Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38 CCID Smart Card Reader

Technical Specifications

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1.0. Introduction

Due to the rising demand of e-working methods (remote office, home office...) and the increasing risk of unauthorized access to private network, it is time to properly secure access to PCs, desktops, and the Intranet and Extranet networks. The ACR38 CCID series offers solutions based on smart card technology for such applications.

The ACR38 CCID Smart Card Reader is 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.

Smart cards are becoming an essential component in network security and electronic payment system and the ACR38 CCID Smart Card Reader is the ideal partner when using a PC. It provides secured network computing environment with its data encryption function. Furthermore, with the SDK package, it will allow users to easily develop their own application to best meet the specific system needs.

The ACR38 CCID is a low cost, yet reliable and effective smart card-to-PC interface with design focusing on convenient use and harmony with other PC peripherals in shape and color. It also provides the solution where the security of a smart card is required. It can be used as 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 since it is CCID compliant and it can be support a wide variety of MCU and Memory cards. It is ideal for electronic commerce, home banking or e-purse facilities, secure computer access or any of a multitude of other applications.

2.0. Features

- Conforms to: EN 60950/IEC 60950, ISO-7816, PC/SC, CCID, CE, FCC, Microsoft WHQL, EMV 2000 Level 1, FIPS 201

- 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 protocols

- Supports memory-based smart cards, including I2C bus protocol cards (from 1k bits up to 1024k bits) and Secure memory cards (Atmel AT88SC153 and AT88SC1608) and Memory Card with Security Logic (AT88SC101/102/1003)

- Supports SLE 4404/06/18/28/32/36/42, SLE 5518/28/32/36/42, SLE6636 memory cards

- Support PPS (Protocol and Parameters Selection) with 1,953 – 344,086 bps in reading and writing smart cards

- USB full speed interface to PC

- Short Circuit Protection

- RoHS Compliant

3.0. Supported Card Types

3.1. MCU Cards

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

3.2. Memory-Based Smart Cards (Synchronous Interface)

The ACR38 CCID works with several memory-based smart cards such as:

- Cards following the I2Cbus protocol (free memory cards) with maximum 128 bytes page with capability, including:

    Atmel: AT24C01/02/04/08/16/32/64/128/256/512/1024

    SGS-Thomson: ST14C02C, ST14C04C

    Gemplus: GFM1K, GFM2K, GFM4K, GFM8K

- Cards with secure memory IC with password and authentication, including:

    Atmel: AT88SC153 and AT88SC1608

- Cards with intelligent 1k bytes EEPROM with write-protect function, including:

    Infineon: SLE4418, SLE4428, SLE5518 and SLE5528

- Cards with intelligent 256 bytes EEPROM with write-protect function, including:

    Infineon: SLE4432, SLE4442, SLE5532 and SLE5542

- Cards with '104' type EEPROM non-reloadable token counter cards, including:

    Infineon: SLE4406, SLE4436, SLE5536 and SLE6636

- Cards with Intelligent 416-Bit EEPROM with internal PIN check, including:

    Infineon: SLE4404

- Cards with Security Logic with Application Zone(s), including:

    Atmel: AT88SC101, AT88SC102 and AT88SC1003

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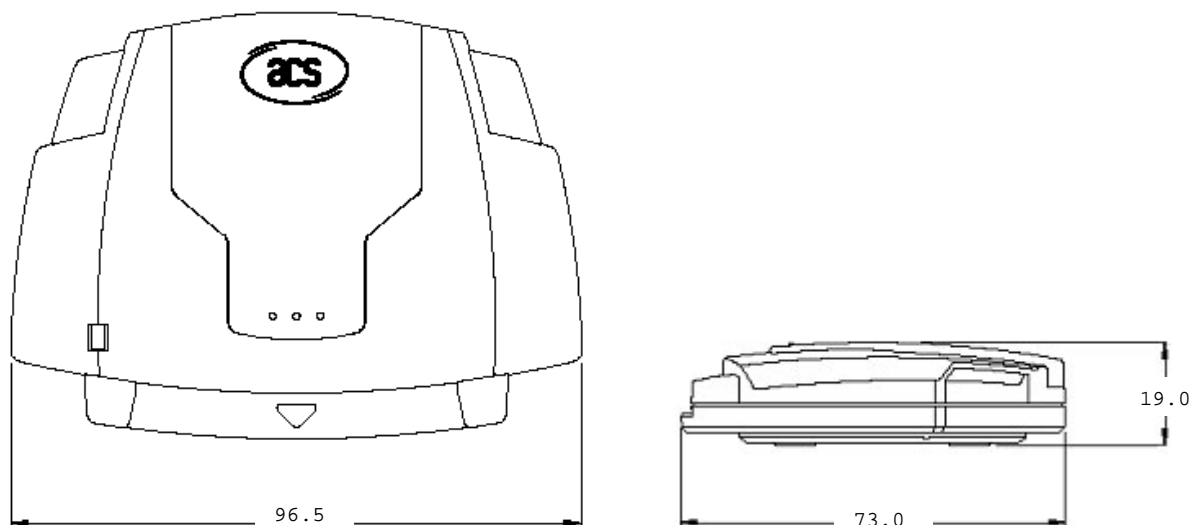
Universal Serial Bus Interface
Type .... USB full speed, four lines: +5V, GND, D+ and D-
Power source .... From USB
Speed .... 12 Mbps

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 .... 1,953 – 344,086 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

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, RoHS Compliant, EMV 2000 Level 1, ISO-7816, PC/SC, CCID, FIPS201 Certified, CE, FCC
USB Full Speed, Microsoft WHQL 2000, XP, Vista

Device Driver Operating System Support
Windows ® 98, ME, 2000, XP, Vista, Server 2003, 7

6.0. Software Development Kit Specifications

The ACR38 CCID SDK is a complete package containing all the vital components required for smart card application development. The ACR38 CCID SDK provides developers with tools and utilities and sample codes making it convenient and effective to incorporate smart cards into their solutions.

Smart Card Reader	ACR38 CCID Smart Card Reader
	ACR38T CCID 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 • Casino Application • School Application
	Sample Codes • Delphi • Visual C# • VB .NET • Visual Basic • Visual C++ • Visual C++ (x64) • Java
	Tools & Utilities • Card Tool • PC/SC Learning Tool • Quick View • Scripting Tool
	User Manuals and Reference Materials • ACR38 SDK User Manual • ACR38 CCID Reference Manual • ACR38 CCID PCSC Memory Card Access • ACR38 CCID Change Log • ACR38 CCID Technical Specifications • ACR38T-IBS Technical Specifications • ABR Series - Balance Reader Technical Specifications • ACOS3 Reference Manual • Training Materials
OS Supported	Windows ® (x86/x64) 98, 2000, XP, Vista