



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1281U-C1

USB Dual Interface Reader

FIPS 201 Certified



Technical Specifications V1.05



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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 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
- Smart Card Reader:
 - 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 KB)
 - Contact Smart Card Reader:
 - 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
 - SAM Interface:
 - One SAM slot
 - ISO 7816 compliant SAM slot (Class A)
- 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™ 3.1 and above¹
- Compliant with the following standards:
 - ISO 14443
 - ISO 7816
 - PC/SC
 - CCID
 - CE
 - FCC
 - RoHS 2
 - REACH
 - FIPS 201 (USA)
 - Microsoft® WHQL

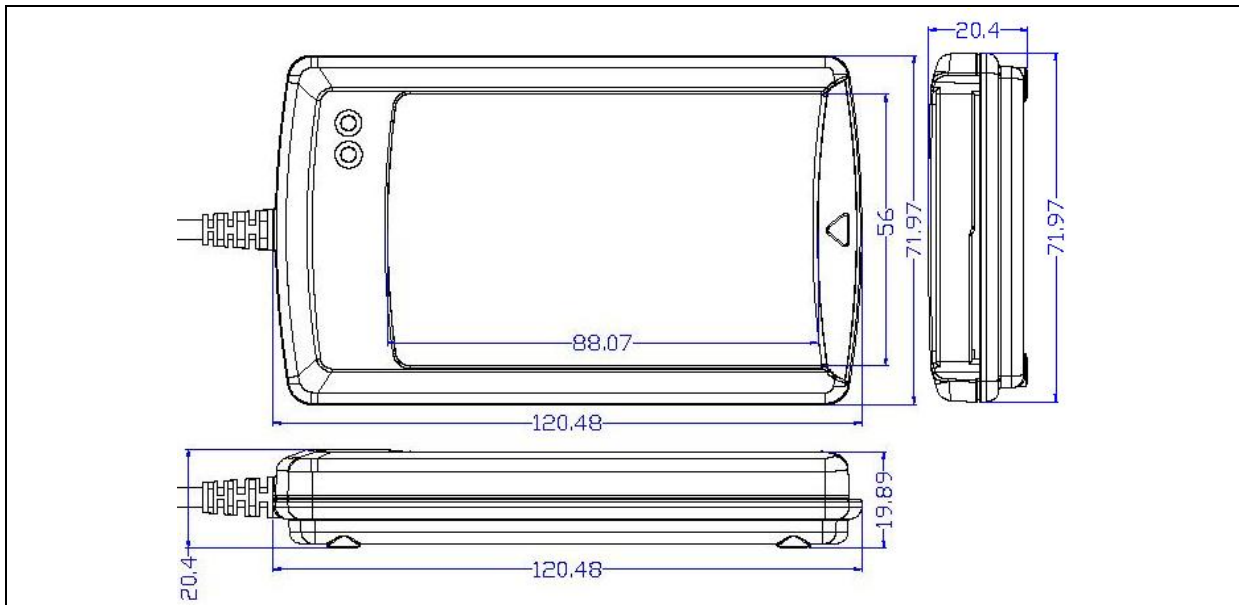
¹ Uses an ACS-defined Android Library



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) x 72.0 mm (W) x 20.4 mm (H)
 Weight 140 g
 Color Black

USB Host Interface

Protocol USB CCID
 Type Four Lines: +5V, GND, D+ and D-
 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 cable

Contactless Smart Card Interface

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

Contact Smart Card Interface

Number of Slots 1 Full-sized Card Slot
 Standard ISO 7816 Parts 1-3, 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 Slots 1 Standard SIM-sized
 Standard ISO 7816, Class A (5 V)
 Protocol T=0; T=1
 Card Connector Type Contact

Built-in Peripherals

LED 2 single-color: Red and Green
 Buzzer Monotone



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 14443, ISO 7816, USB Full Speed, PC/SC, CCID, CE, FCC, RoHS 2, REACH
FIPS 201 (USA), 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™



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