



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

# ACR39T-A1 Smart Card Reader



Technical Specifications V1.01



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## 1.0. Introduction

The ACR39T-A1 hails the new and modern technology in the world of smart card readers. It is a SIM-sized smart card reader that is small in size but packs a lot of features. Being a compact and powerful smart card reader, the ACR39T-A1 brings together sophisticated technology with modern design to meet rigorous requirements in various smart card based applications.



### 1.1. Smart Card Reader

ACR39T-A1 supports ISO 7816 Class A, B, and C smart cards (5 V, 3 V, and 1.8 V) and works well with most memory cards and microprocessor cards with the T=0, T=1 protocol. It also features a USB Full Speed interface and a smart card read/write speed of up to 600 Kbps. This makes it ideal for a broad range of solutions, such as Physical and Logical Access Control, Digital Signature, and Online Banking.

### 1.2. Ease of Integration

The ACR39T-A1 is PC/SC and CCID compliant making it easy to install and use as it is specifically designed to be integrated into any computer-based environment. Its drivers are compatible with Windows® operating system, as well as Linux® and Mac OS®. In addition, ACR39T-A1 may now be used on mobile devices running the Android™ platform with versions 3.1 and above.

With its numerous features, the ACR39T-A1 is clearly the perfect smart card reader for your smart card solution.



## 2.0. Features

- USB 2.0 Full Speed Interface
- Plug-and-Play – CCID support brings utmost mobility
- Includes protective USB cap
- Smart Card Reader:
  - Supports ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V) SIM-sized cards
  - Supports microprocessor cards with T=0 and T=1 protocol
  - Supports memory cards
  - Supports PPS (Protocol and Parameters Selection)
  - Features Short Circuit Protection
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Supports Android™ 3.1 and above<sup>1</sup>
- Compliant with the following standards:
  - EN60950/IEC 60950
  - ISO 7816
  - CE
  - FCC
  - VCCI
  - PC/SC
  - CCID
  - Microsoft® WHQL
  - RoHS 2
  - REACH

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<sup>1</sup> PC/SC and CCID support are not applicable



## 3.0. Supported Card Types

### 3.1. MCU Cards

ACR39T-A1 operates with MCU cards following either the T=0 or T=1 protocol.

### 3.2. Memory-based Smart Cards

ACR39T-A1 works with several memory-based smart cards such as:

- Cards following the I2C bus 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 intelligent 1 KB EEPROM with write-protect function, including:
  - Infineon®: SLE4418, SLE4428, SLE5518 and SLE5528
- Cards with intelligent 256-byte EEPROM with write-protect function, including:
  - Infineon®: SLE4432, SLE4442, SLE5532 and SLE5542

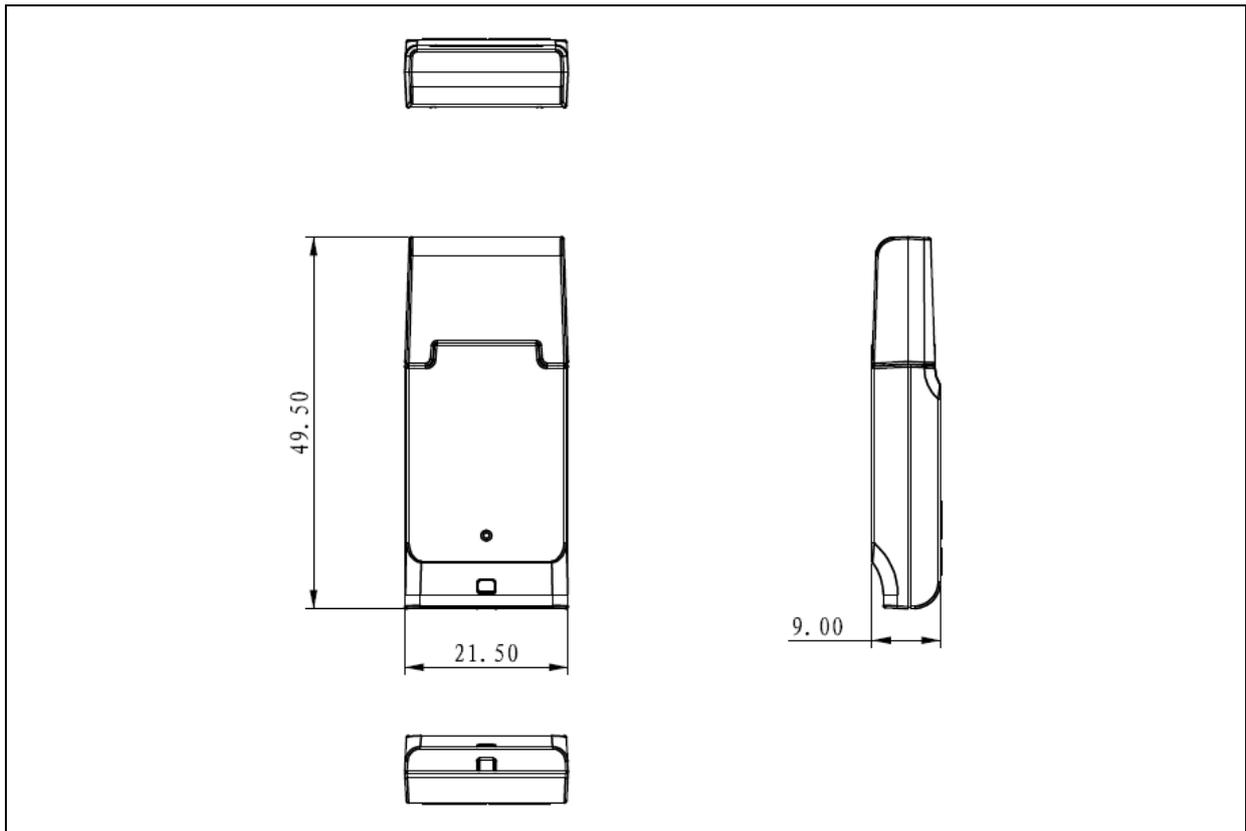


## 4.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Public Key Infrastructure
- Network Security
- Access Control
- Loyalty Program



## 5.0. Technical Specifications



### Universal Serial Bus Interface

Type ..... USB Full Speed, four lines: +5 V, GND, D+ and D-  
Power Source..... From USB  
Speed..... 12 Mbps

### Smart Card Interface

Standard ..... ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V), T=0 and T=1  
Supply Current ..... Max. 50 mA  
Smart Card Read/Write Speed..... Max. 600,000 bps  
Short Circuit Protection ..... +5 V/GND on all pins  
CLK Frequency ..... 4.8 MHz  
Card Connector..... Contact  
Card Insertion Cycles..... Min. 10,000  
Card Form Factor..... SIM-sized (optional with MicroSIM-sized)

### Physical Specifications

Dimensions ..... 49.5 mm (L) × 21.5 mm (W) × 9.0 mm (H)  
Color ..... Black  
Weight..... 8.5 g

### Built-in Peripheral

LED ..... 1 LED, Green

### Operating Conditions

Temperature..... 0 °C – 50 °C  
Humidity ..... Max. 90% (non-condensing)  
MTBF ..... 500,000 hrs

### Application Programming Interface

PC/SC  
CT-API (through wrapper on top of PC/SC)

### Certifications/Compliance

EN60950/IEC 60950, ISO 7816, CE, FCC, VCCI, PC/SC, CCID, RoHS 2, REACH, USB Full Speed  
Microsoft® WHQL for Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8,  
Windows® 8.1, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2,  
Windows® Server 2012, Windows® Server 2012 R2



**Device Driver Operating System Support**

Windows® CE, Windows® 98, Windows® ME, Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2  
Linux®, Mac OS®, Android™ 3.1 and above



## 6.0. Opening the SIM card cover

1. Open the SIM card cover from the back part of the reader.



2. Pull out the back cover from the top end.





3. Remove the cover completely to insert/remove the SIM card to/from the reader.



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