



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

# ACR1252U

## NFC Forum Certified Reader



Technical Specifications V1.05



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## 1.0. Introduction



The ACR1252U is a PC-linked NFC Reader that is NFC Forum–certified.

The ACR1252U runs on the 13.56 MHz contactless technology and supports ISO 14443 Type A and B cards, MIFARE®, FeliCa, ISO 18092–compliant NFC tags, and other NFC devices. It has an ISO 7816–compliant Class A SAM (Secure Access Module) slot which can be used together with a SAM card for key diversification and mutual authentication, providing high level of security in contactless transactions. Post-deployment firmware upgrade is also supported, eliminating the need for additional hardware modification.

ACR1252U is capable of the three modes of NFC, namely, Card Reader/Writer, Card Emulation and Peer-to-Peer Communication. These NFC features make the ACR1252U ideal for NFC applications like Smart Posters for advertising and marketing purposes with most NFC-enabled mobile phones and SIM cards in the market.



## 2.0. Features

- USB Full Speed Interface
- CCID-compliant
- Smart Card Reader:
  - Contactless Interface:
    - Read/Write speed of up to 424 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, MIFARE Classic®, FeliCa, and all four types of NFC (ISO/IEC 18092 tags)
    - Built-in anti-collision feature (only one tag is accessed at any time)
    - Supports extended APDU (max. 64 KB)
    - NFC Support:
      - Card reader/writer mode
      - Peer-to-Peer mode
      - Card Emulation mode
  - SAM Interface:
    - One SAM Slot
    - Supports ISO 7816-compliant Class A SAM cards
- Built-in Peripherals:
  - User-controllable bi-color LED
  - 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<sup>1</sup>
- Compliant with the following standards:
  - EN 60950/IEC 60950
  - ISO 18092
  - ISO 14443
  - ISO 7816 Class A (SAM Slot)
  - NFC Forum Certification Mark
  - Felica Performance Certification
  - PC/SC
  - CCID
  - CE
  - FCC
  - RoHS 2
  - REACH
  - J-LIS (Japan)
  - VCCI (Japan)
  - MIC (Japan)
  - KC (Korea)
  - Microsoft® WHQL

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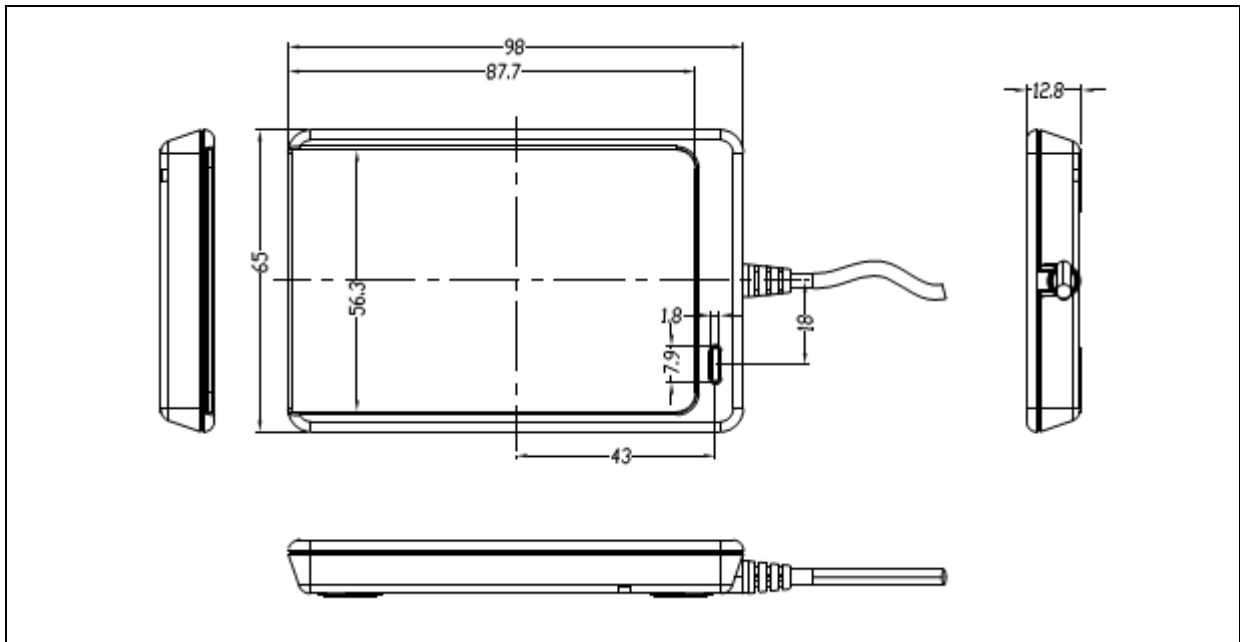
<sup>1</sup> Uses an ACS-defined Android Library



### **3.0. Typical Applications**

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program
- Smart Poster/URL Marketing
- P2P Communication

## 4.0. Technical Specifications



### Physical Characteristics

Dimensions ..... 98.0 mm (L) × 65.0 mm (W) × 12.8 mm (H)  
Weight..... 81 g  
Color ..... Matte Black

### 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 m, Fixed

### Contactless Smart Card Interface

Standard ..... ISO/IEC 18092 NFC, ISO 14443 Type A & B, MIFARE, FeliCa  
Protocol..... ISO 14443 T=CL for ISO 14443-4-compliant cards  
..... T=CL Emulation for MIFARE Classic, ISO 18092, FeliCa and NFC tags  
Operating Frequency ..... 13.56 MHz  
Operating Distance ..... Up to 50 mm (depending on tag type)  
Smart Card Read/Write Speed..... 106 Kbps, 212 Kbps, 424 Kbps  
Antenna Size..... 50 mm × 40 mm

### SAM Card Interface

Number of Slot ..... 1 Standard SIM-sized Card Slot  
Standard ..... ISO 7816, Class A (5 V)  
Protocol..... T=0;T=1  
Smart Card Read/Write Speed..... 9.6 Kbps – 215 Kbps  
Card Connector Type..... SAM Slot 0: Contact

### Built-in Peripherals

LED ..... 1 bi-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 18092, ISO 14443, ISO 7816 (SAM Slot), USB Full Speed, NFC Forum Certification, Felica Performance Certification, PC/SC, CCID, CE, FCC, RoHS 2, REACH J-LIS (Japan), VCCI (Japan), MIC (Japan), KC (Korea), Microsoft® WHQL

**Device Driver Operating System Support**

Windows® CE 5.0, Windows® CE 6.0, Windows® Embedded Compact 7, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10  
Windows® Server 2003, Windows® Server 2003 R2, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2, Windows® 2016  
Linux®, Mac OS®, Solaris, Android™ 3.1 and later



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