

X5 Sensing Camera

SC31x

User Guide



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Chapter 1. Introduction

Thank you for purchasing our product. If there is any question or request, please do not hesitate to contact your dealer.

This guide may contain several technically inaccuracies or printing errors, and the content is subject to change without notice. The updates will be added into the new version of this guide. We will readily improve or update the products or procedures described in the guide.

This guide explains how to use and manage Milesight X5 Sensing Camera. Please read this guide carefully before the operation and retain it for future reference.

1.1 Copyright Statement

This guide may not be reproduced in any form or by any means to create any derivative such as translation, transformation, or adaptation without the prior written permission of Xiamen Milesight IoT Co., Ltd (Hereinafter referred to as Milesight).

Milesight reserves the rights to change this manual and the specifications without prior notice. The latest specifications and user documentation for all Milesight products are available on our official website
<http://www.milesight.com>

1.2 Safety Instruction

Milesight will not hold responsibility for any loss or damage resulting from not following the instructions of this operating guide.

- ❖ The device must not be disassembled or remodeled in any way.
- ❖ To avoid risk of fire and electric shock, do keep the product away from rain and moisture before installation.
- ❖ Do not place the device where the temperature is below/above the operating range.
- ❖ The device must never be subjected to shocks or impacts.
- ❖ Make sure the device is firmly fixed when installing.
- ❖ The battery should be removed from the device if it is not to be used for an extended period. Otherwise, the battery might leak and damage the device. Never

leave a discharged battery in the battery compartment.

- ❖ Make sure all batteries are newest when install, or battery life will be reduced.
- ❖ Do not expose the device to where a laser beam equipment is used.

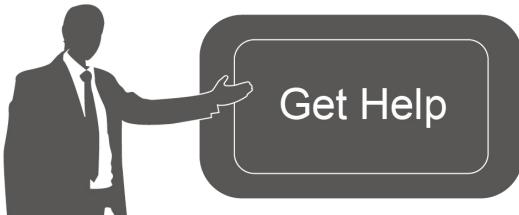
Declaration of Conformity

SC31x is in conformity with the essential requirements and other relevant provisions of the CE, FCC, and RoHS.



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1.3 Revision History

Table 1.

Version	Revision Content	Release Date
V1.0	Initial version	September 2023
V1.1	Update based on version 31.1.0.2: 1. Change default password from password to ms123456 2. Add time sync mode: Auto 3. Update web GUI display	March 21, 2024
V1.2	1. Add Low Power Capture Mode 2. Add Debug Capture and Timed Capture 3. Support to select Capture Object 4. Add PIR&Radar Trigger Capture Mode 5. Support to disable or enable Reset button 6. Update MQTT/HTTP Post settings 7. Update Heartbeat function 8. Update Noise/Temperature trigger capture 9. Update the report content	Oct. 12, 2024

Chapter 2. Product Description

2.1 Product Overview

X5 Sensing Camera is a cutting-edge AIoT device that leverages active sensing to enable intelligent and versatile applications. It comes equipped with a highly advanced image sensor and customizable capturing modes that can deliver high-quality images for a range of scenarios. The X5 also features embedded low-consumption radar and PIR sensors which provide greater sensitivity. Additionally, the camera has temperature and sound sensors that enables for environmental sensing.

Moreover, X5 features wireless connectivity and simple configuration options for easy integration into specific environments. The low-consumption mode and optional solar panel extend its operational life and increase cost-effectiveness. With IP66-rated protection and anti-theft design, the X5 opens up a wealth of potential applications.

X5 Sensing Camera supports simple configuration via Wi-Fi and facilitates remote management and data transmission via standard MQTT(s) and HTTP protocols to Milesight AIoT Sensing Platform and third-party platforms.

Key Features

- **High-quality Capturing System**
 - ✧ Detect moving objects actively cooperating with PIR and Radar
 - ✧ Support multi-type picture-capturing modes depending on various kinds of triggering sources: radar & PIR, temperature, sound, alarm-in, etc.
 - ✧ Equipped with one advanced infrared supplement light to increase light level in dark environments and improve its sensitivity for capturing objects from up to 10m away
 - ✧ Equipped with different HD camera lens(4K/2MP) to satisfy needs of different scenes
- **High Adaptability & Reliability**

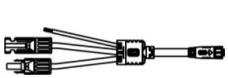
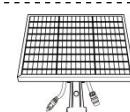
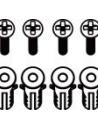
- ✧ Provide all-in-one camera bracket and rain cover for more simple installation options
- ✧ Support multi-type power supply and additional solar panel for outdoor application
- ✧ Smart sleep-mode logic and low-power consumption allows a longer service life
- ✧ Equipped with heating film for protecting battery in low-temperature environment
- ✧ Support IP66 rated protection and anti-theft screw design for adapting to more scenarios

● Easy Management & Deployment

- ✧ Wireless deployment with stable 4G network
- ✧ Support easy configuration via wireless Wi-Fi connection
- ✧ Support data transmission via HTTP/MQTT(S)
- ✧ Adapt to more applications with rich industrial interfaces
- ✧ Support remote management with Milesight AIoT Sensing Platform for extending applications

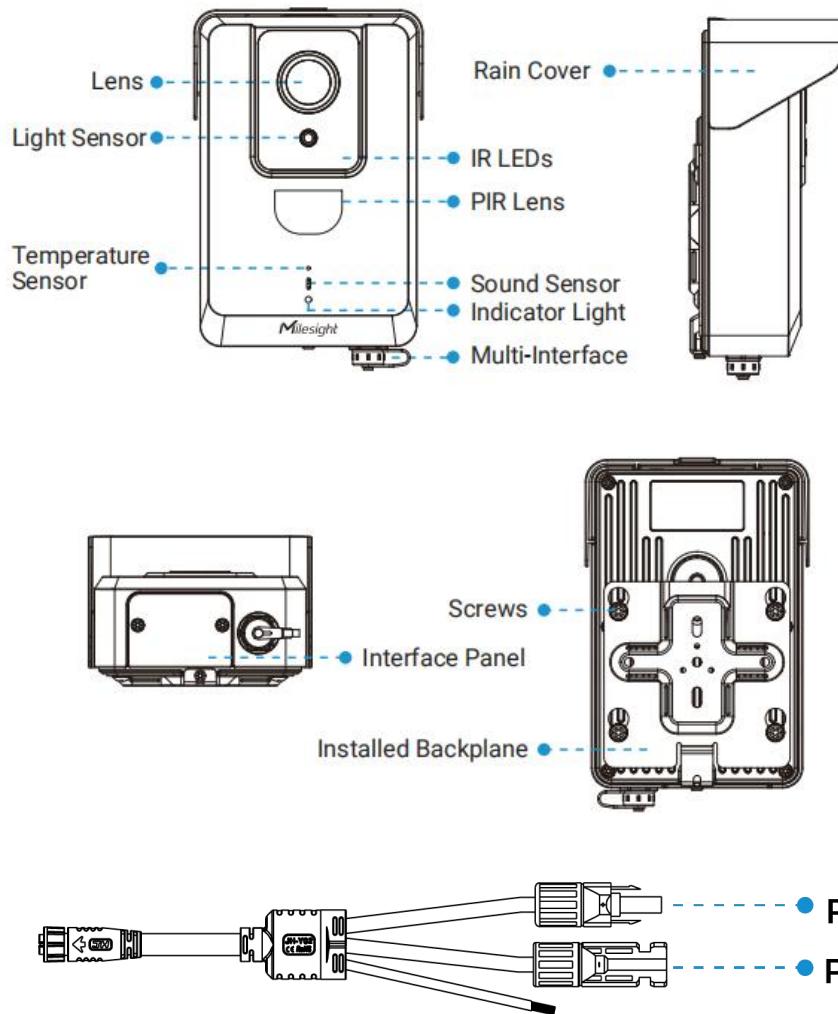
2.2 Hardware Overview

Packing List

	X5 Sensing Camera x 1		3-Axis Ball Mounting Bracket x 1		Screw of Bracket x 1		Multi-Interface Cable (0.5m) x 1		USB Type-C Charging Cable x 1
	Solar Panel Modules (Optional)		Screwdriver x 1		Strap x 2		Screw Packet x 1		
	SIM Card Ejector Tool x 1		Quick Start Guide x 1		Warranty Card x 1				

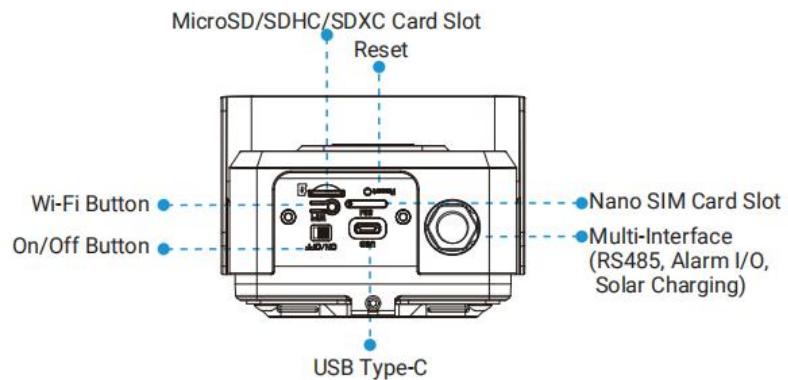
※ If any of the above items is missing or damaged, please contact your sales representative.

Hardware



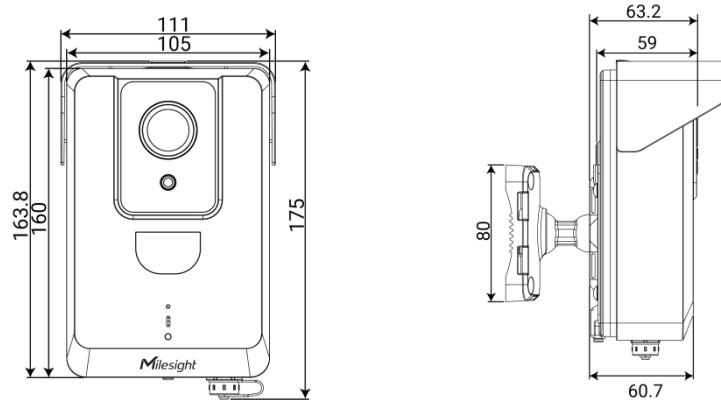
Note: The PV(+) of the cable needs to be connected to the Positive Terminal of the solar panel, and the PV(-) needs to be connected to the Negative Terminal of the solar panel.

Interface

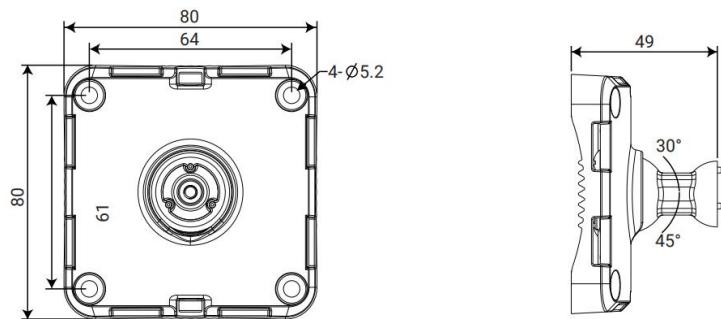


Dimensions(mm)

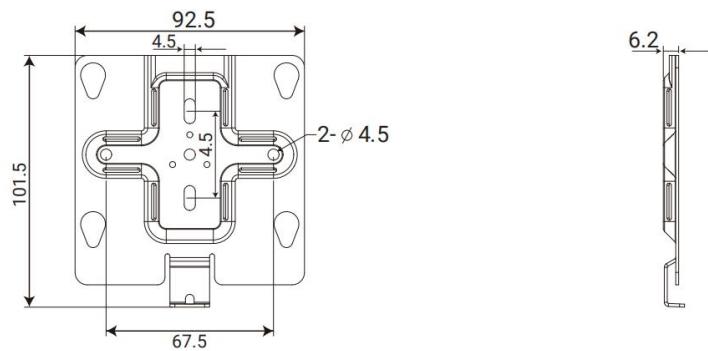
SC31x



3-Axis Ball Mounting Bracket

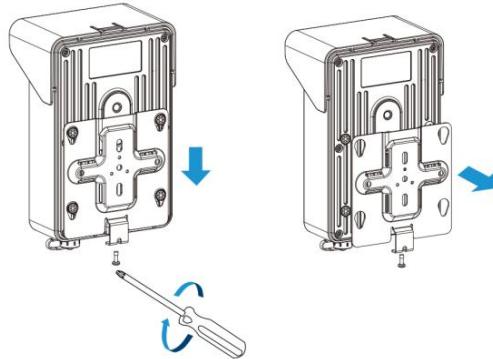


Backplane



2.3 Installation Guide

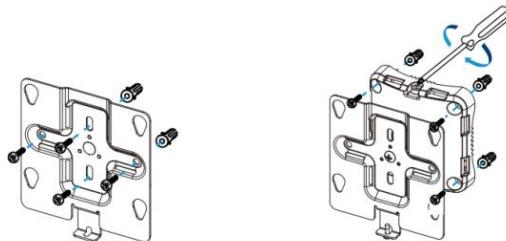
Step 1: Loosen the screw at the bottom of the backplane and remove the backplane.



Step 2: Fix the backplane in the position where the device is intended to be installed.

Multiple installation methods are available depending on the installation location:

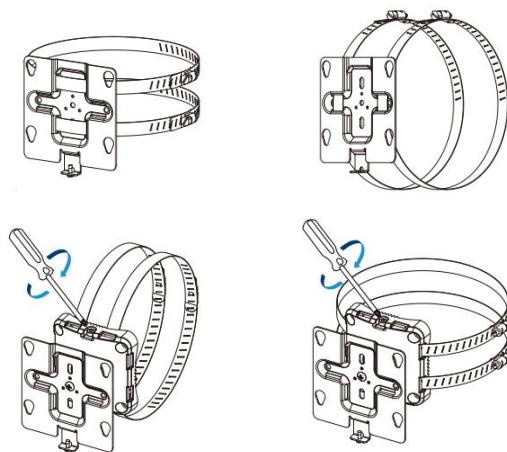
- 1) The device can be mounted directly on the wall, or you can mount it on the wall via 3-Axis Ball Mounting Bracket.



- 2) The device can be mounted on the pole with the straps, or you can install the device on the pole with 3-Axis Ball Mounting Bracket and straps.

Note:

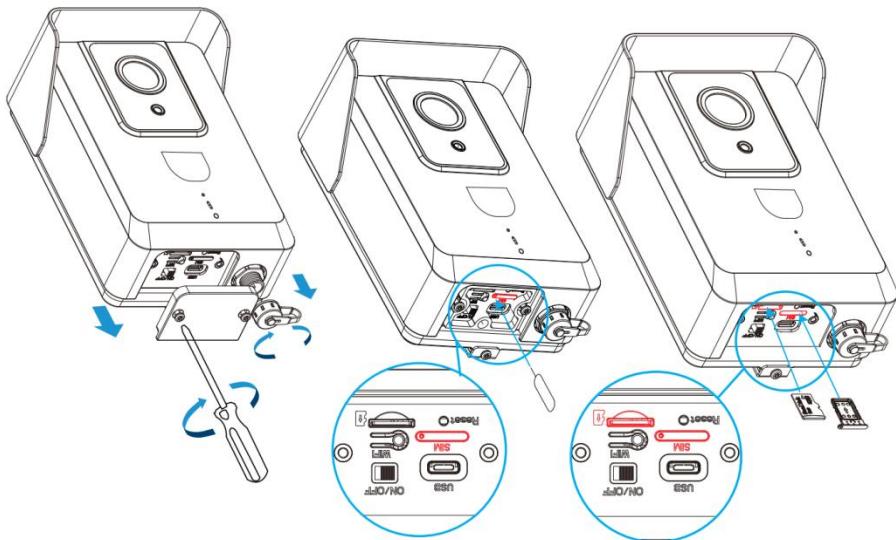
1. The 3-Axis Ball Bracket allows the equipment to rotate 360° to adjust the monitoring angle, it in various installation environments.
2. The angle of the 3-Axis Ball Bracket can be adjusted by loosening the screw on the bracket.



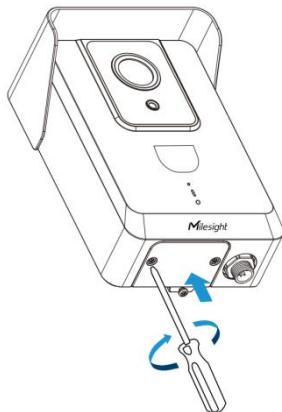
Step 3: Loosen the screws of Interface Panel and remove the cover. Then remove the Solar Charging Interface cover.

Step 4: Use the SIM Card Ejector Tool to remove the SIM card tray, and then install the SIM Card and SD Card.

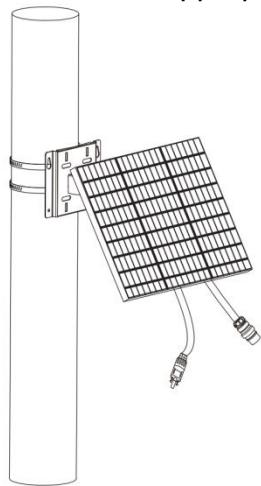
Note: If you need to configure the device, please refer to [Chapter 3. Accessing the Camera](#).



Step 5: Put the interface panel back.



Step 6: Install the solar panel modules in the appropriate position.



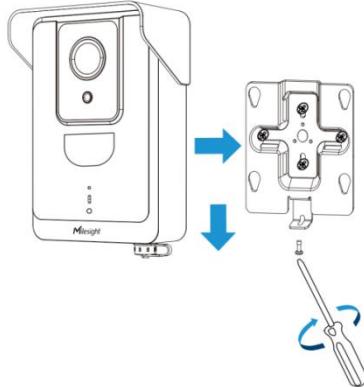
Step 7: Connect the solar panel to the Solar Charging Interface.

Note:

1. The Solar Panel Modules is optional.
2. The device is equipped with battery inside. When the solar power supply is insufficient, it can be powered by battery; When the battery is low, it can be charged using USB Type-C.



Step 8: Connect the device to the backplane that you've installed already and tighten the fixing screws. Then the installation is completed.



Chapter 3. Accessing the Camera

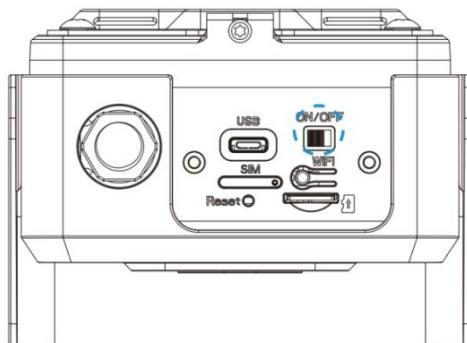
After installing the camera, you need to log in the camera's web page for basic configuration so that the camera can capture objects accurately. The camera can be used with most standard operating systems and browsers.

The configuration steps are as follows:

Step 1: Switch to "ON" to start the device.

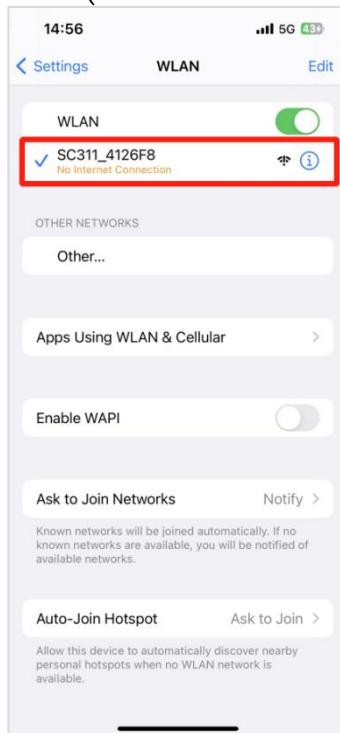
Note:

1. When you power on the device, the indicator will blink in green if the device is started. And when you turn off the device, the indicator will blink in green twice and then stop blinking. The Wi-Fi function is automatically enabled when the device is powered on.
3. The indicator light will be in red when the device is low power and cannot be started.



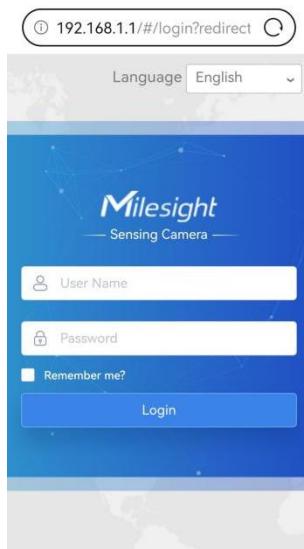
Step 2: Use mobile devices or laptop to connect to the device's Wi-Fi.

Note: The Wi-Fi name is **SC31x_xxxxxx** (xxxxxx is the last six bits of the MAC address).

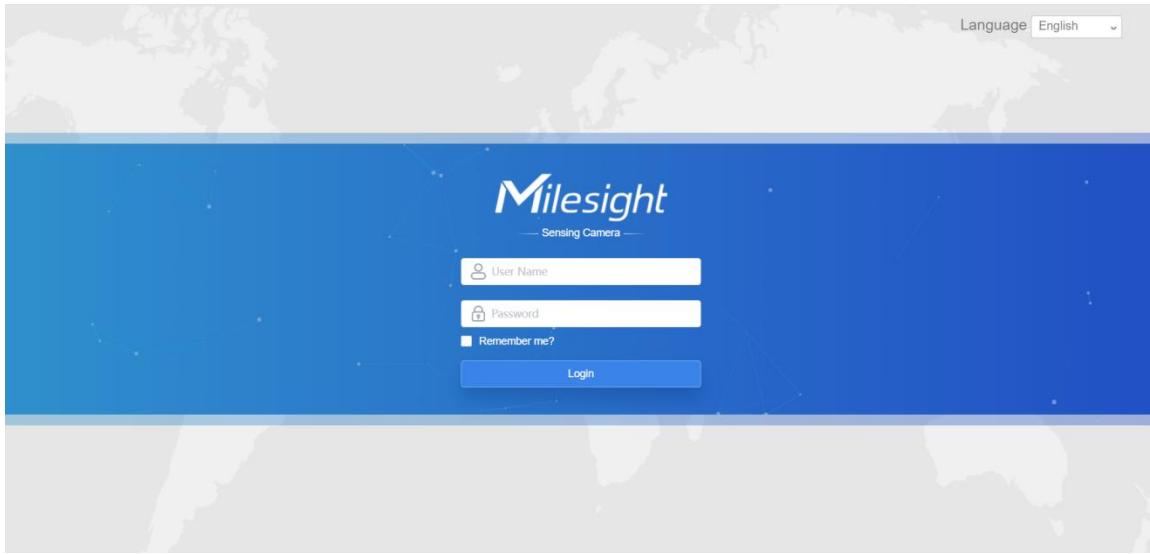
**Step 3:** Enter the IP address **192.168.1.1** in the browser to log in to the web page and configure the device.**Note:**

1. Default **Username/Password:** **admin/ms123456**.
2. The IP address of the device cannot be modified.

● Mobile:



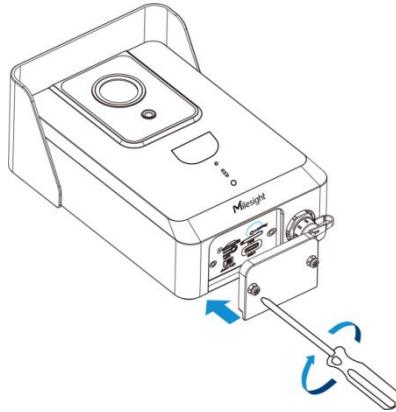
● PC:



Step 4: After the device configuration is completed, click the Wi-Fi button to disable the Wi-Fi and fix back the interface panel to ensure data security.

Note: To reset the device, you can press the reset button for 3s. When the reset process is completed, the indicator will blink in green twice.

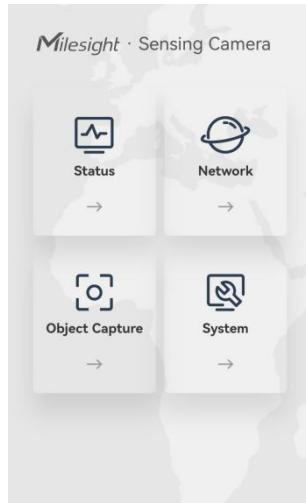
1. Short press the reset button (for about 1s) to restart the device.
2. Long press the reset button (for about 15s or less) until the red light is steady on and release it to reset the device.
3. Long press the reset button (for about 20s or more) until the red light flashes and release it to overwrite the existing firmware with the original firmware.



Chapter 4. Home

After logging in to the camera web GUI successfully, the user is allowed to view the home page as follows.

- Mobile:



- PC:



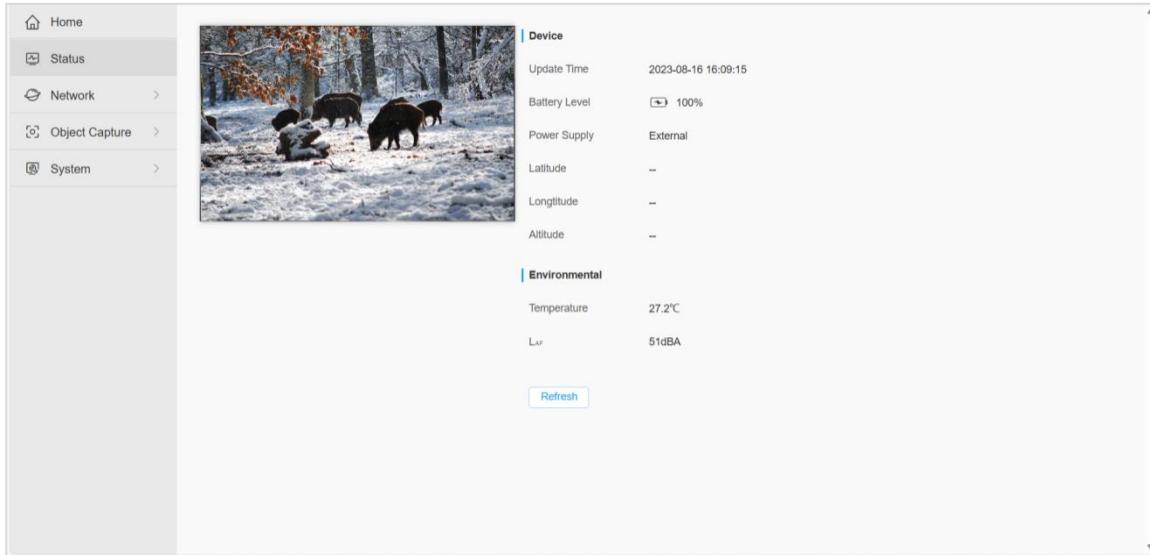
The home page consists of four modules including Status, Network, Object Capture and System.

1. **Status**: Check device status, including Power Supply and GPS-related information, environment information and etc.
2. **Network**: Configure the network configuration, including Cellular and WLAN.
3. **Object Capture**: Includes Image Configuration, Capture Management and Interface Configuration. Image Configuration is used to configure image parameters to ensure the quality of captured images, and Capture Management is mainly used to configure Capture Settings and Upload Settings, such as Detection Mode, Upload Mode, Frequency, Sensitivity, etc., with the purpose of capturing and uploading the snapshots more accurately. Interface Configuration is used to view the current status of external input and external output and configure the threshold of noise and temperature.

4. **System:** Check and maintain system information, manage snapshots and users, etc.

Chapter 5. Status

Users can check device status in this interface, including Power Supply and GPS-related information, environment information and etc.



The meanings of the items can be referred to the table below:

Table 2. Description of the buttons

Item	Description
Update Time	Display the last time the Status page was refreshed.
Battery Level	Display the real-time battery level, the meaning of the visual icon is as follows:  : Charging  : Low Battery (Battery power is less than 10%)
Power Supply	Display how the device is powered. Internal and External options are available. Internal: Powered by battery. External: Powered by solar panel or external power supply via Type-C. The power supply mechanism of the device is as follows: <ul style="list-style-type: none"> ❖ When equipped with an external power supply, priority will be given to powering the device, and only when there is excess power will the battery be charged. ❖ When both internal and external power supplies are equipped, priority will be given to using external power supplies to power the device. (Type-C > Solar Panel > Battery). Note: If the device is equipped with a solar panel but the solar panel is low on power, then the device will be powered by the battery.

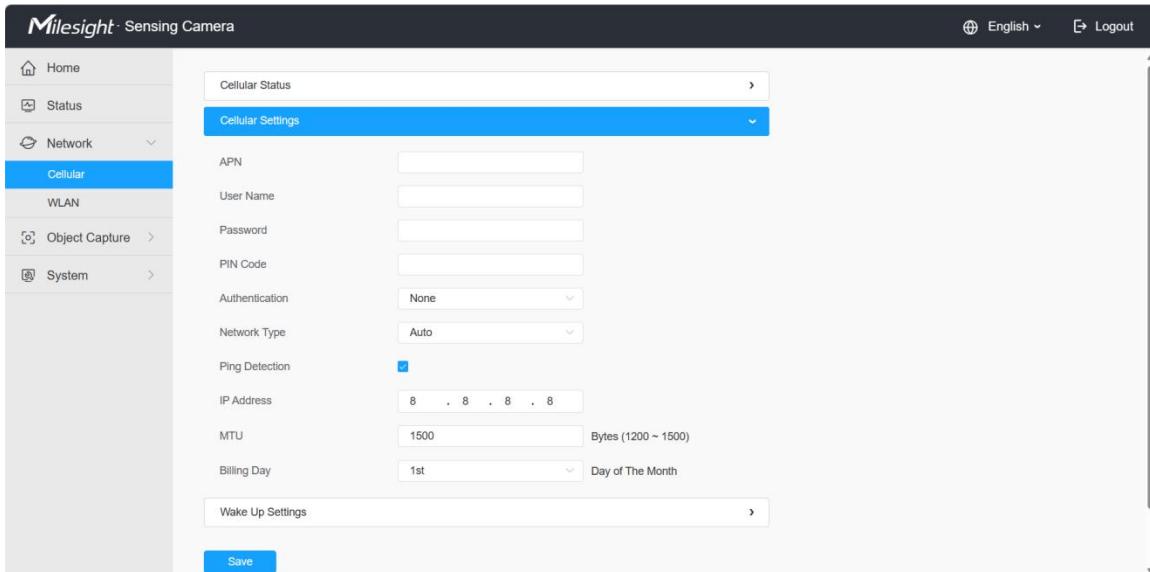
Latitude /Longitude /Altitude		Display the GPS-related information of the device including latitude, longitude and altitude. It is detected by the GPS module attached to the device. Note: GPS information will only be displayed when the device is inserted with a SIM card and access the network successfully.
Environmental	Temperature	Display the temperature information around the device. It is detected by the Temperature Sensor attached to the device.
	L_{AF}	Display the sound information around the device. It is detected by the Sound Sensor attached to the device.
Refresh		Click this button to refresh all the above states.

Note: The preview window on the interface shows the real- time image after refreshing the device status but not the real-time video. Please note that the device is running under low power consumption since there is no video streaming being produced.

Chapter 6. Network

6.1 Cellular

You can check the cellular status and configure the cellular settings here. The configuration steps are as follows:



Step1: Fill in the information provided by your Internet Service Provider (ISP) to the Cellular Settings interface, then click Save to access the network successfully.

Please refer to the meaning of the options as follows:

Table 3. Description of the buttons

Item	Description
APN	Enter the Access Point Name for cellular dial-up connection provided by local ISP.
User Name	Enter the username for cellular dial-up connection provided by local ISP.
Password	Enter the password for cellular dial-up connection provided by local ISP.
PIN Code	Enter a 4-8 characters PIN code to unlock the SIM.
Authentication	Display the Authentication Type.
Network Type	Select the network type of cellular network. There are four options including Auto, 4G Only, 3G Only and 2G Only, the default option is Auto. Auto: connect to the network with the strongest signal automatically.
Ping Detection	Enable it to determine network communication latency.
IP Address	The default is 8.8.8.8.
MTU	Enter maximum transmission unit the range is1200~1500 Bytes.
Billing Day	Select the date for clearing the data each month. Users can choose from 1st to 31st, and the system will clear the data on the date you set each month.

Note: For some Internet Service Providers, users only need to insert the SIM card directly to access the network without additional configuration.

Step2: After connecting to the network successfully, you can check the cellular status information on the Cellular Status interface, as shown below.

Please refer to the meaning of the options as follows:

Table 4. Description of the buttons

Item	Description
ISP	Show the network provider which the SIM card registers on. Note: It will display "-" when the SIM card is not inserted or not recognized.
SIM Card Status	Display the connection status of SIM card, including 4G Connected, 3G Connected, 2G Connected, No SIM Card and SIM Card Invalid.
Signal Strength	Display the current signal strength of the network.
Status	Display the connection status of the network, including "connect" and "disconnect".

IMEI	Show the IMEI of the module.
IMSI	Show IMSI of the SIM card.
ICCID	Show ICCID of the SIM card
Data Usage Monthly	Display current monthly used data.
IP Address	Display the IP Address, Subnet Mask, Gateway and DNS Address of the current network. If the SIM card is not inserted or not recognized, it will display 0.0.0.0.
Subnet Mask	
Gateway	
DNS Address	
Refresh	Click this button to manually refresh the above status.

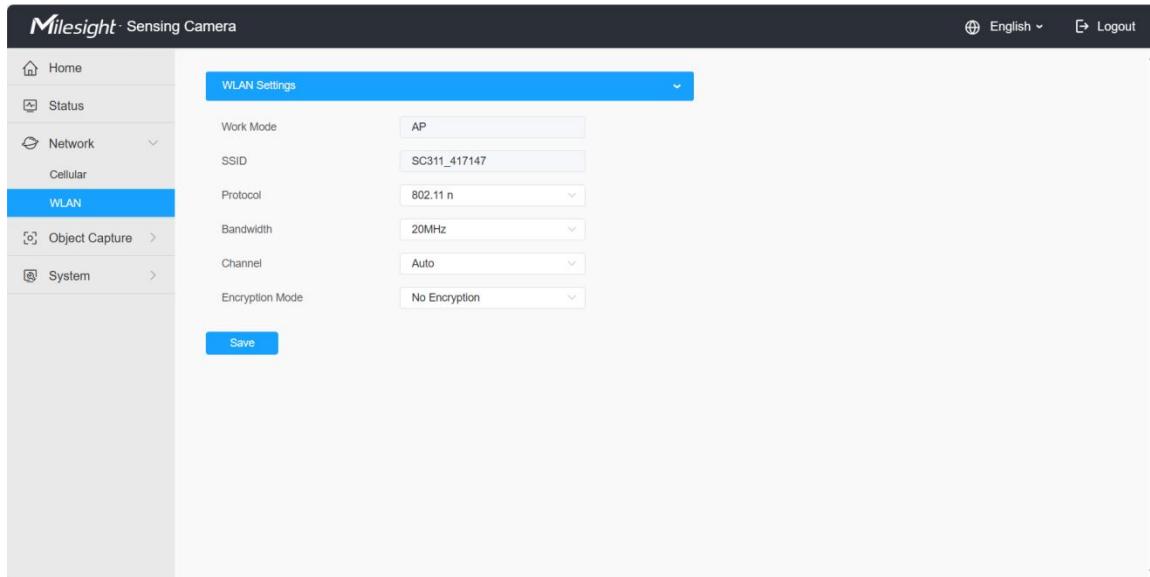
Note:

1. The camera supports the wake-up function when work mode is **Full Function Capture** (Object Capture > Capture Management). When the battery power is less than 10%, the device will automatically enter sleep mode. The user can wake up the device via Bluetooth, MQTT or dialing the SIM card.
2. The MQTT wake up method is to send any content to "X5SensingCam/Wake/xxxxxxxxxxxx" topic to wake up device. (Thexxxxxxxxxxxx is the MAC address of device.)



6.2 WLAN

In this interface, the user can configure WLAN-related settings and then access the device via WiFi for device configuration. The configuration through Wi-Fi enhances the user experience for great convenience.



Please refer to the meaning of the options as follows:

Table 5. Description of the buttons

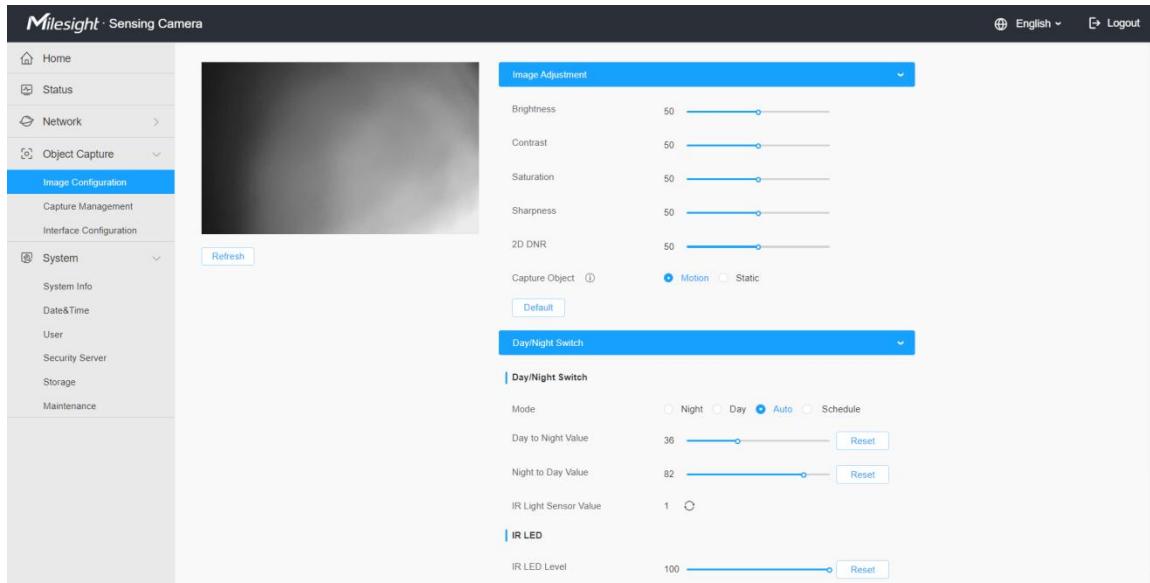
Item	Description
Work Mode	Work mode is fixed as AP and can not be connected to other access point.
SSID	The unique name for this device Wi-Fi access point, defined as SC31x_xxxxx (XXXXX is the last six bits of the MAC address). Note: The Wi-Fi name cannot be modified.
Radio Type	802.11g (2.4 GHz) and 802.11n (2.4 GHz) are optional.
Bandwidth	20 MHz or 40 MHz are optional.
Channel	Select the wireless channel. Auto, 1,...11 are optional.
Encryption Mode	No Encryption, WPA-PSK, WPA2-PSK and WPA-PSK/WPA2-PSK are optional.
Cipher	AES, TKIP and AES/TKIP are optional.
Key	Fill in the password of this Wi-Fi access point.

Note: The function can be disabled by pressing the WiFi button on the device to eliminate possible worries of privacy disclosure.

Chapter 7. Object Capture

7.1 Image Configuration

Here you can configure image parameters to ensure the quality of captured images.



The configuration steps are as follows:

Step1: Configure Image Adjustment settings.



Please refer to the meaning of the options as follows:

Table 6. Description of the buttons

Parameters	Function Introduction
------------	-----------------------

Brightness	Adjust the Brightness of the scene.
Contrast	Adjust the color and light contrast.
Saturation	Adjust the Saturation of the image. Higher Saturation makes colors appear more "pure" while lower one appears more "wash-out".
Sharpness	Adjust the Sharpness of image. Higher Sharpness sharpens the pixel boundary and makes the image look "more clear".
2D DNR	Adjust the noise reduction level.
Capture Object	Choose the capture status based on the actual object of interest.
Default	Click this button to restore to the default settings.

Step2: Configure Day/Night Switch settings.

The screenshot shows the 'Day/Night Switch' configuration page. It includes the following settings:

- Upload Mode:** Radio buttons for Night, Day, and Auto (selected).
- Day to Night Value:** A slider set to 1 with a 'Reset' button.
- Night to Day Value:** A slider set to 1 with a 'Reset' button.
- IR Light Sensor Value:** A slider set to - with a radio button.
- IR LED:** A slider set to 0 with a 'Reset' button.
- Save:** A blue button at the bottom.

Please refer to the meaning of the options as follows:

Table 7. Description of the buttons

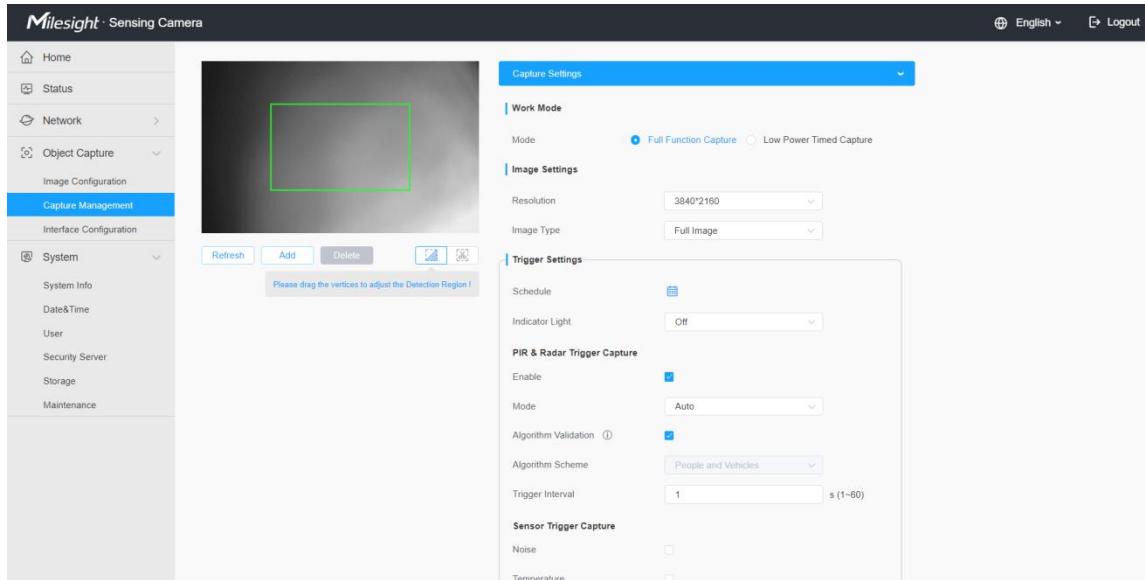
Parameters	Function Introduction
Day/Night Mode	<p>Night Mode: Shown in live view based on Night Mode settings.</p> <p>Day Mode: Shown in live view based on Day Mode settings.</p> <p>Auto Mode: Shown in live view based on environment, set the sensitivity for switching Day Mode to Night Mode, or Night Mode to Day Mode.</p>

Day/Night Switch	<p>Day to Night Value: You can set the sensitivity for switching Day Mode to Night Mode. When IR Light Sensor Current Value is lower than this value, it will switch Day Mode to Night Mode. You can click <input type="button" value="Reset"/> to reset the value to 36.</p> <p>Night to Day Value: This is the sensitivity for switching Night Mode to Day Mode. When IR Light Sensor Current Value is higher than this value, it will switch Night Mode to Day Mode. You can click <input type="button" value="Reset"/> to reset the value to 82.</p> <p>IR Light Sensor Value: The current value of the IR light sensor.</p> <p>Note: The three buttons are optional only if you select Auto Mode.</p>
IR LED Level	You can also manually adjust the strength of the IR LED, the range is from 0 to 100. The default value is 100, click the Reset button to return to the default value.

Step3: After completing the above settings, click button to refresh the image.

7.2 Capture Management

Capture Management is used to configure Capture Settings and Upload Settings, such as Detection Mode, Upload Mode, Frequency, Sensitivity, etc., with the purpose of capturing and uploading the snapshots more accurately.



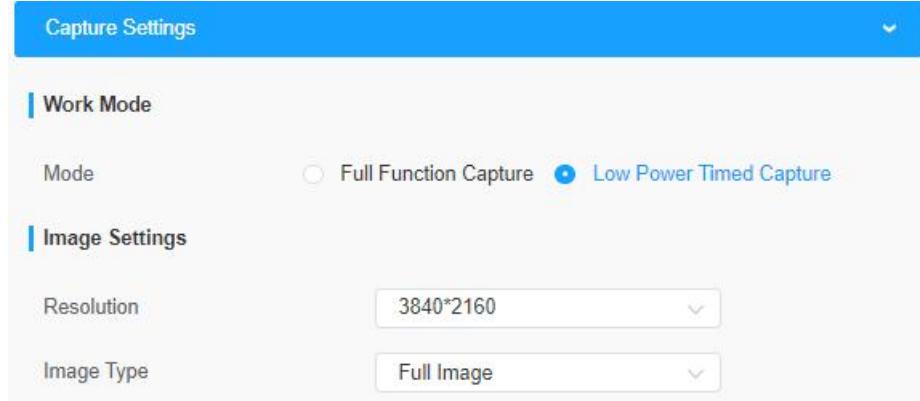
The configuration steps are as follow:

Step1: Set the Work Mode.

Full Function Capture: Support all capture methods, wake-up feature, heartbeat test mode and remote configuration.

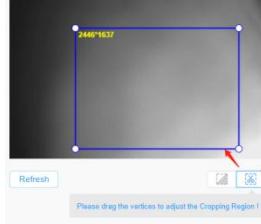
Low Power Timed Capture: Only support Timed Capture and Debug Capture and does not support wake-up feature and remote configuration.

Step2: Set the configuration of the captured images.



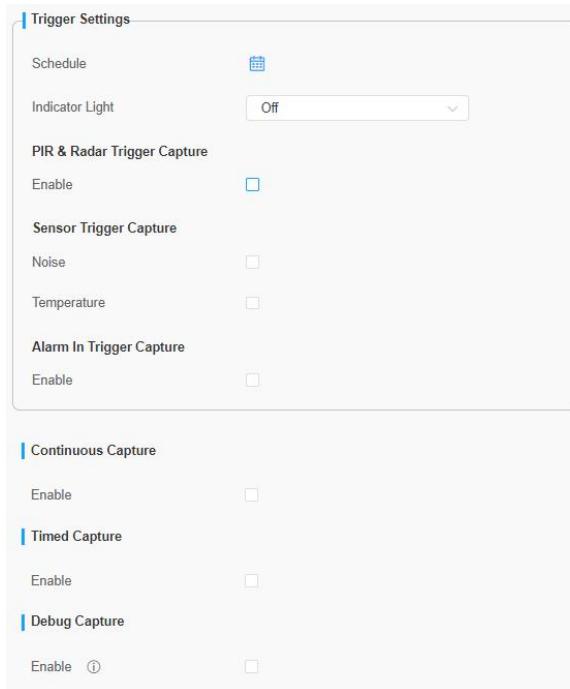
Please refer to the meaning of the options as follows:

Table 8. Description of the buttons

Parameters	Function Introduction
Resolution	Select the resolution of the captured images. The default option of SC312 is 3840*2160. The default option of SC311 is 1920*1080.
Image Type	<p>Select the captured image type, including Full Image and Cropping Region. The default option is Full Image.</p> <p>Full Image: It will capture the full image when an object is detected.</p> <p>Cropping Region: The captured image will be cropped according to your settings when an object is detected.</p> <p>Note: If you have selected the image type as Cropping Region, please click  button to draw the corresponding cropping region, it will show a blue frame with pixels on the screen.</p> 

Step3: Set capture configuration. There are various capture types available, Trigger Settings and Continuous Capture are only shown when mode is Full Function Capture.

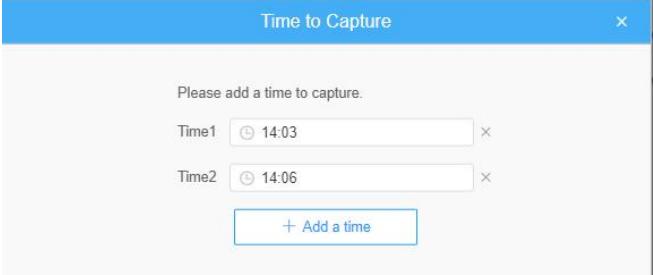
- ✧ **Trigger Capture:** Only when the device detects an object will it trigger the capture of the image.
- ✧ **Continuous Capture:** It will capture the images continuously according to the interval you set, whether or not objects are detected.
- ✧ **Timed Capture:** It will capture the images according to the time you set, whether or not objects are detected.
- ✧ **Debug Capture:** It will capture the images once when device wakes up, including power wake-up and button wake-up.



For more details about the options, please refer to the table below:

Table 9. Description of the button

Parameters		Function Introduction	
Trigger Settings (Full Function Capture mode Only)	Schedule	Set the capture schedule, the range is 00:00 ~ 23:59.	
	Indicator Light	Set the status of the indicator light to On or Off. On: Turn on the indicator light. When the capture is triggered, the indicator light on the front of the device will light up green. Off: Turn off the indicator light. When the capture is triggered, the indicator light will not light up.	
	PIR & Radar Trigger Capture	Enable	Check the checkbox to enable PIR & Radar Trigger Capture.
		Mode	Set the trigger source of the device, including Auto, PIR and Radar.
		Algorithm Validation	When enabled, only images recognized as people or vehicles will be captured.
		Trigger Interval	Set the capture trigger interval. Valid range is 1s~60s.

	Sensor Trigger Capture	Set the sensor trigger of noise or temperature. Value: When Noise or temperature reaches the set threshold, a snapshot will be taken. Continuous Trigger Interval : When the noise or temperature remain within the triggered threshold range, snapshots will be taken at the set intervals.
	Alarm In Trigger Capture	Enable the external alarm (DI) to trigger the capture. The capture will be trigger when it receives a low level signal from alarm-in interface. High Level: Two wire are not short Low Level: Two wire short connection
Continuous Capture (Full Function Capture mode Only)	Enable	Check the checkbox to enable Continuous Capture.
	Interval	Set the capture interval, input the number and select the unit as minute or hour.
Timed Capture	Enable	Check the checkbox to enable Timed Capture.
	Time to Capture	Set up to 8 the capture times. 
Debug Capture	Enable	Check the checkbox to enable Debug Capture.

Step4: Set Upload Settings. This device allows you to transmit the snapshot remotely via MQTT/MQTT(s)/HTTP protocols to any third party's system. And there are two upload mechanisms available, including Timing and Immediacy.

For more details about the options, please refer to the table below:

Upload Settings

Snapshots Upload Settings

Upload Mode **Timing** **Immediacy**

Frequency

Time

Data Post

Enable Post

Alot Sensing Platform Mode

Post Content Snapshot Heartbeat Alarm

Heartbeat Test Mode

Heartbeat Interval min(1~4320)

Snapshot Topic

Heartbeat Topic

Alarm Topic

Configure Request Topic

Configure Respond Topic

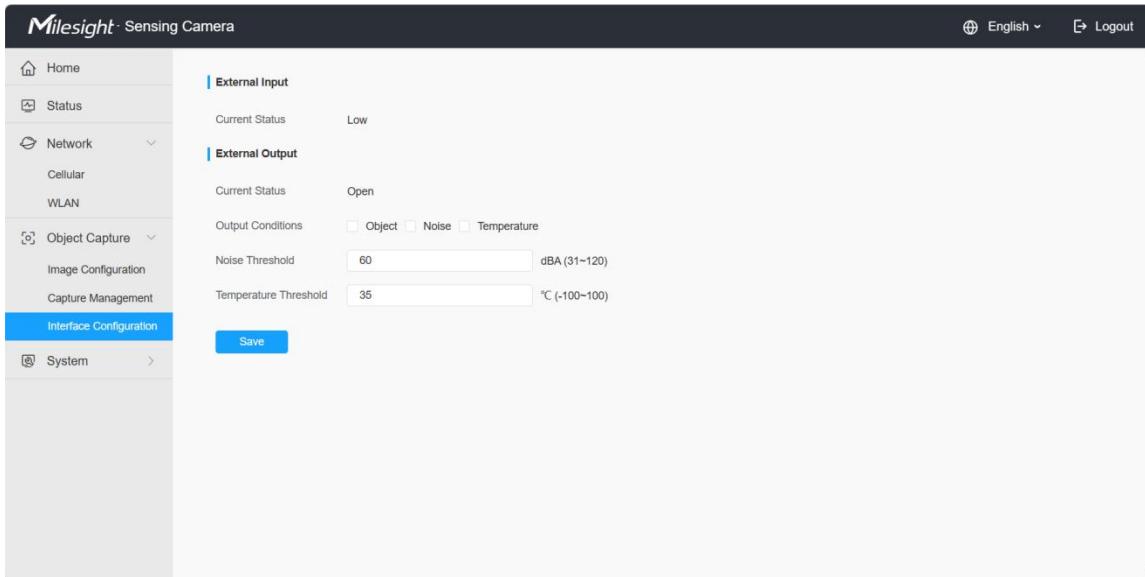
Table 10. Description of the buttons

Parameters		Function Introduction
Snapshots Upload Settings	Timing	<p>In this mode, it will upload the captured images at the interval you set.</p> <p>Frequency: Set the upload frequency to Once a Day or Twice a Day.</p> <p>Time: Set the time to upload the snapshots every day according to the set frequency.</p> <p>Note:</p> <ol style="list-style-type: none"> 1. The timing mode can work normally only when the SD card is inserted. 2. You can check this option to delete the snapshots after uploading.
	Immediacy	In this mode, the captured images will only be uploaded when the device detects an object and triggers the capture.
Data Post	Enable Post	Check the checkbox to enable snapshot uploading.
	Alot Sensing Platform Mode	<p>Click to uploading the snapshot and information to Milesight Alot Sensing Platform.</p> <p>Host: The address of Milesight Alot Sensing Platform.</p> <p>MQTT Port: The MQTT port of Milesight Alot Sensing Platform and the</p>

		default is 1883. HTTP Port: The HTTP port of Milesight AIoT Sensing Platform and the default is 5220.
	Post Content	Select post content, including Snapshot, Heartbeat and Alarm.
	Heartbeat Test Mode (Full Function Capture mode Only)	When enabled, the original unit will change from hour to mins, making it more precise.
	Heartbeat Interval	Set the interval of sending device status.
	Configure Request Topic	You can customize the Configure Request Topic. This only takes effect when work mode is Full Function Capture.
	Configure Respond Topic	You can customize the Configure Respond Topic. This only takes effect when work mode is Full Function Capture.
	Post Type	Select the data post type as MQTT or HTTP when AIoT Sensing Platform mode is disabled.
	MQTT	Status: Connected or Disconnected. Host: MQTT broker address to receive data. Port: MQTT broker port to receive data. Client ID: The Client ID of MQTT broker. The default value is device's SN. Wake Up Client ID: The Wake Up Client ID of MQTT broker. The default value is device's MAC. Note: The two client IDs cannot be the same. User Name: The username used for connecting to the MQTT broker. Password: The password used for connecting to the MQTT broker. SSL/TLS: Enable or disable data encryption and authentication. Certificate Type: CA signed server and Self signed are optional. Upload the custom CA certificate, client certificate and client key for verification.
	HTTP	URL: The URL of HTTP. Test: Click to verify whether the device and the HTTP server can communicate normally. User Name: The username used for connecting to the HTTP. Password: The password used for connecting to the HTTP.

7.3 Interface Configuration

Interface Configuration is used to view the current status of external input and external output and configure the threshold of noise and temperature.



The screenshot shows the Milesight Sensing Camera interface. The left sidebar has a navigation menu with options: Home, Status, Network (Cellular, WLAN), Object Capture (Image Configuration, Capture Management), Interface Configuration (selected), and System. The main content area is titled 'External Input' and shows the following configuration:

- Current Status: Low
- External Output: Current Status: Open
- Output Conditions: Object, Noise, Temperature (checkboxes)
- Noise Threshold: 60 dBA (31~120)
- Temperature Threshold: 35 °C (-100~100)

A 'Save' button is located at the bottom of the configuration section.

For more details about the options, please refer to the table below:

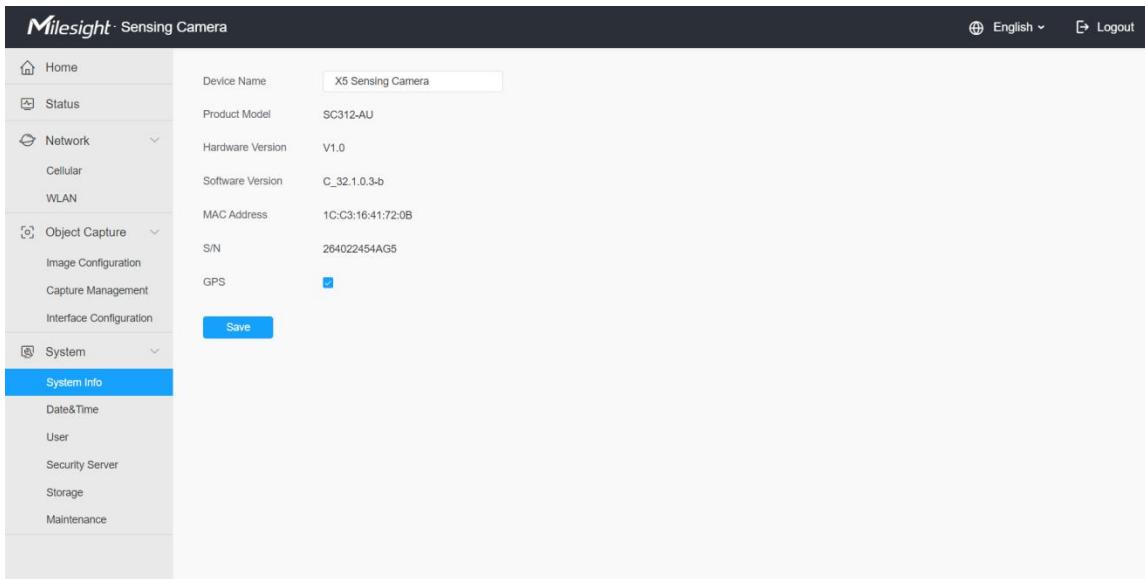
Table 11. Description of the buttons

Parameters		Function Introduction
External Input	Current Status	Current status of the external input interface.
External Output	Current Status	Current status of the external output interface.
	Output Conditions	Set the output conditions, including Object, Noise and Temperature.
	Noise Threshold	Set the sensor trigger of noise. Noise range: 31~120 dBA
	Temperature Threshold	Set the sensor trigger of temperature. Temperature range: -100~100 °C

Chapter 8. System

8.1 System info

All information about the hardware and software of the camera can be checked on this page.



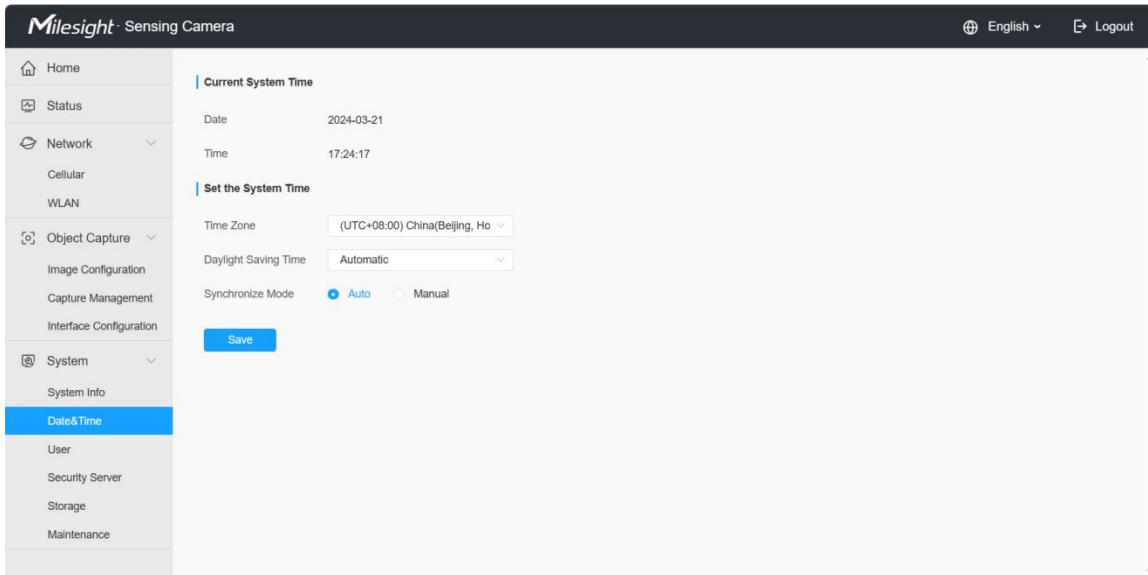
For more details about the options, please refer to the table below:

Table 12. Description of the buttons

Parameters	Function Introduction
Device Name	The device name can be customized.
Product Model	The product model of the camera.
Hardware Version	The hardware version of the camera.
Software Version	The software version of the camera can be upgraded.
MAC Address	Media Access Control address.
S/N	Stock Number.
GPS	Enable or disable the GPS feature. If disabled, the device will not display coordinate information and not sync the time with GPS.
Save	Save the configuration.

8.2 Date&Time

All information about the hardware and software of the camera can be checked on this page.



The screenshot shows the Milesight Sensing Camera web interface. The left sidebar has a tree structure with 'Home', 'Status', 'Network' (with 'Cellular' and 'WLAN' children), 'Object Capture' (with 'Image Configuration', 'Capture Management', and 'Interface Configuration' children), 'System' (with 'System Info', 'Date & Time' selected, 'User', 'Security Server', 'Storage', and 'Maintenance' children), and a 'Save' button at the bottom. The main content area has two sections: 'Current System Time' (Date: 2024-03-21, Time: 17:24:17) and 'Set the System Time' (Time Zone: (UTC+08:00) China(Beijing, Ho), Daylight Saving Time: Automatic, Synchronize Mode: Auto). There is also a 'Logout' button in the top right corner.

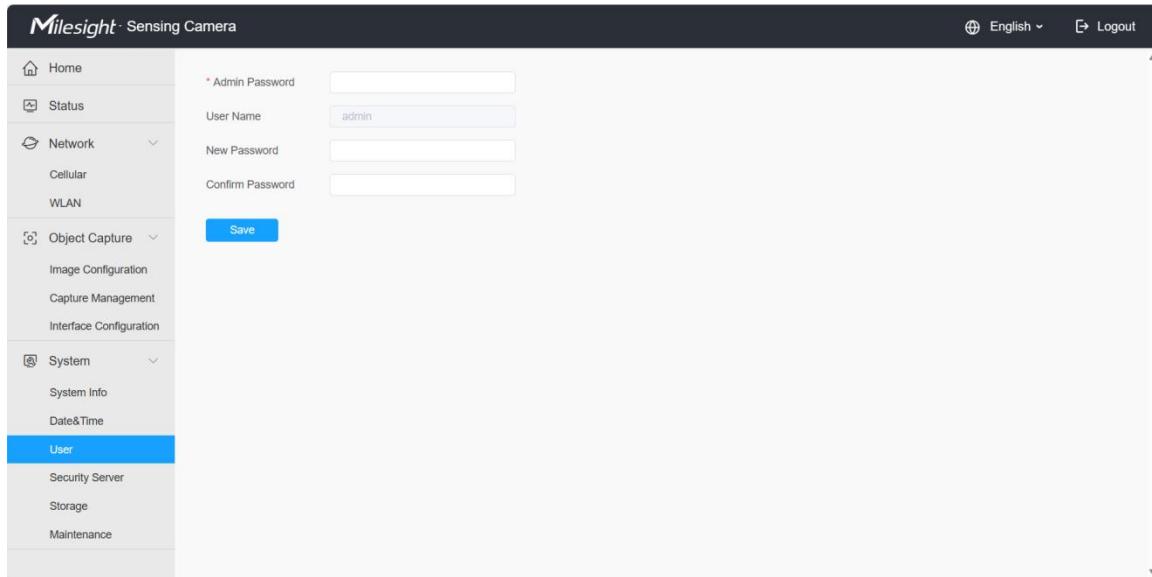
For more details about the options, please refer to the table below:

Table 13. Description of the buttons

Parameters	Function Introduction
Current System Time	Current date&time of the system.
Set the System Time	Time Zone: Choose a time zone for your location.
Set the System Time	Daylight Saving time: Enable the daylight saving time. Synchronize Mode: Auto and Manual options are available. Auto: Synchronize the time with NTP server first, if failed, synchronize the time with GPS.
Save	Save the configuration.

8.3 User

You can change the user password in this interface for security.



- Default User Name: admin
- Default Password: ms123456

Please refer to the meaning of the options as follows:

Table 14. Description of the buttons.

Item	Description
Admin Password	Input the current admin password.
User Name	Display the user name of the device.
New Password	Input a new password for the account.
Confirm	Confirm the new password.

8.4 Security Service

Table 15. Description of the buttons

Parameters	Function Introduction
SSH Settings	Secure Shell (SSH) has many functions: it can replace Telnet and also provides a secure channel for FTP, POP, even for PPP.

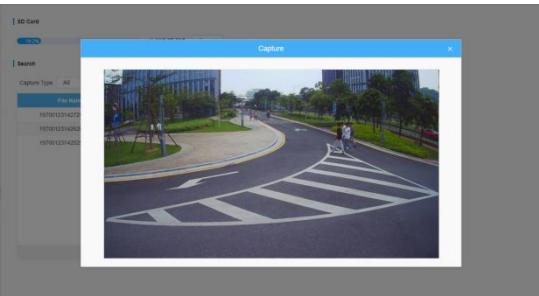
8.5 Storage

If an SD card is inserted into the device, the snapshots can be saved to the SD card. Here you can check the status of the SD card, search and manage snapshots in the SD card.

File Name	Time	Capture Type	Size	Upload	Operation
202410121021542524N.jpg	2024-10-12 10:21:54	Noise	191.80 K	Failed	
202410121020542223N.jpg	2024-10-12 10:20:54	Noise	191.61 K	Failed	
202410121020142023N.jpg	2024-10-12 10:20:14	Noise	191.64 K	Failed	
202410121020001952M.jpg	2024-10-12 10:20:00	Timer	191.72 K	Failed	
202410121019541921C.jpg	2024-10-12 10:19:54	Continuous	191.50 K	Failed	
202410121019141721N.jpg	2024-10-12 10:19:14	Noise	191.85 K	Failed	
202410121018131415N.jpg	2024-10-12 10:18:13	Noise	191.39 K	Failed	
202410111917061084N.jpg	2024-10-12 10:17:06	Noise	191.30 K	Failed	
20241011191606783N.jpg	2024-10-12 10:16:06	Noise	191.24 K	Failed	

Please refer to the meaning of the options as follows:

Table 16. Description of the buttons

Item	Description
SD Card	Format: Format the SD card, the files in the SD card will be removed. Mount/UnMount: Mount/Dismount SD card.
Save All Images	Enabling this function, the SD card will save all snapshots, including those uploaded to the server and those that failed to upload. Disabling this function, the SD card will only save snapshots that failed to upload.
Search	Select Capture Type and Start/End time, then click the search button to search out snapshots.
	Click this button to display the entire snapshot as shown below: 
	Click this button to download this snapshot.

8.6 System Maintenance

Table 17. Description of the buttons

Parameters	Function Introduction
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System Upgrade	<p>Software Version: The software version of the camera.</p> <p>Local Upgrade: Click the "Browse" button and select the upgrading file, then click the "Upgrade" button to upgrade. After the system reboots successfully, the update is done.</p> <p>You can check "Reset after Upgrading" to reset the camera after upgrading it.</p> <p>Online Upgrade: Click the "Check" button to check the current latest firmware version on our website, and then click "OK" to upgrade to this version.</p> <p>It will prompt "The current version is the latest version" if your camera is already the latest version.</p> <p>Note: Do not disconnect the power of the device during the update. The device will be restarted to complete the upgrading.</p>
Reset	<p>The camera can be reset to factory default settings either by pressing the reset button on the hardware or by clicking Reset in the web GUI.</p> <p>Reset Button: enable or disable the button to reset the device to factory default.</p>
Reboot	Click "Reboot" button to restart the device immediately.
Export Log	<p>Click "Export" button to export logs and system information of the device operation status.</p> <p>Note: The file format is ".csv".</p>

Chapter 9. Communication Protocol

SC31x will send device information and screenshot data in json format to MQTT broker.

Snapshot Report:

```
{
  "ts": 1718524351729,
  "values": {
    "devName": "X5 Sensing Camera",
    "devMac": "1CC316430517",
    "snapType": "Noise",
    "triggerValue": "51",
    "file": "2024061615523096752N.jpg",
    "time": 1718524350,
    "imageSize": 104201
    "image": "data:image/jpeg;base64,/9j/4AAQSkZJRgABAQAA... (Image code)"
  }
}
```

Heartbeat Report:

```
{
```

```
"ts": 1718524342596,  
"values": {  
    "devName": "X5 Sensing Camera",  
    "devMac": "1CC316430517",  
    "battery": {  
        "soc": 100,  
        "capacity": 6392,  
        "voltage": 8366,  
        "healthy": 0,  
        "chargeCurrent": 0,  
        "chargeStat": 5,  
        "chargeVoltage": 4000,  
        "powerGoodStat": 1  
    },  
    "gps": {  
        "latitude": "",  
        "longitude": "",  
        "altitude": ""  
    },  
    "cellular": {  
        "connectStatus": "4G Connected",  
        "simStatus": "Valid",  
        "signalStrength": 5,  
        "imei": "868444050680397",  
        "imsi": "460113440903212",  
        "iccid": "89861122239044725469",  
        "ipAddr": "192.168.79.27",  
        "subMask": "255.255.255.248",  
        "gateway": "192.168.79.28",  
        "dns": "114.114.114.114",  
        "dataMonthly": 3534020  
    },  
    "sensor": {  
        "LAF": 53,  
        "temperature": "32.9"  
    },  
    "storage": {  
        "storageCapacity": "6.5%"  
    }  
}  
}
```

-----END-----