

# L-1's Automated Border Control Solution for EasyPASS

Quick and secure border control with biometric-enabled passports and interlock systems

## Introduction

“Do you have an ePassport?” the lady smiles from a poster in the transit area of the Frankfurt airport. She invites the thousands of travellers flocking past: “Then make use of the advantages of EasyPASS!” Those who follow this suggestion will experience a quick and comfortable border control process: EasyPASS is the German Federal Police’s new biometric interlock system with face recognition which allows automatic, “self-service” border crossing for ePassport holders.

EasyPASS is a pilot project of the German Ministry of the Interior. Its objective is to explore the possibilities of biometric border control by means of ePassports and to help to optimize the related procedures. If successful, all airport border control stations of the Federal Police will be equipped with the new interlock systems.



## The Challenge: Increasing Passenger Volumes

Through 2020, the number of travellers through airports will rise by at least twenty-five percent. Human border control resources, however, are limited throughout the world, and room for further airport control stations is scarce and expensive. Consequently, queues will get longer and longer, to the dismay of both travellers and airport employees. In order to face this problem, the International Civil Aviation Organization (ICAO), started to refine the concept for biometric passports to automate the control procedure. In 2003, the first global standard for electronic passports, or ePassports, was issued.



The European Union was quick to react. In 2005, several member states introduced European ePassports.



Biometric interlock systems offered additional benefits: Instead of queuing in front of manual inspection stations, ePassport holders now may pass via a “self-service” process. EasyPASS in Frankfurt began by offering four parallel lines and is one of the first Automated Border Control (ABC) projects of its kind. The local Federal Police is proud to offer a particularly comfortable and quick service to the travellers.

## The Experience

This is how EasyPASS works from a passenger's point of view: The ePassport is opened and positioned on top of a reading device, then the first door opens and invites the user to enter the interlock. Once the user has entered, the passenger's face is registered by a camera within a few seconds and biometrically matched with the photograph read from the ePassport. The second door swings open, and the user is permitted access. Personal contact with a border control official is no longer required.

"It works just great," says Erika Steger, a Dutch tourist at Terminal 1. "Just take a look over there - I would have had to wait at least half an hour in the queue in front of the manual control. Now I will get home much sooner."

During the procedure, monitors near the passport readers and close to the camera show informative icons and live images which easily guide the passenger through the process. As hardly any of the travellers are familiar with the use of biometric systems, the design of L-1's solution paid special attention to intuitive user guidance. The visual information is accompanied by subtle acoustic signals. A sophisticated sound design offers additional support and guidance for the passenger.

L-1 includes a unique feature which manages to overcome a well-known problem of face recognition in access control appliances: How can you make inexperienced users look towards the camera? High-performance biometric matching requires frontal images for comparison to the photographs – pictures rotated sideways or taken from too far away or too close cannot be used. L-1 found a both elegant and effective solution for this problem: The camera is positioned directly in front of the passenger in the interlock – it is integrated into the exit swing door. This means that the traveller will inevitably look directly into the camera to exit the interlock.

In the rare case where a match is not made, the Federal Police will assist: The non-matching of the images is indicated on a control monitor, an official will open the interlock by means of a remote control, and the person is lead to the standard manual control.

## The Concept

In the background and unnoticed by the traveller, numerous security systems are running during the process. The harmonized European border management regulations, the so-called “Schengen Borders Code”, require a verification that the respective traveller is indeed entitled to cross the border. For this purpose, the validity and authenticity of the ePassport are verified and authenticated on the basis of its digitally stored certificates and the optical security features. In the standard version, this task is carried out by the ePassport reader B5000-SC, a device that is optimized for self-service operation and has experience in many other applications.



The personal and passport data is then matched against wanted persons lists via the police-owned network. The same network is used to verify the passport certificates, thus enabling reliable detection of stolen or manipulated passports. If the search produces a hit, all relevant information is immediately displayed on the supervising official’s monitor at the border control station.

Another scenario concerns passport abuse, i.e. the use of another person’s passport by a look-alike. In such cases, the biometric face comparison is activated. Modern face recognition algorithms such as L-1 Facelt® G8 are typically parameterized to a recognition accuracy excluding a confusion of identities with a probability of 99% or even 99.9%<sup>1</sup>.

The underlying concept of each biometric access control device always requires that people be separated – otherwise one person could pass through the biometric verification while another then took his or her place. Thanks to its interlock function, L-1 meets the most important separation requirement. There are different options to prevent several people from entering the interlock at the same time, from manual surveillance with or without additional cameras to fully-automated sensory capture by means of infrared procedures, which can be applied following an analysis of the respective required degree of protection.

<sup>1</sup>On account of the mathematic-physical properties of each biometric feature, a hundred-percent exclusion of any confusion would mean that nobody would be recognized anymore, not even the rightful holder, for his current face can never be hundred percent identical with his passport photograph. The statistical nature of every biometric recognition results from infinitesimal deviations which are always present but can be tolerated.

## Protection for Individuals

Not only must external borders be protected against illegal immigration, organized crime and international terrorism, but the integrity of each individual traveller and the protection of his or her legal interests are of the highest priority as well when L-1's ABC solutions are used. This includes the compliance with all applicable safety standards in international aviation and airports. Any injuries and hazards to passengers, also in cases of fire or panic, are to be excluded. L-1 fully complies with the relevant standards, including the new European machinery directive and the ICAO requirements for L-1's ABC. This solution serves to protect the individual – not only by preventing abstract dangers to internal safety, but specifically by preventing identity theft. A stolen ePassport cannot be used for illegal border crossing through L-1's ABC program.

L-1 and the operators pay specific attention to the requirements regarding the protection of personal data in order to ensure special protection for personal identities in every way. The Federal Commissioner for Data Protection in Germany, Peter Schaar, has accompanied the project EasyPASS in Frankfurt from the very beginning. In co-operation with Mr. Schaar, a data processing procedure that fully complies with the legal stipulations and excludes any abuse was agreed upon and established: All biometric and other data concerning the travellers are deleted immediately after the passage through the interlock systems. Exceptions are only permitted if offences are determined.

## A Global Solution

The Frankfurt airport was selected by the EasyPASS project as an installation site for one of the first ABC program given its central role as a European aviation hub. Travellers from all over Europe and all over the world pass through the Frankfurt airport, about 50 million a year. The interoperability of ePassports from all European countries is a particular point of emphasis, and the insights gained here are of crucial importance for authorities issuing ePassports in all the member states.

The ePassports are globally standardized by the ICAO<sup>2</sup> and the authentication and verification of passport holders are largely identical throughout the world.

L-1's solution increases security and minimizes queuing problems in spite of the increase in international travelling through airports.

“Do you have an ePassport?”

<sup>2</sup>ICAO 9303 is the relevant standard for ePassports.

## About L-1 Identity Solutions

L-1 Identity Solutions, Inc. (NYSE: ID), together with its portfolio of companies, offers a comprehensive set of products and solutions for protecting and securing personal identities and assets. Leveraging the industry's most advanced multi-modal biometric platform for finger, face and iris recognition, our solutions provide a circle of trust around all aspects of an identity and the credentials assigned to it -- including proofing, enrollment, issuance and usage. With the trust and confidence in individual identities provided by L-1 Identity Solutions, government entities, law enforcement and border management agencies, and commercial enterprises can better guard the public against global terrorism, crime and identity theft fostered by fraudulent identity. L-1 Identity Solutions is headquartered in Stamford, CT. For more information, visit [www.l1id.com](http://www.l1id.com).

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