any other contract. No other contract depends on this contract.
3. This contract contains full agreement concerning the subject matter of the contract and all the particulars the parties were supposed to and wanted to agree in the contract and which they consider important for binding character of this contract. No statement of the parties made during negotiations concerning this contract may be interpreted in contradiction with the explicit provisions of this contract and it does not establish an obligation of any of the parties.

4. This contract can only be changed in writing in the form of numbered supplements to this contract. The parties can object invalidity of the contract or its supplement anytime due to the failure to observe the form, even if the fulfilment has already started.
5. The parties are aware that this contract meets the requirements specified in Act No 340/2015 Coll. and therefore it is subject to the obligation to be published in the register of contracts. The buyer undertakes to enter the contract in the register of contracts within the statutory period and send a confirmation that the contract was published to the seller upon its request.
6. This contract is prepared in two counterparts and each party will obtain one of them.
7. The following annexes are an integral part of this contract:
  - a) Annex No. 1: Technical specification of the subject matter of purchase
8. This contract comes into force at the moment when it is published in the register of contracts.

**Bad Homburg, on this day 14 February 2019**



**Mr Glen McMurdo  
European Managing Director**

**LI-COR GmbH**

**Brno, on this day 29. 05. 2019**



**prof. RNDr. Ing. Michal V. Marek, DrSc., dr. h. c.  
Director**

**Ústav výzkumu globální změny AV ČR, v. v. i.  
(Global Change Research Institute)**

**ÚSTAV VÝZKUMU GLOBÁLNÍ ZMĚNY  
AV ČR, v.v.i.**

**CzechGlobe**

**603 00 Brno, Bělídla 4a (2)**

ANNEX NO. 1: TECHNICAL SPECIFICATION OF THE SUBJECT MATTER OF PURCHASE

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Subject matter of purchase will fulfil all followed technical parameters:

## 1. Analyzer for measurement of CO<sub>2</sub> and H<sub>2</sub>O fluxes (1 piece)

Manufacturer: LI-COR Inc.

Type: LI-7200RS

### General description:

One piece of a fast, accurate carbon dioxide (CO<sub>2</sub>) and water vapour (H<sub>2</sub>O) analyzer designed to measure energy and matters fluxes between the ecosystem and the atmosphere by the Eddy Covariance method (hereafter: the instrument). The instrument must be based on the principle of non-dispersive infrared spectroscopy. The device shall have an enclosed measuring path with a direct heated inlet tube to ensure a high measurement response rate and a low noise ratio to the H<sub>2</sub>O concentration signal. The unit will be equipped with a controlled flow nodule, an interface module, and a real-time calculation module. Weather resistant including heavy rain, high temperature and humidity in tropic areas.

The instrument must be equipped with heated intake tube, flow module/pump with controlled flowrate, a microcomputer for calculation of final flux results in situ in near real time; bandwidth at least 10 and 20 Hz, user-selectable.

### Technical parameters:

1. CO<sub>2</sub> measurement range at least from 0 to 3000  $\mu\text{mol mol}^{-1}$ , accuracy within 1% of reading or better.
2. H<sub>2</sub>O measurement range at least from 0 to 60  $\text{mmol mol}^{-1}$ , accuracy within 2% of reading or better.
3. RMS noise CO<sub>2</sub> (typical @ 370 ppm CO<sub>2</sub> and 10  $\text{mmol mol}^{-1}$  H<sub>2</sub>O): max. 0.16 ppm@20 Hz
4. RMS noise H<sub>2</sub>O (typical @ 370 ppm CO<sub>2</sub> and 10  $\text{mmol mol}^{-1}$  H<sub>2</sub>O) @20 Hz: max. 0.0067  $\text{mmol mol}^{-1}$
5. Zero drift CO<sub>2</sub> (per °C):  $\pm 0.1$  ppm typical,  $\pm 0.3$  ppm maximum.
6. Zero drift H<sub>2</sub>O (per °C):  $\pm 0.03$   $\text{mmol mol}^{-1}$  typical,  $\pm 0.05$   $\text{mmol mol}^{-1}$  maximum.
7. Gain drift CO<sub>2</sub> (% of reading per °C @ 370 ppm):  $\pm 0.02\%$  typical,  $\pm 0.1\%$  maximum.
8. Gain drift H<sub>2</sub>O (% of reading per °C @ 20  $\text{mmol mol}^{-1}$ ):  $\pm 0.15\%$  typical,  $\pm 0.30\%$  maximum.
9. Direct sensitivity of CO<sub>2</sub> measurements to H<sub>2</sub>O ( $\text{mol CO}_2/\text{mol H}_2\text{O}$ ):  $\pm 2.00\text{E}-05$  typical  $\pm 4.00\text{E}-05$  maximum.
10. Direct sensitivity of H<sub>2</sub>O measurements to CO<sub>2</sub> ( $\text{mol H}_2\text{O}/\text{mol CO}_2$ ):  $\pm 0.02$  typical,  $\pm 0.05$  maximum.
11. Data storage on removable USB storage device.

12. Data communication ports: Ethernet, Synchronous Devices for Measurement (User selectable to 50 Hz), RS-232 (20 Hz max.), at least 6 digital analogue converters (16 bit, 0-5 V).
13. At least 4 analog input channels (Bipolar;  $\pm 5$  V; 16 bit; 300 Hz).
14. Operating temperature range at least: -20 to +45 °C.
15. Power Requirements: in interval at least from 12 to 24 VDC.
16. Power Consumption: of the analyzer max. 15 W operating, max. 30 W during startup.
17. User setting measurement frequency at least for 10 and 20 Hz.
18. Windows® compatible user Interface.
19. Length of the connecting cables at least 5 m.
20. Nominal flow rate at least 15 l min<sup>-1</sup>
21. Power consumption of the flow module max. 20 W.
22. Heated intake tube with control power at least from 0.1 W to 6 W.
23. Rain protection of the intake tube input.

## **2. CH<sub>4</sub> gas analyzer (1 piece)**

**Manufacturer: LI-COR Inc.**

**Type: LI-7700**

### **General description:**

Gas analyzer designed long-term automatic high-speed (10 Hz or higher) and continuous eddy covariance flux measurements of methane emissions from the terrestrial ecosystems. Weather resistant including tropic areas.

### **Technical parameters:**

1. Resolution (RMS noise): max. 5 ppb @ 10 Hz and 2000 ppb CH<sub>4</sub>
2. Measurement Range: at least from 0 to 25 ppm @ -25 °C, at least 0 to 35 ppm @ 25 °C
3. Linearity: Within 1% of reading or better
4. Operating Pressure Range: at least 50 to 108 kPa
5. Output Bandwidth: up to 20 Hz
6. Operating Temperature Range: at least -25 to 45 °C
7. Power Requirements: in interval at least 12 to 24 VDC
8. Power Consumption: max 20 W
9. User Interface: Windows® compatible software supports all setup, configuration, and calibration functions through Ethernet connection
10. Self-cleaning function for the measuring pathway.
11. Operating temperature range of the self-cleaning system at least from -10 °C to 45 °C.



12. Weight: max. 10 kg

### 3. Dew point generator (1 piece)

**Manufacturer:** LI-COR Inc.

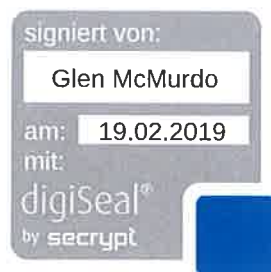
**Type:** LI-610

**General description:**

Portable instrument that provides a stream of gas with a precisely controlled dew point. Suitable for calibration of the H<sub>2</sub>O channels of gas analyzers and other sensors.

**Technical parameters:**

1. Generates stable dew points at least from 0 to 50 °C.
2. Accuracy of ± 0.2 °C dew point or better.
3. Flow rate adjustable with maximal flowrate at least 2 l min<sup>-1</sup>.
4. Response time: max. 35 s per °C
5. Operating temperature: at least from 0 to 45 °C
6. Operating humidity: 0 to 100% RH
7. Display for displaying set dew point temperature with resolution 0.02 °C or better.
8. No need for gas tanks and mixing systems.
9. Voltage output of dew point temperature for data acquisition.
10. External control via input signal.
11. Weight: max. 10 kg.
12. Power requirements: in range at least from 11 to 15 VDC.



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