



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR39T-A5 (USB Type C) Smart Card Reader



Technical Specifications V1.01



Table of Contents

1.0.	Introduction	3
1.1.	Smart Card Reader.....	3
1.2.	Ease of Integration.....	3
2.0.	Features	4
3.0.	Supported Card Types.....	5
3.1.	MCU Cards	5
3.2.	Memory-based Smart Cards.....	5
4.0.	Typical Applications	6
5.0.	Technical Specifications	7
6.0.	Opening the SIM card cover.....	9



1.0. Introduction

The ACR39T-A5 hails new and modern technology in the world of smart card readers. It is a SIM-sized smart card reader that packs a lot of features. Being a compact and powerful smart card reader, the ACR39T-A5 brings together sophisticated technology with modern design to meet rigorous requirements in various smart card-based applications.



1.1. Smart Card Reader

The ACR39T-A5 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 (with USB Type C connector) 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-A5 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-A5 may now be used with mobile devices running the Android™ platform versions 3.1 and later.

With its numerous features, the ACR39T-A5 is clearly the perfect smart card reader for your smart card solution.



2.0. Features

- USB Full Speed Interface
- USB Type C 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 later¹
- Compliant with the following standards:
 - EN 60950/IEC 60950
 - ISO 7816
 - PC/SC
 - CCID
 - CE
 - FCC
 - WEEE
 - RoHS
 - REACH
 - Microsoft® WHQL

¹Uses an ACS-defined Android Library



3.0. Supported Card Types

3.1. MCU Cards

ACR39T-A5 operates with MCU cards following either the T=0 or T=1 protocol.

3.2. Memory-based Smart Cards

ACR39T-A5 works with several memory-based smart cards such as:

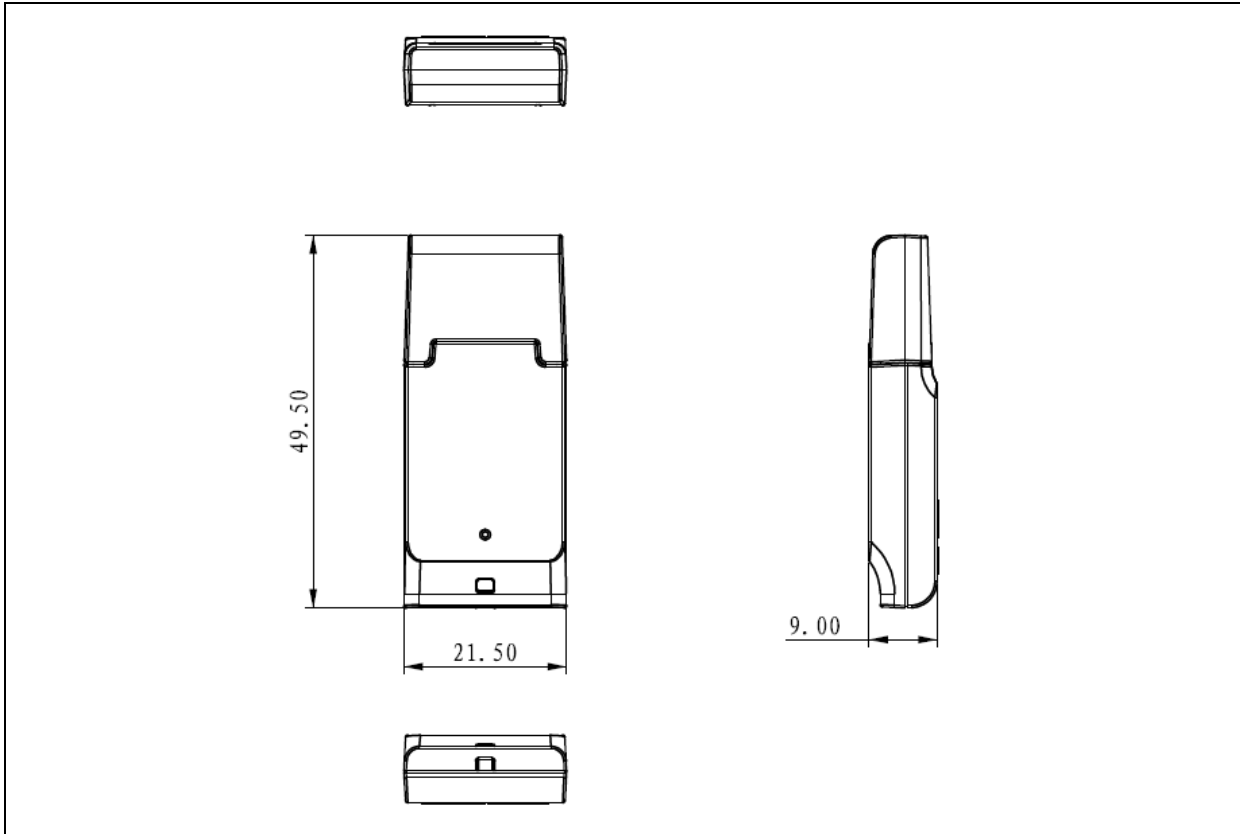
- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
 - Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
 - SGS-Thomson: ST14C02C, ST14C04C
 - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with intelligent 1 KB EEPROM with write-protect function, 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..... 7g
 Color Black

USB Host Interface

Protocol..... USB CCID
 Connector Type..... Standard Type C
 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)², 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



² ACR39T-A5 complies with the VCCI (Japan) standards

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 into/from the reader.



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