

General Description

The VISIONAIRtronics 900W Power Distribution Unit converts unregulated battery voltage down to a set of regulated outputs suitable for distribution within small to medium-sized UAVs. Three main outputs are provided, each of which may be user-configured for voltage. The avionics and servo power supplies are fully duplicated internally to maximise system reliability through redundancy.

The 900W PDU has dual battery inputs with automatic lossless switchover between the two. An umbilical input ensures that batteries are not depleted during pre-flight checks prior to take-off.

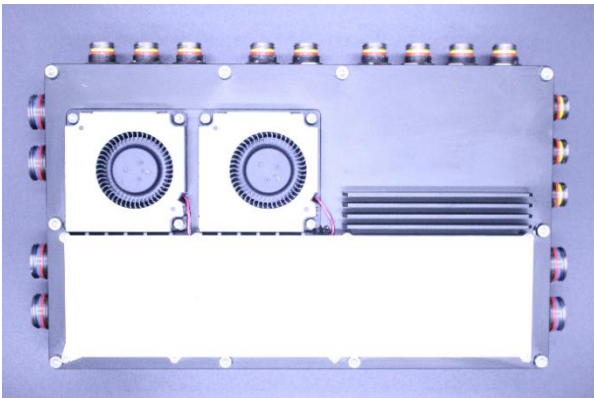


Figure 1 – 900W PDU Example

Features

- Four independent power supply systems:
 - Avionics: 12 – 28V
 - Servo: 6 – 28V
 - Payload: 12 – 28V
 - Low-power: +5V
- Avionics, Servo and Payload outputs are user-configurable for voltage.
- Avionics, Servo and low-power outputs have 100% redundancy (i.e. the outputs are the result of combining two identical and independent power supplies, each of which is capable of supplying 100% of rated load).
- Two battery inputs. Battery voltage may range from 24 to 55 VDC. Supported battery types include:
 - LiPo: 10 – 12S
 - LiS: 15 – 20S
 - LiFe: 10 – 14S
- Umbilical input: 28 – 60 VDC.
- RS232 and CAN monitoring interfaces provide extensive reporting of voltages, currents and internal temperature.
- Available in either IP66 or slimline enclosure.
- Enclosures can be customized to suit type/size/number of connector or incorporate a number of PDUs to realize for example a Dual-PDU
- Weight: 1344g
- Dimensions: example 235x140x49

Block diagram

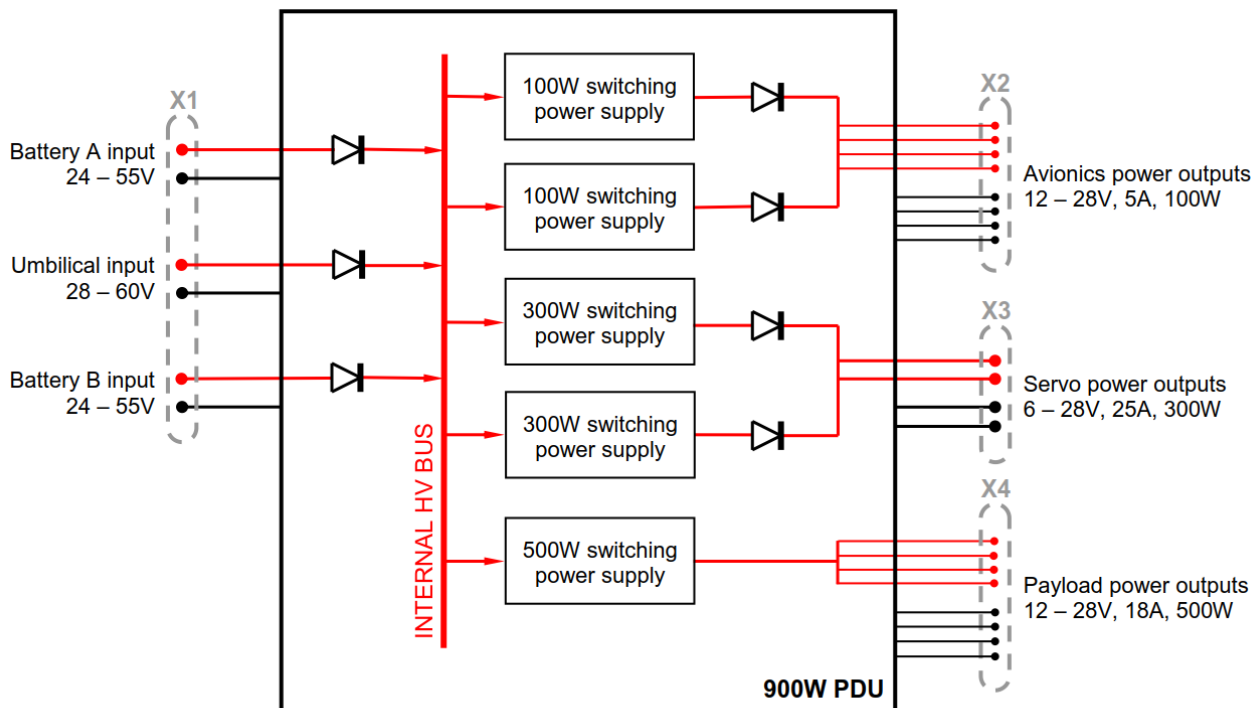


Figure 2 – Internal architecture of the 900W PDU

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”.

Specifications in brief

Electrical:

Battery inputs	24 to 55 VDC
Umbilical input	28 to 60 VDC
Avionics output	12 to 28 VDC, 5 Amps continuous, 100 Watts max.
Servo output	6 to 28 VDC, 25 Amps continuous, 300 Watts max.
Payload output	12 to 28 VDC, 18 Amps continuous, 500 Watts max.

Miscellaneous:

Environmental protection class	IP66
Operating temperature range	-40 to +85°C
Altitude rating	10,000m
Cooling	Thermostatically controlled redundant fans
Enclosure	Lightweight custom-machined aluminium
Dimensions	189 x 125 x 35mm
Weight	1344g ±20g (excludes mating wiring harness)
Connectors	LEMO M-Series with ratchet coupling
Communications protocols	RS232 (57600 8N1), CAN (1Mb/S)