Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38U-H1
Smart Card Reader

Technical Specifications V6.09

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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 been 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 microprocessor cards with the T=0, T=1 protocol. Also, it supports a wide variety of memory cards in the market, including the Department of Defense Common Access Card (CAC). This makes it perfect for a broad range of solutions, such as PIV Application, Physical and Logical Access Control, Digital Signature, and Online Banking.

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 a computer-based environment.

1.3. Ease of Integration

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

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 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 CAC (Common Access Card)
  - 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™ 3.1 and above[1]
- Compliant with the following standards:
  - EN60950/IEC 60950
  - ISO 7816
  - EMV™ Level 1 (Contact)
  - PC/SC
  - CCID
  - CE
  - FCC
  - WEEE
  - RoHS 2
  - REACH
  - FIPS 201 (USA)
  - TAA (USA)
  - KC (Korea)
  - VCCI (Japan)
  - Microsoft® WHQL

[1] *Uses an ACS-defined Android Library*

3.0. Supported Card Types

3.1. MCU Cards

ACR38U-H1 operates with ISO 7816 MCU card following either the T=0 or T=1 protocol. It also works with CAC cards, ideal for US PIV and PKI applications.

3.2. Memory-based Smart Cards

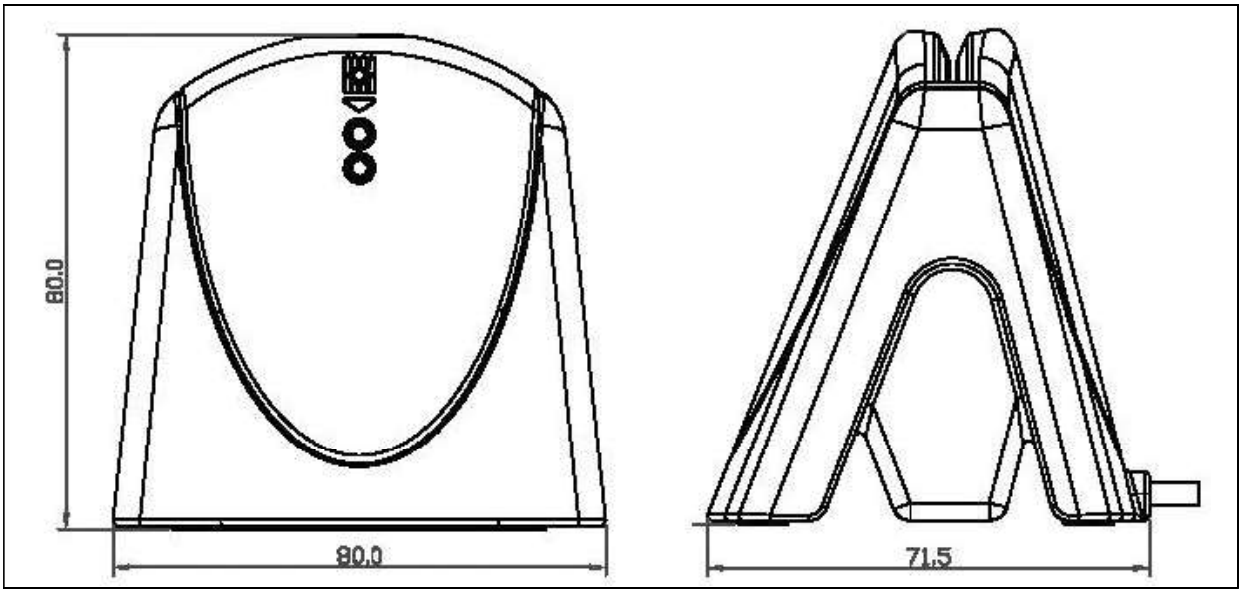
ACR38U-H1 works with several memory-based smart cards such as:

- 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 1 KB EEPROM with write-protect function, including:
  - Infineon®: SLE4418, SLE4428, SLE5518 and SLE5528
- Cards with intelligent 256-byte 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



Physical Characteristics	
Dimensions	71.5 mm (L) × 80.0 mm (W) × 80.0 mm (H)
Weight	174 g (± 5 g allowance for cable)
Color	Black
USB Host Interface	
Protocol	USB CCID
Connector Type	Standard Type A
Power Source	From USB port
Speed	USB Full Speed (12 Mbps)
Supply Voltage	5 V
Cable Length	1.5 m, Fixed
Contact Smart Card Interface	
Number of Slot	1 Full-sized Card Slot
Standard	ISO 7816 Parts 1-3, Class A, B, C (5 V, 3 V, 1.8 V)
Protocol	T=0; T=1; Memory Card Support
Supply Current	Max. 50 mA
Smart Card Read/Write Speed	9.6 Kbps - 344 Kbps
Short Circuit Protection	(+5) V/GND on all pins
Clock Frequency	4.0 MHz
Card Connector Type	Contact
	Landing (optional)
Card Insertion Cycles	Min. 100,000
	Min 200,000 (for landing connector)
Built-in Peripheral	
LED	2 single-color: Green and Red
Application Programming Interface	
PC-linked Mode	PC/SC
	CT-API (through wrapper on top of PC/SC)
Operating Conditions	
Temperature	0 °C – 60 °C
Humidity	Max. 90% (non-condensing)
MTBF	500,000 hrs

Certifications/Compliance

EN60950/IEC 60950, ISO 7816, USB Full Speed, EMV™ Level 1 (Contact), PC/SC, CCID, CE, FCC, WEEE, RoHS 2, REACH
FIPS 201 (USA), TAA (USA), KC (Korea), VCCI (Japan), Microsoft® WHQL

Device Driver Operating System Support

Windows® CE, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® 10 Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2
Linux®, Mac OS®, Solaris, Android™ 3.1 and later