Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1281U-C1
USB Dual Interface Reader
FIPS 201 Certified

Technical Specifications V1.03

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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 SAM slot 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 FIPS 201 certified 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.
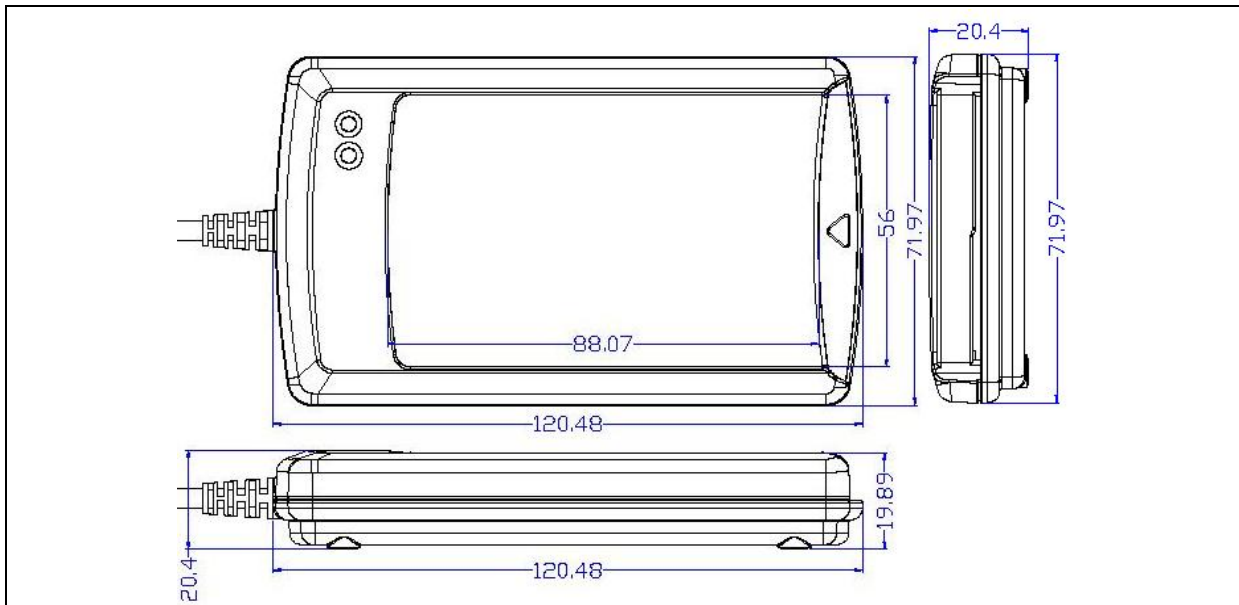
2.0. Features

- USB 2.0 Full Speed Interface
- CCID Compliance
- Contactless Smart Card Reader:
  - 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 kbytes)
- Contact Smart Card Reader:
  - Supports ISO 7816 Class A, B and C (5 V, 3V 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
  - ISO 7816 compliant SAM slot
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Built-in Peripherals:
  - Two user-controllable LEDs
  - User-controllable buzzer
- USB Firmware Upgradability
- Supports Android™ OS 3.1 and above
- Compliant with the following standards:
  - ISO 14443
  - ISO 7816
  - FIPS 201
  - CE
  - FCC
  - PC/SC
  - CCID
  - Microsoft® WHQL
  - RoHS

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 .... 200 mA

Contactless Smart Card Interface

Standard .... ISO 14443 A and B Parts 1-4
Protocol.. ISO 14443 T=CL for ISO 14443-4 compliant cards and T=CL Emulation for MIFARE series
Smart Card Read/Write Speed....... 106 kbps, 212 kbps, 424 kbps, 848 kbps
Operating Frequency .... 13.56 MHz
Operating Distance .... Up to 50 mm (depending on card type)
Antenna Size................................ 65 mm x 60 mm

Contact Smart Card Interface

Standard .... ISO 7816 1/2/3, Class A, B, C (5 V, 3 V, 1.8 V), T=0 and T=1
Supply Current .... Max. 60 mA
Smart Card Read/Write Speed....... 9.6 – 420 kbps
Short Circuit Protection .... +5 V/GND on all pins
CLK Frequency .... 4.80 MHz
Card Connector............................. Landing
Card Insertion Cycles.................... Min. 200,000

SAM Card Interface

Standard .... ISO 7816, Class A (5 V)
Protocol.. T=0 and T=1 protocol

Built-in Peripherals

LEDs .... Red and Green
Buzzer.. Monotone

Physical Specifications

Dimensions .... 120.5 mm (L) x 72.0 mm (W) x 20.4 mm (H)
Weight... 140 g
Color .... Black
Cable Length................................ 2 m (USB)

Operating Conditions

Temperature .... 0 – 50 °C
Humidity .... 10% - 90%
MTBF .... 500,000 hrs.

Application Programming Interface

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

Certifications/Compliance

ISO 14443, ISO 7816, FIPS 201, PC/SC, CCID, CE, FCC, RoHS, USB Full Speed
Microsoft® WHQL, Windows® 2000, Windows®XP, Windows Vista®, Windows® 7, Windows® 8,
Windows® Server 2012

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, Android 3.1 and above