Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38T-D1
Smart Card Reader

Technical Specifications V1.05

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ACR38T-D1 – Technical Specifications
Version 1.05

info@acs.com.hk
www.acs.com.hk

1.0. Introduction

Sporting a new sleek case, the ACR38T-D1 SIM-sized smart card reader is a small USB device that delivers more than it meets the eye. A powerful reader that packs a lot in feature despite its size, it has all the functionalities of a standard-sized ACR38 PC-linked Smart Card Reader.

1.1. Smart Card Reader

ACR38T-D1 supports ISO 7816 Class A, B and C smart cards and works with most memory cards and microprocessor cards with the T=0 and T=1 protocol.

This device houses the powerful ACR38 core, which has been proven to support highly demanding smart card applications. It also features a USB Full Speed interface and a smart card read/write speed of 344 Kbps. Highly durable, ACR38T-D1 can last for at least 100,000 card insertion cycles.

1.2. Ease of Integration

ACR38T-D1 has PC/SC and CCID compliance that make for its seamless interoperability and use across different platforms, particularly in a computer-based environments. In addition, ACR38T-D1 may now be used on mobile devices running the Android™ platform with versions 3.1 and above.

With its numerous features, ACR38T-D1 can be used in different applications, such as Internet Banking, e-Payment, and Network Security.

2.0. Features

- USB 2.0 Full Speed Interface
- Plug and Play – CCID support brings utmost mobility
- Smart Card Reader:
  - Support ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V) SIM-sized cards
  - Supports microprocessor cards with T=0 or 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[1]
- 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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[1] *PC/SC and CCID support are not applicable*

3.0. Supported Card Types

3.1. MCU Cards

The ACR38T-D1 operates with any MCU card following either the T=0 or T=1 protocol.

3.2. Memory-based Smart Cards

The ACR38T-D1 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 secure memory IC with password and authentication, including:
  - Atmel®: AT88SC153 and AT88SC1608
- 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
- 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:
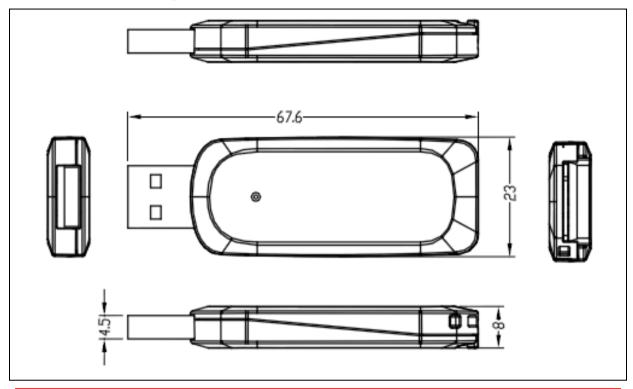 - Atmel®: AT88SC101, AT88SC102 and AT88SC1003

4.0. Typical Applications

- 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 .... ISO7 816 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. 344,086 bps
Short Circuit Protection .... +5 V/GND on all pins
CLK Frequency .... 4 MHz
Card Connector.............................. Contact
Card Insertion Cycles.................... Min. 10,000

Physical Characteristics

Dimensions .... 67.6 mm (L) × 23.0 mm (W) × 8.0 mm (H)
Color .... White
Weight... 12 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
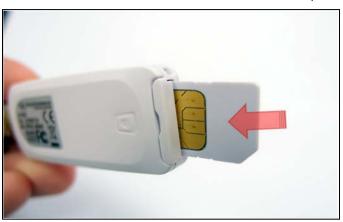Linux®, Mac OS®, Android™ 3.1 and above

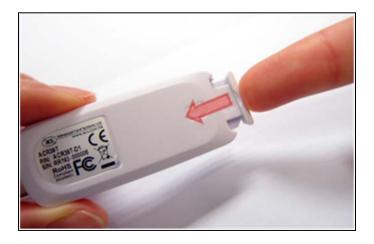# 6.0. Inserting and Removing the SIM Card

To insert the SIM card:

1. Insert the SIM card into the card slot with its contact pins facing down.

To remove the SIM card:

1. Pull out the slide tab completely, and then push it back again.

2. Notice that the SIM card will remain drawn out. Pull out the SIM card from the slot to remove it completely.

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