

Industrial Videoscope X600



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Safety & Cautions

CE NOTICE

X600 is in conformance with the following standards:

- 2014/30/EU Electromagnetic Compatibility Directive

FCC NOTICE

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:

Any changes or modifications not expressly approved by the grantee of this product could void the user's authority to operate the product.

RoHS NOTICE

X600 is in conformance with the requirements of the European law on the Restriction of Hazardous Substances (RoHS) directive. This means that our product is both lead-free and without the hazardous substances either in the manufacturing process or in the final product.

SAFETY GUIDE

USER MUST PAY ATTENTION TO THE INFORMATION PROVIDED HERE TO ENSURE SAFETY.

We suggest you read the following statements carefully before using the product. If the product is used in a manner not specified by the manufacturer, the protection provided by the product may be impaired.

CAUTION If this product is used without observing the information given under this symbol, it might cause damage to this product.

CAUTION BATTERY

- Risk of explosion if battery is replaced by an incorrect type.
- Dispose of used batteries according to the instructions.
- Never replace the battery by yourself.

CAUTION CERTAIN SUBSTANCES MAY DAMAGE THE PROBE

- Please refer to chemical resistance below. Contact the store you purchased for unsure chemical solutions for further information.

Chemical Resistance:

- Water
- Brake fluid
- Gasoline
- Diesel fuel
- Transmission fluid

WARNING If this product is used without observing the information given under this symbol, it might cause injuries or loss of life.

WARNING HAZARD ENVIRONMENT

- Do not use this product in explosive environments such as gasoline or alcohol storage tank.

CAUTION This product does not support probe hot swap. Please always connect the compatible probe properly before switch on.
Switch off the product before changing the probe.

WARNING FLAMMABLE GASES

- Do not use this system near flammable gases.

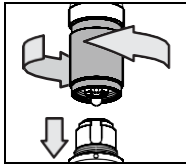
WARNING INDUSTRIAL USAGE ONLY

WARNING INTENSIVE LIGHT MAY CAUSE EYE INJURY

- Avoid looking at the camera head while LED is on.

Getting started

1. Ensure that a micro SD card is inserted in the slot.
2. Carefully connect the camera probe as detailed below:



- (1) Align the white dots printed on the probe and monitor's connector.
- (2) Carefully plug the probe into the monitor.
- (3) Tighten the connecting collar to secure the probe connection.

** Connecting the probe to the monitor.

Long press the power button, the logo will appear. The camera image will then appear.

If the battery status icon is showing a low, or if the monitor will not power up, connect the X600 to an AC power source using the supplied AC adapter/charger.

If the screen freezes, press the rest button for 2 seconds. Long press the power button to power on the X600 after the reset.

Long press the power button to switch off the X600 after use.

[Part I] Product Outlook

- 1.1 X600

Power



Microphone

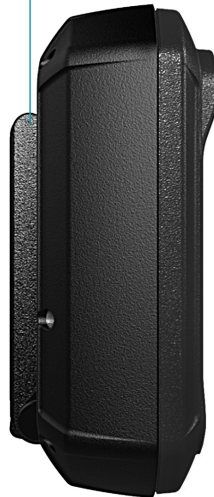
Magnetic tilt stand

Reset

Micro SD port

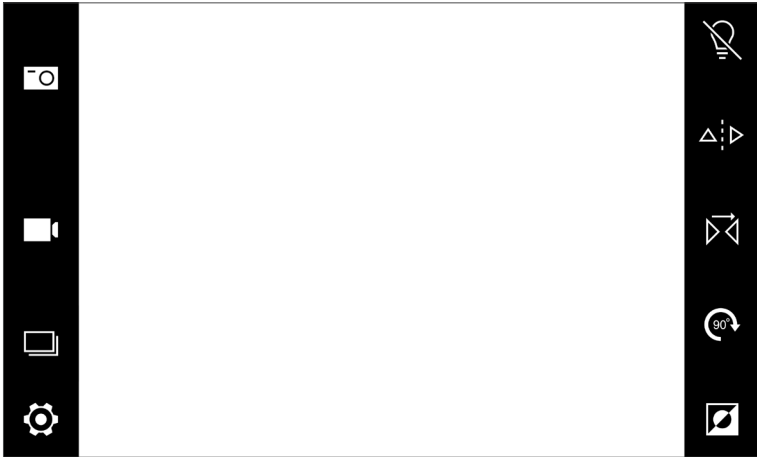
Micro HDMI port

USB-C port



[Part II] Main function

- 2.1 Live View screen UI













- 2.2 Live view Screen Overlays



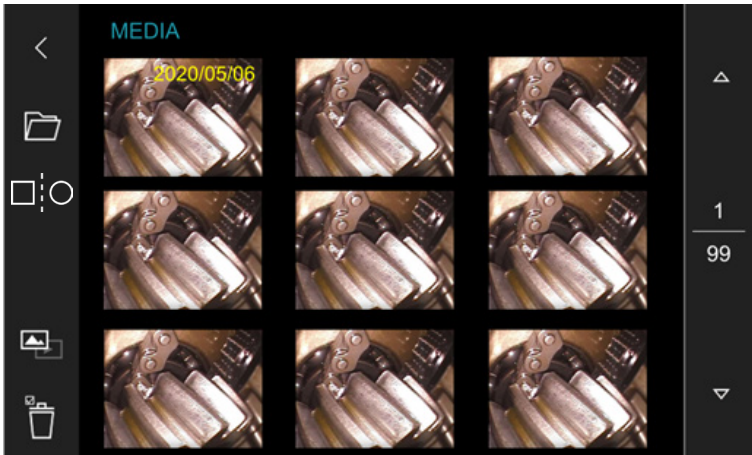
• 2.3 Function Buttons










List as follows:

Items	Button	Description
Snapshot		Save the live-view picture in the SD card. Snapshot can be done during recording and video playback.
Recording		Record videos in the SD card.
Album		Access the SD card to review images and videos been saved.
Setting		Setting menu.
Brightness		LED light on/off.
LED direction		With dual camera model or side view mirror tape this icon to show the camera view from front to side or from side to front.
Mirror image		Tap to show a mirror image from the camera view.
Rotate image		Tap to rotate image clockwise (90°, 180°, and 270°).
Negative		Tap this to show the camera image in a 'negative' contrast format image negative effect to highlight scratch defects.
Full screen		Full screen live view switch.
Zoom in/out		Pinch-To-Zoom.
Power button		Power on/off.
LED indicator		"power on-green" -> battery high "power on-red" -> battery low "power on-orange" -> charging "power off-red" -> charging "power off-none" -> full charged.

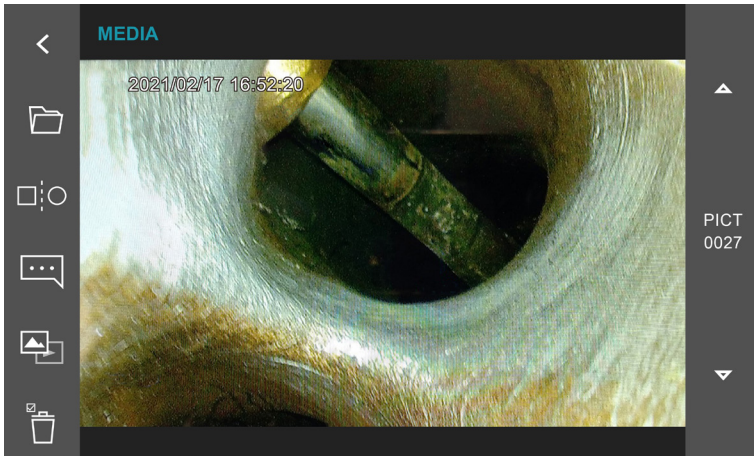
- 2.4 Album

- Photo album: The system list latest file in the order of right-down. When there are different date fields in the same page, the first file will be marked a yellow date code.



Button	Items	Description
	Back	Go back to live view.
	Session	Go to access SESSION folders or edit mode.
	Compare image	Refers to the <u>Compare function</u> ^{*1} bellows for details.
	Photo album	Indicate now under photo album. Tap to go to video album.
	Video album	Indicate now under video album. Tap to go to photo album.
	Delete select	Select files to be deleted.
	Delete file	Confirm deleting selected files.
	Page up	Album page forward.
	Page down	Album page backward.

- Single photo view



(*1) Compare function: To compare a stored image (target flaw or golden sample) with the live view on a split screen. In album mode, tap the icon then select an image then the screen will split as showing the stored image on the right and the live view on the left.

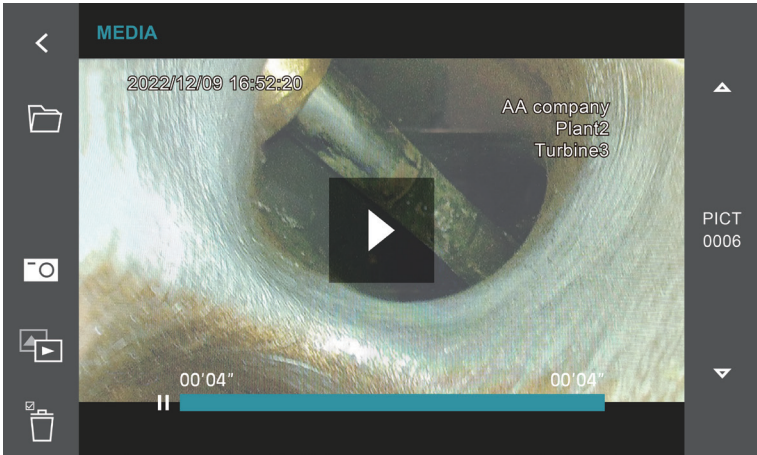





1. Move - move the stored image to the target position.
2. Switch - switch the images from right to left.
3. Replace - replace the stored image to another stored image.
4. Tap the compare icon button will go back to normal live view.

- Video album: The system list latest file in the order of right-down. When there are different date files in the same page, the first file will be marked a yellow date code.



- Single video playback

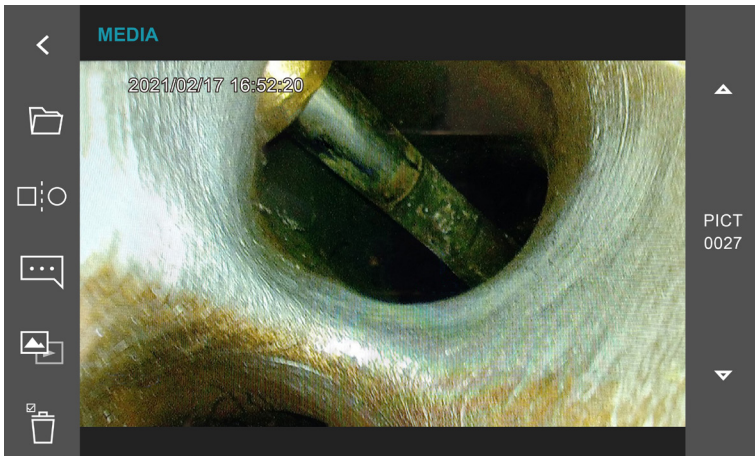





Button	Items	Description
	Play	Start to play back the video. Touch the screen can play/pause while playback.
	Screenshot	During video playback, tap to screenshot real-time image at any moment.
	Photo album	Indicate now under photo album. Tap to go to video album.

- 2.5 Album - Photo annotation function

The X600 system allows user add maximum 10 notes on a photo. Each note can key in maximum 24 characters. The edit steps as follow:

Tap the comment icon and type a comment using the touch-screen keyboard that appears; Tap DONE on the keyboard when finished.

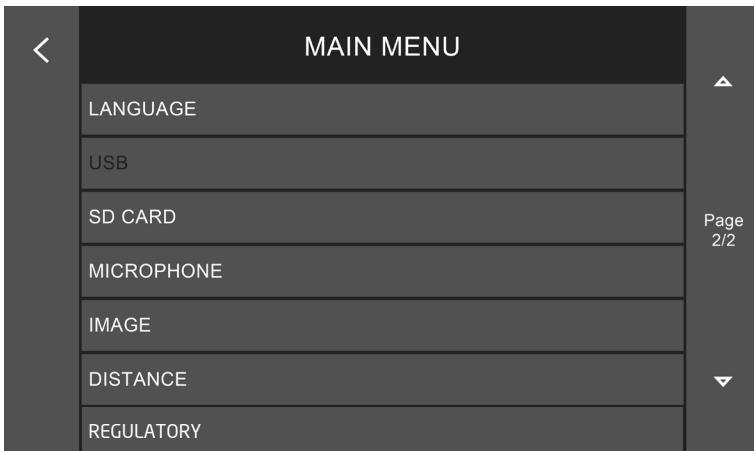
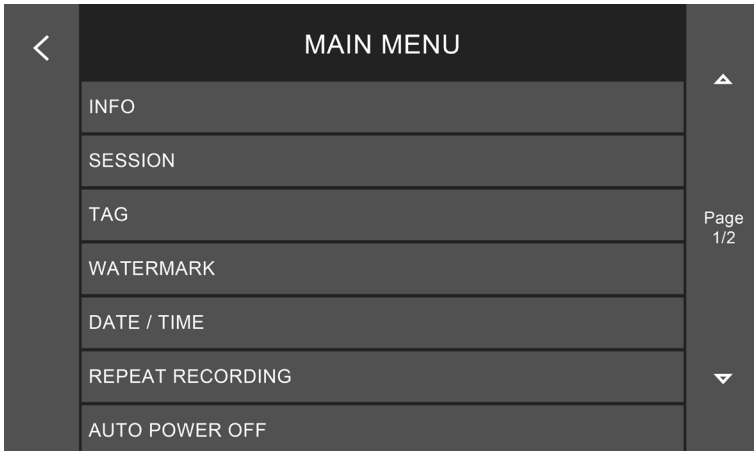


Items	Button	Description
Add Note		[key in]-> [Done]. Then a note can be done. Move note position: Touch any note been made on screen then it shows a green frame. The note frame can be dragged to any position you want to mark on the photo.
Erase Note		Tap a note note been made on screen then it shows a green frame. Delete notes by tapping the eraser.
Save		Tap to save the comments with the photo. The original photo will not be covered.

[Part III] Setting menu

- 3.1 MAIN MENU

Including 13 setting items in 2 pages.



- 3.2 INFO.

Include firmware information.

- Current hardware and firmware version.

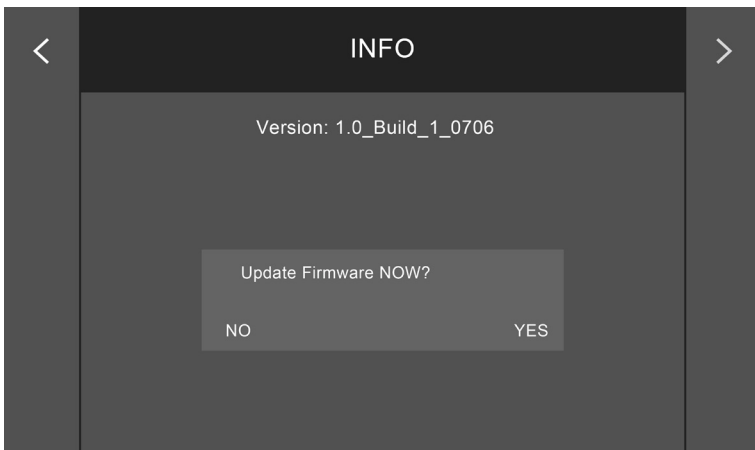
Firmware upgrade: When there is a new version firmware be suggested, save the file (.BRN file format) in the SD card root dictionary.

Low battery status(below 1/3) may cause upgrade process fail. We strongly recommend to plug the charger and cable on during this operation.

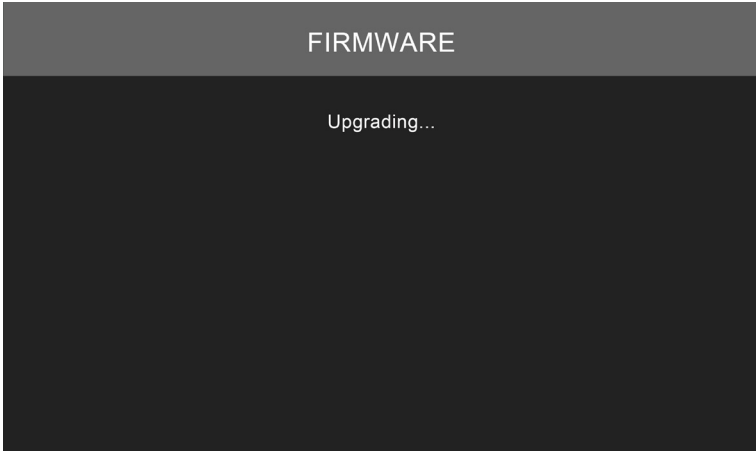
1. Tap the ">" button up-right the screen.



2. Follow the instruction



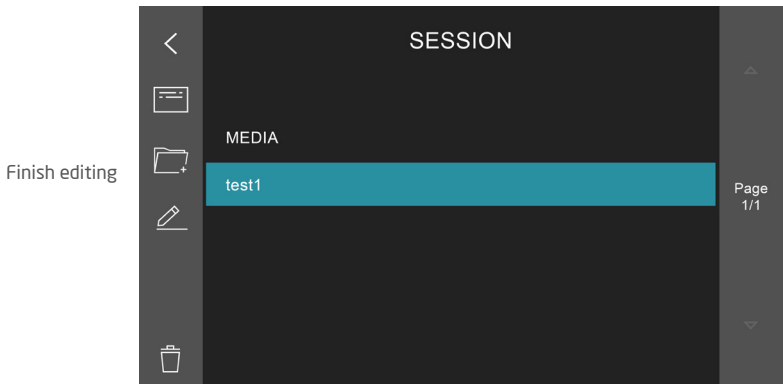
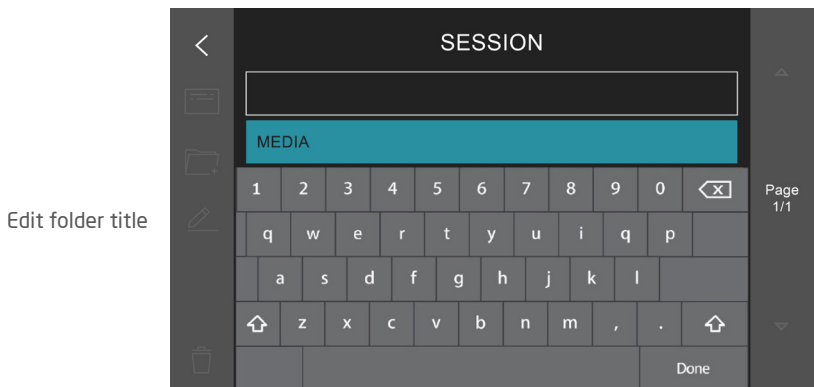
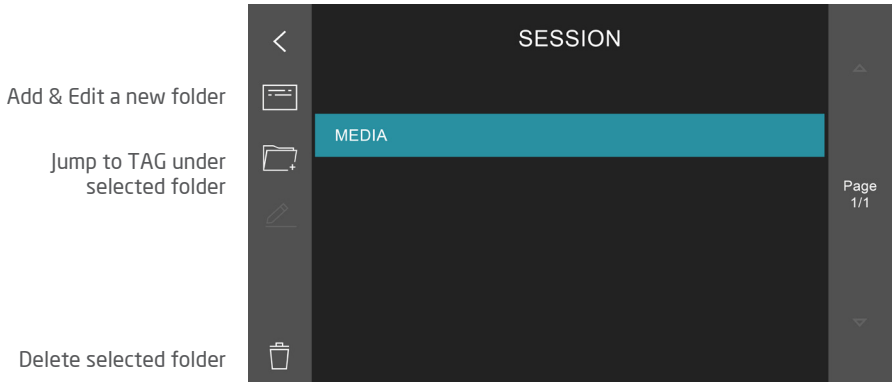
3. The system will automatically shut down when the upgrade is done. Reboot the system then check if new version is properly installed



• 3.3 SESSION

X600 provides custom build photo/video storage folder under SESSION. When a new SD card is installed, the default folder-MEDIA will be built.

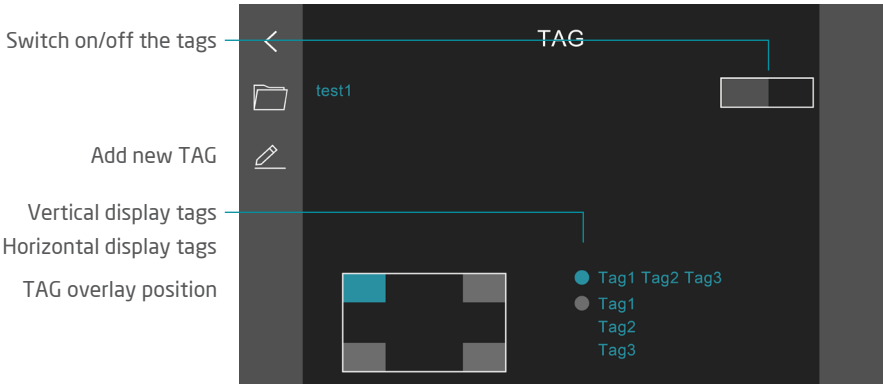
The edit steps as follows:



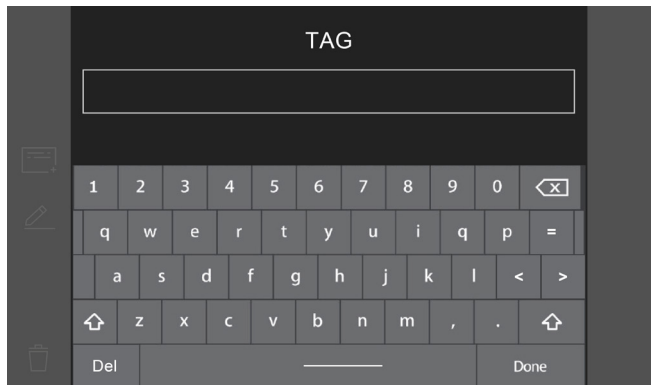
• 3.4 TAG

X600 provides custom build photo/video storage folder under TAG. When a new SD card is installed, the default folder-MEDIA will be built.

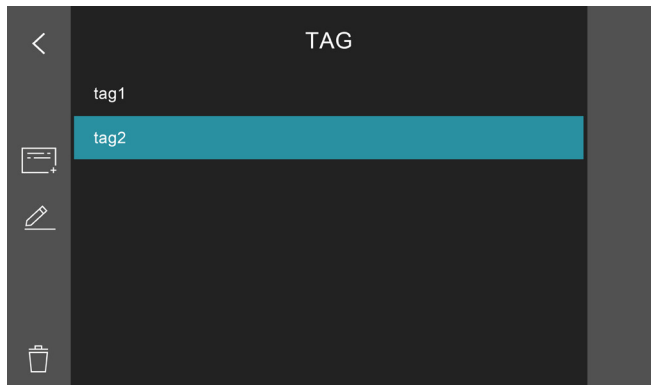
The edit steps as follows:



Tap 'ADD' pop-up keypad



Delete selected tag

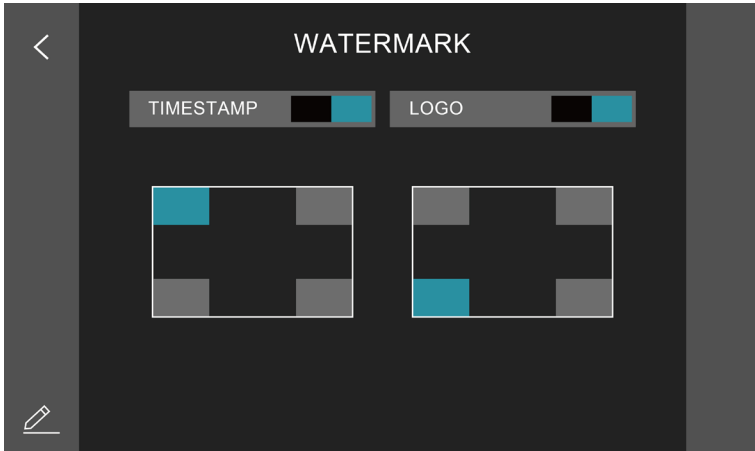


<Note>

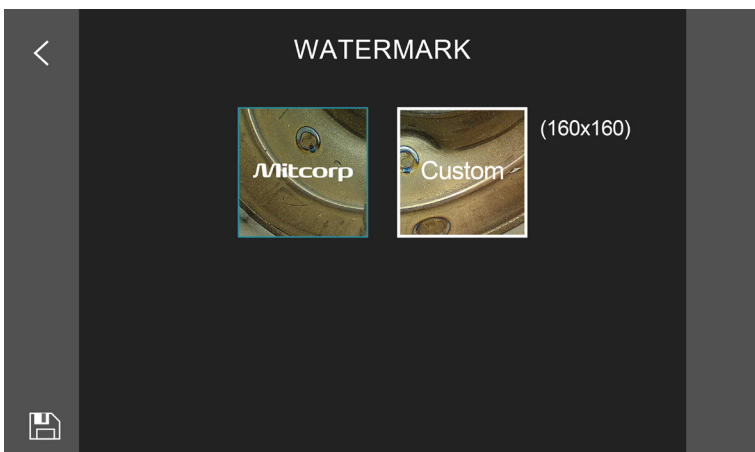
- SESSION and TAG custom setting are saved in system internal memory. All edit mention above need to be done on X600. You cannot edit the SD card via any other PCs to get the same result.
- When you replace another SD card, the custom SESSION and TAG will be automatically load on. If the SD card has same folder name inside already, then that folder will be hired directly. Other data/files in that SD card will not be changed or moved at all.

- 3.5 WATERMARK

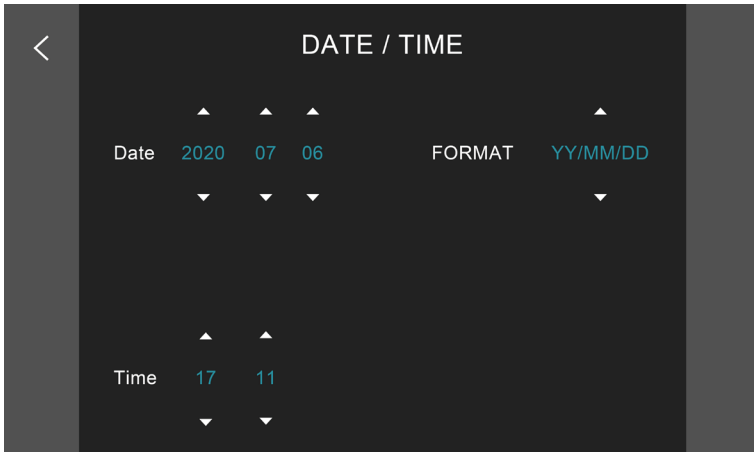
- On/off switch for timestamp and watermark overlays on snapshot.
- Timestamp and Watermark position are adjustable to 4 corners of the photos.



- The watermark logo can be replaced a follow steps:
 - 1 Save logo file in SD card on root directory.
File format: 160*160 resolution; .JPG; black background (RGB-0.0.0.) Name the file as WATERMARK
 2. System will show the exiting file list below. Tap the file then the “save” icon to load it into system memory.
The logo show in the right side preview window.
 3. (“CUSTOM” as the sample case) when the processes are properly done.
Tap the preview window to enable custom watermark.

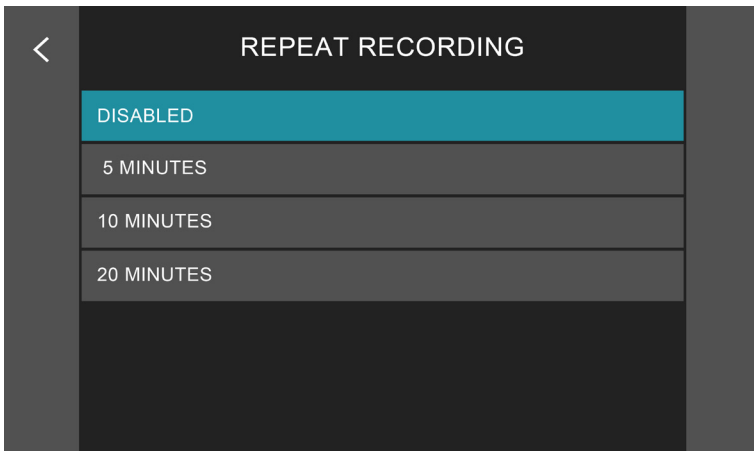


- 3.6 DATE / TIME



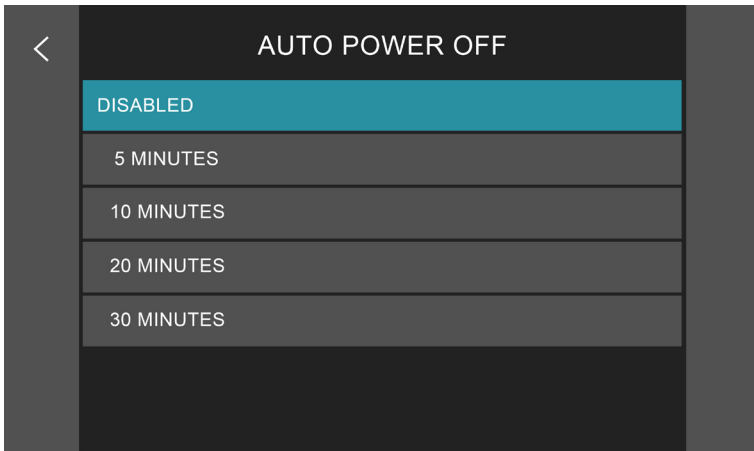
- 3.7 REPEAT RECORDING

The system provides 4 modes of repeat recording length. When disable this function, the system will set as 20 minutes none repeat recording.



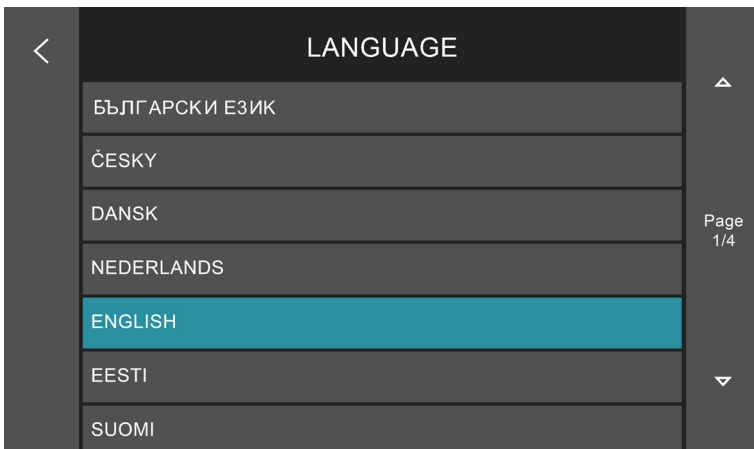
- 3.8 AUTO POWER OFF

4 modes of auto power off settings.



- 3.9 LANGUAGE

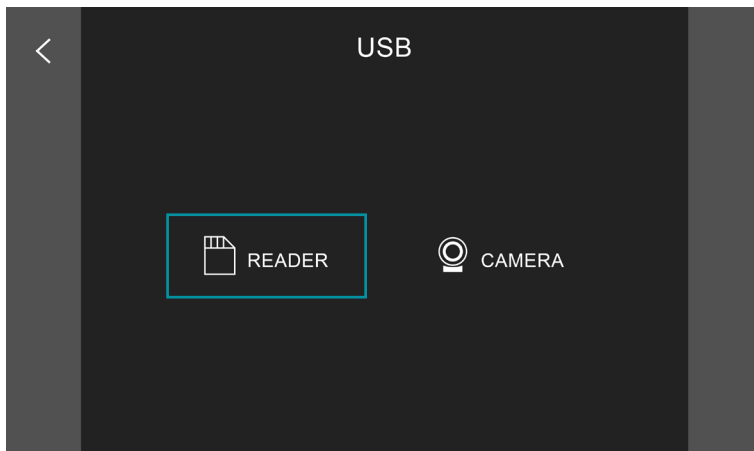
Support 28 languages.



- 3.10 USB PORT

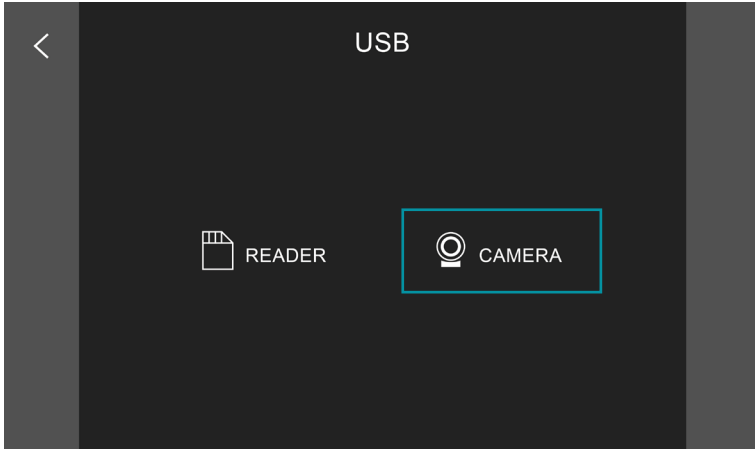
- When the USB port is connected to the PC, select the desired output: (1) SD card reader (2) Camera.

(1) SD card reader: Please select READER.



Stored media can be downloaded to a PC using USB-C port. The X600 will be recognized by the PC as an external storage drive, a new drive will appear in file explorer on the PC. You can simply drag the files out from the X600. Contact Mitcorp for the software.

- (2) Camera: The live image can be viewed on a video monitor or connected to a PC show the inspection via online meeting app for real-time sharing.



1. Webcam mode

The live image can be viewed on a video monitor or connected to a PC show the inspection via online meeting app for real-time sharing. Connect the X600 to PC and log on the online meeting app, select the X600 as the camera from setting. The PC will share the same inspection view on the X600. Support Google Meet, Zoom, Microsoft Teams, Skype.

2. USB videoscope

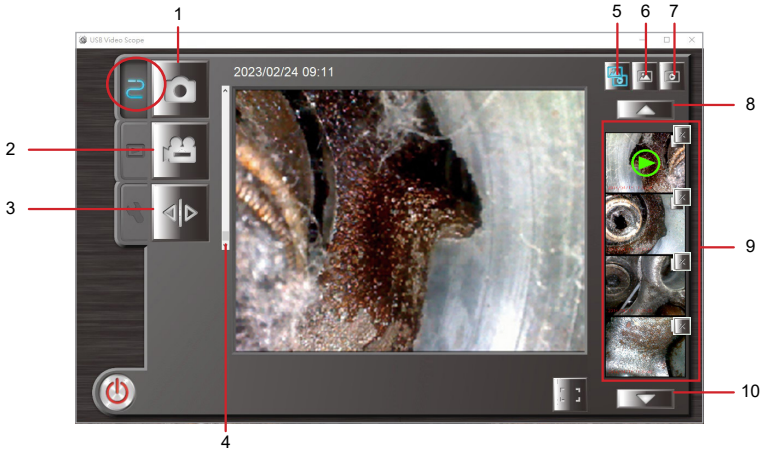
The software enables Mitcorp videoscope to work on PC. Download the software USB Video Scope to PC. After the driver is correctly installed connect the X600 to PC with USB cable. Turn on the X600, select CAMERA then turn on the software USB Video Scope.









Operating system: Win10 and higher version.

System requirement: CPU: AMD Athlon II 2GHz above (Quad core)/ Independent graphics card / RAM 4G or above.

OPERATION

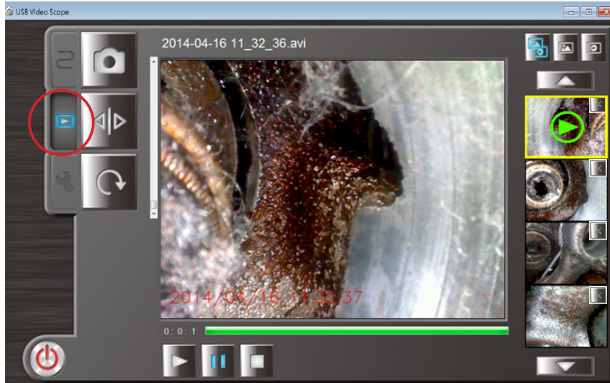
Instant mode



1. Snapshot - Click  button or `space bar` from the application window, or press the Snap button on the console to take a photo.
2. Video record - Click  button or `Ctrl + R` key on the application window to start recording video. To stop recording, click the Rec button on the application.
3. Mirror - Click  or `Ctrl + M` key to flip the image horizontally.
4. Zoom in - Roll up the bar to zoom in the image from x1.0 to x4.0, You can also click the `↑` key on your PC to zoom in, click the `↓` key on your PC to zoom out.
5.  Preview both photos/videos or `Alt + A` key.
6.  preview photos only, or `Alt + P` key.
7.  Preview videos only, or `Alt + V` key.
8. Click  to previous file, or `PgUp` key.
9. Display 4 latest photo/video, press `1 ~ 4` key to preview
10. Click  to next file, or `PgDn` key.

Browse Mode


Press 2nd TAB on the screen or press any picture/video on the preview window. The Browse mode will not function if no pictures/videos in the folder.




Mirror

Click  or **Ctrl** + **M** key to flip the image horizontally.

Rotate

Click  or **F2** key to rotate image counter-clockwise 90°

Screenshot on video

You can click  or **space bar** key anytime during video playing to get still image


Video Play

Click  to play selected video, or **Ctrl** + **P** key

Click  to pause, click  to continue play, or **Ctrl** + **P** key

Click  to stop the video, or **Ctrl** + **S** key

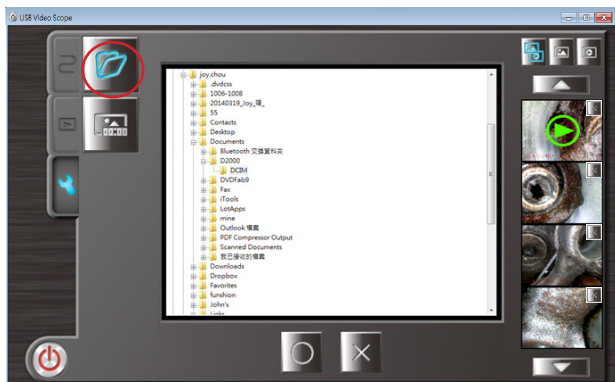
Delete



Select the image click  on the up right of the photo / video image or **Delete** key

* Back to instant mode, click **ESC** key

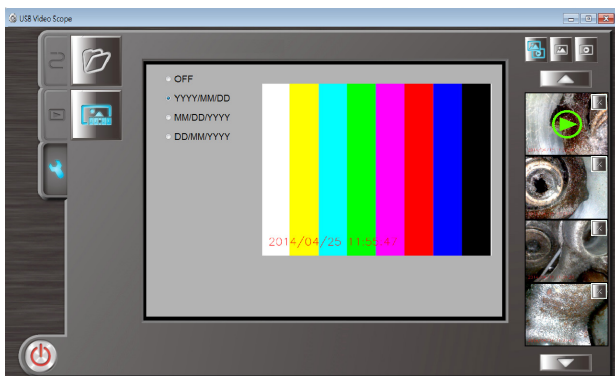
Setting Mode

Destination folder set up




Select the destination folder to save images and videos, click  to change setting or  to skip and keep the default setting. (C:\Users\Documents\USB VideoScope).

Time stamp set up



Select the time stamp display format, all photos and videos will be saved with selected format on left bottom.

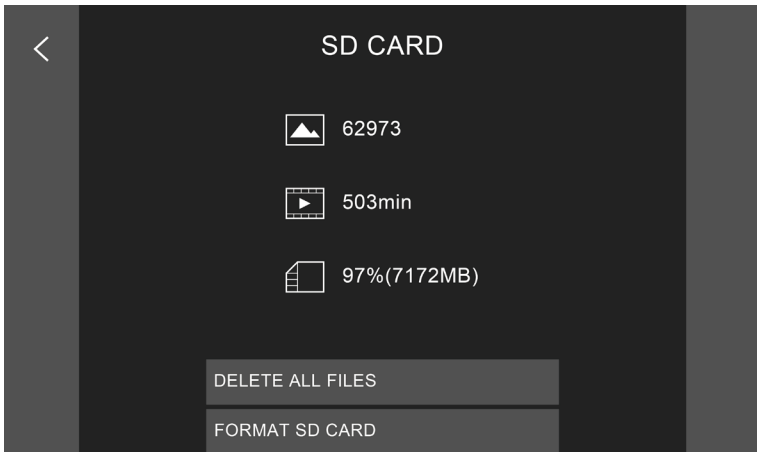
* Back to instant mode, click  key

Charging

When connected to PC the X600 also charges its battery. For quicker charging connect the X600 to an AC power source using the supplied AC adapter and USB cable.

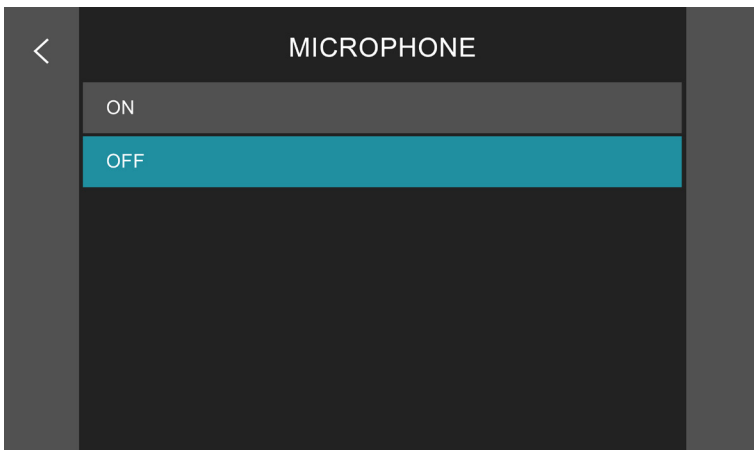
- 3.11 SD CARD

Show the SD card storage status, delete, and format functions.



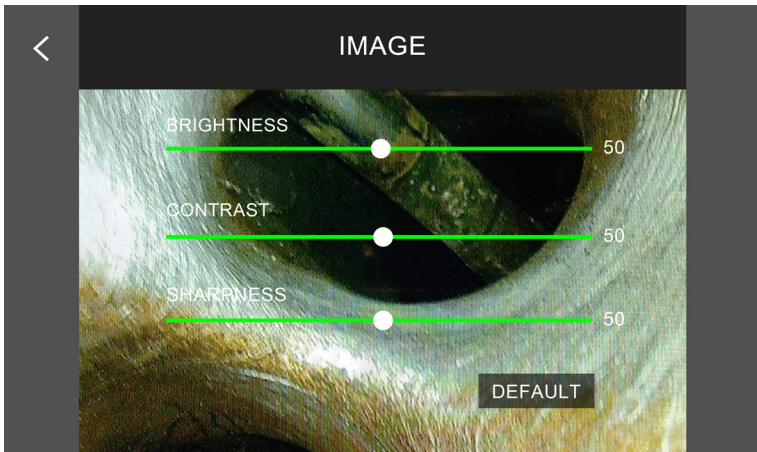
- 3.12 MICROPHONE

Switch on/off voice recording while recording videos.



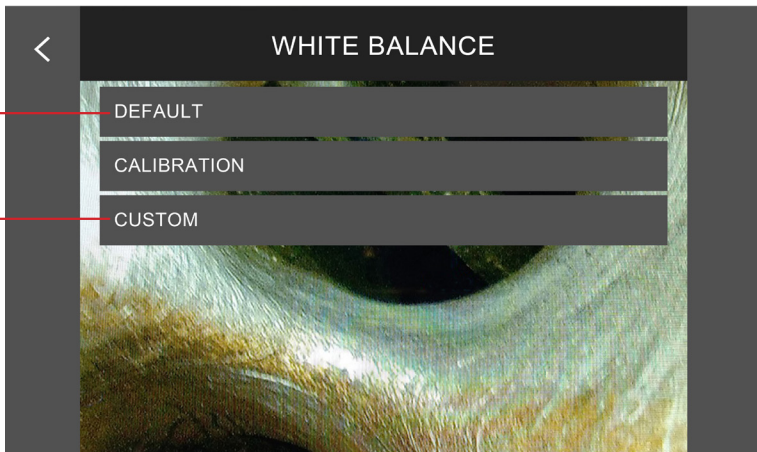
- 3.13 IMAGE

The system provides 3 fine tune parameters and DEFAULT function.

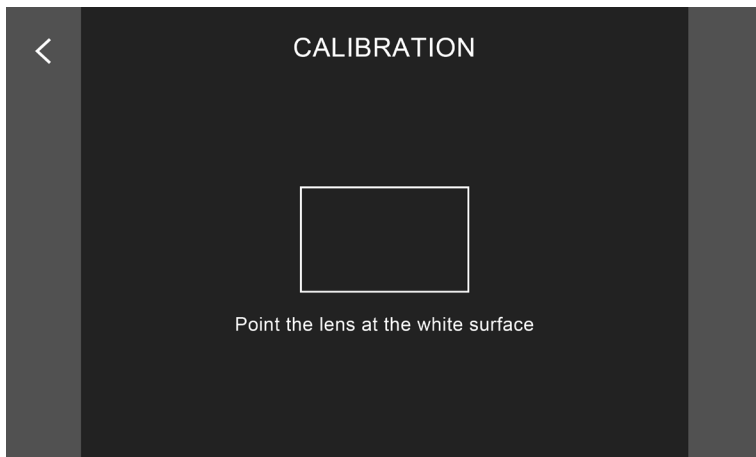


- 3.14 WHITE BALANCE

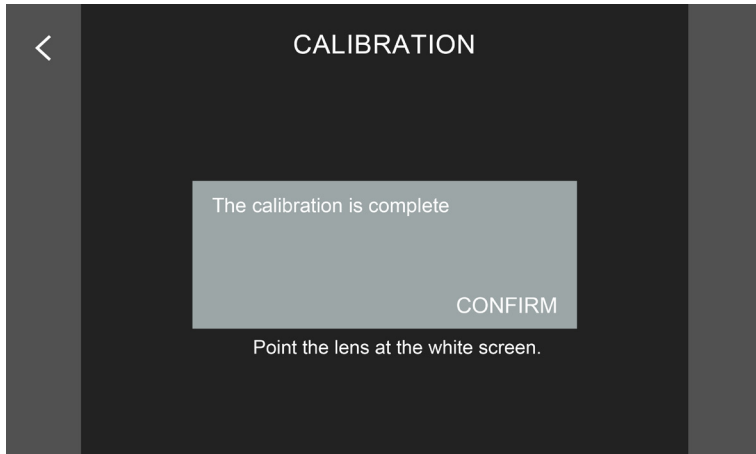
To adjust colors to match the color of the light source.



- CALIBRATION: When the environment light/reflection condition leads the bad colored image, follow the instructions and try to calibrate.

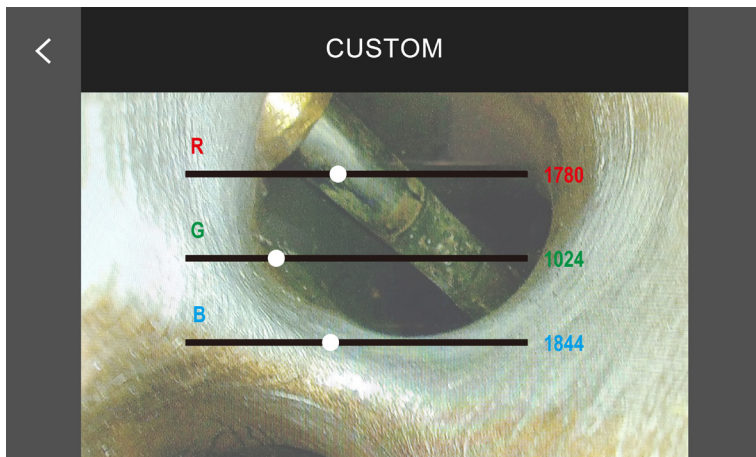


- Point the camera head toward a white paper and full the square. Tap  when the square is full with white.



- Tap confirm when the calibration is completed.

- CUSTOM: To adjust manually.



• 3.15 MICRO HDMI PORT

For viewing images from an external monitor.

Connect X600 on the micro HDMI port with supplied HDMI cable to an external monitor. Switch on X600 then switch on the external monitor.

- 3.16 REGULATORY

Here reveals the safety compliance of this product.



SPECIFICATIONS

X600

Model	X600
Dimension	161.93 (mm) x 127.93 (mm) x 46 (mm)
Weight	705g
Display	5" Touchscreen 800x480 pixels
Power supply	Rechargeable Li-battery
Video output	Micro HDMI
Data transfer / Charging	USB-C
DC Power adapter	5V/3A
Phone Jack	Built-in microphone
Storage	Micro SD up to 64GB
Image Format	JPEG, 1920x1080, optional watermark and timestamp
Video Format	MP4, 1920x1080, optional w/wo audio, watermark and timestamp
IP Rating	IP54
Drop resistance	1 meter
Operating temp.	0°C~50°C
Storage temp.	If the product is kept for longer than 3 months, It is strongly recommended that the product is preserved at dry and temperature appx.20°C
Charging temp.	0°C~40°C

Compatible - Probes

Model	49HD-FS-1M-SR	39HD2W-F-1M-SS	2830HD-F-30M-FRP
Diameter	4.9 mm	3.9 mm	28.0 mm
Length	1 m	1m	30 m
Direct of view	Front view 0° / Side view 90°	Front view	Front view
Illumination	Front / Side LEDs	Front LEDs	Front LEDs
FOV (Field of View)	90°	90°	150°
DOF (Depth of Field)	10 mm~100 mm	10 mm~100 mm	10 mm~∞
Articulation	N/A	2 way 180°	N/A
Buttons	N/A	Snapshot / Video, Brightness +/-	N/A
Material	Semi-rigid steel	Stainless steel braided	FRP
Liquid resistance	Unleaded gasoline, diesel, machine oil, brake oil, transmission oil, water		
IP Rating	IP67		
Working temp.	-10°C~60°C		
Storage temp	If the product is kept for longer than 3 months, It is strongly recommended that the product is preserved at dry and temperature appx.20°C		
Relative humidity	Max 95% non-condensing		

NOV.2023