**Advanced Card Systems Ltd.**
Card & Reader Technologies

# ACM1281U-C7
## USB Contactless Reader Module with SAM Slot

Technical Specifications V1.02
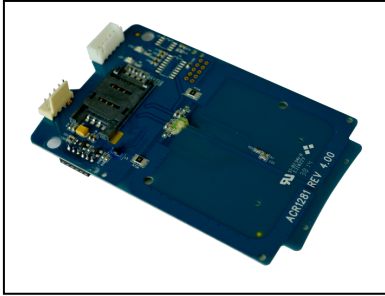
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# 1.0. Introduction

The ACM1281U-C7 USB Contactless Reader Module with SAM Slot, running on the 13.56 MHz frequency, was designed for fast and easy integration to embedded systems. It supports ISO 14443 Parts 1-4 Type A and B cards, and MIFARE Classic® series.

The ACM1281U-C7 has an integrated (on-board) antenna and comes with an optional USB cable and has additional features like firmware upgradability and extended APDU support. It also has an ISO 7816–compliant built-in SAM (Secure Access Module) slot which can be used together with a SAM card for enhanced security.

With a maximum of 848 Kbps high-speed communication ability for contactless cards, the ACM1281U-C7 USB Contactless Reader Module with SAM Slot is made suitable for highly demanding smart card applications like vending machine payment systems, kiosks, gaming machines, and other integrated systems.

## 2.0. Features

- USB Full Speed Interface
- Smart Card Reader:
  - Contactless Interface:
    - Read/Write speed of up to 848 Kbps
    - Built-in antenna for contactless tag access, with card reading distance of up to 50 mm (depending on tag type)
    - Supports ISO 14443 Part 4 Type A and B cards and MIFARE Classic series
    - Built-in anti-collision feature (only one tag is accessed at any time)
    - Supports extended APDU (Max. 64 KB)
  - SAM Interface:
    - One SAM slot
    - Supports ISO 7816–compliant Class A SAM cards
- Built-in Peripherals:
  - Two user-controllable LEDs
  - User-controllable buzzer
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- USB Firmware Upgradeability
- Supports Android™ 3.1 and later[1]
- Compliant with the following standards:
  - ISO 7816 (SAM Slot)
  - ISO 14443
  - PC/SC
  - CCID
  - CE
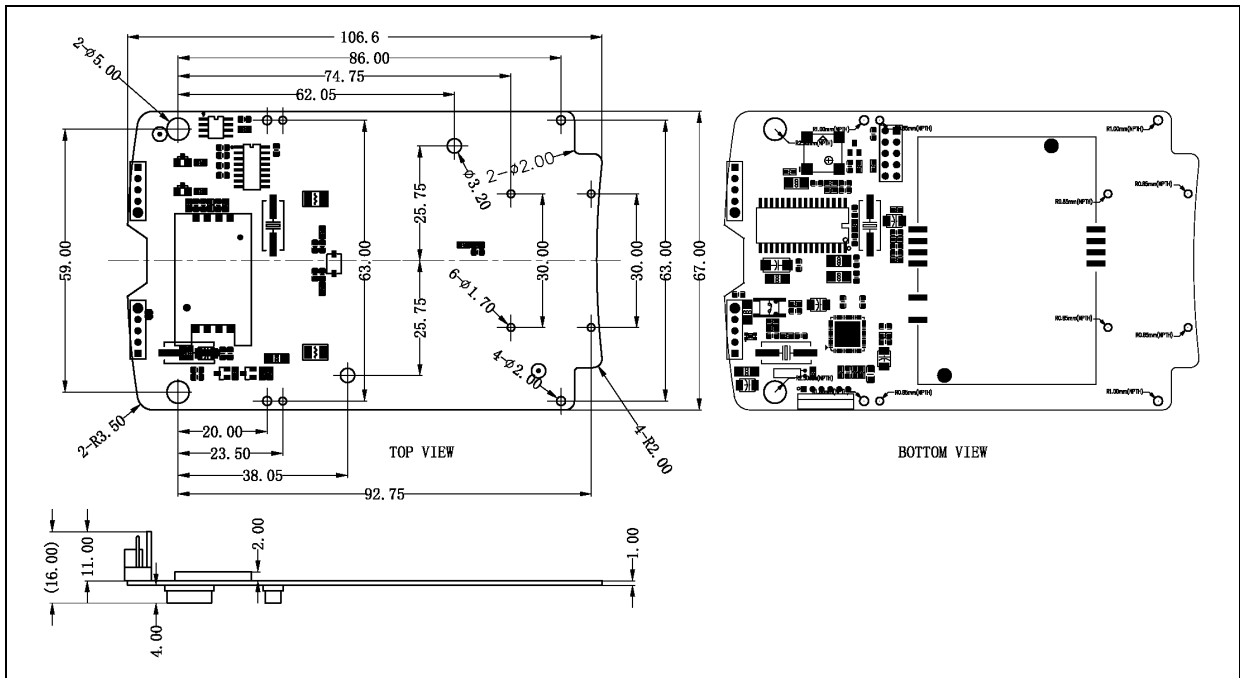  - FCC
  - RoHS 2
  - REACH
  - Microsoft® WHQL

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[1] Uses an ACS-defined Android Library

## 3.0. Typical Applications

- e-Government

- e-Banking and e-Payment

- e-Healthcare

- Transportation

- Network Security

- Access Control

- Loyalty Program

# 4.0. Technical Specifications



| Physical Characteristics | |
|---|---|
| Dimensions | 106.6 mm (L) × 67.0 mm (W) × 16.0 mm (H) |
| Weight | 20.8 g |

| 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 |
| Supply Current | Max. 200 mA |
| Cable Length | 1.0 m, Detachable (optional) |

| Contactless Smart Card Interface | |
|---|---|
| Standard | ISO 14443 A & B Parts 1-4 |
| Protocol | ISO 14443 T=CL for ISO 14443-4–compliant cards |
| | T=CL Emulation for MIFARE Classic cards |
| Operating Frequency | 13.56 MHz |
| Operating Distance | Up to 50 mm (depending on card type) |
| Smart Card Read/Write Speed | 106 Kbps, 212 Kbps, 424 Kbps, 848 Kbps |
| Antenna Size | 65 mm × 60 mm |

| SAM Card Interface | |
|---|---|
| Number of Slot | 1 Standard SIM-sized Card Slots |
| Standard | ISO 7816 Class A (5 V) |
| Protocol | T=0; T=1 |
| Supply Current | Max. 50 mA |
| Smart Card Read/Write Speed | 9.6 Kbps – 344 Kbps |
| Card Connector Type | SAM Slot 0: Contact |

| Built-in Peripherals | |
|---|---|
| LED | 2 single-color: Red and Green |
| Buzzer | Monotone |

| Other Feature | |
|---|---|
| Firmware Upgrade | Supported |

| Application Programming Interface | |
|---|---|
| PC-linked Mode | PC/SC |
| | CT-API (through wrapper on top of PC/SC) |

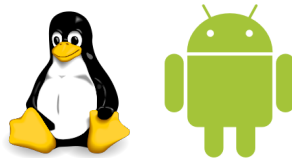| Operating Conditions | |
|---|---|
| Temperature | 0 °C – 60 °C |
| Humidity | Max. 90% (non-condensing) |
| MTBF | 500,000 hrs |

**Certifications/Compliance**

EN 60950/IEC 60950, ISO 7816 (SAM Slot), ISO 14443, USB Full Speed, PC/SC, CCID, CE, FCC, RoHS 2, REACH, 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

Android is a trademark of Google LLC.
Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.
Mac OS is a trademark of Apple Inc., registered in the U.S. and other countries.
Microsoft, Windows, and Windows Vista are registered trademarks of Microsoft Corporation in the United States and/or other countries.
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