



**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACR890

## All-in-One Mobile Smart Card Terminal

Technical Specifications V2.01





## Table of Contents

<b>1.0.</b>	<b>Introduction .....</b>	<b>3</b>
<b>2.0.</b>	<b>Features .....</b>	<b>4</b>
<b>3.0.</b>	<b>Supported Card Types.....</b>	<b>5</b>
3.1.	MCU Cards .....	5
3.2.	Contactless Cards .....	5
3.3.	Magnetic Stripe Cards .....	5
<b>4.0.</b>	<b>Typical Applications .....</b>	<b>6</b>
<b>5.0.</b>	<b>Technical Specifications .....</b>	<b>7</b>



## 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 and Wi-Fi. 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®
- 4 GB Flash and 256 MB RAM
- Expandable Micro SD card support with memory of 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)
  - Serial RS-232 for Debug (Mini-B Type Connector)
- Contact Interface:
  - One Full-sized Contact Card Slot
- 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
  - CE
  - FCC
  - RoHS



## **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®
- 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

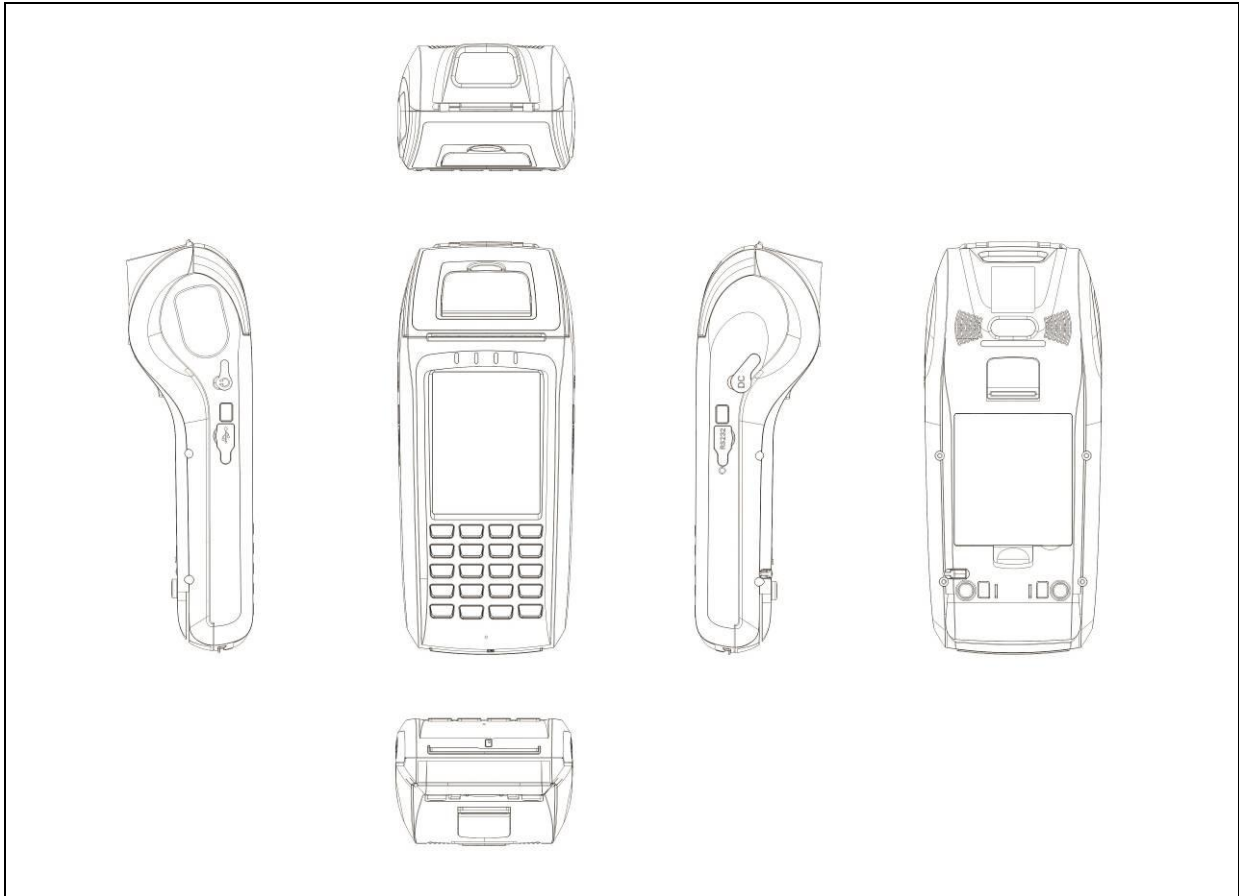


## 4.0. Typical Applications

- 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)  
Weight ..... 580 g (including battery and thermal paper)  
Color ..... Black

### 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 ..... 4 GB  
RAM ..... 256 MB  
SD Memory Card Size ..... Up to 16 GB

### Connectivity

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

### Contact Smart Card Interface

Number of Slot ..... 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: Contact  
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 Card Interface**

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 Slot ..... 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 x 320 Color LCD with backlight  
 LED ..... 4 single-colors: Blue, Yellow, Green and Red  
 Keypad ..... 20 keys  
 Speaker..... 20 Hz – 20 KHz

**Other Features**

Firmware Upgrade ..... Supported  
 Real-time Clock..... Supported

**Printer**

Printer Type ..... Thermal, Built-in  
 Number of Dots/Lines ..... 384  
 Resolution ..... 203 DPI  
 Print Width ..... 48 mm  
 Speed..... Max. 75 mm/s  
 Paper Width ..... 58 mm  
 Paper Roll Diameter..... Max. 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, CE, FCC, RoHS



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