



QR CODES

Frequently Asked Questions

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What are they?

A Quick Response (QR) code is a two dimensional matrix barcode that can store information. By carrying information in both directions, QR codes can carry up to several hundred times the amount of data carried by ordinary barcodes.



What type of data can they store?

QR Codes are capable of handling all types of data, such as numeric and alphabetic characters, Kanji, Kana, Hiragana, symbols, binary, and control codes.

How much data can they store?

It depends on the symbol version and the type of the characters. Up to 7,089 characters can be encoded in one symbol.

Numeric only	Max. 7,089 characters
Alphanumeric	Max. 4,296 characters

How do they work?

Using QR Code generator software, you can store data such as contact information, calendar events, URLs, phone numbers, Emails or mailing addresses or any other text up to 7,089 characters.

Once a QR Code is created, using a barcode reader application installed on your mobile device or a handheld scanner connected to a computer, you can scan and retrieve the data.

There are free applications for both creating and reading QR Codes. Here are a few examples:

QR Code generators: <http://zxing.appspot.com/generator> and <http://createqrcode.appspot.com>

QR Code readers (some cell phones come with the reader application installed): <http://www.i-nigma.com> , <http://www.beetagg.com> , and <http://www.scanlife.com>

How are they used in Marketing?

QR Codes act as *physical hyperlinks*; they link offline to online, and print to mobile. QR Codes can be placed on a business card, a catalog, a direct mail piece and on a product label to link the marketing piece to the internet.

Here are some of the common use cases for QR Codes in marketing campaigns:

Capturing responses on a direct mail campaign: A common use case of QR Codes in marketing campaigns is storing a URL in a QR Code and printing it on a direct mail piece as a response mechanism. When the recipients scan the barcode with the application on their mobile, they'll connect to a landing page where they can find more information about the product or service being marketed, respond to the message, or simply sign up to receive the offer.

QR Codes can store both generic and personalized URLs. When using personalized QR Codes, the landing pages linked to the barcode can be personalized thus increasing odds to a favorable response by delivering a more targeted message.

QR Codes on a product or corporate brochure: Print brochures with a QR Code that links visitors to a web page containing product demonstration, video testimonials, FAQ and more. You can engage customers and prospects at another level.

QR Codes on press ads: Not everyone is at their desk, or in front of a computer when reading a magazine or newspaper, but by placing a QR Code on your press ad, readers can simply take a picture or scan the barcode to receive more information, a special offer or a coupon.

QR Codes on promotional items: Place a QR Code on giveaways such as T-shirts and coffee mugs and bring them to life.

There are many use cases for QR Codes in marketing. Used tactfully and creatively, QR Codes provide another way to engage customers and prospects by bringing mobile into the media mix and increase odds of response by offering a convenient and relevant channel for communications.

Why are they important?

Mobile marketing is quickly becoming an essential ingredient for success in marketing campaigns. In fact, according to Forrester's study on Interactive Advertising Models completed in July 2009, mobile advertising spend in the US will grow from \$391 million in 2009 to \$1.2 billion in 2014, representing a 27% compound annual growth rate

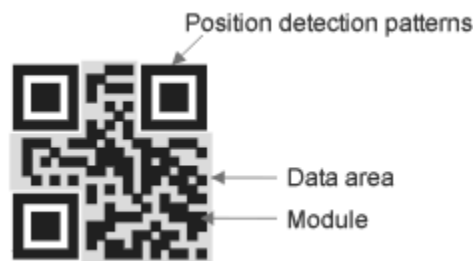
(CAGR), making mobile marketing second only to social media marketing with a CAGR of 34%.

According to the international association for the wireless telecommunications industry, CTIA, wireless penetration in the US is more than 90% of population. Smartphone market share in the US jumped from 7% in 2007 to 17% in 2009 and is expected to grow rapidly in 2010 and beyond.

With mobile marketing on the rise, using QR codes on printed material can help print and marketing service providers generate additional revenue by offering campaigns that deliver results for their clients.

Can they be read from any direction?

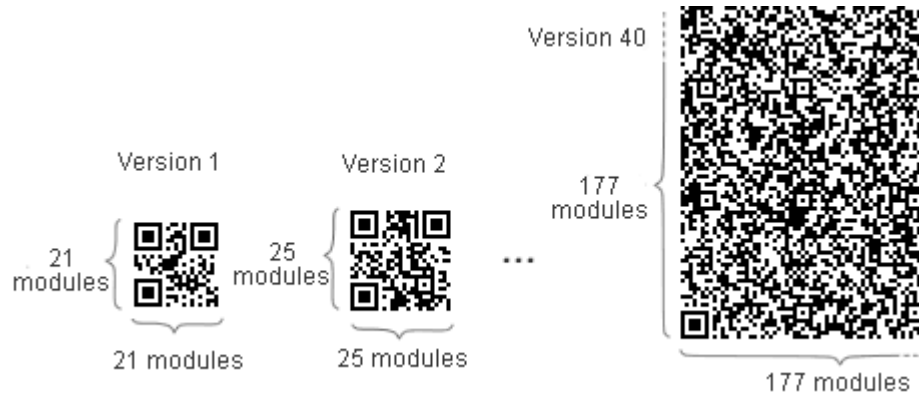
QR Codes are capable of 360 degree high speed reading. QR Codes accomplish this task through position detection patterns located at the three corners of the symbol. These *position detection patterns* guarantee stable high-speed reading, circumventing the negative effects of background interference.



What is the best size to print a QR Code?

The size of QR Code is decided by determining a *symbol version*, based on data capacity, character type and error correction level, and by setting a *module size*, based on the performance of the printer for printing or the scanner for reading.

Symbol Version: The symbol versions of QR Code range from Version 1 to Version 40. Each version has a different module configuration or number of modules. (The module refers to the black and white dots that make up QR Code.)



Module size: Once a symbol version is determined, the actual size of the QR Code symbol depends on the millimeter size of the module (one square area comprising QR code) to be printed.

The larger the module is, the more stable and easier to read with a QR code scanner it becomes. On the other hand, as the QR Code symbol size gets larger, a larger printing area is required.

It is, therefore, necessary to determine the module size of each application after considering all the relevant factors. It is recommended that QR Code symbols be printed as large as possible within the available printing area.

When the symbol version and module size are determined, the size of the QR Code symbol is determined. The QR Code symbol area requires a margin or "quiet zone" around it to be used.

The margin is a clear area around a symbol where nothing is printed. QR Code requires a four-module wide margin at all sides of a symbol.

