

## ELECTRICAL POWER TRENDS IN THE MILITARY AND CIVILIAN AIRCRAFT INDUSTRY

A Robert Schaefer Inc. Survey



- 1.** When asked which of the two options was true, **two-thirds of the survey participants responded that they believe that 400 Hz will remain the standard AC in avionic equipment.** Only one-third of the participants believe that wild frequency will surpass 400 Hz as the standard AC.
- 2.** About 75 percent of survey participants believe that **the use of DC power will increase in the avionics industry.** When asked to specify the VDC at which this power would be used, 41 percent responded with 28 VDC, 23 percent with 270 VDC, and 7 percent with "some other VDC."
- 3.** When asked, **Which do you believe will be the most prevalent power levels in the industry?** the responses were fairly evenly distributed between 100 to 500 VA, 500 to 1,000 VA, and 1,000 to 2,000 VA, at 28 percent, 30 percent, and 28 percent, respectively. Only 5 percent of participants marked "Other."
- 4.** 41 percent of survey recipients responded that they are **"frequently" able to utilize high-end industrial COTS or modified COTS power supplies to meet their requirements.** 35 percent responded that they are "rarely" able to use these power supplies and 8 percent responded that they are "always" able to use them to meet their requirements. 15 percent of the survey participants are unable to use COTS power supplies because they "need to impose MIL specs."
- 5.** **For those survey participants who need to impose MIL specs,** 34 percent use MIL-STD-04 or RTCA/DO-160 for input power requirements, 30 percent employ MIL-STD-461 for EMI/EMC, and 27 percent use MIL-STD-810 for shock and vibration. Only 4 percent use MIL-STD-901, and 5 percent chose "Other," writing in additional ---somethings---, including MIL-STD-464, MIL-STD-810 Explosive Atmosphere, DO-160 for environmental, and 400 Hz 120 V 3 Phase Military Standard.
- 6.** **For those participants for whom MIL standards are required for their power supply,** 62 percent qualify the unit as part of the system, while 38 percent qualify it independently of the system.
- 7.** According to survey participants, **the most important attribute of a power supply in an avionics system is rugged construction** and the least important attribute is tied between watts per cubic inch and compact size. Low weight and efficiency were also considered very important.

**8.** When asked, *Are you seeing an increase in the implementation of 60 Hz COTS equipment on board aircraft*, 56 percent of respondents replied, "Yes," and 44 percent replied, "No."

**9.** 49 percent of survey participants believe that as the avionics industry moves forward, **400 Hz will be the most prevalent power for ground support/test equipment**. 26 percent maintain that the most prevalent power will be 28 VDC, 13 percent believe it will be 350 to 800 Hz, and 5 percent think it will be 270 VDC. 6 percent of respondents believe the most prevalent power will be 60 Hz Ground Test.

**10.** **The interface found to be most prevalent on ground support/test equipment** was tied at 36 percent, between "Human – Front Panel" with potentiometers for voltage and/or frequency adjustment and none at all – simply a fixed voltage and frequency. Of the 28 percent of respondents who believe remote interfaces are the most prevalent, the types of remotes specified were Analog RS-232 at 40 percent, IEEE-488 at 20 percent, and Ethernet at 40 percent; no survey participant selected CAN.

**11.** More survey participants – 21 percent – **believed measurement capacity to be one of the most important attributes of a power supply for ground support/test equipment**. 15 percent of respondents cited variable voltage and frequency, 12 percent cited multiple outlet voltages, and 10 percent cited fixed voltage and frequency, meters/display, and compact size. The least important attribute appears to be having a rack mount.

**12.** The publication that survey participants read most is *Avionics*. It is read by approximately 95 percent of respondents, and 38 percent ranked it as their most-read industry publication. However, the sample who took this survey was located using a roster of *Avionics* subscribers, so this data is heavily skewed. *Military & Aerospace Electronics Magazine* is the second-most popular magazine, read by 51 percent of survey participants.

**13.** **The survey participants' involvement with power supplies** includes 36 percent who "design instruments or systems containing power supplies," 32 percent who "specify power supplies," and 20 percent who "purchase power supplies." 12 percent of respondents wrote in other associations, such as system engineering, purchase approval, marketing, and inspection.