

BULKMETER®

LASER TECHNOLOGY FOR MEASURING
VOLUME OF BULK MATERIALS LOADED
ON MOVING VEHICLE.

20 years of innovation in industrial measurement systems to
transform the processes of our clients.

WOODTECH
A RED TO GREEN COMPANY



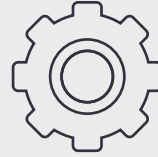
Results

High-accuracy volume,
factor and load distribution,
image records.



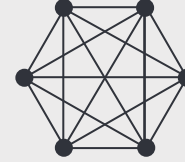
Precision

High-end lasers, more
than 100,000 samples
per measurement.



Automatic

It does not require
operator intervention.



Systematic

Objective measurements,
not dependent on the
operators.



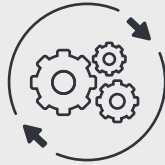
Real time

Results in under 2
minutes per
measurement.



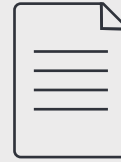
Auditable

Auditing web application.
Easy results review.



Uptime

High uptime level
(99%).



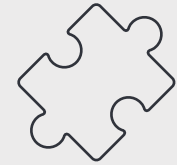
Reports

Operative and
business reports.



Easy transportation

Collapsible structure
allows transportation
on trailer.



Easy integration

Easy integration with
other systems (ERPs).

BULKMETER

Bulkmeter is an automatic system capable of obtaining high precision volume measurements of bulk materials loaded on open-top containers, which is achieved by using cutting-edge laser technology. Bulkmeter delivers a precise and reliable measurement without operator intervention. It is quick and easy to install, configure and transport.

Bulkmeter has an auditing system that allows reviewing the details and results of each measurement. It is possible to retrieve the measurement details, the laser profiles, load pictures, license plate picture, and load reports for each measurement.

The system is designed for operation in industries such as construction (aggregates), mining (metallic and non-metallic), forestry, biomass, and other bulk materials.



Why Bulkmeter?

DIRECT BENEFITS

- Inbound and outbound truck information in real time.
- Auditing records for 100% of inbound and outbound trucks.
- Accurate volume measurement of the material being transported.
- Reduction of processing time associated with manual measurements.
- Reduced number of operators involved in the measurement and supervision process.

INDIRECT BENEFITS

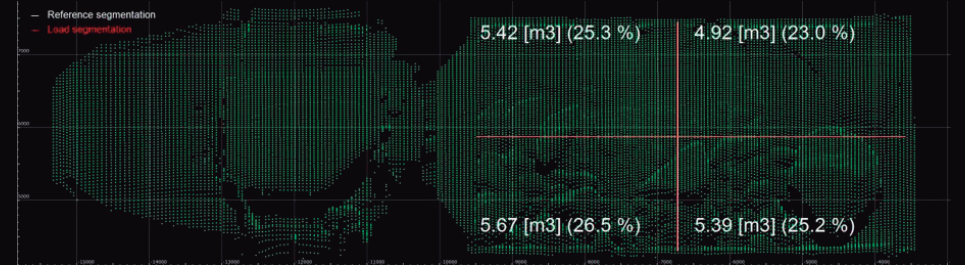
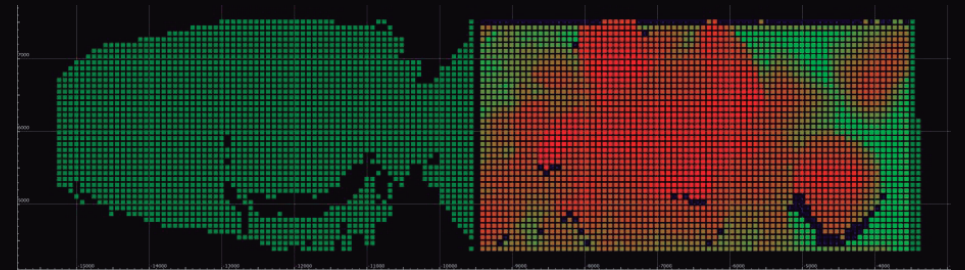
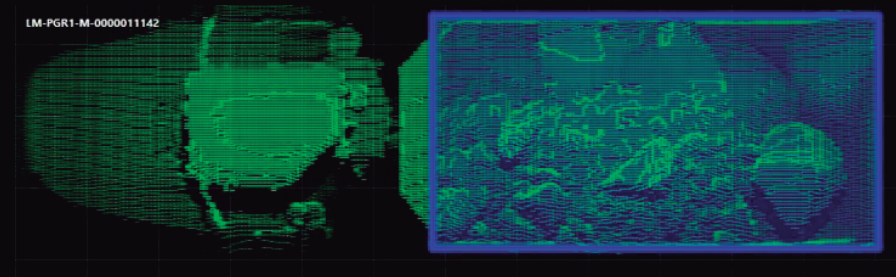
- Improves the interaction with suppliers or clients: The volume measurement of the material is accurate, objective, and transparent, thus eliminating subjectivity.
- Savings in transportation costs: The vehicles are scanned while driving through the scanning frame, no waiting lines. Allows better managing of travel times.
- Decreased operation costs: The automatic and fast measurement reduces the time associated to controlling each load, eliminates the necessity of personnel dedicated to control tasks, and the risks related to the manual inspection of loads.
- Optimization of the transported load: The accurate volume measurement of each load allows managing the transportation yield. This will enable optimization in transportation costs, reduce maintenance costs, and reduce transportation risks.

Bulkmeter is a product completely developed by Woodtech, it does not require third-party licensing.



Main Features

- Volume measurement
- Distribution of load heights
- Load distribution per section



Main Features

- Under - and over - volume alerts
- Unsafe load alerts
- Speed alerts
- Truck cab and license plate picture
- Top-view picture of the load

*Alerts are sent by email per the customer configuration.



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DASHBOARD EVENT LIST REPORTS







Select option

Event filter

From 04/02/2016 To 06/01/2017

Event ID

Event list

Creation Date	Event ID	Status	Layout	Frame Volume	Side Image	Image Description
04/05/2017 17:24	LMRCEL.M.00000000010	Event Approved By User	Rocks	21.7 M3		
04/05/2017 17:24	LMRCEL.M.00000000012	Event Approved By User	Rocks	21.6 M3		
04/05/2017 17:23	LMRCEL.M.00000000010	Event Approved By User	Rocks	19.3 M3		

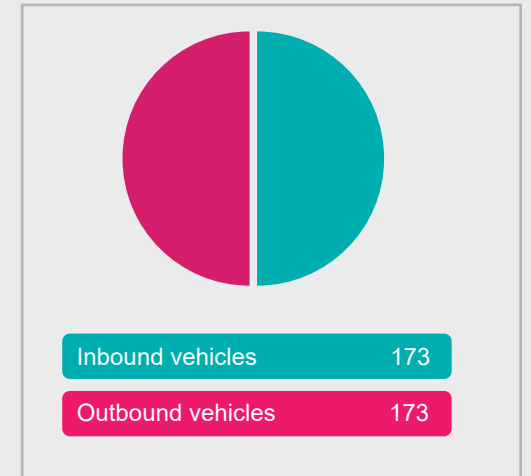
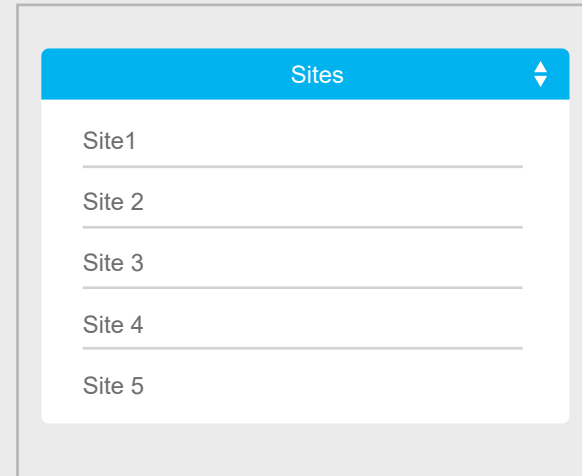
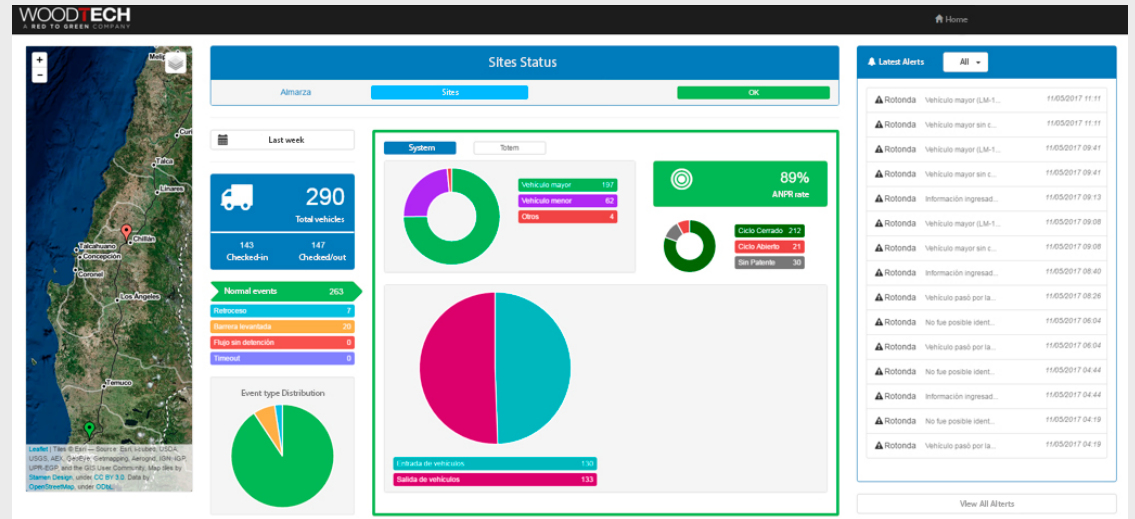
Speed Statistics

Wait time	0,62 [s]	Pre-capture time	1,633 [s]
Capture time	16,448 [s]	Coefficient of variation	0,189
Standard deviation	2,126 [km/h]	Average	11,227 [km/h]
Maximun	12,481 [km/h]	Minimun	0 [km/h]



Operational Features

- Central control panel, multi-site
- Bi-directional
- Closed-loop operation
- Measurement of empty container
- Ticket printout
- Integration with identification systems (ANPR and RFID)
- Data import from external data sources
- Additional pictures
- Counting of cross-section bars
- Operation from multiple terminals



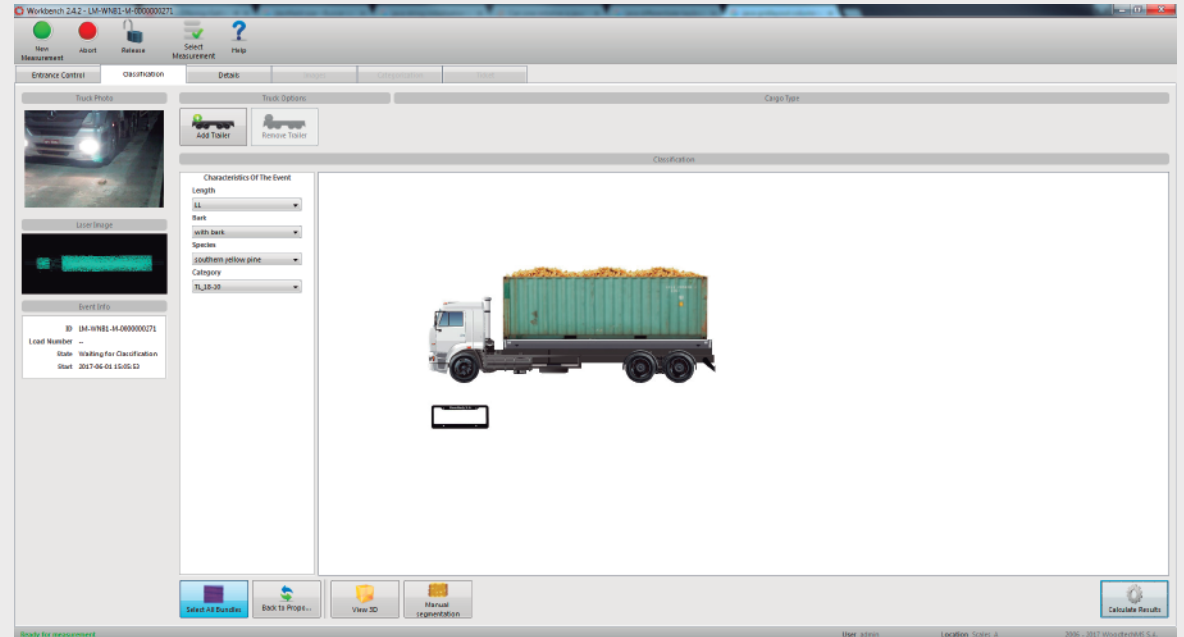
Base software

Measurement system

The measurement system is responsible of coordinating and controlling all the different tasks that will take place every time a new measurement event is initiated.

Workbench (optional)

The workbench is the graphical user interface that allows the operator to initiate a capture, input additional process data, among other actions.



Utility software

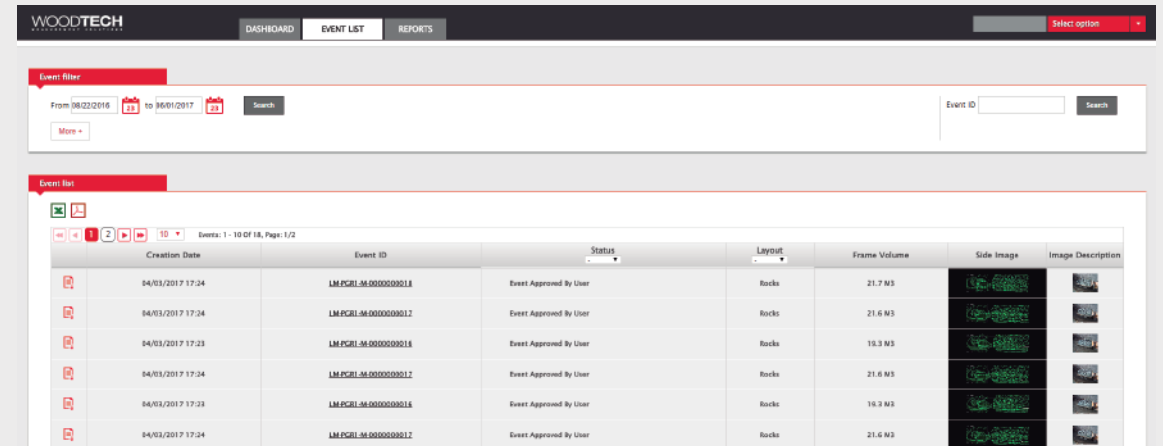
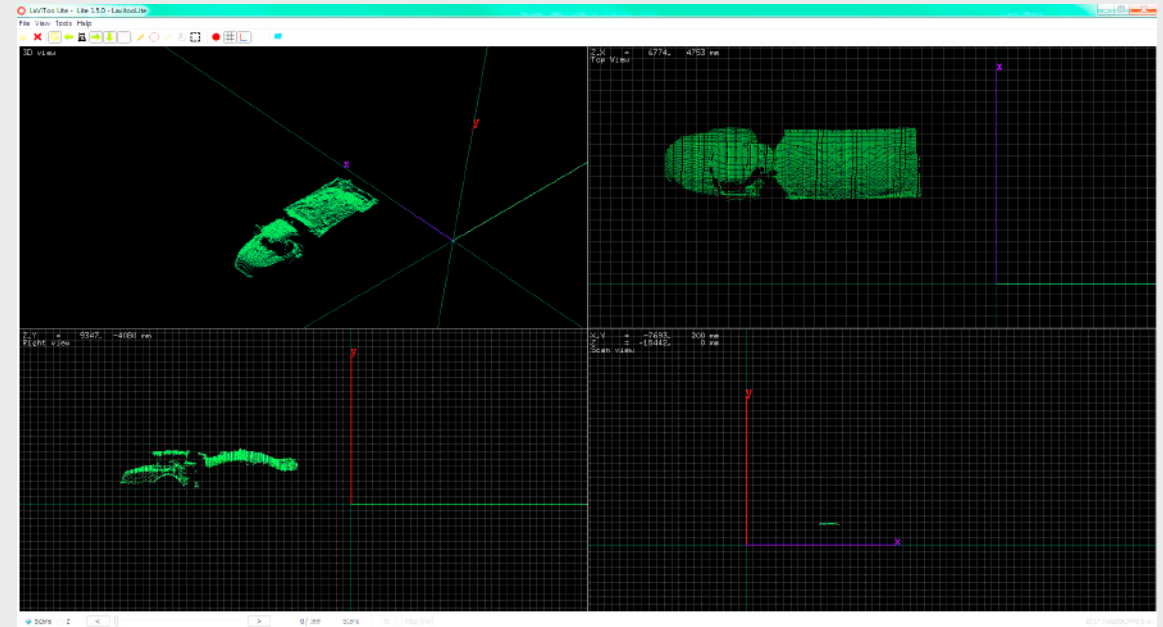
Lavitoo Lite

This tool allows the user to view the 3D captures, and verify the measurements with a digital ruler.

Auditing system

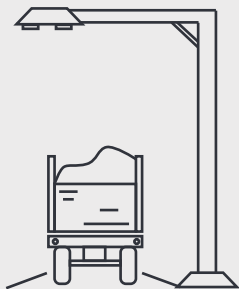
Web interface that allows reviewing information and evidences of each measurement event. It allows searching for historical data, generating reports, and filtering information per business criteria.

The information is made available once the measurement is finished, and it cannot be modified.



Process

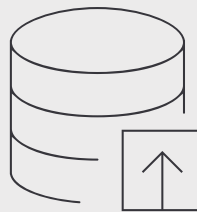
1.



Capture start*

The capture (moving truck) is triggered automatically when the truck is detected in the measurement zone.

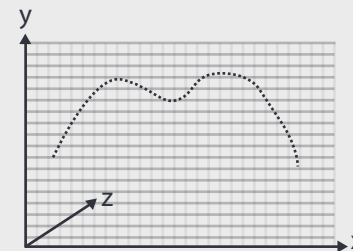
2.



Data import (optional)

The system allows importing data from compatible sources. Some examples are: license plate, vendor ID, contract number, species, category, among others.

3.

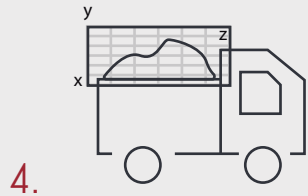


3D capture

The sensors capture hundreds of profiles that are used to construct the three-dimensional model of the truck.

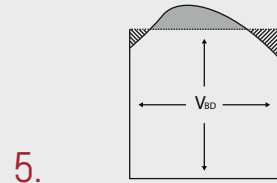
* The capture can be initiated manually from the Workbench, and an access control light can be included.

Process



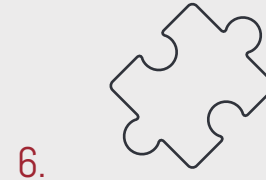
Segmentation

Identification of the load limits, and removal of elements that are not part of the measurement.



Volume calculation

The volume is calculated based on the truck's empty volume and the surface captured by the system.



Integration

Allows integration of the measurement results with the customer's information systems (ERPs).

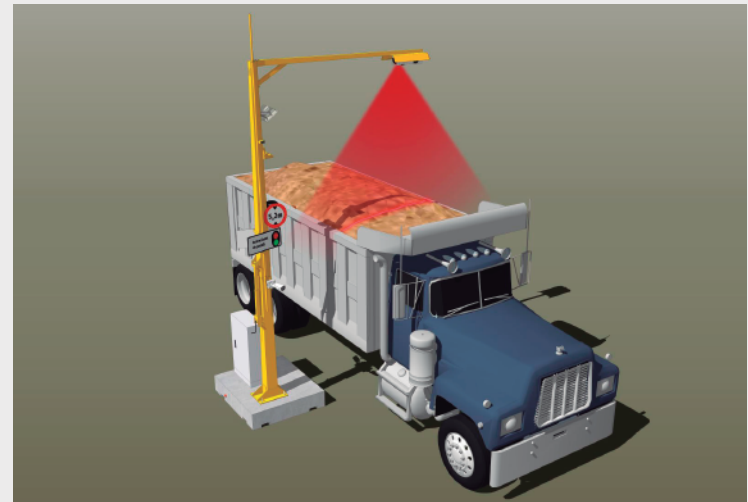
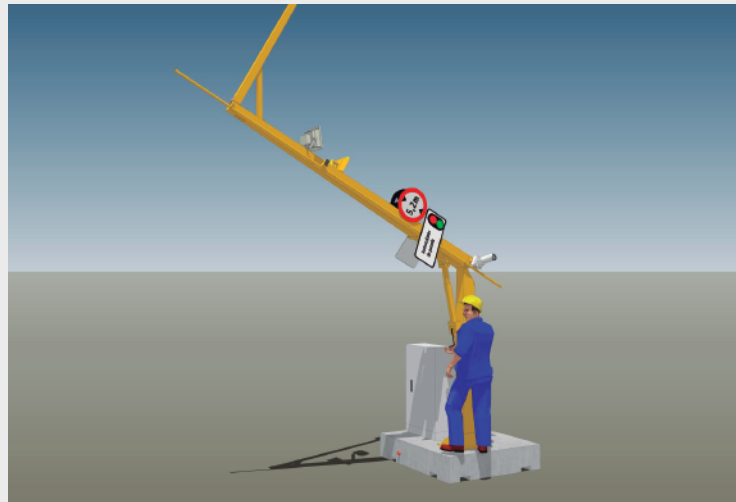
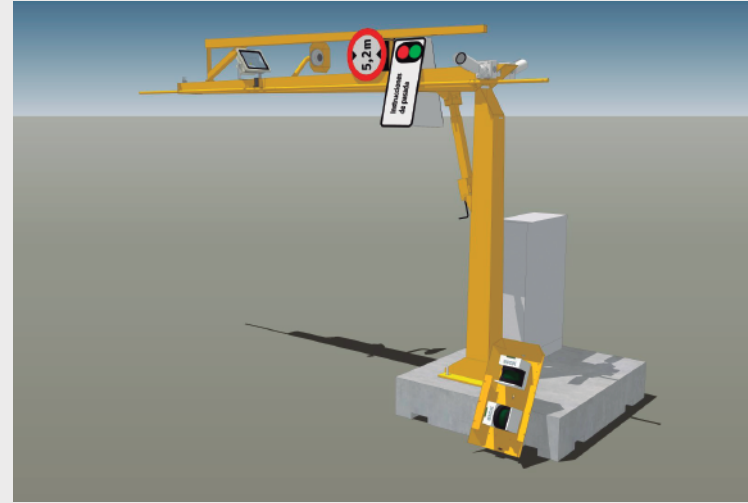
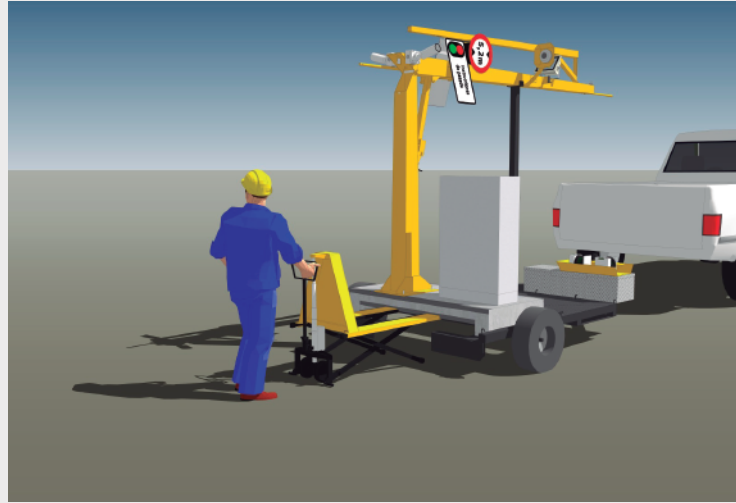


Auditing system

Enables reviewing the results of each measurement, and exporting reports in Excel and PDF formats.

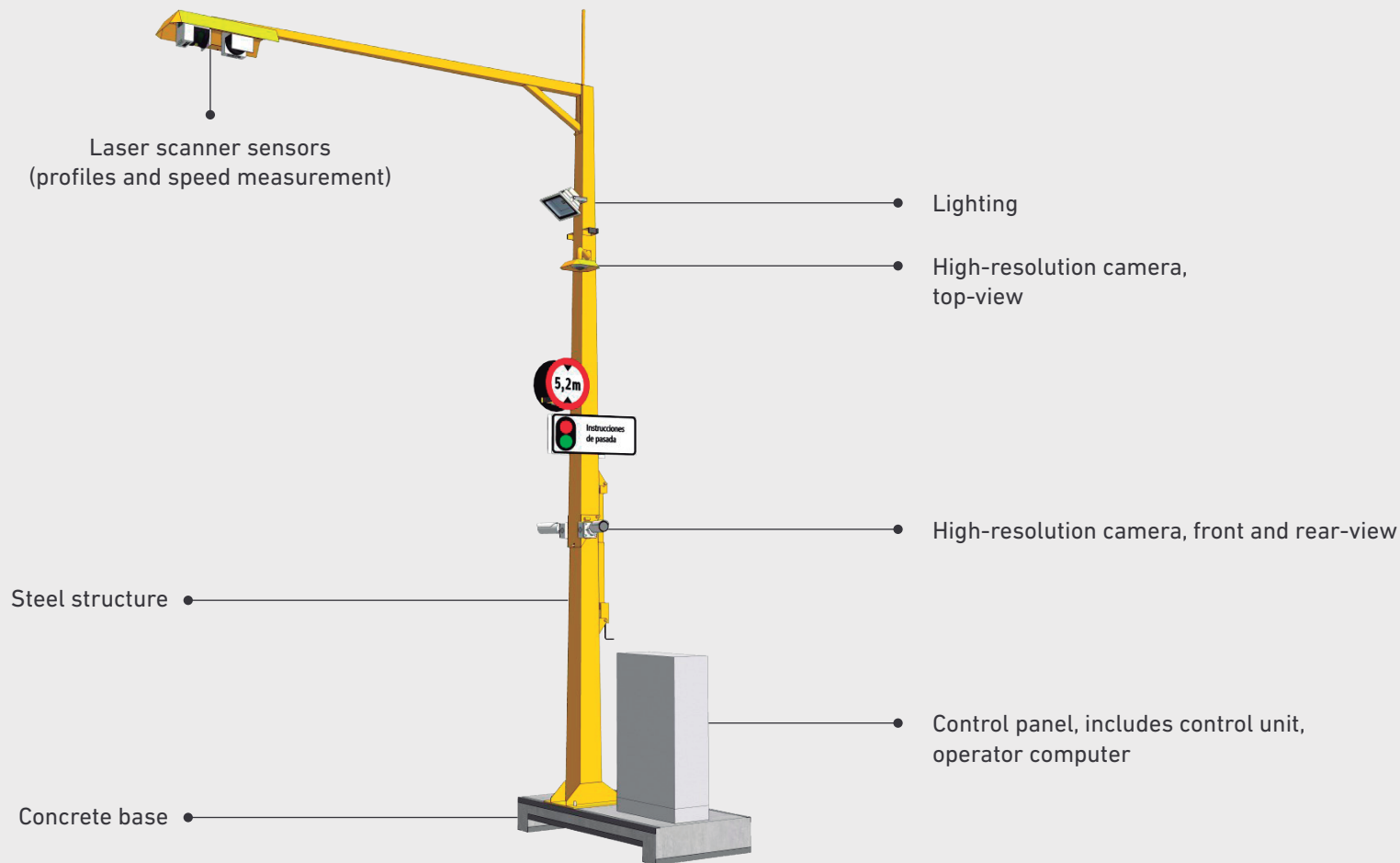


Deployment





Hardware



Support and maintenance service

Woodtech provides a complete support and maintenance plan for the Bulkmeter system, which guarantees operational continuity as well as excellent performance and reliability. The support plan includes remote monitoring to evaluate key performance indicators that allow taking preventive actions.

The following table lists the optional services offered by Woodtech, which will be agreed upon based on their necessity.

Support 24/7

Remote support response time during business hours

Remote support response time outside business hours

On-site assistance response time during business hours

On-site assistance response time outside business hours

On-site support

Basic software updates

Software version upgrades

Online operational monitoring

Laser Calibration Service

Preventive maintenance

Spare parts

Company

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Woodtech has over 20 years of experience in the development of measurement systems mainly for the forestry industry. Its main customers are located in Chile, Argentina, Brazil, the United States, and Germany.

Being a company of technological innovation, Woodtech invests approximately 10% of its revenue in R+D projects to keep the products current, and develop new solutions.

Woodtech was recently acquired by the Angelini Group, which is one of the main Business consortiums in Chile. Through its two main investment vehicles - Antarchile SA, and Inversiones Siemel - the group is the majority shareholder and controller of companies such as Arauco, Copec, Abastible, and Orizon, which are all leading companies in Chile and other countries in Latin America, with assets over USD \$20,000 million as of December 2015.

Antarchile SA and Inversiones Siemel hold 90% of the stock of Red To Green, while Red To Green owns 99.7% of Woodtech.



Logmeter



Sentinel



Chipmeter &
Bulkmeter



Coalmeter

CONTACT

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www.woodtechms.com

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