Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1222L
USB NFC Reader
with LCD

Technical Specifications V1.09

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1.0. Introduction

The ACR1222L is a PC-linked NFC contactless reader with LCD screen and USB host interface. Developed based on the 13.56 MHz RFID technology and the ISO/IEC 18092 NFC standard, it supports ISO 14443 Type A and B cards, MIFARE®, FeliCa and all four types of NFC tags.

ACR1222L is equipped with four LEDs, a buzzer and an LCD screen, providing users with a clear indication of the reader's status. The two-line graphic LCD has multiple language support, including Chinese, English, Japanese, and several European languages. It allows interactive operations such as scrolling up and down, left and right, etc. ACR1222L also comes with three built-in ISO 7816–compliant Class A SAM slots which can be used together with SAM cards for enhanced security in contactless operations.

Moreover, ACR1222L has a built-in anti-collision feature and direct card type polling commands that enable smooth operation in cases where multiple cards are present. ACR1222L is PC/SC-compliant and supports firmware upgrade, which allows interoperability across different applications and platforms. With its enabled convenience in contactless transactions, ACR1222L is suitable for applications such as payment, access control, and time and attendance checking.

2.0. Features

- USB Full Speed Interface
- CCID-compliant
- Smart Card Reader:
  - o 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)
  - o SAM Interface:
    - ▪ Three SAM Slots
    - ▪ Supports ISO 7816 Class A SAM card
- Built-in Peripherals:
  - o Two-line graphic LCD screen with interactive operability (i.e. scroll up and down, left and right, etc.) and multi-language support (i.e. Chinese, English, Japanese, and several European languages)
  - o Four user-controllable LEDs
  - o User-controllable buzzer
- Application Programming Interface:
  - o Supports PC/SC
  - o Supports CT-API (through wrapper on top of PC/SC)
- USB Firmware Upgradability
- Supports Android™ 3.1 and later[1]
- Compliant with the following standards:
  - o ISO 7816 Class A (SAM Slot)
  - o ISO 14443
  - o ISO 18092
  - o PC/SC
  - o CCID
  - o CE
  - o FCC
  - o RoHS
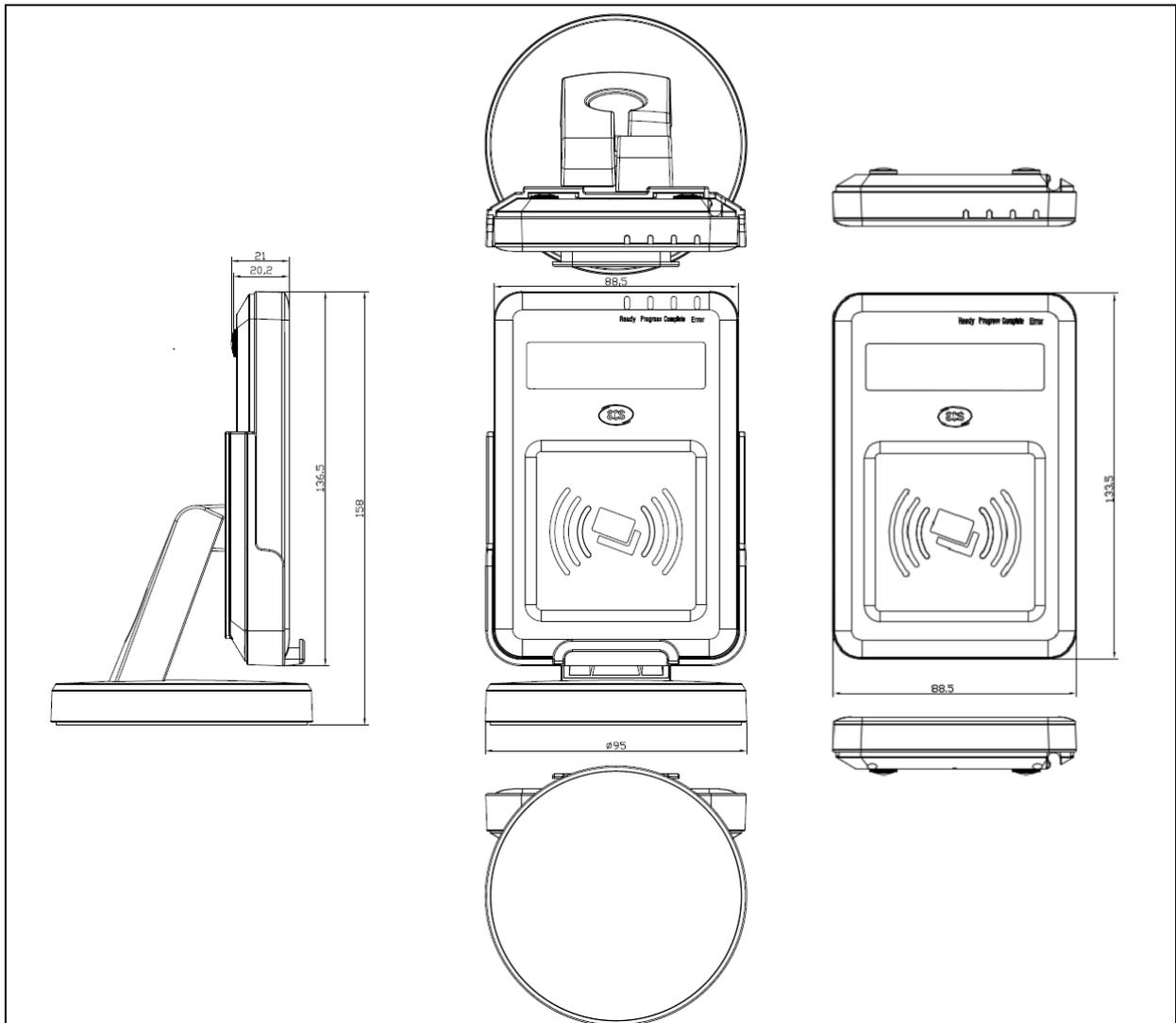 - o VCCI (Japan)
  - o KC (Korea)
  - o Microsoft® WHQL

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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	Main Body: 133.5 mm (L) × 88.5 mm (W) × 21.0 mm (H)
	With Stand: 158 mm (L) × 95 mm (W) × 95 mm (H)
Weight	Main Body: 173 g
	With Stand: 415 g
Color	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. 350 mA
Cable Length	1.5 m, Fixed

Contactless Smart Card Interface

Standard	ISO/IEC 18092 NFC, ISO14443 Type A & B, MIFARE, FeliCa
Protocol	ISO 14443 T=CL for ISO14443-4–compliant cards
	T=CL Emulations 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	56 mm × 64 mm

SAM Card Interface

Number of Slots .... 3 Standard SIM-sized Card Slots
Standard .... ISO 7816, Class A (5 V)
Protocol... T=0; T=1
Smart Card Read/Write Speed....... 9.6 Kbps – 344 Kbps
Card Connector Type .... SAM Slot 0: Contact
.... SAM Slot 1: Contact
.... SAM Slot 2: Contact

Built-in Peripherals

LCD... Graphic LCD with yellow-green backlight
.... 128 pixels × 32 pixels
.... Number of characters: 16 characters × 2 lines
LED .... 4 single-color: Green, Blue, Orange, and Red
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 .... 300,000 hrs

Certifications/Compliance

ISO 7816 (SAM slot), ISO 14443, ISO 18092, USB Full Speed, PC/SC, CCID, CE, FCC, RoHS
VCCI (Japan), KC (Korea), Microsoft® WHQL

Device Driver Operating System Support

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