VICOR

Case study: Media and entertainment UAVs

Flexible, scalable power delivery networks can adapt to the right audio and video equipment

Customer's challenge

Like most drones, media and entertainment drones must carry heavy payloads and be able to stay in the air for as long as possible. Whether on a film set or at a live event, these drones must also be extremely safe and reliable, and they must be as compact as possible to avoid getting in the way of the show or the scene. They carry expensive camera and video equipment that can be interchanged to reconfigure the drone for different functions and venues. The key goals were:

- Compact and lightweight solution
- Supporting multiple configurations to accommodate changes in requirements
- Optimized power delivery for longer operation

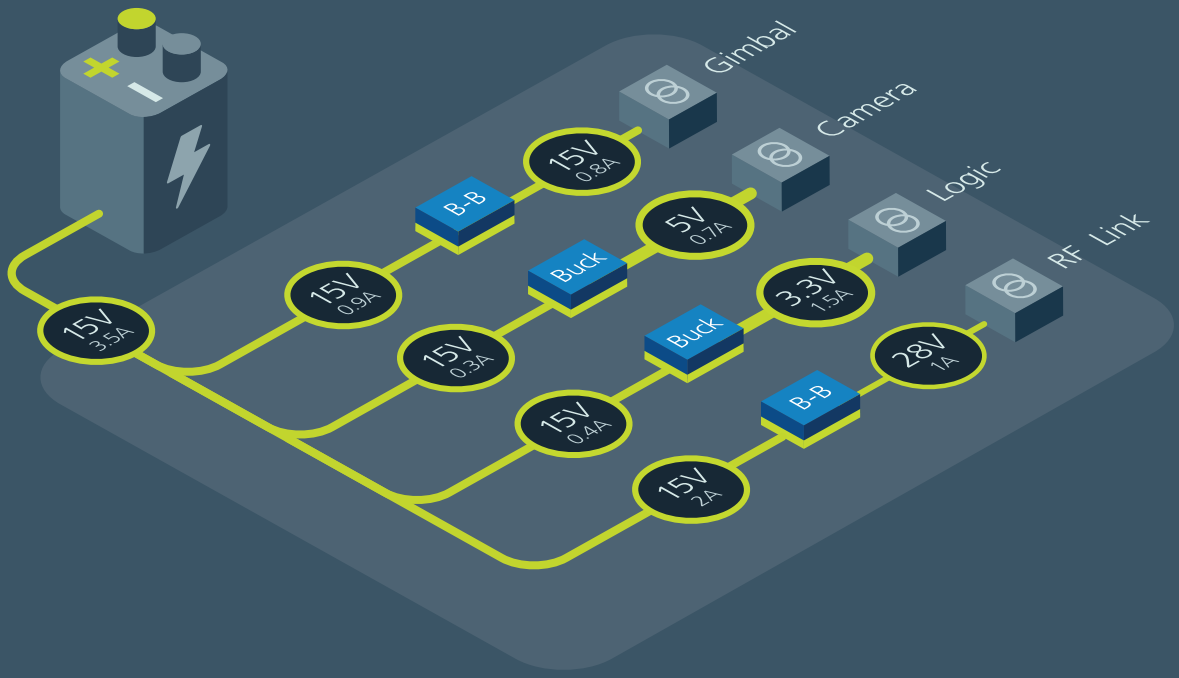
The Vicor solution

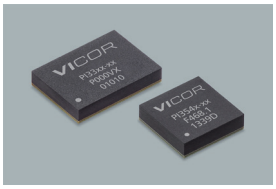
To efficiently provide power to the drone's wide array of equipment as well as sensors, gimbals, and high-speed communications, it was necessary to have a solution that is lightweight and with a very small footprint. The compact size would also allow for additional functionality in newer versions of the drone. The solution also needed to be capable of delivering high power to loads that require it.Key benefits were:

- Wide range of input and output voltages
- High efficiency
- High power density

The Power Delivery Network

Vicor Zero-Voltage Switching (ZVS) Buck and Buck-Boost products are ideal for media and entertainment drones. They have wide input and output ranges and can be paralleled for high power applications. Vicor high-density modular power solutions not only consume minimal space, but they also help future proof drone power needs where flexibility is a key advantage.





ZVS buck regulators

Non-isolated regulated

Input:12V (8 – 18V),
24V (8 – 42V), 48V (30 – 60V)

Output: 2.2 – 16V

Current: Up to 22A

Peak efficiency: 98%

As small as
10.0 x 10.0 x 2.56mm

vicorpower.com/buck

ZVS buck-boost regulators

Non-isolated regulated

Input: 8 – 60V

Output: 10 – 54V

Power: Up to 150W continuous

Peak efficiency: 98%

10.5 x 14.5 x 3.05mm

vicorpower.com/buck-boost