Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1255U-J1
ACS Secure Bluetooth®
NFC Reader

Technical Specifications V1.12

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1.0. Introduction

The ACR1255U-J1 ACS Secure Bluetooth® NFC Reader combines the latest 13.56 MHz contactless technology with Bluetooth® connectivity for on-the-go smart card and NFC applications.

1.1. Smart Card Reader

The ACR1255U-J1 supports ISO 14443 Type A and B smart cards, MIFARE®, FeliCa, and most NFC tags and devices compliant with ISO 18092 standard. This makes it the ideal device for a broad range of solutions, such as hands-free verification for physical and logical access control, and inventory tracking. The ACR1255U-J1 has both Bluetooth 4.0 interface for pairing with mobile devices and USB Full Speed for PC-linked operation. Additionally, it can read/write at speeds of up to 424 Kbps for contactless smart card and NFC device access.

1.2. Compact Design

With a compact design and a rechargeable Lithium-ion battery for power, the ACR1255U-J1 is extremely portable and convenient for use anytime, anywhere with most Bluetooth-enabled smartphones and tablets in the market.

1.3. Firmware Upgradeable Feature

To save valuable cost and time, the firmware of the ACR1255U-J1 could conveniently be upgraded in-field to let users cope with the fast-changing technology for their applications to suit different scenarios.

1.4. Secure Bluetooth® Connectivity

With Bluetooth technology and AES-128 encryption (CBC ciphering mode), the ACR1255U-J1 can connect securely and wirelessly with ease to any device running on Android™ version 4.3 and later, iOS 5.0 and later, Windows® 7 and later, and Mac OS® 10.7 and later.

1.5. Ease of Integration

The ACR1255U-J1 can easily be installed for use with any personal computer running on Windows® operating system because it is PC/SC and CCID-compliant. Its drivers are also compatible with Linux® and Mac OS®.

With its numerous features, the ACR1255U-J1 is the perfect reader for your smart card solution.

2.0. Features

- USB Full Speed Interface
- Bluetooth Interface
- Plug and Play – CCID support brings utmost mobility
- Smart Card Reader:
    - Contactless Interface:
        - Read/Write speed of up to 424 Kbps
        - Built-in antenna for contactless tag access, with reading distance of up to 50 mm (depending on tag type)
        - Supports ISO 14443 Part 4 Type A and B cards, MIFARE, FeliCa, and all 4 types of NFC (ISO/IEC 18092) tags
        - Built-in anti-collision feature (only one tag is accessed at any time)
        - Supports AES-128 encryption algorithm (CBC ciphering mode)
        - NFC Mode Supported:
            - Card reader/writer mode
- Application Programming Interface:
    - Supports PC/SC
    - Supports CT-API (through wrapper on top of PC/SC)
- Built-in Peripherals:
    - Two user-controllable bi-color LEDs
    - User-controllable buzzer
- USB Firmware Upgradeability[1]
- Supports Android™ 4.3 and later[2]
- Supports iOS 8.0 and later[3]
- Compliant with the following standards:
    - EN 60950/IEC 60950
    - ISO 14443
    - ISO 18092
    - Bluetooth
    - PC/SC
    - CCID
    - CE
    - FCC
    - RoHS
    - REACH
    - VCCI (Japan)
    - TELEC (Japan)
    - BIS (India)
    - Microsoft® WHQL

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[1] *Applicable under PC-linked mode*
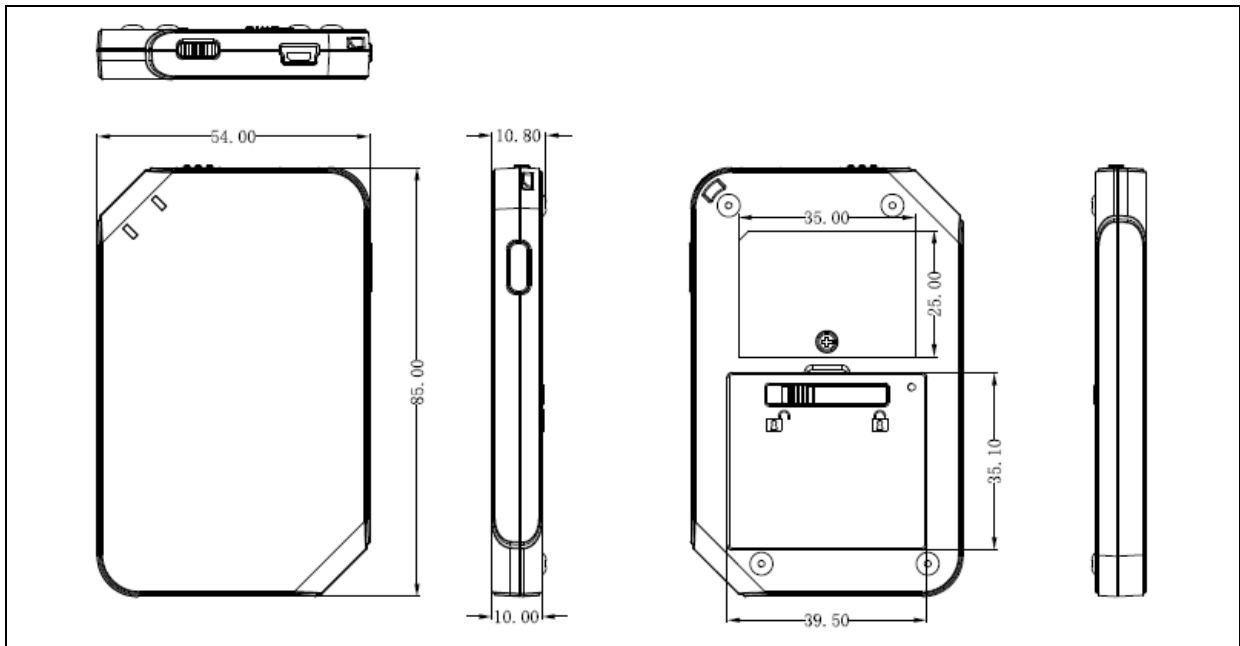[2] *Uses an ACS-defined Android Library*
[3] *Uses an ACS-defined iOS Library*

3.0. Typical Applications

- e-Government
- e-Healthcare
- e-Purse and Loyalty
- Mobile Banking and Payment
- Network Security
- Access Control
- Public Key Infrastructure

4.0. Technical Specifications

Physical Characteristics	
Dimensions	85 mm (L) x 54 mm (W) x 10 mm (H)
Weight	37.5 g (74.1 g with cable ± 5 g tolerance)
Color	White

Bluetooth Interface	
Protocol	Bluetooth (Bluetooth Low Energy/Bluetooth 4.0)
Power Source	Rechargeable Lithium-ion Battery (charging through USB)
Speed	1 Mbps

USB Host Interface	
Protocol	USB CCID
Connector Type	USB Mini-B
Power Source	From USB port
Speed	USB Full Speed (12 Mbps)
Supply Voltage	5 V
Supply Current	Max. 500 mA
Cable Length	1 m, Detachable

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	45.60 mm x 42.00 mm

Built-in Peripherals	
LED	2 bi-color: Red and Blue, Red and Green
Buzzer	Monotone

Other Features	
Encryption	In-device AES-128 Encryption Algorithm (CBC Ciphering Mode)
Firmware Upgrade	Supported (upgradeable through USB Interface)

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

Operating Conditions	
Temperature	0 °C – 60 °C[4]
Humidity	Max. 85% (non-condensing)
MTBF	400,000 hrs

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[4]*Recommended Charging Temperature: 0 °C – 45 °C*

Certifications/Compliance

EN 60950/IEC 60950, ISO 14443, ISO 18092, USB Full Speed, Bluetooth, PC/SC, CCID, CE, FCC
RoHS, REACH, VCCI (Japan), TELEC (Japan), BIS (India), Microsoft® WHQL

Device Driver Operating System Support

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®, Android™[5], iOS[6]

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[5] *4.3 or later Android version is required for Bluetooth 4.0*
[6] *8.0 and later iOS version is required*