

PRODUCT BRIEF

2000W Generator Control Unit

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The VISIONAIRtronics 2000W Generator Control Unit manages the generation and storage of electrical energy to supply the needs of small to medium-sized UAVs.

The GCU is designed to complement the functionality provided by our PDU (Power Distribution Unit). When installed together, these two units form a complete power supply solution including electrical power generation, battery management, power distribution and redundancy for critical sub-systems.

The GCU includes an optional engine starter which uses the same BLDC motor and wiring that is used for electrical power generation, saving weight and installation effort.



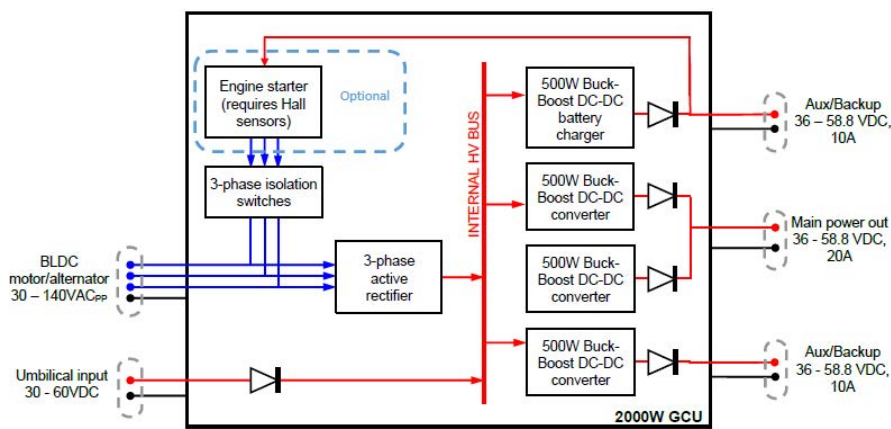
FEATURES

- Main power output provides up to 1000W at 58.8V for powering vehicle electronics directly or via PDU.
- Two separate outputs, each capable of providing up to 500W of power for rapid in-flight recharging or equipment powering.
- Outputs user-configurable for both voltage and current, allowing a wide variety of battery chemistries and sizes to be accommodated.
- Configurable output variants 50/50, 75/25, 50/25/25, 100/0
- Supported battery types include:
 - LiPo: 10 - 14S
 - LiS: 15 - 20S
 - LiFePO4: 10-14S
 - Lilon: 10 - 15S
- Active rectification of 3-phase inputs achieves highest possible efficiency, minimising self-heating.
- Outputs powered by interleaved, spread-spectrum modulated DC-DC converters for best possible EMI/RFI performance.
- Umbilical input: 35 - 60 VDC
- RS232 and CAN monitoring interfaces provide extensive reporting of voltages, currents and internal temperatures.
- IP67 rated
- Weight: ~1740g
- Dimensions: 209 x 182 x 59 mm



BLOCK DIAGRAM

This is a greatly simplified diagram showing only the main power pathways. Diodes shown are symbolic; diode functionality is implemented using FETs configured as “ideal diodes”.



Variant 50/25/25

Internal Architecture

SPECIFICATIONS IN BRIEF

Electrical

BLDC inputs	30 to 140 VACpp
Umbilical input	35 to 60 VDC
Main power output	36 to 58.8 VDC, 20A continuous
Auxiliary power output	36 to 58.8 VDC, 2x 10A continuous
Low-power output	12 VDC, 1 Amp continuous

Miscellaneous

Environmental protection class	IP67
Operating temperature range	-40°C to + 55°C
Altitude rating	10,000m
Cooling	Thermostatically controlled redundant fan output
Enclosure	Lightweight custom-machined aluminium
Connectors	MIL-DTL-38999
Communications protocols	RS232 (57600 8N1), CAN (1Mb/S, user selectable)

