

# POWER BANKS

Personal, portable USB power sources  
for smart phones, tablets, etc.

A Learn in 30 presentation

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By John Krout

# Have you ever run out of phone battery power while away from an AC socket or a USB socket?

There are abundant opportunities for this to happen:

- While hiking, bicycling, jogging
- On airplanes, in airports
- On public transportation
- Soccer games, concerts
- DC events: parades, protest marches, speeches, committee hearings, inaugurations
- Anytime you are texting, talking, or using maps frequently

# Power Banks provide personal, portable powered USB sockets.

The size of your smart phone, or smaller. Can be quite a bit heavier.

Includes:

A **battery**

One or more **USB output sockets** for recharging phones, tablets, speakers, even electronic cigarettes.

One or more **USB input sockets** for recharging the battery

A display indicating **current battery power level**.

Some include an on/off switch for the display.

Some include LED flashlights.

# Features and impact on cost

**Battery capacity**, measures in milliamp hours (mAH). From 4,000 up to 30,000. More is better, and costlier.

**USB output sockets** for powering and recharging your portable devices. More is better, and costlier.

**High current USB output sockets**. 1 amp is normal. 2.1 amps will recharge most portable devices faster, and are costlier than 1 amp sockets.

**Ruggedness**. A door covering the USB sockets adds to cost, but protects the USB sockets from damage in pockets, purses and backpacks.

**Display** of current amount of power in the battery.

# Power Banks can be purchased at:

- Most electronics retailers  
(e.g., Amazon, Best Buy, Staples, MicroCenter, Walmart)
- Grocery stores (usually very low power capacity)
- Airports (worst possible place to buy a power bank)

# Jemma model E1 power bank

Battery capacity is **20,000 mAH**

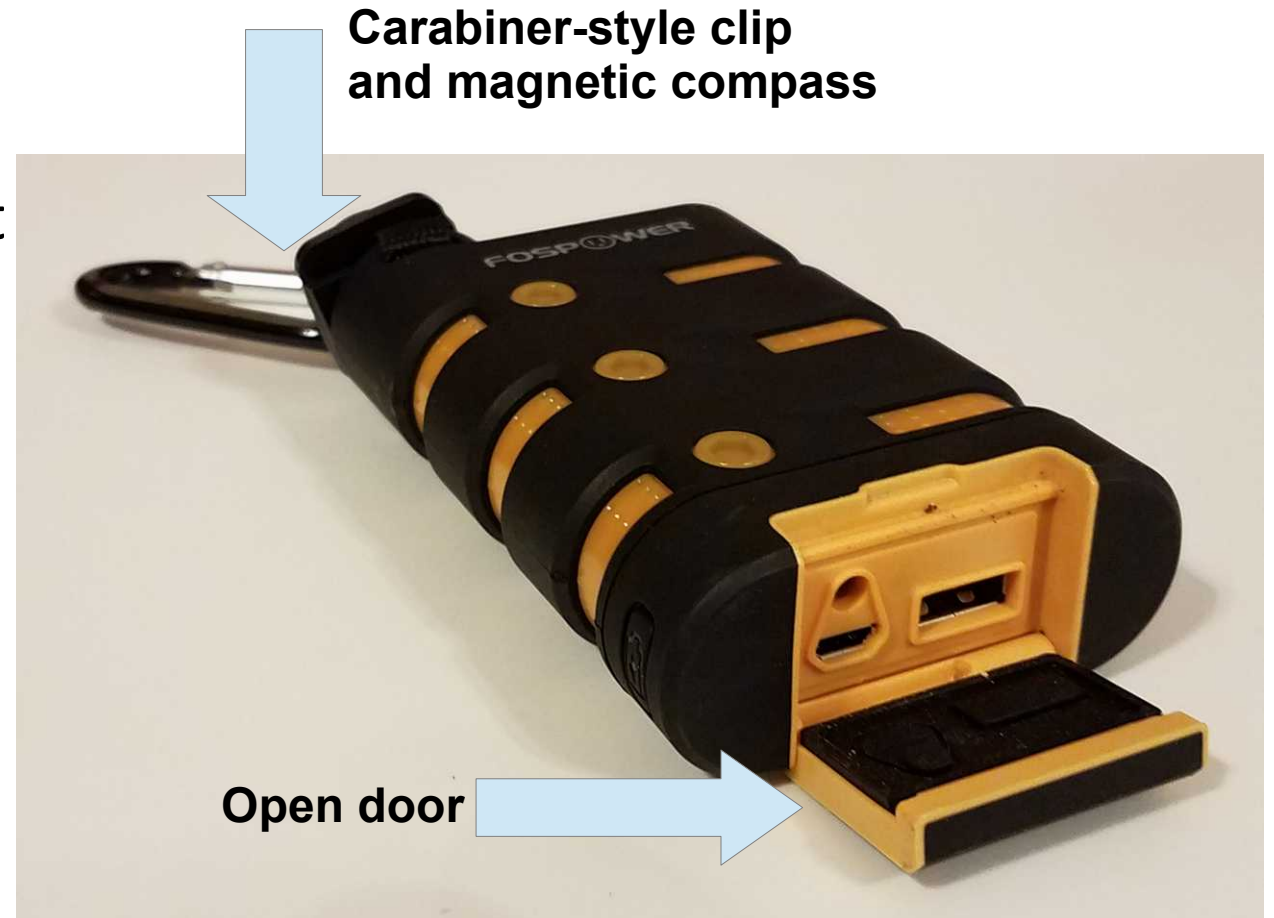
Three USB output sockets, all 2.1 amps

- On/Off switch for battery power level percentage display
- Often available in black or white case
- \$19.99 plus shipping on Amazon (not Prime) in January 2019



# FOSpower model ProActive power bank

- Battery capacity **10,200 mAH**
- One 2.1 amp USB output socket
- Battery power level display is a line of four LEDs
- Armored, with door covering USB sockets
- \$27.99 on Amazon in January 2019



# LAX power bank

- Battery capacity **12,000 mAH**
- One 2.1 amp output socket, and one 1 amp output socket
- Digital display of battery power level
- MicroUSB *and* USB-C charging sockets for battery
- Price \$16.81 plus shipping on Amazon (not Prime) in January 2019,  
**\$60 at BWI** in November 2018



**Two input sockets**



# How to protect the USB sockets and maximize the charge of your power bank

- **Physical damage** to the USB sockets can happen when the power bank is rattling around with coins, keys or the like in a purse or pocket.
- **Humid air** makes a high-resistance circuit that establishes a connection between positive and negative terminals of the battery, draining the battery over time. This is why any recharged battery lose power over time without actually being used.
- You can ***prevent both*** by storing your power bank in a freezer bag with a zipper seal. I keep USB cables for recharging in the same bag.