

Idem Card Version 2.5

Product data sheet

This document supports the version of each product listed and supports all subsequent versions until the document is replaced by a new edition. To check for more recent editions of this document, contact support@GoTrustID.com.

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About this document

This document describes the features of GoTrust Idem Card.

Revision History

A revision occurs with each release of the product, or as needed. A revised version can contain minor or major changes. Table 1 lists the versions of this manual.

Table 1. Revision History

Revision	Description
08/10/2018	The first version of GoTrust Idem Card v2.2 data sheet
08/20/2018	Change the timing of touch behavior Add Chap. 6.3. Powered Off Behavior
01/25/2019	Update technical information for Idem Card v2.5
10/28/2019	Update content of Idem Card V2.5.
11/19/2019	Update content of NFC, FCC information, and charging information.

Intended Audience

This guide is intended for user who wants to understand what an Idem Card is and what the Idem Card can do.

Document Feedback

GoTrustID Inc welcomes your suggestions for improving our documentation. If you have comments, send your feedback to support@gotrustid.com

FCC Compliance Information

FCC 15.21

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

FCC 15.105

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.

1 Overview of GoTrust Idem Card

GoTrust Idem Card, hereinafter referred to as Idem Card, is a revolutionary product solving user identity and 2nd factor authentication (2FA) across mobile devices and work places. It possesses a number of attractive features listed below:

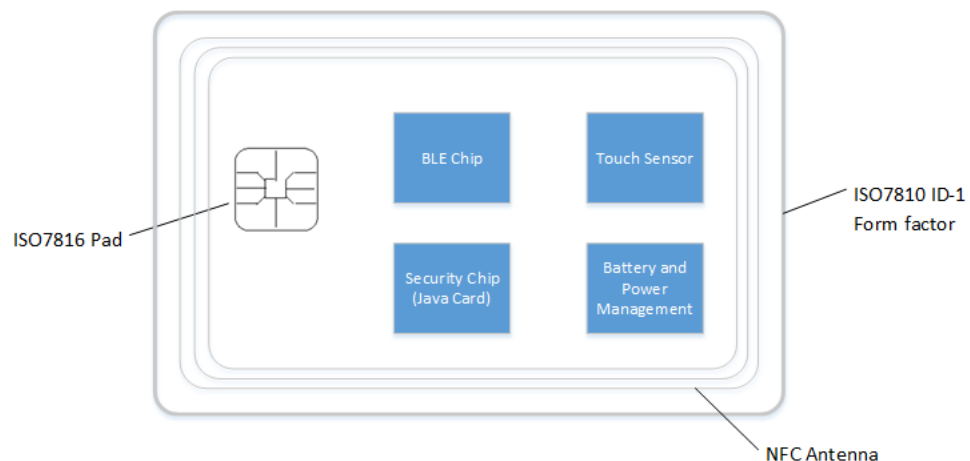
- Computer login, door access, 2FA for Google, Facebook, Amazon, Dropbox, etc. As one of GoTrust FIDO series products, users can use Idem Card to connect and authenticate to all FIDO U2F and FIDO2 services in BLE supported devices.
- Idem Card enables card operations by Touch which is much faster and more convenient than the traditional press bottom that doesn't work in hard card holder. This feature is a granted US patent.
- Idem Card is design as a standard smart card form factor (ISO 7816 ID-1 form factor), which is compliant to any existing employee ID card badge requirements and can be seamlessly integrated into existing card issuance system using our driver.
- Idem Card is compliant to the standard of MIFARE, FeliCa and Global Platform, which can be used as on-line authenticator and payment card in the financial industry.
- Idem Card can be charged with standard smart card reader. The standby time can be up to 120 days by charging 2 hours, which gives significant convenience to end users.



Form Factor	ISO 7816 ID-1 form factor
Size (HxWxD)	85.5mm x 54mm x 0.87mm
USB Device Class	N/A
Bluetooth	Bluetooth 4.0 (BLE)
NFC-enable	NFC ISO 14443 Type A / MIFARE Classic & DESFire
Support Platforms	<ul style="list-style-type: none"> • BLE: Windows 10, MacOS, iOS, Android and Chrome OS. • NFC: Android & iOS 13
Multi-protocol support	Smart Card, U2F, FIDO2, PKI
Battery	<ul style="list-style-type: none"> • Operate up to 60 days based on 10 times login per day • Standby up to 120 days • Fully charged within 2 hours by conventional smart card reader or Idem USB charger.

2 Features

Idem card has 6 major components: BLE chip, Touch Sensor, Security Chip (a Java Card Chip), Battery and Power Management, NFC antenna, and ISO7816 pad.



- NFC (ISO14443 Type A, Mifare, FeliCa) user authentication or physical access
 - The NFC on Idem Card is passive component, which means it operates without

power supply of its own and is reliant on an active device to come into range before Idem Card is activated.

- PKI Applications
- FIDO U2F and FIDO2
- Windows Hello and Mac OS Sign In via GoTrust ID software.
- Touch to Turn On

3 Idem Card Specification

- FIDO U2F certified (BLE and NFC)
- FIDO2 certified (BLE and NFC)
- ISO 7180 ID-1 standard form factor
- JAVA Card Specification
 - Java Card 3.0.4 on GP 2.2.1
 - Symmetric: 3DES, AES (128, 192, 256 bits)
 - Hash: SHA-1, SHA-224, SHA-256, SHA-384, SHA-512
 - RSA: RSA Signing 512 bits up to 2048 bits key
 - ECC: P-160 bits up to P-521 bits
 - Key Pair Generation: RSA 512 bits up to 2048 bits, ECC P-160 bits up to P-521 bits
 - FIPS 140-2 Level 3 certified security element
- Interfaces
 - Bluetooth Low Energy 4.0
 - ISO 7816 pads
 - NFC

- ISO14443 Type A
- MIFARE Plus & DESFire (optional)
- FeliCa (optional)
- Power Management
 - Support to charge using a standard smart card readers
 - Standby for 120 days
 - 60 days operation unlocking computer up to 10 times per day
 - Fully charged around 2 hours

4 Applications of Idem Card

4.1 Idem Card as FIDO2 Token on Windows

Idem Card can be used as a FIDO2 and U2F token on Windows, macOS, Android and iOS devices.

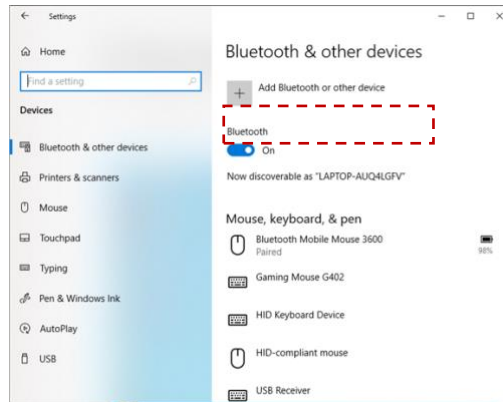
Idem card supports both FIDO2 and U2F. Many web services start to support FIDO2 Webauthn API and will replace U2F.

- System Requirement:
 - Windows 10 Version 1903.

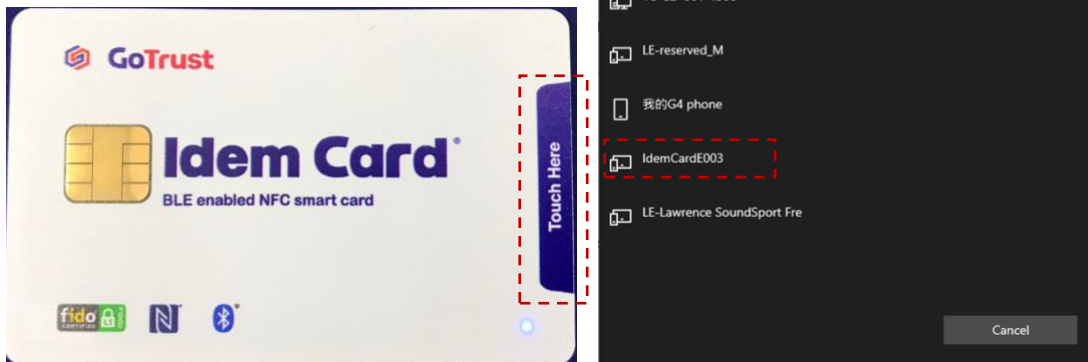
4.1.1 Pair Bluetooth device in Windows

To use BLE (Bluetooth) interface of Idem Card on Windows, user needs to pair Idem Card in system settings.

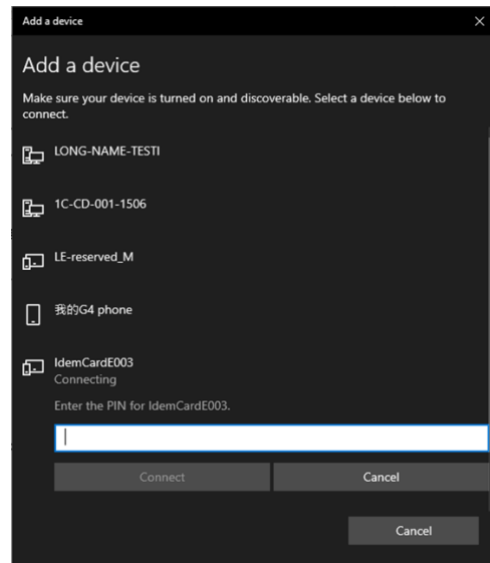
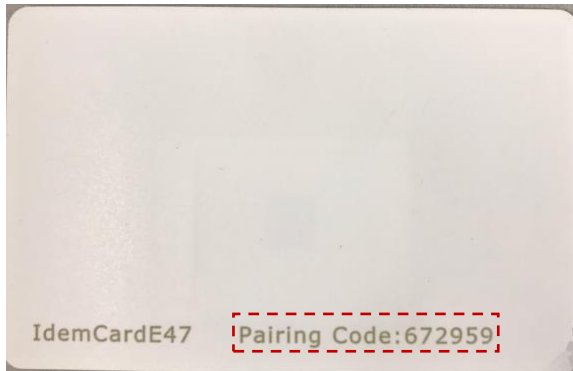
- Step 1: Go to “Bluetooth & other devices” of Settings. And click “Add Bluetooth or other device”



- Step 2: Touch Idem Card to power on it and keep touching 5 seconds. Idem Card will enter pairing mode and you'll see Idem Card device showed in the screen of "Add a device".

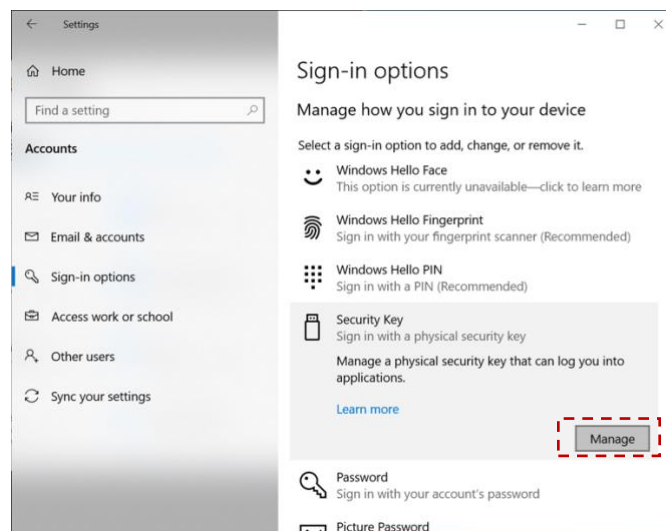


- Step 3: Enter pairing code which is showed at back of Idem Card.

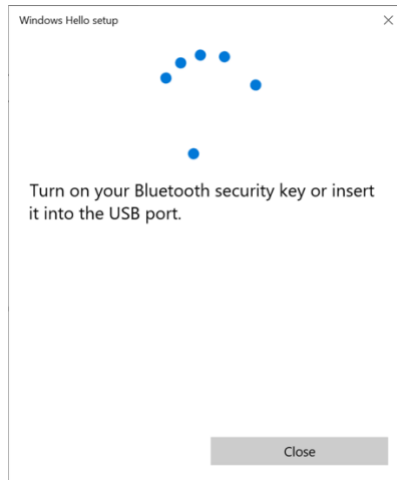


4.1.2 Manage FIDO2 Token in Windows

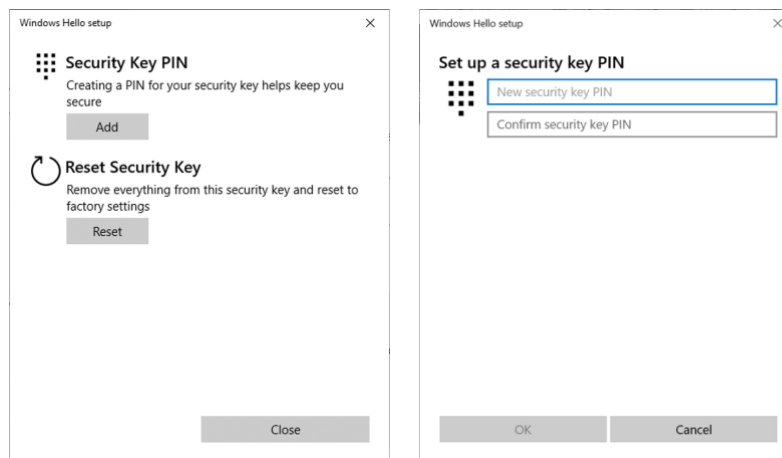
- Step 1: Go to “Settings” -> “Accounts” -> “Sign-in options” and find button “Manage” of “Security Key”.



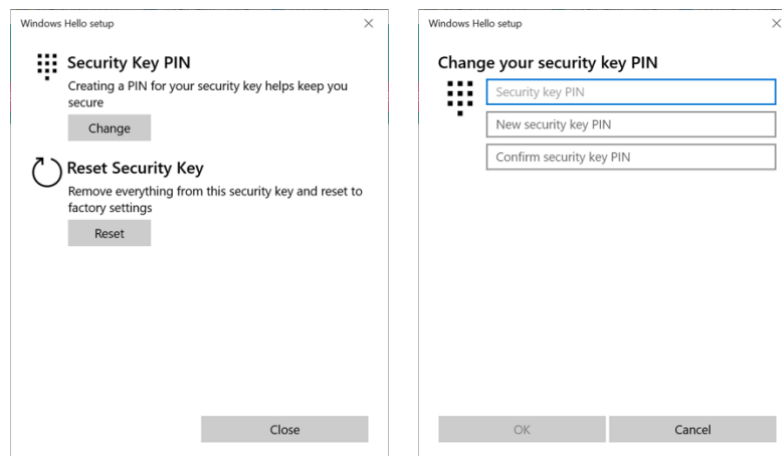
- Step 2: Touch to power on Idem Card when following dialog is popped up.



- Step 3: New (Add) Security Key PIN



- Step 4: Change Security Key PIN



4.1.3 Idem Card as FIDO2 Authenticator for Web Apps on Windows

FIDO2 Webauthn API is already fully supported on Windows. Table below is the FIDO2 support matrix. There're web apps which can use Idem Card as FIDO2 authenticator over BLE/NFC interface on Windows and FIDO2 BLE/NFC interface (CTAP2 BLE/NFC) is not enabled in macOS.

		Google Account	MS Account	Dropbox	GitHub	Facebook
Windows	Edge	△ (*1)	O	O	O	X (*2)
	Chrome	O	O	O	O	O
	Firefox	O	O	O	O	O

(*1) Google account cannot be registered with FIDO2 BLE and NFC on Edge. Google can be registered on Chrome or Firefox and authenticated with FIDO2 BLE and NFC on Edge.

(*2) Facebook account cannot be registered and authenticated on Edge.

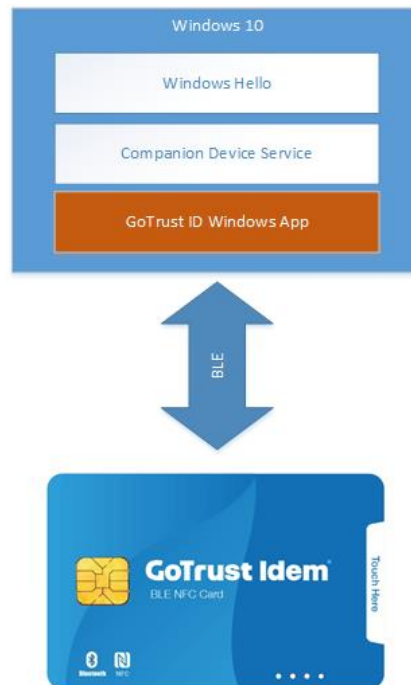
4.2 GoTrust ID

Idem Card can work with GoTrust ID for Windows and Mac login without a password.

Windows Sign-in

GoTrust ID is a Microsoft Hello certified phone login Windows Hello APP and utilizes Windows Hello companion device framework to do Windows Unlock. GoTrust ID supports user to utilize Idem Card as an alternative authenticator to unlock Windows without password. User can download GoTrust ID Windows App from the Microsoft Store.

(<https://www.microsoft.com/store/apps/9phwkh4tcx6v>)



Mac Sign-in

In MAC OS, there is no system service for an app to do computer sign-in similar to Windows Hello companion device framework. To enable user sign into Mac OS without password, GoTrust ID stores an encrypted user's password in Idem Card during the registration process and sends encrypted password to Mac from Idem card when user is signing in. Detail information of the signing in process is described in "GoTrust ID Solution Product data sheet". Please download the GoTrust ID Mac app from our website: www.GoTrustID.com.

4.3 Idem Card as FIDO2 Authenticator for Web Apps on iOS and Android

Currently, only Google supports FIDO2 BLE/NFC interfaces on Android and BLE interface on iOS.

4.4 Develop Android App to use Idem Card as Authenticator

Android supports FIDO2 and U2F API natively, app developer can use Android FIDO2 and U2F API to communicate with Idem Card. Refer to

<https://developers.google.com/identity/fido/android/native-apps> and <https://developers.google.com/android/reference/com/google/android/gms/fido/package-summary> for more detail.

5 Idem Card Operation

5.1 Charging

Idem Card can be charged by Idem Card charger or by conventional smart card reader. To charge using a conventional smart card reader, users need to install GoTrust Authenticator Manager on their Windows computer to ensure proper charging.

- Charge 1.5 hour to 80% of battery.
- Charge 2 hours to 100% of battery.

When Idem Card is charging, the Bluetooth(BLE) chip will be powered off which means no wireless signal available to access Idem Card.

5.2 Touch Behavior

- Power on Idem Card: A simple one touch to power on Idem Card when Idem Card is OFF



- Enter pairing mode: Touching for 3 seconds when Idem Card is either OFF or ON. If user keeps touch without releasing for 9 seconds, Idem Card will stay powered off.



- Powers OFF Idem Card: Keep Touching 9 seconds when Idem Card is ON

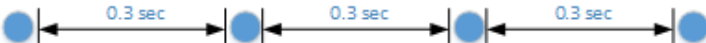
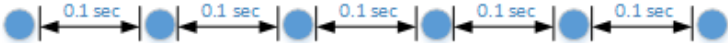










5.3 Automatic Powered Off Behavior

- When Idem Card is powered on and the card is idled for 15 seconds. Idem Card will be powered off automatically.
- When Idem Card is under pair mode and the card is idled for 30 seconds. Idem Card will be powered off automatically.
- When Idem Card is used for computer login, Idem Card will be powered off automatically right after computer is logged in.
- When using FIDO2 registration or authentication, Idem Card will be powered off automatically right after operation is done.

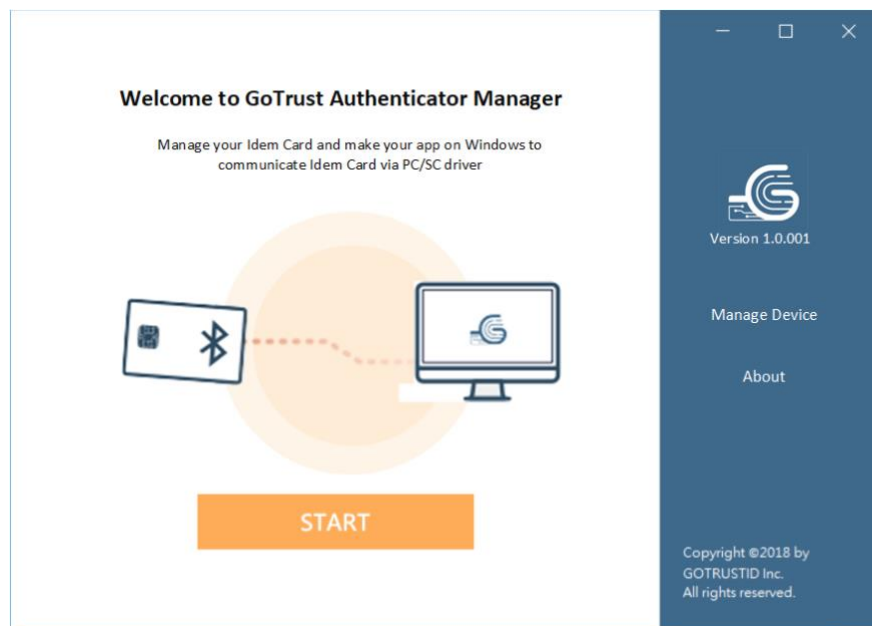
5.4 LED Status Indicator

There are 3 colors of LED indicator to present the status of Idem Card.

- Blue LED: BLE status
 - Bluetooth paring mode: Flashing every 0.3 second

 - BLE data transmission: Flashing every 0.1 second

 - Idem Card is powered on and not doing BLE data transmission: Blue LED is always ON.
- Green and Red LED   : Charging and Battery Status
 - Both Green and Red LED ON   : Idem Card is charging.
 - Green LED On and RED LED Off   : Idem Card is fully charged to 100%.
 - Green LED Off and RED LED flashing   : Idem Card needs charging (power <20%)

6 GoTrust Authenticator Manager

To make Idem Card easy to use and enable seamless integration into existing Windows smart card applications and card management systems, GoTrust provides GoTrust Authenticator Manager for Windows 10 users.



GoTrust Authenticator Manager Features

- **PC/SC driver for Idem Card:** PC/SC is a widely used Windows driver for applications to access smart card by a Windows API – winscard. Many legacy smart card applications use winscard API. There's an Idem Card PC/SC driver built-in GoTrust Authenticator Manager. Without any code modification, legacy smart card applications can operate Idem Card by Idem Card PC/SC driver.



- **Make conventional smart card reader as charger for Idem Card:** Idem Card can be charged by a conventional smart card reader. However, most smart card reader will stop providing power to Idem Card when there is no operation. GoTrust Authenticator Manager will detect card inserted to smart card reader. When Idem Card is inserted, GoTrust Authenticator Manager will make smart card reader keep providing power to Idem Card.
- **Manage BLE connection and pairing of Idem Card:** To start using Idem Card with PC/SC driver, user needs to use GoTrust Authenticator Manager to pair and register Idem Card on Windows. User will be able to view connection status of Idem Card and manage it (remove or view card information).

