FC500 Flight Control

Model: FC500

Product description :

Tri-redundancy ,High reliability.

The FC500 series (high precision), flight control and navigation system, is designed for small size and medium size conventional fixed- wing, vertical take- off and landing fixed- wing, tilt- rotor aircrafts. It is, with internal integrated flight control computer and tri- redundancy micro- integrated navigation systems (GPS/ MINS), capable for meeting the functions of one- key action to enable automatic take- off, landing, hovering, circling, returning, altitude holding, open a parachute landing and various forms of autonomous cruise function according to the required route. It provides a comprehensive flight status monitoring, alarm function and also emergency protection mechanism, if it is necessary to ensure the safe operation of the system .

Features:

Support 4 forms of UAVs (including conventional tail, V- tail, and flying wings) electric and oil- powered composite (vertical take- off and landing fixed- wing), conventional fixed- wing, tilt- rotor and multi- rotor;

The internal integrated with tri- redundance inertia device, the main redundancy is ADI high- quality gyro and accelerometer, and can switch the standby redundancy in real time according to the working state or mode, with the advantages of high measurement accuracy and high reliability;

Support external differential GPS (RTK, PPK, Dual antenna directional functions are optional), and the external differential GPS is redundant with internal single- point GPS module, and the system will automatically select the better one;

Support automatic ignition function after the UAV drived by oil take- off;

Support external compass, which is convenient for users to select the area with less magnetic interference to improve the heading measurement accuracy;

The S5 series flight control system works normally in the range of - 40 ℃ to 85℃ ;

The perfect emergency protection mechanism can protect against low voltage, low oil quantity, low speed, abnormal posture, high altitude, low GPS position accuracy, navigation system failure, exceeding of safety and control radius ranges, remote control failure, etc.

It can preset 100 landing points, automatically land nearby according to the emergency requirements;

Provide 8 user routes, each route can add 800 waypoints; automatically generate hovering

route, hovering center, hovering radius, and number of hovering circles can be set;

Provide photo (shutter control) functionin the flight segment, timing/fixed- distance setting;

Supports typical photoelectric pods, open platform, and three- axis platform control for special rotation and control of surveying and mapping;

The flight information and mission information are recorded and downloaded separately. The flight information recording time is up to 9 hours, and the mission information record can reach 10,000 infromation packs;

The ground monitoring and control software support online map and irregular multi- measurement automatic mapping route planning, and support automatic planning of oil, electric and other patrol routes, which can alert users to complete pre- flight inspection.

External dimension:
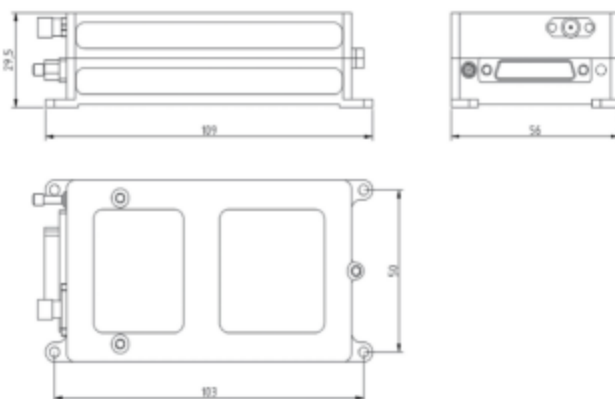
FC500: Vertical take-off and landing fixed-wing flight control and navigation system

FC510: Tilt-rotor flight control and navigation system

FC550: Conventional fixed-wing （hand throwing，ejection， parachute landing, sprinting take-off and landing ） flight control and navigation system

Performance index:

Parameter	index
Attitude precision	0.35°
Heading precision	2°
Position accuracy	2.5m
Angular velocity measurement range	±450° /s
Acceleration measurement range	±6g
Height measuring range	-500m ～ 10000m
The range of voltage monitoring	0 ～ 52V
Servo updating frequency	50Hz
Engine speed monitoring range	0 ～ 20000RPM
Communication interface	RS- 232C

Voltage monitoring	2 channels
Engine speed monitoring range	2 channels
PWM control range	9 channels
Digital output range	3 channels（PWM programmable）
Expansion serial port	3 channels（connect RTK, mission payload, etc.）
Sbus input range	1 channel
Number of routes	8 routes（800 waypoints on each route）
Built-in data logger	9 hours
Photographing point	10000 points
Emergency landing point	100 points
Electrical parameters	
Power supply voltage	DC4.5- 9.0V
Power consumption	＜ 3W
Physical parameters	
Weight	≤130 g
Dimensions（mm）	109*56*29.5
Environment parameters	
Working temperature	-40℃～ 85℃
Storage temperature	-40℃～ 85℃