Advanced Card Systems Ltd.
Card & Reader Technologies

ACR890
All-in-One Mobile Smart Card Terminal

Technical Specifications V1.08

info@acs.com.hk
www.acs.com.hk

Table of Contents

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. Moreover, 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
- 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)
- Contact Interface:
  - One Full-sized Contact Card Slot (Landing Connector)
- Contactless Interface:
  - Integrated Contactless Smart Card Interface
- Magnetic Stripe Card Support
- SAM Interface:
  - Two SAM Slots (Contact Connector)
- SIM Interface:
  - One Standard SIM Card Slot (GPRS function)
- Firmware Upgradeability
- 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
- Compliant with the following standards:
  - ISO 7816
  - ISO 14443
  - ISO 7811
  - USB Full Speed
  - 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 Type A and B, Parts 1 - 4
- T=CL protocol
- MIFARE® Classic cards
- MIFARE® DESFire®
- MIFARE® Ultralight
- MIFARE® Plus
- FeliCa®
- FeliCa Lite
- FeliCa Lite-S

3.3. Magnetic Stripe Cards

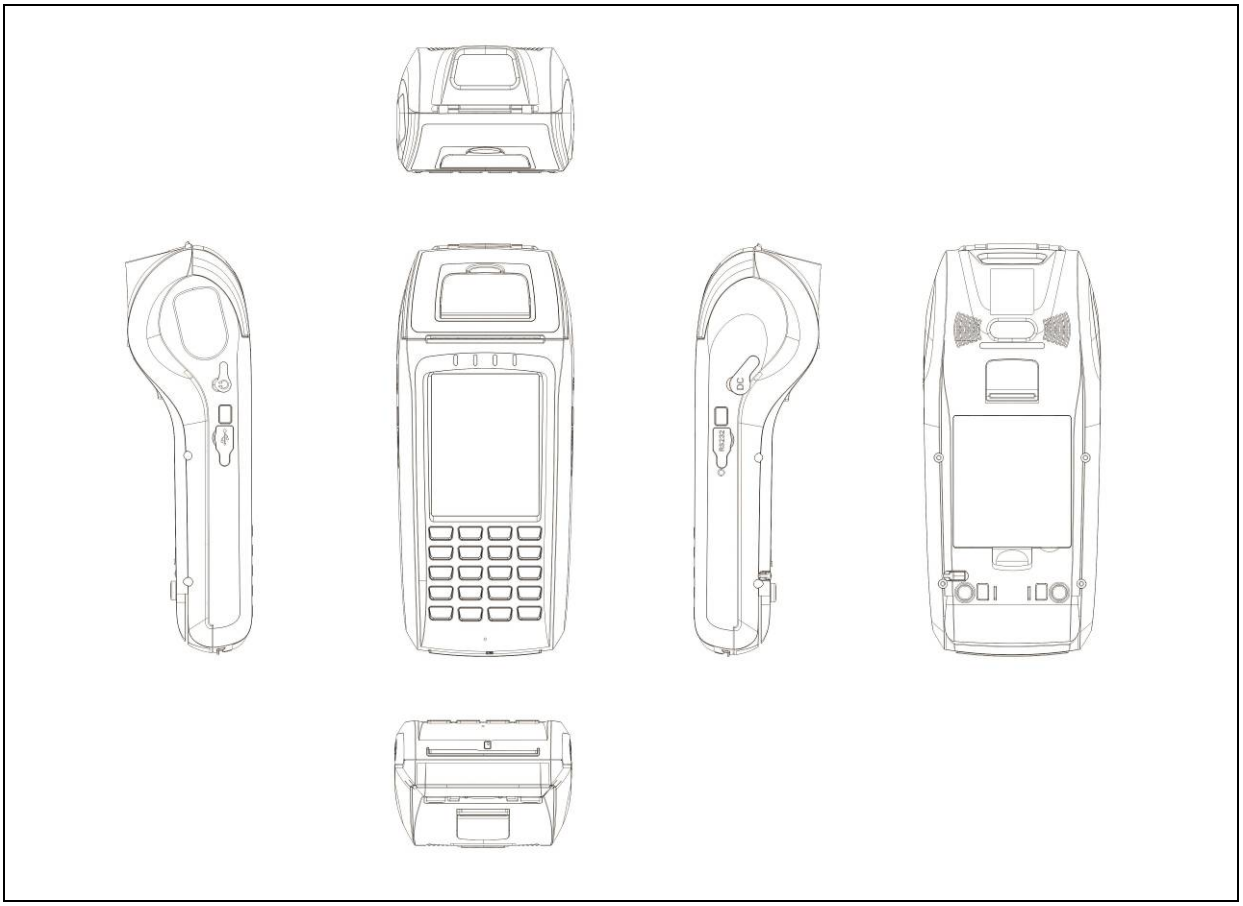
The ACR890 supports the following magnetic stripe cards:

- 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



Physical Characteristics	
Dimensions	208.0 mm (L) × 85.5 mm (W) × 53.0 mm (H)
Case Color	Black
Weight	555 g
USB Cable Length	1 m
Serial Cable Length	1.5 m
Processor	
32-bit A8 1 GHz Processor	
Standalone Mode	
Operating System	Embedded Linux
Power Source	Lithium-ion battery, 7.4 V, 2000 mAh
	Charging via external power adapter, 12 V, 4 A
Device and User Programmable Memory	
Programmable Language	C++
Flash	512 MB
LPDDR RAM	512 MB
SD Memory Card Size	Up to 16 GB
Connectivity	
USB OTG	2.0 USB Full Speed
Serial Port	RS-232
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
USB Host Interface	
Protocol	USB 2.0
Connector Type	Micro-B to Standard Type A
Speed	USB Full Speed (12 Mbps)

Serial Host Interface	
Protocol	RS-232
Connector Type	Mini-B to Standard Type A
Contact Smart Card Interface	
Number of Slots	1 Full-sized Card Slot
Standard	ISO 7816 Class A, B, C (5 V, 3 V, 1.8 V)
Protocol	T=0; T=1; Memory Card Support
Supply Current	Max. 50 mA
Short Circuit Protection	(+5) V/GND on all pins
Card Connector Type	ICC Slot 0: Landing
Card Insertion Cycles	Min. 100,000
Contactless Smart Card Interface	
Standard	ISO 14443 A and B Parts 1-4, MIFARE, FeliCa
Protocol	MIFARE Classic Card Protocols, T=CL
Operating Frequency	13.56 MHz
Operating Distance	Up to 40 mm
Magnetic Stripe Card	
Standard	ISO 7811
	Track 1/2/3, Bi-directional
SAM Card Interface	
Number of Slots	2 Standard SIM-sized
Card Connector Type	SAM Slot 0: Contact
	SAM Slot 1: Contact
SIM Card Interface	
Number of slots	1 Standard SIM-sized
Standard	GSM SIM Card
Protocol	GPRS/WCDMA
Memory Expansion	
Micro SD Card Slot	Supports up to 16 GB
Built-in Peripherals	
LCD	3.5-in. TFT-LCD, 240 × 320 Color LCD with backlight
Speaker	20 Hz – 20 KHz
LED Status Indicators	4 single-color: Blue, Yellow, Green and Red
Keypad	20 keys
Other Features	
Firmware Upgrade	Supported
Real-time Clock	Supported
Printer	
Printer Type	Thermal, Built-in
Number of Dot/Line	384
Resolution	203 DPI
Print Width	48 mm
Max Speed	75 mm/s
Paper Width	58 mm
Max. Paper Roll Diameter	30 mm
Operating Conditions	
Temperature	0°C - 50°C
Humidity	Max. 90% (non-condensing)
MTBF	26,500 hrs
Certifications/Compliance	
ISO 7816, ISO 14443, ISO 7811, RoHS 2	