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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 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 later
- Compliant with the following standards:
  - ISO 14443
  - ISO 7816
  - PC/SC
  - CCID
  - CE
  - FCC
  - RoHS 2
  - REACH
  - 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
- Operating Frequency: 13.56 MHz
- Operating Distance: Up to 50 mm (depending on tag type)
- Smart Card Read/Write Speeds: 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 2, REACH
Microsoft® WHQL

Device Driver Operating System Support
Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10,
Linux®, Mac OS®, Solaris, Android™ 3.1 and later

Android is a trademark of Google LLC.
Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.
Mac OS is a trademark of Apple Inc.
Microsoft, Windows, and Windows Vista are registered trademarks of Microsoft Corporation in the United States and/or other countries.
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