



**Advanced Card Systems Ltd.**  
Card & Reader Technologies

# ACR1255

## NFC Bluetooth

## Smart Card Reader



User Manual V1.00

|              | Name       | Signature | Date       |
|--------------|------------|-----------|------------|
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## Table of Contents

|             |                                       |                  |
|-------------|---------------------------------------|------------------|
| <b>1.0.</b> | <b>Introduction .....</b>             | <b><u>3</u></b>  |
| 1.1.        | NFC and Smart Card Reader .....       | <u>3</u>         |
| 1.2.        | Compact Design .....                  | <u>3</u>         |
|             | Firmware .....                        | <u>3</u>         |
| 1.3.        | Upgradeable Feature .....             | <u>3</u>         |
| 1.4.        | Bluetooth® Connectivity .....         | <u>3</u>         |
| 1.5.        | Ease of Integration.....              | <u>3</u>         |
| <b>2.0.</b> | <b>Features .....</b>                 | <b><u>4</u></b>  |
| <b>3.0.</b> | <b>Typical Applications .....</b>     | <b><u>6</u></b>  |
| <b>4.0.</b> | <b>Technical Specifications .....</b> | <b><u>10</u></b> |



## 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 mobility<sup>1</sup>
- USB Firmware Upgradeability<sup>2</sup>
- 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/SC<sup>3</sup>
  - Supports CT-API (through wrapper on top of PC/SC)
- Supports Android™ 4.3 and above<sup>4</sup>
- 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

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<sup>1</sup> Applicable under PC-linked mode

<sup>2</sup> Same as above

<sup>3</sup> Same as above

<sup>4</sup> 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**.

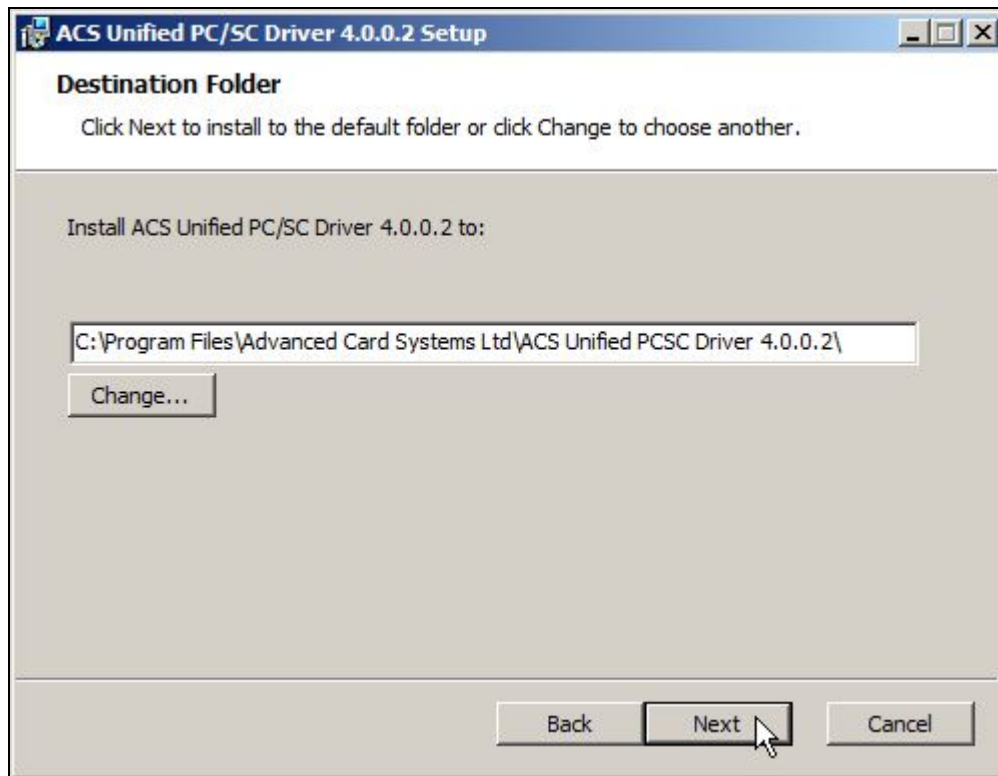


3. The Setup Wizard will be displayed. Click **Next** to proceed with the installation.

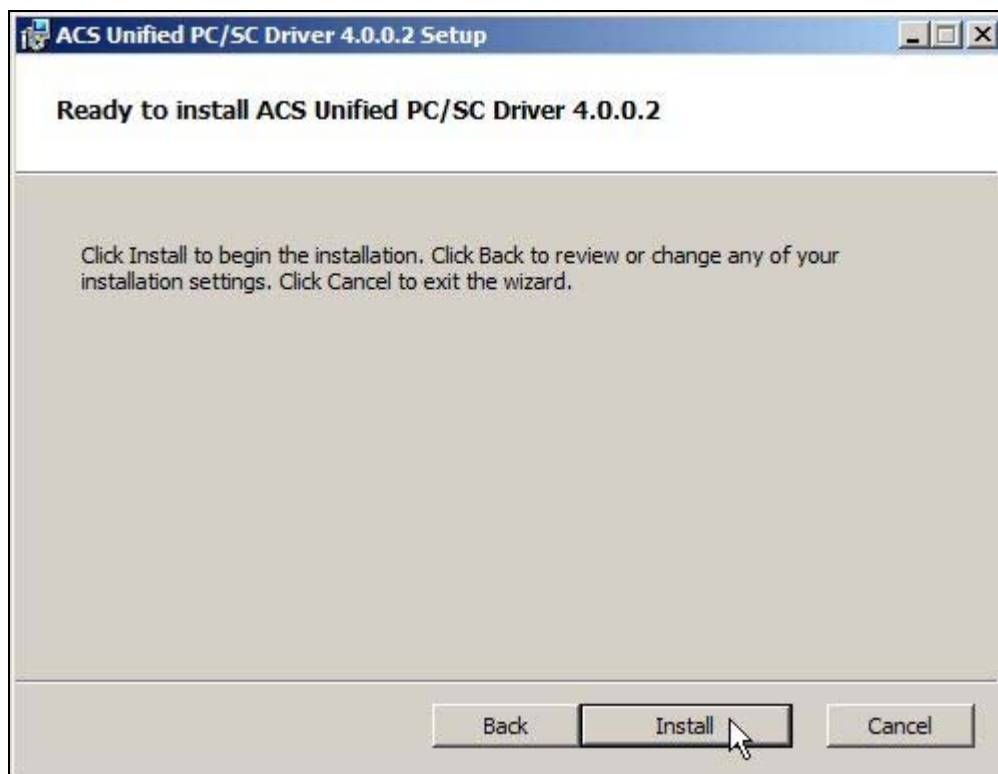




- Click **Next** to install the driver to the default folder located at **X:\Program Files\Advanced Card Systems Ltd\ACS Unified PCSC Driver 4.0.0.2\**, with **X** as the drive letter of you local drive. Otherwise, click **Change** to choose another destination folder.



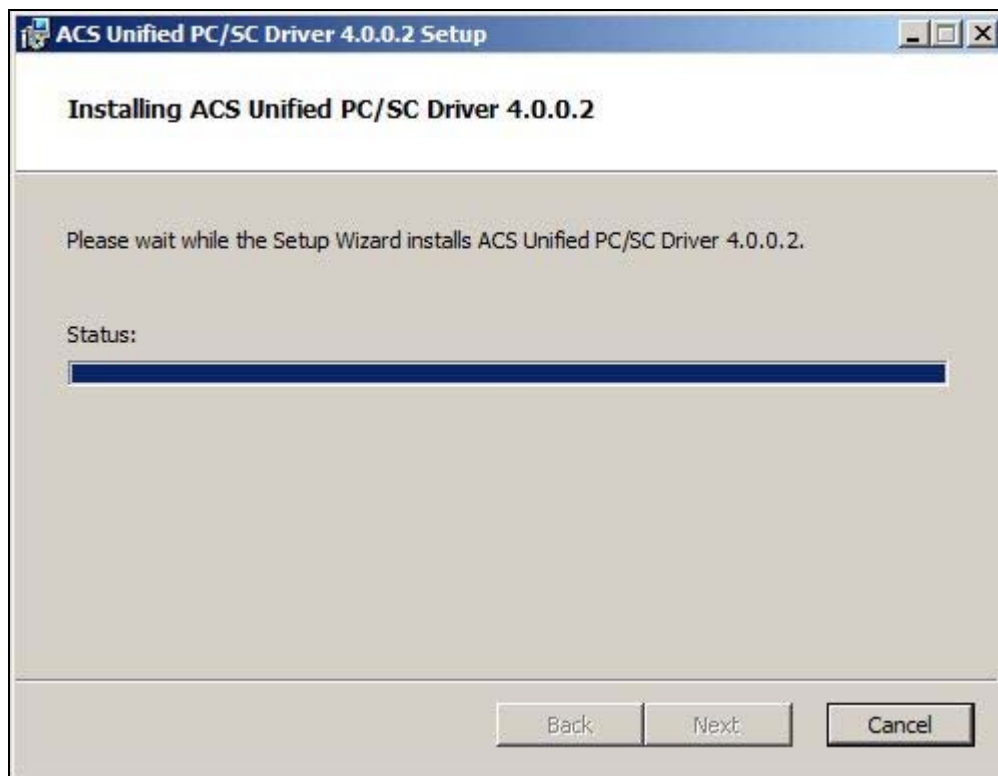
- Click **Install** to begin the installation.







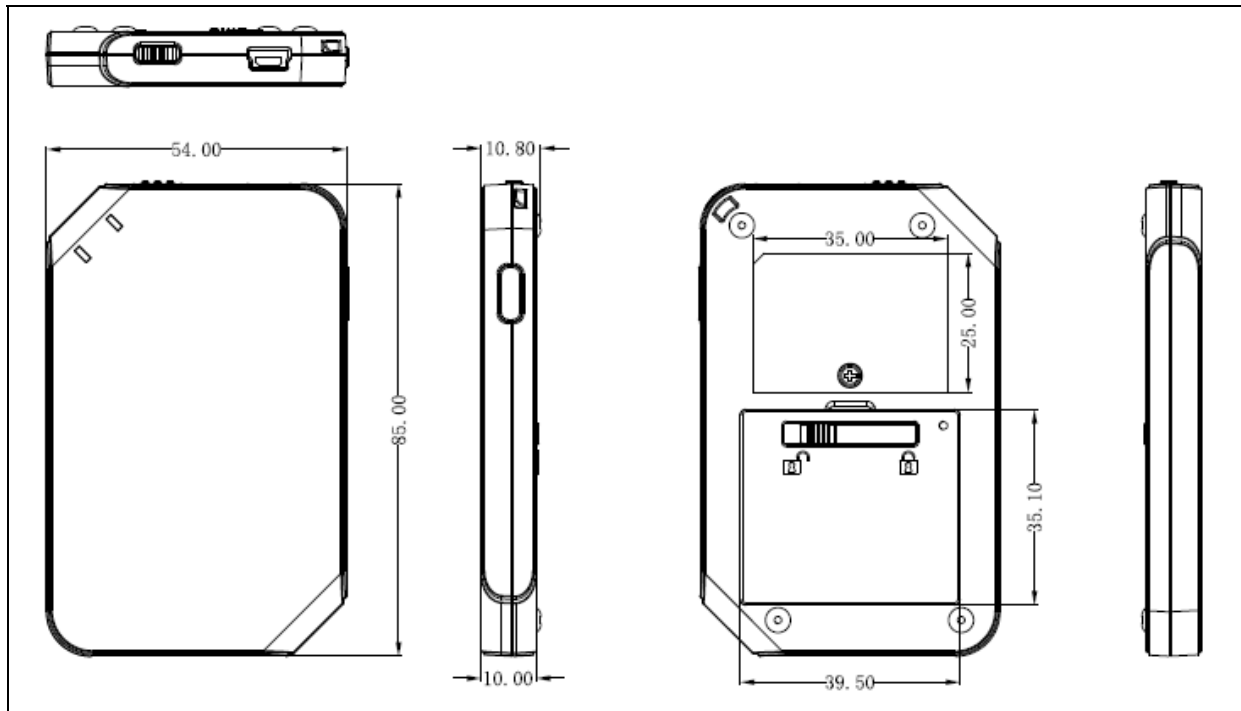
- Wait for the installation process to finish.



- 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™<sup>1</sup>, iOS<sup>2</sup>



<sup>1</sup> 4.3 or above Android version is required for Bluetooth 4.0.

<sup>2</sup> 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.