



**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<sup>1</sup>
- 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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<sup>1</sup>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:

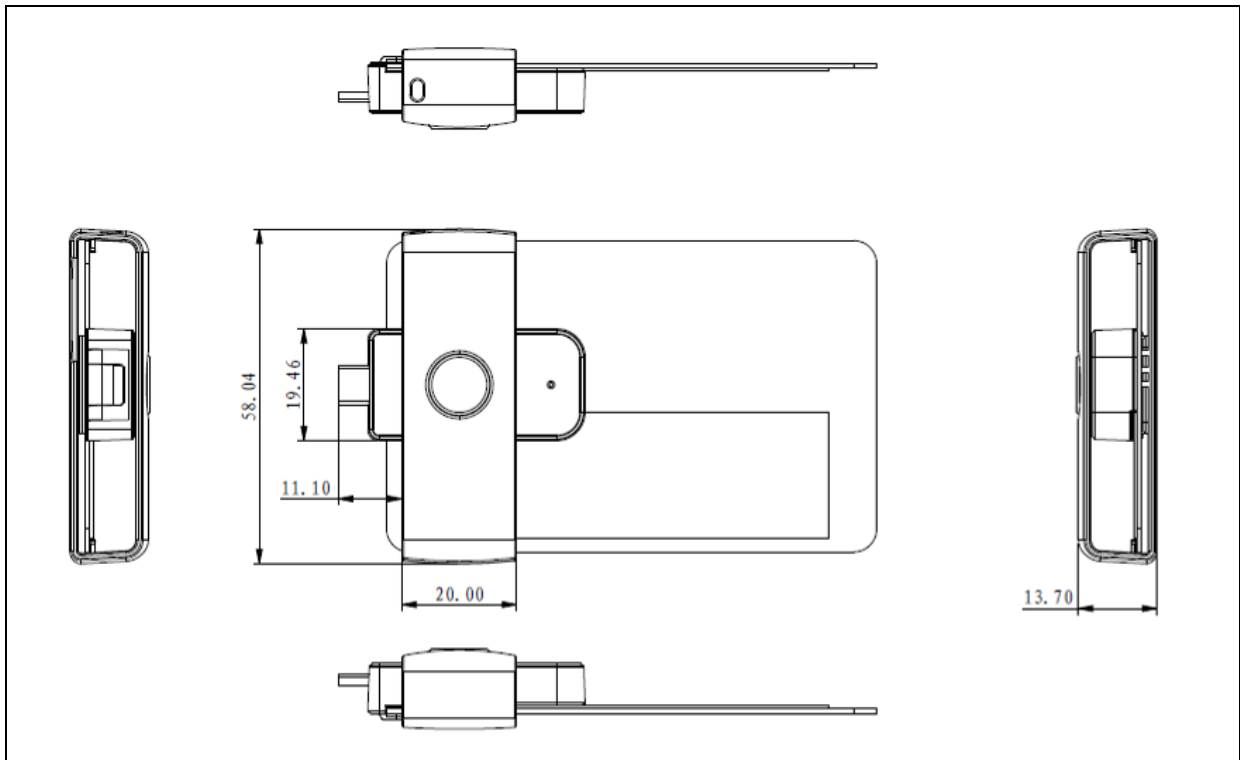
- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
  - Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
  - SGS-Thomson: ST14C02C, ST14C04C
  - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with secure memory IC with password and authentication, 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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