



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR38U-H1 Smart Card Reader



Technical Specifications V6.07



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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 and 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 Windows®, Linux® and Mac OS®. 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 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 above¹
- Compliant with the following standards:
 - FIPS 201
 - TAA
 - EN60950/IEC 60950
 - ISO 7816
 - CE
 - FCC
 - KC
 - VCCI
 - PC/SC
 - CCID
 - EMV 2000 Level 1
 - Microsoft® WHQL
 - RoHS 2
 - REACH

¹ PC/SC and CCID support are not applicable



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:

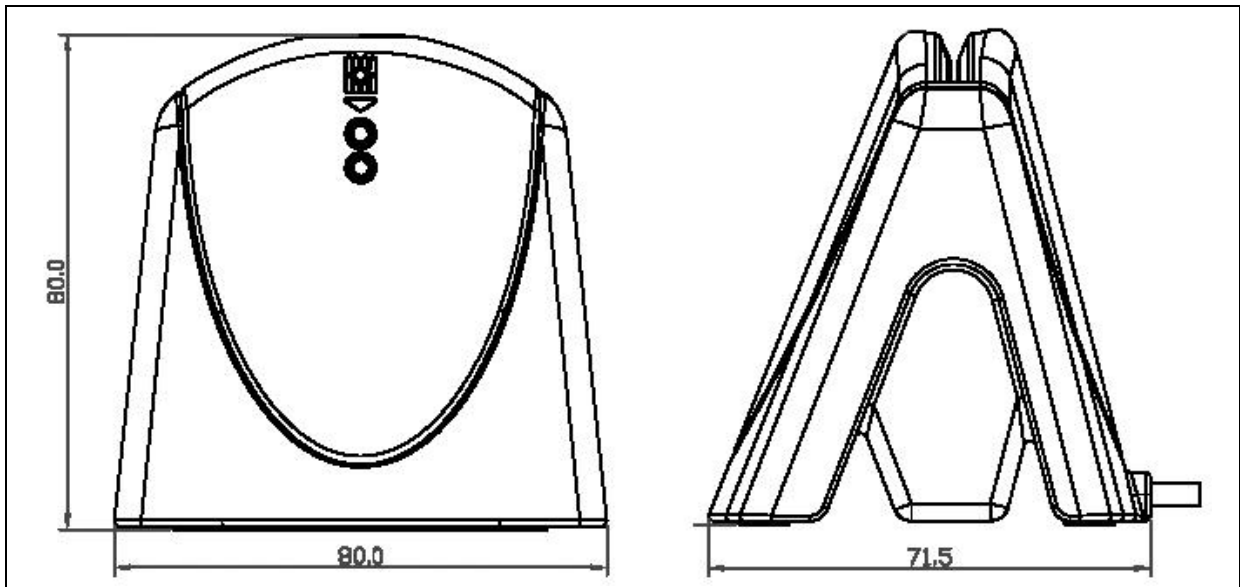
- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
 - Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
 - SGS-Thomson: ST14C02C, ST14C04C
 - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with secure memory IC with password and authentication, 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



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 (optional with landing)
Card Insertion Cycles..... Min. 100,000 (Min. 200,000 for landing connector)

Physical Specifications

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

Built-in Peripheral

LED 2 LEDs, Green and Red

Operating Conditions

Temperature..... 0 °C – 50 °C
Humidity Max. 90% (non-condensing)
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, FIPS 201, TAA, CE, FCC, KC, VCCI, PC/SC, CCID, EMV 2000 Level 1, RoHS 2, REACH, USB Full Speed
Microsoft® WHQL for Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2



Device Driver Operating System Support

Windows® CE, Windows® 98, Windows® ME, Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2
Linux®, Mac OS®, Android™ 3.1 and above



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