

POWER BANKS EXPLAINED

Battery Capacity

			Typical Power Bank Storage Capacities and related Charging Capabilities								
Device	Type	Battery Capacity	1800 mAh	2000 mAh	2200 mAh	3000 mAh	4000 mAh	5200 mAh	6000 mAh	6600 mAh	8800 mAh
iPhone 4	Smartphone	1420 mAh	100%	100%	100%	100%	100%	100%	100%	100%	100%
iPhone 5	Smartphone	1440 mAh	100%	100%	100%	100%	100%	100%	100%	100%	100%
iPhone 5s	Smartphone	1560 mAh	100%	100%	100%	100%	100%	100%	100%	100%	100%
iPhone 5c	Smartphone	1510 mAh	100%	100%	100%	100%	100%	100%	100%	100%	100%
Samsung Galaxy S5	Smartphone	2800 mAh	64%	71%	79%	100%	100%	100%	100%	100%	100%
Samsung Galaxy S4	Smartphone	2600 mAh	69%	77%	85%	100%	100%	100%	100%	100%	100%
Samsung Galaxy S3	Smartphone	2100 mAh	86%	95%	100%	100%	100%	100%	100%	100%	100%
Sony Xperia Z	Smartphone	2330 mAh	77%	86%	94%	100%	100%	100%	100%	100%	100%
HTC One	Smartphone	2600 mAh	69%	77%	85%	100%	100%	100%	100%	100%	100%
iPad 4	Tablet	11560 mAh	16%	17%	19%	26%	35%	45%	52%	57%	76%
iPad Air	Tablet	8820 mAh	20%	23%	25%	34%	45%	59%	68%	75%	100%
iPad Mini	Tablet	6471 mAh	28%	31%	34%	46%	62%	80%	93%	100%	100%
Samsung Tab 3 10.1	Tablet	6800 mAh	26%	29%	32%	44%	59%	76%	88%	97%	100%
Samsung Tab S 8.4	Tablet	4900 mAh	37%	41%	45%	61%	82%	100%	100%	100%	100%

What this tells us is that a Power Bank with a capacity of either 1800 or 2000 mAh is capable of FULLY charging iPhones but will only partially charging other Smartphones on the market.

NOTE: Small capacity Power Banks can still charge Tablets, but you need to understand that they will only “top them up” and will generally do this slower than the charger the tablet came with (refer to Charging Rates below).

Charging Rates / Timing

Most Smartphones have a maximum charging rate of 1 Amp (1A) whilst most tablets maximum charging rate is 2.1 Amps (2.1A).

The following explains the rate of charging for different Power Banks to Devices:

- Power Bank with a 1A Output
 - o
 - o Tablets will charge at about 60-70% of their charging potential
- Power Bank with a 2.1A Output
 - o Smartphones will charge at 100% of their charging potential
 - o Tablets will charge at about 100% of their charging potential

The time it takes to charge your device is all but impossible to estimate as it depends on all of the following factors, among others:

- The make and model of the device
- The charging potential – refer above
- The condition of the battery in your device. Batteries in good condition charge faster than those devices with degraded batteries. Batteries condition can be degraded by :
 - o the number of charging cycles it has been through
 - o the amount of discharge prior to charging (constant “top-up” charging can degrade your battery)
- The ambient temperature of the device and the Power Bank

Dual Output Power Banks

These Power Banks allow user to charge up to two devices at the same time. However the output of each port can vary from Power bank to Power Bank.

Type 1 (split output):

- Total output of 2.1A
- But can only deliver 1A to either port

Type 2 (shared output):

- Total output of 2.1A
- Can deliver 1A to both ports at the same time
- Can deliver up to 2.1A to a single port as long as the other is not in use
- How the output is shared depends on the devices connected

Type 3 (dedicated output):

- Total output of 3.1A split
- Delivers 1A to Port 1
- Delivers 2.1A to Port 2
- The ports are generally labelled to indicate which is which

Choosing the Correct Power Bank

This is based on the type of user. The following is a guide only but may help you during the selling process.

Heavy User

Heavy users use their smartphone and or tablet constantly; these users are looking for Power Banks that charge fast and provide a long life.

Features: Dual ports, Max charging rate per port (2.1A), High battery capacity.

Medium User

Most people fall into this category. They are moderate, everyday users who are looking for multi-functional, portable Power Banks, able to charge multiple devices.

Features: Dual or single port. Max charging rate per port (1A), Average battery capacity enough to charge smartphone and some tablets.

Light User

These users only use their smartphone for basics. They are looking for just a basic/ emergency charge.

Features: Single port. Max. charging rate (1A). Basic battery capacity.

Battery Types

Lithium-Ion vs Lithium-Polymer

There are two types of batteries commonly used in portable devices: Lithium Ion and Lithium Polymer.

The difference in the battery is that Lithium Polymer battery holds its lithium-salt electrolyte in a solid polymer composite, whilst a Lithium Ion battery keeps the electrolyte in an organic solvent. A Lithium Polymer battery tends to be more stable, thinner and lighter than a Lithium Ion battery. It can also be formed into almost any shape.