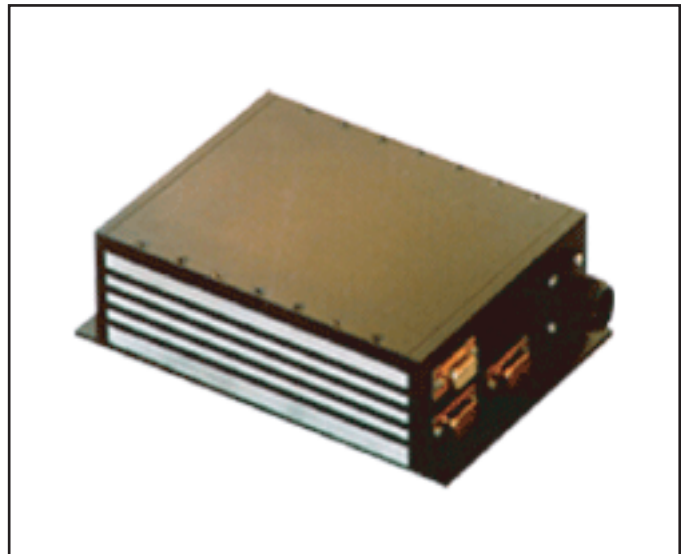


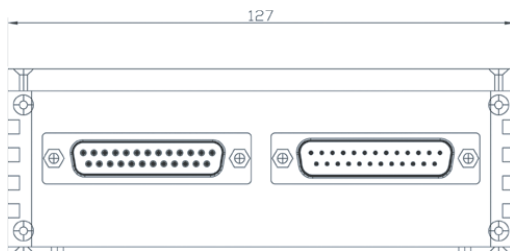
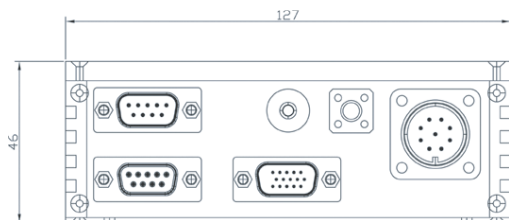
AP-5000 FLIGHT CONTROL SYSTEM

- Low-cost stability augmentation.
- Solid-state MEMS sensors.
- 3-Axis control of Pitch and Roll.
- Low power consumption.
- Lightweight – available in card-only format or housing.
- GPS Interface for navigation.



The AP-5000 Flight Control System is a low cost flight control system incorporating navigation and stability control.

- Integrated unit with sensors.
- External handheld GPS receiver connectivity.
- Low power 0.6 W.
- Controls ailerons, elevator, throttle and rudder during flight.
- All sensors electronically trimmed.
- Yaw gyro, altitude sensor and GPS.
- UAV, RPV and PIC modes.
- 14 waypoints.
- Holding pattern over 4 hours.



Pin	Function	Pin	Function
1	Unused	2	Receive data
3	Unused	4	Unused
5	Ground	6	Unused
7	Unused	8	Unused
9	Unused		

Architecture:

The AP-5000 flight control system utilizes separate controllers for flight stability and navigation. Servos are updated at the standard 19ms frame rate. The controllers become transparent in PIC mode.

Sensors:

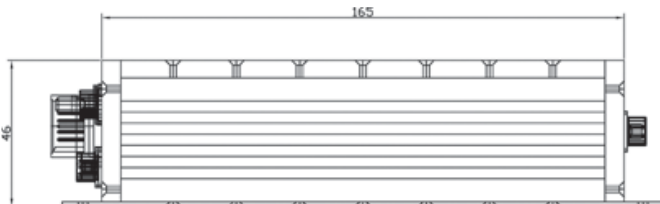
One rate gyro and an altitude sensor are mounted on the board attached to the main electronics unit. Position is obtained from GPS receiver.

Mounting:

The Flight Control System must be mounted in a specific orientation. It can be mounted directly to the frame of the aircraft.

Pin	Function	Pin	Function
1	Vcc (bottom, left)	2	Signal (top ,left)
3	Vcc (receiver)	4	Ground
5	Vcc	6	Signal
7	Vcc	8	Ground
9	Vcc	10	Signal
11	Vcc	12	Ground
13	Vcc	14	Signal
15	Vcc	16	Ground
17	Vcc	18	Signal
19	Vcc	20	Ground
21	Vcc	22	Signal
23	Vcc	24	Ground
25	Vcc	26	Signal
27	Vcc	28	Ground
29	Vcc	30	Signal
31	Vcc	32	Ground
33	Vcc (battery , 8 -12V)	34	Ground

Specifications	
Weight	122 grams
Size	11.3cm L x 5.7cm W x 3.5cm H
Power	9 to 12 Volts DC at 250mA
Temperature	-20 C to 70 C
Acceleration	4 G operational, 100 G damage
Max speed	250 km/hour
Max altitude	5000 meters above ground level



GPS Connector:

The GPS receiver connector is a DB-9 connector by which a hand held GPS receiver can be connected serially.

CON1 Connector:

The CON1 connector is a 34 pin connector used to connect receiver, servos and power supplies.

UAV and PIC modes:

The Flight Control System has three modes of operation. The first is Pilot In Command (PIC) or RC mode. The RC mode allows the pilot direct RC control of the Ailerons, Elevator, and Throttle and Rudder servos. This mode is always available by switching off the auto-pilot. The RPV (Remotely Piloted Vehicle) mode allows the pilot to calibrate gains and sensitivity, on-the-fly, of the stability and control computer as well as gain response for the GPS steering mode. The UAV mode allows the plane to operate autonomously using rudders or ailerons coupled to GPS steering commands from the navigation computer while height and stability are controlled by the stability and control computer.

Operator Interface:

All parameters and diagnostics are available via Rs-232 connection to the main controllers. Use the Rs-232 serial cable to connect your PC running HyperTerminal (4800 baud rate).