



EM02 - The engine monitor for UAVs and experimental aircraft

The EM02 is UAV Navigation's most complete engine monitor for piston engines. Its small size and light weight make it ideal for most experimental aircraft and large sized UAVs. The EM02 can monitor all the typical engine parameters for any standard 4-cylinder piston engine.

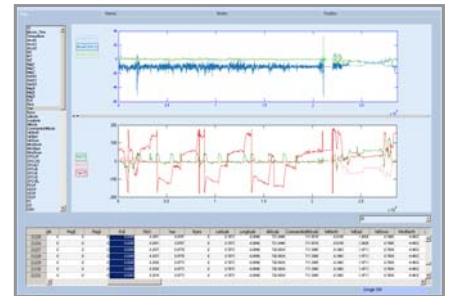
The EM02 can provide any EFIS or onboard electronics with measurements at 5 Hz. These include RPMs, manifold pressure, oil pressure and temperature, water temperature, fuel pressure and net fuel flow, four cylinder head temperatures (CHT), four exhaust gas temperatures (EGT), three fuel quantities, and total engine-on time.

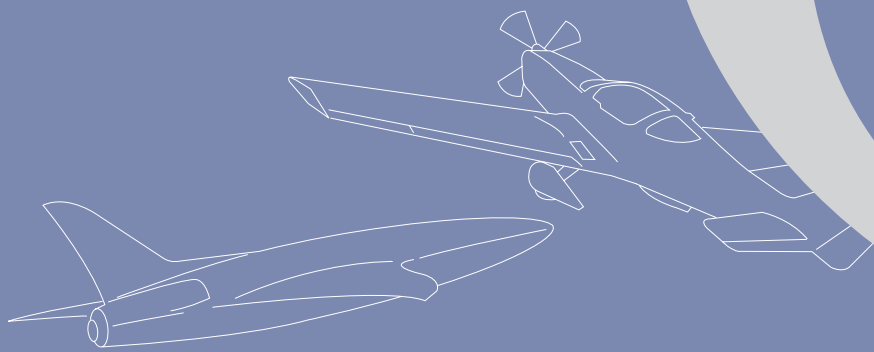
With regard to RPM measurement, it can be done using optocoupler sensors, hall effect sensors, and inductive pickups. A programmable scaling range allows multiple pickup pulses per revolution.

Using 6-point characterization curves, the EM02 can accept the widest variety of resistive, capacitive and thermo-couple sensors. Additionally, its flexible interface can be configured for thermistor or thermocouple CHT sensors.

The EM02 accepts forward and return fuel flow sensors to calculate net fuel flow. It can measure up to three different fuel quantities using capacitive probes, and automatically control fuel pumps based on one of the fuel quantities (typically a header tank). The fuel probes can optionally be connected through a shielded connector, and are diode-protected to prevent electrostatic discharges.

UAV Navigation is an ISO 9001 certified privately owned company, that specializes in the design of flight control systems for unmanned and manned aircraft.





EM02 - Technical specifications:

SENSORS

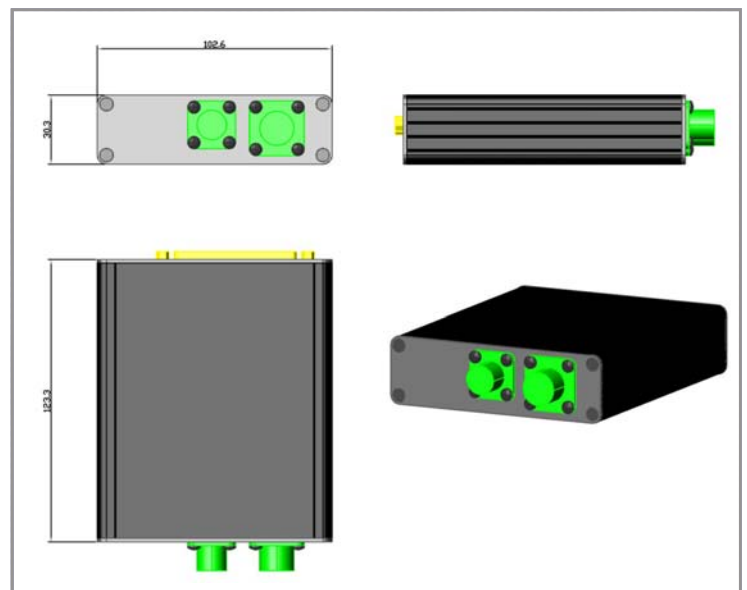
RPM Sensor	Optocoupler, hall or inductive
RPM Range	250 to 50,000 RPM
RPM Resolution	1% (up to 14,000) 2% (up to 25,000) <5% (up to 50,000)
Manifold pressure sensor	Proprietary (up to 30 psi)
Oil pressure sensor	Resistive
Oil temperature sensor	Resistive
Water temperature sensor	Resistive
Fuel pressure sensor	Resistive
Fuel flow sensors (2)	Optocoupler or hall effect
CHT sensors (4)	Thermistor or thermocouple
EGT sensors (4)	Thermocouple
Fuel quantity sensors (3)	Capacitive
Carburetor temp. sensor	Resistive
Engine total time counter	0 to 1M hours

RANGES

Thermocouple sensitivity	8 uV
Resistive sensor ranges	0 to 2.95 K Ohm
Capacitive sensor ranges	50 pF to 100 nF

COMMUNICATIONS

Baud rate	38.4 Kb/s (full duplex)
Method	RS-232
Sample rate	5 Hz



ELECTRICAL

Supply (unregulated)	9 V to 36 V
Power consumption	150 mA

MECHANICAL/ENVIRONMENTAL

Size (mm, H x W x L)	30.3 x 102.6 x 123.3
Weight	260 gr
System connector	MS3112E-8-4P
Fuel quantity probes connector	MS3112E-10-6P
Engine probes connector	DB-37 (female)
Temperature range	-40°C to + 85°C

