Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38U-ND PocketMate (Micro-USB)
Smart Card Reader

Technical Specifications V1.05

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1.0. Introduction

ACR38U PocketMate Smart Card Reader is the perfect tool for your mobile devices. With its micro-USB OTG (On-The-Go) interface, the ACR38U PocketMate is capable of supporting most of the smartphones and tablets available in the market that runs applications using full-sized contact smart cards. It provides the perfect balance between dependable functionality and design aesthetics to meet your security requirements in various fields, including mobile banking and payment.

1.1. Smart Card Reader

ACR38U PocketMate supports ISO 7816 Class A, B, and C smart cards (5 V, 3 V, and 1.8 V), microprocessor cards with T=0 and T=1 protocol, and common memory cards in the market. It connects with computing devices through its micro-USB full-speed interface and has a smart card read/write speed of up to 344 Kbps. This small device proves to be a powerful smart card reader as it houses the ACR38 core, which has been proven to support highly demanding smart card applications.

1.2. Ingenious Design

The highly compact ACR38U PocketMate is specifically designed to be brought and used anytime, anywhere. Not larger than a standard USB token, it transforms into a smart card reader for full-sized contact smart cards with just a single swivel motion.

1.3. Ease of Integration

ACR38U PocketMate can be easily integrated with any mobile device running the Android™ platform with versions 3.1 and later. Additionally, it may be used in operating systems such as Windows®, Linux®, or Mac OS® with its PC/SC and CCID compliance.

Built with a modern and functional design, the ACR38U PocketMate is a portable and lightweight smart card reader that is particularly suitable for frequent travelers who wish to securely transact while on the go.

2.0. Features

- USB Full Speed Interface

- Micro USB Connector

- Plug and Play – CCID support brings utmost mobility

- Swivel Motion Design

- Smart Card Reader:
  - Contact Interface:
    - Supports ISO 7816 Class A, B, and C (5 V, 3 V, 1.8 V) 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
  - EMV™ Level 1 (Contact)
  - PC/SC
  - CCID
  - CE
  - FCC
  - WEEE
  - RoHS 2
  - REACH
  - TAA (USA)
  - J-LIS (Japan)
  - VCCI (Japan)
  - Microsoft® WHQL

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[1]Uses an ACS-defined Android Library

3.0. Supported Card Types

3.1. MCU Cards

ACR38U PocketMate operates with ISO 7816 MCU card following either the T=0 or T=1 protocol. It also works with CAC (Common Access Card), ideal for US PIV (Personal Identity Verification) and PKI (Public Key Infrastructure) applications.

3.2. Memory-based Smart Cards

ACR38U PocketMate 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:
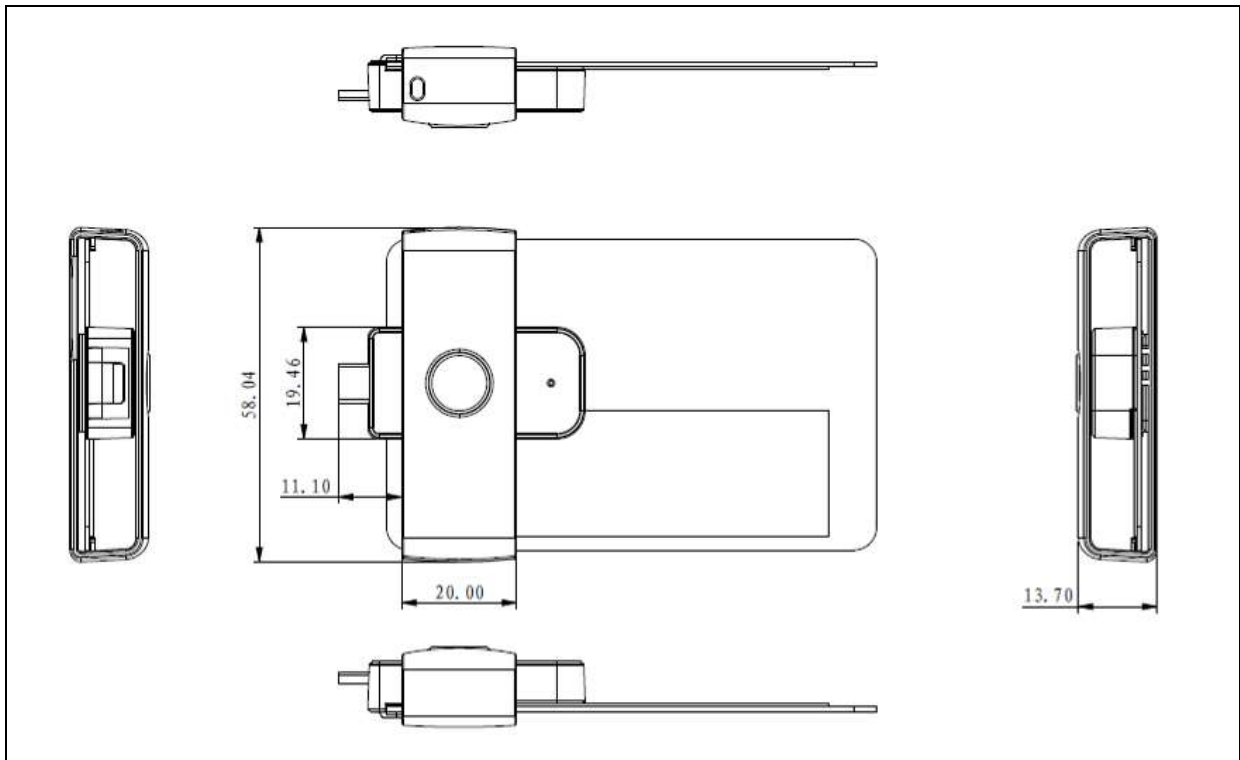 - Atmel®: AT887SC101, AT88SC102 and AT88SC1003

4.0. Typical Applications

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

5.0. Technical Specifications

Physical Characteristics
Dimensions .... 58.0 mm (L) × 20.0 mm (W) × 13.7 mm (H)
Weight... 10 g
Color .... Black

USB Host Interface
Protocol .... USB CCID
Connector Type............................. Micro Type B
Power Source................................ From micro-USB port
Speed... USB Full Speed (12 Mbps)
Supply Voltage.............................. 5 V

Contact Smart Card Interface
Number of Slot .... 1 Full-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. 100,000

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

Certifications/Compliance

EN 60950/IEC 60950, ISO 7816, USB Full Speed, EMV™ Level 1 (Contact), PC/SC, CCID, CE, FCC, WEEE, RoHS 2, REACH

TAA (USA), J-LIS (Japan), VCCI (Japan), Microsoft® WHQL

Device Driver Operating System Support

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, Windows® Server 2016

Linux®, Mac OS®, Solaris, Android™ 3.1 and later

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