Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1222L
USB NFC Reader
with LCD

Technical Specifications V1.04

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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, 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 operation, 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 has firmware upgradability and PC/SC compliance, which allows its interoperability across different applications and platforms. With the convenience it enabled in contactless transactions, ACR1222L is suitable for applications such as payment, access control and time and attendance checking.

2.0. Features

- USB 2.0 Full Speed Interface
- CCID Compliance
- 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, FeliCa and all four types of NFC (ISO/IEC 18092) tags
    - Built-in anti-collision feature (only one tag is accessed at any time)
  - SAM Interface
    - Three SAM Slots
    - Supports ISO 7816 Class A SAM Card
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Built-in Peripherals:
  - Two-line graphic LCD 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)
  - Four user-controllable LEDs
  - User-controllable buzzer
- USB Firmware Upgradability
- Supports Android™ 3.1 and above
- Compliant with the following standards:
  - ISO 18092
  - ISO 14443
  - ISO 7816 Class A (SAM Slot)
  - CE
  - FCC
  - KC
  - VCCI
  - PC/SC
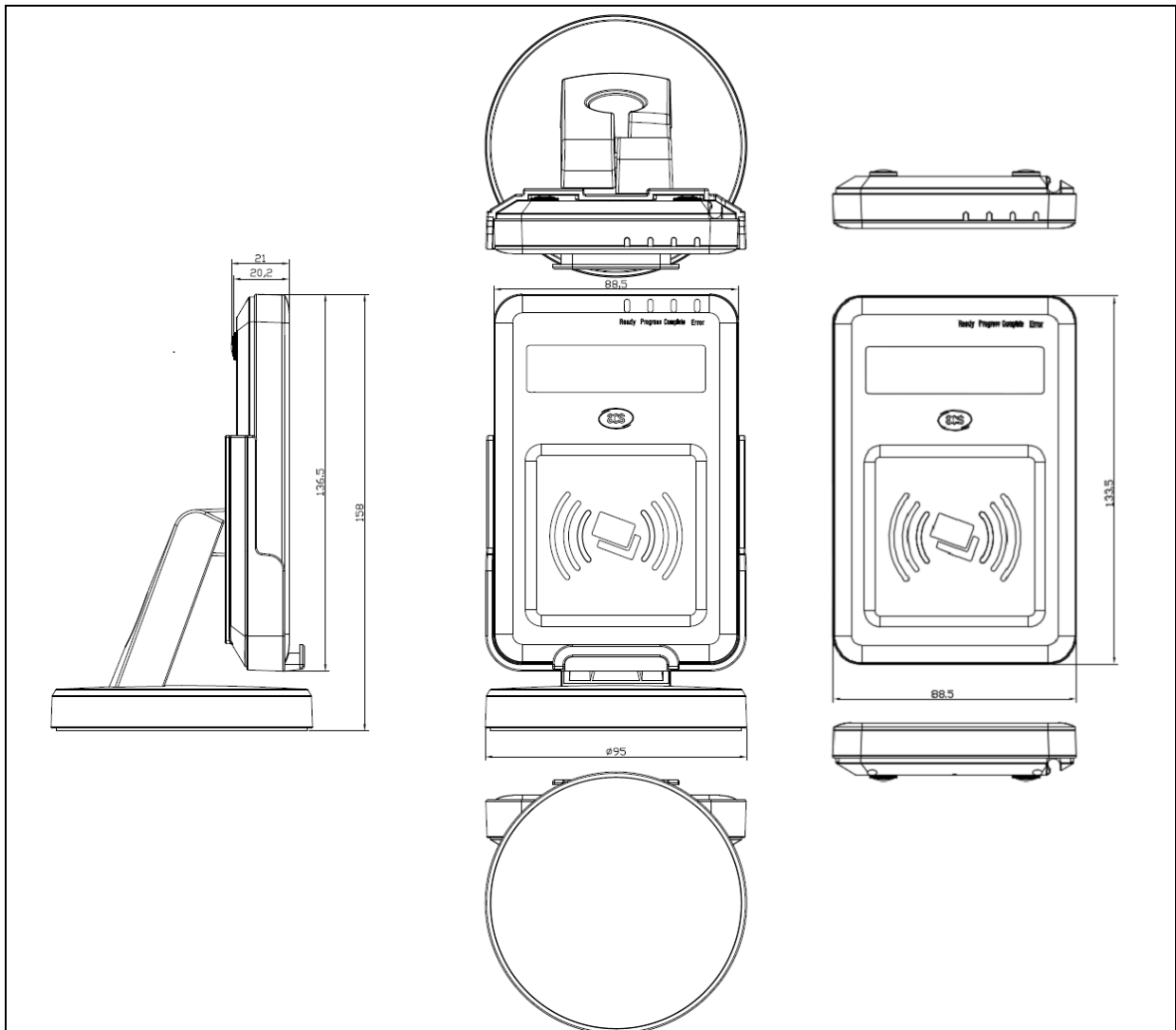 - CCID
  - RoHS 2
  - Microsoft® WHQL

3.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program

4.0. Technical Specifications

Universal Serial Bus Interface

Power Source................................. From USB
Speed... 12 Mbps (Full speed)
Supply Voltage.............................. Regulated 5 V DC
Supply Current .... 300 mA (maximum)

Contactless Smart Card Interface

Standard .... MIFARE, ISO 14443-4 Type A & B, FeliCa, ISO/IEC 18092 NFC
Protocol.. ISO 14443 T=CL for ISO 14443-4 compliant cards and T=CL Emulation for MIFARE Classic 1K/4K, FeliCa, ISO 18092
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

SAM Card Interface

Standard .... ISO 7816 Class A
Protocol.. T=0 and T=1 protocol

Built-in Peripherals

LCD Display .... 128 x 32 pixel graphic LCD with yellow-green backlight
.... Number of characters: 2 line x 16 characters
LED Status Indicators .... 4 LEDs: Green, Blue, Orange and Red
Buzzer.. Monotone

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Physical Specifications

Dimensions	Main Body:	133.5 mm (L) x 88.5 mm (W) x 21.0 mm (H)
	With Stand:	158.0 mm (L) x 95.0 mm (W) x 95.0 mm (H)
Weight	Main Body:	173 g
	With Stand:	415 g
Color	Black	
Cable Length	1.5 m (USB)	

Operating Conditions

Temperature	0 °C - 50 °C
Humidity	Max. 90% (non-condensing)
MTBF	300,000 hrs

Application Programming Interface

PC/SC
CT-API (through wrapper on top of PC/SC)

Certifications/Compliance

ISO 18092, ISO 14443, ISO 7816 Class A (SAM slot), CE, FCC, KC, VCCI, PC/SC, CCID, RoHS 2, USB Full Speed
Microsoft® WHQL for Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8

Device Driver Operating System Support

Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2
Linux®, Mac OS®, Android™ 3.1 and above

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