

Access Credentials | Form Factor Guide

Determining the suitable access control credential to use and distribute while including considerations like form factor, can be a complex endeavor.

Service-First Security Solutions from MCA

A comprehensive understanding of the strengths and limitations associated with prevalent form factors is crucial for integrators to make informed recommendations. Throughout this guide, MCA thoroughly analyzes the most commonly used form factors, delineates their design characteristics, and identifies the optimal scenarios for their respective implementations.

Frequently Utilized Form Factors

While access credential components can be conveniently housed in various shapes, such as embeddable capsules or jewelry, the prevailing forms predominantly utilized in access control encompass the following:

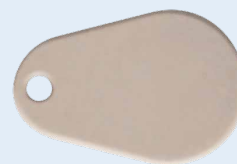
Cards + Badges



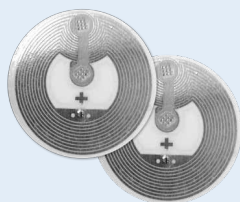
Clamshells



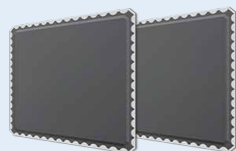
Key Fobs



Stickers + Tokens



Embedded Chips



Wristbands



Mobile Credentials



Cards + Badges

The most recognized form is the thin, flexible plastic card that is commonly associated with electronic access control. This credential comes in different physical sizes, with the most prevalent size being described as CR80 or ISO 7810 ID-1, though other sizes do exist. Some regard the variation in sizes as a security feature, as it makes counterfeiting credentials more challenging. Additionally, these cards can serve the dual purpose of being picture ID badges, as users can directly print images on them. *Badges often offer the option to print or purchase with several distinct ID elements, including:*



Common Badge Elements



Display Name:	Barcode
Card Color:	#448ccb
Color Opacity:	50%
Card Width:	54 mm
Card Height:	86 mm
Border Thickness:	0.1mm
Border Color:	#5A5B5B
Picture Position X:	138
Picture Position Y:	256
Z-Index:	0
Alignment:	Vertical

These credentials are affordable and intended to be easily replaced. Often referred to as "disposable," they are commonly used for applications such as hotel keycards or public transit. Blank card credentials can be obtained from distributors at prices ranging from approximately \$0.70 to \$7.00 per piece, depending on the required format.

Clamshells

In contrast to the cards format, clamshells represent thick, rigid pieces of plastic. This more robust form factor offers superior durability, making it resistant to physical abuse compared to cards. Additionally, clamshells are more affordable than other, more resilient form factors. They have existed longer than cards — initially made to accommodate larger components associated with legacy technologies. These credentials can be transformed into picture IDs by affixing a preprinted label. Their pricing is influenced by the card's design features ranging from \$0.50 to \$8.50 each.



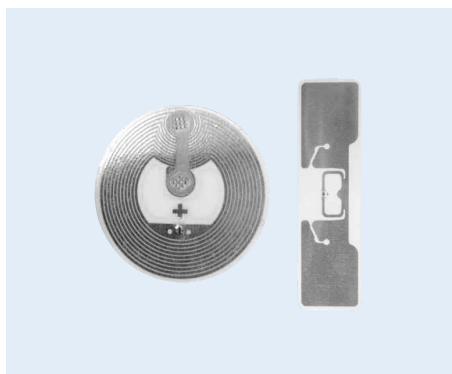
Key Fobs

Fobs are compact devices specifically designed to be attached to keyrings. Although these formats usually cannot be printed on, they offer excellent durability and can withstand rugged conditions with some models being entirely waterproof and the best models being magnetic proof, making them preferable to cheap badges despite their higher price tag. Designed to have a longer lifespan and require less frequent replacement, the cost is justifiable. Typically, these credentials can be purchased from distributors at a price range of approximately \$1 to \$8 per piece.



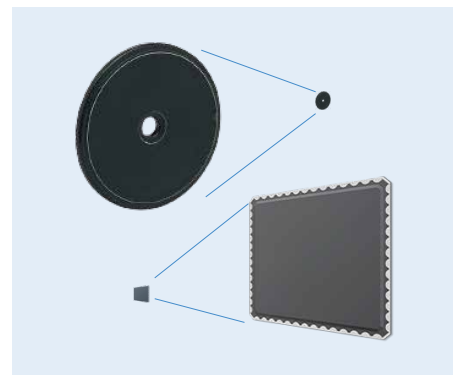
Stickers + Tokens

This form factor is commonly used with other objects, like key heads, to create hybrid credentials. They can be easily applied to the exterior of different devices, such as using stickers on car windshields for vehicle gate access. Some are specifically designed as windshield stickers or dogbones, capable of withstanding high temperatures in car interiors. Prices for these credentials vary depending on the desired lifespan, ranging from \$0.50 to \$10.00 each. They can be customized in size and shape and are available as adhesive-backed 'buttons.'



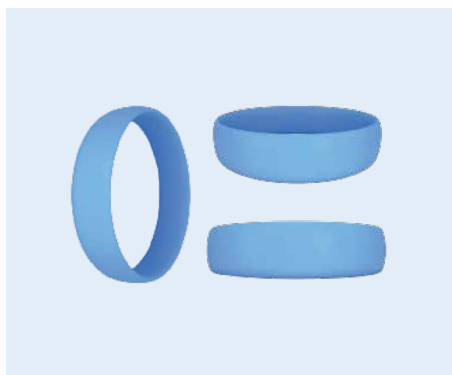
Embedded Chips

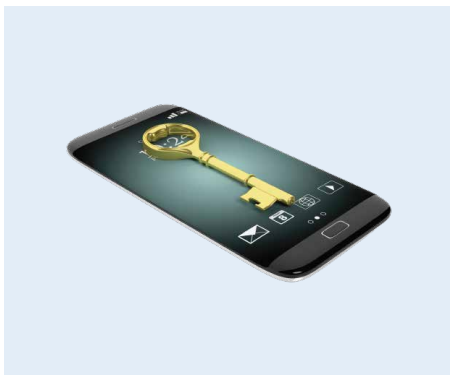
Embedded chips or tags are integrated into multifunction devices, where they are securely embedded. These chips may have active power and offer multiple functionalities, going beyond the scope of a traditional credential. An example is the NFC (near field communication) chip. Pricing for these typically pertains to original equipment manufacturer (OEM) component parts and is not usually applicable to public purchases. The cost structure is often determined in bulk quantities for OEM manufacturing and is not directly relevant to individual or public procurement considerations.



Silicone Wristbands

Silicone wristbands offer comfort, durability, and hands-free convenience for access control. They prevent the need to fish around in pockets for fobs and are great in scenarios where multiple access gates stand in a person's way (*highly secure workspaces*). They are resistant to water, sweat, and harsh environments. Yet, they can be unprofessional in appearance, have limited space for personalization, and pose security concerns compared to other credential options. They can range anywhere from \$0.50 up to \$16.00 each depending upon the complexity of the data they are required to store.





Mobile Credentials

With mobile credentials, instead of physical cards, clamshells, or key fobs to a reader, users can simply present their phone or use a third-party mobile app to unlock doors. As people carry smart phones with them everywhere like they do with wallets and ID cards, it makes them a viable access control option. Such credentials range from \$5.00 to \$10.00 each. However, certain mobile types may come at no extra cost with a compatible system. It's important to note that in many cases, phones are internet dependent (*as well as costly*), and without a reliable connection, access may be denied.

Applications

Based on our extensive field experience, we have observed that specific form factors of credentials demonstrate superior performance in particular situations. To assist with practical implementation, we present the following application guidelines:

Picture IDs

Cards are an excellent choice for facilities that require both credentials and picture identification. They are convenient to wear, unobtrusive, and have low issuance and maintenance costs. While printed images on cards may be susceptible to scratching, they can still function effectively when protected by a clear sleeve.

Clamshells

Clamshells are well-suited for workers in field or shop environments where durability is crucial. Robust construction ensures they are resistant to bending or breaking, making them highly resilient even in the face of moderate abuse. They can withstand the challenges and demands of rugged working conditions, offering reliable and long-lasting performance.

Key Fobs

Key fobs are the optimal choice for environments that impose high demands or entail abusive conditions. They exhibit exceptional resilience against shock, water, and thermal abuse, ensuring longevity under challenging circumstances. Their compact size allows for effortless storage in pockets, providing convenient accessibility.

Stickers and Tokens

Although not commonly employed as stand-alone credentials, they are discreet and versatile — easily mounted onto various surfaces. They can be applied to tools, machines, and most commonly car windshields for parking garage access. Their flexibility allows for efficient access control in scenarios where other forms are impractical.



Applications *(Continued...)*

Smart Phones (w/Embedded Chips)

Embedded chips primarily serve as component parts within other devices and are rarely used as stand-alone credentials. They do play a valuable role in integrating access control credentials into devices such as cell phones. Embedded chips can seamlessly enable access control functionality when incorporated into various electronic devices.

Wristbands

RFID-enabled wristbands offer significant benefits in healthcare and hospitality access control systems. They provide secure identification, streamline verification processes, and enhance patient and guest safety. They offer efficient and accurate access management, ensuring authorized individuals can move freely while maintaining security.

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