N200: VIO Visual Navigation Module

Technical Specifications

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1. Overview

The N200 VIO Visual Navigation Module is an integrated solution designed for drone environmental perception and positioning needs. It comprises an AI main board, USB camera, and laser rangefinder. The module's core functionality fuses visual, laser, and IMU data from the flight controller to provide drones with real-time, precise positioning navigation, environmental awareness, and assisted obstacle avoidance capabilities. This addresses the limitations of traditional GPS-dependent drones, such as scenarios with GPS interference or weak signals.

Core components and key features include:

(1) AI Main board (Core Computing Unit)

Equipped with a high-performance computing main controller, it processes visual data from the USB camera and inertial data from the flight controller's IMU (Inertial Measurement Unit). Through algorithms, it enables real-time attitude calculation and position localization for the drone.

(2) High-Definition Camera (Visual Perception Unit)

Provides high-resolution visual input, capturing environmental imagery to furnish the algorithm with foundational image data for feature point extraction and motion estimation.

(3) Laser Rangefinder (Auxiliary Perception Unit)

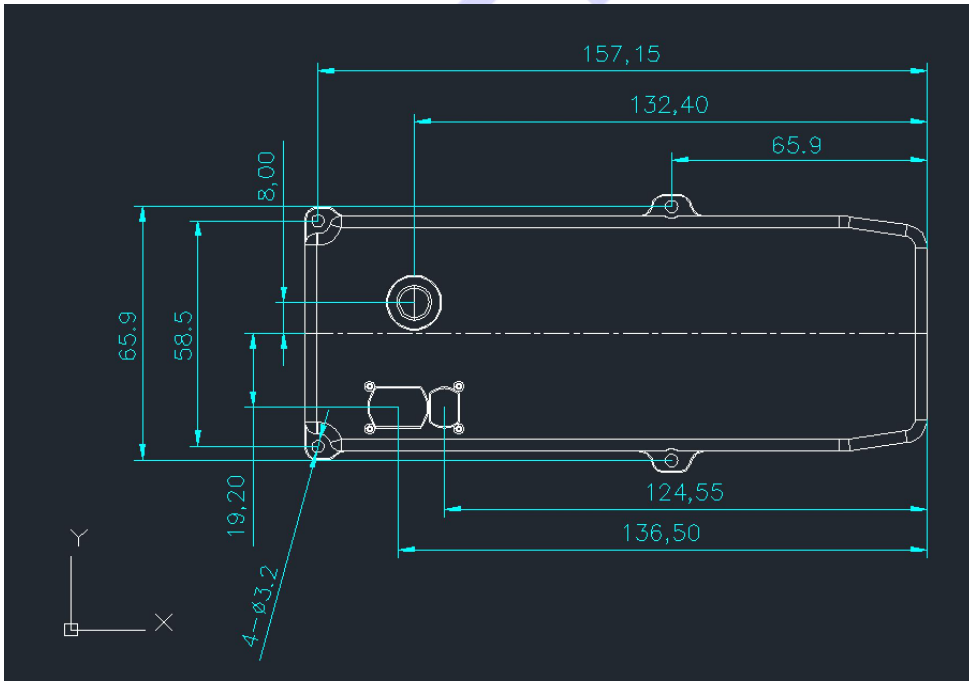
Assists the drone in achieving precise altitude measurement, obstacle distance detection, and terrain following, compensating for the limitations of visual systems in low-light or texture less environments.

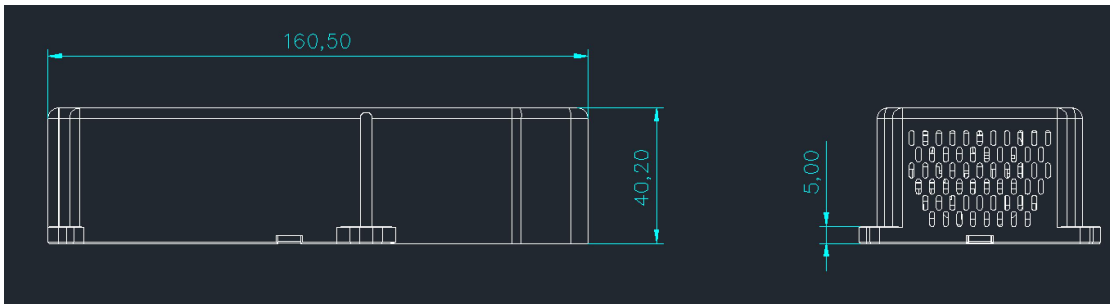
2.Product List

N200 VIO Module*1 Power and Communication Cable*1

3.Product Dimensions and Interfaces

Product Dimensions (L×W×H):
160.5mmx65.9mmx40.2mm





Pin	Signal
P1	VCC 12V
P2	VCC 12V
P3	GND
P4	GND
P5	RX
P6	TX
P7	GND

4.Features and Functions

- **Ignore to GPS jamming：**
  - Fuses visual/IMU data for GPS-denied waypoint navigation
  - Executes pre-mapped routes under active EM interference

- **Precise Navigation：**
  - Navigation accuracy: 2% ~ 8%
  - Optimized for dynamic scenes, this visual sensor eliminates motion blur caused by high-speed movement to achieve precise positioning.

- **Easy to deploy：**
  - Operates without dependency on pre-existing geospatial data
  - Adheres to MAVLink Standard Protocol
  - No development required—just simple configuration

- **Compatibility：**
  - Compatible with a variety of drone models
  - Supports PX4 and APM flight controllers（more platforms coming)

5.Technical Specifications

Category	Parameter	Specification
General Performance	Maximum Flight Altitude	200m
	Maximum Flight Speed	20m/s
	Navigation Accuracy	2%-8%
	Output Frequency	30Hz
	Supported Flight Controllers	PX4 / APM (to be launched soon)
	Applicable Environment	Suitable for most scenarios (night scenarios not supported yet, to be available soon)
	Output Protocol	MAVLink
Electrical Performance	Input Voltage	12 V
	Communication Interface	UART TTL 3.3V
	Power Consumption	7W
Dimensions and Weight	Dimensions (L×W×H)	160.5mm × 65.9mm × 40.2mm
	Weight	280g