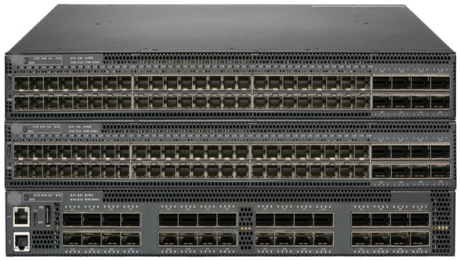
How to install an optical flow positioning module



Article Overview

Installing an optical flow positioning module involves mounting the sensor, connecting it to the flight controller, flashing compatible firmware, and configuring software parameters for accurate position and velocity tracking.

Hardware Installation

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Mount the Sensor: Attach the optical flow module (e.g., PX4Flow, LiteWing PMW3901MB, Here Flow) to the bottom of the drone, ensuring the camera faces downward and has a clear, unobstructed view of the ground . Use 3M adhesive or vibration-isolating mounts if recommended. Ensure sufficient clearance from the ground using landing gear to avoid interference during takeoff .

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Connect to Flight Controller: Depending on the module, connect via UART, I2C, MAVLink, or CAN bus. For example, Here Flow uses a 4-pin CAN cable, while PX4Flow can connect via micro USB or UART . Ensure the sensor receives power either from the USB connection or the drone battery .

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Optional Rangefinder: For accurate altitude measurements, pair the optical flow sensor with a LiDAR or sonar rangefinder (e.g., LightWare SF10b, SF11B) as many optical flow modules do not reliably measure height alone ....

Article Content

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Hovering with Optical Flow

Hovering with Optical Flow In order for the drone to be capable of autonomous flight it needs some reference or estimate of it''s

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Optical Flow Sensor Testing and Setup — Copter documentation

An alternative method which avoids the need to land and change EKF3 parameters between calibration and testing is to setup

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PX4FLOW Optical Flow Camera Board — Copter documentation

This article describes how to setup the PX4FLOW (Optical Flow) Sensor which can be used for Non-GPS navigation. The PX4FLOW

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PMW3901-Based Flow Sensors | PX4 Guide (main)

Flow modules are typically mounted near the centre of the vehicle. If mounted off-centre you will need to set offsets: Optical Flow >

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Detailed step by step installation guide — OpFlowLab 0.1.0

Detailed step by step installation guide ¶ Setting up OpFlowLab for optical flow calculations (Windows) ¶ Step 0: Presystem checks ¶

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Optical Flow Sensors (landingpage) — Copter documentation

Optical Flow Sensors (landingpage) Copter, Plane and Rover support Optical Flow Sensors. These are camera modules that use

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Ardupilot optical flow code analysis

This section mainly learns the Ardupilot optical flow part of the code. Since the drone cannot perform GPS positioning indoors, the

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DIY Indoor Optical Flow Drone | A Comprehensive Guide

Learn how to make your own indoor optical flow drone, capable of indoor position locks without GPS. You won''t

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ARK Flow Open Source Optical Flow and Distance Sensor

ARK Flow Open Source Optical Flow and Distance Sensor The ARK Flow Open Source Optical Flow and Distance Sensor is an

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CubePilot HereFlow Optical Flow Sensor — Copter documentation

CubePilot HereFlow Optical Flow Sensor The HereFlow optical flow sensor is a lightweight optical flow sensor including a short

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Revolutionizing Drone Navigation: Understanding Optical Flow ...

Optical Flow Positioning Technology, on the other hand, can operate independently of GPS signals and provide accurate navigation

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PMW3901 Optical Flow Sensor with ESP32 – Position Hold for Drones

The PMW3901 is an optical flow sensor often used in drones and robotics to detect motion relative to the ground. It

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Here Flow

Here Flow is a finger size optical flow sensor. Compared with other optical flow sensors, it is even smaller. It can be

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Optical Flow Sensors

Exploring the capabilities of optical flow sensors by transforming a old optical mouse into a handheld motion tracking device.

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Optical Flow | PX4 Guide (main)

An Optical Flow setup requires a downward facing camera and a downward facing distance sensor (preferably a LiDAR). These can

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UP-FLOW-302-CJ Optical Flow Module UP 302 CJ Long Range

Long-range optical flow positioning up to 150m The UP-FLOW-302-CJ module supports precise positioning and hovering within a

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Design of Image Based Optical Flow Tracking and Positioning

The visual positioning method proposed by Qi Naixin et al. utilizes multi-scale and multi region extraction of ORB

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Testing of MTF-01 OPTICAL FLOW & LIDAR SENSOR on 2-Inch

The high-power laser ensures accurate height information even when flying outdoors, improving the accuracy of

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Optical Flow Sensors for Drones: Indoor Positioning Guide

How optical flow sensors let drones hold position without GPS. Covers PMW3901 setup with ArduPilot, ToF

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Interfacing PMW3901 Optical Flow Sensor With ESP32

Learn how the PMW3901 optical flow sensor tracks motion without GPS. Explore its features, specifications, and how to interface it

Dec 14, 2025

LiteWing PMW3901MB Optical Flow Sensor Guide

Since cflib has a few prerequisites that must be met, refer to the LiteWing Python SDK Programming Guide. That

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