ACR39U-U1
Smart Card Reader

Technical Specifications V1.04

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1.0. Introduction

The ACR39U-U1 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-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 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
- 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
  - 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[1]
- Compliant with the following standards:
  - EN 60950/IEC 60950
  - ISO 7816
  - EMV™ Level 1 (Contact)
  - PC/SC
  - CCID
  - CE
  - FCC
  - WEEE
  - RoHS 2
  - REACH
  - FIPS 201 (USA)
  - TAA (USA)
  - J-LIS (Japan)
  - VCCI (Japan)
  - PBOC (China)
  - Microsoft® WHQL

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[1] *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:
  - o Atmel®: AT24C01/02/04/08/16/32/64/128/256/512/1024
  - o SGS-Thomson: ST14C02C, ST14C04C
  - o Gemplus: GFM1K, GFM2K, GFM4K, GFM8K
- Cards with intelligent 1 KB EEPROM with write-protect function, including:
  - o Infineon®: SLE4418, SLE4428, SLE5518 and SLE5528
- Cards with intelligent 256-byte EEPROM with write-protect function, including:
  - o 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
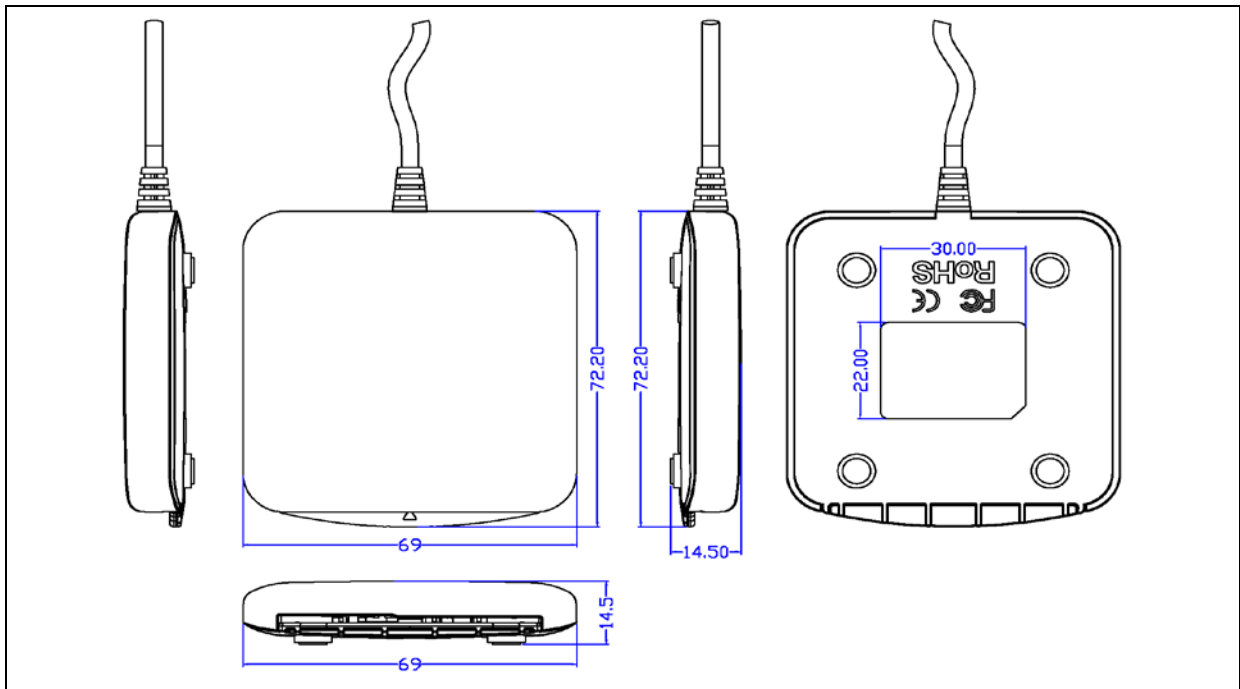
Physical Characteristics	
Dimensions	72.2 mm (L) x 69.0 mm (W) x 14.0 mm (H)
Weight	65 g (± 5 g allowance for cable)
Color	Black

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

FIPS 201 (USA), TAA (USA), J-LIS (Japan), VCCI (Japan), PBOC (China), Microsoft® WHQL

Device Driver Operating System Support

Windows® 98, Windows® ME, Windows® 2000, 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

Linux®, Mac OS®, Solaris, Android™ 3.1 and later

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