



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1281SC Dual-Interface Reader



User Manual



Version History

Date	By	Changes	Version
2011-05-09	Melissa Frances Balmes	<ul style="list-style-type: none">• Creation	0.00.00
2011-05-09	Winnie Chau	<ul style="list-style-type: none">• Adjust SAM speed to maximum 57600bps.	0.00.01
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1.0. Introduction



The ACR1281SC DualBoost II is the second generation of ACS' ACR128 DualBoost Reader. ACR1281SC is a dual interface reader that can access any contact and contactless smart cards following the ISO 7816 and ISO 14443 standards. This reader makes it possible to integrate into one device and one card the conventional separate and independent applications for contact and contactless technologies.

Like ACR128, DualBoost II is PC/SC compliant for both contact and contactless interfaces. It makes use of high-speed communication for contactless cards that reaches up to 848 kbps, which makes it suitable for highly demanding applications. ACR1281SC also provides intelligent support for hybrid and combi cards, such as detecting a contactless card even if it is inserted in the contact card slot. Lastly, ACR1281SC has a built-in SAM slot for added security in both contact and contactless applications.

Being the second generation of ACR128, ACR1281SC DualBoost II offers additional features such as USB firmware upgradability, contact memory card support and extended APDU support. ACR1281SC is an all-in-one, cost-effective and powerful dual interface reader designed to provide you with great flexibility and convenience. It can be used for online transactions to settle payment using credit card or for topping up transport contactless cards. It can also be embedded in bigger machines for physical access systems.



2.0. Features

- Serial Interface. Baud Rate Support: 9600 bps (default), 19200bps, 38400bps, 57600bps, 115200 bps, 230400 bps.
- CCID-like Frame Format.
- One standard ICC landing type card acceptor.
- One SAM socket is provided for highly secure applications.
- Built-in Antenna for contactless tags access.
- Support ISO14443 Part 4 Type A & B, MIFARE, FeliCa and NFC tags.
- Support ISO7816 T=0 & 1 contact cards for both ICC and SAM.
- User-Controllable Peripherals. E.g. LED, Buzzer.
- Device Firmware Upgradeable through the USB Interface.

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



3.0. How to use?

Hardware:

1. Computer
2. ACR1281SC

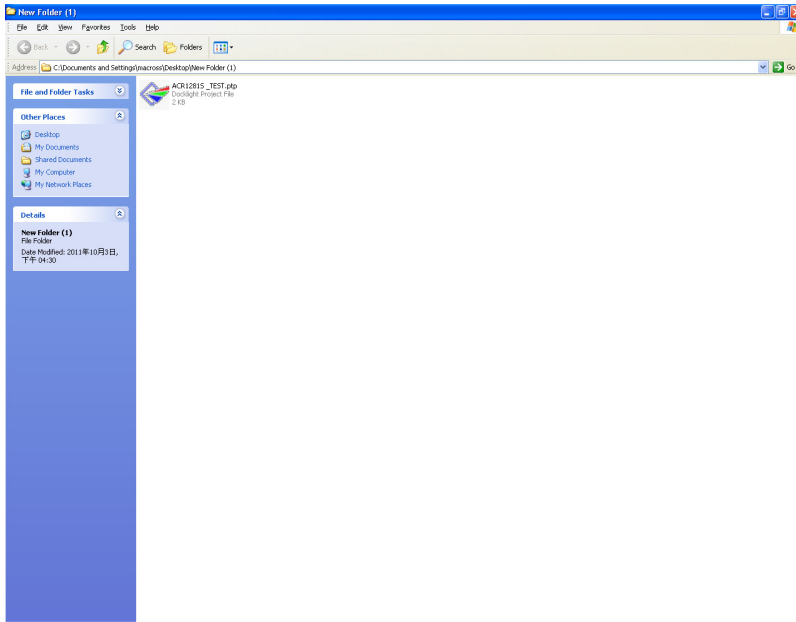
Software:

1. Docklight.exe

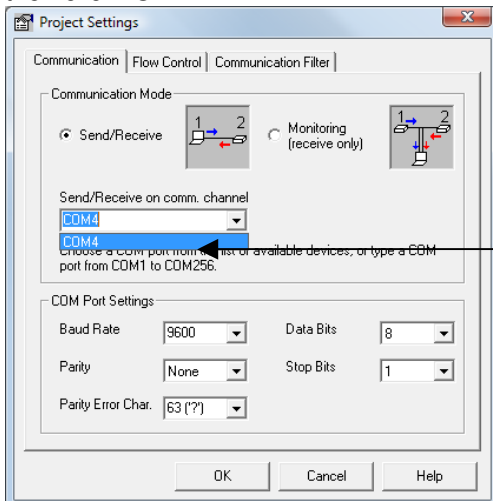


ACR1281SC testing methodology:

1. Connect the ACR1281SC to the computer, red light will be turned on.
2. Double click "ACR1281S_TEST.ptp".

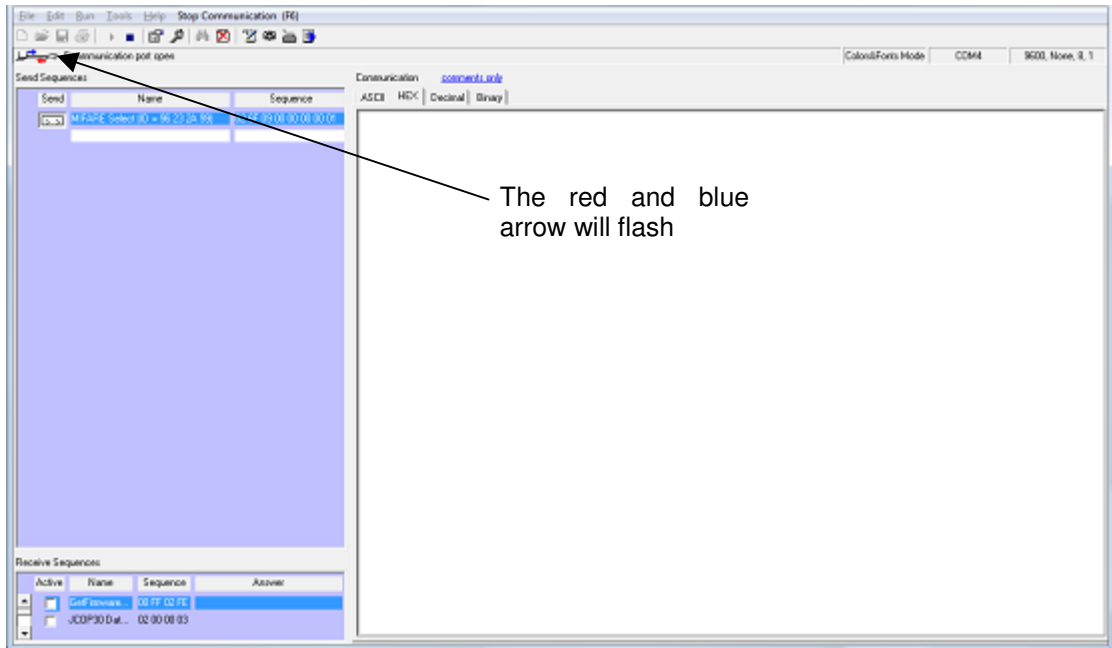


3. Change the serial port setting: press "Tools"→"Project Settings", chose the right serial port, then click "OK"

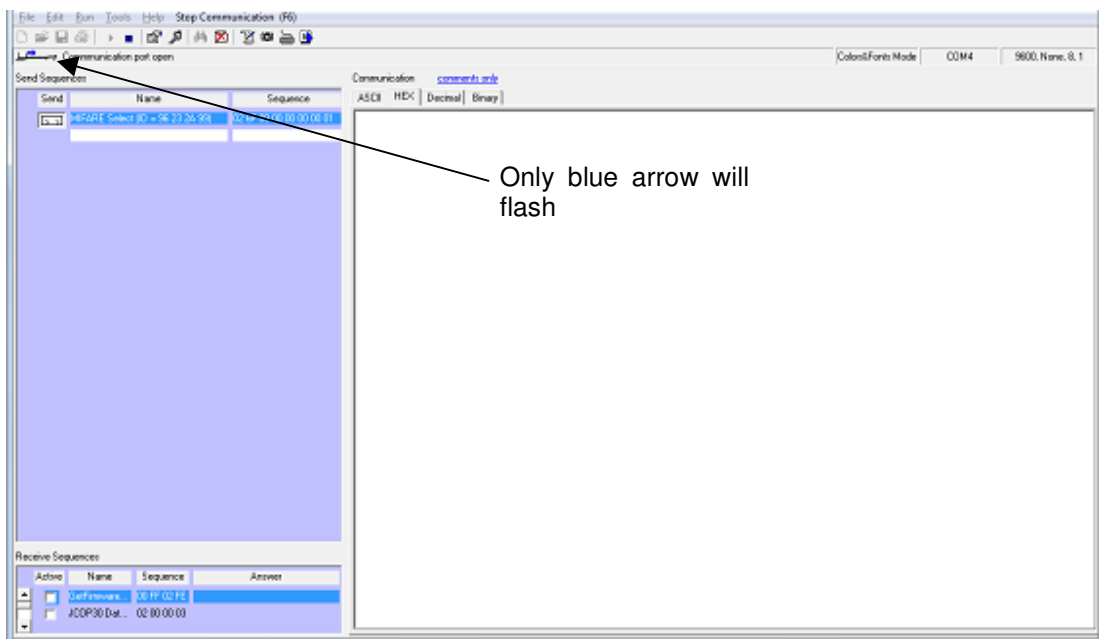


Press this button, it will show the right serial port and you can select it

- Put the MIFARE card on the reader
- Press “Send”, if the communication between the card and the reader success, a red and blue arrow will flash together continuously, see the figure below:

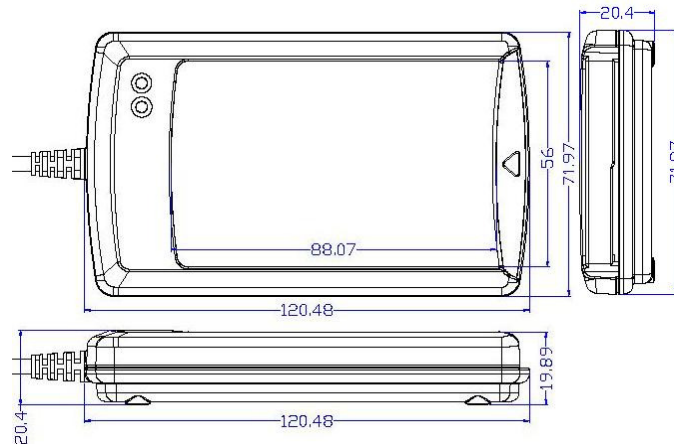


- If the communication is fail, you can see sometimes the blue arrow will flash alone and sometimes the both arrow will flash, see the figure below:



- After finishing the test, please click “F6” or “Stop Communication” and close the program.

4.0. Technical Specifications



Device

ACR1281SC Smart Card Reader/Writer

Power supply

Supply voltage..... Regulated 5V DC
Supply current..... <200mA (without smart card)

Serial Interface

Type RS232 or RS485
Connector supplied together with the reader
Speed..... 9600bps – 230400 bps

Contact Smart Card Interface

Standard ISO 7816 1/2/3, T=0 and T=1
Supply current..... max. 50mA
Smart card voltage..... 5V / 3V
Smart card read / write speed 9600 – 115200 bps
Short circuit protection +5V / GND on all pins
CLK frequency 4 MHz
Card connector..... Landing
Card insertion cycles..... min. 200,000

Contactless Smart Card Interface

Standard..... ISO 14443 A & B Parts 1-4
Smart card read / write speed 106 kbps, 212kbps, 424kbps and 848kbps, for ISO14443 Type A & Type B

SAM Card Interface

Standard SAM Socket

Operating Frequency for Contactless Cards Access

Operating Frequency 13.56 MHz

Antenna

Antenna Size 65mm x 60mm
Operating distance up to 50 mm (Depend on Card Type)



Built-in peripherals

Monotone buzzer
Dual-Color LED

Case

Dimensions 120.48 mm (L) x 71.97 mm (W) x 20.4 mm (H)
Color Black

Operating Conditions

Temperature..... 0 - 50° C
Humidity 10% - 80%Linux, Mac

Cable Connector

Length 1.5m (Serial)

Standard/Certifications

CE, FCC

OS

Windows 98, ME, 2K, XP

OEM

OEM-Logo possible, customer-specific colors, casing, and card connector