

How the Pro 3 Works

Description

Introduction

First: the camera takes a still photograph

Second: the unit starts to rotate one quarter turn.

The LiDAR unit mirror spins as the laser measurements are taken.

This is repeated four times.

It takes c.18 seconds to complete the four quadrants which comprise one full rotation.

LiDAR on the Matterport Pro3 – An Accessible Overview

The Matterport Pro3 uses LiDAR, which stands for Light Detection and Ranging. In simple terms, LiDAR measures spaces by sending out tiny pulses of laser light and timing how long they take to bounce back. From this, the camera calculates precise distances and builds an accurate 3D map of the environment.

Unlike systems that rely mainly on photographs, LiDAR measures space directly. This makes the Pro3 extremely reliable in a wide range of conditions, both indoors and outdoors.

How LiDAR Works in the Pro3

Laser Emission

The Pro3 fires millions of very small laser pulses every second. These are invisible to the human eye and are typically in the infrared range.

Time-of-Flight Measurement

A rotating mirror directs the laser pulses around the room. Each pulse travels out, hits a surface such as a wall, floor, ceiling, or object, and reflects back to the sensor.

Distance Calculation

Because the speed of light is known, the camera can calculate the exact distance to each surface by measuring how long each pulse takes to return.

Point Cloud Creation

Each returning pulse becomes a single 3D data point. Millions of these points combine to form a dense point cloud, which is a precise digital map of the space's geometry.

This point cloud is the foundation of the Matterport digital twin.

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