



Advanced Card Systems Limited

Card and Reader Technologies

A background image showing a person's hands interacting with a card reader. One hand is holding a card, and the other is near the reader's surface. The image is semi-transparent and serves as a backdrop for the central text.

Technical Specifications

ACR128 DualBoost Smart Card Reader





Advanced Card Systems Limited

ACR128 DualBoost Smart Card Reader

1.0 Introduction



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

The ACR128 is PC/SC Compliant for contact and contactless interfaces and it makes use of high-speed communication for contactless cards that reaches up to 848 kbps for DesFire Cards. It also offers intelligent support for hybrid cards and combi cards and is designed as such that it can still detect a contactless card even if it is inserted in the contact card slot!

The ACR128 also has a built-in SAM card slot for added security and uses a landing type card acceptor which minimizes card damage for more reliable card operations. This versatile reader is available in USB interface, which can be easily integrated into the PC environment as well as other systems in a snap. It is ideal for a broad range of applications, including public transport terminals, physical and logical access controls, and even vending machines.

1.1 Working principle of SAM

The SAM or Secure Access Module is an additional feature in a Smart Card Reader that can enhance the level of security in your Smart Card based application. Normally, card authentication is implemented in PC or application level. However, with the presence of a SAM, mutual authentication can be implemented between card and reader which means that the PC will not perform the authentication but it will be done via card-to-reader and reader-to-card authentication making your system more secure and less prone to hacking. Advanced Card Systems Limited also provides powerful and efficient MCU cards like the ACOS3 and ACOS6-SAM Cards that you can use to develop highly secured applications with the ACR128.

1.2 Features

- PC/SC Compliant for Contact and Contactless Smart Card Interfaces
- CCID Compliant
- CE and FCC standard
- RoHS compliant
- Built-in Antenna
- Durable landing-typed Smart Card connector
- Built-in SAM card slot
- User-controllable monotone buzzer and LEDs
- USB Full Speed (12 Mbps)
- Support major contactless smart cards that conform to ISO14443 A/B
- Support major contact smart cards that conform to ISO7816
- Native T=CL support for ISO14443-4
- T=CL emulation for MIFARE Classics PICCs, e.g. MIFARE 1K/4K, Mini and Ultralight
- Supports Multi-Block Transfer Mode
- Intelligent Support for Hybrid Cards and Combi Cards.



2.0 Supported Card Types

2.1 Contact Card Support:

The ACR128 works with Contact cards that follow ISO 7816.

2.2 Contactless Card Support

The ACR128 works with a variety of 13.56MHz contactless smart cards including, but not limited to:

- MIFARE® cards Classics
- ISO 14443 Type A cards, like:
 - JCOP30 cards
 - MPCOS COMBI cards (need to accompany with the ACS ACR38DT Dual Key)
- ISO 14443 Type B cards, like:
 - Calypso cards (Tango, CD Light, CD21, GTML2)
 - ST cards (ST19XRC8E – in IC, passport, inlay forms)

3.0 Typical Applications

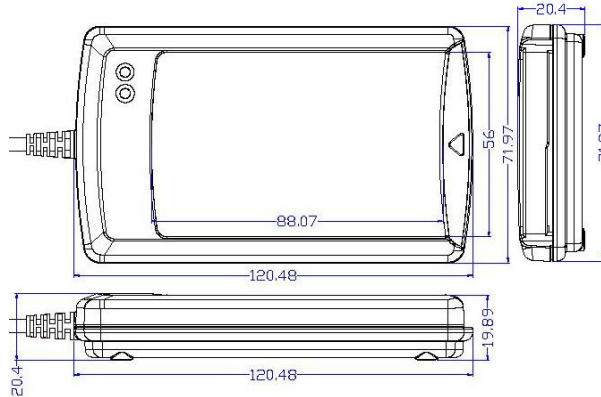
- E-Commerce
- E-purse Applications
- Home banking and Home shopping
- Physical Access Control
- Network access control
- Digital signature
- Loyalty Program
- Identification
- Parking and toll collection
- Vending Machines
- Stored value



Advanced Card Systems Limited

ACR128 DualBoost Smart Card Reader

4.0 Technical Specification



Universal Serial Bus Interface

Power source..... From USB
 Speed..... 12 Mbps (Full Speed)
 Supply Voltage..... Regulated 5V DC
 Supply Current..... 200mA (max); 100mA (normal)

Contactless Smart Card Interface

Standard..... ISO 14443 A & B Parts 1-4
 Protocol..... ISO14443 T=CL for ISO14443-4 compliant cards and T=CL Emulation for MIFARE Classics.
 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. 60mA
 Smart card read / write speed..... 9,600 – 115,200 bps
 Short circuit protection..... +5V / 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..... 65mm x 60mm
 Operating distance..... up to 50 mm

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)

Compliance/Certifications

USB Full Speed, ISO-7816 1-3, ISO14443 1-4, PC/SC, CCID, CE, FCC, RoHS, Microsoft WHQL 2000, XP, Vista
 EMV 2000 level 1 (on request)

OS Support

Windows 98, ME, 2K, 2003, XP, Vista

OEM

customer-specific colors, casing and cable connector

