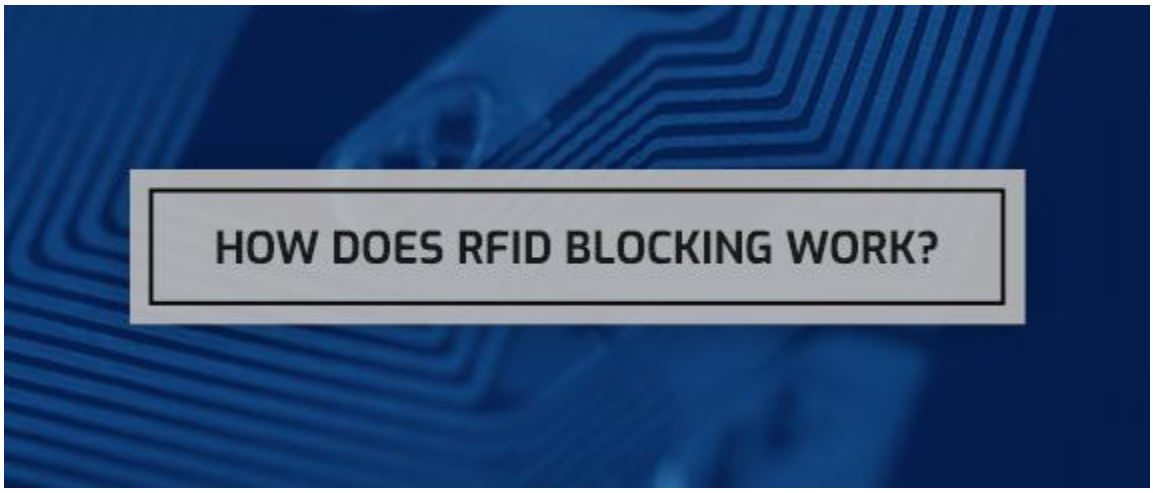
How Does RFID Blocking Work?



Radio-frequency identification, or RFID, is an old field of technology with exciting new applications for payments, personnel management, inventory management and fraud reduction. Used as far back as World War II to identify allies' aircraft, RFID is rapidly gaining popularity, boasting worldwide market revenues of nearly $20 billion in 2020, a figure expected to climb to over $40 billion by 2025.

But RFID's rise has also given rise to a new strain of skimming crimes. Consumers from individual customers to military, law enforcement and intelligence agency personnel now look to RFID-blocking technologies to protect personal identities, financial information and security data.

In this guide, we'll explain what RFID is and how it works, as well as different RFID-blocking techniques.

What Is RFID, and How Does It Work?

RFID is a technology that uses a reader to capture data sent via radio waves. The digital data is encoded in smart labels or RFID tags.

Think of the bar code on a box of cereal in the supermarket. At the checkout counter, the scanner reads the data encoded in the barcode to identify the product. RFID works similarly to that. With RFID, an RFID reader captures the data and then stores it in a database for further use.

RFID is part of a larger umbrella of technology known as automatic identification and data capture (AIDC). One primary benefit of AIDC systems is that they can read data, identify products or materials, and send the data to a computer system, all without requiring human input. So they free human employees to perform other, more complex tasks and also allow for contactless transactions.
AIDC systems use different forms of technology to do their work — RFID is unique because it uses radio waves.

How Does RFID Scanning Work?

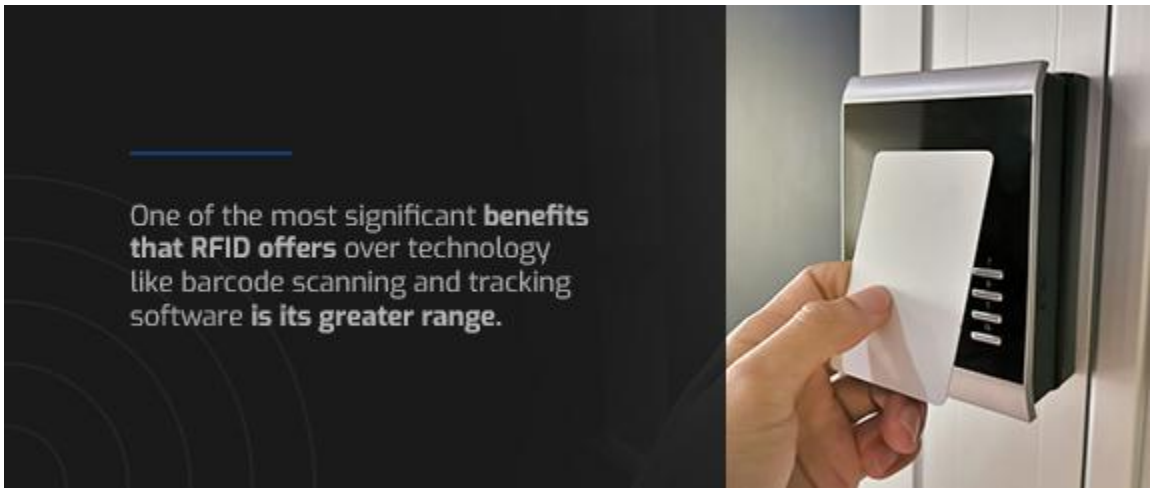
The RFID system is composed of a few critical parts:

- An RFID tag
- An antenna
- An RFID reader, also known as an interrogator

RFID tags contain two necessary components:

- A small silicon chip
- An antenna

During RFID scanning, the RFID tag antenna transmits data to the RFID reader antenna via radio waves. The RFID reader converts the radio waves to other forms of data that are useful for different applications. The data then goes to a computer system for storage in a database until it is needed.



One of the most significant benefits that RFID offers over technology like barcode scanning and tracking software is its greater range. With a traditional barcode and scanner, the barcode must be within reach of the scanner before the scanner can read it, and that reach is generally modest. RFID tag data, on the other hand, does not need to be lined up with an optical scanner.

So the reader can capture data from across a more extensive physical range.

Is RFID necessary? In certain applications, yes, because this advantage makes RFID indispensable in a wide range of scenarios. RFID is commonly used in the chips in credit cards to enable contactless transactions. In some stores, customers can pay with their RFID-enabled cards without ever interacting with a cashier or taking the necessary cards out of their wallets. In security situations, RFID can work to scan a crowd and easily allow authorized personnel through with a minimum of fumbling for badges and paperwork. In the hospital, it is useful for patient identification, medication administration and equipment management. In the pharmacy, a pharmacist or technician can use the RFID chip on a label to verify the authenticity of a prescription. RFID is also commonly used in the devices that allow for automatic toll payments in automobiles, and it even has applications for pets' microchips.

How Does RFID Blocking Work?

One of the disadvantages of RFID technology is that it is susceptible to a kind of digital theft known as RFID theft or RFID skimming.

How does RFID theft work? It occurs when people use secret RFID readers to make unauthorized use of the data encoded in RFID radio waves. RFID skimming can target credit cards, for example, even through a leather wallet, or it can read through a briefcase or bag that contains sensitive documents. It can help hackers gain access to the information contained in credit cards, debit cards, security badges, driver's licenses and passports if they have been enabled with RFID chip technology.

And unlike pickpocketers, hackers don't have to get close to their targets to make their thefts. They can stand feet away from their unsuspecting victims, with an RFID reader concealed in a backpack, and easily be close enough to steal secure data.

RFID blocking helps prevent these attacks. It acts as a firewall to prevent hacking intrusions and keep sensitive data safe. It can work in a couple of different ways — either actively or passively.

- Passive RFID blocking: Passive RFID blocking works by deflecting RFID signals so RFID readers cannot read them.

- Active RFID blocking: Active RFID blocking works by using a microchip to transmit a signal that interferes with the hackers' data collection. Some active RFID blockers also work by temporarily reducing the power from the chip's transmitting signal.

RFID blocking often works by providing protective material to fit around RFID-enabled products. This material might take the form of a credit card sleeve, an ID badge sleeve or a bag for carrying sensitive documents. The protective material contains a metal alloy to deflect the RFID signals so they do not transmit properly to the reader.

Applications for RFID Blocking

RFID blocking has a few different applications. It can be used to prevent identity theft and financial data theft. It can also be used in secure facilities and transportation hubs to increase efficiency in granting access to authorized personnel.

- Protecting credit and debit cards: RFID blocking is useful in protective sleeves for credit and debit cards to prevent hackers from accessing personal financial information.

- Protecting ID badges: RFID blocking is also useful in protective envelopes that cover ID badges and thwart attempts to gain unauthorized access to sensitive areas.

- Protecting sensitive documents: Some sensitive documents like passports and driver's licenses contain RFID chips. RFID blocking in bags and briefcases can help protect the information encoded in these documents from skimming.

- Protecting phones, laptops, tablets and GPS units: RFID blocking in bags that carry personal electronic devices can help prevent unwanted transmission of sensitive data from these devices.

Contact JEMIC Shielding Technology for Help With RFID Blocking

To see the benefits of RFID-blocking technology in your law enforcement, military or intelligence agency, work with JEMIC for RFID-blocking products. We offer custom shapes, sizes and configurations, and we can fulfill low-volume and high-volume orders to get your personnel the data protection they need for safety and success.
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