Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1252U
NFC Forum Certified
Reader

Technical Specifications V1.02

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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)
    - 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[1]
- 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)
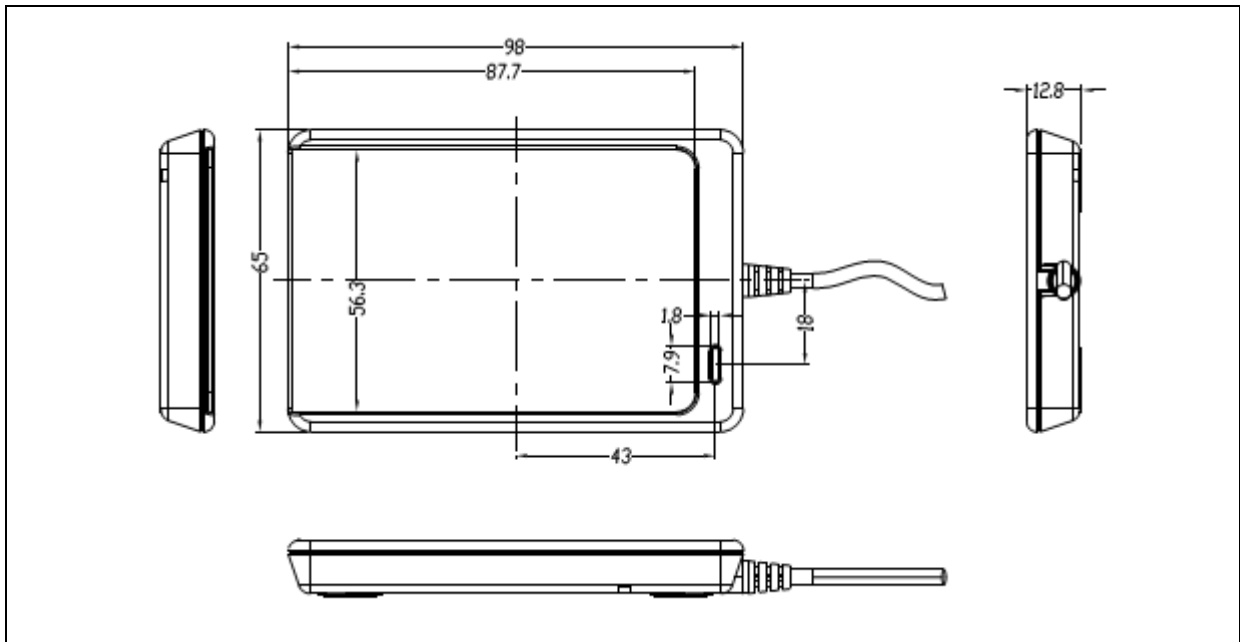 - MIC (Japan)
  - KC (Korea)
  - Microsoft® WHQL

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[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

- 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 – 50 °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® 2000, 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

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

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