

General Description

The Millswood Engineering 900W Power Distribution Unit converts unregulated battery voltage down to a set of regulated outputs suitable for distribution within small to medium-sized UAVs.

The 900W PDU provides three high-power outputs (Avionics, Servo and Payload), and one low-power output (+5V). The Avionics, Servo and low-power outputs are fully duplicated internally to maximise system reliability through redundancy.

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

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 IP67 or slimline enclosure.
- Weight: TBD.
- Dimensions: TBD.

Block diagram

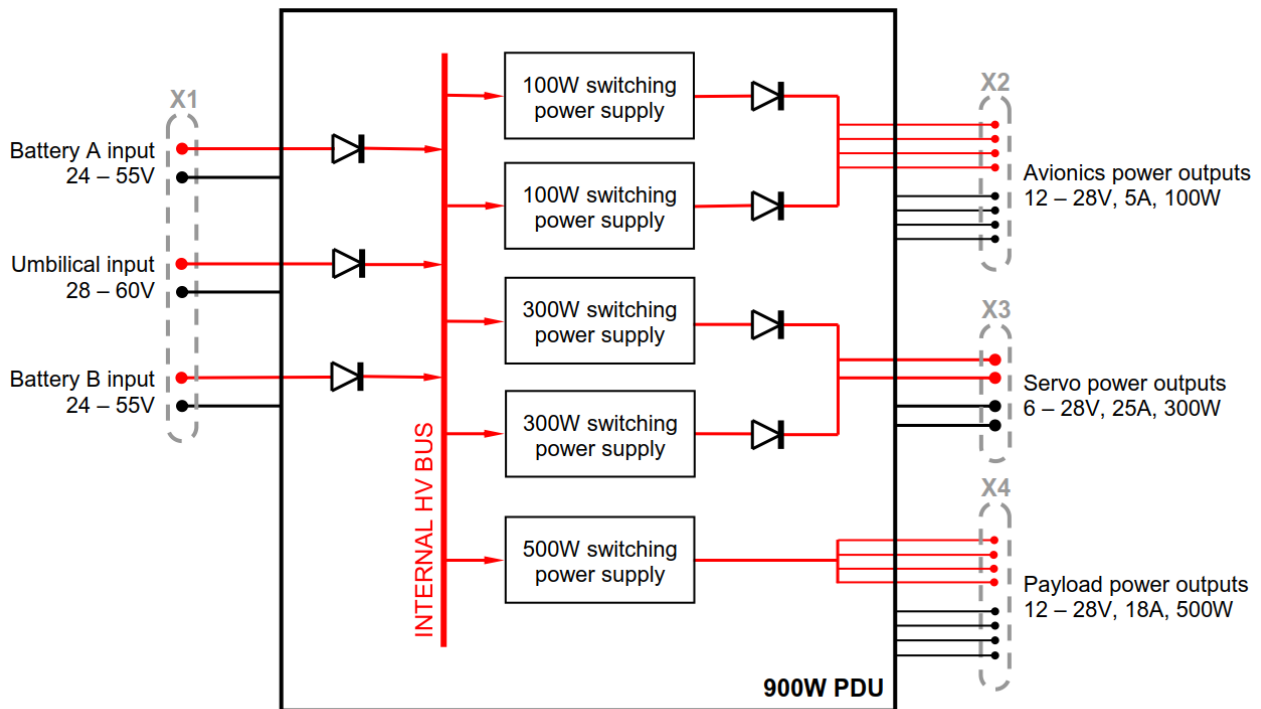


Figure 1 – Internal architecture of the 900W PDU

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.
Low-power output	5 VDC, 0.5 Amps continuous, 2.5 Watts max.

Miscellaneous:

Environmental protection class	IP67 or IP50
Operating temperature range	-40 to +85°C
Altitude rating	10,000m
Dimensions	TBD
Weight	TBD
Communications protocols	RS232 (57600 8N1), CAN (1Mb/S)