



IS YOUR DATA  
**SAFE?**

A PROVIDER OF WORLD-LEADING **TECHNOLOGY** AND **INTEGRATED ELECTRONICS**  
FOR **SMART CARDS** AND **TELECOMMUNICATION NETWORKS**



# CARDLAB WILL PROTECT YOU ANYWHERE, ANYTIME

A little bit guardian and a little bit magician, CardLab is challenging cybercrime with security solutions that are unique in the world.

CardLab is a world-leading provider of technology that, through its unique, patent-protected technology, creates high value for its customers.

BY 2021 CREDIT-CARD FRAUD WILL REACH

# \$32.96BN



## WELCOME TO THE FUTURE OF CYBERSECURITY

CardLab is the future of cybersecurity with its offline card security and online authentication services, tested and proven to be the world's most reliable answer to online hacking, card fraud, and identity theft.

### CARDLAB SOLUTIONS WILL SAVE YOU MONEY

Cybercrime is costing the issuers of cards and their customers money. In addition to the huge and ever-increasing costs of cybercrime to institutions and individuals, CardLab products save card issuers money – from card production to card adoption by end users.

Our manufacturing processes merge seamlessly with normal industrial processes, reducing production costs substantially.

Our cards fit your existing infrastructure, resulting in extraordinary savings in the implementation phase.

The level of card security is scalable to the precise level of security needed. You only pay for what you need.

End users already know how cards work. CardLab products employ the same usage patterns, which streamline adoption by end users.

## 2006–2014

By 2011, our four patented building blocks for smart cards were ready for customization: the Dynamic Magnetic Stripe, the Fingerprint Scanner, the SnapSwitch, and the RFID Jammer. Unfortunately, the production processes did not exist yet, so we had to develop them ourselves. For example, we discovered a way to grind chips to ultra-thin components, we developed paper-thin batteries, and invented our self-generating power source.

## 2014–2017

As the payment card market grew rapidly, we put our products through feasibility studies and prototyping. We built test platforms and established our own factories. We established production partnerships for initial production and formed subsidiaries in China, Hong Kong, and Thailand. All the while, we were proving ourselves as the leading technology provider for secure cards.

## 2017 ONWARDS

We ramped up production on the Jammer-, Mute-, and Bridge Cards. The Connected card platform passed its thorough test phase, along with its completely hosted multi-card platform. One important measure of our achievement is the acceptance we have received from the European Union, which has selected us to develop secure biometric cards with fingerprint authentication for secure access to critical infrastructure. Under the EU Horizon 2020 programme, we have been awarded an EU project grant for €0.9 million.

As large firms begin to understand the outstanding value that we are offering, our client list is growing fast.

## CARDLAB – WHO WE ARE

CardLab is a Danish company operating in the business-to-business segment, with our technology development team in Copenhagen, Denmark, and our production facilities in China and Thailand, in our factories and our partners' factories.

CardLab's work began in 2003 under another name. Since then, we have researched and developed our unique technology and are now sending it across the world, even as we continue to develop new technology and enhance existing technology.

# 50%

“Mag-stripe cards still have a strong-hold in the payment and loyalty card market, and still account for 50% of all cards types in circulation in 2016”

*Phil Sealy, ABI Research*



## UNIQUE INNOVATIVE SECURITY SOLUTIONS

### CARDLAB'S TECHNOLOGY IS UNIQUE

No one else comes close to duplicating the innovative security solutions to the exacting standards that CardLab has achieved.

Although others try to imitate CardLab's accomplishment, they can't because CardLab's levels of accuracy are beyond anything else available, now and in the foreseeable future. Everyone else is just playing catch-up.

### CARDLAB FIGHTING TOMORROW'S CYBERCRIME TODAY

Hackers are now concentrating their attacks on the telecommunication networks that serve critical infrastructure, hospitals, airports, banks, and caches of classified government information. If this is allowed to continue, the damage will be much more serious than simple financial losses.

CardLab has developed unique technology that helps protect networks from bank fraud, carding, identity theft, extortion, and theft of classified information.

## ANY CARD IS AT RISK

Skimming credit cards is very easy. Determined skimmers have only to equip themselves with a miniature scanner and a logging device, both of which are readily available online. The thief never touches you or even looks at you, yet the concealed electronic equipment skims the priceless information on your card. You have been robbed, and you may never even know it.

CardLab solutions are simple and convenient, except for anyone wanting to pick your electronic pocket. In less than 0.8 mm, CardLab packs advanced security that outwits the criminals who are stealing your money and compromising your security. CardLab lets your customers take control of their cards and personal data again, even if they are lost or stolen. CardLab's solutions protect any kind of card or passport.

- Bankcards
- Managed-access cards
- National identity cards
- Passports
- Travel cards and passes
- Frequent flyer cards
- Healthcare system identification
- Social security cards
- Loyalty cards

# A SOLID BASE OF BUILDING BLOCKS

CardLab's four building-block technologies offer secure, reliable, and durable solutions for every kind of card.



SNAP SWITCH



RFID JAMMER



DUAL DYNAMIC  
MAGSTRIPE



FINGERPRINT  
SENSOR

Here are the vulnerabilities of today's cards and computer networks and CardLab's unique and patented answers that will put CardLab between you and the cybercriminals.

The Challenges	CardLab Solutions
<b>Credit &amp; debit cards</b> <ul style="list-style-type: none"> <li>• Lost or stolen cards</li> <li>• Magstripe and contactless card skimming</li> <li>• Theft of static pin code</li> <li>• Periscope skimming of ATM machines</li> </ul>	<b>Credit card security</b> <ul style="list-style-type: none"> <li>✓ Fingerprint activation ensures stolen cards cannot be used</li> <li>✓ RFID Jammer Card prevents copying of contactless data</li> <li>✓ Dynamic token on magstripe prevents fraudulent use</li> <li>✓ Tokenized QuardCard renders copied data void</li> </ul>
<b>Online payments</b> <ul style="list-style-type: none"> <li>• Cyber attacks that copy data, card numbers, security codes, etc.</li> <li>• Lack of reliable and true buyer identification; chargeback fraud</li> <li>• Intrusive malware taking control of computers and smart phones</li> </ul>	<b>Secure online card payments</b> <ul style="list-style-type: none"> <li>✓ QuardCard activated by One Time Password for e-banking and e-government and dynamic CVV for e-commerce</li> <li>✓ QuardCard generates codes and keys offline in the card with no external access</li> </ul>
<b>Identity theft</b> <ul style="list-style-type: none"> <li>• Skimming of personal information on online media</li> <li>• Hacking of public and private databases with personal data.</li> <li>• Skimming of communication with personal data</li> </ul>	<b>Identity theft protection</b> <ul style="list-style-type: none"> <li>✓ QuardCard "System on card" (offline) with fingerprint authentication that safeguards personal data</li> <li>✓ All QuardCard transactions performed by keys or cryptograms and no personal data shown online</li> </ul>



**“WHAT CANNOT BE READ,  
CANNOT BE HACKED”**

## DEVELOPED FOR YOU...

CardLab is a one-stop shop with customized products that can take your security challenges from idea to full-volume production.

CardLab can develop custom security solutions for you, for example, if you are a card company wanting new products or a disruptive startup wanting to bring disruptive card products to market.

We are integration partners with Fingerprint Cards AB for fingerprint sensor integration into smart cards, and we can build a supply chain for customer production, including lamination in our own factory in Thailand.



## ...OR OFF THE SHELF

For most customers, CardLab's standard products can provide strong, trustworthy security by combining our four building-block technologies.

These include:

**Off-the-shelf cards for direct sale to consumer or through wholesalers**

- Mutecard direct customer sale and sale through wholesalers
- JammerCard to B2B customers

**Licensing of technology and OEM sales**

- Sale of technology licenses for all four building-block technologies to card companies and delivery of electronic modules
- Sale of Connected card hosted solution, including cards, to financial service firms
- A complete hosted multi-card platform available for sale to financial players

# Card\_Lab

POWERED CARD  
TECHNOLOGIES

CardLab is a world-leading technology supplier of integrated electronics for intelligent smart cards, including fingerprint authentication cards compliant with ISO 7810.

CardLab products are unique. They defeat skimmers, hackers, thieves, and electronic pickpockets. They have low implementation costs, work in existing infrastructure, and have great customer appeal.

CardLab has built a supply chain with leading engineers and manufacturers that is ready for mass production. Our own production capacity in China and Thailand covers such critical processes as dynamic magstripe and lamination.

CardLab has shown proof-of-concept with self-powered smart cards.

CardLab products are making card safety convenient and convenience safe.

CardLab is proud to announce that the Danish Market Maturation Fond (project BiOTPCard) has selected us to provide cards with embedded fingerprint-sensor technology for e-banking, e-commerce, and e-government.

Further, CardLab has been selected by the European Commission under the Horizon 2020 program (project 757096 GuardCard) to produce secure ISO 7810 (ID 1) cards for the protection of critical infrastructure.

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