



**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACR1283L Standalone Contactless Reader

Technical Specifications V1.03





## 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 ACR1283L is a cost-effective and powerful contactless smart card reader designed to operate in standalone mode. Its contactless smart card interface can access major contactless cards following the ISO 14443 standard, which includes the widely used MIFARE® series. It also comes with four built-in SAM slots, making it suitable for a wide range of applications that have multiple card issues or different security requirements. ACR1283L enriches user interaction with its two-line graphic LCD, four LEDs and a buzzer to clearly display application and card operation status, as well as a twelve-key capacitive touch keypad for user input. In addition to its standalone operation, the ACR1283L also supports PC-linked operation for typical contactless PC/SC host applications.

With its high speed 32-bit MCU and strong antenna performance, ACR1283L is ready for highly secure and highly demanding applications where speed and security are of high importance, such as government, time and attendance, payment, and loyalty applications. An all-in-one, cost effective and powerful terminal designed to provide greater flexibility and convenience, ACR1283L is the smart choice for your smart card applications.



## 2.0. Features

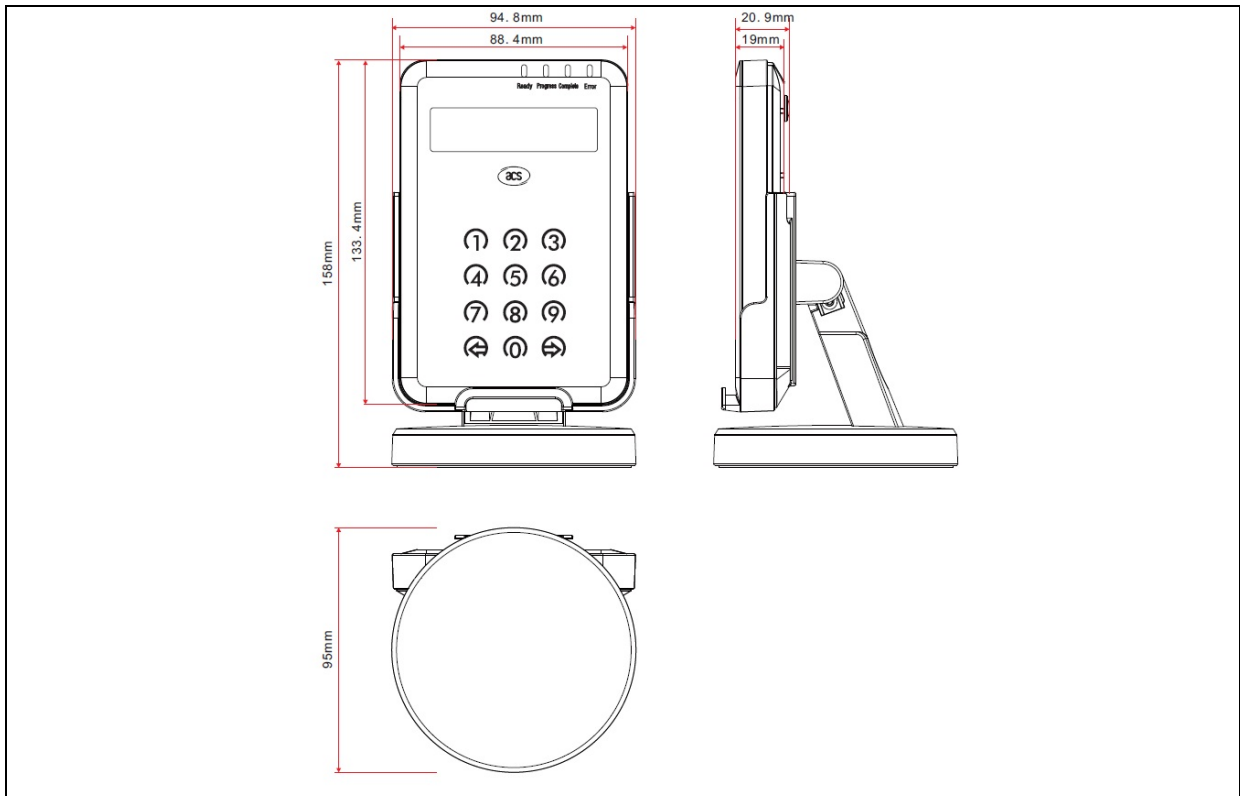
- Dual Operation Modes:
  - PC-linked
  - Standalone
- PC-linked Operation:
  - USB 2.0 Full Speed Interface
  - CCID Compliance
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Standalone Operation:
  - Support for third-party application programming
  - Over 400 KB memory space for third-party application
  - Over 500 KB memory space for data storage
  - Supported development platform:
    - IAR Embedded Workbench, Version 5.50 or above
    - CoIDE(GCC), Version 1.3.0 or above
- Smart Card Reader:
  - Contactless Interface Read/Write speed of up to 848 Kbps
  - Built-in antenna for contactless tag access, with card reading distance of up to 50 mm (depending on tag type)
  - Support for ISO 14443 Part 4 Type A and B and MIFARE series
  - Built-in anti-collision feature (only one tag is accessed at any time)
  - Four ISO 7816-compliant SAM slots (MCU Card, T=0 and T=1)
- Built-in Peripherals:
  - Two-line graphic LCD
  - Four user-controllable LEDs
  - User-controllable buzzer
  - Twelve-key capacitive touch keypad
- In-device AES (128 and 256), DES and 3DES encryption
- Supports Android™ 3.1 and above
- USB Firmware Upgradability
- Compliant with the following standards:
  - ISO 14443
  - ISO 7816 (for SAM slot)
  - CE
  - FCC
  - PC/SC
  - CCID
  - Microsoft® WHQL
  - RoHS 2



### **3.0. Typical Applications**

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

## 4.0. Technical Specifications



### User-programmable Memory

Memory ..... 400 KB for Third-party Application Storage  
..... 512 KB for Data Storage

### Universal Serial Bus Interface

Power Source..... From USB  
Speed..... 12 Mbps (Full Speed)  
Supply Voltage..... Regulated 5 V DC  
Supply Current ..... Max. 500 mA

### Contactless Smart Card Interface

Standard ..... ISO 14443 Type A and B, MIFARE  
Protocol..... ISO 14443 T=CL for ISO 14443-4 compliant cards and T=CL Emulation for MIFARE series  
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, 848 Kbps  
Antenna Size..... 65 mm x 60 mm

### SAM Card Interface

Number of SAM Card Interfaces .... Four  
Standard ..... ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V), T=0 and T=1  
Supply Current ..... Max. 50 mA  
Smart Card Read/Write Speed..... 9.6 Kbps – 344 Kbps  
Short Circuit Protection ..... +5 V/GND on all pins  
CLK Frequency ..... 4 MHz

### Physical Specifications

Dimensions ..... Main Body: 133.4 mm (L) x 88.4 mm (W) x 20.9 mm (H);  
..... With Stand: 158.0 mm (L) x 95.0 mm (W) x 95.0 mm (H)  
Weight..... Main Body: 185 g  
..... With Stand: 420 g  
Color ..... Black  
Cable Length..... 1.5 m



**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 ..... Four LEDs: Green, Blue, Orange and Red  
 Buzzer ..... Monotone  
 Keypad ..... 3 x 4 Keys, Capacitive type

**Other Features**

Tamper Switch (Internal anti-intrusion detections and protection)  
 In-device AES, DES and 3DES Encryption Algorithm  
 USB Firmware Upgradability

**Operating Conditions**

Temperature ..... 0 °C – 50 °C  
 Humidity ..... Max. 90% (non-condensing)

**Application Programming Interface**

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

**Certifications/Compliance**

ISO 14443, ISO 7816, CE, FCC, PC/SC, CCID, RoHS2, 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, Windows® Server 2012  
 Linux®, Mac OS®, Android™ 3.1 and above



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