DESKO HP500 e

Document-Nr.: 7 000 110 001

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1. Introduction

Efficiency and security in border control and passenger service; with the DESKO HP500 document scanner, there are no compromises. Passport, visas and any form of national ID card – the DESKO HP500 is the smallest and most efficient half page document reader.

Fast and easy-to-use the DESKO HP500 with its revolutionary twin-optics technology and small design is the tool for all security and travel service – whether it is a manned position or a self-service application – today and in the future.

The HP500 can scan and verify documents that are conform to the ICAO 9303 Specification.

- Half page, IR and visible light source passport and ID document reader
- Smallest full page scanner with integrated processor available
- Automatic recognition of passports and ID documents according to ICAO 9303
- Fast, reliable (no moving components), easy-to-use
- ICAO RFID “ePassport” module (optional)
- Revolutionary twin-optics

2. General Description

The HP500 is equipped with different passport reading and security checking technologies. The device is based on a revolutionary twin-optics system and latest image technology. It delivers a half page monochrome image as well as the decoded machine readable zone (MRZ) of any ICAO compliant passport or ID document.

a) OCR Data Collection

Every passport or ID document has a two or three line MRZ (Machine Readable Zone) encoded in ICAO 9303 standards. The HP500 is capable of interpreting the MRZ data by using optical character recognition (OCR) algorithm. If a passport or ID document is placed on the scanning window of the HP500 the MRZ is read and send to the connected PC or used for ePassport reading. The decoded MRZ data shall be transferred to the connected Host PC via USB 2.0 interface. The complete OCR algorithms are integrated inside the HP500, no additional OCR decoding software on the PC is necessary.

b) RFID ePassport Reading

The HP500 is equipped with two antennae in order to read RFID ePassport data from a passport.

The DESKO device supports the following standards:

- ISO 14443A/B
- ICAO 9303
- ISO 7816 (including US-passports)

The two antennae are hidden mounted around the scanning window and the sloped part of the housing. Consequently it doesn't matter whether the RFID chip is integrated inside the front or rear cover of the passport.

The HP500 passport scanner can collect RFID data from chips secured with Basic Access Control (BAC) as well as from chips protected by Extended Access Control (EAC). With the Extended Access Control the biometric data like fingerprint can be read from the RFID chip. If the Extended Access Control will be used an additional certificate is required.

The following protocols are available for a Host PC:

- PC/SC protocol
- API for Windows and LINUX operating systems

c) Image Storing

The HP500 supports two different light sources. Via HP500 API functions the light source can be selected and the taken image will be transferred from the HP500 to the PC. The images can be sent either in RAW, BMP or JPEG format. The maximum image resolution is 400 dpi and 8 bit gray scaled.

Visible Light:
Images taken with visible light will show the passport in the same manner as the human eye sees it. Security specific details will not be displayed.

Infrared Light:
IR light is used to hide the background textures on passports. IR illumination is mainly used for MRZ reading. In some cases a number of additional security information will be visible.

3. HP500 Interfaces and Power Connector

a) USB 2.0 Interface

The HP500 supports USB 2.0 Hi-Speed communication between the DESKO device and Host PC. In addition a USB “B” connector is mounted on the rear. For using the USB 2.0 interface the appropriate software must be installed on the PC. It is recommended to use the USB 2.0 interface for fast RFID ePassport and image data transfer.

b) Power Connector

For connecting the DESKO HP500 5.0V DC power supply a 2 pin DC-Jack is mounted on the rear. It is recommended to use only the DESKO power supply for a reliable operation.

c) 6 Pin Indicator Connector

To the 6 pin indicator connector (feedback connector) on the rear two external LED’s and a buzzer can be connected. Each of the two LED output can drive 50mA at 5V. An external resistor in series to the LED’s is required. The buzzer output can drive 50mA at 5V. The buzzer output pin is set to a continuous high if the buzzer should beep (no PWM signal supported).

d) Technical Interface Description

Power Connector	2 pin DC – Jack (MOLEX 70553-0001)	Only for DESKO HP500 5V power supply
USB Connector	USB “B” Connector	USB 2.0 Hi-Speed communication between HP500 and Host PC
Indicator Connector	6 Pin Connector (MOLEX 70553-0005)	Feedback Interface where LED’s and a Buzzer can be connected

4. HP500 Installation

a) USB Installation

A Host PC with USB 2.0 High Speed interface is required

- Turn off your Host PC
- Connect the DESKO HP500 power supply with the HP500
- Connect the HP500 with the HOST PC via the USB2.0 cable
- Turn on the HP500 and Host PC.

b) Software Installation

Install the delivered software package ("setup.exe") while your HP500e UV is NOT connected.

Start "setup.exe" and follow the instructions on the screen. All drivers and software will be installed to your hard disk.

Plug your HP500e UV via USB to your PC and switch on the device. The standard windows driver installation screen will pop up. Choose "advanced" where you can search for the drivers and select the directory where you have previously installed the drivers.

You will find the API, documentation and sample application on your hard disk where you have installed the software to or via the start menu "Start -> Programs -> DESKO HP500e Version 2.0".

5. Using the HP500

a) Recommended Use

After successfully installing the HP500 and compatible application software (i.e. DESKO Full-Page Passport Viewer 2.0) the scanner is ready to use.

For best image results, make sure to use the HP500 with its top cover.

The scanner will also work without top cover. Therefore it is possible to partly scan documents which are larger than the scanning window (i.e. Visa documents). The cover can be removed easily by lifting it uprightly. However with the cover not mounted any light sources around the scanner (i.e. office illumination) effect the scanning results.

A successful MRZ recognition can only be done if the document faces downwards with its OCR characters to the camera array and it is very important that the document is placed planar on the scanning window. The scanner will find any Machine Readable Zones within the scanning window, no matter whether they are orientated parallel to the scanning window or not.

However for fastest MRZ data output, it is recommended to orientate the MRZ parallel to the rear edge of the scanner and to put the document's MRZ as close to the rear front as possible.

b) Using the HP500 with DESKO Half-Page Passport Viewer 2.0

After starting the HP500 Demo Software place the document facing downwards to the scan window and a document transaction will be started. On the DESKO Demo Software the MRZ data will be displayed and the RFID data including the picture stored on the RFID chip will be displayed.

After a confirmed or rejected transaction the HP500 provides a feedback:
The confirmed or rejected transaction is indicated via the HP500 software. An audible and visible feedback from the HP500 device can be configured via the HP500 software.

6. Service

a) Maintenance

In general, our products are maintenance free; however if there is a failure or if you require any technical assistance, please do not hesitate to contact our support team. For contact details kindly have a look at page 12.

b) Cleaning

In order to clean the scanning window it is possible to remove the top cover of the device. The top cover is fixed via magnets. To remove the cover, lift it uprightly.

Please use a window cleaner (i.e. ethyl alcohol) for best cleaning results.

The window should only be cleaned as and when required (i.e. when window is spotted).

It is not necessary to clean the camera array or any internal parts of the device.

Please note, after opening the device no guarantee can be claimed!

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7. Technical Data

Electrical Specification:

Supply Voltage:	5.0V DC ±5%
Supply Current:	operating 1.25A, max 1.6A
Scan Window:	50mm (1.97in) x 130 mm (5.12in)
Resolution:	400 dpi 8 bit gray scaled
Light Sources:	Infrared (IR 850nm) Visual light white (colour temperature 5600K)
Document Reading:	ICAO 9303 conform documents
RFID Reading:	ISO 14443A/B, ICAO 9303 and ISO 7816 standards including US-passports.
Operating temperature:	0°C to +50°C (32°F to 122°F)
Storage temperature:	-20°C to +60°C (-4°F to 140°F)
Humidity:	0 to 95% non-condensing
MTBF:	180.000 h

Housing Specifications:

Dimensions overall:	Length:	225mm (8.86in)
	Width:	210mm (8.27in)
	Height:	32mm (1.26in) front 55mm (2.17in) rear
Weight:	0.65kg	

8. Support

a) Failure Finding

Failure:	Solution:
Buzzer beep three time at power on	A failure at power on self test was found. The HP500 should not be used.
Buzzer does not beep at power on	Check if power supply is connected
No USB installation procedure starts	Connect the Host PC and HP500 via the USB 2.0 Cable. Switch the HP500 Power Switch “ON”.
No MRZ data received	Check if USB cable is connected toe the Host PC
Software can not connect the device	Check if USB cable is connected toe the Host PC

b) Contact Details

If you require any further information please do not hesitate to contact us directly.

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95448 Bayreuth
Germany

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Fax: +49 (0) 921 – 79 2 79 14

Mail: support@desko.de
Web: www.desko.de

c) Warranty

Warranty Period:

24 months from date of shipment ex DESKO Germany
Relevant for start of warranty: date of shipment note and Serial Number.

Warranty Includes:

This warranty covers product defects that occur during correct use in an airport or office environment. The warranty covers only defects in materials and/or workmanship, labor and the cost of parts for the repair or replacement of the product at DESKO sole option. Also covered are electronic failures that can be traced as manufacturing defects or -failures. Failing materials that can be traced as manufacturing defects or construction failures are also covered by this warranty.

No Warranty for:

Defects and damages resulting from improper use, e.g. drop- and fluid damages (coffee, coke etc.), dirt and transportation damages due to improper packing for return shipment to DESKO. Warranty does not apply to normal wear and tear.

Return to DESKO for Repair:

Free domicile DESKO GmbH, Bayreuth (customer bring-in-service).

Return to Customer after Repair:

Free of charge in case of warranty repair. Ex Works DESKO Germany in case of out-of-warranty repair (freight charges prepaid and add).

Repair Period (from date of receipt):

3 - 4 Weeks.

Invoicing of Repair Costs:

If there has no repair lump sum been agreed upon, all repair costs up to a value of EUR 200 will be invoiced to the customer as occurred. For repair costs of over EUR 200 a repair cost estimate will be provided to the customer.

Repair Cost Estimate:

Only for Repair Values over EUR 200

c) RMA Procedure

You can create a Return Material Authorization (RMA) Number on the DESKO website. Please got to www.desko.de and pick the After-Sales-Support site.

Or use this link to get directly to the RMA form:
http://www.desko.de/english/support/reparaturanfrage_formular.php

Please enter the type of product as well as the serial number of each defective unit. If already available, please also mention shipment details (tracking number etc.).

After filling out the form you will immediately get a RMA Number and receive a confirmation mail.

We kindly ask you to include a damage report in your shipment papers. If you wish to receive a damage report form, do not hesitate to contact our support.

Please note that any information you can give us in advanced (damage reports, failure descriptions, shipment tracking numbers etc.) might be helpful and could shorten the meantime to repair.

If you have any questions concerning your repair or its status, our support team will be happy to provide any assistance. Please always refer to your RMA Number!

9. FCC Statement

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interferences, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Section 15.21 Information to user

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Section 15.105 (b)

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

9.1 CI (Canada Industry) Statement

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

Operation is subject to the two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

9.2 RFID500 Mounting

The RFID500 exists of two PCB'S, the main PCB and the antennae PCB. The antennae PCB is mounted inside the top part of housing and connected via flat ribbon cable to the main RFID500 PCB. The RFID500 main PCB is mounted on the bottom plate next to the HP500 controller PCB. The connection between HP500 controller PCB and the RFID500 main PCB is realised via USB connection. A ferrite core is added to the USB cable and the ground and shield of both PCB is connected together extensive.

9.3 Name Plate Positions

The HP500 and the RFID500 module have different name plates. The name plate for the HP500 is placed on the bottom of the housing. The RFID500 name plate is placed on the rear of the RFID500 main PCB.