

Stratos Pilot

Overview

The *Stratos Pilot* is a guidance & control system designed for remotely controlled, autonomous aircraft, land craft and seagoing craft. *Stratos Pilot* delivers the state vector of the vehicle and computes the 6 degrees of freedom control laws for a particular application. Up to 10 actuators can be controlled by the system.

Stratos Pilot can be used stand alone or as part of the Stratos framework, comprising Stratos Communication, a multi bearer telemetry module and an aircraft mission station, AMS Oden.

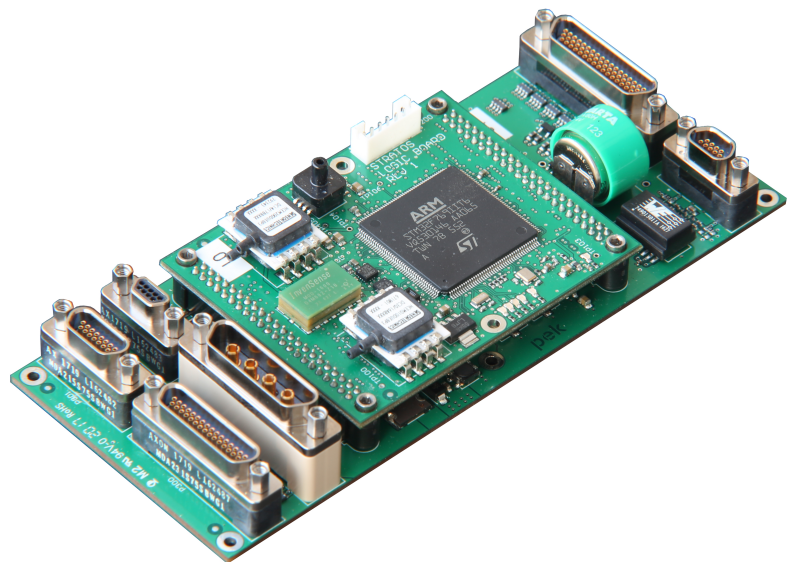
Oden provides a user interface to Stratos Pilot and its mission and can be integrated into any proprietary ground station.

The system provides an in-vehicle interface to a IEEE802 switched network as well as serial interfaces; SPI, UART, I²C, RS485 and CAN. These interfaces allow integration of a vast amount of external sensors, appliances and payload.

Stratos Pilot has been designed with commercial off-the-shelf components and state of the art theory to provide a high fidelity guidance & control system at low cost. The oblong form factor fits a narrow fuselage.

Features

- AHRS/IMU (eXogenous Kalman filter)
- Great Circle navigation
- Up to 10 PWM control signals
- Built in PWM switch (remotely actuated switch between manual pilot and autopilot)
- Built-in power supply for servos
- Flight log ("black box")
- Payload integration
- SW architecture that allows for easy customer application integration
- Data communication and vehicle control via multi-bearer telemetry
- Aerospace grade, high density connectors



Hardware

- Embedded micro controller unit
 - ARM 32-bit Cortex
 - Double precision FPU
- Inertial measurement unit, IMU
 - 3 MEMS 16-bit accelerometer $\pm 16g$
 - 3 MEMS 16-bit angular rate sensors ± 2000 deg/sec
- Piezoresistive transducer pressure sensors
 - Static 15 to 115 kPa
 - Differential 0 to 3.92 kPa (up to 650 km/h)
- Magnetometer
 - 3 magnetic field channels
 - 2/4/8/12 gauss magnetic full scale
 - 16-bit data output

Interfaces

- Hardware
 - Power +8 to +40 V (on-board, auto charged backup battery)
 - Fast Ethernet (IEEE 802.3u)
 - 16 output and 8 input standard PWM channels
 - User I/O; SPI, UART, I²C, RS485, CAN
- Software
 - Interface to user defined SW applications
- Stratos Communication
 - Radio (e.g. IEEE 802.11)
 - Satellite
 - Cellular data 3G/4G/LTE