ACM1552U-Y

USB NFC Reader Module with Detachable Antenna Board

User Manual V1.01

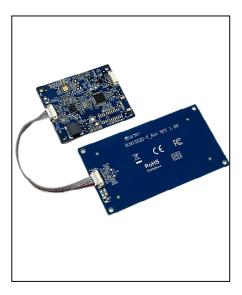# Table of Contents

1.0. Introduction

Continuing the success of the ACM1252U-Y, the ACM1552U-Y is a CCID & PC/SC compliant reader module. It is an NFC reader that can access various contactless smart cards following the ISO 14443 Type A & B, ISO 15693, and ISO 18092 NFC standards. It features three NFC modes, namely Card Reader/Writer, Card Emulation, and Keyboard Emulation, making it a powerful all-in-one device that is cost-effective and flexible for many smart card applications.

1.1. USB NFC Reader

ACM1552U-Y supports a wide range of types of contactless cards and tags, including ISO 14443 Type A & B, ISO 15693, ISO18092 NFC, MIFARE®, FeliCa, SRI/SRIX, CTS, Innovatron, Picopass, Topaz card and NFC tags. It also comes with a detachable antenna and an optional USB cable which allow it to be the perfect front-end interface module for NFC transaction applications including vending machine payment systems, kiosks and gaming machines. Additionally, it can read/write card at speed of up to 848 kbps for contactless smart cards and NFC device access.

1.2. Compact Design

With a compact design and detachable antenna board, ACM1552U-Y offers flexibility, improved performance, customization, and space optimization, making it a valuable choice for integrated systems.

1.3. Firmware Upgradeable Feature

To save valuable cost and time, the firmware of ACM1552U-Y could conveniently be upgraded in-field to allow users to cope with the fast-changing technology for their applications in order to suit different scenarios.

1.4. Multi-Platform Support

ACM1552U-Y is a PC/SC and CCID-compliant reader. With driver support on different platforms, ACM1552U-Y can operate in Windows®, Linux®, macOS and Android™ operating systems.

2.0. Features

- USB NFC Reader Module with Detachable Antenna Board (Contactless)
- USB 2.0 Full Speed Interface
- Plug and Play – CCID support brings utmost mobility[1]
- USB Firmware Upgradeability[2]
- Contactless Smart Card Reader:
  - Supports ISO 14443 Type A and B cards
  - Supports ISO 15693 cards
  - Supports ISO 18092 NFC
  - Supports MIFARE® (T=CL), FeliCa, NFC Tags
  - Supports SRI/SRIX, CTS, Innovatron, Picopass, Topaz Card
  - Built-in antenna for contactless tag access, with a reading distance of up to 70 mm (depending on tag type)
  - Built-in anti-collision feature (only one tag is accessed at any time)
  - NFC Support:
    - Card reader/writer mode
    - Card emulation mode
    - Keyboard emulation mode
- Application Programming Interface:
  - Supports PC/SC[3]
  - Supports CT-API (through wrapper on top of PC/SC)
- Supports Windows®, Linux®, macOS, and Android™ operating systems.
- Built-in Peripherals:
  - One user-controllable bi-color LED
  - One user-controllable buzzer
- Compliant with the following certifications and standards:
  - CE
  - UKCA
  - FCC
  - RoHS
  - REACH
  - WEEE
  - VCCI
  - Microsoft® WHQL
  - ISO 14443

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[1] *Applicable under PC-linked mode*

[2] *Same as above*

[3] *Same as above*

- o ISO 15693
- o ISO 18092
- o PC/SC
- o CCID

2.0. Typical Applications

- e-Government
- e-Banking and e-Payment
- e-Healthcare
- Transportation
- Network Security
- Access Control
- Loyalty Program
- Smart Poster/URL Marketing

3.0. Driver installation Procedure

The installation procedure is the same for ACS PC/SC Driver version 1.0.4.0 and above. The latest device drivers of the ACS Smart Card Readers may be downloaded from the ACS Driver Download Webpage:
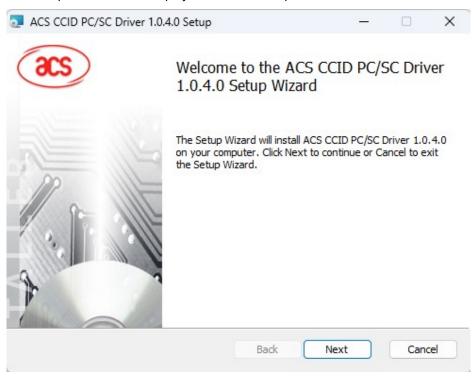
http://acs.com.hk/en/drivers/

To install the ACS Driver:

1. In the **ACS PC/SC Driver** folder, run the file **Setup.exe**.

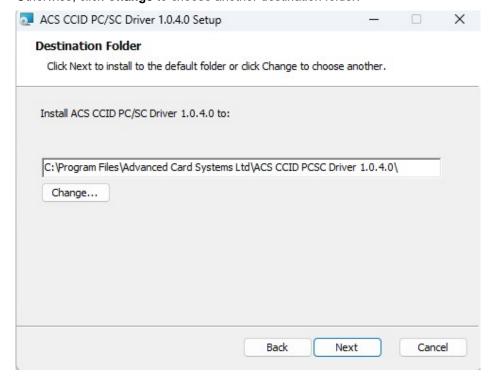2. Choose the language, and then click **OK**.

3. The Setup Wizard will be displayed. Click **Next** to proceed with the installation.
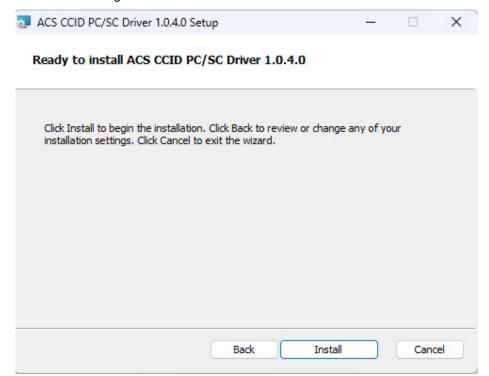
4. Click **Next** to install the driver to the default folder located at **C:\Program Files\Advanced Card Systems Ltd\ACS PCSC Driver 1.0.4.0**, with **C** as the drive letter of your local drive. Otherwise, click **Change** to choose another destination folder.
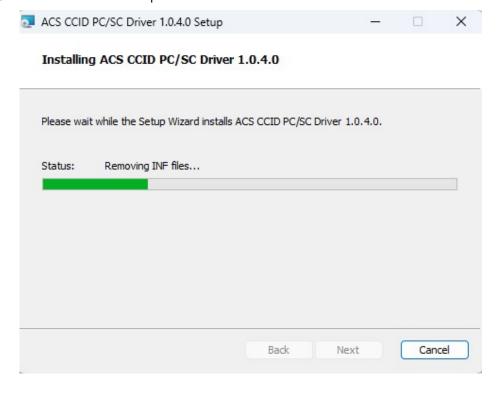

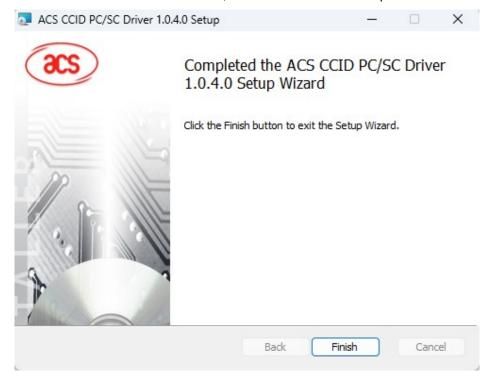5. Click **Install** to begin the installation.

6. Wait for the installation process to finish.

7. Once the driver installation is finished, click **Finish** to exit the setup wizard.
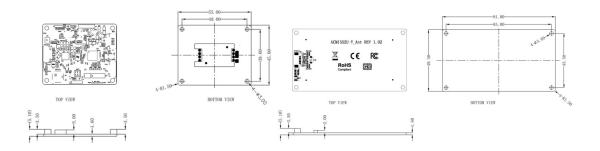
4.0. Technical Specifications

Contactless Smart Card Interface	
Supported Card Types	ISO 14443 Type A & B Parts 1-4, ISO 15693, ISO 18092 NFC, MIFARE®, FeliCa, SRI/SRIX, CTS, Innovatron, Picopass, Topaz Card
Operating Frequency	13.56 MHz
Reading Distance	Up to 70 mm (Depending on tag type)
Read/Write Speed	106/212/424/848 kbps (ISO14443) 26/53kbps (ISO15693)
Anti-Collision	Yes
Supported NFC Mode	Card Reader/Writer, Card Emulation, Keyboard Emulation

SAM Card Interface (Optional)	
Standard	1 x ISO 7816 Class A (5V) Standard SIM size slot
Read/Write Speed	13.4 kbps – 1,250 kbps
Clock Frequency	5 MHz, up to 10MHz
Protocol	T=0, T=1

Host Interface	
Protocol	USB CCID
Connector Type	USB Type-A
Speed	USB 2.0 Full Speed (12 Mbps) compatible with USB3.0
Supply Voltage	5VDC
Current Consumption	Max. 300mA
USB Firmware Upgrade	Supported

Physical Characteristics	
Dimension (L x W x H)	Main Board: 55 x 45 x 5.1 mm Antenna Board: 91 x 49.5 x 5.1 mm
USB Cable Length	1 m, Detachable (Optional)

Peripherals	
Buzzer	1 x Programmable Buzzer (Monotone)
LED	1 x Programmable LED (Blue & Green)

Operating Condition	
Temperature	0 - 60°C
Humidity	Max. 90% (Non-condensing)
MTBF	500,000 Hours

Certifications & Compliances	
Certifications	IEC/EN 62368, CE, UKCA, FCC, VCCI, RoHS, REACH, WEEE, Microsoft® WHQL
Compliances	USB CCID, PC/SC

Libraries & Tools	
Libraries	CT-API
Tools	Software Development Kit

Drivers & Support	
Driver Supported OS	Windows®, Linux®, macOS, Android™
Warranty	1 Year

Unit: mm

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Windows® is a trademark of Microsoft Corporation in the United States and/or other countries.
Android™ is trademarks of Google LLC.
Linux® is the registered trademark of Linus Torvalds in the U.S. and other countries.

FCC Caution:

Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT NOTE:

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

—Reorient or relocate the receiving antenna.

—Increase the separation between the equipment and receiver.

—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.