

# **Annex II - Technical Specifications**

Frontex/OP/884/2020/JL

## **Purchase of drones and payloads**

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## 1. Acronyms

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Acronym	Definition
BVLOS	Beyond Visual Line of Sight
CAA	Civil Aviation Authority
DDP	Delivery Duty Paid (incoterms)
EU	European Union
FWC	Framework Contract
MTR	Minimal Technical Requirements
OF	Order Form
SAC	Schengen Associated Country
VLOS	Visual Line of Sight

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## 2. Introduction to Frontex

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Frontex, the European Border and Coast Guard Agency, promotes, coordinates and develops European border management in line with the EU fundamental rights charter and the concept of Integrated Border Management.

Frontex coordinates and organises joint operations and rapid border interventions to assist Member States at the external borders, including in humanitarian emergencies and rescue at sea. The agency deploys European Border and Coast Guard teams. It also deploys vessels, aircraft, vehicles and other technical equipment. In addition, Frontex may carry out operations on the territory of non-EU countries neighbouring at least one Member State, in case of migratory pressure at a non-EU country's border.

In accordance with its mandate, Frontex should organise appropriate technical and operational assistance to Member States in order to reinforce their capacity to implement their obligations with regard to external border control and to face challenges at the external borders resulting from an increased number of arrivals of irregular migrants or cross-border crime. In this regard and in line with the Council Regulation (EC) Regulation (EU) 2019/1896, the Agency is acquiring and deploying its own technical equipment.

More information about Frontex is available on [www.frontex.europa.eu](http://www.frontex.europa.eu)

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### 3. General Information

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#### 3.1. Subject of the Contract

This document defines terms and conditions for acquisition of drones with payload and associated hands-on training.

The scope of this document is to describe the minimum requirements for the requested deliverables and to ensure that the offered and then delivered goods or services comply with Frontex requirements.

The Technical Specifications will become an integral part of the Framework Contract (hereinafter called “FWC”) that may be awarded as a result of the open tender procedure. The established FWC shall enable Frontex with the capacity to obtain different quantities of any type of items each time the need arises according to the terms and conditions described here below.

#### 3.2. Type of contract

The tender shall result in single Framework Contract for the purchase of drones, payloads and associated hands-on training.

All the information delivered in this document, its annexes and other referred documents shall be taken into consideration by the Tenderers in preparation of their offer and by the Contractor during the contract’s implementation.

#### 3.3. Estimated contract volume

The FWC established following this procurement procedure shall cover the purchase of the drones, payloads and the training for the upcoming period of 4 years. The estimated amount of equipment and training to be purchased is as follows:

Nr	Product		Y-1 (2021)	Y-2 (2022)	Y-3 (2023)	Y-4 (2024)
1	Drone with payload	1 full set	5	5	10	10
2	Hands-on training	1 session	1	1	2	2

The contract will be implemented through the means of Orders, as described in the art. 6.2 of this document.

#### 3.4. Intended use scenario

The purchased equipment will be operating in several scenarios with multitasked functions. It should support static and dynamic surveillance in different police/border guard activities. The equipment shall operate from land and sea platforms with no focus on one type of flight. The key factor for the usage is the equipment’s versatility.

The training shall be needed following the delivery of the equipment in order to ensure its optimal use by the operators.

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## 4. Drone, payloads and other equipment

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### 4.1. Minimum technical requirements

#### 4.1.1. Drone system

The drone system shall be packed in a dedicated case allowing its transportation. The case shall be sufficient to properly fit all drone system parts and ensure the minimum ingress protection rating: IP 43.

##### 4.1.1.1. Drone

- Maximum dimension unfolded: 900x900x500 mm;
- Maximum weight with batteries and without payload: 7 kg;
- Max ascent speed: at least 4.5 m/s;
- Max descent speed: at least 2.5 m/s;
- Max speed: minimum 15 m/s;
- Wind resistance: minimum 10 m/s;
- Flight time without payload: minimum 33 min;
- Global navigation satellite system (GNSS): GPS, Galileo and GLONASS;
- Minimum ingress protection rating: IP 43;
- Minimum range operating temperature: -20 to 40°C;
- It must operate with three independent gimbals:
  - a single upward gimbal,
  - a single downward gimbal,
  - a dual downward gimbal;
- It must have Return To Home (RTH) function within max 5m radius.

##### 4.1.1.2. Remote controllers (one for the drone and one for the cameras)

- Minimum transmitting range (unobstructed, free of interference): 5 km;
- Power supply selfpower: at least 35 min;
- Minimum range operating temperature: -20 to 40°C;
- Remote controller strap.

##### 4.1.1.3. Ultrabright Screens for each remote controller

- Multitouch display;
- Min 7 inch display with min resolution of 2048x1536;
- Android operating system;
- Accept the control app of the drone;
- 4K video recording;
- Connector ports: HDMI, Micro USB, USB-C, Micro SD card slot;
- Supported and included min 64Gb Micro SD card for recording;
- Min brightness: 2000 cd/m2;
- Integrated GPS: GPS and GLONASS;
- Connectivity: WIFI, 4G dongle support;
- Minimum range operating temperature: -20 to 40°C;
- Monitor hood for shading;
- Screen must be delivered with fixation system for the remote controller.

##### 4.1.1.4. Batteries (3 kits for each purchased device)

- Type: LiPo;
- Minimum range operating temperature: -20 to 40°C;
- Charging hub or battery station.

#### 4.1.2. Payloads

Each payload shall be packed in a dedicated case allowing its transportation. The case shall be designed to properly fit the payload and ensure the minimum ingress protection rating: IP 43.

Required integrated payloads working with the drone, gimbals and the remote controller.

The payloads may be ordered together with the drone system or separately, depending on Frontex needs expressed within given Order.

##### 4.1.2.1. Aerial day camera

- Minimum sensor CMOS or equivalent: 1/2.8";
- Min effective pixels: 2M;
- Min optical zoom: x25;
- Min digital zoom: x5;
- It must have automatic stabilization system;
- Min controllable range for the tilt: +30° to -90°;
- Min controllable range for the pan: +/-320°;
- Video formats (minimum): MP4;
- Photo formats (minimum): JPEG;
- Electronic shutter speed between (minimum): 1/30 & 1/5000 s;
- Format PAL supported;
- Min 32Gb Micro SD card supported and included;
- It must be detachable;
- Minimum range operating temperature: -10 to 40°C.

##### 4.1.2.2. Aerial thermal camera

- Minimum digital video display format: 640x512;
- Min digital zoom: x8;
- Min spectral band: 7.5 - 13.5 µm;
- Min full frame rates: 30 Hz;
- Sensitivity (NEdT): <50 mk @ f/1.0;
- FOV: max 40°;
- It must have automatic stabilization system;
- Min controllable range for the tilt: +30° to -90°;
- Min controllable range for the pan: +/-320°;
- Video formats (minimum): MP4;
- Photo formats (minimum): JPEG;
- Micro SD card of 32Gb must be supported and included;
- It must be detachable;
- Minimum range operating temperature: -10 to 40°C.

##### 4.1.2.3. Aerial multi-sensor camera

- Sensor No. 1: Zoom Camera:
  - Min effective pixels: 20M;
- Sensor No. 2: Wide Camera:
  - Min effective pixels: 12M;
- Sensor No. 3: Laser Rangefinder:
  - Min range: 1000 m;
- Sensor No. 4: Radiometric Thermal Camera:
  - Minimum digital video display format: 640x512;
- Video formats (minimum): MP4;
- Photo formats (minimum): JPEG;
- Micro SD card of 32Gb must be supported and included;
- It must be detachable;
- Minimum range operating temperature: -10 to 40°C.

#### **4.1.2.4. Spotlight**

- Minimum operating range: 120 m;
- It must support dual downward gimbals and work with the aerial day camera described under art. 4.1.2.1.
- It must be detachable;
- Minimum range operating temperature: -10 to 40°C.

#### **4.1.2.5. Gimbals**

- To support multiple payloads configuration three gimbals are required:
  - one single upward gimbal,
  - one single downward gimbal,
  - one dual downward gimbal;
- Min pitch angle for the single and dual gimbals: 25°.

### **4.1.3. Transportation Case for international transport (Optional)**

A case/suitcase fitting the main drone system and all payloads to be used during the (international) transportation may be required. The transportation case shall be:

- Fit for the drone, remote controllers, screens, batteries, payloads;
- Lined with cell foam for holding accessories and sensors;
- Minimum ingress protection rating: IP 43.

### **4.1.4. Quality Requirements**

For all products delivered by this contract (at least for those specified under art. 4.1.1 and 4.1.2), the Contractor(s) shall provide the quality certificates. The certificates shall be accompanied by the results of the testing that confirm compliance to the requirements set in art. 4 of this Technical Specifications.

The Contractor shall have ISO 9001:2015 or equivalent quality management system implemented regarding the repair and maintenance of the technical equipment, telecommunication and aeronautical mobile remote sensing equipment, as well as the solid customer support system.

All tenderers are expected to deliver with the offer the results from the Manufacturer tests (reports from tests of offered drones and cameras done by manufacturer). Report from these tests should present values of all parameters listed.

Costs of the tests are to be covered by the tenderers.

## **4.2. Delivery**

The equipment purchased shall be transported (DDP) and delivered to Frontex Headquarters in Warsaw, Poland, together with all corresponding documentation and, where applicable, certificates. The delivery cost shall be included within the overall cost of equipment and shall not be charged separately.

The exact delivery address in Warsaw - Poland shall be outlined within the relevant Order.

As a rule, the delivery shall take place during working hours (Monday - Friday 09:00-17:00 excluding holidays). The exact delivery date and time shall be confirmed with the Frontex contract management personnel at least 48 h before the effective delivery.

The Contractor will also be responsible to address customs and all import related issues if any.

The equipment shall be delivered the soonest possible but not later than 90 calendar days after the signature of the Order.

### **4.3. Hands-on Training and manuals**

The delivered products shall include the detailed user and technical manuals which shall be available in both paper and electronic form and be at least in English language. In addition, the Contractor may also be asked to provide the necessary hands-on train-the-trainer training to the staff identified by Frontex on the handling of the purchased equipment. Frontex reserves the right to request such training either together with the delivery of the equipment or at any other moment during the contract duration. The number of Frontex trainees per 1 training session shall not exceed 10 persons.

The training location shall be at Frontex HQ premises in Warsaw or vicinity. The costs of Frontex staff participation will be covered by Frontex. The training shall be carried out in English language. All training related documents (manuals, presentations, etc.) shall be in electronic and paper format in English language, one copy for each participant.

The duration of one training session should be app. 4 hours. The fee for the training must be indicated separately in the financial offer and must cover all costs related with providing the training by the Contractor (travel and subsistence, training materials for participants, preparation fee, etc.).

### **4.4. Warranty and maintenance**

The equipment purchased shall be covered by at least 2 years warranty covering the maintenance activities. The required maintenance shall be of the corrective type and cover the correction of all identified defects either through repair or through replacement.

In case of an identified failure the Contracting Authority shall notify the Contractor and send the concerned device(s) to the indicated maintenance centre located within EU. The Contractor shall perform the diagnosis and eliminate the causes of the failure either through replacement or through repair as well as shall conduct the necessary testing allowing to confirm the proper functioning of the repaired device(s). The repaired/replaced device(s) after maintenance shall be returned to the Contracting Authority.

The maintenance shall be provided throughout the entire warranty period.

### **4.5. Obsolescence Management**

The tender shall declare that in the case of cessation of the production of any of the deliverables, the Contractor shall inform Frontex and offer a replacement model. After Frontex selects the new model that meets the required minimum technical criteria, this new model will enter as the main device for the remaining duration of the contract, unless such a situation happens again. If so, another model that meets the required minimum technical criteria will be chosen by Frontex.

### **4.6. Quality control procedure**

Frontex will monitor the quality of the products provided by the Contractor. Elements that will be monitored include:

- Compliance of the product to the Minimum Technical Requirements as described here above;
- Speed and agility of responding to requests and adherence to deadlines;
- Communication skills and ability to cooperate with users.

The Contractor will be immediately informed in case the quality is not up to expectations in any of the criteria and will be requested to remedy to the identified failure immediately.



In addition, Frontex reserves the right to contract an independent testing, including in the field conditions, on any of the delivered equipment at any moment during the contract duration for the purpose of verification of quality of the equipment and its compliance to the MTR.

#### **4.7. Acceptance procedure**

Based on quality monitoring and control, all products delivered under the contract will be subject to the Frontex acceptance.

The products delivered will be considered accepted upon the formal acceptance procedure and expressed officially in writing by Frontex by means of signing of the Acceptance Form (Model Acceptance Form in Appendix 1).

Frontex shall evaluate the deliverables within 30 calendar days from the completion of their delivery and provide the Contractor with the written notice of either Acceptance, Partial Acceptance or Non-acceptance.

In the event Frontex provided a notice of partial or non-acceptance, it shall have the continuing right, at its sole discretion, to:

- refuse to pay any fees or other amounts associated with such products;
- accept such products on the condition that any fees or other amounts payable with respect thereto shall be reduced or discounted to reflect, to Frontex' satisfaction, the deficiencies present therein or the costs likely to be incurred by Frontex to correct such deficiencies; or
- terminate the Order and/or seek any and all available remedies, including damages.

In addition, Frontex keeps the right to perform end warranty tests of all devices before end of warranty period. Frontex may decide on whether the tests would be done by an expert laboratory and/or experts delegated by Frontex.

Minimal end warranty test range:

- Measurement of the critical parameters;
- Checking for any defects in general workmanship that reduce performance of the drones/payloads.

Costs of both type of tests are to be covered by Frontex.

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## 5. Contract Implementation

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### 5.1. Contract type and duration

This contract shall be a single framework contract with one selected contractor. The Contractor remains liable for the quality of the deliverables for the full duration of the warranty period.

### 5.2. Order establishment process

The FWC shall be implemented by means of Orders. An Order template (Order Form) is presented in Appendix 1 to Annex VI - Draft Contract.

Each time a certain amount of items is needed, Frontex will issue and send to the Contractor an Order, specifying all the necessary details (e.g. quantity, exact shipment address, etc.) as well as the contractually agreed time of delivery.

The Contractor must send the counter-signed and dated Order back to Frontex within maximum five (5) working days.

Once the Order is signed by both parties, the execution of the Order shall start.

### 5.3. Reporting

The Contractor shall report to the Contracting Authority upon execution of the Order and/or in exceptional cases when specific situation requires additional reporting.

All reports shall be submitted in written in English language to the Contracting Authority's contact point indicated in the Contract.

### 5.4. Points of Contact

Upon the signature of the FWC, Frontex shall indicate to the Contractors relevant point(s) of contact in charge of communication regarding the FWC contract management.

For the implementation of the Orders, Frontex shall indicate therein its relevant point(s) of contact in charge of the particular Orders.

The Contractors shall provide to Frontex one or several contact points in charge of the management of the framework contract. The Contractor's contact point(s) responsible for the implementation of the Order shall be communicated at the moment of the initiating of the Order.

While indicating the contact points all parties shall provide in written the name and full contact details, including email address and direct telephone number/mobile.

The contact points for implementation of Orders can be changed at any time without a change of contractual provisions by written notification to the concerned parties.

### 5.5. Prices and Payment

All prices shall be in Euro, excluding VAT.

Any invoices shall indicate the Frontex' Order number to which it refers and should be sent in pdf format to the following address: [invoices@frontex.europa.eu](mailto:invoices@frontex.europa.eu) .

As a principle, all payments related to one Order shall be made after the acceptance of the products delivered and upon the reception of the invoice. Frontex executes the payment within 30 calendar days.

In case the value of the Order is equal or superior to 100 000 EUR net, the contractor may request a 30% pre-payment. The pre-payment request is admissible upon the signature of the Order and reception of the invoice. Frontex shall pay the invoice within 30 calendar days after its receipt.

## **5.6. Language**

All the documentation delivered within the contract shall be in English. Moreover all communication, whether written or spoken, shall be in English.