



**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACR39U-I1

## Smart Card Reader



Technical Specifications V1.01



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## 1.0. Introduction

The ACR39U-I1 hails the new and modern technology in the world of smart card readers. It is a compact and stylish smart card reader that brings together sophisticated technology with modern design to meet rigorous requirements in various smart card based applications.



### 1.1. Smart Card Reader

ACR39U-I1 supports ISO 7816 Class A, B, and C smart cards (5 V, 3 V, and 1.8 V) and microprocessor cards with the T=0, T=1 protocol. In addition, it supports a wide variety of memory cards in the market, including the Department of Defense Common Access Card (CAC). This makes it ideal for a broad range of solutions, such as PIV Application, Physical and Logical Access Control, Digital Signature, and Online Banking.

It also features a USB Full Speed interface and a smart card read/write speed of up to 600 Kbps. Highly durable, ACR39U-I1 can last for 100,000 card insertion cycles. ACR39U-I1 also has various certifications, such as EMV

2000 Level 1 and PBOC, making it the ideal smart card reader for your e-Banking and e-Payment application needs.

### 1.2. Compact Design

The modern design of ACR39U-I1 makes it stand out from ordinary smart card readers as it houses a powerful core that can support demanding applications which can be used anytime, anywhere.

### 1.3. Ease of Integration

The ACR39U-I1 is PC/SC and CCID compliant making it easy to install and use as it is specifically designed to be integrated into any PC environment. Its drivers are compatible with Windows® operating system, as well as Linux® and Mac OS®. In addition, ACR39U-I1 may now be used on mobile devices running the Android™ platform with versions 3.1 and above.

With its numerous features, the ACR39U-I1 is clearly the perfect smart card reader for your smart card solution.



## 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 and 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
- Compliant with the following standards:
  - FIPS 201
  - TAA
  - EN60950/IEC 60950
  - ISO 7816
  - CE
  - FCC
  - VCCI
  - PC/SC
  - CCID
  - EMV 2000 Level 1
  - PBOC
  - Microsoft® WHQL
  - RoHS
  - REACH



## 3.0. Supported Card Types

### 3.1. MCU Cards

ACR39U-I1 operates with MCU cards 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

ACR39U-I1 works with several memory-based smart cards such as:

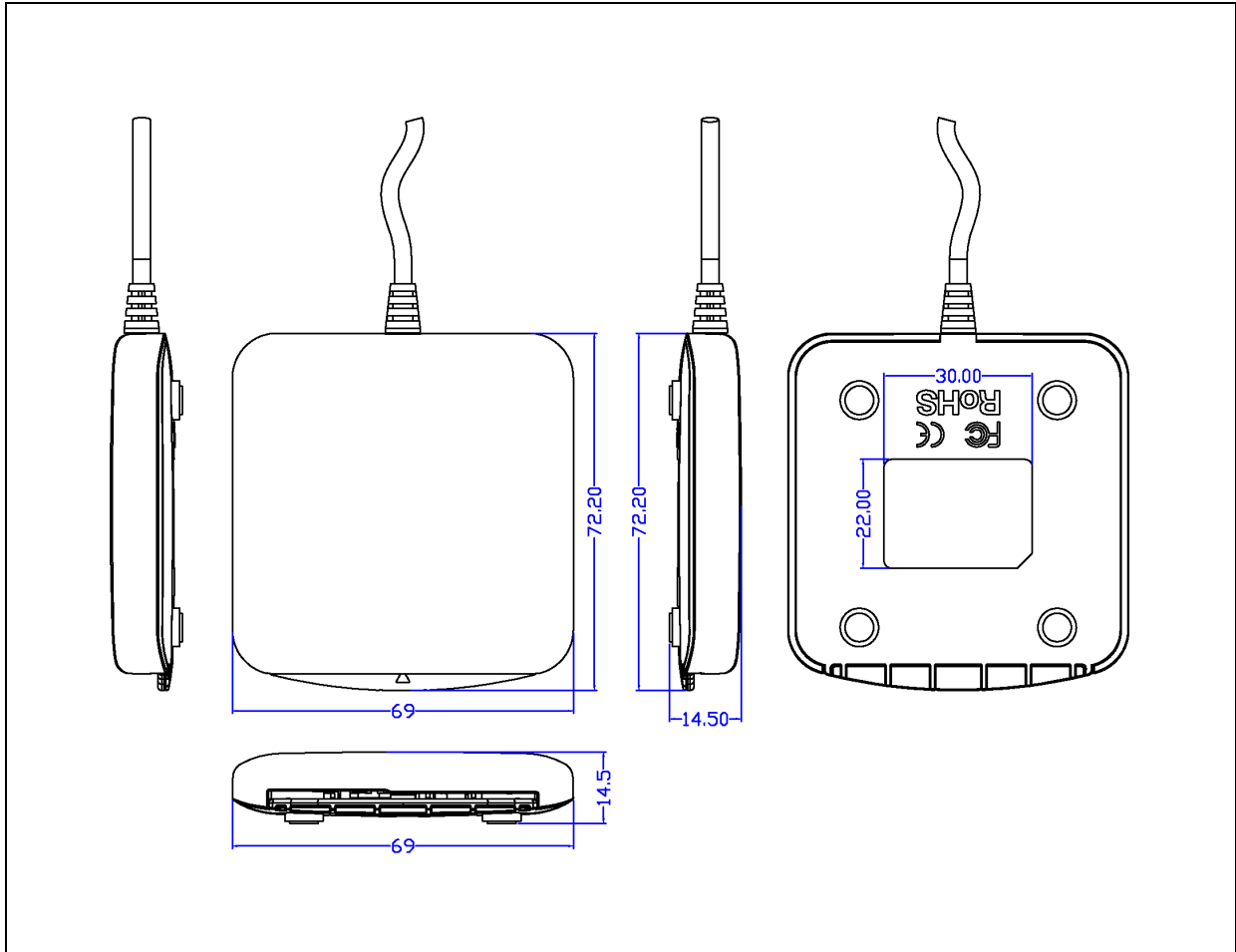
- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
  - Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
  - SGS-Thomson: ST14C02C, ST14C04C
  - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with intelligent 1-kilobyte EEPROM with write-protect 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



## 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. 600,000 BPS  
 Short Circuit Protection ..... +5 V/GND on all pins  
 CLK Frequency ..... 4.8 MHz  
 Card Connector..... Contact  
 Card Insertion Cycles..... Min. 100,000

### Physical Specifications

Dimensions ..... 72.2 mm (L) x 69.0 mm (W) x 14.5 mm (H)  
 Color ..... Black  
 Weight..... 65 g (± 5 g allowance for cable)  
 Cable length, cord, connector ..... 1.5 m, Fixed (non-detachable), USB A

### Built-in Peripheral

LED ..... 1 LED, Green

### Operating Conditions

Temperature ..... 0 °C – 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, FIPS 201, TAA, CE, FCC, VCCI, PC/SC, CCID, EMV 2000 Level 1, PBOC, RoHS, REACH, USB Full Speed  
Microsoft® WHQL 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 2003 R2, 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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