



A Case for Custom Military Power Supplies

Military applications often require power supply units and electrical devices that are more advanced than commercial off-the-shelf (COTS) solutions. The power supplies used in shipboards, military aircraft, and ground operations have to meet specific military standards. These standards specify requirements for the ability to withstand shock and vibration, test methods for environmental impact, hermeticity, and electromagnetic interference, (EMI) among other specifications.

As a result of compliance to these standards, and by necessity, military power supplies like Titan power supplies are often significantly more reliable than alternatives.

Off-the-Shelf Vs Custom Military Solutions

That said, budgetary restrictions often force project managers and decision-makers in the military to go for COTS solutions. The need for modularity, which makes upgrades easier, is another reason why COTS solutions may seem appealing. Though the COTS power supplies that the military goes for do meet military standards, they only meet the basic standards.

Custom military power supplies are generally more expensive. They generally also take more time before they are delivered, as the customizations are implemented. However, these drawbacks pale in comparison to the advantages. Custom military power supplies can be tailored for specific military applications. And while COTS solutions cannot meet all military standards possible, custom power supplies meet all the military standards specified for a certain application, be it on the ground, in the air, in water, or for communication.

Therefore, while more decision-makers may be moving towards COTS power supplies, there is a strong case to be made for custom military power supplies and decision-makers in the military should make every effort to obtain tailor-made solutions.

Ruggedized Power Supply

Military power supplies are ruggedized, or, in other words, equipped for extreme conditions. For example, a [titan power supply](https://www.titan-power.com/) (Visit:<https://www.titan-power.com/>) made for use on the battlefield can continue operating even under the massive shock and vibration caused by heavy artillery fire. Titan power supplies

are generally made to be used in a wide variety of hostile conditions and can withstand high humidity, rain, extreme temperatures, and dust.

There are non-military applications that could benefit from the use of ruggedized power supplies. For example, if electric devices are expected to be used outside for long periods, rather than regularly having to change out the power supply, it would be wise to use a ruggedized one that will last.

Also, military power supplies are highly reliable, with a longer mean-time-between-failure. Such reliability, especially in the face of extreme conditions, can be essential in industries with critical operations.

If you think that your industrial setup could benefit from ruggedized power supplies, all you have to do is get in touch with a [military power supplies company](#) (Visit: <https://www.titan-power.com/>) and you'll get sorted.

Qualities of Military Power Supplies

While each military power supplies company designs unique products, they share similarities. They strictly comply with military specifications. These include the MIL-STD-461, which specifies the requirements and test limits for the measurement and determination of emission, susceptibility, and other EMI characteristics. Compliance with this standard reduces the effect of EMI on military equipment. This is important because EMI could lead to corruption or total loss of data during crucial operations, which could be disastrous.

Also, military power supplies adhere to the MIL-STD-810, which specifies environmental engineering considerations and laboratory tests. According to this standard, military equipment is tested under the conditions that mirror the true environment the equipment will be used in. This enables equipment life cycles and environmental stress sequences to be defined. Additionally, performing these tests helps analyze the performance of military equipment when under stress. This way, shortcomings and defects can be detected and corrected before the product ever gets to the consumer. The conditions that are replicated for this standard to be met include dust, sand, shock, vibration, altitude, temperature, and humidity.

Power supplies meant for use by military aircraft, such as a titan power supply, have to meet the MIL-STD-704 standards for aircraft electrical power characteristics. This standard defines specifications for frequency, power factor,

voltage, ripple, EMI, maximum current, and abnormal conditions such as overvoltage and undervoltage.

Military power supplies have increased immunity against power events such as spikes to ensure high reliability. The specifications for such immunity are defined in the MIL-STD-1275 standard. It covers spikes, surges, ripple, and operating voltages. The tests specified by this standard are thorough, with tests being done for both the normal and generator-only modes. This standard applies for military ground vehicles and covers steady-state limits of 28-volt direct current, as well as the limits of transient voltage characteristics.

Conclusion

Electrical devices used in the military are exposed to extreme environmental conditions and are subject to high-performance requirements. As such, military power supplies are ruggedized and subject to stringent military standards. Such power supplies can also be invaluable in industries that have high-reliability requirements and harsh conditions.