



Advanced Card Systems Ltd.
Card & Reader Technologies

ACR1255

NFC Bluetooth

Smart Card Reader



User Manual V1.00

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1.0. Introduction

ACR1255 NFC Bluetooth Smart Card Reader combines the latest 13.56 MHz contactless technology with Bluetooth Smart connectivity for on-the-go smart card and NFC applications.

1.1. NFC and Smart Card Reader

ACR1255 supports ISO 14443 Type A and B smart cards, MIFARE®, FeliCa®, and most NFC tags and devices compliant with ISO 18092 standard. This makes it the ideal device for a broad range of solutions, such as hands-free verification for physical and logical access control, and inventory tracking. ACR1255 has both Bluetooth interface for pairing with mobile devices and USB Full Speed for PC-linked operation. Additionally, it can read/write at speeds of up to 424 Kbps for contactless smart card and NFC device access.



1.2. Compact Design

With a compact design and a rechargeable Lithium-ion battery for power, ACR1255 is extremely portable and convenient for use anytime, anywhere with most Bluetooth-enabled smartphones and tablets in the market.

1.3. Firmware Upgradeable Feature

To save valuable cost and time, the firmware of ACR1255 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. Bluetooth® Connectivity

With Bluetooth® Low Energy (LE) 4.0 technology, ACR1255 can connect wirelessly with ease to any device running on Android™ 4.3 and above, iOS 5.0 and above, Windows®, and Mac OS X® operating systems.

1.5. Ease of Integration

ACR1255 could easily be installed for use with any PC running on Windows® operating system because it is PC/SC and CCID compliant. Its drivers are also compatible with Linux® and Mac OS X®.

With its numerous features, the ACR1255 is the perfect Bluetooth NFC reader for your smart card solution.



2.0. Features

- USB 2.0 Full Speed Interface
- Bluetooth Low Energy (LE) 4.0 Interface
- Plug and Play – CCID support brings utmost mobility¹
- USB Firmware Upgradeability²
- Smart Card Reader:
 - Built-in antenna for contactless tag access, with reading distance of up to 60 mm (depending on tag type)
 - Supports ISO 14443 Part 4 Type A and B cards
 - Supports MIFARE® and MIFARE DESFire®
 - Supports FeliCa®
 - Supports ISO 18092 Tags (NFC Tags)
 - Built-in anti-collision feature (only one tag is accessed at any time)
 - NFC Support:
 - Card reader/writer mode
 - Card emulation mode
 - Supports AES-128 encryption algorithm
- Application Programming Interface:
 - Supports PC/SC³
 - Supports CT-API (through wrapper on top of PC/SC)
- Supports Android™ 4.3 and above⁴
- Supports iOS 5.0 and above
- Built-in Peripherals:
 - Two user-controllable bi-color LEDs
 - User-controllable buzzer
- Compliant with the following standards:
 - EN60950/IEC 60950
 - ISO 18092
 - ISO 14443
 - CE
 - FCC
 - VCCI
 - PC/SC
 - CCID

¹ Applicable under PC-linked mode

² Same as above

³ Same as above

⁴ PC/SC and CCID support is not applicable.



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- Bluetooth® QDL
- Microsoft® WHQL
- RoHS2
- REACH



3.0. Typical Applications

- Mobile Banking & Payment
- e-Government
- e-Healthcare
- Network Security
- Access Control
- e-Purse & Loyalty
- Public Key Infrastructure



4.0. Driver installation Procedure

The installation procedure is the same for Unified PC/SC Driver version 4.0.0.2 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 Unified Driver** folder, run the file **Setup.exe**.
2. Select the language of your choice, and then click **OK**.

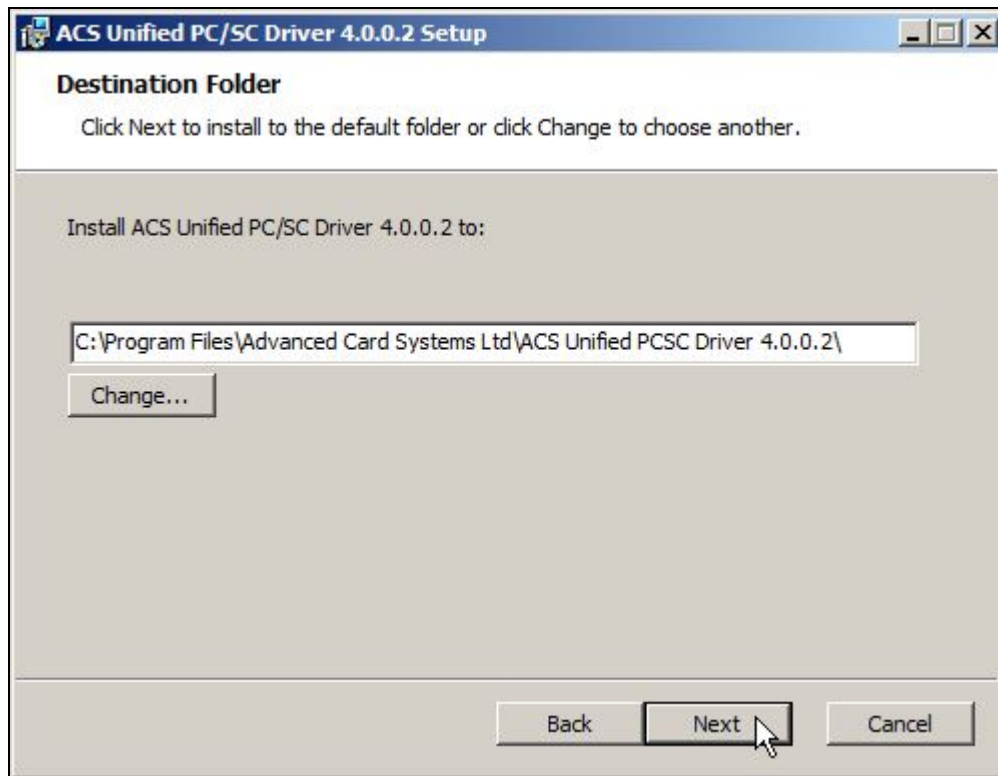


3. The Setup Wizard will be displayed. Click **Next** to proceed with the installation.

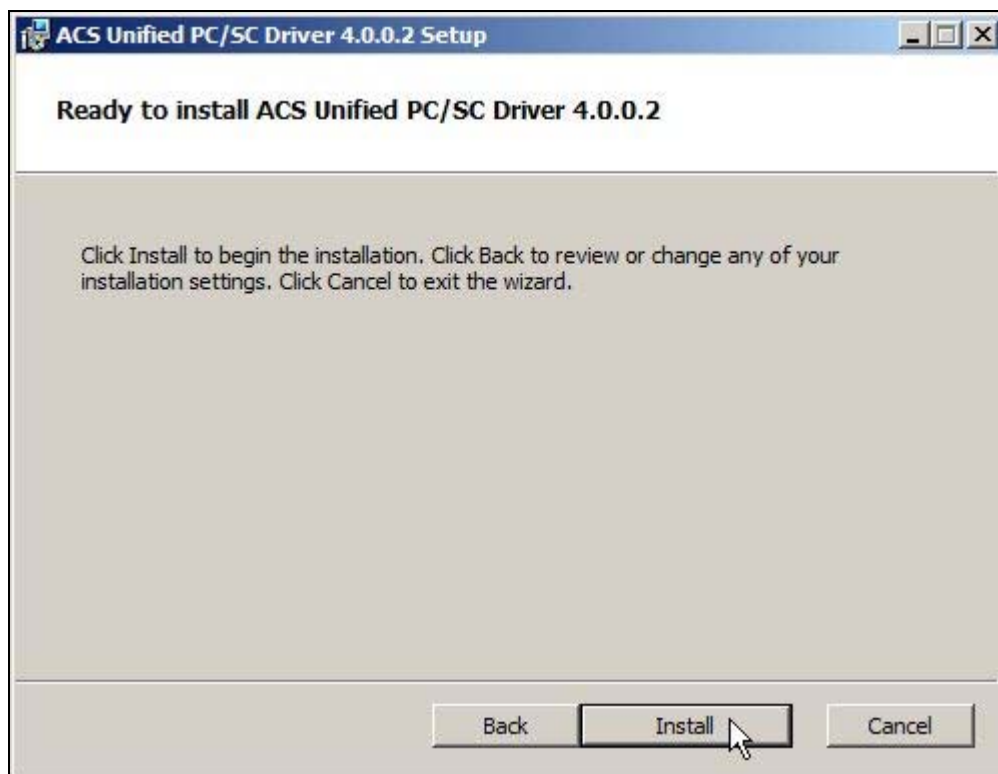




- Click **Next** to install the driver to the default folder located at **X:\Program Files\Advanced Card Systems Ltd\ACS Unified PCSC Driver 4.0.0.2**, with **X** as the drive letter of you local drive. Otherwise, click **Change** to choose another destination folder.

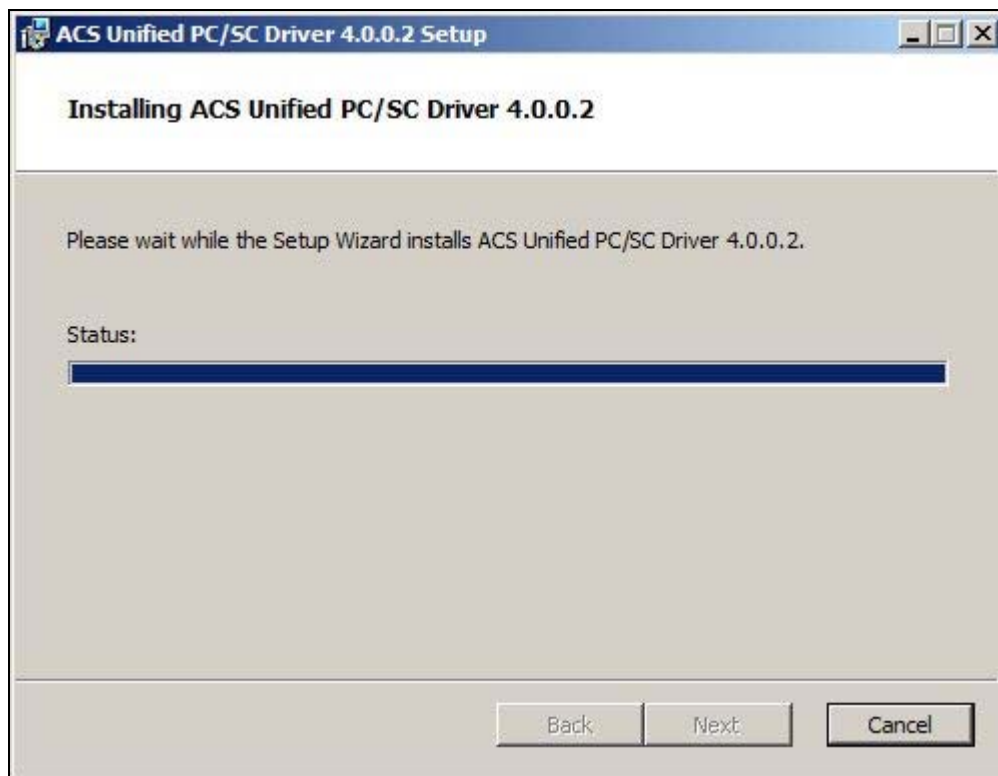


- Click **Install** to begin the installation.

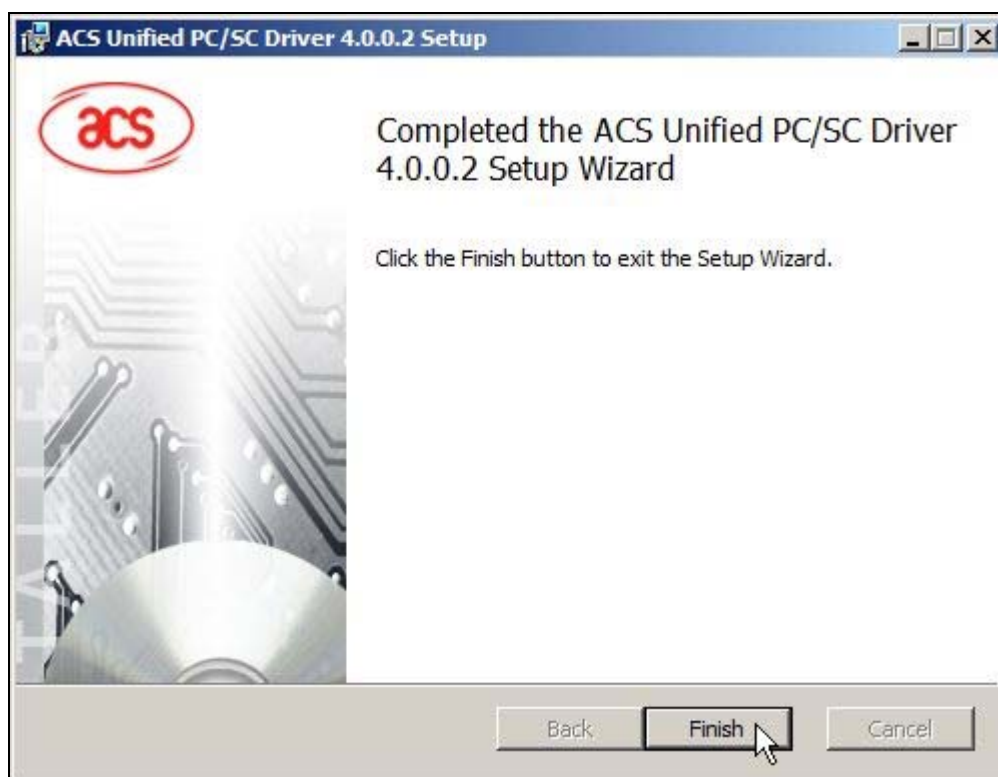




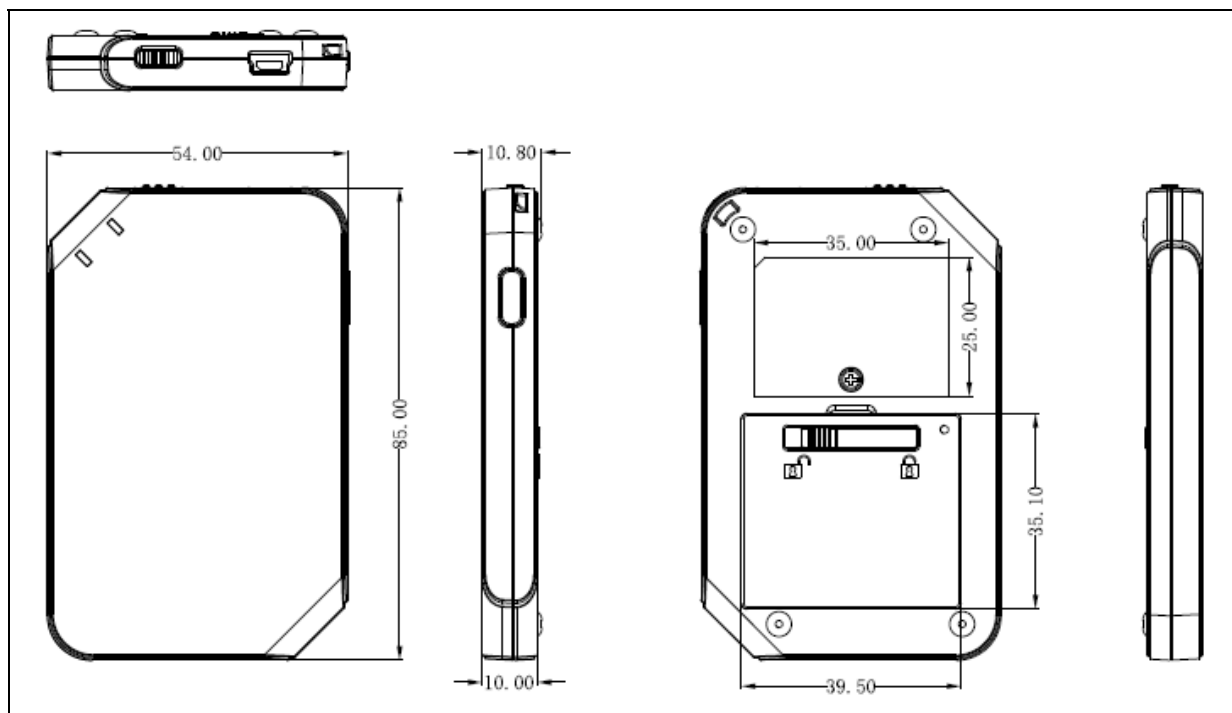
- Wait for the installation process to finish.



- Once the driver installation is finished, click **Finish** to exit the setup wizard.



5.0. Technical Specifications



Universal Serial Bus Interface

Type..... USB Full Speed, four lines: +5 V, GND, D+ and D-
 Power Source..... From USB
 Speed..... 12 Mbps
 Supply Voltage..... Regulated 5V DC
 Supply Current..... <250mA
 Battery Specification..... Lithium-ion Battery (320mAh)
 Firmware..... Upgradeable through USB interface

Bluetooth Interface

Type..... Bluetooth Smart 4.0
 Power Source..... From battery
 Operating Frequency 2.4 GHz
 Speed..... 1 Mbps (on-air data rate)

Contactless Smart Card Interface

Standard ISO/IEC 18092 NFC, ISO 14443 Type A & B, MIFARE, DESFire, FeliCa
 Protocol..... ISO 14443 T=CL for ISO14443-4 compliant cards and T=CL Emulation for MIFARE Classic 1K/4K, ISO 18092, FeliCa and NFC tags
 Operating Frequency 13.56 MHz
 Operating Distance Up to 60 mm (depending on tag type)
 Smart Card Read/Write Speed..... 106 Kbps, 212 Kbps, 424 Kbps

Built-In Peripheral

LED 2, Bi-color (Red and Blue, Red and Green,)
 Buzzer..... Monotone

Application Programming Interface

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



Certifications/Compliance

EN60950/IEC 60950, ISO 18092, ISO 14443, NFC Forum, CE, FCC, VCCI, PC/SC, CCID, RoHS 2, REACH, USB Full Speed, Bluetooth® Smart, Microsoft® WHQL Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® Server 2003, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2

Device Driver Operating System Support

Windows® 98, Windows® ME, Windows® 2000, Windows® XP, Windows Vista®, Windows® 7, Windows® 8, Windows® 8.1, Windows® Server 2003, Windows® Server 2003 R2, Windows® Server 2008, Windows® Server 2008 R2, Windows® Server 2012, Windows® Server 2012 R2
Linux®, Mac OS®, Android™¹, iOS²



¹ 4.3 or above Android version is required for Bluetooth 4.0.

² 5.0 and above iOS version is required.

Remarks:

- 1) 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.
- 2) Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- 3) This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment .

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.