



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1281U-C1

USB Dual Interface Reader



Technical Specifications V1.09



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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 both 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 upgradeability, 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 Full Speed Interface
- CCID-compliant
- 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)
 - 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 Interface:
 - Supports ISO 7816 Class A, B, and C (5 V, 3 V and 1.8 V) cards
 - Supports CAC (Common Access Card)
 - Supports PIV (Personal Identity Verification Card)
 - Supports microprocessor cards with T=0 or T=1 protocol
 - Supports memory cards
 - Supports PPS (Protocol and Parameters Selection)
 - Features Short Circuit Protection
 - Supports extended APDU (max. 64 KBytes for T=1; max. 512+10 Bytes for T=0)
 - SAM Interface:
 - One SAM slot
 - Supports ISO 7816 Class A SAM cards
- 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 later¹
- Compliant with the following standards:
 - ISO 14443
 - ISO 7816
 - PC/SC
 - CCID
 - CE
 - FCC
 - RoHS
 - REACH
 - Microsoft® WHQL

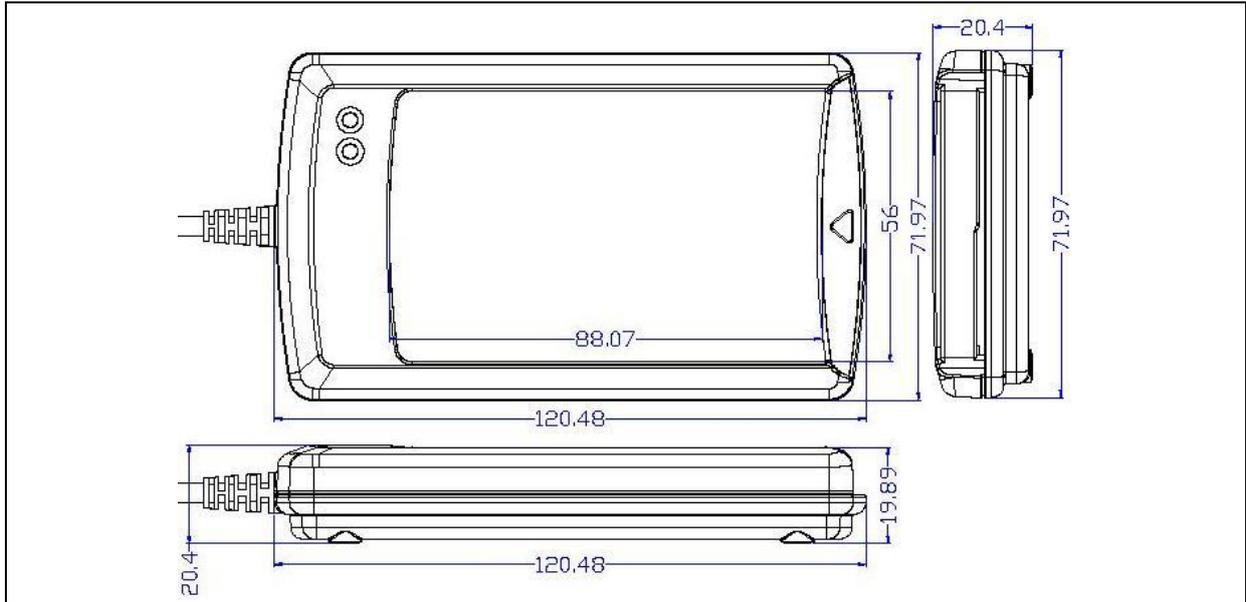
¹ Uses an ACS-defined Android Library



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) × 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; Memory Card Support
 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 ICC Slot: 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 – 60 °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, REACH
Microsoft® WHQL

Device Driver Operating System Support

Windows® XP, Windows® Vista™, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10,
Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012,
Windows® Server 2012 R2, Windows® Server 2016
Linux®, Mac OS®, Solaris, Android™ 3.1 and later



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