



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR39U-U1

(USB Type A)

Smart Card Reader



Technical Specifications V1.08



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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



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 and 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:

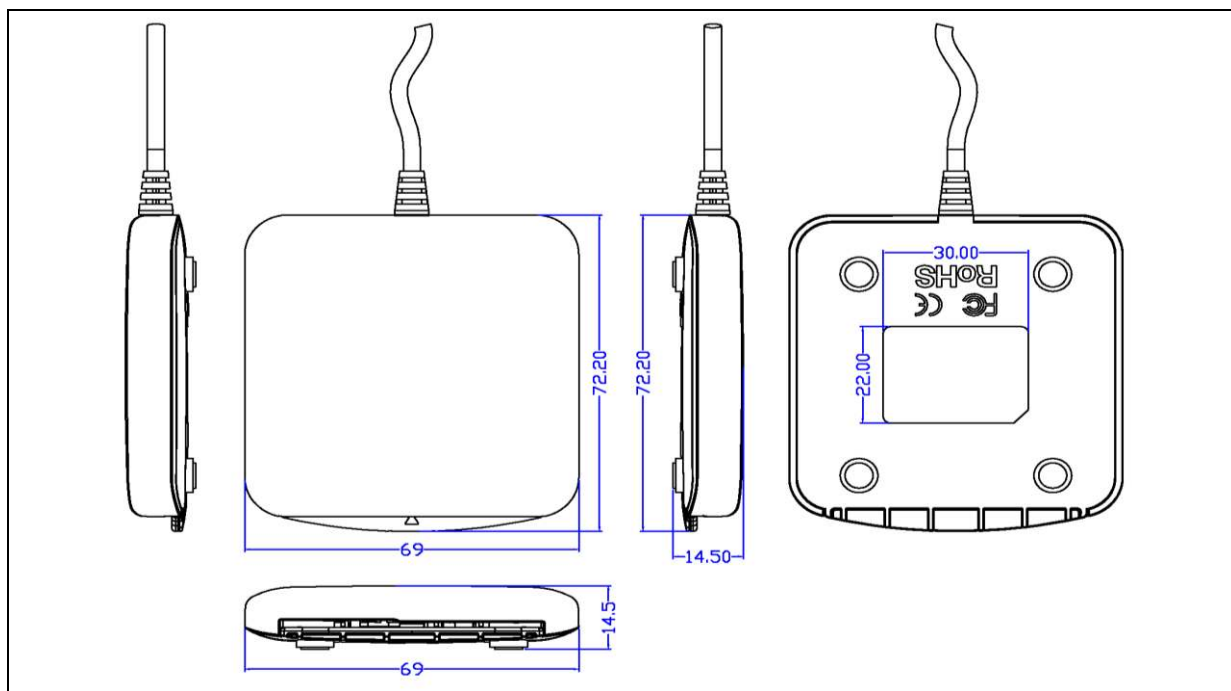
- Cards following the I2C bus protocol (free memory cards) with maximum 128 bytes page with capability, including:
 - Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
 - SGS-Thomson: ST14C02C, ST14C04C
 - Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with intelligent 1 KB EEPROM with write-protect function, 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) × 69.0 mm (W) × 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 1-4, 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)

Built-in Peripheral

LED	Green
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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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