Advanced Card Systems Limited

Card and Reader Technologies

ACR128 Technical Specifications

ACR128 Dual Interface 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 Dual Boost 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 Dual Boost 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 Dual Boost 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 Dual Boost.

1.2 Features

- PC/SC Compliant for Contact and Contactless Smart Card Interfaces
- CCID Compliant
- CE, FCC and RoHS compliant
- Built-in Antenna
- Durable landing-typed Smart Card connector for Contact Cards access
- Built-in SAM card slot
- User-controllable monotone buzzer
- Two User Controllable LEDS
- USB Full Speed (12 Mbps)
- Fully tested and compliant with major contactless smart cards that conform to ISO14443 A/B in the market.
- Fully tested and compliant with major contact smart cards that conform to ISO7816 in the market.
- Native T=CL support, T=CL emulation for MiFare 1K/4K PICCs.
- 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 Dual Boost works with MCU Cards that follow ISO 7816 T=0 and T=1 Protocol.

2.2 Contactless Card Support

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

- MIFARE® cards (Classics, DESFire)
- All ISO 14443 A cards, like:
  - JCOP30 cards
- ISO 14443 Type B cards, like:
  - Calypso cards (Tango, CD Light, CD21, GTML2
  - ST cards (ST19XRC8E – in IC, passport, inlay forms)
  - ATMEL AT88RF020
  - ASK CTS256/512B

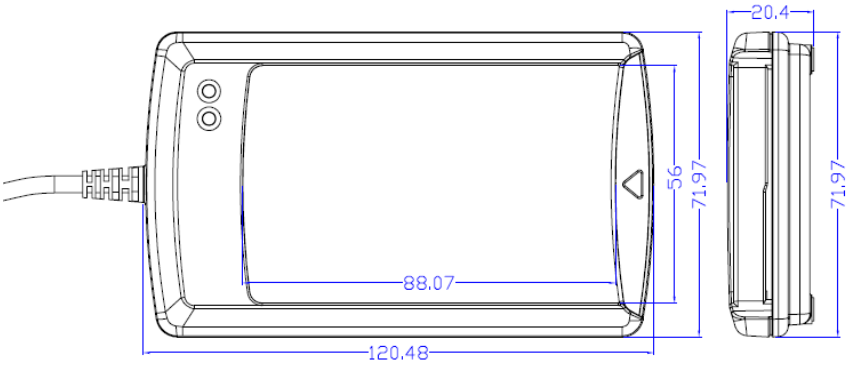
2.3 SAM Support

The ACR128 Dual Boost works with SAM Cards that follow ISO 7816 T=0 and T=1 Protocol.

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

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 1K/4K.
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

Case
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
Dual-Color LED

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

Cable Connector
Length .....1m (USB)

OS
Windows 2K, XP32, XP64, VISTA32, VISTA 64

Certifications/Compliance
USB Full Speed, ISO-7816 1-3, ISO14443 1-4, CE, FCC, RoHS-compliant, WHQL Drivers