Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38T-D1
Smart Card Reader

Technical Specifications V1.07

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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 up to 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 computer-based environments. In addition, ACR38T-D1 may now be used on mobile devices running the Android™ platform with versions 3.1 and later.

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 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 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
  - USB Full Speed
  - PC/SC
  - CCID
  - CE
  - FCC
  - WEEE
  - RoHS 2
  - REACH
  - VCCI (Japan)
  - Microsoft® WHQL

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

3.0. Supported Card Types

3.1. MCU Cards

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

3.2. Memory-based Smart Cards

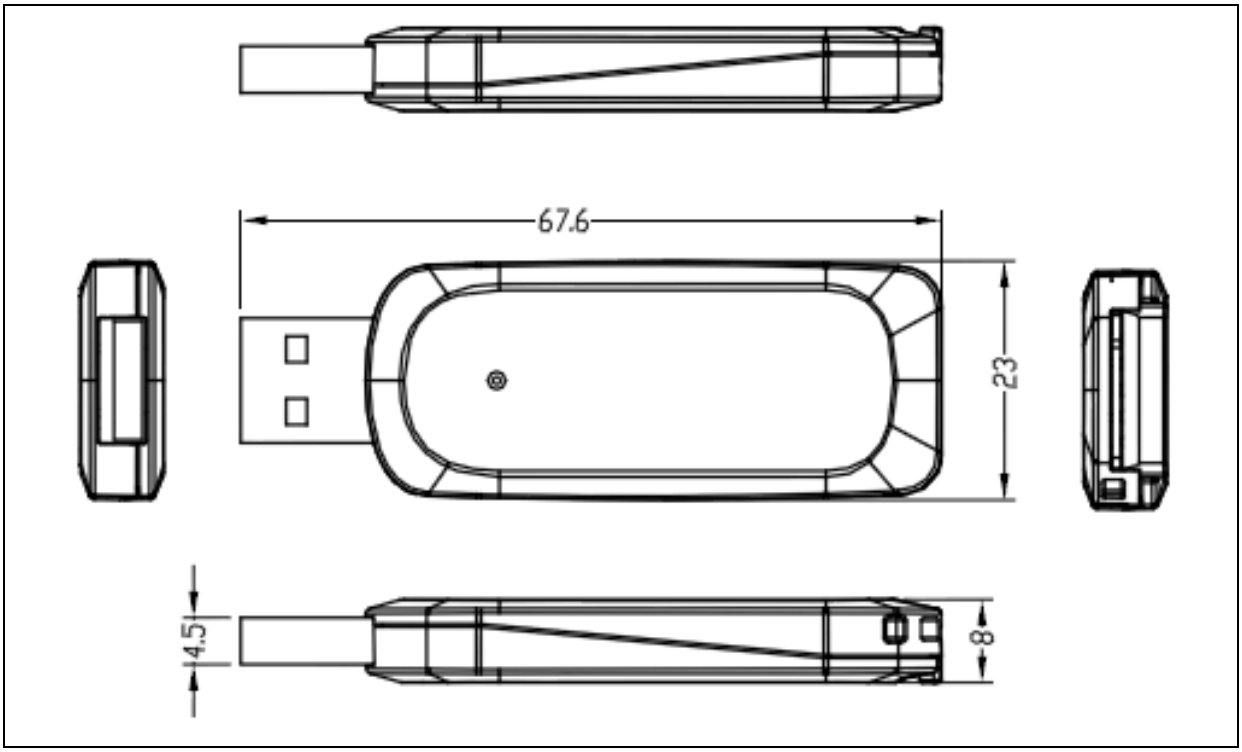
The ACR38T-D1 works with several memory-based smart cards such as:

- 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



Physical Characteristics	
Dimensions	67.6 mm (L) × 23.0 mm (W) × 8.0 mm (H)
Weight	12 g
Color	White
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
Standard	ISO 7816 Parts 1-3, 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 – 344 Kbps
Short Circuit Protection	(+5) V/GND on all pins
Clock Frequency	4 MHz
Card Connector Type	Contact
Card Insertion Cycles	Min. 10,000
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 2, REACH
VCCI (Japan), Microsoft® WHQL

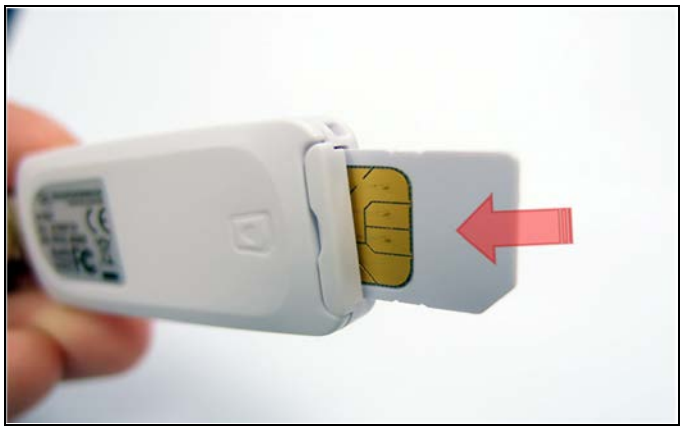
Device Driver Operating System Support

Windows® Embedded Compact 7, Windows® XP, Windows Vista®, 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
Linux®, Mac OS®, Solaris, Android™ 3.1 and later

6.0. Inserting and removing the SIM card

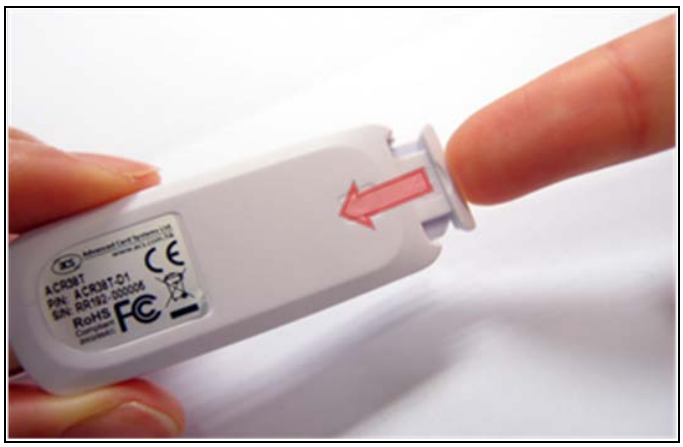
To insert the SIM card:

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.