Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1281U-C1
USB Dual Interface Reader

Technical Specifications V1.06

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1.0. Introduction

ACR1281U-C1 DualBoost II is the second generation of ACS's ACR128 DualBoost Reader. It is a dual interface reader that can access any contact and contactless smart cards following the ISO 7816 and ISO 14443 standards. ACR1281U-C1 enables one to conventionally integrate separate and independent applications for contact and contactless technologies into one device and one card.

The DualBoost Series is PC/SC-compliant for both contact and contactless interfaces. It makes use of high-speed communication for contactless cards at a maximum of 848 Kbps, which makes it suitable for highly demanding applications. It also provides intelligent support for hybrid and combi cards, such that it detects a contactless card even if it is inserted in the contact card slot. Lastly, it has a built-in ISO 7816 (Class A) SAM slot, which can be used together with a SAM card, for added security in both contact and contactless applications.

With additional features such as USB firmware upgradability, contact memory card support and extended APDU support, the ACR1281U-C1 DualBoost II is an all-in-one, cost-effective and powerful dual interface reader designed to provide you with great flexibility and convenience.

2.0. Features

- USB 2.0 Full Speed Interface

- CCID-compliant

- Smart Card Reader:

  o 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)

    ▪ Supports ISO 14443 Part 4 Type A and B cards and MIFARE® Classic series

    ▪ Built-in anti-collision feature (only one tag is accessed at any time)

    ▪ Supports extended APDU (max. 64 KB)

  o Contact Interface:

    ▪ Supports ISO 7816 Class A, B, and C (5 V, 3 V and 1.8 V)

    ▪ Supports CAC (Common Access Card)

    ▪ Supports PIV (Personal Identity Verification Card)

    ▪ Supports microprocessor cards with T=0 or T=1 protocol

    ▪ Supports memory cards

  o SAM Interface:

    ▪ One SAM slot

    ▪ Supports ISO 7816 Class A SAM cards

- Application Programming Interface:

  o Supports PC/SC

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

- Built-in Peripherals:

  o Two user-controllable LEDs

  o User-controllable buzzer

- USB Firmware Upgradability

- Supports Android™ 3.1 and later[1]

- Compliant with the following standards:

  o ISO 14443

  o ISO 7816

  o PC/SC

  o CCID

  o CE

  o FCC

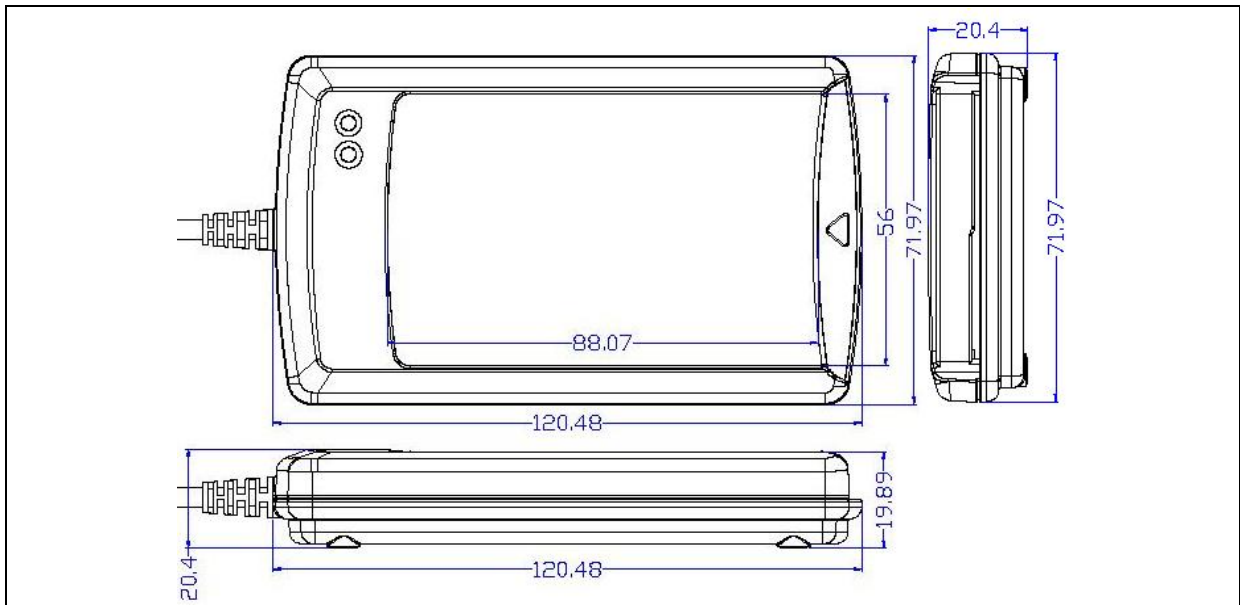 o RoHS 2

  o REACH

  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	120.5 mm (L) × 72.0 mm (W) × 20.4 mm (H)
Weight	140 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. 200 mA
Cable Length	2.0 m, Fixed

Contactless Smart Card Interface	
Standard	ISO 14443 A and B Parts 1-4
Protocol	ISO 14443 T=CL for ISO 14443-4–compliant cards
	T=CL Emulation for MIFARE Classic
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 × 60 mm

Contact Smart Card Interface	
Number of Slots	1 Full-sized Card Slot
Standard	ISO 7816, Class A, B, C (5 V, 3 V, 1.8 V)
Protocol	T=0; T=1
Supply Current	Max. 60 mA
Smart Card Read/Write Speed	9.6 Kbps – 420 Kbps
Short Circuit Protection	(+5) V/GND on all pins
Clock Frequency	4.80 MHz
Card Connector	Landing
Card Insertion Cycles	Min. 200,000

SAM Card Interface	
Number of Slot	1 Standard SIM-sized Card Slot
Standard	ISO 7816, Class A (5 V)
Protocol	T=0; T=1
Card Connector Type	SAM Slot 0: Contact

Built-in Peripherals	
LED	2 single-color: Red and Green
Buzzer	Monotone

Other Feature	
Firmware Upgrade	Supported

Operating Conditions

Temperature................................... 0 °C – 50 °C
Humidity .... Max. 90% (non-condensing)
MTBF .... 500,000 hrs

Application Programming Interface

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

Certifications/Compliance

ISO 7816, ISO 14443, USB Full Speed, PC/SC, CCID, CE, FCC, RoHS 2, REACH
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

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