

advant

advanced contactless smart card system



■ ■ ✓ power

Fully scalable – fully flexible

Key applications & standards



access



ticketing



payment



ISO



LEGIC RF
standard

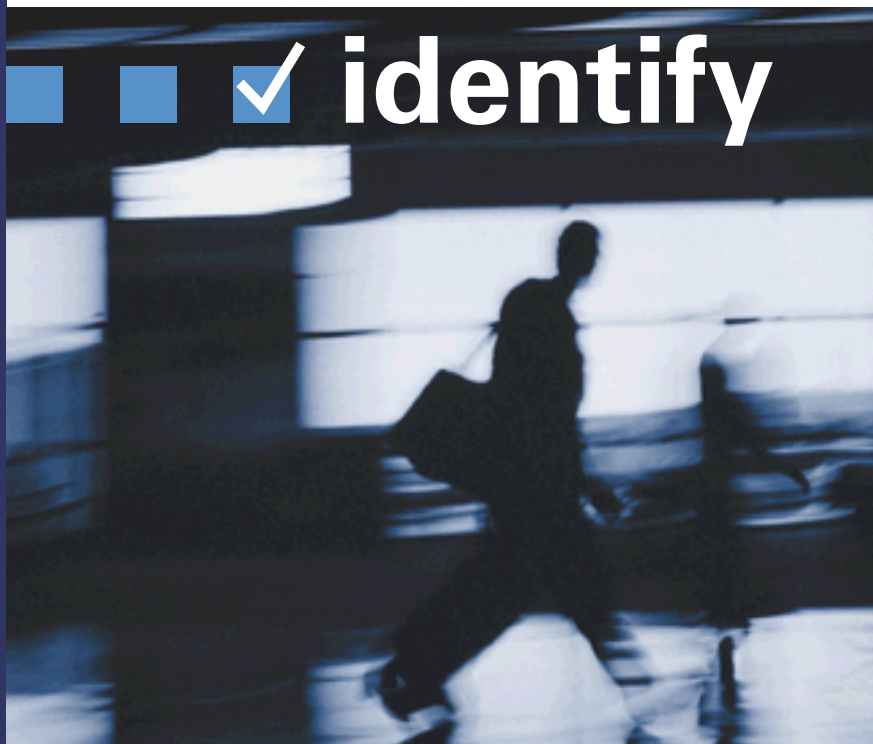


13.56
MHz
contactless
technology

The LEGIC advant product line has been developed to ideally support the design and realisation of access control and other person related service applications. It provides a maximum of security, scalability and cost-effective investment protection.

Because of its advanced features and compliance with ISO 15693, ISO 14443 and the LEGIC RF standard, the LEGIC advant product line is especially suitable for smart card projects, such as single- and multifunctional company or leisure cards. Its target applications include ticketing, government ID, general access control and high security solutions for converged access (incl. IT-access) and biometrics.

Benefits that matter



Additional target applications – single or multiapplications



time & attendance



biometrics



IT-access



identify



loyalty



collect data



parking



leisure



membership

1 Efficient and convenient application and reader design – convenient integration and network connectivity

The LEGIC advant product line supports simple and fast application integration by using its application protocols and flexible programmable format generator. Upgrades from other ID technologies like barcode, magnetic stripe or 125 kHz are easily realised.

Convenient hardware integration and network connectivity is supported through the included common host interfaces.

Application protocols:

- OMRON formats
- Wiegand formats
- BPA/L

Host interfaces:

- SPI
- RS232
- RS485

2 Your choice of industry standards and reading ranges

The LEGIC advant product line supports multiple industry standards giving you the choice between the following standards and respective reading ranges:

- ISO 15693

Read/write for vicinity standard applications with reading distance from proximity up to hands-free (70 cm and above*). Reads unique serial number of all ISO 15693 type transponders.

- ISO 14443 A

Read/write for proximity standard applications with reading distance of up to 10 cm. Reads unique serial number of all ISO 14443 A type transponders.

- LEGIC RF standard

Read/write of all LEGIC prime products as well as application standard formats on LEGIC smart from proximity up to hands-free distance of approximately 70 cm*.

* Max. reading range depends on requirements of national spectrum management authorities, antenna, reader application, transponder and surroundings.

Mixed standard operation

LEGIC advant modules can operate with mixed RF standards. Thus cards at ISO 15693, ISO 14443 and LEGIC RF standard can be handled simultaneously by one reader. This allows to run systems using credentials of varying RF standards. It offers seamless merging and migration of the issued cards.

Benefits that matter

Secure access



Secure e-payment



Ticketing – contactless leisure fun



3 Advanced high security – tailor-made for each application

LEGIC advant provides high security covering the data and applications in your contactless system all the way from the host to the storage of data on the transponder. This provides the right degree of protection in an open standard world.

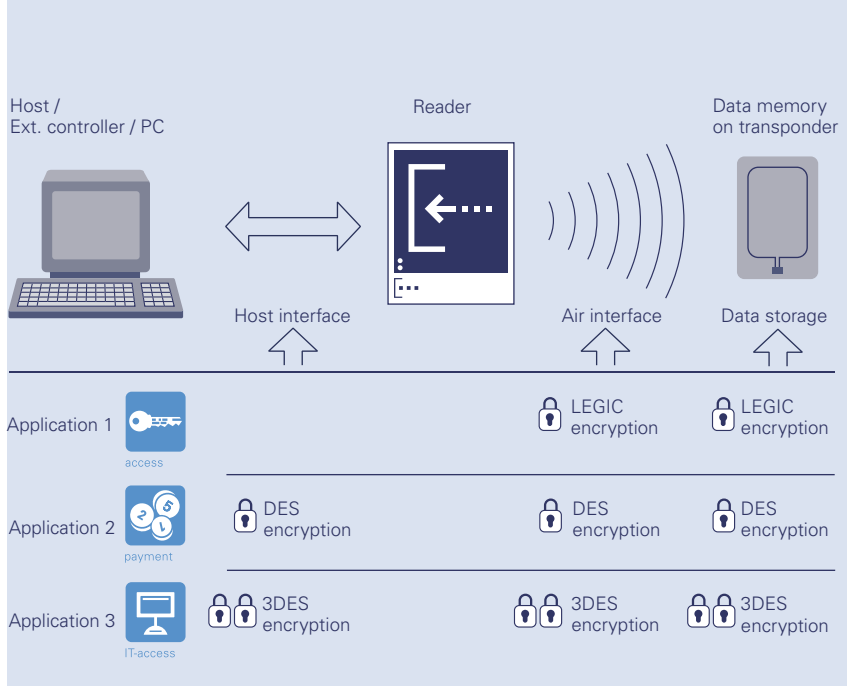
Security features include:

- unique serial numbers for transponders and reader modules
- mutual authentication
- advanced cryptographic data transmission and storage along complete data path from host to transponder
- user-definable read and write access protection
- secure reading and writing of data
- secure transponder unique serial card number verification

Configurable high-level encryption

Either LEGIC’s encryption standard or advanced high security encryption, based on the open industry standard algorithms DES / 3DES, can be enabled for each application and data path, providing strong protection for data and applications. This makes the product suitable for use in IT-access, high-value payment, biometrics or governmental solutions such as ID cards.

Example: three applications using different levels of encryption.



Benefits that matter

4 Powerful control and management of your system and installation

The LEGIC authorisation tokens provide you with powerful, unbreakable control over your card population, applications and the overall installation. The tokens come in a form of a physical credential and can be locked away.

LEGIC's highly proven Master-Token System Control (MTSC) authorisation system lets you design your security and control concept on a high level based on your own unique Master-Token. Its inheritance-based Automatic Key Manager organises the handling of the data access rights of each card, their individual applications and its readers according to your defined system structure.

5 Easy realised multiapplications

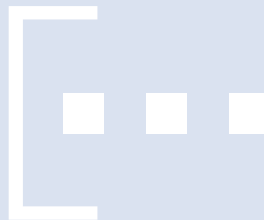
With LEGIC advant you can create multifunctional cards with up to 127 independent applications of various memory size on a single transponder.

Thanks to the variable memory allocation and the dynamic segment search functions, LEGIC allows easily realised multiapplication schemes with a high degree of flexibility. The dynamic multiapplication handling makes it simple to combine various applications of different type, memory size, supplier and ownership on a single transponder. This is particularly beneficial if additional applications have to be added to a transponder that is already in use.

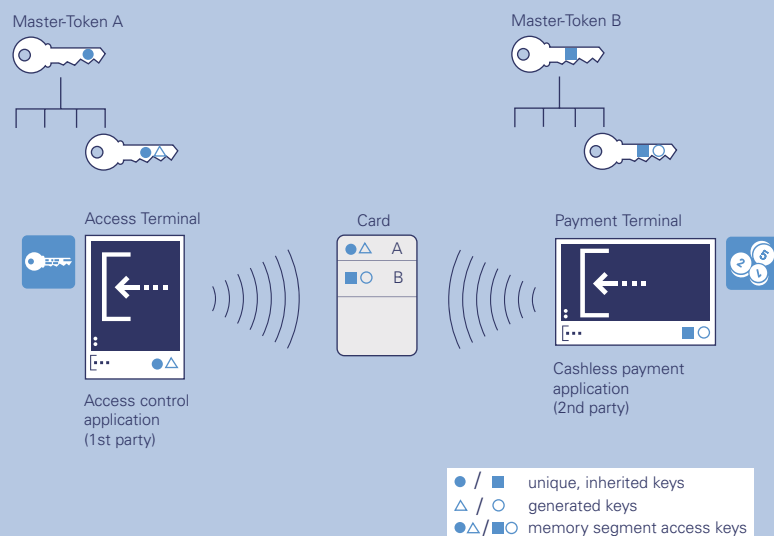


Business example: staff badges

Leading multinational corporations use the proven multi-functionality of LEGIC all-in-one cards: access control, time & attendance, payment, parking and many more. LEGIC's powerful control system makes its management easy to handle. One card is able to carry exactly the functionalities its bearer needs and you always keep control.



Master-Token System Control based authorisation



6 User-programmable universal reader module

Among the wide range of LEGIC advant quality products the integrated reader module SM-2570 is universally applicable. Due to the integrated RF circuit a fast, easy and cost efficient reader design is possible. With its user programmable on-chip application processor and its versatile peripheral support the SM-2570 allows easy-to-realise and compact solutions without the need for external processor components.

Unrivalled LEGIC advant[®] products

Modular reader products

LEGIC advant's cost-effective modular range of reader chip sets (SC) and the reader module (SM) allows you to easily expand functionality.



	SC-2140/C	SC-2240/C	SC-2560/C	SM-2570/C
Range*	up to 10 cm	up to 15 cm / LR**	up to 25 cm / LR**	up to 25 cm / LR**
RF interface	LEGIC RF standard ISO 14443 A	LEGIC RF standard ISO 15693	LEGIC RF standard ISO 15693 ISO 14443 A	LEGIC RF standard ISO 15693 ISO 14443 A
Host interfaces and protocols	SPI RS232 Wiegand OMRON (Clock & Data)	SPI RS232 Wiegand OMRON (Clock & Data)	SPI RS232 RS485 Wiegand OMRON (Clock & Data) BPA/L	SPI RS232 RS485 Wiegand OMRON (Clock & Data) BPA/L
Encryption	LEGIC encryption standard, DES, 3DES	LEGIC encryption standard, DES, 3DES	LEGIC encryption standard, DES, 3DES	LEGIC encryption standard, DES, 3DES
Initialisation function	–	–	Yes	Yes
Software download	–	–	Yes	Yes
Integrated RF circuit	–	–	–	Yes
Interface for keyboard, displays, ect.	–	–	–	Yes
User-programmable controller	–	–	–	Yes
Compatible transponders***	ATC...-MP.. MIM256, MIM1024	ATC...-MV.. MIM256, MIM1024	ATC...-MP, ATC...-MV MIM256, MIM1024	ATC...-MP, ATC...-MV MIM256, MIM1024
High-Level command library for Cash/Value handling, e.g. electronic purse	Yes, with SC-2140C	Yes, with SC-2240C	Yes, with SC-2560C	Yes, with SM-2570C

* Max. reading range depends on used RF standard, the requirements of national spectrum management authorities, reader application, antenna, transponder and surroundings.

** LR: suited for long range solutions – see information „Long Range Application“ below.

*** Supports MIM22 transponder

Long Range Application (LR)

To maximise user comfort LEGIC advant ISO 15693 transponders can be operated with reading ranges up to handsfree distances (max. 70 cm; resp. 120 cm in gate configuration) when using specific Long Range reader solutions.

LEGIC advant reader components serve as base to design custom specific long range reader solutions with an expanded reading range up to handsfree distance.

Unrivalled LEGIC advant[®] products

Choice of crypto transponder chips

The LEGIC advant product line offers you the choice between the ISO standard crypto transponder types:



	ATC512-MP	ATC2048-MP	ATC128-MV	ATC256-MV	ATC1024-MV
Memory size	512 Byte	2048 Byte	128 Byte	256 Byte	1024 Byte
ISO standard	ISO 14443 A	ISO 14443 A	ISO 15693	ISO 15693	ISO 15693
Range	up to 10 cm	up to 10 cm	70 cm	70 cm	70 cm
Cryptographic authentication	64 Bit	64 Bit	96 Bit	96 Bit	64 Bit
Max. of applications	34	123	8	16	59
Memory segmentation	dynamic	dynamic	dynamic	dynamic	dynamic
Application segment size	variable	variable	variable	variable	variable

Max. reading range depends on used RF standard, the requirements of national spectrum management authorities, reader application, antenna, transponder and surroundings. Memory size indications are nominal values. The effective max. number of applications is depending on the memory requirements of applied applications.

In addition to LEGIC RF standard transponder family MIM256, MIM1024.

System configuration tool

The LEGIC advant Configurator Software CSW-2000 supports the easy and rapid definition of LEGIC advant components for single and multiapplication schemes. The powerful tool lets the user define and integrate his application on a LEGIC transponder or combine it with other independent applications on one single LEGIC all-in-one card.

The configurator allows to comfortably define and configure the transponder data segments of your individual application, create corresponding Master-Tokens with respective access keys and authorization, combine your application data segments with other independent applications, or program LEGIC advant reader components.

The configurator's definition files can be ex- or imported and provide a standardized interface to collaborate with any third party, e.g. other LEGIC application providers, integrators, etc.



Development Kit

The LEGIC advant Development Kit DK-2000 supports the easy development of readers and application software. It is particularly useful to evaluate the technology and the rapid development of prototypes. It comes with a development board including SC-2560 and SM-2570 samples, reference readers, antenna, set of transponders and a CD-ROM with the Development Kit Software and related documentation.





Your benefits:

- Multi-standard compliant with ISO 15693, 14443 and LEGIC RF standard
- Choice of standards and reading ranges from proximity to hands-free
- Advanced high security for fraud protection
- Uncompromised control capabilities for cards, applications and installation
- Easy and cost-effective application and reader design
- Scalable functionality for your card
- Cost-efficiency through expandable functionality
- High investment protection
- Interoperability through high-level application standards

Key features:

- Multi-industry standard compliant (13.56 MHz read/write)
- Simultaneous mixed RF-standard operation (ISO 15693, 14443, LEGIC RF)
- Read/write range from proximity up to hands-free
- Advanced high security, DES / 3DES encryption
- Physical Master-Token System Control and Automatic Key Management
- Choice of state-of-the-art crypto transponders
- Built-in RF circuit on reader module
- Versatile application protocols and peripherals interface
- User programmable intelligent controller on reader module
- Download function for extensions and upgrades
- Easy realised multiapplications
- Cost-effective modular system

LEGIC advant – for single or multiapplications



access



parking



payment



ticketing



leisure



membership



time & attendance



biometrics



IT-access



identify



loyalty



collect data



all-in-one-card

RF standards



ISO



LEGIC RF standard



contactless technology

advant

 **LEGIC**[®]
advant innovation in ID technology

advanced contactless smart card system

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