Mühlbauer
High Tech International

Mühlbauer ID Services GmbH

Tender No. 21374090 (ocds-b3wdp1-MD-1741005175016)

Portable Biometric Data Collection Equipment

Technical Data Sheet

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Document History

Version	Name	Description	Date
V 1.0	Robert Aich	Initial Offer №: A-2025-SM-0004289-1	02.04.2025

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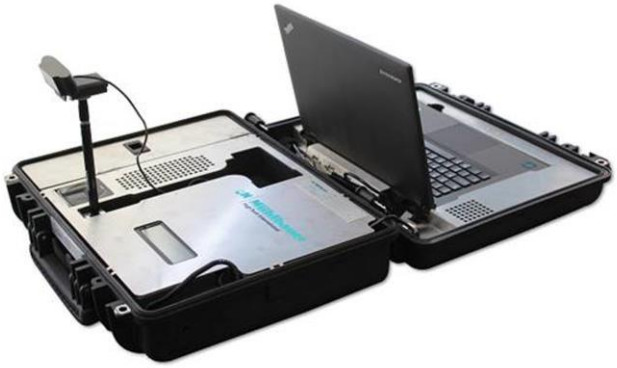
1 Compliance Confirmation – Annex "Technical Requirements"

1.1	**Portable biometric data collection equipment** intended for biometric data enrollment in identity management in the process of documenting citizens, the process that is assisted and performed within the mobile offices by the Contracting Authority officers(not to be confused with the self-service kiosk used at the Border crossing posts), and biometric data collection with the ability to capture high-quality facial images, fingerprints and signature, enabling the issuance of identity electronic documents in accordance with relevant international regulations such as ICAO Doc 9303		
	Equipment and accessories – Non-refurbished, produced after 01.01.2024. **All requirements are minimum and mandatory;** **All components must be current and not advertised as EOS (End of Support) / EOL (End of Life)**		Compliant New Equipment
a)	***Included peripherals***	- Face Capturer, - Fingerprint readers - min. 2 x single fingerprint scanners - Signature Capturer.	Compliant Included: - Camera - Fingerprint scanner able to capture two fingerprints at the time - Signature pad
b)	***Face Image Capturing and Processing***		
*	Resolution	Min. 13 MP with full ICAO/ISO quality assessment.	Compliant
*	Distance range	adjustable according to standard biometric image capture requirements	Compliant
*	Height adjustment	adjustable	Compliant
*	Illumination	optimized LED for non-flash illumination	Dual flash LED for optimal lightning
*		Integrated lighting with dynamic ambient light intensity adjustment	Brightness manually adjustable
*		Light colour: according to ISO/IEC 19794-5:2011	Compliant
c)	**Biometric algorithms**	min. Face detection, quality analysis and capturing algorithms	Compliant
d)	**User display**		
*	Screen size	min. 7"(inch)	7"
*	Touchscreen	Multi-touch capable screen	Multi-touch
e)	**Fingerprint readers**		
*	Configuration	Min. 2 x single fingerprint scanners	Able to capture two fingerprints at the time
*	Resolution	high-quality optical sensor meeting ISO/IEC standards	Compliant
*	Quality standards	EU/BMS, CE standards ICAO 9303 ISO/IEC 19794-4 & 39794-4 (Finger image data) ISO/IEC 19794-5 & 39794-5 (Facial image data)	Compliant
f)	**Signature pad**		
*	Display type	LCD color with encryption	LCD Color with encryption

*	Pressure sensitivity	1024 levels	Pen pressure: 1024
*	Native resolution	optimized for accurate signature capture	Resolution:800 x 480
*	Active area size	min. 5" (inch)	Panel Size: 5.0 inch
*	Pressure levels	min. 1024 (non-interpolated)	Pen pressure: min 1024
g)	**Electrical characteristics**		
*	Power supply	compatible with 110V–230V	Compliant
*	Data interface	Ethernet 10/100/1000 Mbps, USB3	Compliant
*	Compliance	CE, RoHS	Compliant
h)	**Physical characteristics *and* operating conditions**		
*	Mobility	Designed to be portable	Compliant
*		Designed as carrying suitcase	Compliant
		Dimensions: max. 500x500x200 mm	474x415x149 mm
*	Nett Weight	max. 15 Kg	10kg
*	Interfaces for external devices	min. 1 x HDMI	1 HDMI 2.1
*		min. 1 x USB	2 USB Type-A 2 USB Type-C® (USB Power Delivery, DisplayPort™ 2.1)
*		1 x RJ45 Ethernet	1 RJ-45
*	Installation mode	Portable installations	Compatible
i)	**Hardware requirements for integrated operating software**	CPU / RAM / Storage in accordance with minimum requirements from the manufacturer in order to assure smooth and agile performance.	Compatible i5-1334U / 16GB RAM / 512 GB storage
	Integrated operating software functional requirements		
a)	**Facial Image Capture**	Integrated software with automated quality control, verifying compliance with ICAO standards based on min.: • eye detection; • closed-eye check; • face brightness, clarity, and size; • head positioning; • background stability	Compatible
b)	**Fingerprint capturing**	Real-time quality check with NIST-compliant AF3S fingerprint identification through NFIS2.	NFIQ2 quality algorithm
c)	**Signature capturing**	- the weight of the signature line for both weak and strong pressure is fully configurable along with the signature retention and printing area in accordance with ICAO recommendations.	The signature line width can be configured to different widths.
d)	**API System integration**	Modular interface configuration system; Web-services must be able to use several methods, as for example:	API available

		- Adjusts actuator height to the desired position: Post /CameraActuator/Height; - Gets actuator current state: Get /CameraActuator/Height; - Starts a Face Capture or a Finger Capture: Post /FaceCapture/Capture AND Post /FingerCapture/Capture; - Get available capture types: Get /FaceCapture/CaptureTypes AND Get /FingerCapture/CaptureTypes; - Get default metrics performed on each capture: Get /FaceCapture/Metrics and Get /FingerCapture/Metrics; - Creates a NIST file: Post /Nist; - Error responses; - Bad request responses.	
	Support and maintenance requirements		
	Support services at the Beneficiary's premises and/or remotely (as the case may be) for the adjustment and integration with the centralized software of the Contracting Authority via API, of the integrated operating system during the preparation period for equipment commissioning and training the staff according to the Beneficiary's requirements within a period of up to 30 calendar days after the delivery of the goods. **Warranty period:** min. 36 months (after delivery and commissioning) with maintenance at the service center authorized by the manufacturer in the Republic of Moldova or in the EU. Resolution of warranty cases within a period of up to 45 calendar days. All the costs of solving warranty cases are borne by the manufacturer or the authorized distributor.		Compliant

2 MB GETID Biometric Data Acquisition Kit



Sample layout

Laptop Computer	HP ProBook 440 G11 14” IPS 1920 x 1080 (Full HD) U5-125U / 16GB RAM / 512 GB storage 2 USB Type-A 2 USB Type-C® (USB Power Delivery, DisplayPort™ 1.4) 1 HDMI 2.1 1 RJ-45
Portrait Camera	Camera is integrated with no need for additional cables and accessories. SDK provided allows to control the camera and to capture face images.
Light source for portrait acquisition	Dual flash LED for optimal lightning – brightness manually adjustable. Light source activated only during photo capturing.
Fingerprint Scanner	Able to capture two fingerprints at the time USB 2.0 500 dpi FBI-certified
Signature pad	LCD Color with encryption Pen pressure: 1024 Resolution:800 x 480 Panel Size: 5.0 inch Pen pressure: min 1024
Rugged Case	IP67 rugged case, water resistant, dustproof and shockproof. The weight of the case is 10 kg. Dimensions: 474 x 415 x 149 mm.
Second Screen	7” Multi-touch

3 MB GETID Software

The process for any kind of application starts with the personal data enrollment. Apart from biographical data and data required for the particular application process, GETID Enrollment terminal supports capturing of the different kinds of biometric data of the applicant.
After the person identification by means of already existing identification documents, biometric data capturing is the most essential part of MB GETID Enrollment module.
MB GETID Enrolment has functionalities for capturing following categories of biometric data:

- Face Image
- Fingerprints
- Handwritten Signature

The recommended approach is to use GUI with built-in biometric data acquisition process – which will simply send acquired biometric data to the central system.
However, the low level API is also available. All devices have the same structure of the API. I.e. signature device control:
POST
/signature/uninit
POST
/signature/stopLiveStream
POST
/signature/startLiveStream
POST
/signature/init
POST
/signature/checkState
POST
/signature/captureImage

Support services remotely for the adjustment and integration with the centralized software of the Contracting Authority via API.
Remote Support for the developers.

3.1 Facial Image Acquisition

Facial image capturing has three parts: image capturing, image processing and image evaluation.

After the image has been taken, it is then processed for ICAO compliance. The processing comprises:

- Automatic face and eye finding
- Face alignment
- Face cropping
- Color optimization

The processed image is then forwarded to evaluation where it is checked for International Civil Aviation Organization (ICAO) standard compliance. Including, but not limited to the following:

- Eye detection
- Closed eye check
- Face brightness, clarity and size
- Head positioning
- Background uniformity

3.2 Fingerprints Acquisition

The fingerprint capturing process has the following steps: image capturing, image processing, crosschecking and image quality check.

Following modes of fingerprint capturing are supported:

- Slap one
- Slap two

Slap capturing process has live view for guidance, so the applicant can position the fingers correctly. Once the fingers are in the position, capture action is performed.

Images are now processed with the following procedures:

- Segmentation
- WSQ conversion
- Crosscheck – captured fingerprints are matched with already acquired ones to eliminate duplicates or wrong finger positions

Images are checked for quality by NFIQ 2 algorithm. The acceptance level can be configured. Anything below the threshold will be automatically discarded and recapturing is required.

3.3 Handwritten signature acquisition

Handwritten signature capturing process has two steps:

- Applicant places the signature on the designated area of the tablet screen, where the signing process can be seen live.
- Once the applicant completes the signing process, capture action is performed

Signature is saved as a vector to avoid any loss of image quality due to resizing and can be converted to well-known image formats such as JPG. The signature line width can be configured to different widths.

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4 Services

4.1 Implementation Services

4.2 Implementation Services

The implementation phase includes all required activities to realize the project according to the agreed scope of supply. As the most important part of the Implementation Services, the Commissioning is done within this phase to assure that all Biometric Data Acquisition Kits are designed, installed, tested and operated according to the design objectives or operational specifications of the client

4.2.1 Pre-Commissioning at Supplier's Facility

Pre-Commissioning activities ensure the readiness of the Biometric Data Acquisition Kits prior to the commissioning and future operations. This saves time, resources and costs for the customer of the Implementation Services at the final operation location.
Pre-Commissioning activities are:

- Check for design / specification conformity
- Configure and assemble the Data Acquisition Kits
- The Supplier's Pre-Commissioning team adjusts and tests the machine under conditions as close to operational business as practical.

4.2.2 Factory Acceptance Test (FAT)

A Factory Acceptance Test (FAT) is a major project milestone and attended by the supplier and the buyer or a suitable representative remotely

During the FAT, Supplier tests the Equipment according to buyer-approved test plans and specifications to demonstrate that it meets the buyer's requirements.
After the solution has passed the test procedure, the shipment will be performed

4.2.3 Commissioning at Buyer Facility

Commissioning is a key part of putting the Portable Biometric Data collection Equipment into operation. Commissioning of the Equipment is performed by an experienced team of supplier experts and comprises typically the following activities:

- Unpacking
- Commissioning – Equipment is powered up and tested

The main objective of commissioning is to ensure the safe and orderly handover of the Equipment from the supplier to the buyer and to guarantee its operability in terms of performance, reliability, safety and information traceability.

4.2.4 Site Acceptance Test (SAT)

Once the Equipment is commissioned and their correct operation has been tested and confirmed, the Commissioning process is considered complete and the Equipment is formally handed over to the buyer.
In practice, the on-site acceptance process includes inspection and testing of every operational component of the Biometric Data Acquisition Kits .

Prior to the execution of the acceptance testing, a corresponding test procedure and demonstration shall be provided to the Purchaser and the same can be used for testing equipment to check that it works.

During the SAT the test, team shall:

- Verify the completeness of the deliverables of the Portable Biometric Data collection Equipment (bill of materials)
- Review the specification while checking the Portable Biometric Data collection Equipment for its compliance with the procedure that has already been approved by Supplier and the Buyer Included shall be functionality testing and regulatory testing.

SAT is understood as acceptance of the specified hardware and software components.

4.2.5 Operation and Administrator Training

To enable buyers' staff responsible for operation and maintenance of the Biometric Data Acquisition kits, supplier provides the operation and administration training

The Supplier's trainers work systematically to transfer knowledge about their solutions to the buyer's employees. This process begins immediately after project start and continues until project completion. An appropriate training strategy and relevant materials, such as specific training plans and Operating and Technical Servicing Instructions of the Equipment in English.

OPERATION AND ADMINISTRATOR TRAINING	
Objective:	The objective of the training is to enable the participants to understand and to technically support and maintain the hardware and software components installed at the .
Training Subjects for the Software Engineers	• Technical administration and operation of the software components • IT Equipment • Maintenance and troubleshooting • Checking log files
Module Duration	2 days
Participants	10 (recommended maximum number of attendees)
Place of Execution	Buyer Facility
Profile	Software Engineer • Prior experience with the administration of software systems. • Preferable degree in Information Technologies or similar.
Methodology:	Combination of Explanatory / Demonstrative / Participative / Practical

4.3 Maintenance and Support Services

This phase includes all necessary service activities to maintain the effectiveness and efficiency of Equipment in the years after commissioning. The following descriptions address the basic concept of Supplier's Maintenance and Support Services.

4.3.1 Remote Support

When it comes to Incident Management Supplier handles the incidents using the following support levels sequentially:

- 1st Level Remote Support: Technical Support Group (TSG)
- 2nd Level Remote Support Specialist Support Group (SSG)
- 3rd Level Remote Support Research and Development (R&D)

1st Level Remote Support: Technical Support Group (TSG)
The first instance of the Remote Support, is Supplier 1st Level Support team, the Technical Support Group (TSG). Embedded in the Supplier Central Service Organization, the TSG takes care of the internal coordination for further support. The 1st Level Support is provided remote via phone and email.

2nd Level Remote Support:Specialist Support Group (SSG)
If the 1st Level Support efforts could not solve the incident, it is escalated to the Supplier 2nd Level Support team, the Specialist Support Group (SSG), The Central Service Organization takes care of the internal coordination for further support. The relevant internal departments are involved in order to provide clarification to the inquirer via phone / email or remote desktop support.

3rd Level Remote Support: Research and Development (R&D)
If the 2nd Level Support efforts could not solve the incident, it is escalated to the Supplier 3rd Level Support provided by the Software Development and / or R&D teams. The relevant internal departments are involved in order to provide clarification to the inquirer via phone / email or remote desktop support.

Software Maintenance Basic
Besides the software support, the Software Maintenance Basic is offered which contains the following services:

- Software backup and recovery
- Security patches for operating systems
- Support for new operating system

Software maintenance provides buyer with the maintainability and support of his software installation, i.e. also older installations/equipment obtains the right to support for software errors. Discontinuance of this software maintenance voids the maintainability and the support of the software.

4.3.2 Warranty

Supplier warrants mobile data capture kits are free from defects in material and workmanship upon Acceptance testing, subject to normal use and under normal environmental and maintenance conditions. Supplier offers all new Equipment with a standard warranty of one year. Wear parts, Tools and consumables are not part the warranty

Warranty extension a prolonged service by supplier is offered in addition to the standard warranty of 1 year to cover the subsequent years is offered with maintenance at the service center authorized by the manufacturer in the EU. Resolution of warranty cases within a period of up to 45 calendar days. All the costs of solving warranty cases are borne by the manufacturer or the authorized distributor.

4.3.3 Initial Spare Part Package

In order to support the resolution of incidents a Spare Part Package shall be available at all times to ensure that repair or replacement of faulty Equipment will be performed within maximum 45 days from receipt without affecting the expected throughput of the System.

5 Deliverables

Position	Proposed Configuration	Units
1	MB GETID Biometric Data Acquisition Kit MB GETID Biometric Data Acquisition Software License	6
2	MB GETID API Developer support	2MD
3	Implementation Services • Pre-Commissioning at Supplier's Facility • Factory Acceptance Test (FAT) Remotely • Commissioning at Buyer Facility • Site Acceptance Test (SAT) • Operation and Administrator Training	1
3	Maintenance and Support Services • Remote Support • Warranty • Initial Spare Part Package	36 months

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