



**Advanced Card Systems Ltd.**

Card & Reader Technologies

Asia Pacific's Top Supplier of PC-Linked Readers

- Frost & Sullivan



**PRODUCT  
CATALOGUE**  
2008-09



**Advanced Card Systems Ltd.**

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# Company Profile



## Company Vision

Smart cards and readers are no longer limited to be used in specialized applications. They have become increasingly popular in many other areas such as banking, national health cards, public transportation, government ID cards and Internet security. They have proven to add significant value to businesses by providing a more efficient, effective, reliable and secure environment to streamline their operations and this has accounted for the rapid growth in demand of smart cards and readers in the recent years. Advanced Card Systems Limited (ACS) believes this trend is set to continue and vast business opportunities will be opened up for a serious smart card and reader provider like ACS.

## Company Background

Founded in 1995, ACS is a leading smart card product developer and manufacturer. The company's mission is to become the leading technology provider enabling smart card-based solutions on a global scale. ACS develops, manufactures, and distributes a wide range of high quality smart card reading/writing devices and smart card operating systems, which facilitates an easier adoption of smart card applications within different industries.

## Customers

ACS has established excellent relationships with numerous reputable companies within the smart card industry around the world. ACS now distributes its products to over 100 countries worldwide including the Americas, Europe, Asia, and Africa. Customers include smart card companies, solution houses, system integrators, equipment manufacturers, distributors, and re-sellers.

## Chairman's Message

Advanced Card Systems Holdings Limited, a listed company on the Hong Kong Stock Exchange, is one of a select group of global companies at the forefront of the smart card revolution. It is a revolution which has seen continued rapid growth in the acceptance and use of various smart card related technologies, with analysts predicting nearly 30% compound annual growth rates in such areas as the smart card & reader market over the next few years. Smart card related technologies are now being used in fields as diverse as banking, healthcare, education, and e-commerce, with more and more users taking advantage of the efficient, fast and secure options provided by smart cards and readers.

Named in 2007 as the world's fourth and Asia Pacific's number one supplier of smart card readers used with PCs [Source: research report issued by Frost & Sullivan in 2007], ACS has the technology, expertise and global networks to bring the next generation of smart card versatility to users around the world. When ACS was established in 1995, we were among the pioneers of the industry; we now move forward with the reputation as a major international player, known for our cutting-edge design and technology, reliability, and cost-effectiveness. We are determined to stay at the forefront when it comes to providing the best possible technology and equipment to support the expanding smart card revolution.



# Smart Cards & Smart Card Operating Systems

ACS develops and provides smart cards with its smart card operating systems (ACOS) as intellectual property. ACOS cards unlock the powerful potential of smart cards, enabling a single card to support highly secured payment applications. The cards' architecture is often said to be 'secure and elegant'. ACOS5 Cryptographic Smart Card is specially designed for RSA Public-key cryptographic operations that are essential in smart card PKI, digital signatures, etc.

ACS also supplies MIFARE® 1K and 4K Contactless Cards which are compatible with contactless smart card technology. Memory cards in different memory sizes are also provided to meet different needs of our clients.



## ACOS3 Microprocessor Card

- Full 24K Bytes EEPROM memory for application data
- Compliance with ISO 7816 Parts 1,2,3, supporting the T=0 protocol
- ISO 7816 Part 2 compliant 8-contact module
- High-speed transmission possible (9,600 to 223,200 bps)
- DES, Triple-DES and MAC capability
- Secure Messaging
- Key pair for mutual authentication
- Session key based on random numbers
- Binary file support
- Optional dedicated account data structure for even higher security
- Optional 64K Bytes EEPROM memory for application data



Mifare® Cards

## ACOS5 Cryptographic Smart Card

- Full 32K bytes EEPROM memory for application data
- Compliance with ISO-7816 Parts 1,2,3,4,8,9
- ISO 7816 Part 2 compliant 8-contact module
- High baud rate switchable from 9,600 to 115,200 bps
- Supports ISO 7816 Part 4 file structures: Transparent, Linear Fixed, Linear Variable, Cyclic
- DES/ 3DES/AES-128 bits/RSA(up to 2,048 bits) capability
- Secure Messaging
- Mutual Authentication with Session Key generation
- Multilevel secured access hierarchy
- Anti-tearing done on the headers and system information
- Middleware layers CSP and PKCS#11



ACOS Cards

## ACOS6 SAM Card

- Full 16K bytes of EEPROM memory for application data.
- Compliance with ISO 7816 Parts 1,2,3,4
- High baud rate switchable from 9600 to 223,200 bps
- Supports ISO7816 Part 4 file structures: Transparent, Linear fixed, Linear Variable, Cyclic.
- DES / Triple DES capability.
- Mutual authentication with Session Key generation
- Secure Access Module pairs with ACOS3
- Stores and performs all key operations on ACOS3 including mutual authentication, encrypted PIN submission, secure messaging, and ePurse commands
- Multilevel secured access hierarchy
- Anti-tearing done on file headers and PIN commands



Memory Cards

## CryptoMate

- ACOS5 functionalities in USB token
- Specially designed for PKI-based (Public Key Infrastructure) applications
- Configurable ATR
- Customizable key and PIN code
- On-board RSA processor to support fast key generation, signature and encryption



CryptoMate

## Mifare® 1K and 4K

- Available in 1K byte and 4K bytes EEPROM
- Embedded Antenna
- MIFARE® 13.56 MHz ISO-14443 A
- The range of operation is approximately from 2.5" to 3.9"

## Mifare® DESFire

- 4K bytes EEPROM with fast programming
- Fully ISO-14443A 1-4 compliant
- Operating distance: Up to 100 mm
- Operating frequency: 13.56 MHz
- Fast data transfer
- High data integrity

## Memory Card

### SLE5542 Memory Card

- Intelligent 256-bytes EEPROM
- Write-protect function
- Programmable Security Code (PSC)
- EEPROM is organized 256 x 8 bit offering the possibility of programmable write protection for each byte

### SLE5528 Memory Card

- 1K byte EEPROM
- Write-protect function
- Programmable Security Code (PSC)
- After eight successive incorrect entries the error counter will block any subsequent attempt at PSC verification and hence any possibility to write and erase



# PC-Linked Readers

ACS develops and provides high quality and reliable PC-linked smart card readers which are based on various industry standards such as PC/SC (Personal Computer/Smart Card) and EMV (Europay, MasterCard and Visa). ACS PC-linked readers are ideal for providing individual authentication for security applications such as e-government services, e-commerce, banking services, healthcare management, digital signature, Internet lottery and mobile telecom applications.

- E-commerce
- E-banking
- Healthcare
- National ID application

## ACR100 SIMFlash Drive

- Smart Card Reader: USB full speed (12 Mbps)
- Flash: USB Hi-Speed (480 Mbps)
- Plug and Play - CCID compliant or HID compliant
- With ACR38 functionalities
- USB composite device (Smart card reader + Mass storage)
- Supports class A, B and C (5V, 3V, 1.8V) cards
- Supports GSM cards with spec 11.11
- 1GB flash memory (Optional 256MB, 512MB, 2GB and 4GB available upon request)



ACR100

- GSM management
- VoIP applications
- Secure e-banking
- Data storage

# PC-Linked Readers with Mass Storage

ACS realizes the importance of integrating the flash memory into smart card readers, and therefore PC-linked reader with mass storage was specially developed. It was designed to access SIM-sized smart cards (Plug-in cards) and for data or application storage. It is ideal for GSM solutions such as GSM management software and VoIP applications, electronic payment systems, home banking, and transportation.



# Smart Card / Fingerprint Readers

The ACS line of smart card / fingerprint readers combine the separate smart card reader and fingerprint sensor technologies into one secure platform. By cooperating with a leading biometric sensor and algorithm suppliers, ACS provides a high level of security and convenience for applications within the government, corporate, financial and healthcare segments.

Using a simple Application Programming Interface (API) embedded within each device, designers and developers can easily integrate fingerprint authentication and smart card features into their existing products and applications.



## ACR30SP Smart Card Reader

- Serial plug and play
- EMV level1, PC/SC, ISO-7816 compliant
- Supports all ISO-7816 compliant MCU cards and synchronous cards



ACR30SP

## ACR38 Smart Card Reader

- USB full-speed (12 Mbps)
- EMV level1, PC/SC, ISO-7816 compliant
- Supports class A, B and C (5V, 3V and 1.8V) MCU cards
- Supports all ISO-7816 compliant MCU cards and synchronous cards
- Optional Security Access Module (SAM) slot



ACR38

## ACR38U-BMC Smart Card Reader

- USB full-speed (12 Mbps)
- EMV level1, PC/SC, ISO-7816 compliant
- Vertical card insertion
- Supports class A,B and C (5V, 3V, and 1.8V) MCU cards
- Supports all ISO-7816 compliant MCU cards and synchronous cards



ACR38U-BMC

## ACR38C Smart Card Reader

- USB full-speed (12 Mbps)
- CCID compliant
- EMV level1, PC/SC, ISO-7816 compliant
- Supports class A, B and C (5V, 3V, 1.8V) cards



ACR38C

## ACR92 PCMCIA Smart Card Reader

- PC/SC and ISO-7816 compliant
- Specially designed smart card reader for mobile terminal and laptop users
- PCMCIA Type II Interface
- Supports all ISO-7816 compliant MCU cards
- Stainless steel case material
- Firmware upgradeable



ACR92

## ACR38T Plug-In (SIM-Sized) Card Reader

- ACR38 functionalities in ultra slim casing
- Supports plug-in (SIM-sized) cards compliant with GSM11.11 standard
- Size: 67.4 x 23.0 x 7.8 mm
- Supports class A, B and C (5V, 3V, 1.8V) cards



ACR38T

## ACR38DT DualKey

- ACR38T functionalities with contactless access feature
- Works with SIM-sized Combi Card for logical and physical access control
- Supports class A, B and C (5V, 3V, 1.8V) cards



ACR38DT

## ACR38ET DualKey2

- ACR38T functionalities with contactless access feature
- Supports plug-in (SIM-sized) cards
- Virtually a Mifare® card token, with innate contactless card functionalities
- A key for logical and physical access control
- Supports class A, B and C (5V, 3V, 1.8V) cards



ACR38ET

## ACR38F Smart Floppy

- ACR38 functionalities in a floppy bay casing
- USB full-speed (12 Mbps) interface to PC with simple command structure
- Easy integration with PC
- Supports class A, B and C (5V, 3V, 1.8V) cards



ACR38F

## ACM38 Reader Module

- Reader module used in the ACR38 smart card reader series
- Easy integration in customers' products or casing
- Optional Security Access Module (SAM) slot



ACM38

## ACR38K Smart Keyboard

- ACR38 functionalities in a keyboard form factor
- USB full-speed (12 Mbps)
- Easy integration with a PC or Mac
- Optional 9 multimedia hot keys



ACR38K

## AET60 BioCARDKey

- PC-linked USB compact device integrating a fingerprint sensor and full-sized smart card reader
- High-resolution 508 DPI imaging
- Utilizes CMOS active capacitive pixel-sensing technology
- Active capacitive sensing technology
- Large active sensor size - 12.8mm X 18.0mm



AET60

AET63

## AET63 BioTRUSTKey

- PC-linked USB compact device integrating a fingerprint sensor and full-sized smart card reader
- Fingerprint verification done within the device for added security
- High-resolution 508 DPI imaging
- Utilizes CMOS active capacitive pixel-sensing technology
- Triple-DES encryption for security enhancement
- Large active sensor size - 12.8mm X 18.0mm
- Optional Security Access Module (SAM) slot

- E-commerce
- Banking solution
- Government security
- Healthcare





### ACR120 Contactless Reader

- Available in serial RS-232 or USB interface version
- PC-linked reader compatible with Mifare® cards, ISO-14443 A and B
- Easy integration into large types of equipment such as vending machines, photocopying machines, and any POS systems



ACR120

### ACR120 Small Module (ACM120S-SM)

- Compact size (70mm x 46mm)
- Easy-to-Install for standard single-gang electrical switchbox
- Serial interface RS-232 (Available in RS-485 on request)
- Compatible with Mifare® cards, ISO-14443 A and B
- Buzzer
- Operation LED
- Relay



ACM120S-SM

### ACR122 NFC Contactless Smart Card Reader

- USB full-speed (12 Mbps)
- PC/SC compliant
- CCID compliant
- Compact size (98 X 65 X 12.2mm) and Sleek Design
- Compatible with NFC Tags
- Compatible with FeliCa Tags at 212 kbps speed
- Compatible with Mifare® cards, ISO-14443 A and B
- Bi-Color LED
- Optional Monotone Buzzer



ACR122

### ACR128 DualBoost Smart Card Reader

- PC/SC compliance for contact and contactless smart card interfaces
- CCID compliant
- Built-in antenna for contactless card access
- Supports ISO-7816 Parts 1,2,3
- Supports Class A, B (5V, 3V) cards
- Compatible with Mifare® cards, ISO-14443 A and B
- Built-in SAM card slot
- Built-in one Monotone buzzer
- Dual-Color LEDs



ACR128

### APG82 PINhandy OTP (One Time Password) Generator

- Operates in offline mode (Standalone)
- Fully functional 14-key pad
- Intelligent battery management for a life expectancy of 5 years (depending on usage)
- High-contrast, 16 character, 2-line LCD (character format: 5 X 8 dots)
- Compliant with MasterCard® CAP (Chip Authentication Program) and VISA DPA (Dynamic Passcode Authentication)
- Supports ISO-7816 Class A, B and C (5V, 3V, 1.8V) cards
- Powered via 2 x AAA batteries (Replaceable)
- Manage OTP (One Time Password), challenge-response and Transaction Data Signing



APG82

- One time password
- Signatures
- Secure e-banking
- Secure remote authentication

### eH880 Secure Smart Card Terminal

- 32-Bit ARM 9 Processor running Embedded Linux
- 32MB Flash and 32MB SDRAM Memory
- Dual Operation Modes (PC-Linked/Standalone)
- Dual Interface Reader (Contact and Contactless)
- USB Full Speed/Serial/Ethernet Interface
- 2 Full-Size Contact Card Slots (Landing Connector)
- 2 SAM-Size Card Slots (Contact Connector)
- Firmware Upgradeable
- Highly Durable Chemical Resistant 20-Button Keypad
- Tamper Detection Switch to Protect Against Unauthorized Intrusion
- Real-Time Clock (RTC) with Independent Backup Battery
- Support Secure PIN Entry (PC/SC 2.01)
- PC/SC Interface
- (Optional) Built-in Fingerprint Sensor
- (Optional) WiFi



eH880

### ACR88 PIN-Pad Reader

- Secure PIN entry (PC/SC 2.01)
- CCID compliant, EMV level1, PC/SC, ISO-7816 compliant
- USB full-speed, handheld size and light weight
- Equipped with 2 full-sized smart card slots and 3 Security Access Module (SAM) slots
- Powered via 3 x AAA batteries (Replaceable)
- User programmability-on-board script loading
- On-board firmware upgradeable
- Optional fingerprint sensor (internal)
- Optional contactless reader module (internal)
- Optional non-volatile memory expansion



ACR88

### ACR83 PINeasy Smart Card Reader

- USB full-speed (12 Mbps)
- Secure PIN entry (PC/SC 2.01)
- Fully functional 14-key Keypad
- High-contrast, 16 character, 2-line LCD (character format: 5 X 8 dots)
- Supports ISO-7816 Class A, B and C (5V, 3V, 1.8V) cards
- Read and write all microprocessor cards with T=0 or T=1 protocols
- Conforms with: ISO-7816, PC/SC, CE, FCC, USB full-speed, Microsoft WHQL, EMV level1



ACR83



## Dynamic Password Generators

ACS develops and provides high-level security and reliable dynamic password generator that is based on industry standards such as EMV 2000 Level 1 (Europay, MasterCard® and Visa) and MasterCard® CAP (Chip Authentication Program) and VISA DPA (Dynamic Passcode Authentication). You can use the device in a variety of payments and bank applications. The offline mode of APG82 makes it impossible for hackers to have access to the information in the card. Standalone and totally nomadic, APG82 is easily transported for use at home or in the office. It needs no software installation.



## Smart Card Readers with PIN-Pad

ACS develops and provides secure PIN-pad smart card readers, which include built-in keypad, LCD and a host of other features. This type of reader is ideal for applications where a simple PC-linked smart card reader does not meet the user's security requirements, such as PIN entry and confirmation of transaction details before signing.

- Secure e-commerce
- Healthcare
- Secure e-banking
- National ID application

## Contactless Readers

ACS offers a series of contactless smart card readers/writers to address the growing needs and popularity of contactless applications. These readers support various cards in addition to Mifare® cards, FeliCa cards and NFC tags. Thus, ACS readers can be easily integrated into existing systems such as Point-of-Sale (POS) terminals, payment systems and embedded systems.

- Retail payment
- Electronic Passport
- Network Security
- Corporate ID



## Smart Card Balance Readers

ACS distributes a wide range of balance readers (value checkers) that are configured for use in diverse applications such as balance enquiry, transaction history, enquiry identity verification, and class attendance. ACS balance readers can also be easily customized to satisfy specific customer requirements such as the types of cards to be read, functions of the reader, color, casing, etc.

### Balance Readers

- Choice of 8 or 10-digit display
- Key-chain, pocket-sized
- Long lasting battery
- Supports memory cards and/or micro-controller cards as required by user
- Supports multiple information display
- Optional keypads and buttons (On request)



ABR08LS



ABR10RS

- Customer loyalty
- Retail payment
- E-purse
- Class attendance