

The Technical Side:

Everything you need to know about aviation USB. Type A, Type C??

The original iPad was released in April of 2010. Today just over 14 years later, it's hard to find a pilot who doesn't utilize some form of electronic flight bag. While battery technology has improved dramatically in the past decade, having a way to charge these devices in the cockpit is almost a must for pilots who depend on them to view charts, approach plates, or other vital to flight information.

If you don't read beyond this, the key takeaway we want you to get from this article is the difference between the different types of USB found on devices today:



USB Type A

USB Type A is the most common and has been around for many decades.

Non-reversible, Type A cables must be inserted in the correct orientation.

While Type A cables are plentiful and found on many devices, it is slowly being

phased out due to its older design and lower power output when compared to Type C.

USB type A typically outputs 5 volts at up to 2.4 amps.



USB TYPE A

USB Type C

Unlike, Type A, USB Type C is reversible and can be inserted in either orientation. A slightly newer design, USB Type C has a smaller connector, while also having more internal pins enabling more features. Most devices with C also have support for Qualcomm Quick Charge and Apple Fast Charging meaning your mobile devices will charge even faster.



USB



USB TYPE C

USB Type C Power Delivery (PD)

Power Delivery (Often advertised as PD) is the best available option for USB charging today. With the ability to provide up to 100 watts which is enough to charge many laptops. The smart circuitry that enables Power Delivery will communicate with the charger to negotiate the ideal voltage and amperage for the optimum charging speed.

While the early days of USB were simple. One connector which would provide 5 volts, as the world of technology progressed, so did the USB standard. The next step was USB type C which was designed in 2014 and has been slowly implemented in more and more devices with a major catalyst being a new law



in the European Union requiring all mobile devices to use USB type C for charging ports. Many major avionics manufacturers have plug and play aviation specific USB Charging solutions. The usefulness of USB charging ports while in the air has proven itself in the demand we receive for them. Virtually every aircraft that comes through our shop gets new USB ports. On a small general aviation aircraft this might be a single dual port receptacle on the instrument panel. On a large business jet, you might find one for every passenger seat plus some up front for the pilot's.

Depending on your avionics stack, a certain brand of charging port may give you more capability. The GSB 15 from Garmin comes in both Dual Type A, Dual Type C, or a perfect compromise, one of each. For aircraft with Garmin's GI 275 electronic flight instrument, the GSB 15 can be used for data transfers which can include database updates, and downloading flight logs, including engine data when equipped with an engine information system.

While many of the solutions will support Qualcomm Quick charging on Android devices, or fast



charging on Apple devices, some customers have the need for more power. USB type C power delivery (PD). With power delivery the device will communicate with smart circuitry within the charger to negotiate the maximum voltage to charge. While standard USB type-A will output 5 volts, USB power delivery will vary between 5 and 20 volts allowing larger devices

like laptops to charge. The Mid-Continent MAX Power USB Chargers are the main choice when power delivery is required.

With all of this in mind, we are often asked why someone would spend money on aviation specific charging ports when they can simply head down to their local big box store and buy a 12v USB adapter to throw into their 12v “cigarette lighter” port found on their plane from the factory. While these converters may cost little more than a gallon of avgas, there is a major difference. The low cost electronics found in these adapters almost always scream out electronic and radio interference from the moment they receive power and only get worse when a device is plugged into them. This noise can make itself known through your intercom, radio, or in the worst of cases causing interference to your GPS causing your GPS to drop out. While all of this is happening, your electronic flight bag or other device very well may still be losing charge due to the low power these adapters provide.

