

DERMALOG

DERMALOG AFIS

The world's fastest
matching - within a second



The World's Fastest Automated Fingerprint Identification System

The DERMALOG AFIS is our company's core product and the result of more than two decades of experience in the development of Automated Fingerprint Identification Systems. Now, it is an established product in different parts of the world and has been implemented in numerous large-scale mission-critical projects.

Making use of ongoing technical improvements DERMALOG has developed an identification system far ahead of its time. It has set the world record with more than 3.6 billion fingerprints within one second on a standard server without loss of accuracy. It has long since helped to revolutionize forensic fingerprint analysis, as well.

The DERMALOG AFIS runs on Microsoft Windows and Linux. Thus, unlike other manufactures, DERMALOG does not force users to depend on proprietary hardware.

SGS-TÜV Saar has acknowledged that the DERMALOG AFIS' combination of speed and accuracy is unique.

The DERMALOG AFIS meets the highest requirements of reliability and security. On top of that, operation is simple and intuitive.

Outstanding Features

- > World's fastest AFIS coding and matching while maintaining highest accuracy rates
- > Best performance in recognition rates
- > Outstanding low False Acceptance Rate (FAR) and False Rejection Rate (FRR)
- > AFIS for law enforcement and civilian identification
- > Database with tenprints (TP/4-4-2), palmprints (PP) and latent prints (LP)
- > Includes TP-TP, TP-UL or PP-ULP / LT-TP, LT-UL or LP-ULP searching
- > No proprietary hardware necessary as standard COTS hardware is used
- > Use of standard databases, such as Oracle
- > Runs on all hardware platforms and runs on Windows and Linux

"As the speed of fingerprint searching increases, the accuracy of the results is often reduced. But no loss in quality was observed with 'DERMALOG's next generation AFIS', despite its extremely high speed. And what is more: it uses standard hardware."

Günther Mull, CEO of DERMALOG Identification Systems

3.6 billion
fingerprints in one second

The world's fastest and most accurate fingerprint matching is offered by the "DERMALOG's next generation AFIS": **3,606,500,000 fingerprint matches per second** can be done on a single blade - world record.

- > Customizable workflow and GUI
- > Coding and matching of shape, global and local similarity checks, heuristics
- > Integration of digital photos and signatures
- > Expandable to multi-biometric identification systems (DERMABIS)
- > High usability, easy to integrate, outstanding performance, unique security
- > Available in multiple languages



Securing a Unique Identity: DERMALOG High Speed AFIS

DERMALOG's high speed AFIS provides a crucial contribution to identity fraud prevention. It prevents that persons try multiple registrations at the same institution. They are identified with their fingerprints which avoids multiple enrolments.

AFIS, representing DERMALOG's core product, is continuously improved in order to further guarantee reliable products: the algorithm to identify fingerprints in large scale biometric databases. As a result, the DERMALOG AFIS is unbeaten in performance of fingerprint matching, without any loss of accuracy.

In addition, DERMALOG's high speed AFIS reliably traces duplicates and 'ghosts' in documents such as driver's licenses, passports, gun licenses, voter registrations as well as in situations regarding pension payments or the localization of alimony payment deniers etc. The AFIS can be combined with face and iris recognition (ABIS).

Civil Services



- > Anti-drug agencies
- > Tax agencies
- > Social welfare
- > Pension funds
- > Elections
- > Anti-corruption agencies
- > National registration
- > Other government departments
- > Bank customers

Biometric Documents



- > National ID cards
- > ePassports
- > Drivers' licenses
- > Seafarers' cards
- > Civil servants' cards
- > Weapons licenses
- > Health insurance cards
- > Armed forces ID cards

Border Management



- > Border control
- > DERMALOG Biometric Gate
- > Visa management
- > ID cards



Effective Crime Solving: The DERMALOG Criminal AFIS

The DERMALOG Criminal AFIS provides comprehensive support for the investigation of crimes. It protects society from a great number of illegal activities. It is successfully employed by police departments, federal police and intelligence services as well as by military and judicial authorities around the world.

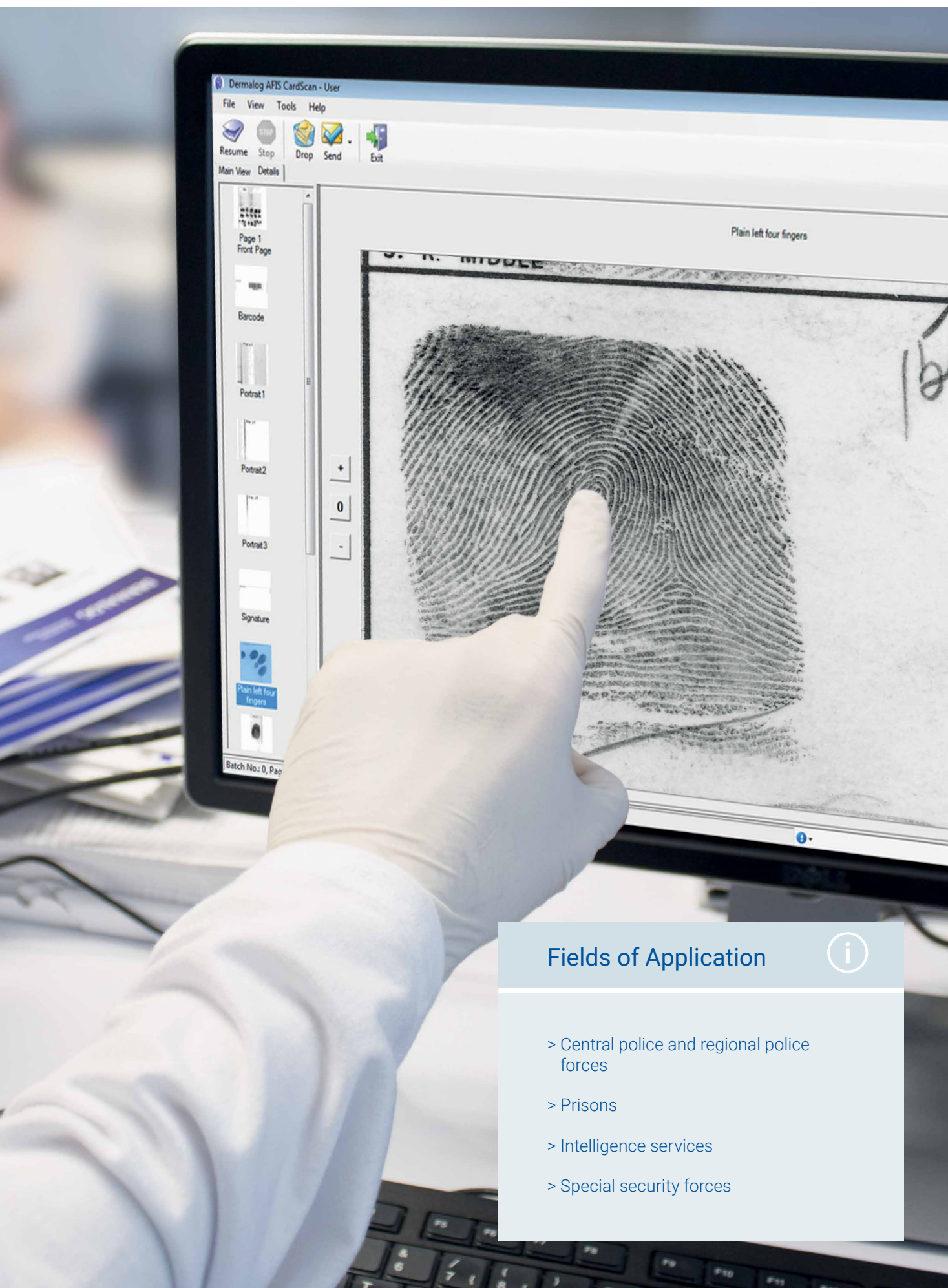
The use of fingerprint identification (dactyloscopy) and the corresponding biometric application (AFIS) is sanctioned by legal systems in many countries. The DERMALOG Criminal AFIS can be applied to convict criminals based on identified fingerprints found at a crime scene. In many countries this requires that at least twelve minutiae can be identified.

DERMALOG actively participates in numerous advisory committees of police organizations worldwide. The results of these efforts constantly contribute to the on-going advancement of the DERMALOG Criminal AFIS. They ensure that it remains a cutting-edge product. As a consequence, it will remain the perfect choice for a wide range of applications.

Product Features



- > State-of-the-art card scan application for capturing fingerprint slaps / cards as well as palmprints
- > Live scan application for capturing finger- and palmprints, photo and signature
- > Automatic image processing for the quality control of the captured prints
- > Forensic workstation for editing and visually enhancing latent finger- and palmprints
- > Verification application for managing biometric and demographic data with easy-to-handle candidate lists
- > Crime history/case management
- > Reporting and statistics
- > Print applications (e.g. certificate of good conduct)
- > Combinable with face recognition and iris recognition



Fields of Application



- > Central police and regional police forces
- > Prisons
- > Intelligence services
- > Special security forces

Our international DERMALOG AFIS Projects

Federative Republic of Brazil

High Speed AFIS and Criminal AFIS

Saudi Arabia

High Speed AFIS and Criminal AFIS

Kingdom of Brunei

High Speed AFIS

United States of Mexico

High Speed AFIS

Malaysia

High Speed AFIS

Republic of Maldives

High Speed AFIS

Republic of Indonesia

High Speed AFIS and Criminal AFIS

Republic of Slovakia

High Speed AFIS and Criminal AFIS

People's Republic of Bangladesh

High Speed AFIS and Criminal AFIS

Republic of Cape Verde

Criminal AFIS

Federal Republic of Nigeria

High Speed AFIS

Republic of Angola

Criminal AFIS

Republic of Sudan

High Speed AFIS and Criminal AFIS

Kingdom of Cambodia

High Speed AFIS

Republic of Iraq

High Speed AFIS

Republic of Ghana

High Speed AFIS

United Republic of Tanzania

High Speed AFIS

Netherlands

High Speed AFIS

Bolivarian Republic of Venezuela

High Speed AFIS

Republic of El Salvador


High Speed AFIS

Republic of the Union of Myanmar

High Speed AFIS / ABIS

 High Speed AFIS

 Criminal AFIS

 High Speed and Criminal AFIS





An Identification System as eGovernment Solution

In Brazil, DERMALOG has installed the largest civilian and criminal AFIS in South America. The successful system prevents false or double identities, e.g. regarding access to pension funds, social welfare and other social benefits. Biometric characteristics are put on national ID cards, securely identifying the holder as the legal person who is represented.



- > Database size – 9.8 million rolled tenprints
- > Tenprint/4-4-2 searches – under two seconds
- > Latent searches – 14 minutes average
- > 30% hit rate on latent prints
- > Solves 30% of all crime cases with latent prints
- > Prevents more than 15,000 cases of identity fraud
- > Live scanners in police cars (planned)

Specifications DERMALOG AFIS

Hardware platforms	Only COTS hardware is used. No proprietary hardware is required
AFIS workstation	Standard PCs and laptops
Operating systems	Microsoft Windows, Linux
Database	Standard RDBMS, e.g. Oracle
Software	DERMALOG AFIS workstation software packages with customizable workflows. DERMALOG AFIS server software packages with customizable workflows, interfaces and database
System Design	Modular and upgradeable, with local and remote stations
Live scanners	Various devices are available with optical scanning and chip reading features (PC connected or network connected); live scanners for palm prints are supported as well. The DERMALOG fingerprint scanner support spoof detection
Document scanner	Standard flatbed scanners with TWAIN interface (ADF supported)
Fingerprint/palmprint images	<ul style="list-style-type: none"> - 8-bit grayscale image (256 colors) - Image resolution between 200 DPI and 2500 DPI. A minimum of 500 DPI is recommended - Image dimensions between 96 and 5000 pixels in both x and y direction
Template formats	ANSI/INCITS 378:2004, ISO/IEC 19794 family (ISO/IEC 19794-1:2005, ISO/IEC 19794-2:2005, ISO/IEC 19794-4:2005, ISO/IEC 19794-5:2005, ISO/IEC 19794-6:2005) Minex MIN:A
Image compression	WSQ fingerprint compression standards set by FBI and conforming to NIST standards for fingerprint data exchange. As such, the DERMALOG system is open for future image and data exchange platforms with any other AFIS. Formats include JPEG and JPEG2000
Common Biometrics Exchange Formats Framework (CBEFF)	ANSI/INCITS 398, Common Biometric Exchange Formats Framework (CBEFF)
Interoperability	ANSI/NIST-ITL 1-2007 and ANSI/NIST-ITL 2-2008 with FBI EBTS 8.1, Interpol INT-I version 5, Prüm (2008/615/JHA)
Adaptability	The DERMALOG transformation engine is responsible for the translation of incoming and outgoing AFIS transactions. It is based on modules making it easy to extend the existing system to future standards. Hence, the DERMALOG system is open for future image and data exchange platforms with any other AFIS.
Other supported standards	ILO-SID-0002
Template size (coded Fingerprint Data)	256 Bytes up to 4 kBytes, depending on the application
Matching algorithm	<p>Combines four features:</p> <ul style="list-style-type: none"> - Shape - Global similarity checks - Local similarity checks - Heuristics to increase matching speed <p>It is completely invariant against arbitrary rotation or translation of compared fingerprints, very fast, accurate and robust against noise.</p>
Matching	1:N (one-to-many identification) search with a matching rate of over 129 million matches/sec on one standard 12 core server, 1:1 (one-to-one verification) search integrated
Types of searches	All variants of tenprint (TP) and 4-4-2, palmprint (PP) and latent prints (LP): TP-TP, TP-UL or PP-ULP, LT-TP, LT-UL, LP-ULP, or LP-PP Any combination (e.g. 2 fingers, 4 fingers) is supported.
Matching results	Results list/hit list with split-screen view and results printout, hit list adjustable
Storage capacity	Unlimited, depending on specific hardware configuration
Mugshots/photographs	Fully integrated according to ISO/IEC 19794-5

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