



Vehicle Mounted Optical Sight Compact Vehicle Power Supply



Small Size,
Low Profile



Low
Weight

The Customer's Challenge

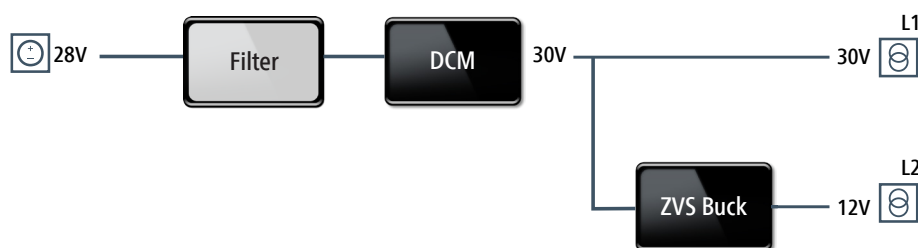
The priority for this manufacturer of optical sights was improved image stability, requiring improved system response time. Being vehicle mounted, reduced size was another key focus for this upgrade of an existing optical sight and associated gimbal system. We worked with them to develop a power solution to drive the sensing electronics and the various motors in the system. The supply needed to meet stringent MIL-STD-704F transient input voltage limits for this 28V system.



The Solution

The power supply was based on the MIL-COTS DCM DC-DC Converter Module, which met the wide steady state input voltage range of the nominal 28V input and could drive the various motor loads directly. The lower power, lower voltage rail for the controllers and sensors was derived from the DCM output using a ZVS Buck Regulator.

[Link to Whiteboard »](#)



The Results

The isolation provided by the DCM helped reduce input noise in the system, thus requiring just a small external EMI filter to meet the conducted noise specifications. Conduction cooling was enabled by the unique double-sided cooling capabilities of the DCM's ChiP packaging. The high efficiency of the modules allowed full power operation at high ambient temperatures. This also helped improve the reliability of the system, which proved to be very robust.

Product Family Key Specifications

DCM™ DC-DC Converter Module

Input Voltages	9 – 50V _{DC} , 16 – 50V _{DC} , 18 – 36V _{DC} , 36 – 75V _{DC} , 120 – 420V _{DC} , 160 – 420V _{DC} , 200 – 420V _{DC}
Output Voltages	5V, 12V, 13.8V, 15V, 24V, 28V, 36V, 48V
Output Power	4623 ChiP: Up to 600W 3623 ChiP: Up to 320W 3714 VIA: Up to 600W 3414 VIA: Up to 320W
Efficiency	Up to 93%
Dimensions	4623 ChiP: 47.91 x 22.8 x 7.26 mm 3623 ChiP: 38.72 x 22.8 x 7.26 mm 3714 VIA: 95.3 x 35.6 x 9.4 mm 3414 VIA: 85.9 x 35.6 x 9.4 mm

Cool-Power® ZVS Buck Regulator Module

Input Voltages	12V Nominal (8 to 18 V _{IN}), 24V Nominal (8 to 36 V _{IN}), 48V Nominal (8 to 60 V _{IN})
Output Voltage	Wide output range (1 – 16V)
Output Current	8A, 9A, 10A, and 15A versions
Efficiency	Up to 96.5% Light load and full load High efficiency performance
Dimensions	LGA SiP: 10 x 14 x 2.56 mm LGA SiP: 10 x 10 x 2.56 mm