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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 later¹

- 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

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:
  - 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
- **Card Insertion Cycles**: Min. 100,000 (optional)
- **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
Linux®, Mac OS®, Solaris, Android™ 3.1 and later