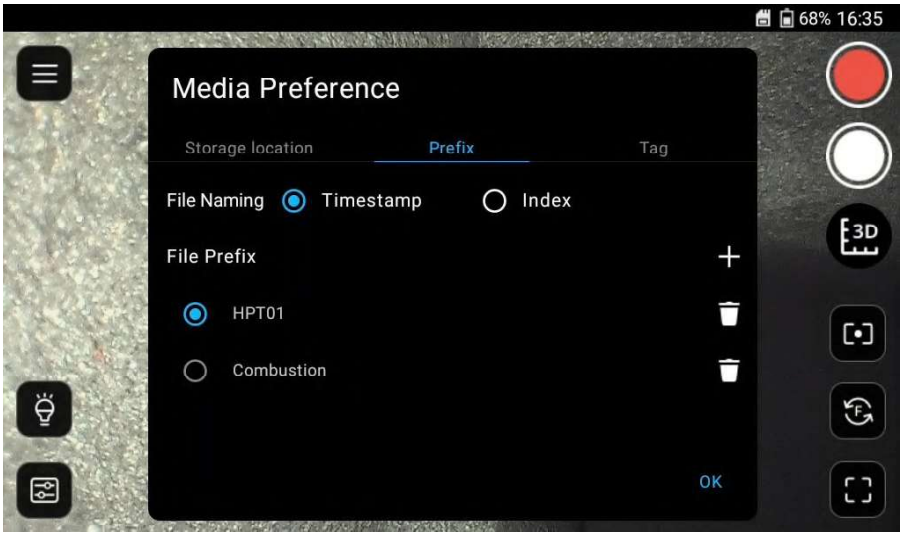
• 4 types of the saved image files:

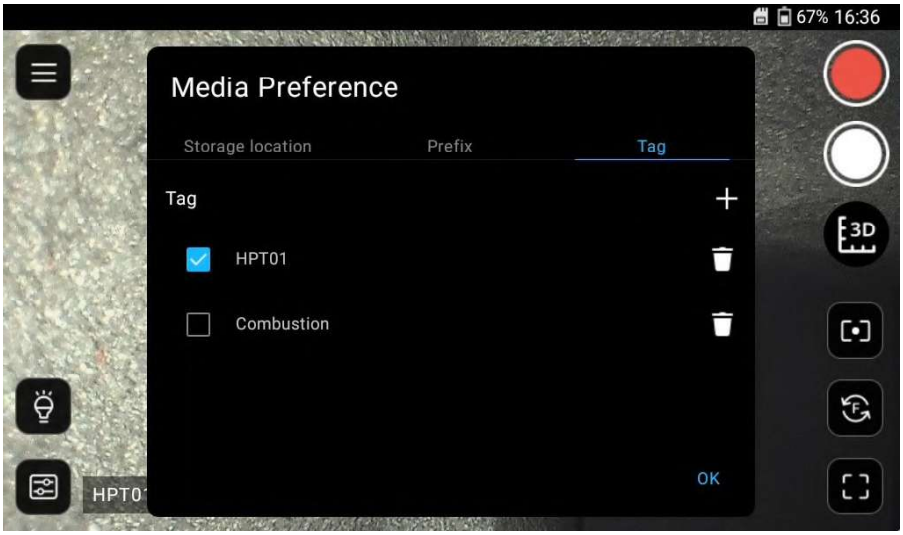
Media Type	Operations	File name	File resolution
Normal 2D	Snapshot	'xxxyyyzzz'.jpg	2560*1440
3D modeling	'3D capture' produce pairs of files as same main file names into [.glb]/[.jpg]	3D_'xxxyyyzzz'.glb 3D_'xxxyyyzzz'.jpg	1920*1080
Measurement	Measurement results saved images	ss-'xxxyyyzzz'.png	1024*600
Annotations	Saved images after annotations	'xxxyyyzzz'_edit_8 digits 'year-month-date'_ 6 digits 'hour-minute-second.jpg	1021*574

Ps. 'xxxyyyzzz' file name context is according to your prefix setting.
Ps. Open the 3D file on 3rd party software:
The 3D modeling files can be read by other 3D viewer software (such as: "Microsoft 3D Viewer") that compatible with [.glb] files. Copy the pairs of [.glb]/[.jpg] files on personal computers and load the files by the software applications.
Please check 3D model orientation, scale and units before using

- **Prefix**: You can set the saved file name as different header(ex. Inspection parts name) for quickly distinguish the content by the file name instead of review the photo content. The file naming sequence can be set at "Timestamp" or "Index" types. The prefix can leads to users' of file sorting and management needs.
  - **By timestamp**: It will be an 6 digits 'year-month-date' and underline break 6 digits 'hour-minute-second numbers'.
    For example: [20250310_110824.jpg] refers to the snapshot at 11'08"24 on March 10th, 2025.
  - **By index**: User input characters by tap the File Prefix "+", and system produce the follow up underline break 6 digits hour-minute-second numbers.
    For example: [HPT01250310_153221.jpg] refers to the snapshot at 15'32"21 on March 10th, 2025.



- **Tag:** You can set text tags to be printed on the saved images. Image tag helps identifying 2D photo's inspection object, inspector's name, etc.

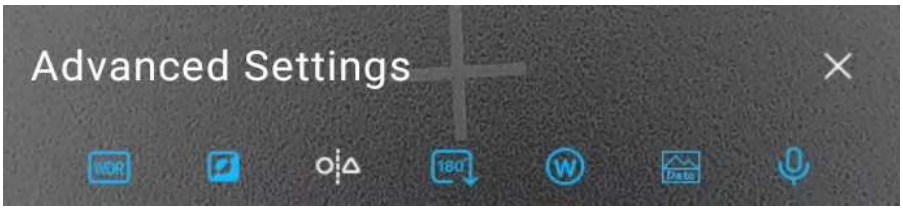


2.3 AE control

Tap the light icon and drag the bar to control the auto exposure value of the whole live view area. It is especially useful for dark inspection space.

2.4 Advanced Settings

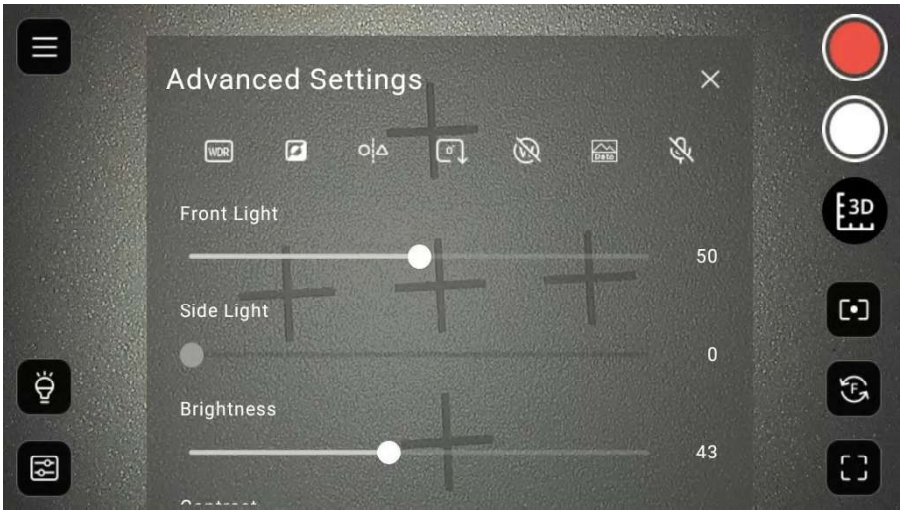
Tap the down-left icon  . The system provide varies of image tuning functions. You can tap the up list icons to switch on/off and gesture slide down to find every control drag bars.



Individual instructions as follows:

2.4.1 Brightness Control

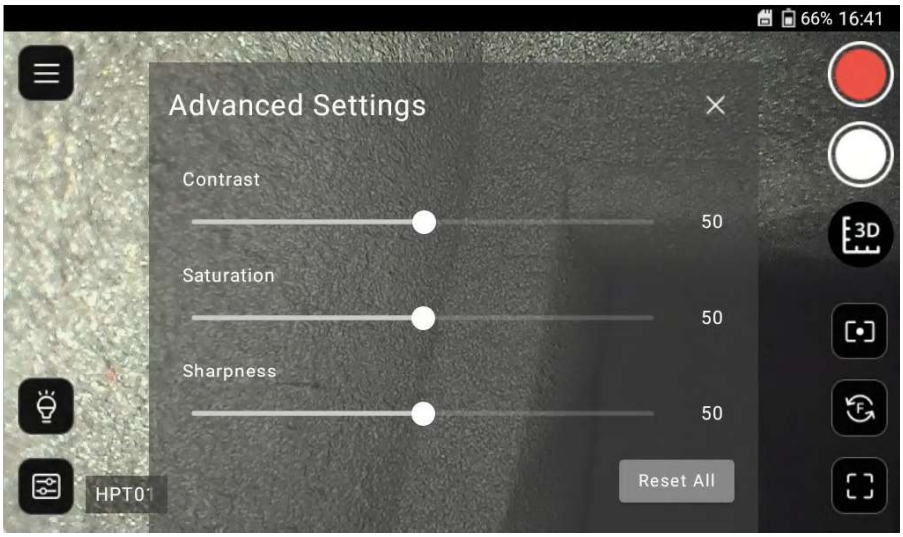
The front light and side light control bars are separately refers to the camera view angle is on. It controls the real light source current output.
The brightness controls the display brightness value.



WARNING - When the probe's illumination keep output at maximum level over 20 minutes, the temperature may raise at 63°C.

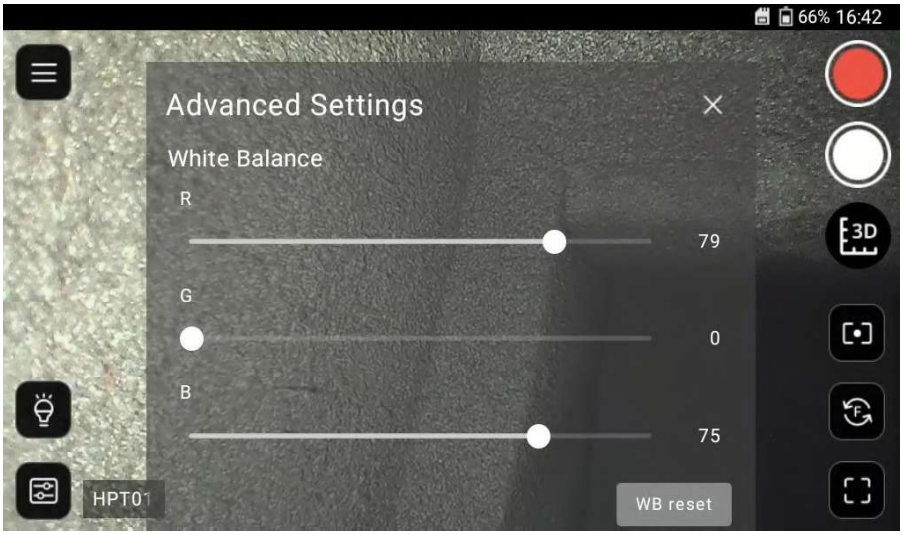
2.4.2 Image fine tune

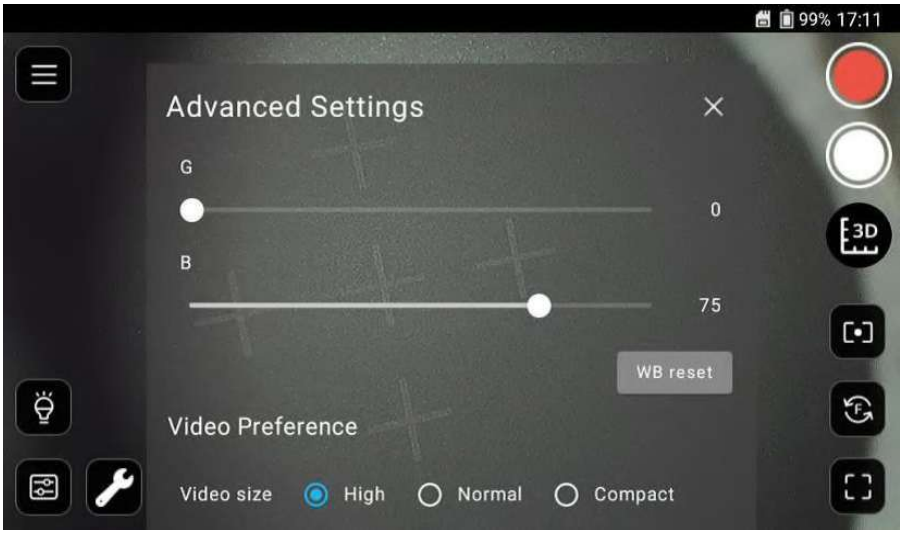
The system provides 3 image fine tune parameters:



2.4.3 White Balance

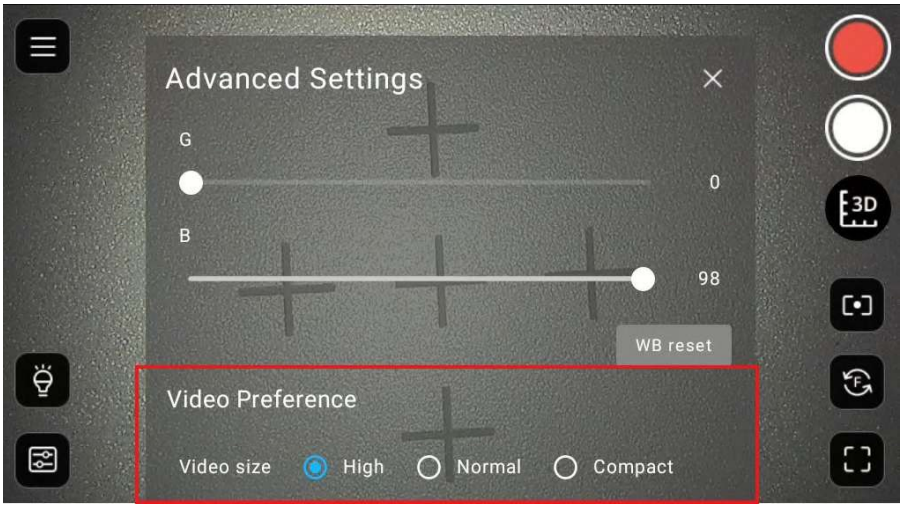
The system provides R-G-B white balance parameters for tuning :





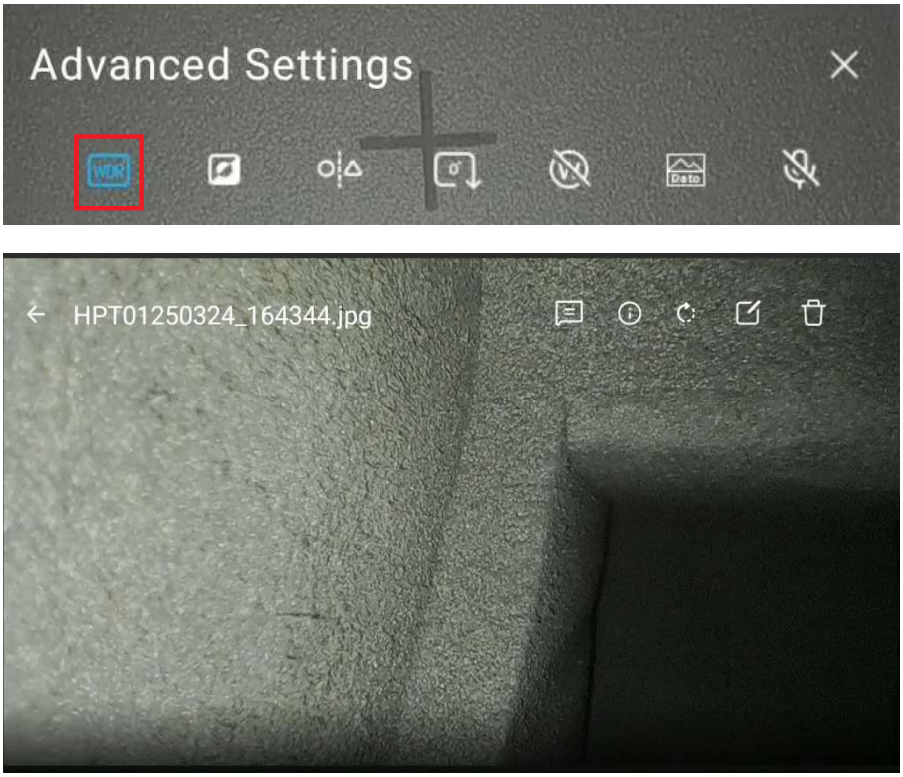
2.4.4 Video Preference

The system provides 3 options of saved video size.



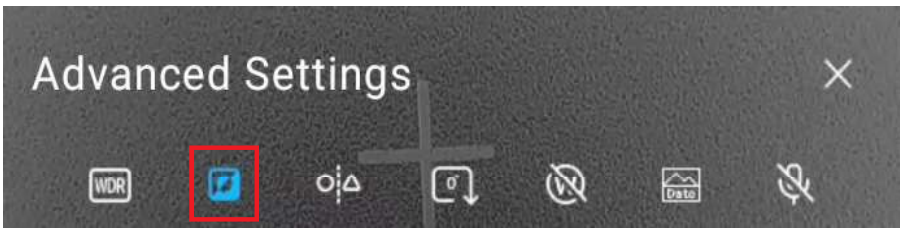
2.4.5 WDR

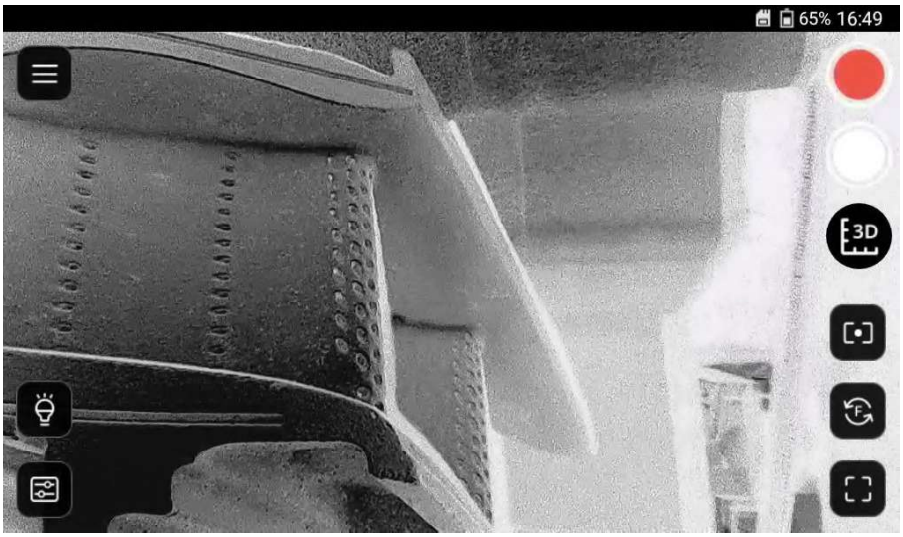
The system provides the wide-dynamic-range (WDR) function that takes 3 different exposure value pictures and merge in one to get better brightness performance output image when the inspection area cover too dark and bright parts.



2.4.6 NEGATIVE

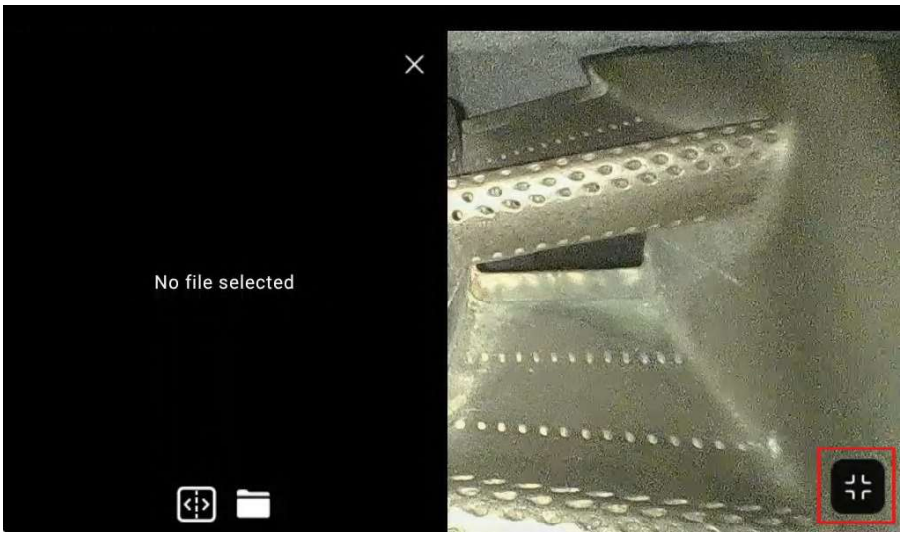
The system provides the function to turn the image into negative film effect output. It is especially useful when inspecting reflective surface for detail fine scratch defects.



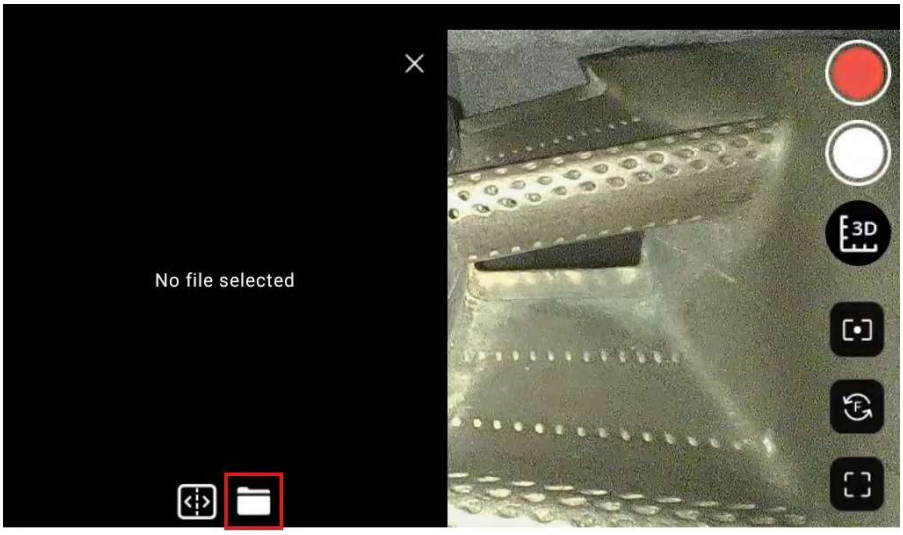


2.4.7 COMPARE

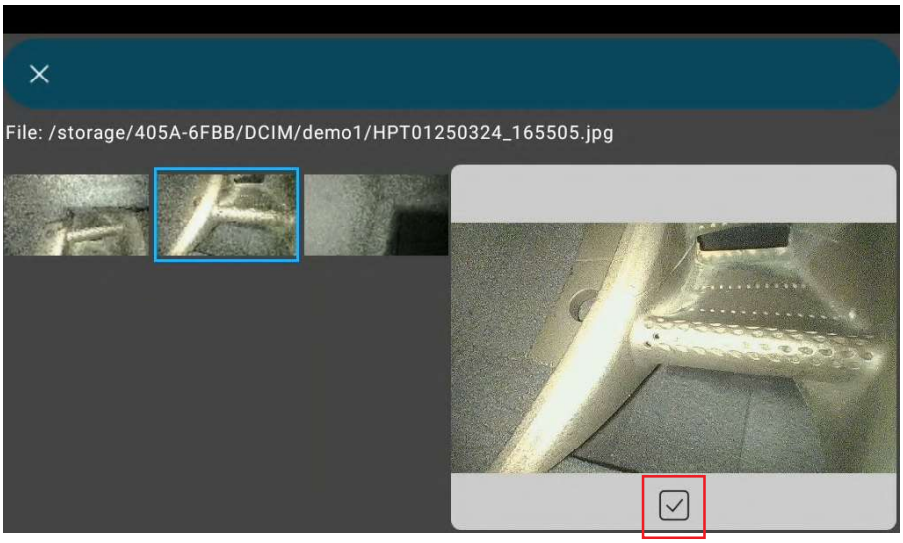
1. Separate live view window: Tap the icon, the screen will be divided into two windows. The default is live view on the right and compare file in the left side.



Tap the file folder icon to access the gallery to pick up compare image.

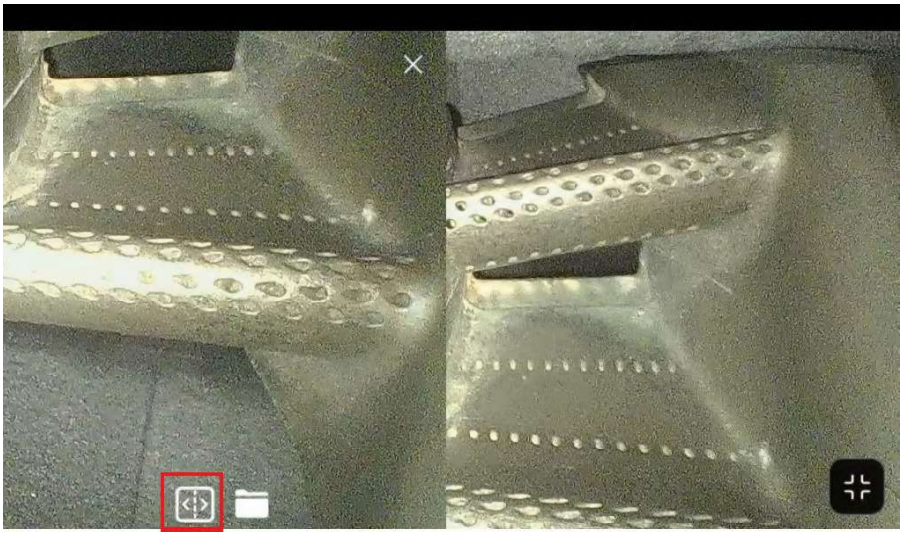


2. Select a compare image from gallery: Tap any image and preview in the right window. Tap the v check box to confirm using the file.



3. Move still image view range:

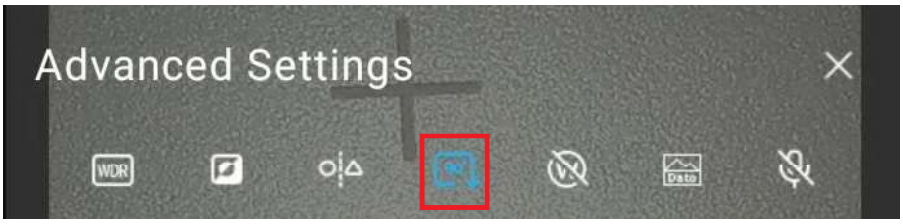
- The selected image's left part will be shown in the left window. You can tap and drag the image to move to the target position.



- Tap the switch icon can switch to another side.

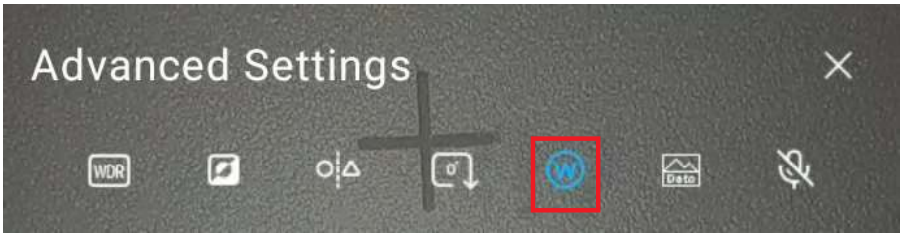
2.4.8 ROTATION

The system provides image rotation in sequence of 90°->180°->270°-0°.
It is useful for recognizing some text or number marks on the inspection surface.



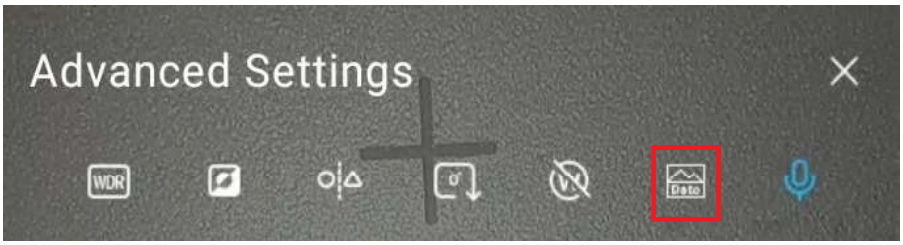
2.4.9 WATERMARK

When enable, there will be watermark as “Mitcorp” printed on the bottom of every saved still image.



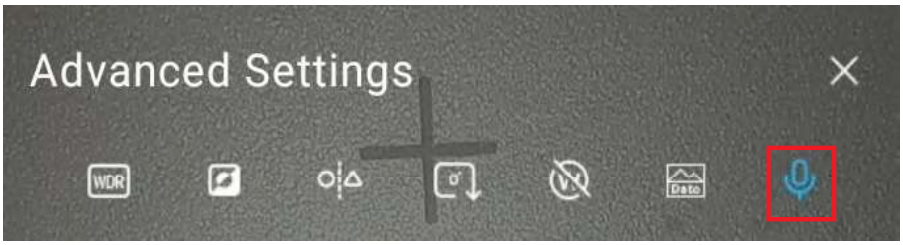
2.4.10 DATE

The system provides "year-month-date" fixed format timestamp on saved image. Tap this icon to enable it.



2.4.11 MICROPHONE

The system provides build-in microphone receiver on the monitor for voice annotation when recording. You can turn it off in this setting.



2.5 Full screen

Tap the  button on the bottom of screen to hide or display function buttons on the two sides.

2.6 Switch camera (view angle)

Tap the icon to switch between front and side cameras to get proper target view angle. Note the illumination light source will switch simultaneously and the level control are also individually set. (Refers to [2.4.1])

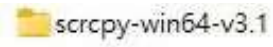
2.7 Manual Exposure

The system default auto exposure point at center. User can tap any position on screen live view to focus the exposure value, then the focus button on the right side will turns on. Tap the button again to back to default setting.

2.8 Control X3000 on PCs

Screen mirroring software could be used to link and control X3000. Here we take a green software "scrcpy" provided by github for example.

1. Download and unzip your compatible version file folder:
   http://github.com/Genymobile/scrcpy/blob/master/doc/windows.md

2. Boot up and connect you X3000 to PC via the USB type-C port, and then execute the  program. The software will access the device and automatically pop up the simulation window on PC's screen. The window and base unit's screen is synchronized and you can use mouse click instead on PC operation.
3. To end the linkage, close the PC's operation window first, and then unplug the USB cable from base unit.
4. After first time execution, the software will build a shortcut on desktop for next time application usage.

   Disclaimer: The github is a green 3rd party application provider. Thus, Mitcorp don not guaranty all the performance when it run on your PC. Uses should rely on that website if any trouble shooting issue occurs.

Part III Measurement Functions

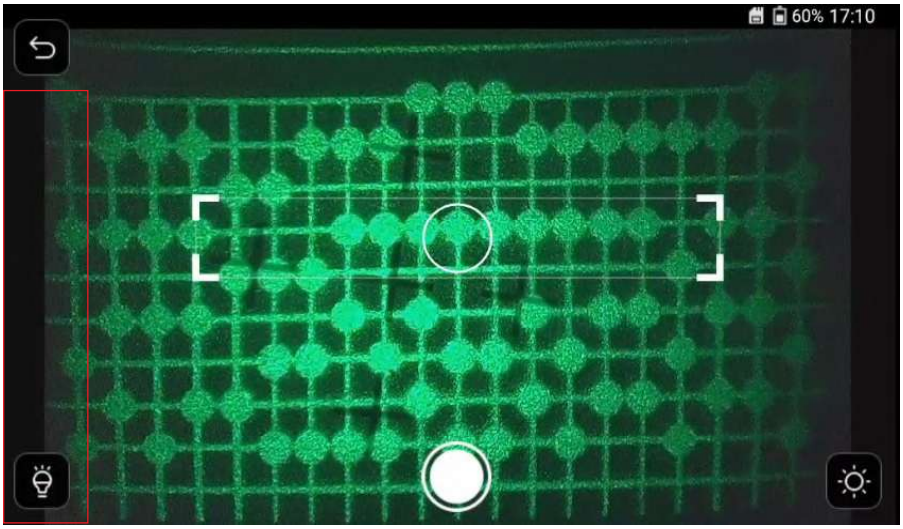
Overview of 3D-measurement system

The system provides 5 measurement functions on the 3D reconstruction images. You can create multiple measurements on each image and the results can be shown on its original 2D image.

				
Point-to- Point (Length)	Point to Line (Distance)	Point-to-Plane (Depth)	Area	Two-lines-angle (Protractor)

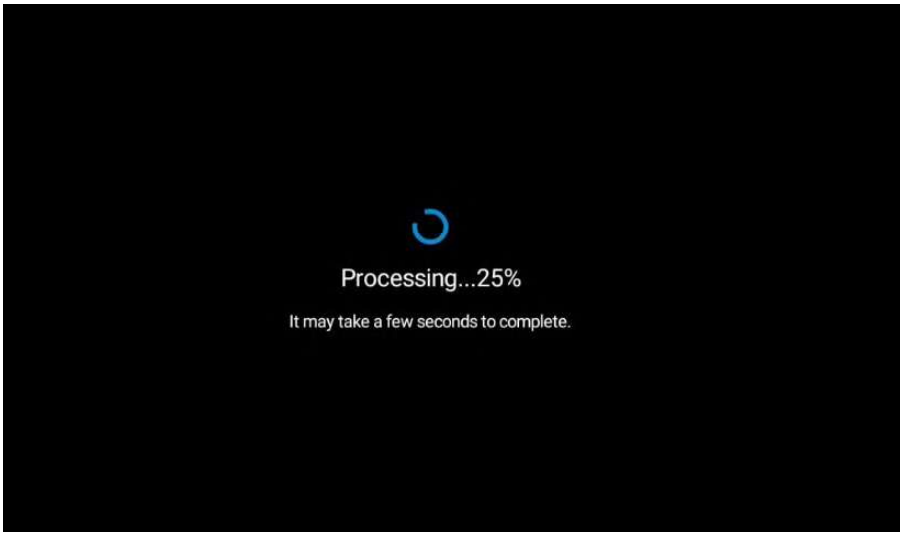
3.1 Capture a 3D image

Tap the  icon on the right side of the live view screen. A green light sampling matrix will appear. Follow these three steps to capture a high-quality 3D image:



1. **3D Focus:** Carefully adjust the camera's distance to the target surface. Align the fourth green point line so it moves into the center of the white focus circle.
2. **Left Sidebar Adjustment:** Adjust the left sidebar to make most of the green points clearly visible. Avoid overly bright or shiny spots.
3. **Right Sidebar Adjustment:** Adjust the right sidebar to ensure sufficient white light is projected onto the target surface to reveal key features.

Repeat and fine-tune the steps above as needed. Once ready, tap the white capture button located at the center bottom of the screen. Wait a few seconds for the system to complete the capture process.

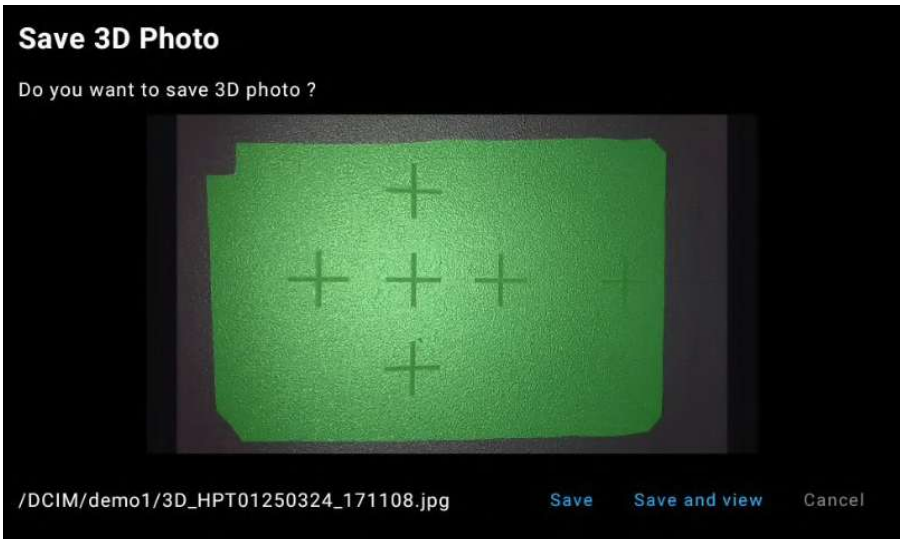


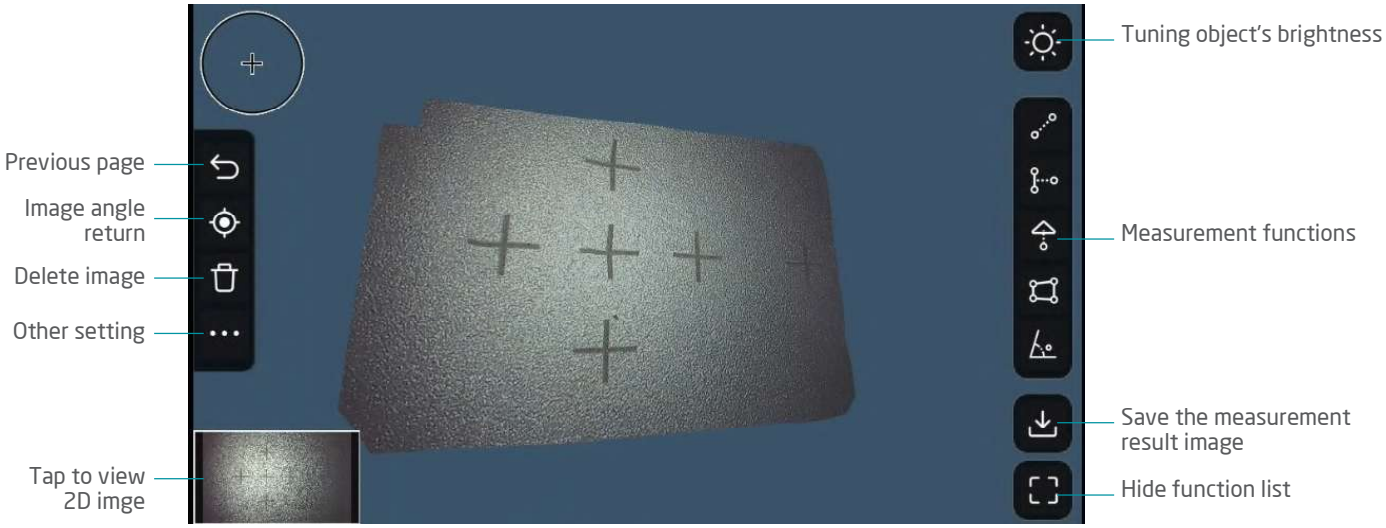
After processing, the screen will display a green mask representing the areas successfully reconstructed in the 3D model. You can now choose one of the following options:

-Save: Save the result and exit.

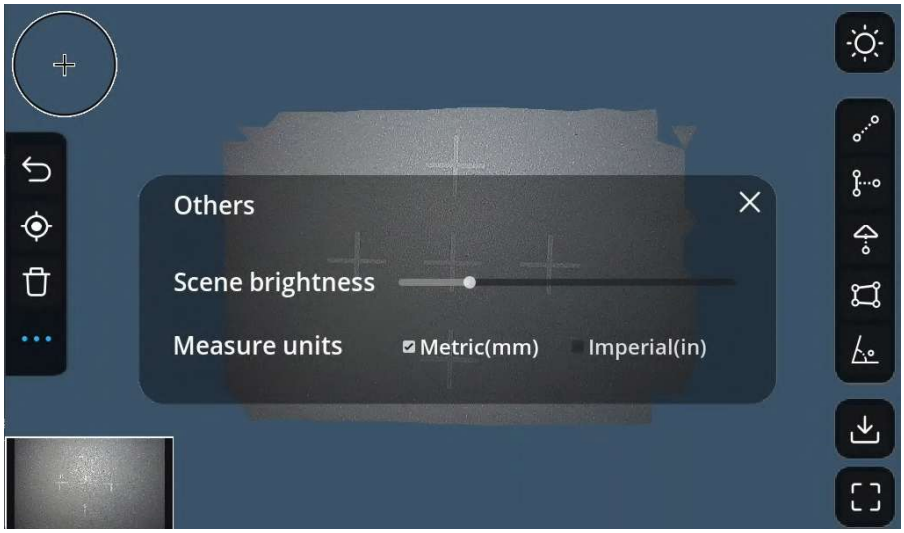
-Cancel: Discard and retake the image.

-Save and View: Save the result and proceed to the measurement interface.



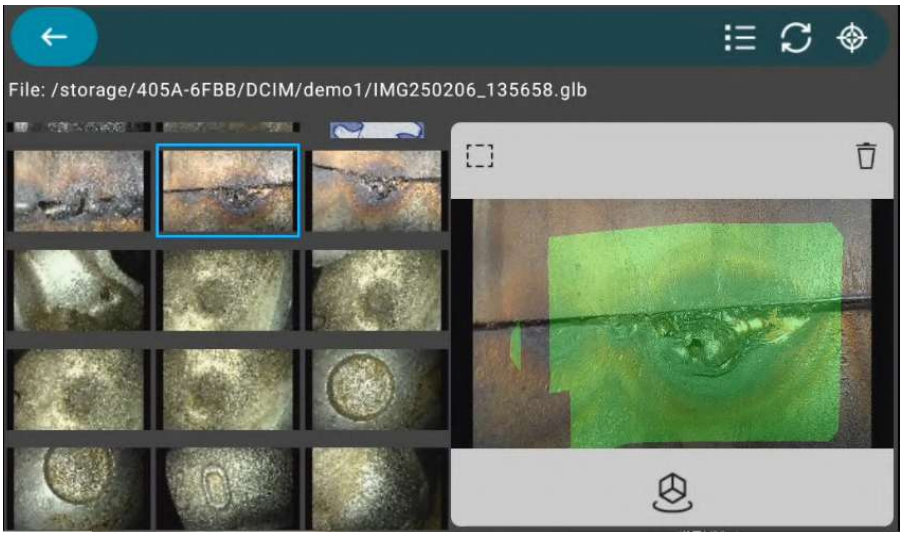


"scene brightness" and "measure unit".



3.2 Recall a saved 3D image

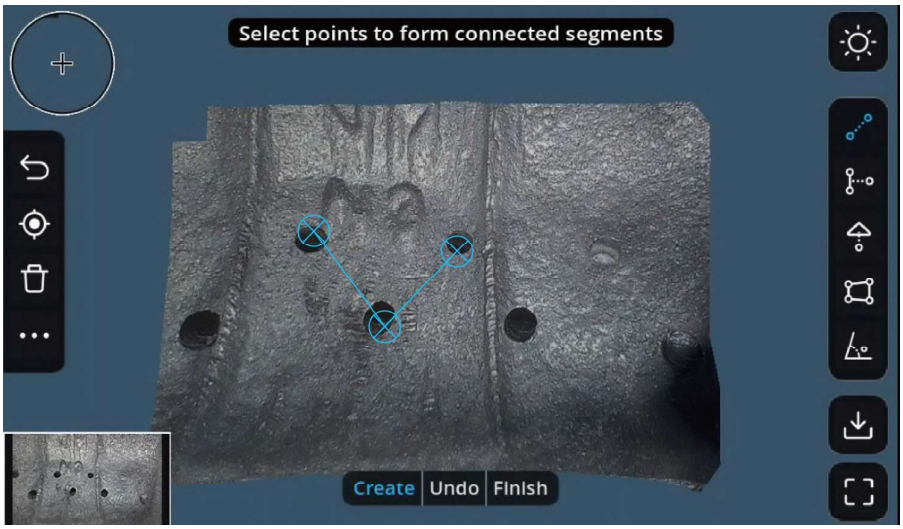
Tap the  on live view left side. The right window shows the “green mask” that indicates the area which was successfully re-constructed. Tap the cube icon can enter the measurement interface.

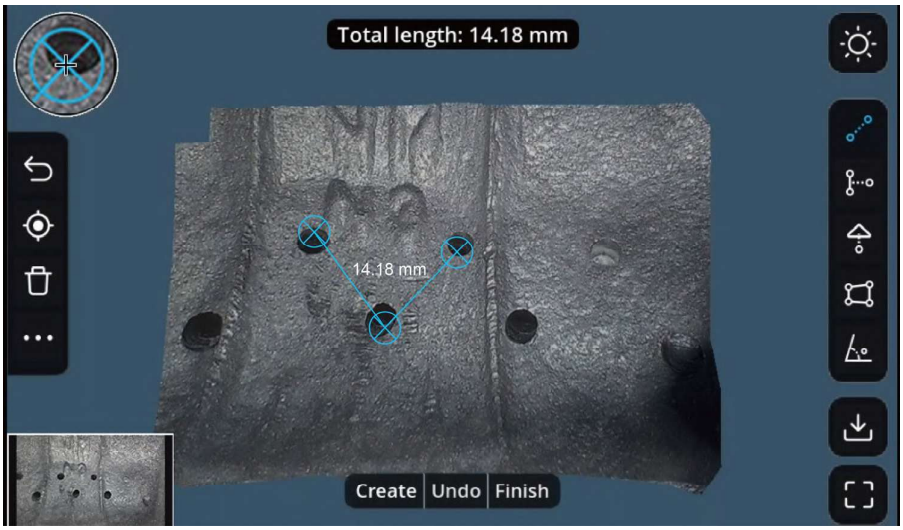


3.3 Measurement Functions

All the measurement functions provide step-by-step operation hints on the up side window. You can easily follow it to complete every measurement.
During putting cursor points, tap and drag and check if it is at the right edge/point by the magnifier up-left on the screen. It is crucial for getting precise result.
After finish, you can tap the down-left window to view check the measurement result shown on the original 2D image.

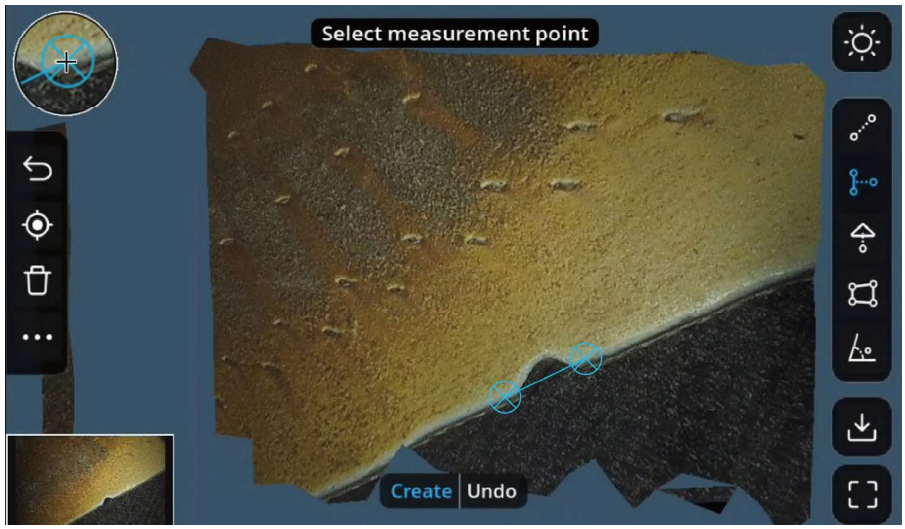
3.3.1 Point-to- Point (Length)

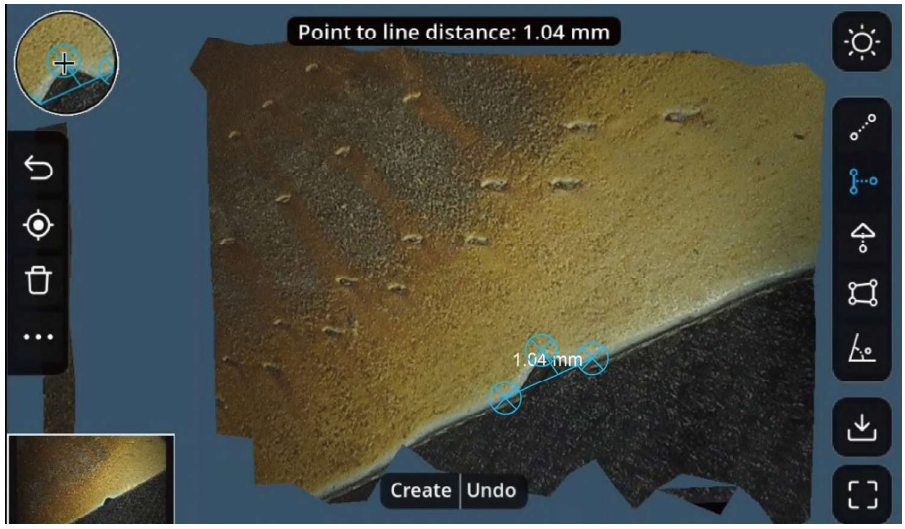




1. Tap the function icon then tap the [Create] button.
2. Set 2 cursor points to measure single line, or multiple continue points to measure curvy line.
3. Use the [Undo] button when put a bad cursor point. Tap the [Finish] button, the result total length shows distance between both points in 'mm' you can change the display unit into inch from the setting menu.

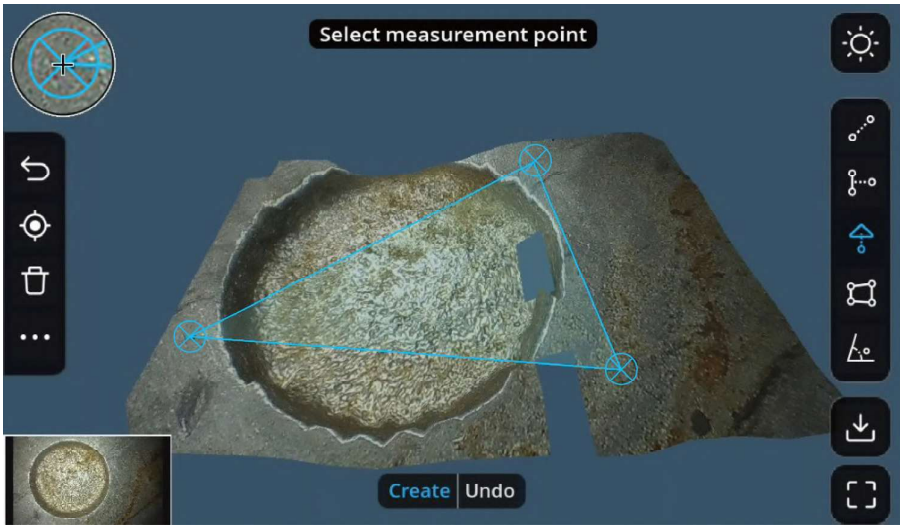
3.3.2 Point-to-Line (Distance)

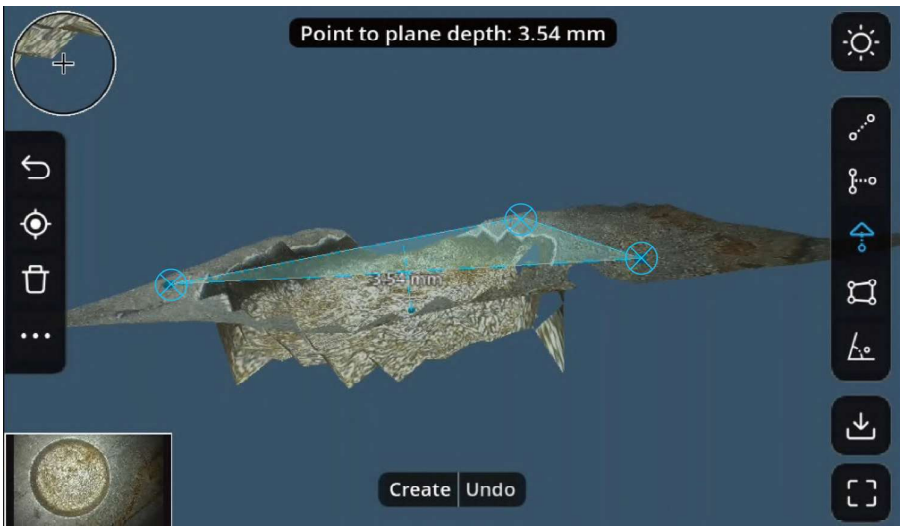




1. Set two points to define the baseline.
2. Set third point to calculate distance between point and line.

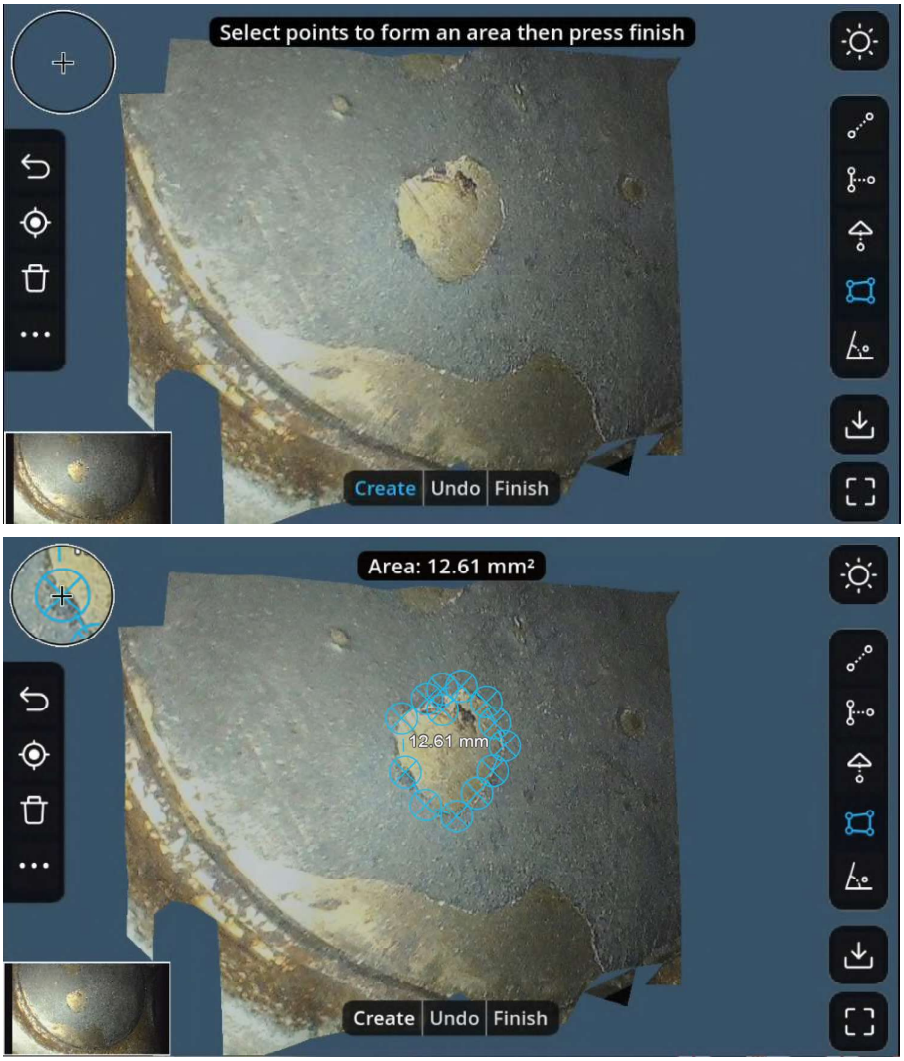
3.3.3 Point-to-Plane (Depth)





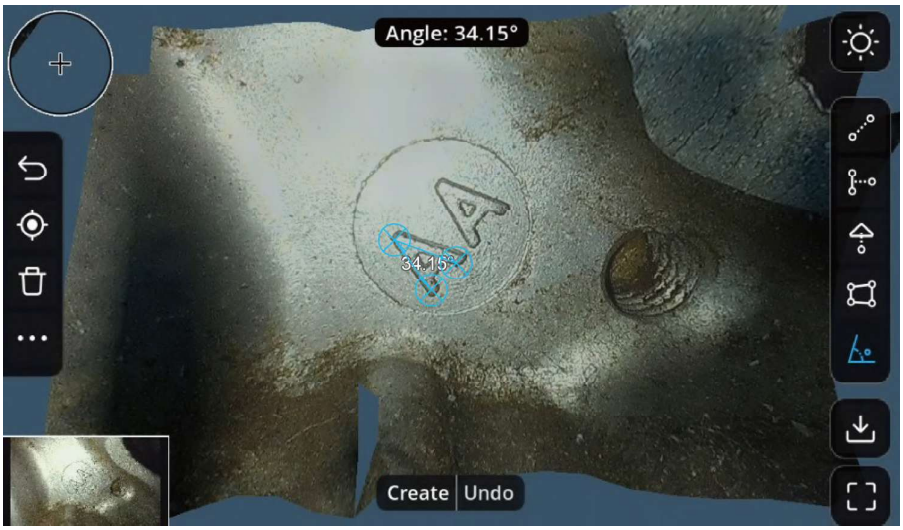
1. Set 3 points to define the reference plane.
2. Set 4th Point as measurement point.
3. Result shows shortest distance between measurement point and reference plane.

3.3.4 Multiple-point-Area



1. Set points to define area contour.
2. Press [Finish] to display the area of the selected region.

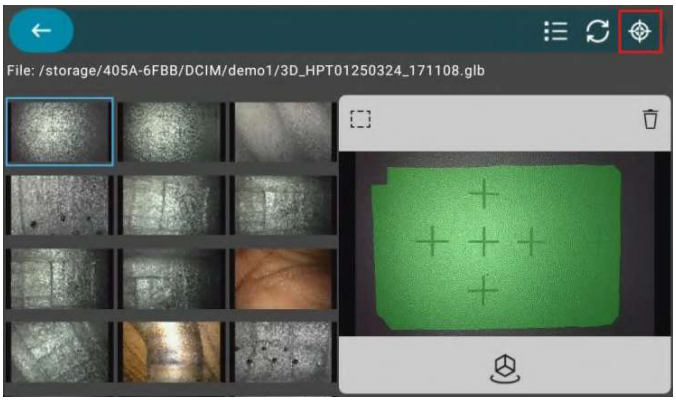
3.3.5 Two-lines-angle (Protractor)



- Set the anchor point and two end points to measure the angle.

3.4 Calibration and Error rate

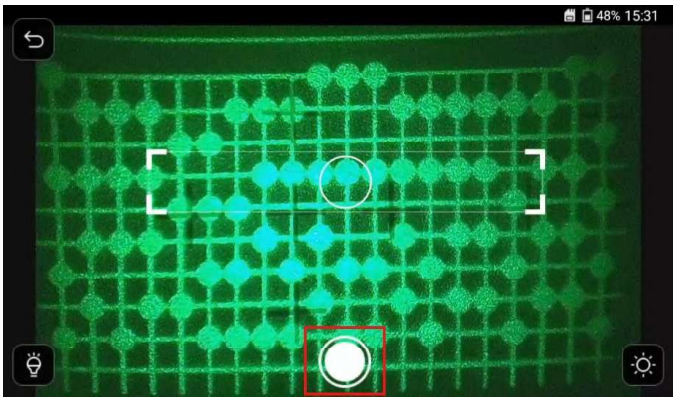
◆ Calibration Block & Process



Recommend to use calibration block to check accuracy before using every time. The distance between two cross marks should be within 4.75~5.25mm. If exceed this range, please do the calibration process as below.

▶ Step 1.

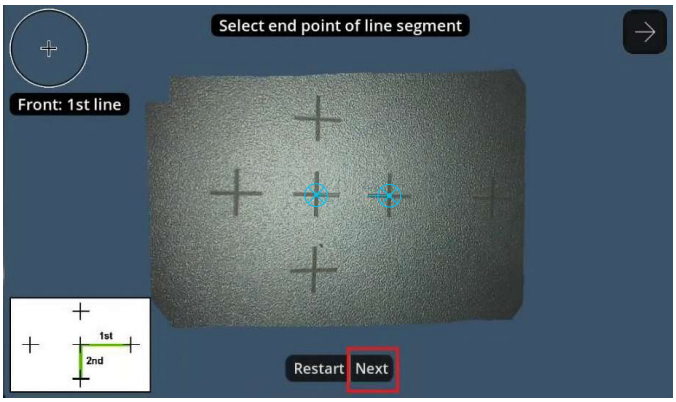
Enter the 3D measurement interface then find the button on the up right corner. Tap it to start the calibration process.



▶ Step 2.

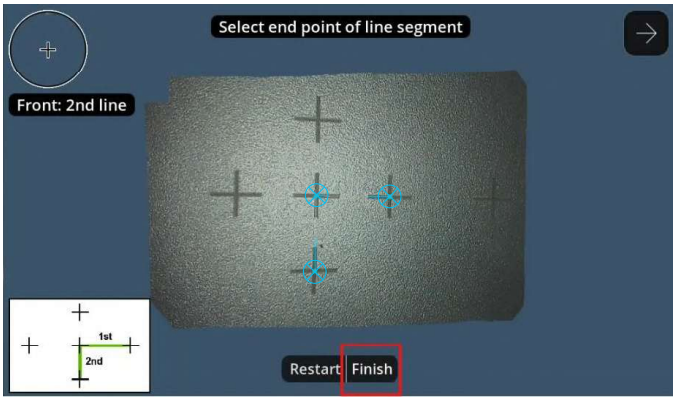
First, do the front view camera.
Insert the probe into the calibration block's "FRONT" hole till it contacts the wall.
Spin ti till the five crosses horizontally align with the 3D focus window as possible.
Then, tap the white 3D capture button.

Calibration Block



▶ Step 3.

The 3D model will be reconstructed in a few seconds. Then follow the instruction on screen to set the 1st line.



▶ Step 4.

Follow the instruction on screen to set the 2ND line then tap "Finish".
The system will automatically switch to the side view, and then you need to insert the probe into the "side hole". Repeat the step 3 and step 4 and finish the process.
After complete, the system will return to live view automatically.

▶ Step 5. Use calibration block to check the result. Insert probe into holes respectively and take 3D picture. Measure the length between cross marks.

Specifications

X3000 Base Unit / Monitor	
Dimension	L:355 W:216 H:214 (mm)
Weight	2200 g
water proof	IP 54
Display	above 7" LCD monitor with full touch panel
I / O Port	Power button
	Micro SD memory card slot
	USB Type-C (data transmission)
	Mini-HDMI (AV Output)
	Reset button (pin push)
Display Extension	HDMI / USB-C to +7" monitor
Tip Temperature warning	Low / Middle / High warning on screen display
Power indicator	0 ~ 100% indicator on screen display
Microphone	Built-in (on / off switch by setting menu)
Memory media	External Micro-SD card. Up to 128 GB
System languages	30 languages with user interface context
Battery	
Dimension	L:125 W:114 H:58 (mm)
Weight	520 g
Charging time	4.7-4.33hrs (2.5A-3A) *Power adaptor: output 45W, 3A
Discharging time	Typical 6 hours operation
LED Indicators	Red: charging / Green: full charged / Flashing: Abnormal
Operating Environment	
System Operating Temperature	-20°C~40°C with AC adapter
Tip Operating Temperature	-10°C~100°C in air 10-30°C in water
Storage Temperature	0°C~60°C
Battery Charging Temperature	0°C~45°C
Image functions	
WDR (Wide Dynamic Range)	Software merge 3 pictures in 1
Negative	High contrast film effect
Rotation	90-180-270 degree rotation of the image
Compare	Select any saved image to compare with live view image
Annotation	Text and hand draw remarks on saved image (English letters and symbols)
Watermark	Fixed Mitcorp watermark on image
Tag	Editable preset tag text on still images (English letters and symbols)
Image Adjustment	Sharpness / Contrast / Saturation / White Balance
File Management Functions	
Gallery playback	Grid view / List view / File filter.
Create / edit folder	Editable preset for saving images
Create / edit filename	Editable prefix text for saving images
Package / Accessories	
HDMI cable (AV-out)	1.5 m, HDMI 1.4a,TYPE A to TYPE D (Micro HDMI)
USB cable (data transfer)	1 m, TYPE C to TYPE A
Carry case	Airtight trolley case; Include a set of mono-pod
Micro SD card	Maximum 128G
Battery	DC output 7.26V, 8680mAh*1 sets
DC power adapter	USB PD 45W(DC 15V ⎓ 3A) with Cable
Rigid sleeve	Detachable hand grip (*1 pcs); 45 cm stainless steel extension poles (*2 pcs)
Probe clamp plug	Applicable to insert hole diameter between 20 mm~25 mm. Clamp only for 6 mm series camera probe
Centering Devices (Optional)	O.D.: 18 mm*1, 38 mm*1 65 mm*1

Regulatory	
Basic safety	CE / FCC
EMC	EN55032 / 24 , part 15B(ITE)
Environmental	WEEE / RoHS/REACH / CA65 / Conflict Minerals
Battery	UN38.3 (1.2 m drop / 3 m stacking / test summary) 、PSE 、IEC62133 、BSMI 、CCC

Insertion Probe	60D4W-FS/FSM
	
Still Image resolution	Front & Side: 2560*1440
Video record resolution	Front & Side: 1920*1080
View angle	Front (0°) + Side (90°)
Tip length	25 mm
Tip Construction	Stainless steel housing. Front + Side 2 pairs: camera / light source / micro projector integrated packing
Outside Diameter (OD)	6.0 mm
Probe Length	3 m / 3.5 m
Probe Construction	Tungsten steel out-braid
Field of View (FOV)	95° ±5%
Depth of Field (DOF)	10 mm~∞
Illumination light source	Front: Fiber + backend LED. Side: LED on tip
Temperature resistant	Up to 100°C
*3D Measurment Software Activation	Optional
Articulation	Full way mechanic joystick with lock button
*Neck bending angle	≥ 135°
Console Function Buttons	Trigger: snapshot / freeze / record; Round button: bright+ / bright- / custom hotkey
Water proof	Camera tip: IP67; Scope console: IP54

* The articulation bending angle will decrease up to operation time and frequency conditions.

*3D Measurment (Optional - Software Activation)	
Functions	Point to Point (Distance)
	Point to Line (Distance)
	Point to Plane (Depth)
	Multi-point to Line (Length)
	Multi-point-Area (Area)
	Two-lines-angle (Protractor)
Object distance	10~25 mm
Measurable area	130~830 mm²

SEP-25-EN

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