

PRINCE335 3D Laser Scanner Technical Proposal

1. Instruction

Hangzhou Scantech Co., Ltd is a high-tech enterprise which was composed of industry experts, returnees Doctors and high-tech youth talents. It located in Zhejiang overseas high-level talent innovation park. Hangzhou Scantech mainly engaged in the developing, manufacturing and selling of the intelligent visual inspection equipment such as portable 3D scanner and 2D laser sensor. Leading by the returnees Doctors, the R&D team developed a series of mechanical and electronic products which possess the proprietary intellectual property rights. The portable 3D scanner, global photography measurement system and 2D laser sensor are also the foremost equipment in the country. These products have been widely used in colleges, research institutions, automobile industry, large-scale machinery enterprise and modeling design company, and have enjoy great reputation in the market.



2. Product instruction

2.1 Overview

PRINCE series portable 3D scanner are developed by Hangzhou Scantech Co., Ltd. It adopts multiple beam laser to obtain the three-dimensional point from object surface. Operator can hand-hold the device and adjust the distance and angle between the scanner and measured object timely. It can cooperate with the global photography measurement system when scanning the large piece object to eliminate the accumulated error and improve the global scanning accuracy. The scanner can also be conveniently carried to industrial field or production workshop, and scanned the object efficiently and accurately according to its size and shape.

PRINCE was developed by Scantech, and it is the world's first set of scanner with two distinct work patterns. Using two-color laser principle for design and development, it makes full use of Red lasers high adaptability and ultra-low noise characteristics of blue laser, is truly a perfect blend of easy operation and meticulous detail.

2.2 Operating principle

(1) Two cameras on the scanner can respectively obtain the projection laser on the measured object. The laser would occur deformation according to the measured object. The linear three-dimensional information can be acquired by calculating, as two cameras are accurate demarcated in advance.

(2) The device identifies the scanner's position according to the fixed visual markers during the process of scanning, and the position is used on spatial location conversion.

(3) When the scanner moved, the three-dimensional position information where the laser went through can be acquired by utilizing the linear 3D information and relative space position. And thus form a continuous 3D data.

2.3 Software functions and technical features

- Six cross laser lines scanned quickly; single red laser line can obtain deep hole data and dead angle data.
- Five parallel laser lines support great details.
- Above working mode can be switched by press the button.
- Automatically generate the STL triangular mesh surface, and the data can be processed rapidly as the format is STL.
- The scan software can automatically process the point cloud data such as select, delete, remove the isolated point and non-connected one, smooth filtering, feature merge, etc.
- The software can fill marked points according to the curvature, and can also manually fill holes.
- The software possesses functions such as set the distance between scanning point, adjust the laser intensity and adjust the scanning angle.
- Device can be quickly calibrated.
- The scanned object does not need to be fixed.
- The target point automatically orientates and needs no additional mechanical arm or other tracking device.
- Connect by the Gigabit Ethernet cable and support work over a long distance.
- It possesses two high resolution image acquisition unit and a laser transmitter.
- Automatically generate the 3D solid graphics (triangular mesh surface).
- The handheld device could be carried with the personnel. And the weight is less than 1kg.
- The device can scan at outside as well as inside. It could also scan in a narrow space such as scan the cockpit and the car interior dashboard. Multiple equipments can scan at the same time. All the data are in the same coordinate system and don't need to match it.
- Through the selection of the point cloud density to control the size of the scan file. Scan different parts according to the relative detail requirements.

- The external environment has little effect on the scanning accuracy. Even exposed to direct sunlight could the canner work normally.
- The scanner can easily deal with the car paint mirror surface as well as other black surface. Mostly, the imaging enhancement is unnecessary.
- When scanning a small thin-walled part, can put separate points on three sides to achieve the splicing;

2.4 Parameter

Chart 1 technical parameter

Type	PRINCE335	
Mode	Standard mode R	Hyperfine scan mode B
Weight	0.95kg	
Dimensions	315*165*105mm	
Light source	Three red cross laser lines+ one single red laser line.	five blue parallel laser lines
Scan the deep hole and blind angle	support	
Delicate scan	The object can be selected and do delicate scan during scanning	
Small piece splicing	Put separate points on three sides to achieve the splicing	
Scan rate	265,000 measures/s	320,000 measures/s
Laser class	II (eye-safe)	
Resolution	0.05mm	0.01mm
Accuracy	Up to 0.03mm	
Volumetric accuracy 1 (use the scanner individually)	0.02mm+0.08mm/m	0.01mm+0.08mm/m
Volumetric accuracy 2 (with the global photography measurement system)	0.02mm+0.025mm/m	0.01mm+0.025mm/m
Stand-off distance	300mm	150mm
Depth of field	250mm	

2.5 Application

- Automobile manufacturing
- Aerospace
- Power generation
- Model manufacturing
- Casting inspection
- Construction machinery
- Design inspection
- Architecture sculpture
- Colleges and research institutes

3. Configuration

The production capacity of portable 3D scanner is about 300 to 400 sets per year. The accessories are adequate and can deal with the emergency situation.

Chart 2 standard configuration

Product	Quantity
3D scanner hand-held terminal	1 set
Calibration target	1 set
Combination cable	1 piece
Power adapter	1 piece
6mm reflective mark points	4000 pieces
3mm reflective mark points	1000pieces
Waterproof case	1 set
Three-dimensional scan software	1 set



4. Training and after-sale service

4.1 Training

We will provide the training such as device usage, adjusting and daily maintenance till the personnel can operate it. And the customer can choose the place to do the training. In addition, we will provide the technical support if you meet the technical matters after the equipment delivery.

4.2 Warranty

We promise a one-year warranty for the sold PRINCE portable 3D scanner. No matter in the warranty period or not, we will respond the repair notification in 12 hours, and provide the technical support. We will provide the solution in 24 hours and try our best to deal it.

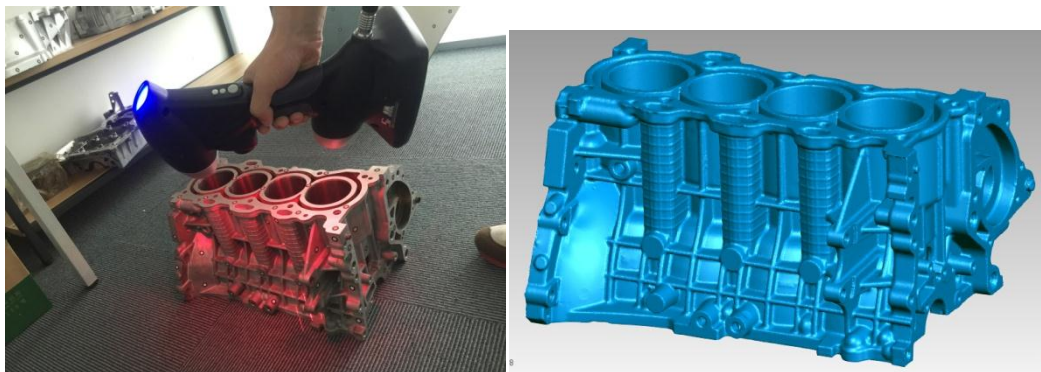
The calibration service is free during the warranty.

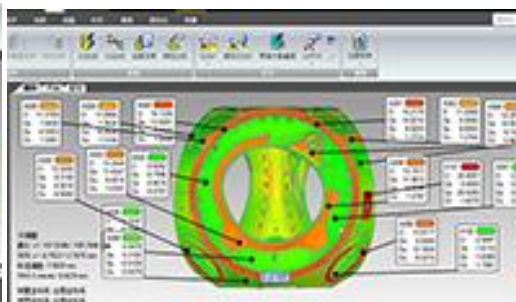
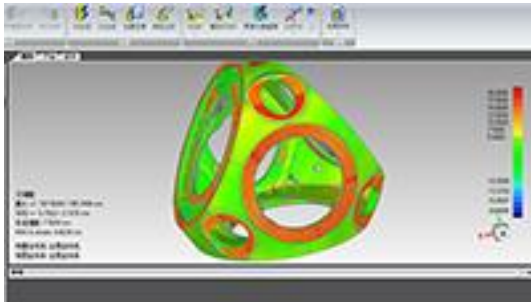
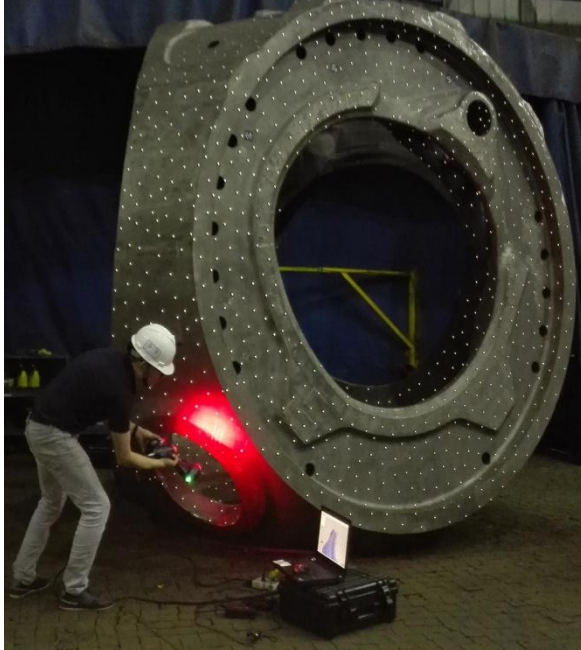
4.3 Software updating

We promise the free updating of the software in 5 years.

5. Application case

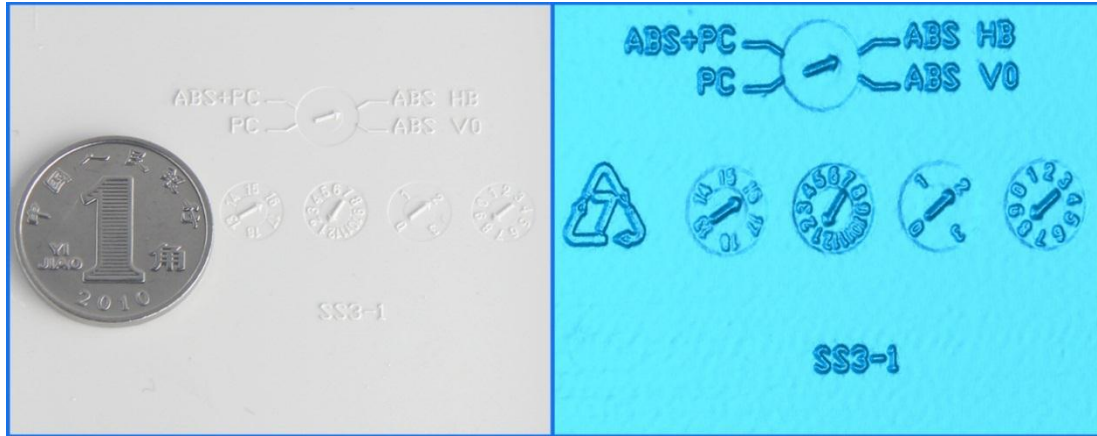
5.1 Standard mode R





5.2 Hyperfine scan mode B





扫描细节实拍

扫描数据结果

PRINCE 3D SCANNER

Ultra-Detail & High Portability

