ACR1252U
NFC Forum Certified Reader
Technical Specifications V1.05
Table of Contents

1.0. Introduction ............................................................................................................. 3
2.0. Features .................................................................................................................. 4
3.0. Typical Applications .............................................................................................. 5
4.0. Technical Specifications ....................................................................................... 6
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\(^1\)
- 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

\(^1\) 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
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
Linux®, Mac OS®, Solaris, Android™ 3.1 and later

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