



**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACR38



## Technical Specifications



## Table of Contents

<b>1.0.</b>	<b>Introduction .....</b>	<b>3</b>
<b>2.0.</b>	<b>Features .....</b>	<b>4</b>
<b>3.0.</b>	<b>Supported Card Types.....</b>	<b>5</b>
3.1.	MCU Cards .....	5
3.2.	Memory-based Smart Cards (Synchronous Interface) .....	5
<b>4.0.</b>	<b>Typical Applications .....</b>	<b>6</b>
<b>5.0.</b>	<b>Technical Specifications .....</b>	<b>7</b>
<b>6.0.</b>	<b>Software Development Kit Specifications .....</b>	<b>8</b>



## 1.0. Introduction



Due to the rising demand of e-working methods such as remote office and home banking and with the increasing risk of unauthorized access to private network , it is time to properly secure the access to PCs, desktops, and the Intranet and Extranet networks. The ACR38 Series offers solutions based on smart card technology for secured access control.

The ACR38 smart card reader/writer is a USB full speed device which is the interface for the communication between a computer and a smart card. It is designed for the PC environment, and is the ultimate smart card peripheral for a PC.

The ACR38 is a key partner of the PC as smart card technology is now an essential component in network security and electronic payment system. Providing secured network computing environment by its data encryption function, the ACR38 also comes with an SDK

package that allows users to easily develop their own application to best meet the system's security needs.

The ACR38 is a cost-effective, reliable and efficient smart card-to-PC interface with design focusing on convenient use and harmony with other PC peripherals. It also provides the solution where the security of a smart card is required. It can be used for access control to a computer or network (intranet, extranet, etc), authentication for e-commerce (B to B, B to C), etc. It is also very simple to use and install. It is ideal for applications such as electronic commerce, home banking, e-purse facilities, secure computer access, and other smart card solutions.



## 2.0. Features

- PC/SC Compliant
- Microsoft WHQL Certified Drivers
- CE and FCC Certified
- EMV 2000 Level 1 Certified
- Conforms to EN 60950/IEC 60950
- Supports ISO-7816 Class A, B and C (5V, 3V, 1.8V) cards
- Read and write support to all microprocessor cards with T=0 or T=1 protocol
- Supports a wide range of memory-based smart cards
- USB full speed interface to PC
- Short Circuit Protection
- RoHS Compliant
- Support PPS (Protocol and Parameters Selection) with 1,743 – 250,000 bps in reading and writing smart cards



## 3.0. Supported Card Types

### 3.1. MCU Cards

The ACR38 operates with an MCU card following either the T=0 and T=1 protocol.

### 3.2. Memory-based Smart Cards (Synchronous Interface)

The ACR38 supports the following memory cards:

- Cards following the I2C bus protocol (free memory cards) such as:
  - Atmel: AT24C01 / 02 / 04 / 08 / 16 / 32 / 64 / 128 / 256 / 512 / 1024
  - SGS-Thomson: ST14C02C, ST14C04C
  - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- SLE4432/4442/5542 intelligent 256 bytes EEPROM with write protect function:
  - SLE4432, SLE4442, SLE5542
- SLE4418/4428/5528 intelligent 1K bytes EEPROM with write-protect function:
  - SLE4418, SLE 4428, SLE5528
- Secure memory cards such as:
  - AT88SC153, AT88SC1608
- SLE4406/4436/5536 '104' type EEPROM non-reloadable token counter cards
  - SLE4406, SLE4436, SLE5536

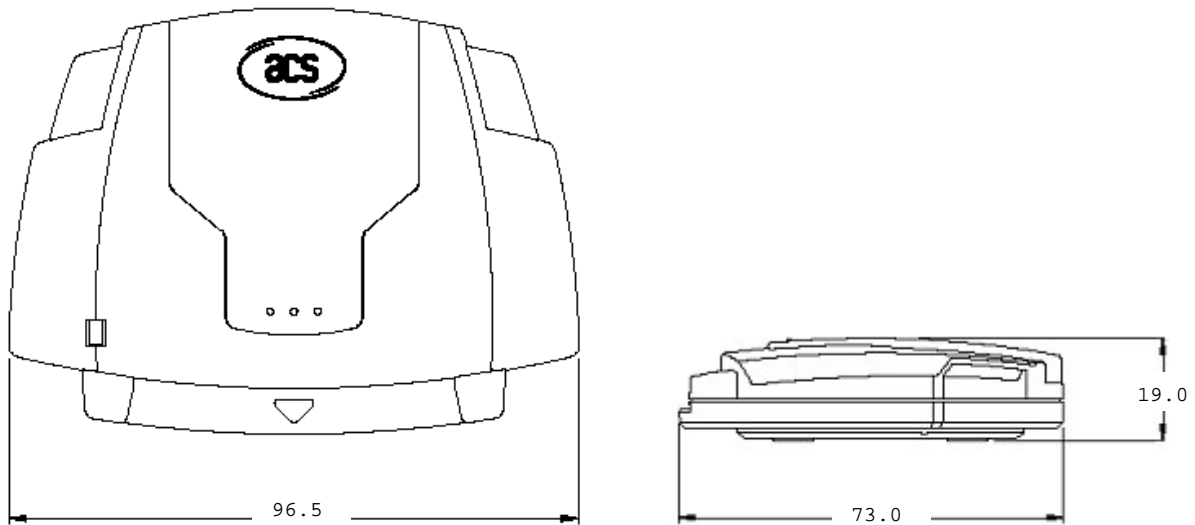


## 4.0. Typical Applications

- Home Banking and Home Shopping
- Electronic Commerce
- Checking the balance of account of re-loading an electronic purses
- Network access control
- S/W locking
- Digital signature
- Loyalty and promotions
- Stored value
- Identification
- Ticketing
- Parking and toll collection
- Online gaming



## 5.0. Technical Specifications



### Universal Serial Bus Interface

Type ..... USB full speed, four lines: +5V, GND, D+ and D-  
Power source ..... From USB  
Speed ..... 12 Mbps

### Smart Card Interface

Standard ..... ISO-7816 Class A, B and C (5V, 3V, 1.8V), T=0 and T=1  
Supply current ..... max. 50mA  
Smart card read / write speed ..... 1,743 – 250,000 bps  
Short circuit protection ..... +5V / GND on all pins  
The presence of the smart card power supply voltage is indicated through a green LED on the reader  
CLK frequency ..... 4 MHz  
Card connector ..... Contact  
Card insertion cycles ..... min. 100,000

### (Optional) SAM Card Interface

Card connector ..... Sliding  
Location ..... Under the removable dark lid

### Physical Specifications

Dimensions ..... 73.0mm (L) x 96.5mm (W) x 19.0mm (H)  
Color ..... Silver  
Weight ..... 95g (± 5g allowance for cable) - Spaceship casing  
Cable length, cord, connector ..... 1.5 meters, Fixed (non-detachable), USB A

### Operating Conditions

Temperature ..... 0 - 50° C  
Humidity ..... 40% - 80%

### Certifications/Compliance

EN 60950/IEC 60950, EMV 2000 Level 1, PC/SC, CE, FCC, RoHS Compliant, USB Full Speed, Microsoft WHQL 2000, Server 2003, XP, Vista, 7

### Device Driver Operating System Support

Windows © NT 4.0, 98, ME, 2000, Server 2003, XP, Vista, Server 2008, 7  
Linux, Mac OS X





## 6.0. Software Development Kit Specifications

The ACR38 SDK is a complete package containing all the vital components required for smart card application development. It provides developers with a convenient and effective way to incorporate smart cards into their solutions.



Smart Card Reader	ACR38 Smart Card Reader
	ACR38T SIMTracker Smart Card Reader
	ABR08LS Balance Reader
Smart Cards	5 ACOS3 Microprocessor-based Smart Cards
	5 ACOS3 SIM-sized Microprocessor-based Smart Cards
	5 SLE 5528 Memory-based smart cards
	5 SLE 5542 Memory-based smart cards
SDK CD-ROM	Sample Applications - These demo programs showcases the wide range of applications where ACR38, e.g. e-purse, physical and logical access control <ul style="list-style-type: none"> <li>• Casino Application</li> <li>• School Application</li> </ul>
	Sample Codes <ul style="list-style-type: none"> <li>• Delphi</li> <li>• Visual C#</li> <li>• VB .NET</li> <li>• Visual Basic</li> <li>• Visual C++</li> </ul>
	Tools & Utilities <ul style="list-style-type: none"> <li>• Card Tool</li> <li>• PC/SC Learning Tool</li> <li>• Quick View</li> <li>• Scripting Tool</li> </ul>
	User Manuals and Reference Materials <ul style="list-style-type: none"> <li>• ACR38 SDK User Manual</li> <li>• ACR38 Reference Manual</li> <li>• ACR38 PCSC Memory Card Access</li> <li>• ACR38 Technical Specifications</li> <li>• ACR38T-IBS Technical Specifications</li> <li>• ABR Series - Balance Reader Technical Specifications</li> <li>• ACOS3 Reference Manual</li> <li>• Training Materials</li> </ul>
OS Supported	Windows ® 98, 2000, XP, Vista