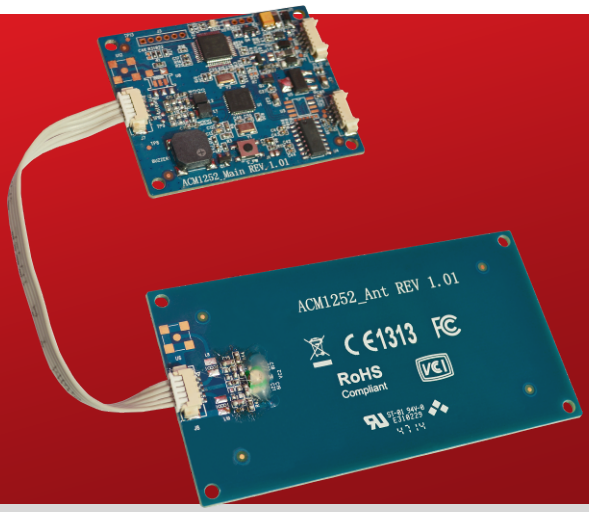
Advanced Card Systems Ltd.
Card & Reader Technologies

ACM1252U-Y3

USB NFC Reader Module with Detachable Antenna Board



Technical Specifications V1.02

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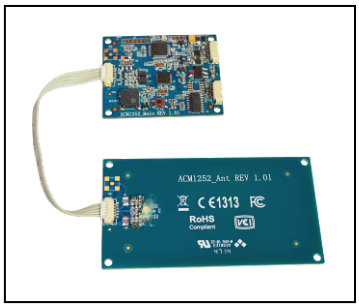
1.0. Introduction



The ACM1252U-Y3 USB NFC Reader Module with Detachable Antenna Board is developed based on the 13.56 MHz contactless technology. Like its predecessor 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, 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 for NFC transaction applications involving vending machine payment systems, kiosks, gaming machines, and other integrated systems.

2.0. Features

- USB Full Speed Interface
- CCID-compliant
- 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)
    - Supports 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)
    - Supports ISO 7816 MCU cards (Class A)
- Built-in Peripherals:
  - User-controllable bi-color LED
  - User-controllable buzzer
- Application Programming Interface:
  - Supports PC/SC
  - Supports CT-API (through wrapper on top of PC/SC)
- USB Firmware Upgradability
- Supports Android™ 3.1 and later[1]
- Compliant with the following standards:
  - EN 60950/IEC 60950
  - ISO 14443
  - ISO 18092
  - PC/SC
  - CCID
  - CE
  - FCC
  - RoHS 2
  - REACH
  - VCCI (Japan)
  - Microsoft® WHQL

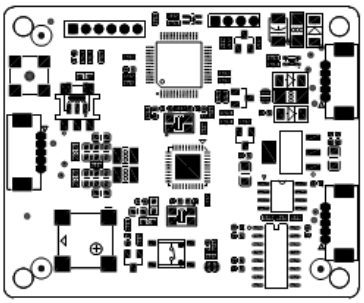
[1] *Uses an ACS-defined Android Library*

3.0. Typical Applications

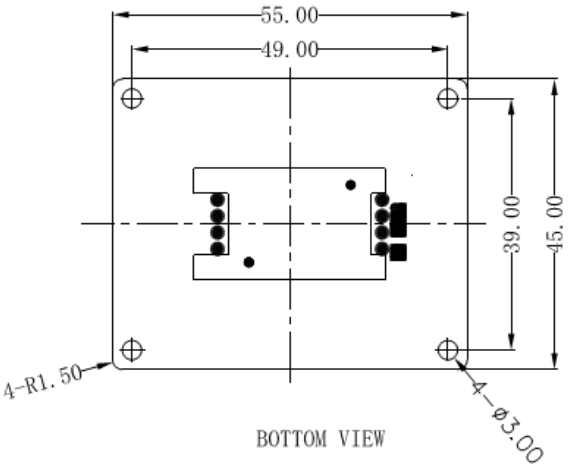
- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program

4.0. Technical Specifications

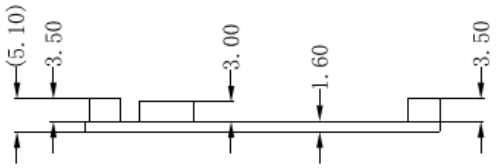
MAIN Board



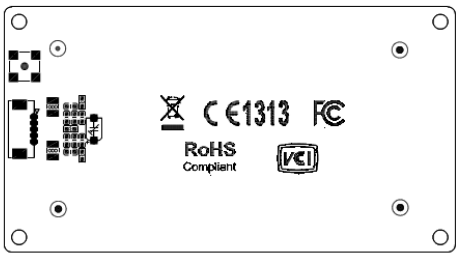
TOP VIEW



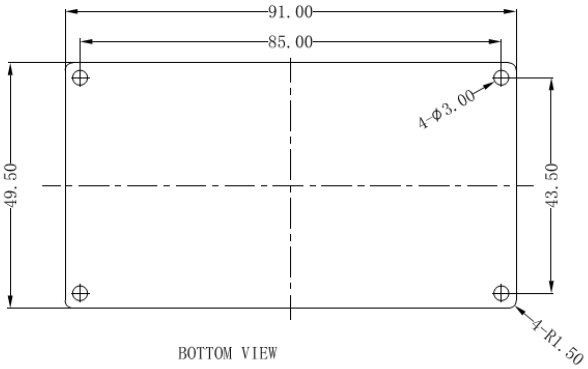
BOTTOM VIEW



Antenna Board



TOP VIEW



BOTTOM VIEW

Physical Characteristics	
Dimensions	Main Board: 55.0 mm (L) × 45.0 mm (W) × 5.1 mm (H)
	Antenna Board: 91.0 mm (L) × 49.5 mm (W) × 5.1 mm (H)
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
Supply Current	Max. 200 mA
Cable Length	1.0 m, Detachable (optional)

Contactless Smart Card Interface

Standard ..... ISO/IEC 18092 NFC, ISO 14443 Type A & B, MIFARE®, FeliCa
Protocol ..... ISO 14443 T=CL for ISO 14443-4–compliant cards
..... T=CL Emulation for MIFARE® Classic, ISO 18092, FeliCa and NFC tags
Operating Frequency ..... 13.56 MHz
Operating Distance ..... Up to 50 mm (depending on card type)
Smart Card Read/Write Speed..... 106 Kbps, 212 Kbps, 424 Kbps
Antenna Size..... 77 mm × 49.5 mm
Detachable Antenna Distance..... Max. 10 cm (to the main board)

SAM Card Interface (Optional)

Number of Slot ..... 1 Standard SIM-sized Card Slot
Standard ..... ISO 7816 Class A (5V)
Protocol..... T=0; T=1
Smart Card Read/Write Speed..... 9.6 Kbps – 344 Kbps
Card Connector Type..... SAM Slot 0: Contact

Built-in Peripherals

LED ..... 1 bi-color: Red and Green
Buzzer..... Monotone

Other Feature

Firmware Upgrade ..... Supported

Application Programming Interface

PC-linked Mode..... PC/SC
..... CT-API (through wrapper on top of PC/SC)

Operating Conditions

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

Certifications/Compliance

EN 60950/IEC 60950, ISO 7816 (SAM Slot upon request), ISO 14443, ISO 18092, USB Full Speed, PC/SC, CCID, CE, FCC, RoHS 2, REACH
VCCI (Japan), Microsoft® WHQL

Device Driver Operating System Support

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, Windows® Server 2016
Linux®, Mac OS®, Solaris, Android™ 3.1 and later