

Chiara Mazzotti & Dana Price

Go, go... Power Rangers!

Why are we changing
our charging ports?



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Charging our phones is a key essential to everyday life these days and has become a large impact to battery and product development. So how has Apple taken on the charging ranges over the years?

A dock connector is a connector used to attach a mobile electronic device simultaneously to multiple external resources. The dock connector will typically carry a variety of signals and power through a single connector, to simplify the process of docking the mobile device. A dock connector may be embedded in a mechanical fixture used to support or align the mobile device or may be at the end of a cable.

The first iPhone connector was the iconic 30-pin connector. The connector lasted up until the year 2012 when Apple released their new iPhone – iPhone 5 – which came along with the new 8-pin connector. The 30-pin connector was initially used in the original iPhone, iPhone 3, iPhone 4 and 4s. In the nine years of the charger's existence within Apple iPhones, it was very effective and a revolution for mobile devices. This shows how so much technology can be

compacted into a minimalistic iconic design. This technology in particular within the 30-pin connector carried USB, FireWire, Video, some controls and line-level audio outputs. However, production was discontinued in September 2014.

So why did Apple change the 30-pin connector? The main circulated reasons for changing the charging port was to save space inside the new iPhone 5 for more important components such as larger batteries for more power time, less charging time and 4G radios for more cellular usage in the iPhones.

For many years the 30-pin connector was the backbone of the iPhone. It handled all syncing and data transfer, including backups, music, movies, and other media, all car and other connections, even video-out dongles. Over the years it changed slightly, most significantly the change from FireWire to USB-only charging and Apple continually developed their technologies with the introduction of the iCloud, easier backups, Wi-Fi sync handling even larger media files and accessories connecting over the air.

The Lightning connector is very small with only 8-pin compared to 30, which carries a digital signal. Unlike the 30-pin connector, the Lightning connector can be inserted either face up or face down. Apple also offers various types of adapters which allow the Lightning connector to be used with other interfaces, such as 30-pin, USB, HDMI, VGA, and SD cards. The connectors contain an authentication chip that were intended to make it challenging for third-party manufacturers to produce compatible accessories without being approved by Apple; however, the chip has been cracked.

With different ports and connectors in the iPhones come different battery life and usage. When the iPhone 5 came out with the Lightning connector, the battery was advanced and modified as the phone had more space to utilise with when it removed the 30-pin connector. Apple base their battery life and its capabilities through estimates of hours from a full charged battery using different sources on the phone including cellular data and Wi-Fi usage.

There's a significant change in the battery life of the iPhone 5 by an average of 1-2 hours but it's good to note that 4G radios were added into the iPhone 5 allowing faster cellular usage.

As part of Apple's new iPhone launches of the iPhone 8 and iPhone X, the company has introduced wireless charging as a new way to charge. The website describes this innovation as so "How do you make an iPhone designed for a wireless world? By building on wireless technology like headphones and advanced networking to introduce easy wireless charging. The glass back, together with an efficient charging system, allows you to simply put down iPhone X to charge it up."

This step into the wireless world could ultimately get rid of connectors all together. Who knows what will be able to charge our phones with in the next 10 years! The future of technology is inevitable and we can only wait to see what the future has for of our beloved iPhone chargers and connectors.



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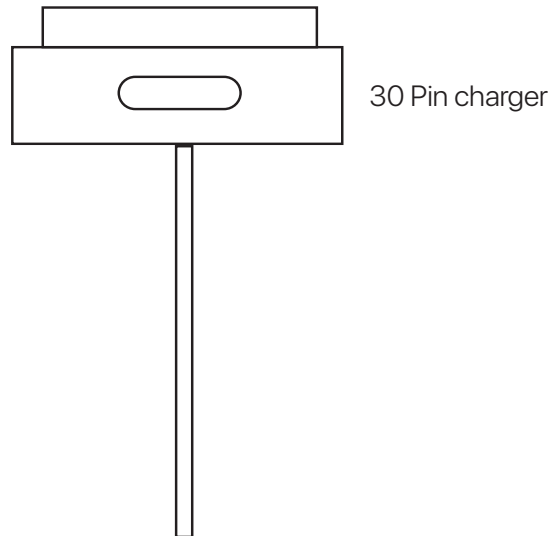
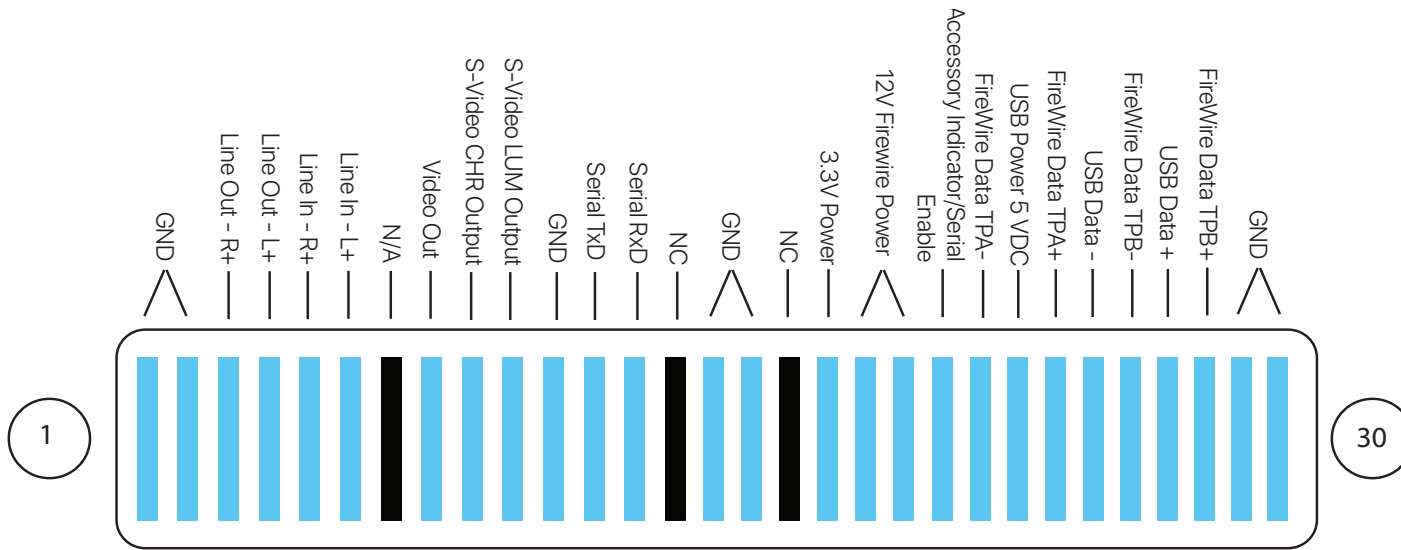
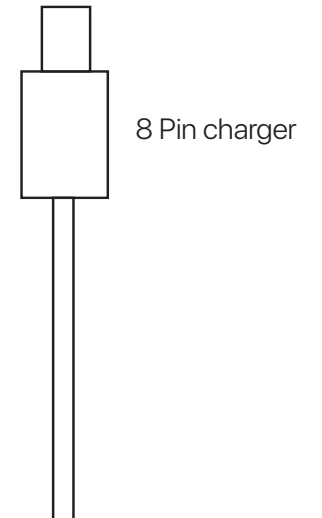
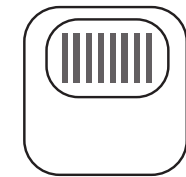
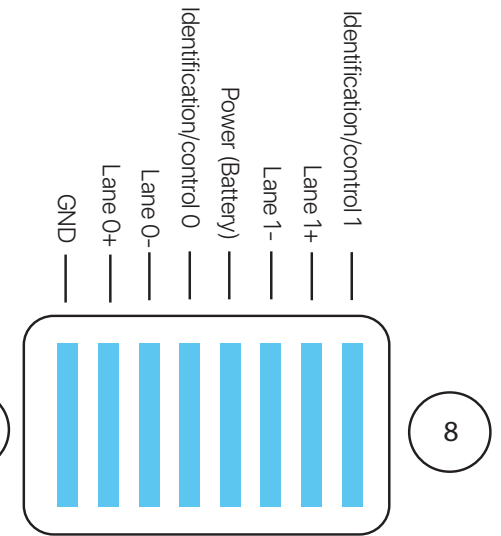


Diagram of Pin Usage
in iPhone connectors

 = Active Pins

 = Unactive Pins