



## Application Overview

Benewake LiDAR installed on the top of silo, down face to the materials to detect the distance. The measured distance information will reflect the material allowance in real time or on demand. When over or lower the limited height, it will trigger the alarm system. Benewake LiDAR level sensor provide real-time inventory for farmers and feed suppliers, which is convenient for timely supply, reasonable transportation route and feed production plan.

LiDAR is a non-contact, based on Time of Flight principle measurement equipment. Single beam of light can be used for point level detection in bins, silos and hoppers filled with grain or other solid materials.

## LiDAR Level Gauge Advantages

### Customer Benefits



It help you manage your inventory. No manual check level work required (0-300m). It will enhance safety for staff and reduce labor cost.



It will alert automatically when material reaches a particular level. Then 40m range LiDAR's retail price is less than 80USD. Only 1/3 price of other level sensor.



It provide an accurate distance with small spot. The installation is flexible and simple because of the small volume. Only 1/3 volume of other level sensor.



The power consumption is generally lower than 1W,. It will save energy and power.

### Performance

Product	 TFmini-Plus	 TF02 Pro-W Dust Remove	 TF03 Series
Range	0.1-12m@90%reflectivity 0.1-4m@10%reflectivity	0.1-25m@90%reflectivity 0.1-12m@10%reflectivity	0.1-180/100m@90%reflectivity 0.1-70/40m@10%reflectivity
Accuracy	±5cm@(0.1-5m) ±1%@(5-12m)	≤6cm@(0.1-5m) ≤1%@(5-25m)	±10cm@(within 10m) 1%@(more than 10m)
FoV	3.6°	3°	0.5°
Interface	UART, I <sup>2</sup> C, I/O	UART, I <sup>2</sup> C	UART, CAN, I/O RS484, RS585
Power	≤0.55W	≤1W	≤0.9W
Frequency	1-1000Hz	1-1000Hz	1-1000Hz
Protection	IP65	IP5X	IP67
Volume	35mm*18.5mm*21mm (L*W*H)	85mm*59mm*43mm (L*W*H)	44mm*43mm*32mm (L*W*H)



## Case Study

The real-time measuring ability of Benewake Level Sensor is remarkable. Its' FoV is small and the energy is concentrated, There is no mechanical movement structure inside with high accuracy and reliability. Its' service life is more than 3 years. At present, Benewake Level Sensor is widely used in agriculture, feed, plastic, cement, medicine, food, metallurgy, building materials, environmental protection and other industries to realize the height measurement and early warning of level / liquid level (non transparent liquid).



### Grain Silo

Installed LiDAR on top side of silo, measure the level of grain inside. It can roughly evaluate grain volume and arrange efficiency transportation route.



### Feed Bin

Installed LiDAR in the center of the top of feed bin, powered by batteries. It can roughly estimate the feed margin and supply in time.

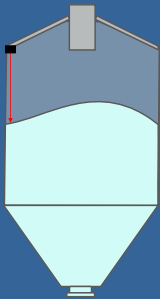


### Construction Bin

Installed LiDAR on the top of crushed stone Bin. It can detect the level of stone remotely through wireless data transmission, and achieve automatically load or unload.

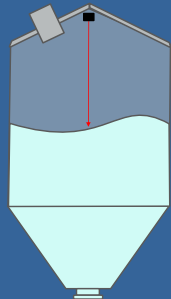
## Installation

### Point Level Alert



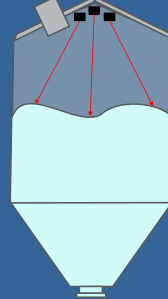
The LiDAR is installed at the side opening of the silo / liquid tank silo, and is measured vertically or obliquely. This method does not need to accurately measure the volume of the material, and has lower requirements for accuracy.

### Point Level Detection



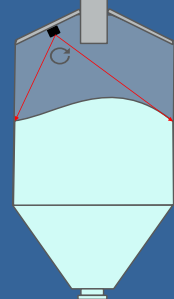
The LiDAR is installed on the upper surface or the side face of the silo, pointing vertically or obliquely to the stockpile to give the distance. This method requires higher accuracy and stability than stock level early warning.

### Multi-point Level Detection



Multiple LiDARs are fixed side by side on the structural member, and the entire device is installed at the center of the silo top. The material position is measured at three points to complete the construction of material model then volume can be calculated accurately.

### 3D Scanner Level Detection



LiDAR is mounted on a tooling with two degrees of freedom. The entire device is installed on the bevel side of the top of silo. The model of the top of the stockpile is scanned in order to measure the volume of the remaining material in the silo accurately.



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