

Advanced Card Systems Ltd.



ACR88 Handheld Portable Smart Card Reader



TECHNICAL SPECIFICATIONS

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ACR88 Handheld Portable Smart Card Reader/Writer

1.0 Introduction



With the increasingly wide acceptance of smart card in the market in the recent years, smart card applications have gained maturity in terms of its level of sophistication and coverage in the market. With this, a versatile smart card reader becomes an emergent need.

ACR88 is a versatile handheld portable smart card reader, having a **built-in keypad, LCD display, bi-color LED** and **buzzer** features. It can also host the feature of **non-volatile memory** to give better support to your system. In addition, its onboard memory enables future firmware and application enhancements that guarantee against obsolescence.

ACR88 is a line of secured electronic devices of pocket size designed primarily for multi-application. It is capable of performing secure authentication, displaying rich information from the card, conducting online or offline transaction.

Also, ACR88 is programmable through ACR88 ScriptBuilder. Users can now quickly build their own standalone applications according to easy-to-use and well-defined script commands provided by ACS. There is no more need to program the device in lower level languages, nor to deal with development and other hardware platform dependent issues! With ACR88, you can have full rein of realizing the limitless possibilities, which your application will bring.

2.0 Features

- ◆ Dual operation modes:
PC-linked: powered through USB
Standalone: powered through 3x AAA batteries
- ◆ Accepts 3 V and 5V cards: two full-size cards and 3 SAM cards
- ◆ Ergonomic and highly durable keypad
- ◆ Easy-to-read, graphical LCD with backlight
- ◆ Monotone buzzer with software controlled ON/OFF
- ◆ 3 bi-color LEDs
- ◆ Real-time clock (RTC) with independent backup battery
- ◆ Field upgradeable for firmware (requires a firmware upgrade cable)
- ◆ On-board memory for standalone program (script loadable)
- ◆ Tamper switch which protect fraudulent intrusion
- ◆ Hand-held size and weight
- ◆ (Optional) Additional non-volatile memory for multilingual font storage

3.0 International Standards and Certifications

- CCID compatible
- CE and FCC certified
- EMV 2000 v4.0 Level 1
- ISO 7816

4.0 Supported Card Types

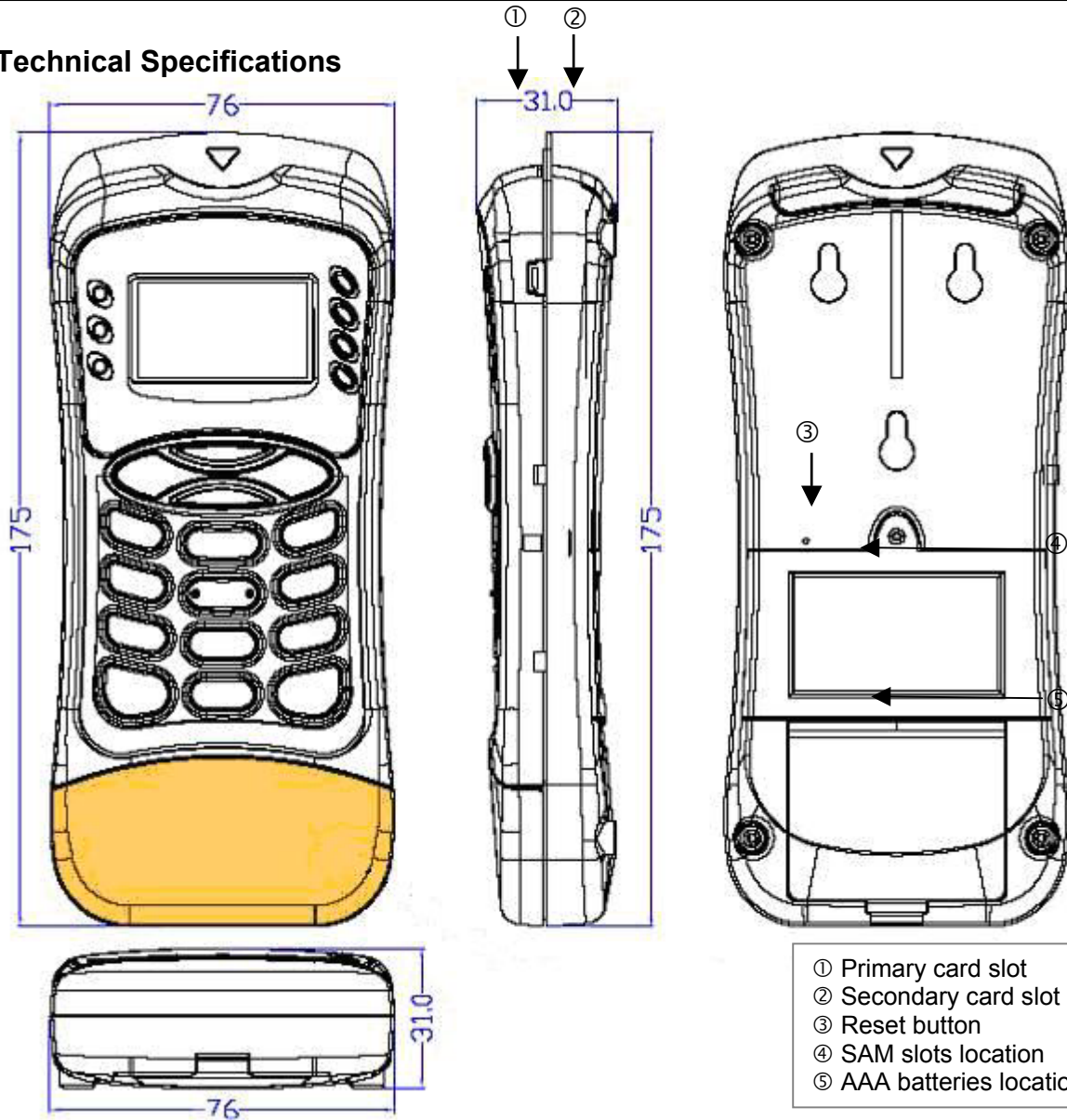
MCU Cards

The ACR88 can operate MCU card with T=0 and T=1 protocol.

5.0 Typical Applications

- ◆ Customer Loyalty
- ◆ E-Purse
- ◆ One-time password generator
- ◆ Secure Home-banking
- ◆ Computer System Logon
- ◆ Healthcare applications – medical identification
- ◆ E-government applications

6.0 Technical Specifications



- ① Primary card slot
- ② Secondary card slot
- ③ Reset button
- ④ SAM slots location
- ⑤ AAA batteries location

Power

Operating voltage 3.3V
 Operation mode PC-Linked and Standalone
 PC-Linked mode automatically switch to USB bus power, always ON
 Standalone mode automatically switch to 3 x AAA-size battery power, soft ON/OFF switch
 Power consumption Less than 100mA (excluding card power) in standalone mode
 Backup battery Independent backup battery (1 x CR2032) for RTC

Smart Card Interface

Standard ISO-7816 Class A, B (5V, 3V), T=0 and T=1
 Supply current max. 60mA
 Smart card read / write speed 9,600-115,200 bps (primary/secondary slot)
 CLK frequency 3.58 MHz
 Card connector type Landing/ Contact ((primary/secondary slot)
 Card insertion cycles min. 300,000 / min 100,000 (primary/secondary slot)
 Short circuit protection +5V / GND on all pins

SAM Card Interface

Card connector type Contact
 Location Under the removable grey lid, please refer to the photo on the last page

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Universal Serial Bus Interface

USB Cable..... USB 1.1 Full Speed, 12 Mbps, detachable
Power Source from USB

Firmware Upgrade Interface

Firmware Upgrade Cable 6-pin serial cable, 115,200 bps, detachable
Power Source from USB

Human Interfaces

Keypad 20 keys (4 Function keys, 4 Direction keys, 10 Number keys, 1 Clear key, 1 Enter key)
LCD Display..... 128 x 64 dot-matrix LCD with backlight
Buzzer Monotone buzzer with software controlled ON/OFF
Dual color LED power indicators (LED 1) GREEN indicates device power on; RED indicates low battery
..... (LED 2) GREEN indicates primary card slot power on; ORANGE indicates primary card slot I/O activity
..... (LED 3) GREEN indicates secondary card slot power on; ORANGE indicates secondary card slot I/O activity
Tamper switch Built inside the case which protect fraudulent intrusion

Script Memory

Non-Volatile Memory (EEPROM) 4KB for script binary storage
RAM 300B

Physical Specifications

Dimensions..... Device: 175mm (L) x 76mm (W) x 31mm (H)
..... USB cable length: 1.5m; Firmware upgrade cable : 1.5m
Case Color..... Silver and Grey
Weight Device: 190g; USB cable: 60g; Firmware upgrade cable : 45g

Operating Conditions

Temperature 0°C to 50°C
Humidity..... 40% to 80%, non-condensing

Operation Systems

Windows 2K, XP, 98, ME

Standard/Certifications

EMV Level 1, ISO-7816, CE, FCC



ACR88 Platform for User Firmware Development (Optional)

Language..... Programmable in C Language
Real Time Emulation
Debugging features load, step, go, stop, and break
Without Emulator code size ≤ 52KB
With Emulator..... code size up to 64KB

For more information about ACR88 Platform, please kindly contact our salespeople

Others

Reset Button..... Obscure small hole just above SAM door for hardware reset
Privacy Cover (Optional) Removable privacy cover for keypad
Non-volatile memory (EEPROM)..... 64KB (4KB for script binary storage)
Real Time Clock

OEM

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

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ACR88U



ACR88U



ACR88U back side showing the 3 AAA battery slots



ACR88U showing the 3 SAM slots



Side shot of ACR88,
showing the USB connector and 2 full-size card slots



ACR88U and its optional privacy cover