Advanced Card Systems Ltd.

acs

ACR38K Keyboard with built-in Smart Card Reader

TECHNICAL SPECIFICATIONS

Version 1.8   11-2006

ACR38K Keyboard with built-in Smart Card Reader

1.0 Introduction

The ACR38K Multimedia Keyboard offers you with specialized keyboard setting, accessing every function in just one key-press, plus a classy multimedia controller. This package also comes with a card reader that enables you to easily implement smart card-based systems. The ACS smart card readers utilize the latest advancement of microchip technology, that brings you high security for your confidential files in a convenient and easy to carry microchip smart card. The software drivers and tools in this package will enable you to write files to your smart card and to read the contents.

You can also write protect the contents of your smart card so that nobody can erase or overwrite the files.

Combined with our versatile smart card reader/writer, using the ACR38 module, the keyboard is transformed into a highly powerful component for security, e-commerce, and other applications.

1.2   About RoHS Compliance

The RoHS (**R**estriction **o**f **H**azardous **S**ubstance) Directive restricts the use of six hazardous materials in the manufacturing of various types of EEE (Electrical and Electronic Equipment), including:
- Lead,
- Mercury,
- Cadmium,
- Hexavalent chromium,
- Polybrominated biphenyl (PBB) and
- Polybrominated diphenyl ether (PBDE).

So RoHS compliance means the protection to the environment and your future generations from these restricted irritants, carcinogens and toxins.

2.0 Features

2.1 Keyboard Features

- USB interface with 18 multimedia hot keys support (back, forward, stop, refresh, search, favorites, home, mute, volume-, volume+, previous track, stop, play, next track, media, calculator, my computer)
- 4 programmable keys
- ACPI power management key support: power, sleep and wake up
- Fixed wrist rest

2.2 Smart Card Reader Features

- **USB full speed** interface to PC with simple command structure
- Read and write all microprocessor cards with T=0 or T=1 protocols
- Read and write popular memory card types
- Short Circuit Protection
- Support ISO-7816 Class A, B and C (**5V, 3V, 1.8V**) cards
- RoHS Compliant
- EN 60950/IEC 60950, EMV Level 1, ISO-7816 Class A, B and C (**5V**, **3V**, **1.8V**) cards, PC/SC, CE, FCC, Microsoft WHQL 2K, XP
- Support PPS (Protocol and Parameters Selection) with 1,743 – 250,000 bps in reading and writing smart cards

Advanced Card Systems Ltd.
Unit 1008, 10th Floor
Hongkong International Trade and Exhibition Centre
1 Trademart Drive, Kowloon Bay, Hong Kong

Tel: +852 2796 7873   Fax: +852 2796 1286
Website: www.acs.com.hk   Email: info@acs.com.hk

3.0 Supported Card Types

3.1 MCU Cards

The ACR38K can operate MCU card with T=0 and T=1 protocol. The table presented in Appendix A (Reference Manual) explains which card type selection value must be specified for the various card types supported by the reader.

3.2 Memory-based smart cards (synchronous interface)

- Cards following the I2C bus protocol (free memory cards) such as:
  Atmel: AT24C01 / 02 / 04 / 08 / 16 / 32 / 64 / 128 / 256 / 512 / 1024
  SGS-Thomson: ST14C02C, ST14C04C
  Gemplus: GFM1K, GFM2K, GFM4K, GFM8K

- SLE4432/4442 intelligent 256 bytes EEPROM with write protect function:
  SLE4432, SLE4442

- SLE4418/4428 intelligent 1K bytes EEPROM with write-protect function:
  SLE4418, SLE4428

- Secure memory cards such as:
  AT88SC153, AT88SC1608

- SLE4406/4436/5536 '104' type EEPROM non-reloadable token counter cards:
  SLE4406, SLE4436, SLE5536

4.0 Typical Applications

- Home Banking and Home Shopping
- Electronic Commerce
- Checking the balance of account of re-loading an electronic purses
- Network access control
- S/W locking
- Digital signature
- Loyalty and promotions
- Stored value
- Identification
- Ticketing
- Parking and toll collection
- Online gaming

Advanced Card Systems Ltd.
Unit 1008, 10th Floor
Hongkong International Trade and Exhibition Centre
1 Trademart Drive, Kowloon Bay, Hong Kong

Tel: +852 2796 7873
Website: www.acs.com.hk

Fax: +852 2796 1286
Email: info@acs.com.hk

5.0 Technical Specification

Mechanical
Key number .... 108/109/113 (US/EU/JP)
Multimedia hot key .... 18 keys
Keyboard dim. (mm) .... 475(L) x 254 (W) x 50(H)
Switch travel .... 4.0 ± 0.5mm
Switch reliability .... 10 million cycles
Keyboard interface............................... USB

Electrical
Voltage .... 5V DC
Current... 150mA
Switch mechanism .... Membrane
Contact resistance .... 500 Ω max.

Universal Serial Bus Interface
Type .... USB full speed, four lines: +5V, GND, D+ and D-
Power source....................................... From USB
Speed .... 12 Mbps

Smart Card Interface
Standard .... ISO-7816 Class A, B and C (5V, 3V, 1.8V), T=0 and T=1
Supply current...................................... max. 50mA
Smart card read / write speed .... 1,743 – 250,000 bps
Short circuit protection .... +5V / GND on all pins
          The presence of the smart card power supply voltage is indicated through a green LED "Power" on the keyboard
CLK frequency .... 4 MHz
Card connector .... Contact
Card insertion cycles............................ min. 100,000

Operating Conditions
Temperature .... 0 - 40° C
Humidity... 10% - 90%

Standard/Certifications
EN 60950/IEC 60950, RoHS Compliant, EMV 2000 Level 1, ISO-7816, PC/SC, CE, FCC, USB Full Speed, Microsoft WHQL 2K, XP

OS
Windows 98, ME, 2K, XP, NT 4.0, 2K3 Server, Linux, Mac OS X

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