Advanced Card Systems Ltd.
Card & Reader Technologies

ACR128U Dual-Interface Reader

Technical Specifications

Table of Contents

1.0. Introduction

The ACR128 Dual Boost Reader is a secure economically-designed dual-interface reader that complies with ISO 7816 Parts 1-3 for contact cards and ISO 14443 Parts 1-4 for contactless cards. This dual-interface reader makes it possible to integrate one device and one card from conventional separate and independent applications for contact and contactless technologies. The ACR128 also offers seamless transition from contact to contactless platform since it can support existing cards being used in contact card applications while having the capability of incorporating contactless cards into your existing system.

ACR128 is PC/SC compliant for contact and contactless interfaces and makes use of high-speed communication for contactless cards that reaches up to 848 kbps for DESFire Cards. It offers intelligent support for hybrid and combi cards as well, detecting a contactless card even if it is inserted in the contact card slot!

Moreover, ACR128 has a built-in SAM slot for added security. This versatile reader is available in USB interface, which easily fits into the PC environment as well as other systems. It is ideal for a broad range of applications, including public transport terminals, physical and logical access controls, and even vending machines.

2.0. Features

- Compliance with CCID and PC/SC for contact, contactless and SAM card interfaces
- Read/write speed 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 major contactless smart cards that conform to ISO 14443 Type A and B
- Supports major contact smart cards that conform to ISO 7816
- Native T=CL support for ISO 14443-4
- T=CL emulation for Mifare Classic PICCs, e.g. Mifare® 1K/4K, Mini and Ultralight
- Supports new Mifare Plus and DESFire EV1
- Supports STM contactless memory chips, i.e. SR176, SRI512 and SRI4K
- Intelligent support for hybrid and combi cards
- Supports multi-block transfer mode
- Built-in anti-collision feature (at least 1 card is detected when multiple cards are presented)
- Built-in SAM card slot
- Durable landing type smart card connector
- User-controllable monotone buzzer and LEDs
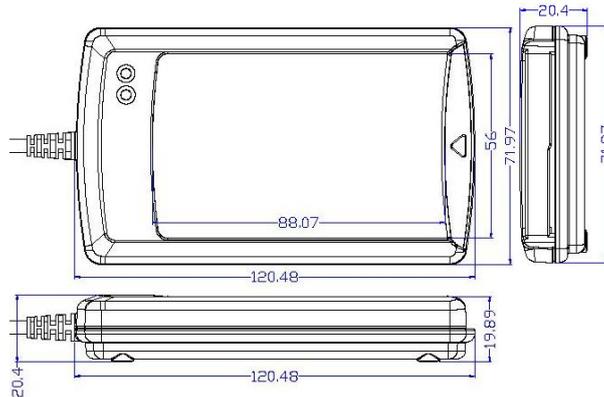- USB Full Speed (12 Mbps)

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 (max); 100 mA (normal)

Contactless Smart Card Interface
Standard.. ISO 14443 A & B Parts 1-4
Protocol .... ISO 14443 T=CL for ISO 14443-4 compliant cards and T=CL Emulation for Mifare Classics and STM contactless memory chips i.e. SR176, SRI512, SRI4K
Smart card read / write speed............... 106 kbps, 212 kbps, 424 kbps and 848 kbps

Contact Smart Card Interface
Standard.. ISO 7816 1/2/3, Class A, B (5V, 3V), T=0 and T=1
Supply current .... max. 60 mA
Smart card read / write speed............... 9,600 – 115,200 bps
Short circuit protection .... +5 V / GND on all pins
CLK frequency..................................... 3.58 MHz
Card connector.................................... Landing
Card insertion cycles .... min. 300,000

SAM Card Interface
Standard SAM Socket

Casing
Dimensions.. 120.48 mm (L) x 71.97 mm (W) x 20.4 mm (H)
Material .... ABS
Color... Metallic Silver Grey

Antenna
Antenna Size .... 65 mm x 60 mm
Operating distance .... up to 50 mm (depending on tag type)

Operating Frequency for Contactless Cards Access
Operating Frequency............................ 13.56 MHz

Built-in Peripherals
Monotone buzzer
Two LEDs

Operating Conditions
Temperature... 0 – 50 °C
Humidity .... 10% - 80%

Cable Connector
Length .... 1.0 m (USB)

Certifications/Compliance
PC/SC, CCID, CE, FCC, RoHS Compliant, USB Full Speed
Microsoft ® WHQL 2000, XP, Vista, 7

Device Driver Operating System Support
Windows ® 2000, Server 2003, XP, Vista, Server 2008, Server 2008 R2, 7
Linux, Mac