



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

# **ACR39U-U1**

## **(USB Type A)**

### **Smart Card Reader**



Technical Specifications V1.05



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## 1.0. Introduction

The ACR39U-U1 hails 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-U1 supports ISO 7816 Class A, B, and C smart cards (5 V, 3 V, and 1.8 V) and microprocessor cards with T=0 and 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) and SIPRNET Card. 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-U1 can last for 100,000 card insertion cycles. ACR39U-U1 also has various certifications such as EMV™ Level 1 (Contact) and People's Bank of China (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-U1, with its matte casing, 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-U1 is PC/SC and CCID-compliant, making it easy to install and use, as it is specifically designed to be integrated into any computer-based environment. Its drivers are compatible with operating systems such as Windows®, Linux®, Mac OS®, and Solaris. In addition, ACR39U-U1 may now be used on mobile devices running the Android™ platform with versions 3.1 and later.

With its numerous features, the ACR39U-U1 is clearly the perfect smart card reader for your smart card solution.



## 2.0. Features

- USB Full Speed Interface
- USB Type A Connector
- Plug and Play – CCID support brings utmost mobility
- Smart Card Reader:
  - Contact Interface:
    - Supports ISO 7816 Class A, B, and C (5 V, 3 V, 1.8 V) cards
    - Supports CAC (Common Access Card)
    - Supports SIPRNET Card
    - Supports J-LIS 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 later<sup>1</sup>
- Compliant with the following standards:
  - EN 60950/IEC 60950
  - ISO 7816
  - EMV™ Level 1 (Contact)
  - PC/SC
  - CCID
  - CE
  - FCC
  - WEEE
  - RoHS 2
  - REACH
  - TAA (USA)
  - J-LIS (Japan)
  - VCCI (Japan)
  - PBOC (China)
  - Microsoft® WHQL

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<sup>1</sup> Uses an ACS-defined Android Library



## 3.0. Supported Card Types

### 3.1. MCU Cards

ACR39U-U1 operates with MCU cards following either the T=0 or T=1 protocol. It also works with SIPRNET and CAC cards, ideal for US PIV and PKI applications.

### 3.2. Memory-based Smart Cards

ACR39U-U1 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 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

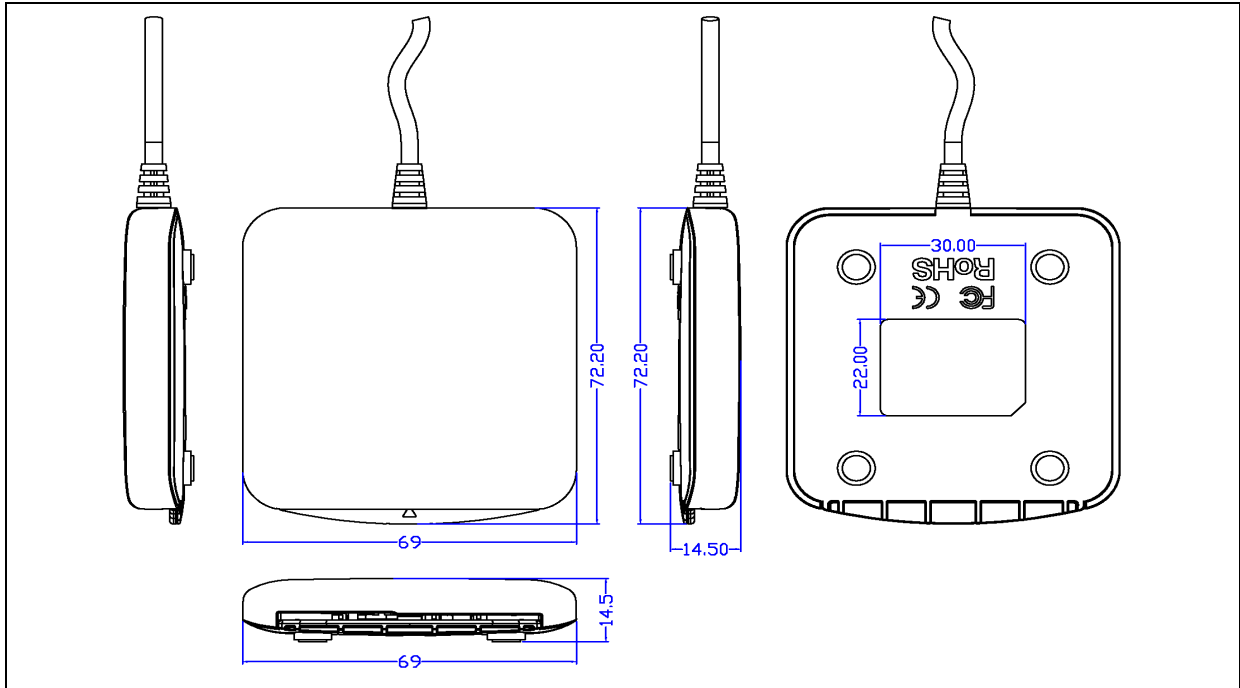


## 4.0. Typical Applications

- 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 ..... 72.2 mm (L) × 69.0 mm (W) × 14.5 mm (H)  
 Weight ..... 60 g  
 Color ..... Black (Matte)

### 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 Slots ..... 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 – 600 Kbps  
 Short Circuit Protection ..... (+5) V/GND on all pins  
 Clock Frequency ..... 4.8 MHz  
 Card Connector Type ..... Contact  
 ..... Landing (optional)  
 Card Insertion Cycles ..... Min. 100,000  
 ..... Min. 200,000 (for landing connector)

### SAM Card Interface (Optional)

Number of Slots ..... 1 Standard SIM-sized  
 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  
 Card Connector Type ..... Contact

### Built-in Peripheral

LED ..... Green

### 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**

EN 60950/IEC 60950, ISO 7816, USB Full Speed, EMV™ Level 1 (Contact), PC/SC, CCID, CE, FCC, WEEE, RoHS 2, REACH, TAA (USA), J-LIS (Japan), VCCI (Japan), PBOC (China), Microsoft® WHQL

**Device Driver Operating System Support**

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, Windows® Server 2016  
Linux®, Mac OS®, Solaris, Android™ 3.1 and later



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