Full page passport/document reader
Regula model 70X4M

Full page passport reader with no moving parts inside.
Automatic reading and authenticity verification of passports, IDs, visas, driver’s licenses and other identification documents.
Optical character recognition, reading of barcodes, RFID and SmartCard chips.

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A small-sized reader for desktop use. Hard plastic body (IP54). The device is connected to a PC via a USB cable. No moving parts. Reliable, convenient and easy-to-use.

The device allows capturing images in white, infrared, ultraviolet and coaxial lights. Certain models are equipped with modules for reading RFID chips and smart cards. The device is supplied with software development kit (SDK) for easy integration into existing end-user systems.

<table>
<thead>
<tr>
<th>Functionality</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7004M.100</td>
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<tr>
<td>Optical reader light sources</td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>+</td>
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<tr>
<td>Infrared 870 nm; optionally: 950 nm</td>
<td>+</td>
</tr>
<tr>
<td>Ultraviolet 365 nm</td>
<td>+</td>
</tr>
<tr>
<td>Coaxial white</td>
<td>+</td>
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<tr>
<td>Reader of radio frequency identification devices (RFID)</td>
<td>+</td>
</tr>
<tr>
<td>Smart card reader</td>
<td></td>
</tr>
</tbody>
</table>

**Optical reader**
- Scanning area, mm — 90×130: full passport page
- Video sensor
  - type — CMOS
  - colour depth — RGB
  - imaging, bit — 24
  - number of megapixels — 3,1:
    - resolution, ppi — 400
    - frame size, pixels — 2048×1536
  - number of megapixels — 5:
    - resolution, ppi — 500
    - frame size, pixels — 2592×1944

**Reader of radio frequency identification devices (RFID) for models Regula 7024M.XXX, 7034M.XXX**
- Supported standards — ISO 14443: type A and B
- Data exchange rate, Kbaud — 106, 212, 424, 848
- Reading an RFID tag regardless of its position in the document
- Anti-collision: reading an RFID tag according to the MRZ

**Smart card reader for model 7034M.XXX**
- Supported standards — ISO/IEC 7816-1, -2, -3, -4; EMV2000 4.1, Level 1
- Data exchange rate, Kbaud — 2–500
- Smart card type — asynchronous, T = 0 and T = 1

**Device technical specifications**
- Overall dimensions (DxWxH), mm — 176×160×100
- Weight, not more than, kg — 1,8
- Power supply from USB port, V — 5
- Power consumption, Watt — 2,5

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## Functionality

### Document image capture and processing

| Document formats | • ID-1 (identity card)  

- • ID-2 (passport card, visa)  

- • ID-3 (passport)  

- • other document formats up to 90×130 mm |

| Scanning process | • document detection sensor  

- • automatic scanning after document detection  

- • elimination of glare from laminate and holograms for white and infrared illumination  

- • compensation of external light hitting during image capture in UV light (Smart UV)  

- • automatic intensity selection of UV illumination for a certain document type  

- • search and cropping of a document image from a received image |

### Machine readable zone (MRZ)

| Supported MRZ formats | • in conformity with ICAO 9303:  

- — 44×2  

- — 30×3  

- — 36×2  

- • support of special MRZ data structure for documents of certain countries |

| Features | • search for the MRZ along the whole document image  

- • MRZ recognition in infrared and white light  

- • control of check digits and data structure in conformity with the requirements of ICAO 9303 and BSI TR-03105 Part 5.1  

- • evaluation of MRZ quality specifications in conformity with ICAO 9303, ISO 7501, 1831, 1073-2 standards. |

### Barcodes

| Supported formats | • 1D: Codabar, Code39 (+extended), Code93, Code128, EAN-8, EAN-13, IATA 2 of 5 (Airline), Interleaved 2 of 5 (ITF), Matrix 2 of 5, STF (Industrial), UPC-A, UPC-E  

- • 2D: PDF417, Aztec Code, QR Code |

### Automatic document type recognition

| Order of document type recognition | • Country→Type→Series |

| Features | • receiving a document template from the SDK database containing the following information:  

- — text and graphic fields position  

- — availability of barcodes and security features  

- — authenticity verification and its parameters  

- — RFID-chip availability  

- — availability of additional document pages  


- • processing of the received document images in compliance with the sample, including document image rotation by the angle given in the sample. |
### Graphic fields processing

**Types of graphic fields**
- portrait of the document holder
- signature
- barcode
- fingerprint, etc.

**Features**
- cropping and displaying graphic fields as separate images in compliance with the sample of the corresponding document
- automatic searching of faces on the document image and cropping the document holder portrait if the document type is not recognized
- document image rotation according to the document holder portrait position

### OCR of the visual zone

**Recognition of character sets**
- Central European and Eastern European Latin (1250)
- Cyrillic (1251)
- Western European Latin (1252)
- Greek (1253)
- Turkish (1254)
- Baltic (1257)
- other fonts of any size

**Features**
- dictionary support (name, surname, address, country, etc.)
- automatic text division into separate fields (e.g. dividing the address into postal code, country, state, etc).
- recognition of dates with complex formats
- recognition of characters from different character sets in one line

### RFID SDK

**Supported RFID-chip standards**
- ISO/IEC 14443-2 (type A and B)
- ISO/IEC 14443-3 (MIFARE® Classic Protocol)
- ISO/IEC 14443-4

**Data access modes**
- Direct
- BAC
- EAC
- PACE

**Authentication**
- active (AA)
- passive (PA)
- chip (CA v1, CA v2)
- terminal (TA v1, TA v2)

**Supported applications**
- ePassport (DG1–DG16)
- eID (DG1–DG21)
- eSign

**Certificate management**
- local storage
- receiving certificates online through the program interface
- Master List, CRL support

**Features**
- reading RFID chips with extended length support
- reading RFID chips in compliance with ICAO LDS 1.7, PKI 1.1 data formats
- certified by BSI TR-03105 Part 5.1, BSI TR-03105 Part 5.2
<table>
<thead>
<tr>
<th>Analysis and comparison of text data</th>
</tr>
</thead>
</table>
| **Document areas for cross-checking of the readout data** | • MRZ  
• VIZ  
• RFID-chip  
• barcode  
• contact chip (Smart Card) |
| **Verification** | • validity of any dates  
• authenticity of names and surnames according to lists of wordstops  
• zero numbers of sample documents |
| **Adjustment of formats and measuring units to those used in the user OS** | • date  
• weight  
• height, etc. |
| **Features** | • complete or partial comparison of fields  
• integration of data received from several document pages  
• calculated field support (age, etc).  
• transliteration of Latin characters in compliance with ICAO 9303 standards for comparison with the MRZ |
| **Authenticity verification** |
| **Operation available for any document** | • checking luminescence (UV Dull Paper) of:  
  — the form  
  — the MRZ area  
  — the portrait area  
• checking the MRZ print contrast in compliance with ICAO 9303 (IR B900 Ink) |
| **Operations available after document type recognition** | • checking image patterns in white, IR and UV light  
• checking luminescence of UV protection fibers  
• detection of false luminescence  
• checking photo embedding type: printing or attachment  
• checking IR Visibility of:  
  — elements of the form,  
  — text data,  
  — the photograph (main and additional)  
• detection of holograms/kinegrams (OVD), OVI  
• reading a luminescent text and comparing it with the data obtained from the MRZ and VIZ (OCR Security Text)  
• visualization of IPI (Invisible Personal Information)  
• checking retroreflective protection  
• checking barcode format |
| **Features** | • Checking operations are adjusted to documents with different degrees of wear and tear.  
• The choice of checking operations depends on security features available in a questioned document. |
| **Image formats** | • .BMP  
| | • .JPEG  
| | • .JPEG2000  
| | • .PNG  
| | • .TIFF  
| | • other image formats are possible on request  
| **Interoperability** | • comparison modules:  
| | — fingerprint images from RFID chip and external fingerprint scanner  
| | — face images from passport data page, RFID chip and live  
| **Software update (at least twice a year)** | • adding new functions and authenticity verification algorithms  
| | • adding new document templates into SDK database  
| **OS compatibility** | • Microsoft Windows XP (SP3), Windows 7 (x86, x64), Windows 8  
| **Drivers** | • Microsoft certified  
| **Features** | • simultaneous optical scanning and RFID chip reading  
| | • firmware upgrade via USB interface (automatic upgrade after installing new SDK version)  
| | • multilingual interface  

DATA DOCUMENT READOUT
TEXTUAL DATA READOUT

Barcode (personal data)

Invisible text (OCR Security text)

Machine Readable Zone (OCR MRZ)

Visual Inspection Zone (OCR VIZ)

RFID

DG1:

DG10

DG11

DG12
VISUALIZATION OF INVISIBLY EMBEDDED INFORMATION
(IPI — invisible personal information)
DOCUMENT AUTHENTICITY VERIFICATION
SECURITY ELEMENTS UNDER UV LIGHT
– CHECKING THE PAPER LUMINESCENCE UNDER UV LIGHT (UV DULL PAPER CHECK)

Detection of the full-page counterfeiting

Detection of MRZ counterfeiting

Detection of the photo replacement

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Detection of some characters counterfeiting in the MRZ

– CHECKING LUMINESCENCE OF SECURITY FIBERS OF SPECIFIED COLORS (UV SECURITY FIBERS)

– CHECKING LUMINESCENCE OF UV PATTERNS OF SPECIFIED COLORS (UV PATTERNS CHECK)
– Reading out the text luminescent under UV light and comparing it to the data from MRZ or VIZ (OCR security text)

– Checking the contrast of MRZ printing against DOC 9303 ICAO (IR B900 ink)

– Checking visibility or invisibility of certain form elements, document textual filling-in accuracy and the photo (IR visibility) under IR light
CROSS-VERIFICATION OF THE REPEATED TEXTUAL DATA RETRIEVED FROM VARIOUS SOURCES OF THE DOCUMENT

<table>
<thead>
<tr>
<th>Field Type</th>
<th>MRZ</th>
<th>Visual OCR</th>
<th>RFID-Chip</th>
<th>MRZ-Value</th>
<th>MRZ-Check</th>
<th>RFID-Value</th>
<th>RFID-Check</th>
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CHECKING THE PHOTO APPLICATION METHOD: PRINTED OR PASTED (PHOTO EMBEDDING TYPE)

OVI VERIFICATION:

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