Introduction

The TOFSense F2 is a high-performance, mid-range laser distance sensor based on dTOF (Direct Time-of-Flight) technology, **offering precise measurements up to 25m (±3cm) at a rapid 100Hz refresh rate**. Compatible with Raspberry Pi, Arduino, and ESP32 via UART/I2C interfaces, it seamlessly integrates into industrial automation, drones, AGVs, and smart traffic systems. Engineered for robustness, its 100K LUX ambient light resistance ensures reliable operation in outdoor and high-interference environments, while multi-interface support (UART/I2C/GPIO) enables flexible integration with microcontrollers, PLCs, and sensor fusion setups.

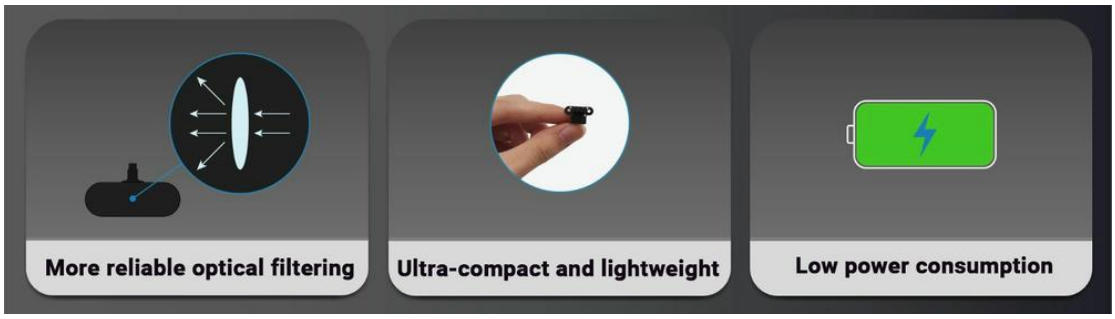

Figure: Features of ToF laser ranging sensor

25m Mid-Range Detection with ±3cm Accuracy

The TOFSense F2 provides high-precision distance measurements up to 25m, making it ideal for industrial automation (e.g., conveyor belt tracking, bin level monitoring) and robotic navigation (e.g., AGV obstacle avoidance). With ±3cm accuracy and 1mm resolution, it ensures reliable data for positioning, object counting, and smart traffic systems.

100Hz High-Speed Data for Real-Time Control

With a 100Hz refresh rate, the F2 delivers instantaneous distance updates, critical for fast-moving applications like drone stabilization, dynamic robot path planning, and vehicle speed detection. Unlike slower 50Hz sensors, it minimizes latency in time-sensitive operations.

100K LUX Ambient Light Resistance

Engineered for outdoor and industrial environments, the F2 maintains stable performance under direct sunlight (100K LUX) and artificial lighting. This makes it

suitable for smart traffic monitoring, outdoor drones, and construction site automation where lighting conditions vary.

Multi-Interface Support (UART / I2C / I/O)

The F2 supports UART, I2C, and I/O interfaces, offering flexible connectivity for microcontrollers, PLCs, and custom hardware. The I/O trigger function allows synchronization with cameras or other sensors, making it ideal for multi-sensor fusion systems.

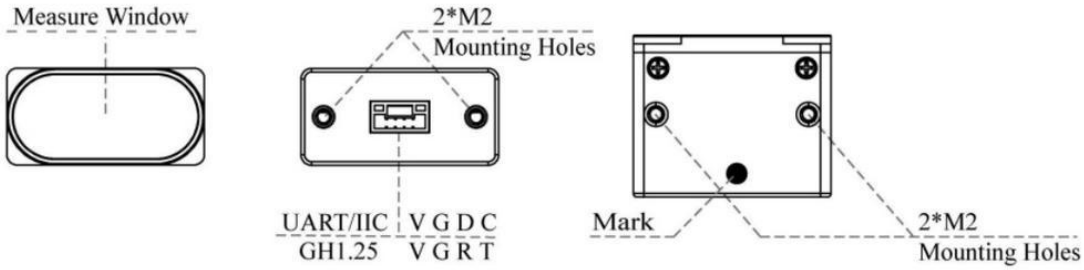

Figure: Dimensions of ToF laser ranging sensor

Applications

AGV & Robot Navigation

Warehouse Automation & Inventory Tracking

Drone Altitude Stabilization

Smart Traffic & Parking Systems

Specification

Refresh Rate: 100 Hz

Ranging Range: 0.05–25 m

Ranging Accuracy: ±3 cm

Wavelength: 905 nm

Ambient Light Resistance: Up to 100,000 lux

Field of View (FOV): 1–2°

Power Supply: 4.3–5.2 V DC

Power Consumption: 250 mW (typical)

Communication Interface: UART / I2C / GPIO

I2C Default Address: 0x80

Operating Temperature: -10°C to +60°C

Dimensions (L×W×H): 22.7 × 28.0 × 13.6 mm

Weight: 7.5 g

Documents

Product wiki

Dimensions

Tutorial

FAQ

Shipping List

ToF laser ranging sensor-25m x1

Wiring x2