ACR122S
Serial NFC Reader

Technical Specifications V2.05
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1.0. Introduction

The ACR122S is the serial interface (RS-232) extension of the ACR122 Series, which is a family of NFC contactless smart card readers/writers. Developed based on the 13.56 MHz RFID technology and the ISO/IEC 18092 NFC standard, it also supports FeliCa and NFC tags, aside from MIFARE® and ISO 14443 Type A and B cards.

ACR122S is equipped with a buzzer and two LEDs for richer user interaction. It also supports anti-collision and selective card polling, allowing smooth operation even when multiple cards are presented. Moreover, it is equipped with a built-in ISO 7816–compliant Class A SAM (Secure Access Module) slot which can be used together with a SAM card to secure the overall contactless operation.
2.0. Features

- Serial RS-232 Interface: Baud Rate = 115200 bps, 8-N-1
- USB Interface for power supply
- CCID-like frame format (Binary format)
- Smart Card Reader:
  - Contactless Interface:
    - Read/Write speed of up to 424 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, MIFARE Classic®, FeliCa, and all four types of NFC (ISO/IEC 18092 tags)
    - Built-in anti-collision feature (only one tag is accessed at any time)
  - SAM Interface:
    - One SAM Slot
    - Supports ISO 7816 Class A SAM card
- Built-in Peripherals:
  - Two user-controllable LEDs
  - User-controllable buzzer
- Compliant with the following standards:
  - ISO 7816 (SAM Slot)
  - ISO 14443
  - ISO 18092
  - CE
  - FCC
  - RoHS 2
  - VCCI (Japan)
  - KC (Korea)
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 ............................................ 148 g
Color .............................................. Metallic Blue

Serial Host Interface
Protocol .......................................... RS-232
Connector Type.............................. DB-9 Connector
Power Source................................. From USB port
Speed ............................................. 9.6 Kbps (default), 115.2 Kbps
Supply Voltage ............................... 5 V
Supply Current ................................. Max. 200 mA
Cable Length .................................. 1.5 m, Fixed (DB9 + USB)

Contactless Smart Card Interface
Standard ........................................ ISO/IEC 18092 NFC, ISO 14443 Type A and B, MIFARE, FeliCa
Protocol ......................................... ISO 14443 T=CL for ISO 14443-4-compliant cards
....................................................... T=CL Emulation for MIFARE Classic, ISO 18092, FeliCa and NFC Tags
Operating Frequency ..................... 13.56 MHz
Operating Distance ......................... Up to 50 mm (depending on tag type)
Smart Card Read/Write Speed....... 106 Kbps, 212 Kbps, 424 Kbps
Antenna Size .................................. 55 mm × 67 mm

SAM Card Interface
Number of Slot ............................... 1 Standard SIM-sized Card Slot
Standard ......................................... ISO 7816, Class A (5 V)
Protocol ......................................... T=0
Smart Card Read/Write Speed..... 9.6 Kbps – 344 Kbps
Card Connector Type ..................... SAM Slot 0: Contact

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

Operating Conditions
Temperature ................................. 0 °C – 50 °C
Humidity ....................................... Max. 90% (non-condensing)
MTBF ........................................... 500,000 hrs

Certifications/Compliance
ISO 7816 (SAM Slot), ISO 14443, ISO 18092, CE, FCC, RoHS 2
VCCI (Japan), KC (Korea)
Device Driver Operating System Support
Linux®

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