



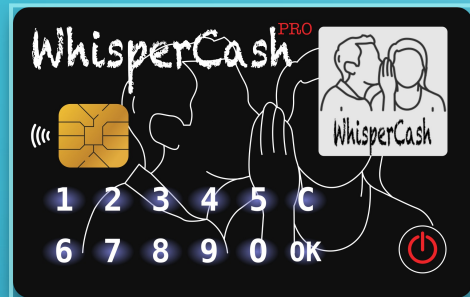
WhisperCash

OFFLINE CENTRAL BANK DIGITAL CASH

WhisperCash OFFLINE DIGITAL CASH

- WhisperCash is an offline CBDC solution based on secure smartcards
- Infinitely scalable due to its offline nature, it requires no server infrastructure
- Payments are sent and received by exchanging **10 digit numeric codes** between participants
- Supports consecutive offline payments, person to person, in-store as well as M2M (machine to machine) scenarios

WhisperCash END USER WALLETS



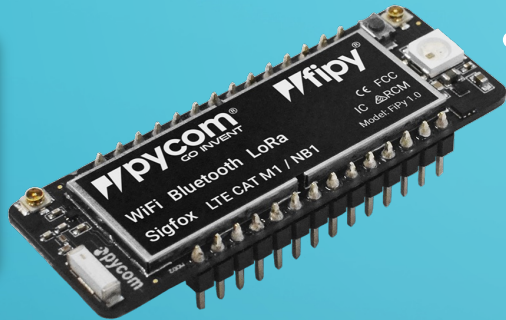
- **WhisperCash Pro** is an advanced battery powered contactless smartcard containing an E Ink screen and a capacitive keyboard.
 - The Pro is a self contained system, it does not need to be connected to a network or a terminal, money transfer codes are generated inside the secure element and displayed on the built-in screen.
- **WhisperCash Basic** is an electronic sticker that attaches to any GSM SIM card. It works on any mobile phone manufactured after 1999 and uses the screen and keyboard of the phone for input and output.
- **WhisperCash Lite** is a contactless (NFC) keyring tag that can be tapped to contactless readers in shops or to the user's own NFC capable phone for balance verification or top-up

WhisperCash STATIONARY WALLETS

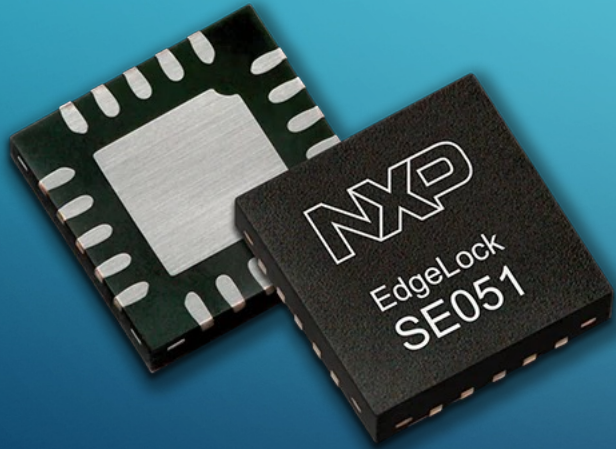


- **WhisperCash Vault** is a contactless flexible electronic sticker containing a tamper resistant chip that can be attached to physical objects and store electronic cash.
- It is not meant for direct payments but rather as a vault or a “drop box” for digital cash, allowing any WhisperCash user that has access to it to deposit or withdraw funds from it.
- Some of our clients are exploring the use of these stickers to “CBDC-enable” everyday objects (clothes, toys, tourist souvenirs, etc) to make CBDC payments more attractive.

WhisperCash INDUSTRIAL & M2M WALLET



- **WhisperCash Basic** stickers can be used on top of data SIM cards inside GSM/3G/4G modems.



- **WhisperCash** has been ported to the new [SE051](#) embedded security chip from NXP. I²C interface and 3x3 mm size allow deep integration into IoT objects, allowing them to be paid for their services or disburse digital cash



WhisperCash FACE TO FACE PAYMENTS

- In a face to face scenario, WhisperCash users can instantly transfer value between their cards
- The sender inputs the ID of the receiver and the amount into his card and the card generates a numeric code
- The receiver inputs the ID of the sender and the numeric code and his balance is increased with the transferred amount
- IDs can be stored in the Phonebook and used on subsequent transactions



WhisperCash TAP TO PAY

- WhisperCash cards allow the familiar scenario of contactless payments at retailers without entering a PIN.
- Tapping the card to a WhisperCash-aware terminal automatically debits the amount from the card balance and credits it to the retailer's WhisperCash card, completely offline



WhisperCash REMOTE PAYMENTS

- In a long distance / remittance scenario, two users located anywhere in the world can instantly transfer value.
- The sender inputs the recipient ID and the amount and communicates the resulting numeric code to the recipient (by voice call, text message, snail mail or any other means).
- Ideal for use over narrowband satellite channels. Prototyped with Iridium SBD on the Garmin inReach Mini but Satellite Direct to Cellular solutions are coming (iPhone 14, Snapdragon Satellite, Bullitt+Skylo, SpaceX + T-Mobile).



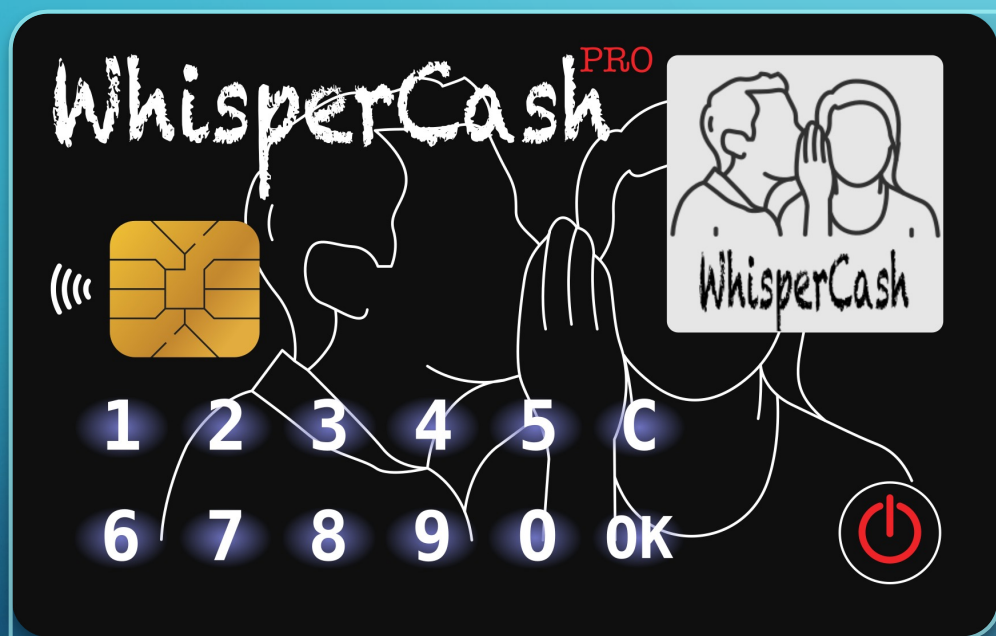
WhisperCash OFFLINE AND ONLINE

- WhisperCash can operate offline indefinitely, its design does not require it to ever synchronize with a server or connect to a network. Central banks may however impose limitations to the number of transactions or amounts paid offline.
- WhisperSend codes can also be sent over the Internet, text messages (SMS), voice calls or satellite. They can be printed or written on paper and mailed to the recipient as a last resort.

WhisperCash SATELLITE MESSAGING

- Due to their very small size, WhisperSend codes are ideal for transmission over low bandwidth satellite networks
- A full payment can be sent in just 25 bytes (sender + receiver + amount + auth code). For recurring payments (amount, sender and receiver known), 5 bytes are enough to transmit the WhisperSend code
- Satellite messaging is expensive (i.e. \$3/KB for Iridium SBD) but WhisperCash can send **40-200 transactions/KB**.

WhisperCash GET IN TOUCH



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A stylized white circuit board graphic is positioned on the left side of the slide. It features a vertical spine with several horizontal and diagonal lines branching out to small circles, representing components or nodes in a network.

WhisperCash

THANK YOU!