



Maximising Profits & Payloads

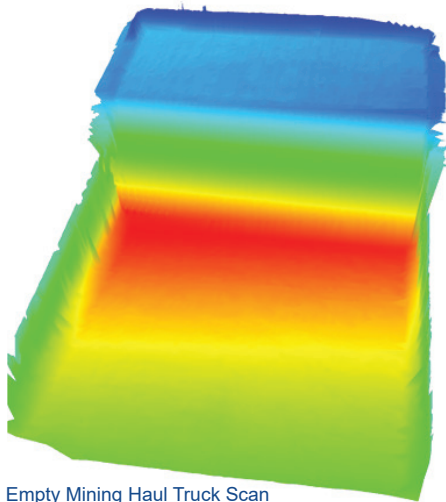
Realtime Volumetric Scanning System for Mine Haul Trucks

TVS is a non-contact volumetric measurement scanning system designed to measure loads of bulk loose solids in mining trucks.

The TVS software has been developed specifically to allow direct acquisition of data from the integrated Laser scan head allowing for realtime monitoring of payloads.

System Description

Trucks are 'scanned' by driving slowly below an elevated Scan Head. This is essentially a mounting platform for two scanning laser range-finders, which are referred to as laser scanners. When a truck crosses the Scan Area below the Scan Head it falls within the field of view of these laser scanners which perform thousands of distance measurements per second



Empty Mining Haul Truck Scan

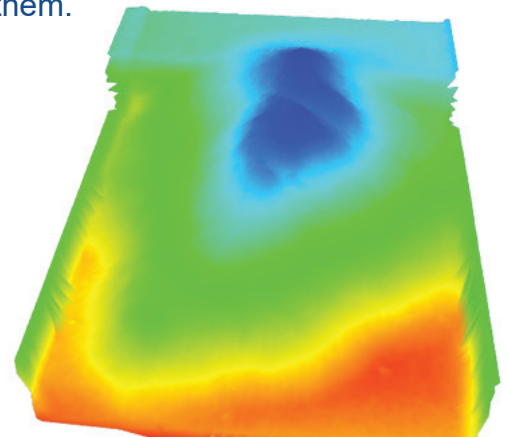
The TVS volumetric scanner processes the distance data measured by the laser scanners, as a truck passes below and constructs a composite 3D model or 'surface profile' in the software.

A vehicle is initially scanned empty and recorded into the system database as an empty vehicle profile (zero reference). Load volume is computed on subsequent scans by comparing each new loaded vehicle profile against the recorded empty profile.

This involves aligning the empty and loaded vehicle profiles spatially in software and computing a load profile from the difference between them.



Infrared scanner relays load volume data & 3D composite is constructed with measurements



Loaded Mining Haul Truck Scan

TECHNICAL DATA

Measurement	+/- 2% when used as specified
Truck Speed	0.5 - 10 km/h
Resolution	0.1 m3
Range	1 - 150 m3
Temperature	-20°C ~ 50°C
Display Type	19" Touch Screen Analog Resistive 5-wire
Protection Level	IP65 Compliant
Power Required	24VDC @ 5A (Max)

LASER SPECIFICATIONS

Type	LMS 511 Distance Measurement Sensor
Laser Class	Class 1 (Eye Safe)
Echos	Multiple Echo (5) for Dust / Rain Immunity
Protection Level	IP67 Compliant
Data Interface	Ethernet
Temperature	-30°C ~ 50°C
Scanning Range	Up to 80m, nominal 16m in truck scan

DATA INTERFACE OPTIONS

Data Interfaces	SQL Server, MODBUS (TCP)
Data Fields	Volume (m3), Speed (m/s), Length (cm), Width (cm)
3D Output	X3D Compliant, 3D model for every scan
Auto Rating	Software automatically determines the validity of scan data and rate a scan as Good / Bad
Laser Status	Laser contamination status is monitored via the Touch screen interface (Good, Contamination Warning, Contamination Error)

SOFTWARE

The auto scan processing software provides near real-time outputs to the industrial data network through a responsive design using multi-threaded technology, with calculations of production critical parameters in less than 10 seconds.

