

General Description

The Millswood Engineering UAV Engine Starter is designed to start internal combustion engines up to 150cc in size. It is small, lightweight, and delivers rapid and reliable engine starting without the use of decompression valves.

The engine starter drives the BLDC alternator as a motor in order to start the engine. Once the engine is running the starter disconnects itself from the BLDC alternator to allow electrical power generation. A suitable BLDC alternator fitted with Hall sensors is required.

Engine starting is initiated locally by push-button or remotely using CAN or RS232 commands. In-flight restarts are possible with CAN or RS232 commands.

Features

- Rapid and reliable starting – 1500RPM is typically achieved in under 0.5 Seconds.
- Maximum torque available from standstill.
- Operates from battery voltages of 20 to 55VDC. Tolerates generated 3-phase voltages up to 140VAC.
- CAN, RS232 and USB connectivity.
- Comprehensive front-panel diagnostics to aid integration and commissioning.
- User-friendly configuration software, with integrated graphing and logging to optimise and verify performance.
- Integrated Hall-sensor wiring and alignment checking.



Figure 1 – UAV Engine Starter

Specifications in brief

Electrical:

Battery voltage	20 to 55 VDC
Time to start	< 500mS (typical, 150cc engine)
Cranking speed	500 – 5000 RPM (user-configurable)
Torque	20Nm (typical, varies with BLDC alternator)
BLDC pole count	2 – 32 poles (1 – 16 pole pairs)
BLDC alternator voltage	Tolerates up to 140VAC _{PEAK}
Communications protocols	USB, RS232 (up to 115.2 kBaud), CAN (up to 1Mb/S)

Miscellaneous:

Environmental protection class	IP50
Operating temperature range	-40 to +85°C
Dimensions	93.5 x 80.5 x 20mm
Weight	190g (6.7 ounces)