Aero-Tec Autoflight - Autopilot module Aero-Tec

The **Autoflight** module is a full featured autopilot which can be ordered with all airframes offered by Aero-Tec.

Control Modes
Using **Autoflight** you can operate the helicopter in three different control modes:
UAV : The helicopter is following a mission flight plan. Override mission execution at any time.
The helicopter will operate completely autonomously, even if the data link is lost.
RCV : Remotely command the fully stabilized helicopter using the ground control station controller
MPV: Use a remote control to override the autopilot and pilot the helicopter manually

UAV mode operation:
- Autonomous mission execution
- Manual mission override and flight pattern execution
- „Fly by camera“: UAV will follow the camera view
- „Go here“ : UAV goes to a clicked point on the map
- „Look here“ : camera will look to the clicked point

Payload integration
The **Autoflight** module allows for direct integration of payloads so they can be controlled and monitored using the Ground Control Station (GCS). Additionally the autopilot can stabilize the payload using its own orientation sensors and control loops.

Safety Features
The autopilot permanently checks system health and will flag an error if any unusual event is encountered. Depending on the kind of error the autopilot will then enter a predefined pattern to recover, return to base or take emergency action such as activating recovery equipment.

Ground Control
The GCS allows the user to access critical information in real-time. Up to 24 user-defined sensors can be configured and displayed.

The user can configure payload buttons, sliders or joysticks to initiate flight patterns or control payloads.

- Point and click waypoint editor / mission planner
- Mission simulator for testing and training purposes
- User definable units (Imperial / Metric)
- Remote Piloting mode overrides navigation for flexible reconnaissance
- User friendly ergonomic layout
- Large map area

The combination of integrated mission simulator and user-friendly design will accelerate the learning curve for the UAV controller and simplify UAV application.

Autopilot specifications

Navigation
- Autonomous takeoff and landing
- Autonomous mission execution
- In-Flight waypoint modification
- Move servos or trigger digital outputs at waypoint
- Change altitude at waypoint
- Change airspeed at waypoint
- Engage user definable flight patterns

Payload control
- Feedback loops and table lookups for easy payload integration and control
- Payload servos can be controlled from ground station

Safety
- User definable error handlers
- Various failsafe actions
- Failsafe watchdog timer

Technical Data
Embedded redundant long-range data communication link, frequency-hopping, spread-spectrum 2.4 Ghz, 900 Mhz (other frequencies optional, various ranges)

Buffer for 1000 waypoints
8 high current, GCS controlled outputs
8 analog sensor inputs

Telemetry and Datalog
Up to 16 ADC channels to monitor systems health
100 telemetry fields per second
5 or 30 Hz data logging
Video overlay of up to 16 user definable fields

System control
11 bit servo resolution
4 Hz GPS update rate, supports DGPS accuracy
200 Hz state-update rate
12 state Kalman filter
Separate servo and main battery power supply with separate voltage monitors
weight 330 g
L180 x W76 X H50mm

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