



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR39U-U1 (USB Type A) Smart Card Reader



Technical Specifications V1.06



Table of Contents

1.0.	Introduction	3
1.1.	Smart Card Reader.....	3
1.2.	Compact Design	3
1.3.	Ease of Integration.....	3
2.0.	Features	4
3.0.	Supported Card Types	5
3.1.	MCU Cards	5
3.2.	Memory-based Smart Cards.....	5
4.0.	Typical Applications.....	6
5.0.	Technical Specifications.....	7



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



The 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 the ACR39U-U1, with its matte casing, makes it stand out from ordinary smart card readers. 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, the 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 later¹
- Compliant with the following standards:
 - EN 60950/IEC 60950
 - ISO 7816
 - EMV™ Level 1 (Contact)
 - PC/SC
 - CCID
 - CE
 - FCC
 - WEEE
 - RoHS
 - REACH
 - TAA (USA)
 - J-LIS (Japan)
 - VCCI (Japan)
 - PBOC (China)
 - BIS (India)
 - Microsoft® WHQL

¹ Uses an ACS-defined Android Library



3.0. Supported Card Types

3.1. MCU Cards

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

3.2. Memory-based Smart Cards

The ACR39U-U1 works with several memory-based smart cards such as:

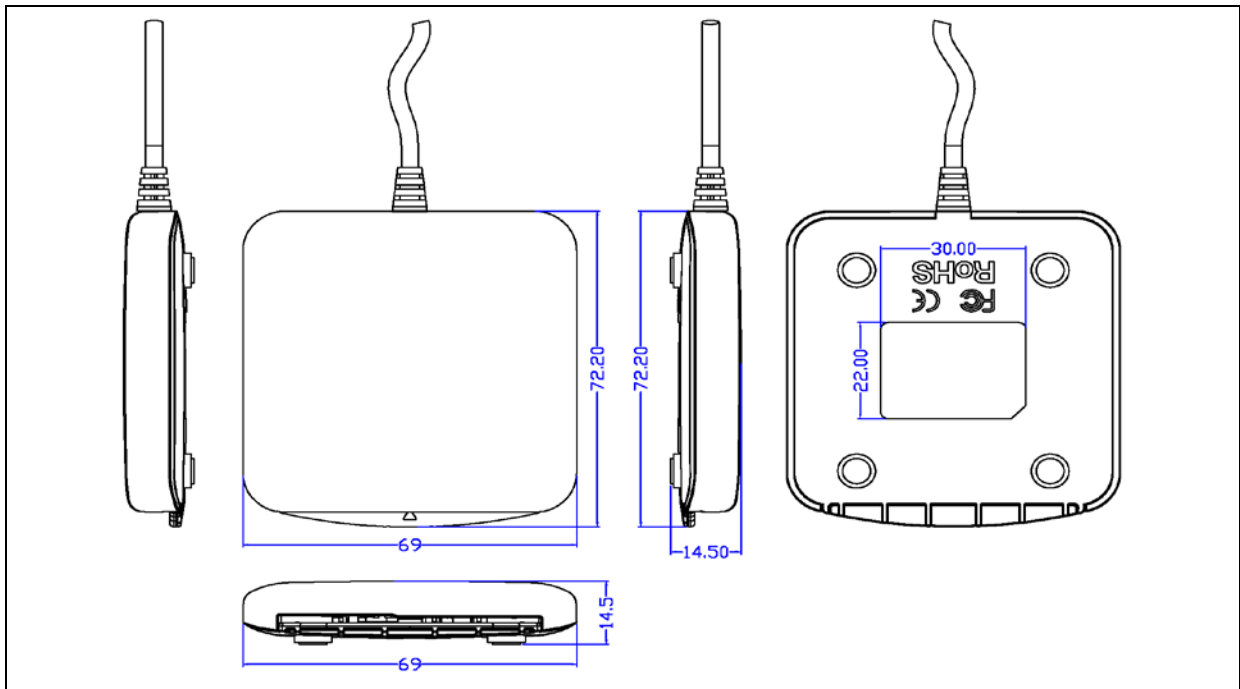
- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
 - Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
 - SGS-Thomson: ST14C02C, ST14C04C
 - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with intelligent 1 KB EEPROM with write-protect function, 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) x 69.0 mm (W) x 14.5 mm (H)
 Weight 65 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, REACH, TAA (USA), J-LIS (Japan), VCCI (Japan), PBOC (China), BIS (India), Microsoft® WHQL

Device Driver Operating System Support

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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