

POWER BANKS

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

A Learn in 30 presentation

Presented at PATACS/OLLI joint meeting

February 16, 2019 in Fairfax VA

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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**

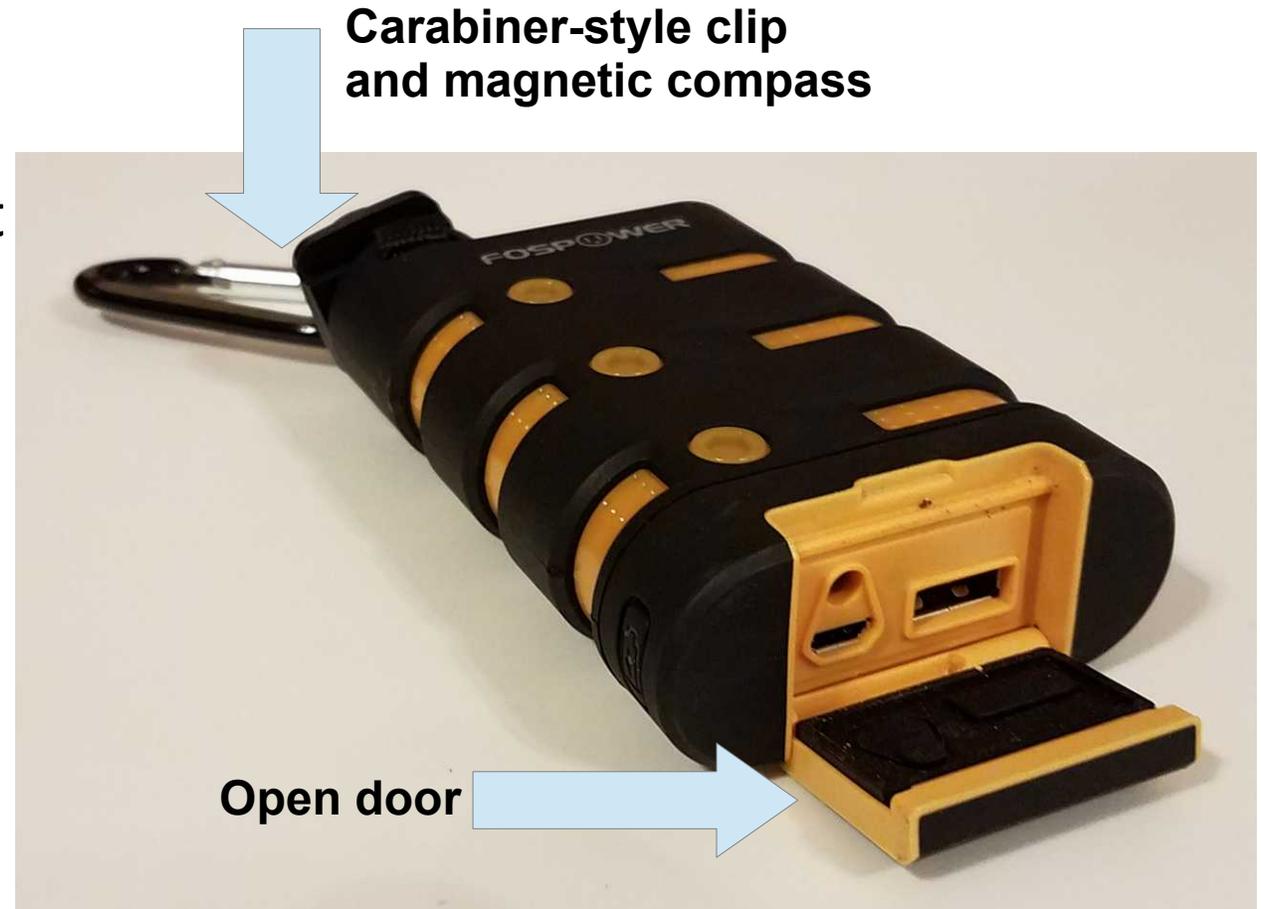
Three USB output sockets, all 2.1 amps

- 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.