



TL series

Thermal imaging scope



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用户指南/User Guide V1.0

TL series
Infrared

热成像观察镜
Thermal Sights

TL342 V2 / TL650 V2

DISCLAIMER

This product is prohibited for illegal use, including illegal hunting, military, chemical, biological or nuclear weapons, illegal privacy photographing, and other violations of laws and regulations. It is prohibited to transport goods prohibited by the United Nations, the European Union or the OSCE. The products are only sold in the place where the company is registered and cannot be exported.

Purchase of this machine is equivalent to accepting the constraints of this statement, equivalent to agreeing to sign the relevant liability statement. In case of any violation, the company shall not be held responsible.

LONGOT TECHNIC

Package contents

- Thermal Imaging Riflescopes
- Mount
- Battery pack
- Battery charger
- Power adapter
- cable
- Carrying case
- Manual
- Warranty card

Note: Improvements can be made to the design and software to enhance its useful features without prior notice to the user.

Model	TL342 V2	TL650 V2
Detector Specifications		
Detector Type	VOX	VOX
Resolution, Pixel	384×288	640×512
Pixel Size, μ m	12 μ m	12 μ m
Optical Characteristics		
Objective lens, mm	42mm	50mm
Magnification, x	4x	3x
Digital zoom, x	4x、 8x、 12x、 16x	3x、 6x、 9x、 12x
Min Focus Distance, M	5m	5m
Exit pupil distance	55mm	55mm
Exit pupil Diameter	6mm	6mm
Field of View (H × V), degree	6.3°× 4.7°	8.8° × 7.0°
Diopter, D	-4 D~ +4D	-4 D~ +4D
Identify distances, m (Target size:	1032m	1229m
Rangefinder Characteristics		
Wavelength, nm	905nm	905nm
Measuring Range, M	1000m	1000m
Measurement, M	±1m	±1m

Model	TL342 V2	TL650 V2
Electrical Characteristics		
Display Type	AMOLED	AMOLED
Resolution, pixels	1024×768	1024×768
WiFi Frequency,GHz	2.4GHz	2.4GHz
Video/Photo fomat	MP4/JPG	MP4/JPG
Built-in memory	32GB	32GB
Power Supply, V	3.7V	3.7V
Battery type× QTY/Capacity, mA	Lithium-ion battery pack IBP-1/4400mAh	Lithium-ion battery pack IBP-1/4400mAh
External power supply, V	5V2A	5V2A
Others Characteristics Support		
Operating time (at t=22℃) , hours	6h	6h
Storage temperature, ℃	-30℃~-60℃	-30℃~-60℃
Body material	Aluminium alloy	Aluminium alloy
Degree of protection, IP code (IEC60529)	IP67	IP67
Dimension (L×W×H), mm	250×65×58	250×61×58
Weight(without battery), g	820g	830g

DESCRIPTION OF CONTROL BUTTONS AND SHORTCUTS

Button	Status/Current Operation Mode	Short Press	Long Press
Power Button	Device is off	---	Power on the device
	Device is on	Calibrate the detector	Power off / Standby
	Standby mode	Wake up the device	---
	Single rangefinder mode	Distance measurement	---
	Main menu	Exit menu without saving	---
	Defective pixel calibration	Add/Delete defective pixel	---
Up / E-zoom Button	Home screen	Digital Zoom	PIP on/off
	Main menu / Quick menu	Navigation upwards	---
M Button	Home screen	Enter quick menu	
	Quick menu	Switch and confirm parameters	
	Main menu	Enter the submenu / Confirm selection	Save and exit to home screen
	Defective pixel calibration	Confirm selection / Save position	
Photo Button	Home screen	Take a Photograph	Start video recording
	Main menu / Quick menu	Navigation downwards	---
	Video recording	Take a Photograph	Stop and save video

Up + Down Button	Main menu	---	Active the rangefinder mode
	Rangefinder mode	Switch between single and continuous mode	Turn rangefinder mode off
Menu + Down Button	Rangefinder mode	---	Turn laser indicating on/off

Status Bar



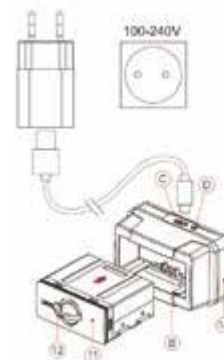
1. Current image mode
2. Actual zeroing type and distance (such as A100m)
3. Ultraclear mode (: Ultraclear off; : Ultraclear on)
4. Current magnification (such as 3.0x)
5. Calibration Mode
6. Compass
7. Standby status and time
8. Video output status
9. Wi-Fi Status
10. Clock
11. Battery status

Battery pack

TL series are supplied with a rechargeable Li-ion Battery Pack which allows operation for up to 6 hours. Please Remember to charge the Battery Pack before first use.

- Install the Battery Pack into the battery pack charger (14) by inserting the pins (A) of Battery Pack with the groove (B) of battery pack charger (14).
- Connect the Type C plug of the data cable to the port (C) of battery pack charger (14).
- Connect another port of the data cable to the power adapter.
- Insert the plug of the adapter to the 240V socket;

- Upon installation, the LED indicator (D) on the battery pack charger (14) will start to glow or blink:



1. When charging is progressing, the LED indicator is glowing continuously red;
2. When LED indicator lights green continuously, the battery is fully charged;
3. If the battery pack charger is connected to power supply but no battery pack installed, LED indicator is blinking with red color.

Battery Pack Installation :

- Pull out and rotate the Battery Pack Ring (12) 90 degrees clockwise.
- Install the Battery Pack by inserting the pins of Battery Pack with the groove on the Rico housing.
- When the battery pack is fully inserted into the Rico housing, rotate the Battery Pack ring (12) 90 degrees anticlockwise to lock the Battery Pack (11).

- Upon installation, flip down the ring (12), and the raised part of the ring (12) is pointing to the sign "CLOSE" on Battery Pack (11).

Safety Precautions:

- Don't charge the battery instantly while bring the battery from cold environment to warm environment. Leave 30-40 mins before charging;
- Never use a damaged or modified charger;
- Don't leave the Battery Pack with a charger connected to the mains longer than over 24 hours after full charge.

External power supply

TL series support external power supply, such as the mobile power bank (5V).

- Connect the external power supply to the USB port (10) on TL.
- The rifle scope will switch to operation from external power supply, and the IBP-1 Battery Pack will begin slowly charging.
- The display will show the battery icon with charge level as a percentage.
- If the device is connected with external power supply but without the Battery Pack, the battery icon turns into USB icon.
- While external power supply is disconnected, the rifle scope will switch to the Battery Pack without powering off.

ON / OFF / Standby

ON : Open the lens cover (1). Press and hold down the Power (3) button to turn on the scope.

OFF : After use, hold down the Power (3) button for about 3 seconds, there will be prompts of standby and count down of switch off. Release the button until a prompt of saving date appears on the screen after counting down from 3 to 0, and the device will switch off after saving data. Please don't cut off power supply when saving data, otherwise the data may not be saved.

Standby : Release button before the countdown finish, then device will enter the standby mode. Short press the Power (3) button again to wake it up.

Focus

Rotate the lens focus knob (2) to focus on the object being observed.

Diopter adjustment

Rotate eyepiece dioptre adjustment ring (7) until images in eyepiece are clear.

After this, there is no need to rotate the eyepiece adjustment ring (7) for distance or any other conditions.

Digital zoom

- In the home screen, briefly press the Up (4) button to operate the incremental digital zoom. in loop to switch magnification times and the status reveal on the top status bar.
- For TL342 , the apparent magnification of ×1 to ×4 digital zoom is 4×, 8×, 12×,16×; and for TL650 is 3×, 6×, 9×, 12×.

Photography and Video Recording

TL series is equipped with a function for video recording and photography of the TL series is equipped with a function for video recording and photography of the observed image which is saved on the built-in 32GB memory storage.

The photo and video files are named with time, so it is suggested to reset the date and time in the Main Menu before using the photo and video functions.

Photography:

- Press the Photography (6) button in the home screen to take a photo. The image freezes for 0.5 sec with a camera icon appears on the upper left corner of screen.
- Photos are stored in the built-in storage.

Video Recording:

- In the home screen, press and hold down the Photography (6) button to start video recording.
- When the video recording starts, the icon and the video

recording timer displayed in the HH:MM:SS (hour:minute:second) format will appear on the upper right of the screen.

- When recording, short press the Photography (6) button to take a photo.
- Press and hold down Photography (6) button to stop and save the video recording.
- All videos and photos will be saved in the build-in storage.

Caution:

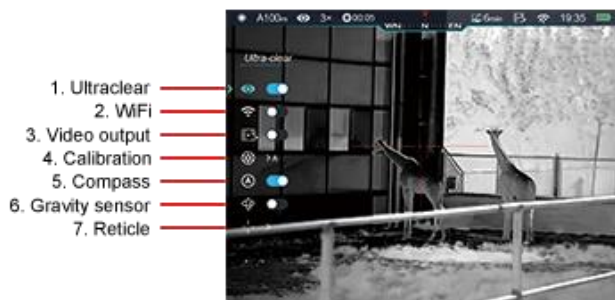
- The maximum duration of a recorded video file is 5 minutes. After this time expires, the video is recorded to a new file automatically.

Memory Access

When the device is turned on and connected to a computer, it is recognized by the computer as a flash memory card, which is used to access the device's memory and make copies of pictures and videos.

- Turn on the riflescope and connect it with the computer via Type-C cable.
- Double click "my computer" on the desktop - double click to open the device named "Longot" - double click and open the device named 'Internal Storage' to access built-in memory.
- There are different folders named by time in the storage .
- Recorded photos and videos in that day are saved in the folders Select desired files or folders to copy or delete.

Quick Menu



Ultraclear mode

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Ultraclear menu option with the Up (4)/Down (6) button.
- Turn Ultraclear mode on /off with a short press of M (5) button, along with the sound of shutter calibration.

Wi-Fi

- TL series Is built-in Wi-Fi module for wireless communication with mobile devices (smartphone or tablet).
- Press and hold down the M (5) button to enter the Main Menu.
 - Select the Wi-Fi menu option with the Up (4)/Down (6) button.
 - Turn Wi-Fi function on /off with a short press of M (5) button.

- The riflescope is recognized by an external device under the name "TL_XXXXXX", XXXXXX is the last six digits of the serial number that consist of numbers and letters.
- Select this Wi-Fi signal, and enter the password (default is 12345678) on the mobile to set up the connection.
- When Wi-Fi is successfully connected, users can manipulate the device via App.
- Launch Cam802 application on your mobile device.
- Press and hold down the M (5) button to enter the Main Menu.
- Select the Wi-Fi menu option with the Up (4)/Down (6) button.
- Briefly press of the M (5) button to turn Wi-Fi on /off.

Video Output

Use with external display.

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Video Output menu option with the Up (4)/Down (6) button.
- Briefly press of the M (5) button to turn video out on/off.
- Video out function enable connectivity with an external display or recording device.

Calibration

Calibration enables to equalize the detector temperature and eliminate the image defects.

There are three calibration modes: Automatic (A), Manual (M) and Background (B).

Select the required calibration mode in the Main Menu.

- A mode (Automatic). Device will calibrate automatically according to the software algorithm. There is no need to close the lens cover (the internal shutter covers the sensor). Before automatic calibration, there will be a 5 second countdown prompt behind the shutter icon on the status bar, that can be cancelled this calibration during countdown with a short press of the Power (3) button. In this mode, the riflescope may be calibrated by user with the Power (3) button.
- M mode (Manual). Press the Power (3) button briefly to activate the shutter calibration without closing the lens cover (the internal shutter covers the sensor).
- B mode (Background). Close the lens cover and press Power (3) button briefly. A prompt appears on home screen as "cover lens during calibration", background calibration starts after 2s.

Compass

Built-in accelerometer and digital compass improve accuracy by precisely identifying cant and angles.

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Compass menu option with the Up (4)/Down (6) button.
- Briefly press of the M (5) button to turn the digital compass on/off.

When compass function is turned on, it will reveal in the center of top status bar.

Gravity Sensor

Two scales are displayed on the both sides of the screen when the gravity sensor is on.

The left scale shows tilt angle, and the right one shows pitch angle.

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Gravity Sensor menu option with the Up (4)/Down (6) button.
- Briefly press of the M (5) button to turn the gravity sensor on/off.

Reticle

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Reticle menu option with the Up (4)/Down (6) button.
- Briefly press of the M (5) button to enter the reticle submenu.

zeroing profile

- Select Zeroing Profile option with the Up (4)/Down (6) button.
- Briefly press of the M (5) button to enter the zeroing profile submenu.
- Select one of three Profiles (marked with the letters A, B, C) with a short press of the Up (4)/Down (6) button.
- Briefly press of the M (5) button to confirm your selection.

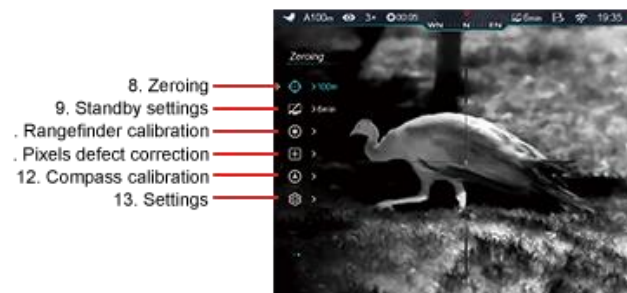
The name of the selected profile appears in the status bar at the top of the display.

Reticle Type

- Select Reticle Type option with the Up (4)/Down (6) button in the reticle submenu.
- Briefly press of the M (5) button to enter the Reticle Type submenu.
- Select the desired reticle type in the list of seven reticle types with short pressing the Up (4)/Down (6) button.
- The reticle types change as the cursor goes down the reticle type list.

reticle color

- Select Reticle Color option with the Up (4)/Down (6) button in the reticle submenu.
- Briefly press of the M (5) button to enter the Reticle Color submenu.
- Select the desired reticle color among white, black, red and green with short pressing the Up (4)/Down (6) button.
- The reticle color changes as the cursor goes down the reticle color list.
- Confirm your selection with a short press of the M (5) button.



Zeroing

To zero your riflescope, you need to set a zeroing profile and zeroing distance first. TL series support the zeroing distance in the range of 1 to 999 m.

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Zeroing menu option with the Up (4)/Down (6) button.
- Briefly press the M (5) button to enter the zeroing submenu (zeroing distance selection).
- Select one Zeroing Distance based on the preset target distance with the Up (4)/Down (6) button. The default values are 100m, 200m, 300m Press M (5) button briefly to enter Zeroing Distance submenu as follows.

If the zeroing distance is the same as the preset distance, you can zero your riflescope directly as follows.


- In the Zeroing Distance submenu, select the Zeroing menu option with the Up(4)/Down (6) button.
- Press M (5) button briefly to enter Zeroing function interface.
- The X and Y coordinates of the reticle are displayed in the upper left corner of the screen.
- Aim and shoot the target.
- Keep the reticle center the aiming point, then press and hold down the UP (4) and Down (6) button at the same time

until a symbol of freeze appears on the left of the screen, and the image is frozen.

- Adjust the reticle position with the Up (4)/Down (6) button until the reticle matches the point of impact. Briefly press the Menu (5) button to switch the movement direction.

Press and hold the Menu (5) button to save the position of reticle and exit to the home screen.

If the zeroing distance is not same as the preset object, you can set the distance here.

- Select a non-primary distance and enter the submenu for operation with a brief press of the M (5) button.
- Select Reset Zeroing Distance menu item with the Up (4)/Down (6) button.
- Short press the M (5) button to enable resetting the zeroing distance. Two triangle icons will appear above and below the number .
- Reset the value of the number from 0 to 9 with the Up (4)/Down (6) button.
- Press the M (5) button briefly to switch among the three numbers.
- After resetting, press and hold the M (5) button to save and exit.

The new zeroing distance appears in the status bar at the top of the display.

Standby Settings

- Press and hold down the M (5) button to enter the Main Menu.

- Select the Standby Settings menu option with the Up (4)/Down (6) button.

- Briefly press the M (5) button to enter the Standby Settings submenu.

Short press the Up (4)/Down (6) button to select one of four options (2min, 4min, 6min, off).

- Confirm your selection with a short press of M (5) button and reveal in the status bar at the top of the display.

- If the off is selected, it means the standby mode is turned off.

Caution:

- The standby mode will be active when the riflescope is tilted up or down at an angle of more than 70° and left or right at an angle of more than 30°.

The riflescope will not stand by while it is in the firing state.

Rangefinder Calibration

When the target position pointed by the laser is not aligned with the center of the rangefinder cursor on the screen, it needs to calibrate the position of laser rangefinder cursor by this function (the rangefinder module is required).

- Press and hold down the M (5) button to enter the Main Menu.

- Select the Rangefinder menu option with the Up (4)/Down (6) button.

- Enter the Rangefinder Calibration interface with a short press of the M (5) button, meanwhile the laser indicator light will be switched on automatically.

- A small cross cursor appears on the screen:

- X is the X-axis (horizontal)

- Y is the Y-axis (vertical)

- Center means to return the cursor to the center of the screen.

- Default means to return the cursor to the factory default.

- Select the options with the Up (4)/Down (6) button, and confirm your selection with a short press of the M (5) button.

- When the X or Y is selected, the icon will become blue and continuously flashing.

Then, move the cursor with a short or long press the Up (4)/Down (6) button. Press the Up (4) button to move the cursor right or up and the Down (6) button to move left or down. Short press to move one pixel every time and long press to move ten pixels once.

- When cursor moved to right position, briefly press the M (5) button to save the position, and the icon will stop blinking.
- Switch to another axis and repeat until the cursor is aligned with the target position indicated by the laser.
- When Center/Default is selected, briefly press the M (5) button to return to the Up (4)/Down (6) button.
- Press M (5) button briefly to enter Zeroing function interface.

Pixels Defect Correction

Defect pixels are pixels that do not change brightness compared with others on the image, they are either brighter or darker than surrounding pixels. TL series offer the possibility of removing any defective pixels on the sensor using software, as well as to cancel any deletion.

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Pixels Defect Correction menu option with the Up (4)/Down (6) button.
- Briefly press the M (5) button to enter the Pixels Defect Correction interface.

- A small cross cursor instead of the reticle will appear on the center of the screen.

- The Picture in Picture (PIP) window will appear on the lower left corner of the screen.

- The cursor coordinates and the number of the corrected pixels are displayed on the right of the PIP window.

- On the right of PIP window, there are some prompts showing the movement direction of the cursor in X-axis (horizontal), Y-axis (vertical) and number of corrected pixels.

Move the cursor to align with the defective pixel with a short or long press the Up (4)/Down (6) button. Press the Up (4) button to move the reticle right or up and the Down (6) button to move the reticle left or down. Short press to move one pixel every time and long press to move ten pixels once.

- Press the M (5) button briefly to switch the direction between X-axis and Y-axis.

- Delete the defective pixel with a short press of the Power (3) button. When the pixel has been successfully deleted, the Add message will appear on the PIP window for a short time.

- Then, delete the next defective pixel by moving the cursor across the display.

- Press the Power (3) button briefly in the same position as the calibrated defective pixel to cancel the pixel correction, and the Del message will appear on the PIP window for a short time. But it is only limited to not exiting this correction the PIP window for a short time.

But it is only limited to not exiting this correction.

- The amount of defect pixels changes each time adding or deleting pixels correction.
- The PIP and the prompt information will move to the upper left of the screen when cursor moves near the lower left corner.
- Press and hold the M (5) button until display shows "Do you want to save these settings?" and "Yes" and "No" options.
- Press the Up (4)/Down (6) button briefly to select 'Yes' to save and exit, or select 'No' to cancel saving and exit.
- Confirm your selection with a short press of M (5) button.

If Yes is selected, a 5-second Saving countdown appears on the screen. It will exit to the home screen after the prompt Saving successful appears.

Compass Calibration

- Press and hold down the M (5) button to enter the Main Menu.
- Select the Compass Calibration menu option with the Up (4)/Down (6) button.
- Briefly press the M (5) button to enter the Compass Calibration submenu.
- An icon like a triaxial coordinate system appears on the screen.
- Follow the icon prompt to rotate the riflescope along three axes at least 360 degrees each axis in the 15 seconds.

After 15s, the calibration is finished and exit to the home screen.

Settings

Date

- In the Settings submenu, briefly press the M (5) button to active the Date submenu. Two triangle icons will appear above and below the value.
- Date format is displayed as YY.MM.DD format (2020.01.01).
- Select the correct value for the year, month and date with a short press of the Up (4)/Down (6) button.
- Switch between digits with a short press of the M (5) button.

Save selected date and exit the submenu with a long press of the M (5) button.

Time

- In the Settings submenu, briefly press the M (5) button to active the Time submenu. Two triangle icons will appear above and below the value.
- Time format is displayed as HH:MM in 24-hours format (14:48).
- Select the correct value for the hour and minute with a short press of the Up (4)/Down (6) button.
- Switch between digits with a short press of the M (5) button.

Save selected date and exit the submenu with a long press of the M (5) button.

Language

- In the Settings submenu, select the Language menu option with the Up (4)/Down (6) button.
- Enter the Language submenu with a short press of the M (5) button.
- Select the desired language with a short press of the Up (4)/Down (6) button. TL series support English and Russian two languages.
- Confirm your selection with a short press of the M (5) button.

Submenu exit will take place automatically.

Units of Measure

- In the Settings submenu, select the Units of Measure menu option with the Up (4)/Down (6) button.
- Enter the Units of Measure submenu with a short press of the M (5) button.
- Select the desired unit between meters and yards with a short press of the Up (4)/Down (6) button.
- Confirm your selection with a short press of the M (5) button.

Submenu exit will take place automatically.

Status Auto Hiding

- In the Settings submenu, select the Status Auto Hiding menu option with the Up (4)/Down (6) button.

- Enter the Status Auto Hiding submenu with a short press of the M (5) button.
- Briefly press the Up (4)/Down (6) button to select On or Off.
- Confirm your selection with a short press of the M (5) button.

Submenu exit will take place automatically.

13.6 Factory Reset All functions are restored to the factory default state.

- In the Settings submenu, select the Factory Reset menu option with the Up (4)/Down (6) button.
- Enter the Factory Reset submenu with a short press of the M (5) button.
- Briefly press the Up (4)/Down (6) button to select Yes or No.
- Confirm your selection with a short press of the M (5) button.

Info

Show device information

- In the Settings submenu, select the Info menu option with the Up (4)/Down (6) button.
- The relevant information of riflescope will be shown by a short press of the M (5) button.

Laser Indicator and Rangefinder

TL series supports to extend the laser rangefinder module (optional) for laser indicator and rangefinder, allowing to measure distance to objects up to 1000m away.

Laser Rangefinder Function

- Press and hold the Up (4) and Down (6) button simultaneously in the home screen to turn the laser rangefinder function on/off.
 - The ranging cursor appears on the screen. In the top right corner of the display dashes of distance values with measurement unit. And the ranging mode is on the left of the values.
 - TL series have two ranging modes: SGL (single ranging) and CONT (Continuous ranging). Briefly press the Up (4) and Down (6) button simultaneously to switch between the SGL (the default mode) and CONT mode.
- SGL mode, the manual calibration function is not available.
- In the CONT mode, measurement readings will be refreshed in real time as you point the riflescope at different objects one second without any keystroke operation. The manual calibration function is available in this mode.
 - When ranging targets is further than 1000m, the MAX will appear in the ranging values.
 - To exit the laser rangefinder function, press and hold down the Up (4) and Down (6) button simultaneously.

Laser indicator

- In the rangefinder mode, press and hold the M (5) and Down (6) button simultaneously to switch the laser indicator on /off.

Rangefinder Calibration

It needs to calibrate the rangefinder cursor after the first installation or the target position pointed by the laser is not aligned with the center of the rangefinder cursor on the screen.

- Set a target, then press and hold down the M (5) button to enter the Main Menu.
 - Select the Rangefinder menu option with the Up (4)/Down (6) button.
 - Enter the Rangefinder Calibration interface with a short press of the M (5) button, meanwhile the laser indicator light will be switched on automatically.
 - A cross cursor appears on the screen instead of the ranging cursor.
 - Move the cursor to the position pointed by the laser.
- Press and hold the M (5) button to save and exit to the home screen.

PIP

The PIP (Picture in Picture) function allows you to see both a magnified image in a particular window and the main image.

- Press and hold down the Zoom (4) button in the home screen to switch the PIP function on /off.

When the main image is enlarged with a short press of the Zoom (4) button, the PIP image will be enlarged 2× synchronously.