

**TELEMETRY SYSTEM OF THE REDBULL AIR RACE**

**UAV** *Navigation*  
Flight spirit inside

**AvMAP**  
SATELLITE NAVIGATION

ALLIANCE

**EFIS - The PFD / HSI for Experimental and Light Sport Aircraft**

The EFIS is born from the strategic alliance between UAV Navigation and AvMap. This EFIS is a complete, fully integrated, primary flight display (PFD) and horizontal situation indicator (HSI), with autopilot option.

Based on UAV Navigation's tested line of UAV autopilots, the EFIS is built around an AP04OEM core. It has the same avionics that allow the UAV's to operate in IFR, 100% of the time.

Used in the most extreme conditions, such as aerobatic air racing events, the EFIS correctly calculates attitude during extreme aerobatics at 10G+ and 270Kt - where no other MEMS based AHRS can deliver.

The PFD screen shows all necessary parameters for flight which include: attitude, airspeed, altitude, side-slip, trajectory vector, heading, and roll rate.

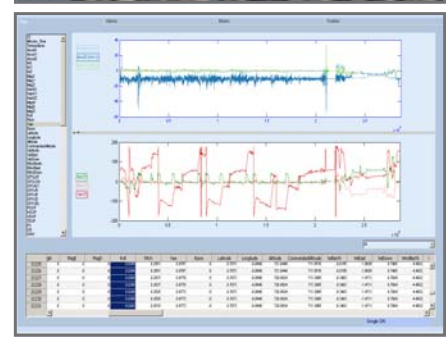
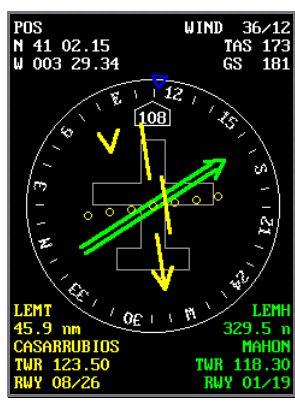
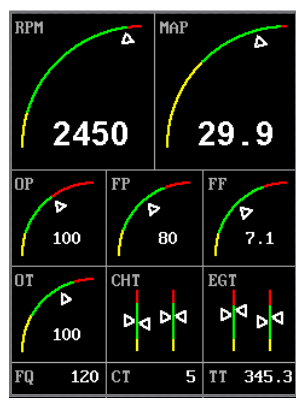
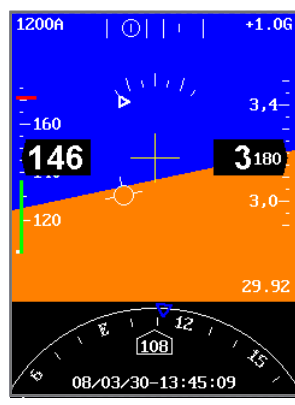
The HSI screen shows a standard two needle complete navigation solution, including a GPS based HSI, a GPS based ADF, distance to waypoints, current position, TAS, groundspeed, and wind.

Designed to control unstable aircraft, the autopilot functionality has more in common with the flight control systems of fighter aircraft than with general aviation autopilots. Advanced features such as all-attitude recovery or fly-by-wire are available, as well as fixed wing or helicopter versions of the autopilot.

To be used in any aircraft, the EFIS fits into a standard 3 1/8" instrument hole and accepts wide input supply, from 9V to 36V, while consuming just over two watts. With its internal battery, the EFIS can operate for almost two hours under complete aircraft electrical system failure.

The EFIS also doubles as a full flight dynamics data logger. All flight parameters viewed on screen are also logged for further analysis (attitude, airspeed, position, engine data, etc), which coupled with UAV Navigation's suit of flight reproduction and analysis tools, makes for a superior telemetry analysis system.

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

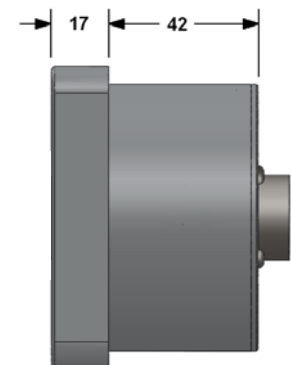
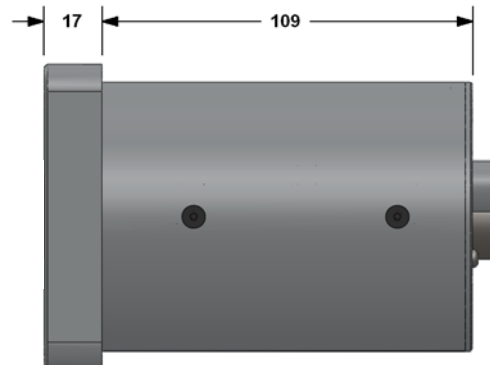
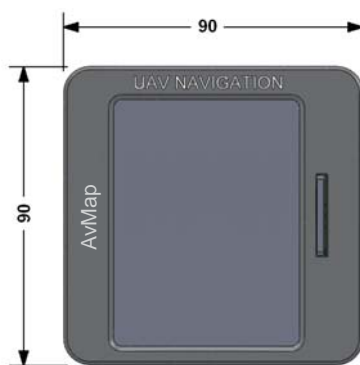


**TELEMETRY SYSTEM OF THE REDBULL AIR RACE**

**EFIS - Technical specifications:**

EFIS - Dimensions

EFIS-SG - Dimensions



**REDUNDANCY & SAFETY**

Online sensor diagnostics Yes  
Sensor failure tolerance All single, several multiple

**ADS**

Airspeed LSP 25 Kt-150 Kt  
normal 35 Kt-250 Kt  
HSP 45 Kt-450 Kt  
Altimeter 0 to 20,000 ft

**AHRS**

Accelerometer 3 axis  
Max. acceleration 10G (vertical)  
Angular rate sensors 3 axis  
Max. angular rate 300°/s  
Magnetometer 3 axis  
Magnetic attitude compensation Yes

**GPS**

Channels Differential 12  
WAAS/EGNOS Yes  
Yes

**ELECTRICAL**

Supply (unregulated) 9 V to 36 V  
Power consumption 2.5 W

**DISPLAY**

Resolution 240x320 (vertical) 3.5"  
Backlighting 400 nits+

**FUNCTIONS**

PFD Attitude, IAS, altitude, heading, turn coordinator  
HSI ADF, HSI, position, distances to waypoints, ground speed, TAS, wind  
EM RPM, manifold pressure, oil pressure, oil temperature, fuel pressure, fuel flow, CHT, EGT, fuel quantity, engine total time

**MECHANICAL/ENVIRONMENTAL**

Size (mm, H x W x L)	EFIS	90.0 x 90.0 x 126.0
	EFIS-SG	90.0 x 90.0 x 59.0
Mounting		3 1/8" std instrument hole
Weight	EFIS	450 gr
	EFIS-SG	240 gr
System connector		MS3112E-16-26P
Pressure connectors		1/8 NPT
GPS RF connector		SMA female
Temperature range		-40°C to +85°C
Mounting screws		four 8/32

