ACM1252U-Y3
USB NFC Reader Module
with Detachable Antenna Board

Technical Specifications V1.00
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1.0. Introduction

The ACM1252U-Y3 USB NFC Reader Module with Detachable Antenna Board is developed based on the 13.56 MHz contactless technology. Like its predecessor, the ACR1252U-A1 NFC Forum‒Certified Reader, ACM1252U-Y3 supports all three NFC modes (card reader/writer, card emulation, and peer-to-peer communication). This Smart Card Reader Module is designed for fast and easy integration to embedded systems.

The ACM1252U-Y3 supports ISO 14443 Type A and B cards, and MIFARE®, FeliCa, and ISO 18092–compliant NFC tags. It also supports other NFC devices with an access speed of up to 424 Kbps and proximity operating distance of up to 50 mm (depending on tag type used). Post-deployment firmware upgrade is also supported, eliminating the need for additional hardware modification.

The ACM1252U-Y3 comes with a detachable antenna and an optional USB cable making it the perfect front-end interface module to enable NFC transactions for applications involving vending machine payment systems, kiosks, gaming machines and other integrated systems.
2.0. Features

- USB 2.0 Full Speed (12 Mbps)
- Smart Card Reader:
  - Contactless Interface
    - Read/Write speed of up to 424 Kbps
    - Built-in antenna for contactless tag access, with card reading distance of up to 50 mm (depending on tag type)
    - Support for ISO 14443 Part 4 Type A and B Cards, MIFARE® Classic, MIFARE® Mini, MIFARE® Ultralight®, FeliCa, Topaz, and all four types of NFC (ISO/IEC 18092 tags)
    - Built-in anti-collision feature (only one tag is accessed at a time)
  - NFC Support
    - Card reader/writer mode
    - Peer-to-Peer mode
    - Card emulation mode
  - SAM Interface (upon request)
    - One SAM Slot (upon request)
    - Support for ISO 7816 MCU Card (Class A)
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- Built-in peripherals
  - User-controllable bi-color LED
  - User-controllable buzzer
- USB Firmware Upgradability
- Supports Android™ 3.1 and above
- Compliant with the following standards:
  - EN60950/IEC 60950
  - ISO 18092 (NFCIP-1)
  - ISO 14443 Parts 1-4
  - CE
  - FCC
  - VCCI
  - PC/SC
  - CCID
  - Microsoft® WHQL
  - RoHS 2
  - REACH
3.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program
4.0. Technical Specifications

**MAIN Board:**

- **Universal Serial Bus Interface**
  - Power Source: From USB
  - Speed: 12 Mbps (Full Speed)
  - Supply Voltage: Regulated 5 V DC
  - Supply Current: Max. 200 mA

- **Contactless Smart Card Interface**
  - Standard: ISO/IEC 18092 NFC, ISO 14443 Type A & B, MIFARE, FeliCa
  - Smart Card Read/Write Speed: 106 Kbps, 212 Kbps, 424 Kbps
  - Operating Frequency: 13.56 MHz
  - Operating Distance: Up to 50 mm (depending on card type)
  - Detachable Antenna Distance: Max. 10 cm

**Antenna Board:**
**SAM Card Interface (Optional)**

- **Standard**: ISO 7816
- **Protocol**: T=0 and T=1 protocol

**Built-in Peripherals**

- **Bi-Color LED**: Red and Green
- **Buzzer**: Monotone

**Physical Specifications**

- **Dimensions**:
  - Main Board: 55.0 mm (L) x 45.0 mm (W) x 5.1 mm (H)
  - Antenna Board: 91.0 mm (L) x 49.5 mm (W) x 5.1 mm (H)
- **Cable Length**: 1.0 m (USB)

**Operating Conditions**

- **Temperature**: 0 °C – 50 °C
- **Humidity**: Max. 90% (non-condensing)
- **MTBF**: 500,000 hrs

**Application Programming Interface**

- **PC/SC**: CT-API (through wrapper on top of PC/SC)

**Certifications/Compliance**

- EN60950/IEC 60950, ISO 14443, ISO 18092, ISO 7816 (upon request), CE, FCC, VCCI, PC/SC, CCID, RoHS 2, REACH, USB Full Speed

**Device Driver Operating System Support**


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