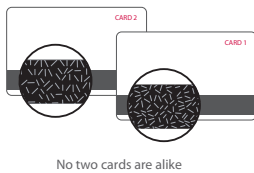


MagnePrint®

The Science and Technology of MagnePrint Counterfeit Card Detection

What is MagnePrint?

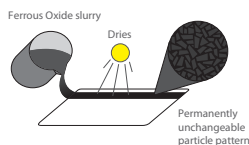


Digital Identifiers

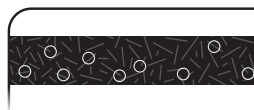
MagnePrint is a dynamic card authentication technology based on the unique physical properties of the magnetic stripe, also referred to as the stripe's digital identifier or (DI). It provides validation that the card itself is genuine and that its encoded data has not been altered. The term itself is derived from "Magne" as in magnetics, and "Print" as in fingerprint.

Natural Characteristics

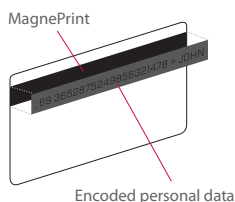
Just as fingerprints can uniquely identify human beings, Magnetic Fingerprints (MagnePrint) can uniquely identify magstripe cards. This is possible because of the stripe composition.



A magnetic stripe is created from billions of ferrous oxide particles. The particles are various shapes and sizes and are mixed in a random pattern when the magnetic slurry is prepared. They are sealed in place when the slurry dries, during the tape manufacturing process.



Once this occurs, the stationary particles emit a permanent, repeatable and distinctive magnetic signal, which is the MagnePrint. The MagnePrint, like a fingerprint, remains basically unchanged for the life of the card.



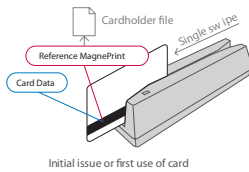
Data and MagnePrint are Linked

The MagnePrint is in the background of the stripe. It is sometimes referred to as "noise". It does not interfere with the cardholder personal data encoded in the foreground. Nor can the encoded data remove or erase the MagnePrint. Furthermore, the MagnePrint and the cardholder personal encoded data can be linked.

How Does MagnePrint Work?

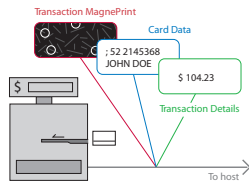
Capture the Reference MagnePrint

When a new card is created, readers recover the encoded track data and the MagnePrint simultaneously. The MagnePrint is converted to an ANSI standard 54 byte digital string. When the card is first issued or first used, the Card Issuer stores the digitized original MagnePrint on the Cardholder file, and shares that encoded MagnePrint with the Magensa.net exchange. This is designated as the Reference MagnePrint.



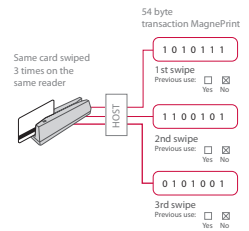
Capture the Transaction MagnePrint

MagTek provides almost three quarters of the financial world's secure magnetic stripe components, in use in the majority of ATMs and Point of Sale terminals. As of 2009, MagTek has integrated the MagnePrint capability into every product shipped. When a card is read, the encoded card data, the MagnePrint and the usual transaction details are encrypted and sent to the Card Issuer for verification. The MagnePrint obtained at this time is designated the Transaction MagnePrint.



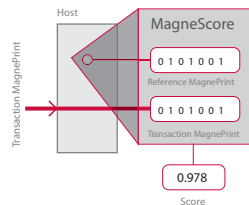
Verify the Transaction MagnePrint

Transaction MagnePrints have a remarkable and valuable feature. They change stochastically – that is they change dynamically, but in ways that can't be predicted with any certainty. The change is a matter of probability, built in by the imperfection of nature. The odds of obtaining two identical 54 byte Transaction MagnePrints from a single card are over 1 in 100 million. A Transaction MagnePrint identical to one previously used will be rejected. This inherent variability of Transaction MagnePrints provides an algorithmically verifiable, unique transaction number for every card swipe.



Score the Transaction MagnePrint against the Reference MagnePrint

MagTek licenses a software application called MagneScore to banks, processors, and merchants, while Magensa.net provides a universally available service to the payment community, which compare the Transaction MagnePrint to the Reference MagnePrint and calculates a score based on the correlation between the two. A high score indicates a legitimate card while a low score points to a counterfeit card. The Card Issuer sets the minimum passing score and uses the MagnePrint Score as part of the transaction accept/decline criteria. MagnePrint scoring is a fast “real-time” process, with typical scoring times at 10 milliseconds or less.



Independent Validation of MagnePrint

MagnePrint technology has been successfully tested by two of the three largest card brands, and been validated as “effective, robust, and scalable.” MagnePrint has also been used in multiple bank trials, resulting in more than a million MagnePrint transactions, and saving millions of dollars in counterfeit card fraud. Details are available to qualified financial community recipients under appropriate non-disclosures.



Use of MagnePrint in Other Sectors

While there are over 2.7 billion magnetic stripe cards in use throughout the global financial community, there are almost 30 billion more magnetic stripe cards being used to secure physical access (office doors, hotel rooms, campus), identification (drivers license, employee & student ID), and electronic access (computer, alarms). MagnePrint technology ensures the uniqueness of each of these cards, with the same level of assurance as in financial transactions.

