Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38U-H1 Smart Card Reader

Technical Specifications V6.05

Table of Contents

1.0. Introduction

ACR38U-H1 is a smart card reader with a unique design. It belongs to the ACR38 family of high-speed smart card readers/writers, which has proven to support highly demanding smart card applications. Low cost but high quality, the ACR38U-H1 creates lasting customer value and offers viable and user-friendly solutions for various smart card applications.

1.1. Smart Card Reader

ACR38U-H1 supports ISO 7816 Class A, B, and C smart cards and works with memory cards and microprocessor cards with the T=0 and T=1 protocol. It also features a USB Full Speed interface and a smart card R/W speed of 344 Kbps. Highly durable, ACR38U-H1 can last for at least 100,000 card insertion cycles.

1.2. Unique Casing

Built with the unique "Bridge Desktop" casing, the ACR38U-H1 allows upright insertion of smart cards. The convenience of using the ACR38 device for applications, like network security and electronic payment system, makes it the ultimate smart card peripheral for the PC environment.

1.3. Ease of Integration

ACR38U-H1 is easy to install, use, and integrate in a PC environment. It is PC/SC and CCID compliant, and its drivers are compatible with Windows, Linux and Mac operating systems. In addition, ACR38U-H1 may now be used on mobile devices running the Android™ platform with versions 3.1 and above.

With its various features, ACR38U-H1 can be used in numerous operations for e-Banking and e-Payment, Physical and Logical Access Control, Transportation, and e-Government applications.

2.0. Features

- USB 2.0 Full Speed Interface
- Plug and Play – CCID support brings utmost mobility
- Smart Card Reader:
  - Supports ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V) cards
  - Supports microprocessor cards with T=0 or T=1 protocol
  - Supports memory cards
  - Supports PPS (Protocol and Parameters Selection)
  - Features Short Circuit Protection
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Supports Android™ OS 3.1 and above
- Compliant with the following standards:
  - EN60950/IEC 60950
  - ISO 7816
  - CE
  - FCC
  - VCCI
  - PC/SC
  - CCID
  - EMV 2000 Level 1
  - Microsoft WHQL
  - RoHS

3.0. Supported Card Types

3.1. MCU Cards

ACR38U-H1 operates with any MCU card following either the T=0 or T=1 protocol.

3.2. Memory-based Smart Cards

ACR38U-H1 works with several memory-based smart cards such as:

- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
  - Atmel: AT24C01/02/04/08/16/32/64/128/256/512/1024
  - SGS-Thomson: ST14C02C, ST14C04C
  - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with secure memory IC with password and authentication, including:
  - Atmel: AT88SC153 and AT88SC1608
- Cards with intelligent 1k bytes EEPROM with write-protect function, including:
  - Infineon: SLE4418, SLE4428, SLE5518 and SLE5528
- Cards with intelligent 256 bytes EEPROM with write-protect function, including:
  - Infineon: SLE4432, SLE4442, SLE5532 and SLE5542
- Cards with '104' type EEPROM non-reloadable token counter cards, including:
  - Infineon: SLE4406, SLE4436, SLE5536 and SLE6636
- Cards with Intelligent 416-Bit EEPROM with internal PIN check, including:
  - Infineon: SLE4404
- Cards with Security Logic with Application Zone(s), including:
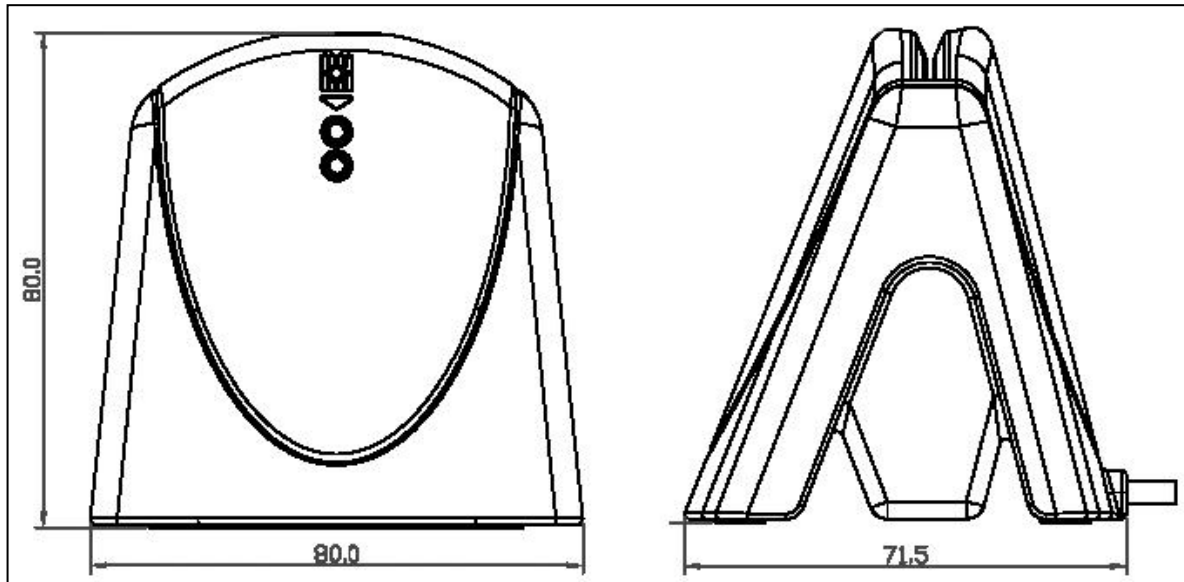 - Atmel: AT88SC101, AT88SC102 and AT88SC1003

4.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Public Key Infrastructure
- Network Security
- Access Control
- Loyalty Program

5.0. Technical Specifications

Universal Serial Bus Interface

Type .... USB Full Speed, four lines: +5 V, GND, D+ and D-
Power Source .... From USB
Speed.. 12 Mbps

Smart Card Interface

Standard.. ISO 7816 Class A, B and C (5 V, 3 V, 1.8 V), T=0 and T=1
Supply Current..................................... max. 50 mA
Smart Card Read/Write Speed .... max. 344,086 bps
Short Circuit Protection …………………+5 V/GND on all pins
CLK Frequency..................................... 4 MHz
Card Connector .... Contact
Card Insertion Cycles .... min. 100,000

Physical Specifications

Dimensions.. 71.5 mm (L) x 80.0 mm (W) x 80.0 mm (H)
Color.. Black
Weight .... 174 g (± 5 g allowance for cable) – Bridge Desktop casing
Cable length, cord, connector .... 1.5 meters, Fixed (non-detachable), USB A

Operating Conditions

Temperature.. 0 – 50 °C
Humidity .... 10% - 90%
MTBF .... 500,000 hrs

Application Programming Interface

PC/SC
CT-API (through wrapper on top of PC/SC)

Certifications/Compliance

EN60950/IEC 60950, ISO 7816, CE, FCC, VCCI, PC/SC, CCID, EMV 2000 Level 1, RoHS, USB Full Speed
Microsoft ® WHQL 2000, XP, Vista, 7, 8, Server 2003, Server 2008, Server 2008 R2, Server 2012

Device Driver Operating System Support

Windows® CE, 98, ME, 2000, XP, Vista, 7, 8, Server 2003, Server 2003 R2, Server 2008, Server 2008 R2, Server 2012
Linux, Mac, Android™ 3.1 and above