Precise Industrial 3D Metrology

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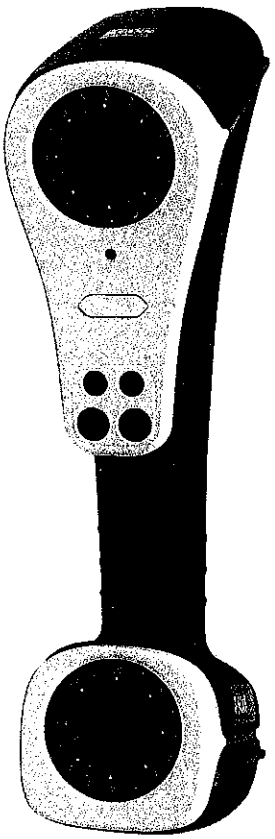

Hardware User Manual

T-SCAN hawk

Table of Contents

1 Important Notes

1.1 Standard Signal Words

In this publication the following standard signal words can be used:

⚠ DANGER

- The label points to an imminent danger. The situation can lead to serious bodily harm or death!

⚠ WARNING

- The label points to a dangerous situation. The situation can lead to serious bodily harm or death!

⚠ CAUTION

- The label points to a dangerous situation. The situation can lead to light bodily harm!

NOTICE

- The label points to a situation which can lead to material damages. The damages can result on the product or in the vicinity of the product!

Info

The label indicates important application notes and useful information.

1.2 Safety and Health Hazard Notes

⚠ DANGER

Danger of explosion due to static electricity and other effects

- Never operate the device in explosive areas!

⚠ WARNING

Thunderstorms can cause overvoltages in the AC power.

Overvoltages can lead to malfunctions and dangerous voltages between housing and other components.

- Do not use equipment connected to AC power during thunderstorms!

⚠ WARNING

Large measuring objects can fall over.

This can lead to serious bodily harm or death.

- Make sure that you comply with the respective valid accident prevention regulations!

2 Introduction

This manual is intended for qualified personnel who do not have any or only few experiences with coordinate measuring technology. Basic PC knowledge (windows-based programs and operating systems) is expected.

For operating the system optimally, the ability to visualize in 3D and a color vision ability are assumed.

This manual describes the following subjects:

- System installation
- Sensor settings
- Other hardware relevant information

4 System Overview

4.1 Technical Data

System	T-SCAN hawk		
Scan mode	Default	Single-line	Fine
Laser source	7 intersecting red laser lines	1 red laser line	5 parallel blue laser lines
Resolution	0.050 mm	0.050 mm	0.010 mm
Scan area	max. 550 x 600 mm		
Scan details	Supported		
Deep recesses	Supported		
Built-in photogrammetry	Supported		
Accuracy	0.020 mm + 0.035 mm/m		
High-precision GOM scale bars	With optional internal photogrammetry		
Laser class (IEC EN 60825-1)	2M (safe for eye exposure)		
Software	GOM Inspect Suite/GOM Inspect Professional		
Image and control signal transmission	Via USB 3.0 cable		
Ambient conditions	-10 °C to +40 °C (non-condensing)		
Voltage range, power adapter (typical)	100–240 V, 50–60 Hz		
Voltage range, sensor (typical)	24 V_{DC}		
Power consumption	Typical: --- W Max.: 120 W		
Max. sensor–computer cable length	4 m		
For more information, visit https://www.gom.com.			

Resolution	Red Measuring Area		Blue Measuring Area	
	Measuring Distance A2 [mm]	Height (Measuring Volume) B2 [mm]	Measuring Distance A1 [mm]	Height (Measuring Volume) B1 [mm]
0.01–0.1	-	-	152	100
0.1–1	358	400	163	150
> 1	440	620	170	190

Tab. 1: T-SCAN hawk measuring areas

Info

The optimal distance for Photogrammetry A3 is always 1.2 m. The height of the measuring volume is 1.3 m.

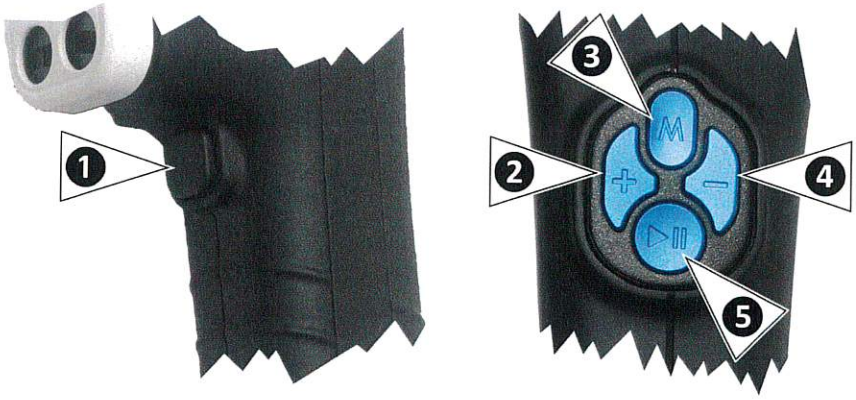

Fig. 4: Front and rear control buttons

❶ Initiate photogrammetry measurement
❷ Zoom in/increase exposure time/next step in workflow
❸ Change control mode
❹ Zoom out/reduce exposure time/previous step in workflow
❺ Start action/switch between red/blue laser

7.2 Calibrating Sensor with Calibration Panel

Requirements:

- The sensor is set up.
- The calibration object is on a solid surface.

Procedure:

1. Open the calibration dialog in the workspace:  .
   The software opens the calibration dialog.

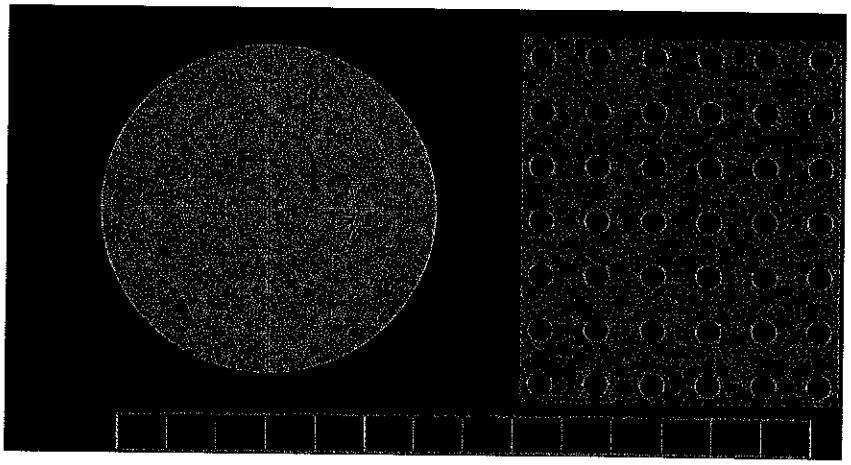

Fig. 6: Calibration dialog

2. Activate the T-SCAN hawk laser by pressing the start/stop button ⏯.
3. Start the calibration procedure.

   Info

   Make sure that the measuring distance is approx. 400 mm between the T-SCAN hawk and the calibration object.

The software guides you through the remaining calibration steps. In the first step, make sure that the calibration object is in the center of the measuring volume.

The first calibration steps ask you to scan the calibration object vertically at defined positions from the sensor.

The software guides you to the correct positions in the measuring volume.

The round display on the left part of the screen shows the correct angle of the sensor to the calibration object. The right side of the screen shows the correct distance from the calibration object.

Calibrate the Sensor

Info

During calibration, make sure no other single point markers affect the procedure.

Only use the calibration object. Make sure there are no other highly reflective objects near the calibration objects.

When not calibrating, keep the calibration object in the protective sleeve.

After calibration, close the dialog. You can now begin taking measurements.

9 EC Declaration of Conformity

9.1 T-SCAN hawk Declaration of Conformity

ZERTIFIKAT ◆ CERTIFICATE ◆ 認證證書 ◆ СЕРТИФИКАТ ◆ CERTIFICADO ◆ CERTIFICAT

CE

TÜV SÜD Product Service

Attestation of Conformity

No. E8A 107965 0002 Rev. 00

Holder of Certificate:	**GOM Optical Measuring Techniques (Shanghai) Co., Ltd.** Room 101,301,Building 4,No.81 Meiyue Road Pilot Free Trade Zone 200131 Shanghai PEOPLE'S REPUBLIC OF CHINA
Name of Object:	**ITE equipment** **T-SCAN**
Model(s):	**T-SCAN hawk**
Description of Object:	Rated input voltage: DC 24V Rated input current: 5A Remark: AC/DC SWITCHING ADAPTOR: Rated input: AC 100-240V, 50/60Hz, 1.4A Rated output: DC 24V, 5A
Tested according to:	EN 55032:2015 EN 55035:2017 EN 61000-3-2:2014 EN 61000-3-3:2013

This Attestation of Conformity is issued on a voluntary basis according to the Directive 2014/30/EU relating to electromagnetic compatibility. It confirms that the listed apparatus complies with all essential requirements of the directive and is based on the technical specifications applicable at the time of issuance. It refers only to the particular sample submitted for testing and certification. For details see: www.tuvsud.com/ps-cert

Test report no.: 708882029402-00

Date, 2020-08-14

(Linda Qiu)

Page 1 of 1

After preparation of the necessary technical documentation as well as the EU Declaration of conformity the required CE marking can be affixed on the product. That Declaration of conformity is issued under the sole responsibility of the manufacturer. Other relevant EU-directives have to be observed.

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