VICOR

Case study: UAV Electric countermeasure

Compact, efficient power solutions enable improved countermeasure capabilities

Customer's challenge

The electronic battlefield relies heavily on UAV-based electronic warfare systems to detect, assess and in some cases prohibit enemy threats. It is vitally important to keep these systems as small and undetectable as possible for survivability. Key goals were:

- Establish a high power 270V bus on board as efficiently as possible
- Implement a compact power delivery network
- Enhance the agility of the UAV

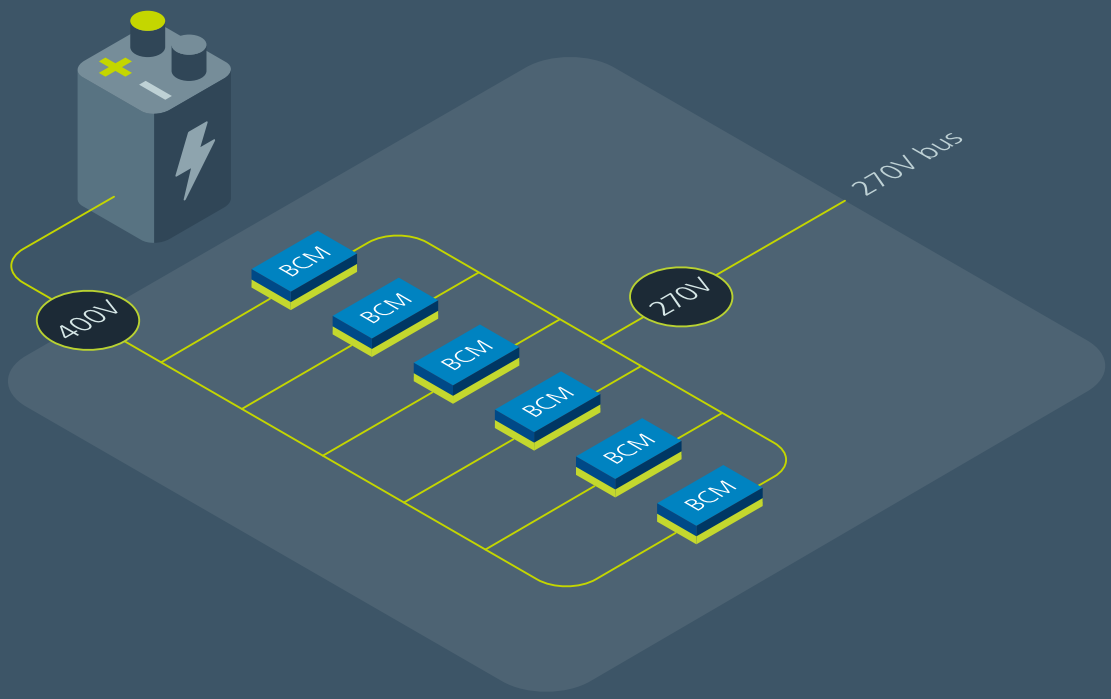
The Vicor solution

Vicor patented, high-performance power modules provided the compact size, light weight and efficiency needed for the UAVs to stay in the air longer making them the perfect over watch sentinels. A lightweight, compact array of Vicor BCMs® provides high power to the 270V bus. Key benefits were:

- 97.9% efficient power conversion to a 270V bus
- Parallelable modules to attain the power levels necessary
- High power density allows for flexible placement on board the UAV

The Power Delivery Network

A stack of six BCM® converter modules with the outputs all in series provide 4,242V_{DC} isolation and exceptional efficiency of 97.9%. As is typical in any UAV, the space made available is limited and of irregular shape. The Vicor modular approach allows great flexibility in how to build a power delivery to fit within the platform.



MIL-COTS BCM bus converter modules

Isolated fixed-ratio

Input: 200 – 400V, 400 – 700V, 500 – 800V

Current: Up to 35A

Peak efficiency: 98%

As small as
1.28 x 0.86 x 0.26in

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