



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

# APG8201 PINhandy 1 One-time Password Generator

User Manual





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## 1.0. Getting Started

### 1.1. Device Description

The **PINhandy Series** is a family of dynamic password generators created to perform secure authentication in various applications. It is a portable and low-cost handheld smart card device that is capable of managing One Time Passwords, Challenge-response Authentication Codes, and Transaction Data Signing (PKI digital signatures) based on the security keys stored in the EMV cards. The **PINhandy** is compliant with major banking, computing and safety standards such as MasterCard® Chip Authentication Program (**CAP**), MasterCard® Advanced Authentication for Chip (**AA4C/PLA**), VISA Dynamic Passcode Authentication (**DPA**) and **EMV Level 1**.

**APG8201 PINhandy 1** is a compact OTP (One-time password) generator that contains a keypad and a display, which can perform authentication for various applications on PC-linked or standalone mode. It uses two-factor authentication which requires the cardholder to insert the EMV card (*something you have*) into the device and enter a PIN (*something you know*) using the built-in pin-pad. The display screen will then let somebody see a generated dynamic one-time password, which can be used to perform secure online transactions, telephone orders or e-banking logons.

Furthermore, **APG8201 PINhandy 1** supports Secure PIN Entry (SPE) to assure secure PIN entry and PIN change while on PC-linked mode. On standalone mode, the PIN is securely entered into the device and kept from being exposed to vulnerable PC's or workstations, hence eliminating the possibility of a Virus/Trojan getting hold of the PIN.

### 1.2. Supported Card Type

- CAP certified EMV contact card, including:
  - a. M/Chip Lite 2.1 with CAP personalization profile
  - b. M/Chip 4 with CAP personalization profile
  - c. M/Chip Select 2.05 with CAP personalization profile
- PLA/AA4C certified EMV contact card
- VISA DPA certified contact card

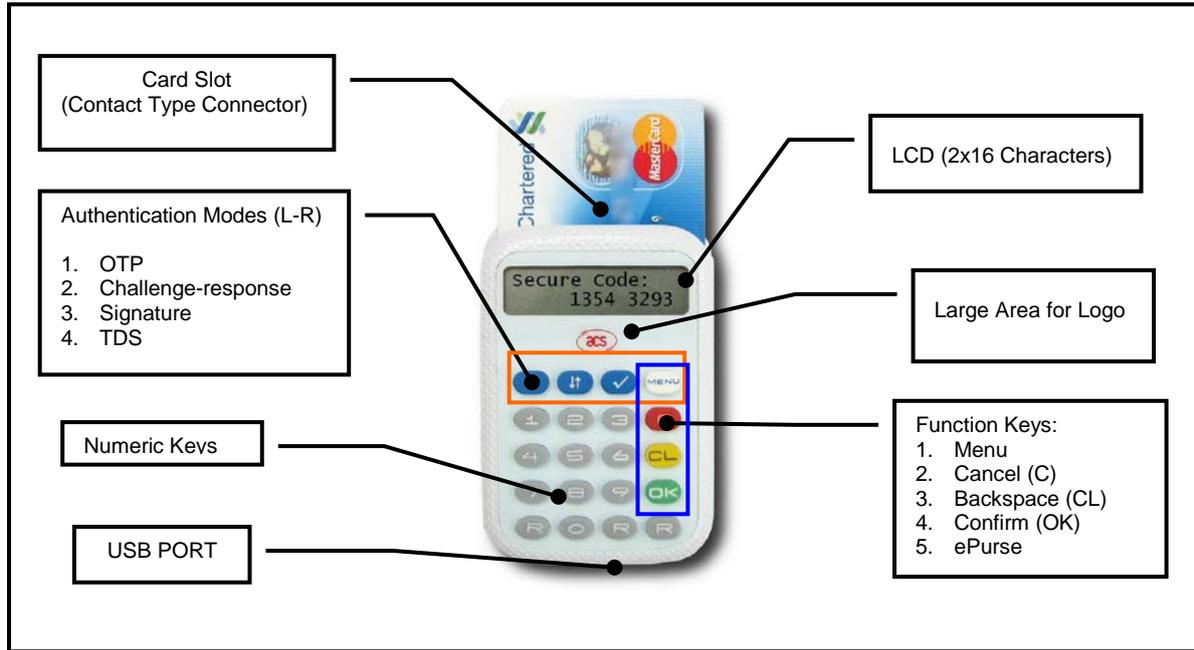
### 1.3. Supported Language

- English
- French
- Traditional Chinese
- Simplified Chinese

## 2.0. APG8201 PINhandy

### 2.1. Device and Parts

Figure 1 shows the different parts of the APG8201 PINhandy 1 and their descriptions. Figures 2 and 3 show the string holder which is located at the bottom left corner and the USB port at the bottom of the device, respectively.



**Figure 1:** APG8201 Main Components



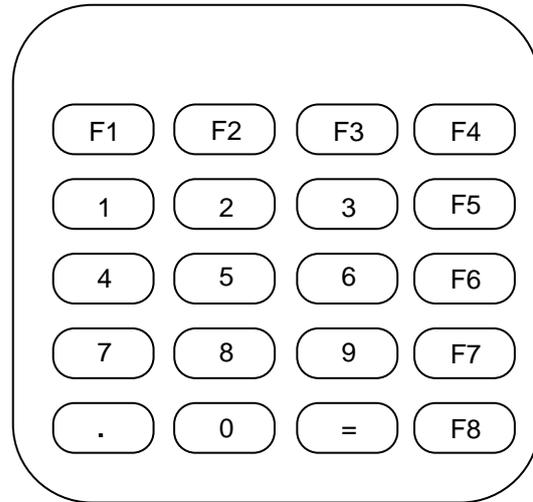
**Figure 2:** APG8201 String Holder



**Figure 3:** APG8201 USB Port

## 2.2. Function Keys

The function keys of the APG8201 for the Normal Mode and the Calculator Mode are described in the table below.



	Normal Mode	Calculator Mode
F1	Hot Key for Identify	Clear
F2	Hot Key for Respond	Cancel
F3	Hot Key for Sign	+/-
F4	Press: Function Select Hold: Power: On/Off	Exit Calculator function
F5	Cancel	Add (+)
F6	Clear	Subtract (-)
F7	Enter	Multiply (x)
F8	ePurse	Divide (/)

**Table 1:** Function Keys in Normal Mode and Calculator Mode

## 3.0. Driver Installation Guide

### 3.1. Introduction

This is a document for demonstrating the APG8201 Driver installation in Windows Platforms.

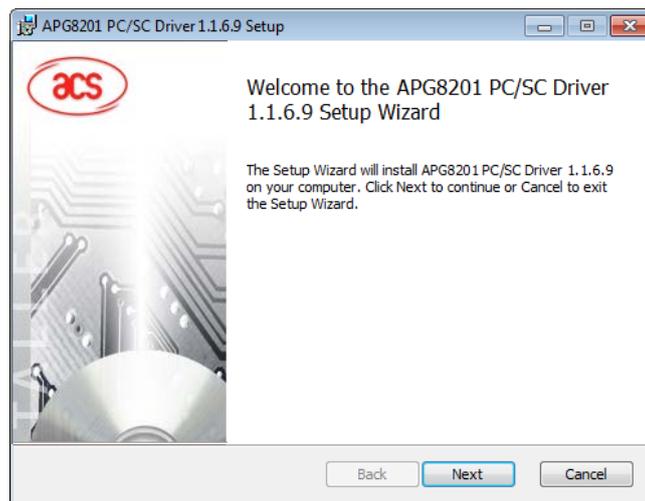
Drivers are available from the ACS Drivers Download Website, <http://www.acs.com.hk/Download.asp>. Drivers can also be installed online for Windows XP and Windows Update for Windows XP and 2000 or above. It is strongly recommended that the user installs/uninstalls the driver by using the device driver installer.

### 3.2. PC/SC Driver Installation

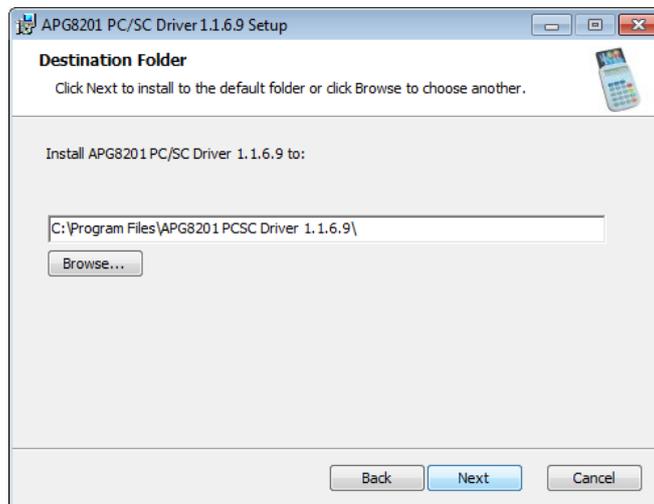
1. Make sure that the APG8201 PINhandy 1 is disconnected from the computer before installation.

2. Run the "Setup.exe" and the "APG8201 PC/SC Driver (Version No.) Setup Wizard" window will open, and then click on "Next".

**Note:** To Check the driver Version or read installation tips, open the file "ReadMe.txt".

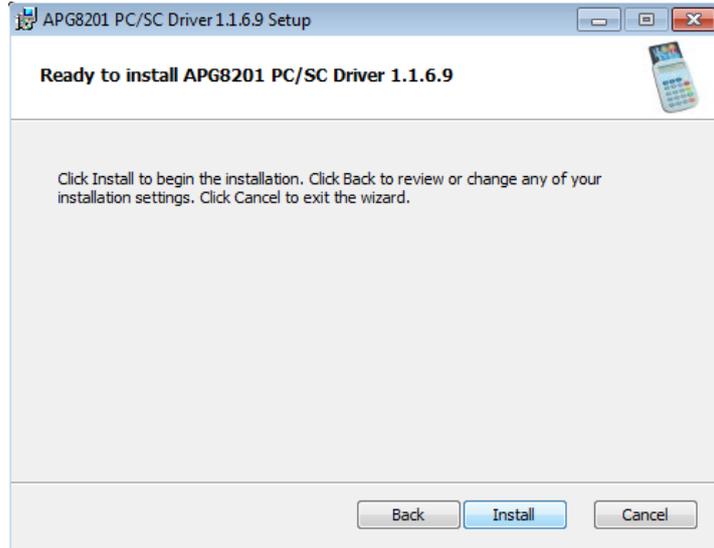


3. Enter the destination folder for driver installation, or use the default directory. Click "Next" to confirm.

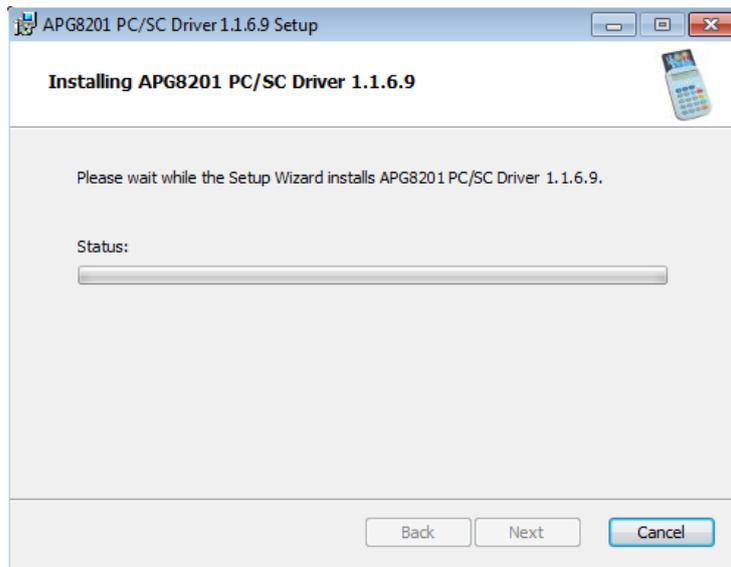




4. After the confirmation of the installation directory, click “Install” to start the installation.

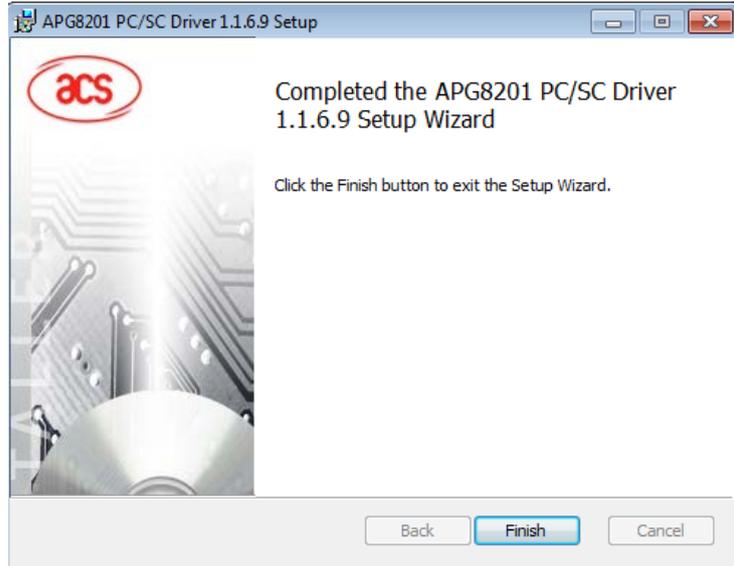


5. It will take a few minutes once the installation is in progress.

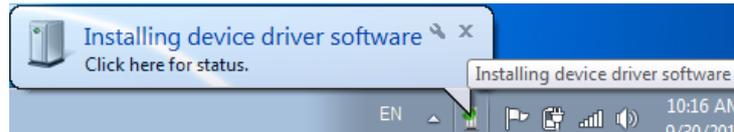
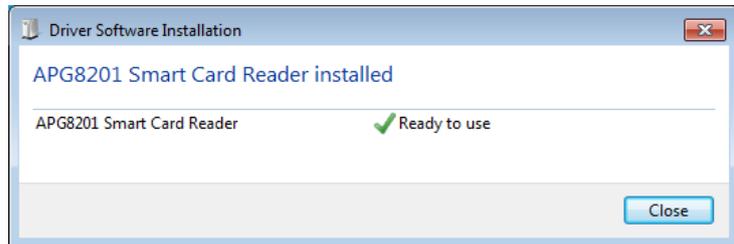




6. Once prompted that the operation is complete, click "Finish".



7. Connect the APG8201 device into an available USB port. The *Found New Hardware* prompt will appear at right-hand corner of the taskbar. Do not remove the device until the "Ready to use" message shown.





## 4.0. Four Authentication Modes of PINhandy

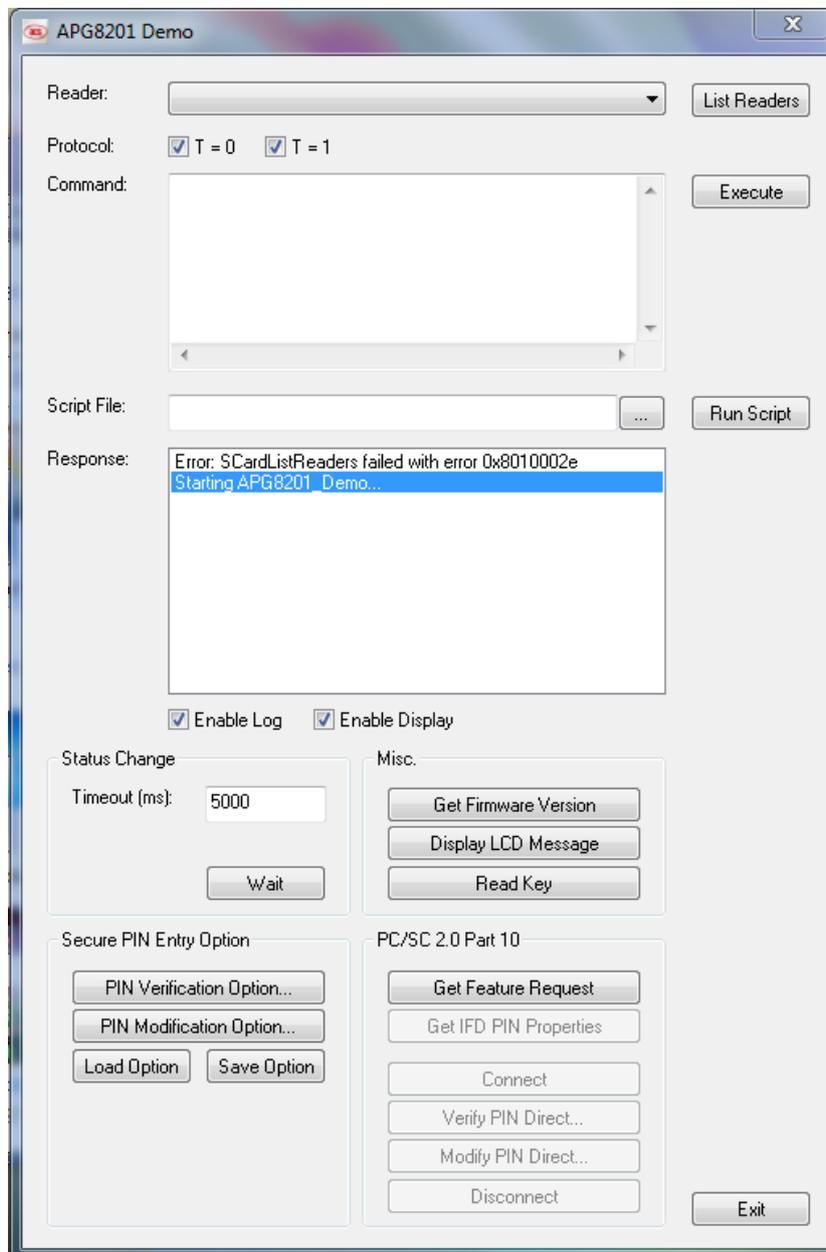
**PINhandy** has four authentication modes: **Identify**, **Respond**, **Sign** and **Advanced Sign** modes. During real transaction, cardholder selects the mode to be executed, which is usually instructed by the authentication form on the Internet. (e.g. *'Insert your payment card and select the Identify mode on your personal card reader to log on to your bank account'*)

- **Identify mode** - This mode can be used where one-time passwords are required. No challenge, amount, or currency data is needed when using the APG8202. It may be used to generate the one-time password for e-banking login.
- **Sign mode** - This mode provides a cardholder authentication function. It requires the cardholder to input a challenge value (a set of decimal number of up to eight digits, usually provided by the Online authentication form), and, depending on the configuration of the card in use, the transaction amount and/or currency. It allows issuers to have the option to sign a challenge value for services that involve amount and currency, like in an e-commerce application.
- **Respond mode** - This mode can be used to implement challenge-response authentication. This mode functions in exactly the same way as Sign mode, but it does not require the input of currency and amount values. It allows issuers to have the option to sign a challenge value for services that do not involve amount and currency. For example, to login an online banking account.
- **Advanced Sign mode** - This mode connects the CAP token more closely with a specific transaction and can be used for signing a particular payment. It requires the cardholder to input the transaction data (e.g. the account number of person you are paying) into the card reader, which may be supplied to the cardholder on the Internet authentication form, or by the cardholder on the submitted form. The purpose of this mode is to obtain explicit cardholder approval of the transaction data.

## 5.0. APG8201 Demo Program

The **APG8201 Demo Program** showcases the major functionalities of the APG8201, which include running sample scripts for Secure Pin Entry (SPE), verifying and modifying of PIN, displaying information on the LCD and reading keys from the keypad.

The APG8201 Demo program and the Demo Manual are available for download at <http://www.acs.com.hk/index.php?pid=tools>.



**Figure 4:** User Interface of the APG8201 Demo

## 6.0. Frequently Asked Questions

**Q: How do I abort a transaction?**

A: You can always abort the transaction by pressing <C>. Menu page will be displayed again.

**Q: What should I do if there is no response from PINhandy after card insertion?**

A: You can remove the card for a few seconds, and then re-insert it to the PINhandy. If it still does not work, check if the batteries are out of power.

**Q: How do I insert or replace the battery of the PINhandy?**

A: The battery of the PINhandy could be replaced or inserted through the following steps:

1. Pull out the battery case.
2. Insert two CR2032 batteries into the battery compartment.
3. Plug in the battery case.



**Figure 5:** APG8201 with Battery Taken Out



## 7.0. Glossary

- OTP – One-time Password
- CAP – Chip Authentication Program
- PLA – PIN-/Perso-less Authentication
- AA4C – Advanced Authentication for Chip
- DPA – Dynamic Passcode Authentication
- ATC – Application Transaction Counter
- M/Chip – MasterCard Chip



## 8.0. Technical Support

For any questions and inquiries regarding the product, please send an email to [info@acs.com.hk](mailto:info@acs.com.hk)