



# Gemalto Passport Datapage

## Security, quality and innovation you can trust

High-security travel documents are taking on ever-greater importance with the introduction of new travel document standards, steadily growing travel numbers and rising expectations on the part of both the general public and authorities.

At the core of a trustworthy passport lies the datapage—the most important component of the document by virtue of the personal data it holds.

# Privacy protection to ensure trustworthy passports

The datapage is the most important component of a trustworthy passport because it holds the bearer's personal data. In today's climate of identity theft, government agencies and national printers have a keen interest in building relationships with global technology partners capable of delivering durability, security, innovation and performance. That's why it's crucial to partner with a vendor offering extensive experience and a global footprint in manufacturing.

## An experienced and trusted partner

Gemalto has 150 years of experience in security printing and passport booklet manufacturing, 30 years of experience in secure embedded software development, certification and personalization, issuance solutions and services, and over 20 years of experience in polycarbonate datapage production.

The company currently contributes to over 30 electronic passport programs around the world. More specifically, Gemalto has worked in partnership with the passport-issuing authorities of Algeria, Azerbaijan, Belgium, Ivory Coast, Estonia, Denmark, France, Korea, Latvia, Malta, Moldova, Morocco, Norway, Portugal, Singapore, South Africa, Sweden, Turkey and the United States.



In 2015, Trüb and Gemalto joined forces to create unmatched expertise for the public sector. Public authorities can now benefit from the combined strengths of both companies for a unique offering in secure travel documents.

This achievement reflects the continued trust of our customers and the leadership of Gemalto technologies, from end-to-end solutions to the supply of specific key components.

## Security

Gemalto offers a range of secure electronic components fully compliant with ICAO specifications, with a strong set of optical security features that are both easy to verify and difficult to reproduce. When designing security datapages, our main objective is always to achieve indisputably trusted authenticity. We do this by using technologies that make the passport exceptionally difficult to copy, falsify or counterfeit. We combine multiple technologies (optical, tactile) meeting the highest compliance standards achievable. We also use highly specialized manufacturing processes and technologically advanced materials with limited availability.

We focus on protecting both the document and the citizen's data. Security is built into the datapage design and manufacturing, as well as into the personalization process. We aim to duplicate the same elements (usually the bearer's photo and document number) within security features of varying security levels and using a range of techniques to reproduce all of them.



# Gemalto Datapage overview

## Datapage portfolio

The Gemalto Datapage portfolio of products suits configurations with the chip module in the cover or in the data-page:

MATERIAL	NAME	DESCRIPTION
Paper	Gemalto Paper Datapage	The paper datapage includes a range of printed security features such as multi-tone watermark, security thread and security fibers. A security laminate is usually applied to seal the personal data.
Polycarbonate	Gemalto Datapage 400	A very flexible polycarbonate datapage for ePassports. The microprocessor is embedded in the back or front cover of the passport.
Polycarbonate	Gemalto Datapage 600e	The world's thinnest polycarbonate datapage with integrated microprocessor module.
Polycarbonate	Gemalto Datapage 800e	A field-proven polycarbonate datapage with integrated microprocessor module

Gemalto Datapage can be supplied with or without a chip module, depending on customer preference and the passport design selected.

## Polycarbonate datapage for high-end security and durability

We offer polycarbonate datapages for the highest level of security and the use of innovative security measures combining electronic, optical and visual features. Made of 100% polycarbonate, Gemalto Datapage offers a long lifespan ensured by fused polycarbonate material with an integrated hinge and tamper-resistant laser engraving personalization. Built-in, leading-edge security features further reduce the risk of falsification.

We manufacture polycarbonate datapages for several customers, including the governments of Azerbaijan, Denmark, Hong Kong, Latvia, Norway, Singapore, South Africa and Sweden. High durability and resistance to fraud are the chief reasons why authorities have placed their trust in our technology



South Africa electronic passport integrates Swiss innovation

## Gemalto Hinge



Gemalto Hinge is durable and made of woven fabric, securely integrated into the polycarbonate body. It is irreversibly and securely attached to the datapage and booklet. Gemalto Hinge is highly robust and flexible; the booklet stays open and closes completely.

Gemalto Hinge leaves visible marks following any attempt to tamper with the booklet, providing the ultimate protection against attacks:

- > Removal of the datapage for integration into another booklet
- > Attempts to use the hinge to alter document holder data

Gemalto Hinge offers innovative security features like VisiFab PRINT (printed fabric visible under daylight or UV light) or VisiFab UV (fabric with interwoven fibers visible under UV light) that provide verifiable evidence of tampering.

Field-proven since 2006, Gemalto hinge has been deployed in Azerbaijan, the Czech Republic, Hong Kong, Lithuania, Macau, Malaysia, Montenegro, South Africa, Sudan and the African Union.

## Designed for excellence in laser engraving personalization

All datapage products are designed for high-quality personalization by means of true grayscale laser engraving with equipment from leading suppliers. Laser personalization enables strong protection against document falsification and fraud:

- > Laser-induced carbonization takes place inside the datapage body
- > Personalized tactile elements help to reveal unauthorized manipulation of overlays

## Strong security to win the fight against fraud



### Security features

- > Security printing features such as micro lettering, guilloche and rainbow printing
- > OVI® – Optically Variable Ink
- > DOVID – Diffractive Optically Variable Image Device
  - Embedded metallized Kinegram®
  - Embedded transparent Kinegram® or DID®
- > Optically variable elements:
  - LFI® – Latent Filter Image
  - Dynaprint® provides excellent protection for the document against reproduction and duplication by combining the CLI/MLI lens with customer-specific constant information. The image-changing effect becomes apparent when tilting the document from one angle to another.
- > IR and UV printing
- > Tactile micro-lettering and other surface elements
- > **Gemalto Window** is a visually attractive first-line security element. It can be incorporated as a standalone element or in combination with additional security features.
- > **Gemalto Window Lock** (see below)
- > **Gemalto True Window** (see below)
- > **Gemalto 3D Surface** (see below)

### Personalization features

- > True grayscale laser engraving
- > Color laser engraving
- > Tactile laser engraving
- > MLI/CLI based on lenticular structures
- > PhotoLock™ – integrated photo security element
- > Mechanical or laser perforation
- > Laser perforation of variable data (secondary image)
- > IPI™ – Invisible Personalized Information

### Mechanical features

- > Fused datapage Gemalto hinge for document robustness
- > Gemalto VisiFab Hinge – visible proof on binding if datapage is switched by fraudster
- > Highly flexible binding for user convenience
- > Encapsulated electronics with embedded chip module and wired antenna
- > Compliance with ISO/IEC 18745-1

### Production features

- > Designed for booklet production and personalization with all established manufacturing systems
- > Flat passport booklet owing to flexible binding
- > Single-step sewing with low wear on production tools



The Swedish polycarbonate datapage under UV light

# Six exciting innovations from Gemalto and Trüb

Extensive experience in manufacturing polycarbonate-based identity and travel documents has enabled Gemalto and Trüb to explore exciting new ways to increase their security and durability.

## 1. Gemalto Color in PC - Indisputable proof of identity now in high-definition color for cards and passports

The security printing industry has long endeavored to unite the benefits of laser-personalized polycarbonate ID with the detail and richness of color photography. Color photos protected with an overlay resulted in compromised card integrity, while personalization at the time of manufacturing made issuance entirely inflexible. Now Gemalto makes it possible to print a high-resolution color photo directly inside the card body using post-production technology.

Gemalto Color in PC is the first laser printing solution to deliver an unalterable color image combined with the high security and exceptional durability of polycarbonate.



## 2. Gemalto 3D surface - Authenticity you can see and feel

Surface relief structure is a specific lamination process that most often takes the form of a security pattern, such as guilloche etching. The surface relief can be seen when tilting the card and felt with fingertips. It can also be combined with personalization for increased security impact. Gemalto has further developed this elegant feature, enabling strong tactile effects close to the photo area and CLI/MLI and preventing photo substitution done by adding a thin overlay with a photo over the existing one.

### Gemalto 3D Surface

Embedded into the polycarbonate document's surface, Gemalto 3D Surface offers perceptible features such as surface embossing or braille, with unmatched accuracy.



### 3. Gemalto True Vision – Now you can see

Gemalto True Vision is a design and security element for polycarbonate documents. Engineered in Switzerland by Trüb, now part of Gemalto, Gemalto True Vision implements images invisible under normal daylight that turn into brilliant true-color images with excellent color reproduction at under 365 nm UV exposure. The high-resolution images comprise UV fluorescent inks with advanced color separation and half-tone printing.

Customer-specified true-color UV images can be integrated into the document design, such as the skyline of a city. Here, we see Macau at night.



Macau at night

### 4. Gemalto Window Lock - A new dimension in photo protection

Gemalto Window Lock prevents the bearer's portrait from being tampered with after issuance. This patented feature comprises a secondary portrait image known as a ghost image. It is personalized using a metallic foil by means of laser ablation, whereby the metallic foil is integrated into a window inside the polycarbonate card body.

#### Gemalto Window Lock benefits

- > Delivers unique inverse personalized ghost image stamped into metal foil and integrated into a transparent window
- > It is not possible to add further dark image information through subsequent laser personalization after it has been issued
- > Prevents simultaneous tampering of primary and secondary image
- > Generates high-resolution metal ablation personalization with standard laser engraving equipment
- > Creates an easy-to-verify first-line security feature



INSPIRATION EFFICIENCY  
VISION INNOVATION TECHNOLOGY

## 5. Gemalto Edge Sealer - At the cutting edge of document security

Gemalto Edge Sealer provides strong protection against delamination, tampering and cutting attempts. Laser-engraved marking on the polycarbonate datapage edge is performed using a specially designed machine. It is impossible to copy (using a photocopier or scanner) and very difficult to mimic or reproduce due to the special expertise and technology required. The markings are visible to the naked eye (Level 1 security feature) and details can be verified with a magnifying glass (Level 2 security feature).



## 6. Gemalto Datapage 600e - The world's thinnest datapage with a chip



Gemalto manufactures the world's thinnest polycarbonate datapage with integrated electronics. With a thickness close to 600 micrometers, the datapage, designed in Switzerland by Trüb, is thinner than other state-of-the-art products and significantly thinner than the maximum value of 900 micrometers specified by the ICAO.

### Highly flexible datapage body

Gemalto Datapage 600e is characterized by unsurpassed mechanical flexibility. Accordingly, passport booklets with a datapage 600e also prove to be very flexible in mechanical terms. Gemalto datapage 600e construction is based on a dedicated multilayer polycarbonate structure with an embedded state-of-the-art chip module with reduced thickness.

### Superior passport handling characteristics

Document handling characteristics depend, among other things, on the properties of the polycarbonate document body and the hinge used for binding the datapage with the booklet. The hinge construction of Gemalto's flexible datapages is designed to keep up with a high frequency of usage. As a result, the passport booklet stays open when presented to border control officers and remains flat after closing. Document bearers and border control officers experience superior booklet handling qualities, such as:

- > Unsurpassed datapage mechanical flexibility
- > Mechanically flexible passport booklet
- > Paper-like opening and closing of the booklets
- > Robust and durable travel document





## Digital security

Gemalto Datapage 600e and 800e contain an embedded chip module featuring Gemalto eTravel, our ICAO-compliant secure embedded software, which offers the highest level of performance and interoperability in the market.

### **Security, interoperability and performance**

The secure embedded software must strike a perfect balance between security, interoperability and performance. Gemalto's in-house developed embedded software has a strong set of Common Criteria Evaluation ratings (EAL 5+ for SAC and EAC) and supports a wide range of algorithms and long key lengths. Gemalto eTravel is one of the fastest products on the market, according to recent international test sessions, where it is 20% faster than the average reading time. The main interest of performance is faster personalization at time of issuance and faster verification at time of border crossing. It is also among the most interoperable products. No issues have been reported to date by the 30 customers who have used our products for the last decade.

### **A continually upgraded platform for increasingly enhanced performance**

Gemalto's secure embedded software is available on several silicon platforms, offering interchangeable microprocessor sources for guaranteed delivery, transparent at personalization and at usage level.

Chip platforms are upgraded on a regular basis, with performance improvement and constant security enhancement such as improved mechanism for antieavesdropping. Gemalto's participation in standard bodies enables to rapidly integrate the latest technologies, such as SAC and the forthcoming LDS2 for speedy time-to-market, thus providing you the latest products at the earliest opportunity with the lowest risk.

Gemalto has been delivering its secure embedded software to 30 national ePassport programs.

# Unique designs that bring out the best of security and creativity



At Gemalto, we believe in taking a comprehensive approach to security. That's why we strive to provide secure, durable and innovative solutions. Our pursuit of excellence in security is rivaled only by our creativity—a unique combination that we believe can lead to superior results.

We offer extensive experience and support enabling our customers to meet their design expectations for distinctive passports as secure as they are attractive.

Collaboration with our customers lies at the heart of our process. We're proud to have succeeded in designing some of the most secure and attractive passports to appear in recent years.

We believe in incorporating both technological expertise and creativity into our value chain.

We help our customers deliver unique travel documents that become works of art and symbols of pride in the hands of millions.

## Fusing together security and design, the Malaysian passport is a work of art

A key component of the new generation of Malaysian ePassports is the polycarbonate datapage supplied by Gemalto. The datapage meets the highest demands for security and complies fully with current ICAO standards.

The new polycarbonate datapage features a variety of built-in security elements including groundbreaking true-color UV security elements based on Gemalto's innovative Gemalto True Vision solution.

It offers high-resolution UV images with a keen sheen and outstanding color reproduction for images like the spectacular skyline of Kuala Lumpur. It expands new design possibilities and protects the document against duplication and reproduction.



*Kuala Lumpur at night*

SECURITY      CREATIVITY  
PRIDE DESIGN PASSION



## About Gemalto and Trüb

Gemalto is the world leader in digital security, with 2018 revenues of €3 billion.

In the public sector, Gemalto provides secure documents, robust identity solutions and services for governments, national printers and integrators serving the needs of citizens. The company's products and solutions are deployed in more than 100 government programs worldwide.

As pioneers in polycarbonate technology, Gemalto and Trüb are now joining forces to offer unparalleled experience and expert knowledge in this area.

Created in 1859, Trüb is synonymous with quality, precision and security for high-end polycarbonate documents. Trüb is also known for its innovation in unique security elements, designed in Switzerland by its talented engineers.



## About Gemalto

Gemalto, a Thales company, is a global leader in digital security, bringing trust to an increasingly connected world. We design and deliver a wide range of products, software and services based on two core technologies: digital identification and data protection.

Our solutions are used by more than 30,000 businesses and governments in 180 countries enabling them to deliver secure digital services for billions of individuals and things. Our technology is at the heart of modern life, from payment to enterprise security and the Internet of Things.

We have built a unique portfolio of technology and expertise including physical and digital identity credentials, multiple methods of authentication – including biometrics – and IoT connectivity as well as data encryption and cloud service protection. Together, these technologies help organizations protect the entire digital service lifecycle from sign-up to sign-in and account deletion with data privacy managed throughout.

Gemalto is part of the Thales group, a €19bn international organization with more than 80,000 employees in 68 countries worldwide.

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