Advanced Card Systems Ltd.
Card & Reader Technologies

ACR890
All-in-One Mobile
Smart Card Terminal

Technical Specifications V1.07

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1.0. Introduction

The ACR890 All-In-One Mobile Smart Card Terminal is the next generation, high-performance mobile smart card terminal that combines smart card, magnetic stripe and contactless technologies. With its high-resolution touch screen, it is suitable for customers who want to experience the most interactive interface and features available in the market. This state-of-art product offers faster processing speed, large memory and portability.

This next generation PIN-pad reader is flexible enough to offer wide-range of connectivity choices for any environment, including GPRS/3G, Wi-Fi, USB and serial ports. In addition to that, a built-in thermal printer on the device can quickly print receipts for the consumer's reference.

With its advanced features, the ACR890 is suitable for complex applications in the e-Government, e-Banking and e-Payment, e-Health, Loyalty Program and Transportation sectors.

2.0. Features

- 32-bit A8 Processor running Embedded Linux®
- 512 MB Flash and 512 MB LPDDR Memory
- Expandable Micro SD Card support with memory 1 GB up to 16 GB
- One Full-sized Contact Card Slot (Landing Connector)
- Two SAM Card Slots (Contact Connector)
- Integrated Contactless Smart Card Interface
- One Standard SIM Card Slot for GPRS function
- Magnetic Stripe Card Support
- Firmware Upgradeable
- Built-in-Peripherals
  - Easy-to-Read, High Resolution Colored LCD
  - 3.5-inch Resistive Touch Screen LCD
  - Highly Durable Chemical Resistant 20-button Keypad
  - Thermal Printer
  - Real-time Clock (RTC) with independent backup battery
  - 4 LED Status Indicators
  - Built-in Speaker
- Connectivity Support
  - Wi-Fi
  - GPRS/GSM quad band (850 MHz, 900 MHz, 1800 MHz, 1900 MHz)
  - 3G connectivity support (900 MHz/2100 MHz or 850 MHz/1900 MHz)
  - USB Client High Speed (Micro-B Type Connector)
  - Serial RS-232 (Mini-B Type Connector)
- Compliant with the following standards:
  - ISO 7816
  - ISO 14443
  - ISO 7811
  - USB Full Speed
  - CE
  - FCC
  - RoHS 2

3.0. Supported Card Types

3.1. MCU Cards

The ACR890 operates with MCU cards that follow:

- T=0 or T=1 protocol
- ISO 7816 Compliant Class A, B, C (5 V, 3 V, 1.8 V)

3.2. Contactless Cards

The ACR890 supports the following contactless cards:

- ISO 14443-compliant, Type A and B Standard, Parts 1 to 4
- T=CL protocol
- MIFARE® Classic cards
- MIFARE® DESFire
- MIFARE® Ultralight
- MIFARE® Plus
- FeliCa
- FeliCa Lite
- FeliCa Lite-S

3.3. Magnetic Stripe Cards

The ACR890 supports the following magnetic stripe cards:

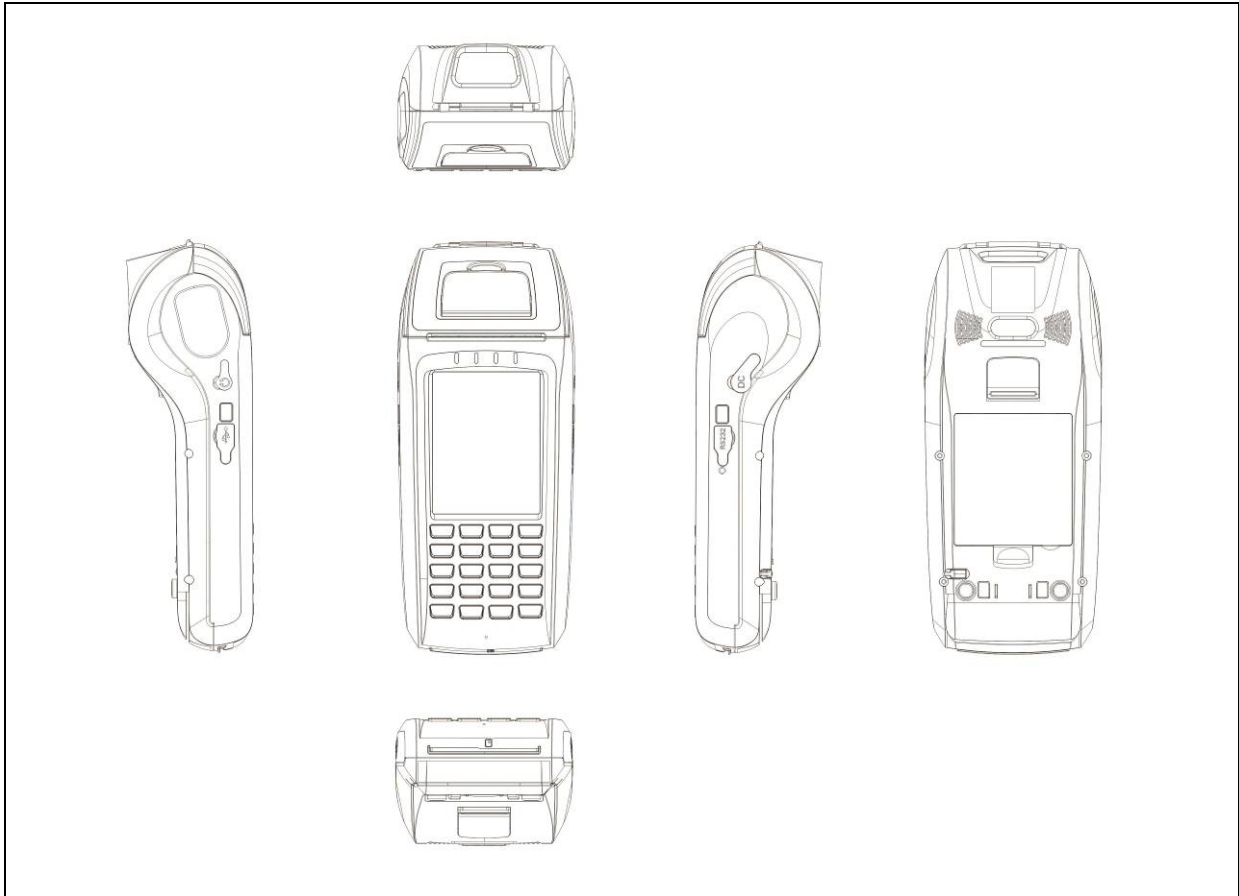- ISO 7811 Tracks 1, 2 and 3
- Bi-directional

4.0. Typical Applications

- e-Healthcare
- e-Government
- e-Banking and e-Payment
- Transportation
- Loyalty Program

5.0. Technical Specifications

Processor	
32-bit A8 1 GHz Processor	

Operating System
Embedded Linux® Version 2.6.37

Memory
Flash .... 512 MB
LPDDR RAM .... 512 MB
SD Memory Card Size .... Up to 16 GB

Power
Power Source................................ External Power Adapter
Battery Specification .... Lithium Ion, 7.4 V, 2000 mAh

Connectivity
USB Client .... 2.0 High Speed (Micro-B Type Connector)
Serial.. RS232 (Mini-B Type Connector)
Wi-Fi... IEEE 802.11 b/g/n
Quad-band GSM/GPRS .... 850 MHz/900 MHz/1800 MHz/1900 MHz
WCDMA .... 900 MHz/2100 MHz or 850 MHz/1900 MHz

Contact Smart Card Interface
Standard .... ISO 7816 Class A, B, C (5 V, 3 V, 1.8 V), T=0 and T=1
Number of Slots .... One (1) Full-sized
Supply Current .... Max. 50 mA
Card Insertion Cycles................... Min. 100,000
Short Circuit Protection .... +5 V/GND on all pins

Contactless Smart Card Interface
Standard .... ISO 14443 A and B Parts 1-4, MIFARE®, FeliCa
Protocol....................................... MIFARE® Classic Card Protocols, T=CL
Operating Distance .... Up to 40 mm
Operating Frequency .... 13.56 MHz

Magnetic Stripe Card

Standard .... ISO 7811, Track 1/2/3, Bi-directional

SAM Card Interface

Card Connector Type..................... Contact
Number of slots............................. Two (2) Standard SIM-sized
Card Size .... ISO/IEC 7810:2003 ID-000, Standard (or 2FF, 2nd Form Factor)
.... 25.00 mm x 15.00 mm

SIM Card Interface

Standard .... ISO/IEC 7810:2003 ID-000
Number of slots............................. One (1) Standard SIM-sized
Card Size .... Standard (or 2FF, 2nd Form Factor), 25.00 mm x 15.00 mm

Built-in Peripherals

Keypad.. 20 keys
LCD Display .... 3.5 in., 240 x 320 Color LCD with backlight
Audio Speaker............................... 20 Hz – 20 KHz
LED Status Indicators .... 4 LEDs (Blue, Yellow, Green and Red)

Printer

Printer Type .... Thermal
Number of Dot/Line 384
Resolution .... 203 DPI
Print Width .... 48 mm
Max Speed.................................... 75 mm/sec
Paper Width .... 58 mm
Max. Paper Roll Diameter .... 30 mm

Physical Specifications

Dimensions .... 208.0 mm (L) x 85.5 mm (W) x 53.0 mm (H)
Case Color .... Black
Weight... 555 g
USB Cable Length .... 1 m
Serial Cable Length....................... 1.5 m

Operating Conditions

Temperature.................................. 0°C – 50°C
Humidity .... Max. 90% (non-condensing)
MTBF .... 26,500 hrs

Certifications/Compliance

CE, FCC, RoHS 2, ISO 7816, ISO 14443, ISO 7811

ACR890 – Technical Specifications
Version 1.07

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