

# Revolutionizing Material Monitoring

emsProductFocus25-ALTOSVolumes

## Revolutionizing Material Monitoring – Accurate Volumes, No More Guessing

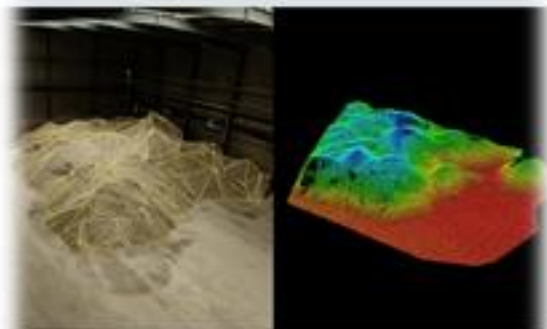
Managing stockpiles (especially high-value ones like gold spoils) means constant questions: How many cubic meters are really there? How much came in? How long will it last? What's the daily burn rate? Guesses, infrequent drone shots, or manual measurements lead to costly errors, over/under-ordering, and lost visibility.



### The Problems:

- Inaccurate volume estimates: Heaps are irregular – eyeballing or basic tools miss the mark.
- No real-time tracking: Deliveries, usage, and losses go unnoticed until it's too late.
- Limited data: Can't reliably see daily/average consumption or spot theft/spoilage early.
- Harsh conditions: Dust, night shifts, weather make traditional methods unreliable.

**EMS + Opsys ALTOSVolumes – The Smart, Automated Fix** Opsys LiDAR sensors + ALTOSVolumes analytics deliver precise, 24/7 3D monitoring of material heaps – fully autonomous, no drones, no operators, just reliable data.



### How It Works (Fast, Hands-Free & Precise):

- **Lightning-fast LiDAR scanning:** 1000 scans/second across the full field of view – builds detailed point clouds that see every contour clearly, even in dust, darkness, or fog.
- **3D Zone Creation:** Define virtual monitoring zones over the heap via simple PC interface – set it once, forget it.
- **Automated 24/7 Control:** Self-diagnosing system runs non-stop – no supervision needed.
- **Unaided Decisions:** FlashEye-style analytics onboard compare against baseline and decide actions instantly.
- **POE Connectivity:** Simple network power – easy install and integration.
- **Output Flexibility:** MQTT or ONVIF-M to Milestone, SCADA, or dashboards – alarms and data flow where you need them.

## Key Features That Give You Total Control:

- **Real-Time Volume Calculation:** Measures heap in m<sup>3</sup> accurately – know exact stock levels anytime.
- **Max/Min Level Detection:** Tracks additions (deliveries) and losses (usage/theft) – instant alerts on changes.
- **Object Detection:** Spots humans, vehicles, or intrusions in the zone – adds safety and security.
- **Easy Configuration:** LiDAR view interface for setting zones, thresholds, and alerts – user-friendly.
- **Alarm Integration:** Notifications to PC systems or external interfaces – trigger responses fast.
- **All-Conditions Adaptability:** Handles Day/night, dust-laden air, rain – no performance drop.

## Why ALTOSVolumes Wins Big:

- **Zero guesswork:** Precise, real-time m<sup>3</sup> data answers every question – delivered vs. used, remaining stock, daily/average usage.
- **Preventative insights:** Catch discrepancies early – reduce spoilage, theft, or overstock risks.
- **Efficiency boost:** Better planning, optimized deliveries, fewer surprises.
- **Safer sites:** Object detection protects people and equipment around valuable piles.
- **Tough & reliable:** Opsys LiDAR's high SNR and long-range POD thrive in mining environments.

Stop estimating and start knowing – get accurate, always-on material monitoring that drives smarter decisions and cuts waste.

Ready to eliminate guesswork and gain full visibility over your stockpiles?

**Opsys Technologies**

**ALTOS - Opsys Industrial LiDAR Sensor**

Opsys Industrial LiDAR Sensor is a pure solid-state LiDAR without any moving parts based on fully addressable 32 VCSELs and a single single SPAD detector. Opsys patented Scanning Technology allows very fast point-to-point scanning without any degradation across the entire field of view (FOV). The FOV and angular resolution of the sensor are defined by the optics only. This modular approach makes the system very scalable and cost-efficient. It can be supplied with different FOVs and angular resolutions to match each use case.

**Technical Data**

|                                                                                                                                                                                                                                                                                                          | AL100-300                                                                                                                                                                                                          | AL100-500    | AL100-700    |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------------|
| Field of View (FOV) mrad                                                                                                                                                                                                                                                                                 | 90° x 90°                                                                                                                                                                                                          | 90° x 90°    | 90° x 90°    |
| Range (up to) m                                                                                                                                                                                                                                                                                          | 300m                                                                                                                                                                                                               | 500m         | 700m         |
| Range (up to) m                                                                                                                                                                                                                                                                                          | 300m                                                                                                                                                                                                               | 500m         | 700m         |
| Maximum observable range                                                                                                                                                                                                                                                                                 | 300m                                                                                                                                                                                                               | 500m         | 700m         |
| Minimum range                                                                                                                                                                                                                                                                                            | 0.5m                                                                                                                                                                                                               | 0.5m         | 0.5m         |
| Range measurement accuracy                                                                                                                                                                                                                                                                               | ±1.5m - ±10m                                                                                                                                                                                                       | ±1.5m - ±10m | ±1.5m - ±10m |
| Range measurement precision                                                                                                                                                                                                                                                                              | ±10 cm                                                                                                                                                                                                             | ±10 cm       | ±10 cm       |
| Angular resolution (horizontal & vertical)                                                                                                                                                                                                                                                               | 0.2° x 0.2°                                                                                                                                                                                                        | 0.2° x 0.2°  | 0.2° x 0.2°  |
| Number of measurement points                                                                                                                                                                                                                                                                             | 1                                                                                                                                                                                                                  | 1            | 1            |
| Frame rate                                                                                                                                                                                                                                                                                               | up to 1000                                                                                                                                                                                                         | up to 1000   | up to 1000   |
| Points per second (pps) (max)                                                                                                                                                                                                                                                                            | 500,000 pps                                                                                                                                                                                                        | 500,000 pps  | 500,000 pps  |
| <b>Operational Conditions</b>                                                                                                                                                                                                                                                                            | <p>Voltage supply: Typ. 12V, Max. 24V</p> <p>Power consumption: Typ. 0.5W, Max. 0.8W</p> <p>Operating temperature: -20°C ... +60°C</p> <p>Storage temperature: -20°C ... +60°C</p> <p>Ingress protection: IP65</p> |              |              |
| <b>Interface</b>                                                                                                                                                                                                                                                                                         | <p>USB connection: Ethernet, 100Base-T</p> <p>Expansion type: Industrial, 19" rack-mountable</p>                                                                                                                   |              |              |
| <b>Output</b>                                                                                                                                                                                                                                                                                            | <p>Point Cloud: 3D, 2D, 1D, 0D, 1D, 2D, 3D, 4D, 5D</p>                                                                                                                                                             |              |              |
| <p><b>Key Benefits:</b></p> <ul style="list-style-type: none"> <li>No moving parts</li> <li>Fast scanning</li> <li>High-resolution</li> <li>Infinitely scalable</li> <li>Compact</li> <li>Low power consumption</li> <li>Extremely reliable</li> <li>Cost-saving</li> <li>Semiconductor-based</li> </ul> |                                                                                                                                                                                                                    |              |              |

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AL100 - Industrial Sensor

**Contact EMS today to learn more about Opsys ALTOSVolumes – and bring precise, automated volume monitoring to your operation.**

Accuracy unlocked. Guesswork gone. Decisions confident.