Advanced Card Systems Ltd.
Card & Reader Technologies

ACR39T-A1
(USB Type A)
Smart Card Reader

Technical Specifications V1.08

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1.0. Introduction

The ACR39T-A1 hails 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

The 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 and 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 has PC/SC and CCID compliance, 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 operating systems such as Windows®, Linux®, Mac OS®, and Solaris. In addition, the ACR39T-A1 may now be used with mobile devices running the Android™ platform with versions 3.1 and later.

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

- USB Type A Connector

- Plug and Play – CCID support brings utmost mobility

- Includes protective USB cap

- Smart Card Reader:
  - Contact Interface:
    - 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 later[1]

- Compliant with the following standards:
  - EN 60950/IEC 60950
  - ISO 7816
  - PC/SC
  - CCID
  - CE
  - FCC
  - WEEE
  - RoHS
  - REACH
  - VCCI (Japan)
  - Microsoft® WHQL

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[1]*Uses an ACS-defined Android Library*

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:
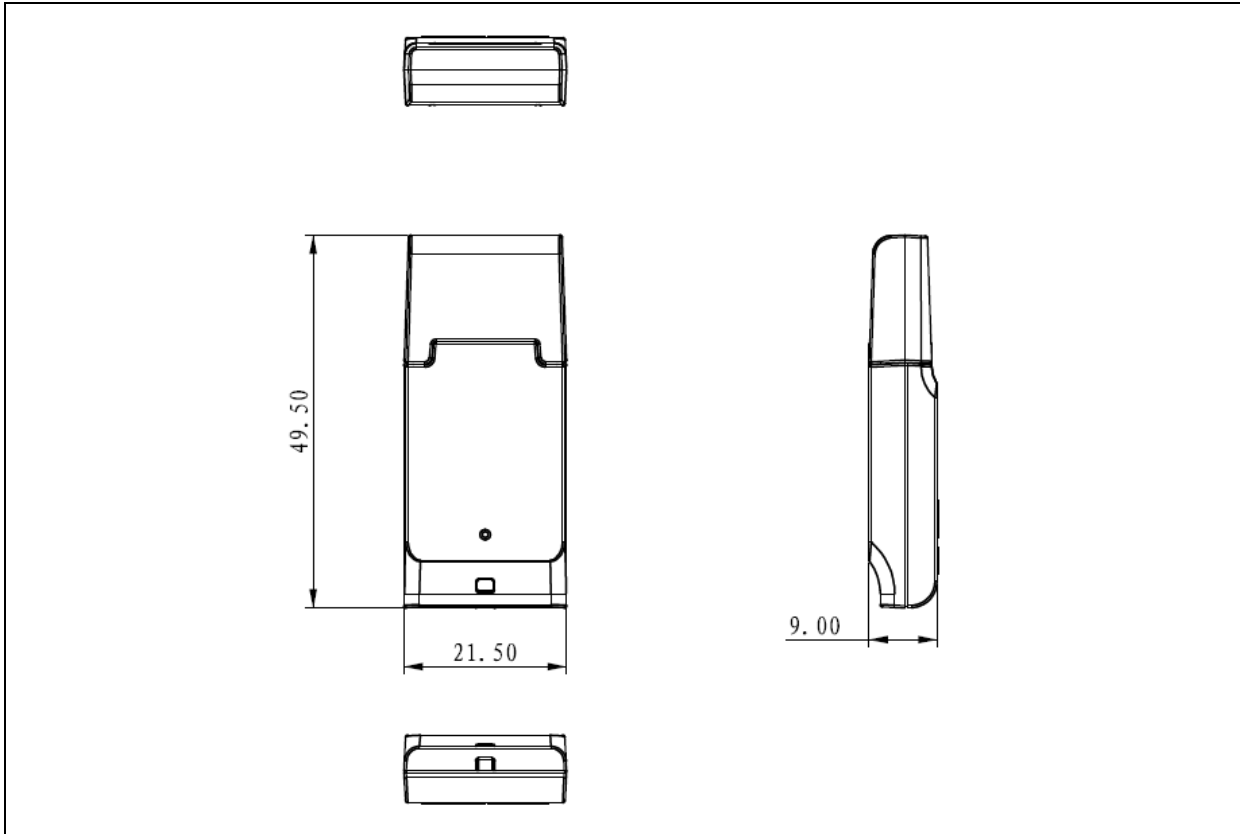   - Infineon®: SLE4432, SLE4442, SLE5532 and SLE5542

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

Physical Characteristics

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

USB Host Interface

Protocol... USB CCID
Connector Type.............................. Standard Type A
Power Source................................. From USB port
Speed.. USB Full Speed (12 Mbps)
Supply Voltage............................... 5 V

Contact Smart Card Interface

Number of Slot .... 1 SIM-sized Card Slot (optional with MicroSIM-sized)
Standard .... ISO 7816 Parts 1-4, Class A, B, C (5 V, 3 V, 1.8 V)
Protocol... T=0; T=1; Memory Card Support
Supply Current .... Max. 50 mA
Smart Card Read/Write Speed....... 9.6 Kbps – 600 Kbps
Short Circuit Protection .... (+5) V/GND on all pins
Clock Frequency .... 4.80 MHz
Card Connector.............................. Contact
Card Insertion Cycles..................... Min. 10,000 (Min. 30,000 upon request)

Built-in Peripheral

LED .... Green

Application Programming Interface

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

Operating Conditions

Temperature .... 0 °C – 60 °C
Humidity .... Max. 90% (non-condensing)
MTBF .... 500,000 hrs

Certifications/Compliance

EN 60950/IEC 60950, ISO 7816, USB Full Speed, PC/SC, CCID, CE, FCC, WEEE, RoHS, REACH
VCCI (Japan), Microsoft® WHQL

Device Driver Operating System Support

Windows® 7, Windows® 8, Windows® 8.1, Windows® 10
Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2, Windows® Server 2016
Linux®, Mac OS®, Solaris, Android™ 3.1 and later

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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