

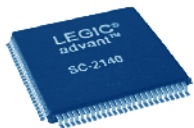
# advant

advanced contactless smart card system

**LEGIC**<sup>®</sup>  
advant innovation in ID technology



✓ Powerful flexibility for standard readers



LEGIC OS Controller  
SC-2140 / SC-2140C

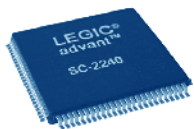


LEGIC RF chip

## Security Chip Set

### SC-2140/SC-2140C proximity

### SC-2240/SC-2240C vicinity



LEGIC OS Controller  
SC-2240 / SC-2240C



LEGIC RF chip

**The cost efficient and flexible solution for 13.56 MHz contactless smart card readers.**

The Security Chip Sets vicinity SC-2240 und SC-2240C\* support ISO 15693 while the Security Chip Sets proximity SC-2140 and SC-2140C\* support ISO 14443 A. All chip sets can be operated simultaneously with the LEGIC RF standard, ensuring backward compatibility with LEGIC prime.

\* Option SC-2140C and SC-2240C: incl. cash handling functions for e-payment solutions

The cost-efficient Chip Sets SC-2x40 consist of the LEGIC OS Controller and the LEGIC RF chip. Design-in is made easy due to the available reference design and the development kit, giving a high degree of design flexibility and comfort. The format generator enables seamless integration into present installations, supporting various protocols. Advanced high security features and various host interfaces offer a comprehensive base for economical and targeted single-ISO standard applications.

#### Standards



ISO



LEGIC RF  
standard



13.56  
MHz  
contactless  
technology

#### Typical use

- Single-ISO RF standard and cost-sensitive readers
- Low power applications
- Compact or mobile readers

#### Key applications



access



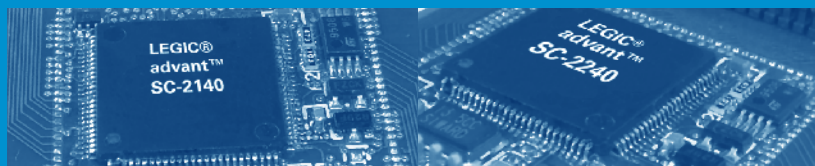
time &  
attendance



payment

#### Key features

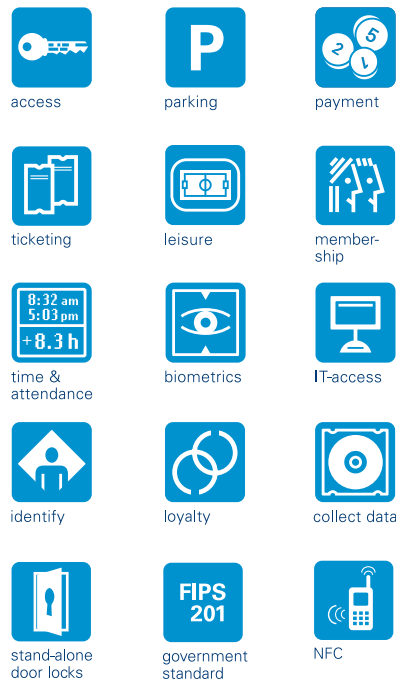
- ISO 14443 A / LEGIC RF std., resp. ISO 15693 / LEGIC RF std. compliant
- Wide choice of industry standards (RF, data formats, interfaces)
- Supports smart card micro-controllers and NFC phones
- Quick integration, easy realized multi-applications
- High security and MTSC – configurable for each application



### Features

- RF standards:** simultaneous operation of ISO 15693 and LEGIC RF standard (SC-2240/C) or ISO 14443 A and LEGIC RF standard (SC-2140/C), reads UID of transponders based on Inside Contactless technology, e.g. HID iClass
- Reading/writing of transponders:** secure and contactless; transparent mode
- Smart card  $\mu$ C / NFC phone support:** LEGIC card-in-card solutions (SC-2140)
- Communication range\*:** up to 10 resp. 15 cm with standard circuit design
- Host interfaces:** various protocols (RS232, SPI)
- Application interfaces:** flexible data format generator for Wiegand and OMRON (ABA, Clock & Data)
- Data transmission:** encrypted along complete data path from transponder memory via RF interface to external host system (end-to-end security)
- Data encryption:** selectable standards for each application
- Reader design:** Reference design and Development Kit for easy and flexible system integration
- RF wake-up:** watch mode for battery operation
- Power consumption:** various low power modes, configurable RF power
  - Pin compatibility:** to SC-2560/C series
- Master-Token System Control:** for authorization, data access and application management
- Multiapplication:** direct access to specific application; variable segment length and freely selectable segment search criteria
- Application standards for interoperability:** defined data structures and functions for cash handling, access control, biometrics and others
- FIPS 201:** reads FASC-N according Transition State Specification (SC-2140/C)
- Backward compatibility:** with LEGIC prime

### Typical applications



### Specifications

Carrier frequency	13.56 MHz	Direct Host interfaces	serial asynchronous (TTL, RS232); SPI
Antenna impedance	50 Ohm	Baud rates (serial)	asynchronous: 9.6 to 115.2 kbit/s SPI: up to 1 Mbit/s
Contactless RF standards	SC-2140: ISO 14443 A, LEGIC RF std. SC-2240: ISO 15693, LEGIC RF std., Inside	Direct application interfaces	Wiegand, OMRON (Clock & Data, ABA)
Range*	SC-2140: up to 10 cm (ISO 14443 A) up to 15 cm (LEGIC RF std.) SC-2240: up to 15 cm	Digital input / output	4 input / 4 output
Operating voltage	3.3 to 5 V DC	Operating temperature	-40 °C to 85 °C / -40 °F to 185 °F
Power consumption (5 V typical)	185 mA in RF active mode 27 mA in normal operation 30 $\mu$ A in watch mode < 5 $\mu$ A in stop mode	Conformity	CE, FCC
Encryption standards	LEGIC encryption, DES, 3DES host authentication/encryption enable	Casing OS Controller	LQFP100 (14 x 14 x 1.4 mm)
		Casing RF Chip	SSOP20 (7.2 x 5.3 x 1.7 mm)

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

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