



**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACR1281S-C1

## Serial Dual Interface Reader



Technical Specifications V1.05



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## 1.0. Introduction



ACR1281S-C1 DualBoost II is a dual interface reader that can access any contact and contactless smart cards following the ISO 7816 and ISO 14443 standards. ACR1281S-C1 enables one to conventionally integrate separate and independent applications for contact and contactless technologies into one device and one card.

The DualBoost II makes use of serial RS-232 protocol to communicate with the host computer. It also 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-compliant Class A SAM (Secure Access Module) slot which can be used together with a SAM card for added security in both contact and contactless applications.



## 2.0. Features

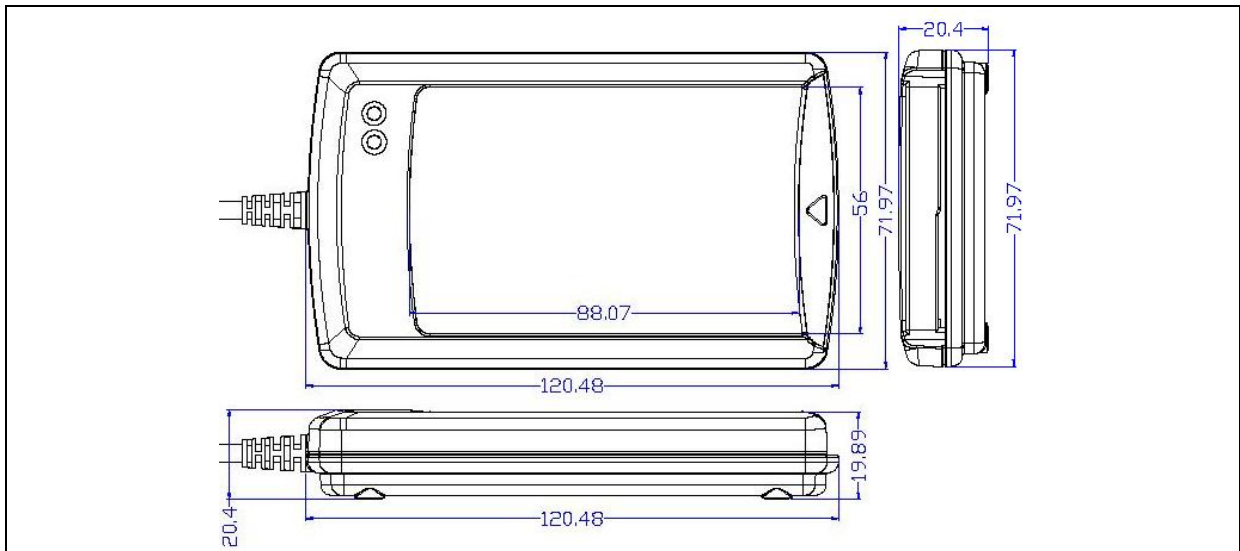
- Serial RS-232 Interface: Baud Rate = 9.6 Kbps (default), 19.2 Kbps, 38.4 Kbps, 57.6 Kbps, 115.2 Kbps, 230.4 Kbps
- USB interface for power supply
- CCID-like frame format (binary format)
- Smart Card Reader:
  - Contactless Interface:
    - Read/Write speed of up to 848 Kbps
    - Built-in antenna 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® series
    - Built-in anti-collision feature (only one tag is accessed at any time)
    - Supports extended APDU (max. 64 KB)
  - Contact Card Interface:
    - Supports ISO 7816 Class A, B and C (5 V, 3 V and 1.8 V) cards
    - Supports microprocessor cards with T=0 or T=1 protocol
    - Supports memory cards
  - SAM Interface:
    - One SAM slot
    - Supports ISO 7816 Class A SAM cards
- Built-in Peripherals:
  - Two user-controllable LEDs
  - User-controllable buzzer
- USB Firmware Upgradability
- Compliant with the following standards:
  - ISO 14443
  - ISO 7816
  - CE
  - FCC
  - RoHS 2



### **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 .....	150 g
Color .....	Black

### Serial Host Interface

Protocol .....	Serial RS-232
Connector Type .....	DB9 Connector
Power Source .....	From USB port
Speed .....	9.6 Kbps (default), 19.2 Kbps, 38.4 Kbps, 57.6 Kbps, 115.2 Kbps, 230.4 Kbps
Supply Voltage .....	5 V
Supply Current .....	Max. 200 mA
Cable Length .....	1.5 m, Fixed (DB9 + USB)

### 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 (depends 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 – 344 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 Slots .....	1 Standard SIM-sized Card Slot
Standard .....	ISO 7816 Class A (5 V)
Protocol .....	T=0; T=1
Smart Card Read/Write Speed .....	9.6 Kbps – 420 Kbps
Card Connector Type .....	SAM Slot 0: Contact

### Built-in Peripherals

LED .....	2 single-color: Red and Green
Buzzer .....	Monotone

### Other Feature

Firmware Upgrade .....	Supported
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**Operating Conditions**

Temperature ..... 0 °C - 60 °C  
Humidity ..... Max. 90% (non-condensing)  
MTBF ..... 500,000 hrs

**Certifications/Compliance**

ISO 14443, ISO 7816, CE, FCC, RoHS 2

**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®



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