# *ANNEX II + III:* TECHNICAL SPECIFICATIONS + TECHNICAL OFFER

**Contract title: Forest fire detection and monitoring system for project STOP FIRES p 1 /…**

**Publication reference:** **TD03 - HUSRB/23R/11/086–5.1.3**

**Columns 1-2 should be completed by the contracting authority**

**Columns 3-4 should be completed by the tenderer**

**Column 5 is reserved for the evaluation committee**

Annex III - the contractor's technical offer

The tenderers are requested to complete the template on the next pages:

* Column 2 is completed by the contracting authority shows the required specifications (not to be modified by the tenderer),
* Column 3 is to be filled in by the tenderer and must detail what is offered (for example the words ‘compliant’ or ‘yes’ are not sufficient)
* Column 4 allows the tenderer to make comments on its proposed supply and to make eventual references to the documentation

The eventual documentation supplied should clearly indicate (highlight, mark) the models offered and the options included, if any, so that the evaluators can see the exact configuration. Offers that do not permit to identify precisely the models and the specifications may be rejected by the evaluation committee.

The offer must be clear enough to allow the evaluators to make an easy comparison between the requested specifications and the offeredspecifications.

**General Requirements**

• All requirements stated and outlined in this document must be regarded as mandatory and the minimum acceptable criteria. All requirements outlined in this document are accompanied by the phrase "or equivalent".

• The tenderer is required to provide the specifications of the offered items in the Technical Offer, including details such as the manufacturer, product type, model, and country of origin. All documentation must be provided in English or Serbian, both in hardcopy and electronic formats.

| **1.**  **Item number** | **2.**  **Specifications required** | **3.**  **Specifications offered** | **4.**  **Notes, remarks,  ref to documentation** | **5.**  **Evaluation committee’s notes** |
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| **1** | **Sensor/Camera unit,**  **Quantity: 1 Unit** |  |  |  |
|  | **Required technical characteristics:**  The camera must combine thermal and electro optical imaging capabilities with optical zoom, pan and tilt functions. A highly sensitive thermal module with adjustable palettes and a 2.0MP optical sensor for HD images are required to ensure accurate detection and monitoring of fire activity. The device must be operational at extreme temperatures (-40°C - 70°C) in variable atmospheric conditions, supporting protection level IP66 (protection against dust and wind). The device must support advanced features: motion detection, guard line monitoring, and optical zoom, enabling reliable and precise long-range surveillance.  **Image quality**  - Thermal sensor  - min. 2.0 Megapixel 1/2.8’’  - High definition image 1080p@60fps (Optical)  - H.265 video codec  - Ultra low illumination, 0.001lux with color image  - min. 120dB Ultra WDR  - Automatically adjustable laser  - HLC / 3D noise reduction  **Thermal module**  - Highly sensitive thermal module, 800 x 600@30fps  - Up to 9 adjustable color palettes  **Operating conditions range**  - Operating temperatures -40°C ~ 70°C  - min. IP66, TVS 6000V lightning protection, surge and transient voltage protection  **Zoom**  - Min. 55x optical zoom  **Functions and features**  - SD card option, support for Automatic Network Replenishment (ANR)  - Min. of 3 video streams  - Two-way audio / alarm input/output / video output |  |  |  |
| **2** | **Surveillance security camera**  **Quantity: 2 Units** |  |  |  |
|  | **Required technical characteristics:**  The surveillance security camera should provide complete and 24/7 oversight of the monitoring system location. The surveillance camera must be based on the latest technology, support a high level of image quality, enable video analysis, and allow for long-term storage of video material.  Minimum specifications:  - Power supply: POE  - Connectivity: IP  - Quality: min. 4MP  - Night mode: IR illumination  - Protection: IP66 |  |  |  |
| **3** | **Central analytical hardware/server**  **Quantity: 1 Unit** |  |  |  |
|  | **Required technical characteristics:**  A stable processing unit that supports the integration of high-resolution thermal imaging data with environmental data for detailed and efficient analysis. The hardware must ensure seamless processing and rapid interpretation of data from sensor devices/cameras, enabling accurate identification of fire risks and swift decision-making in critical situations.  The hardware component of the AI analysis system must have at least the following specifications:  - Min. 2048 NVIDIA® CUDA cores or equivalent  - Min. 64 GB 256-bit LPDDR5 RAM  - Min. 64 GB eMMC 5.1 storage  - 1x 8K30 | 3x 4K60 | 7x 4K30 | 11x 1080p60 | 22x 1080p30 (H.265) hardware video encoder |  |  |  |
| **4** | **Surveillance security hardware/server**  **Quantity: 1 Unit** |  |  |  |
|  | **Required technical characteristics:**  The supervisory security hardware should provide integration of security cameras and enable 24/7 monitoring of the facilities covered by the camera system. The server should allow for video material storage and retention for a specified period.  Minimum characteristics:  - Multi-channel, with support for the specified cameras  - Recording and playback at up to 4K resolution  - H.265+/H.265/H.264+/H.264 video format  - Support for 1 SATA drive up to 8TB HDD  - Support for PoE network interface |  |  |  |
| **5** | **Central analytical software**  **Quantity: 1 Piece** |  |  |  |
|  | **Required technical characteristics:**  The software component of the system must enable the analysis of smoke and temperature patterns and the detection of fire risks, generating accurate alerts and effective insights for rapid response, thereby allowing for centralized control and monitoring. This enables real-time visualization, analysis, and coordination to improve fire prevention and management.  The software component of the AI analysis system must support the following functionalities:  • a separate deep learning module for analyzing daytime video footage from electro-optical cameras;  • a separate deep learning module for analyzing nighttime video footage from electro-optical cameras;  • a separate deep learning module for analyzing nighttime video footage from thermal cameras;  Bidders are required to submit, as proof that the offered system possesses the required technical characteristics, technical documentation with a complete description of the proposed system, based on which all required functionalities and characteristics can be seen, that is, a technical description of the offered equipment, hardware, and software solution.  Bidders are obligated to offer a solution for high-quality and reliable transmission of information from cameras/sensors to the central monitoring location, which includes the capability to transmit data via WAN network, 4G, LTE, or SatLink. Data transmission must be available 24/7 and protected against unauthorized use. |  |  |  |

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| **All items** | **Delivery** of all items to following address: Graničarska BB, 24000 Subotica, Republic of Serbia. |  |  |  |
| **All items** | **Installation and testing** of all functions of the instrument, to manufacturers standard on samples commonly used for the corresponding instrument.  Installed equipment must be tested as system, compatible with existing system. |  |  |  |
| **All items** | **Requirements for Training** Training courses shall be conducted on the equipment that will be delivered. All participants shall receive the documentation in native language in a book and electronic version. Training course should cover following functions:  - Power user  - Operator |  |  |  |
| **All items** | **Warranty**  Warranty period 365 days from the issuance of PAC (Provisional Acceptance Certificate) in accordance with article 32 SC and GC of the Contract. Offer must include warranty service description including:   * Service organisation contact data including name, postal address, telephone number, fax number and e-mail address; * Guaranteed that any requests for services will be attended to within 48 hours; * Guarantee that all items can be repaired or alternatively replaced within a maximum of 7 days; * Letter of confirmation that genuine spare parts and consumables will be available for a period of minimum 3 years from the date of final acceptance of the equipment. |  |  |  |
| **All items** | **Commercial warranty**  365 days from the issuance of FAC (Final Acceptance Certificate) in accordance with the conditions laid down in Article 32 of the General Conditions and Article 33 of the Special Conditions.  Detailed description of the organisation of the proposed service and description of the Manufacturer’s commercial warranty shall be included in the offer. |  |  |  |