Product specifications

Category	Unit	Specification comparison	
		Other company	LITS
Precision of detection	%FS	3.0	1.0
Distance detection	m	30	40
Horizontal angle detection	Deg	30	360
Vertical angle detection	Deg	30	110
Laser eye safety level	-	-	Class1(IEC60825-1)
Automatic cleaning device	-	-	Yes
Wireless	-	-	Yes
Smartphone app	-	-	Yes
Battery operation (schedule)	-	-	Option

LITS

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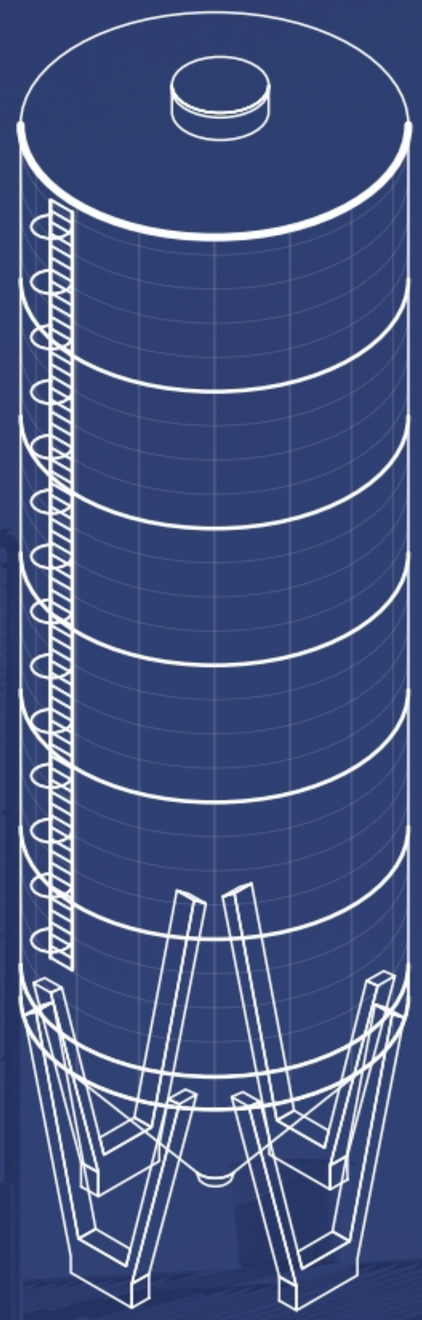
3D PBI

3D PLANT BIN INVENTORY

Applications of 3D PBI Technology

01. Food industry grain storage silos
02. Energy industry coal storage bins
03. Cement industry cement storage bins
04. Plastic industry various plastic pellet storage bins
05. Mining industry storage of minerals
    such as iron ore, talc, coal, etc.
06. Other industries handling solid raw materials,
    including fertilizers, wood, glass, chemicals

3D laser sensor



LITS

LITS will solve your concerns about optimizing inventory management

LITS

WE INTRODUCE YOU TO OUR 3D PBI

An industrial warehouse inventory management system

Features

- Realize world-class measurement precision
- World's widest angle sensor detection technology
- World's first sensor contamination detection
- automatic cleaning technology
- World's first raw material agglomeration detection technology
- Reasonable price range

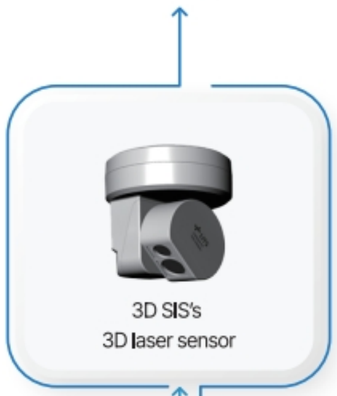
Product Specifications

- Accurate detection technology even in extreme dusty environments and long-distance using Direct TOF Laser technology
- Precise 3D image implementation using the 2-DOF mechanism
- Laser Collimator & Aspherical Lens designing technology for long-range detection
- Volume to mass conversion technology using density distribution and analysis
- Self-Cleaning Surface Detection Technology for Dusty Environments
- Orthogonal & Cylindrical Coordinate conversion technology of Depth data

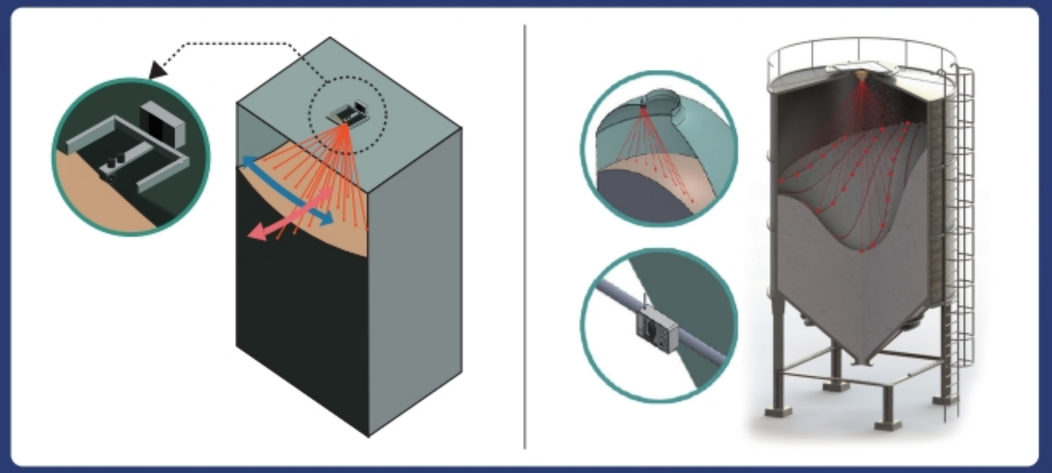
How to measure the level of solid products stored inside the existing silo?

The weight measurement method using a load sensor, the level measurement method using multiple sensors attached to the inner wall, and the ultrasonic sensor method were mainly used. However, these measurement methods have their own drawbacks and limitations: the weight measurement method is accurate and hard to install, the wall-mounted level sensor is low-cost while having severe reliability problems, and the ultrasonic sensor method is too expensive to be installed for agricultural purposes. 3D PBI utilizes cutting-edge laser 3D image screening technology to accurately and precisely identify the loading distribution of solid raw materials, enabling accurate level measurement and implementing reasonable prices.

3D SIS's 3D laser sensor



3D PBI FACILITIES OVERVIEW CHART



Direct TOF LiDAR Way

Principle of LiDAR scanning and measuring

- LiDAR (Light Detecting And Ranging) is a technology that emits laser pulse from light source and detects reflected signal with a photo diode and then calculates the travel time of the laser beam.
- LiDAR analyzes and figures out distance of the scanned substances accurately making precise geographical shaping and topography possible with the scanned value.
- High resolution of topographical images that cannot be easily acquired through conventional optical technology are analyzed with identification of geographical DEM and building DEM that can be swiftly and efficiently created in 3D modeling.

Direct TOF LiDAR

- TOF (Time of Flight) is a precise measurement technology that was initially devised to measure speed and altitude of flying objects, and it is currently wide spread to application of TOF 3D camera, and scanning equipment.
- Integration of TOF and LiDAR technology enables ultra-accurate measurement of odd surface and generate 3D model in fastest speed.
- Direct TOF LiDAR is utilizing extremely short and strong laser pulses that travels through extreme dusts or powders in the air with minimum interferences, that makes the precise measurement possibles even in bins or silos that are full of flying dusts or powders.

TOF	Light source	Signal Modulation	Scanning range	Background noise	Multi path Effect	Emitting power
Direct	Laser	Pulse(Burst)	Long	No problem	No problem	Low
Indirect	IR/ Laser	CW (continuous wave)	Short	Affected	Affected (dust,rain,fog)	High