



User Manual

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Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
 Danger	Indicates a hazardous situation which, if not avoided, will or could result in death or serious injury.
 Caution	Indicates a potentially hazardous situation which, if not avoided, could result in equipment damage, data loss, performance degradation, or unexpected results.
 Note	Provides additional information to emphasize or supplement important points of the main text.

Safety Instruction

CLASS 1 LASER PRODUCT
IEC 60825-1:2014

CLASS 1 LASER PRODUCT

The product meets the requirements of Class 1 laser products. Class 1 Laser products that are safe during use, including long-term direct intrabeam viewing, even when exposure occurs while using telescopic optics.

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Chapter 1 Device Activation

To protect the security and privacy of the user account and data, you should set a login password to activate the device when access the device via network.

 **Note**

Refer to the user manual of the software client for the detailed information about the client software activation.

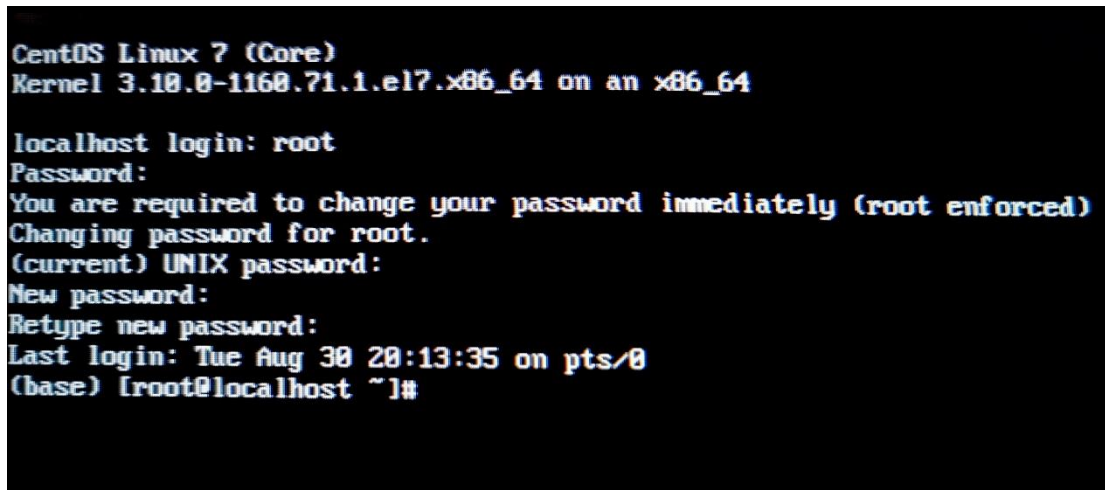
1.1 Activate the Device via Local Client

Before You Start

- Connect the device to the display screen, keyboard, and mouse.
- Power on the device.

Steps

1. Log in to the root account and change the password when the device starts up for the first time.
 - 1) Enter **root** after **localhost login**.
 - 2) Enter **hik12345** after **Password** and press **Enter** to confirm. Enter **hik12345** again after **(current) UNIX password** and press **Enter** to confirm.
 - 3) Change the password when logging in for the first time. Enter **New password** as prompted and press **Enter** to confirm. Enter **Retype new password** again and press **Enter** to confirm.
 - 4) Enter **systemctl set-default graphical.target**, press **Enter** to go to the graphical interface, and restart the device.



```
CentOS Linux 7 (Core)
Kernel 3.10.0-1160.71.1.el7.x86_64 on an x86_64

localhost login: root
Password:
You are required to change your password immediately (root enforced)
Changing password for root.
(current) UNIX password:
New password:
Retype new password:
Last login: Tue Aug 30 20:13:35 on pts/0
(base) [root@localhost ~]#
```

Figure 1-1 Logging in for the First Time

2. Run the client software.



Figure 1-2 Local Client

- The software automatically pops up an activation window when logging in for the first time. The default administrator username for the device is admin. You need to input new password (admin password) and confirm the password in the pop-up window.



Caution

We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

- Click **OK**.

1.2 Activate the Device via Browser

You can access and activate the device via the browser.

Steps

- Connect the device to the PC using the network cables.
- Change the IP address of the PC and device to the same segment.



Note

The default IP address of the device is 192.0.0.64. You can set the IP address of the PC from 192.0.0.2 to 192.0.0.254 (except 192.0.0.64). For example, you can set the IP address of the PC to 192.0.0.100.

- Input **192.0.0.64** in the browser.
- Set device activation password.



Caution

We highly recommend you create a strong password of your own choosing (using a minimum of 8 characters, including at least three of the following categories: upper case letters, lower case letters, numbers, and special characters) in order to increase the security of your product. And we recommend you reset your password regularly, especially in the high security system, resetting the password monthly or weekly can better protect your product.

- Click **OK**.
- Input the activation password to log in to the device.
- Optional: Go to **Configuration** → **Network** → **Network Settings** → **TCP/IP** to change the IP address of the device to the same segment of your network.

Chapter 2 Local Client Operation Instructions

Local client is mainly used for debugging.

Click **Log In** in the upper-left corner, enter administrator user name and password, and click **OK** to log in to client.

You can view the interface without logging in to local client, but cannot edit the parameters. Logging in is not recommended for normal user. Please contact professionals to edit parameters.

2.1 Signal

Click **Signal** to enter the interface.

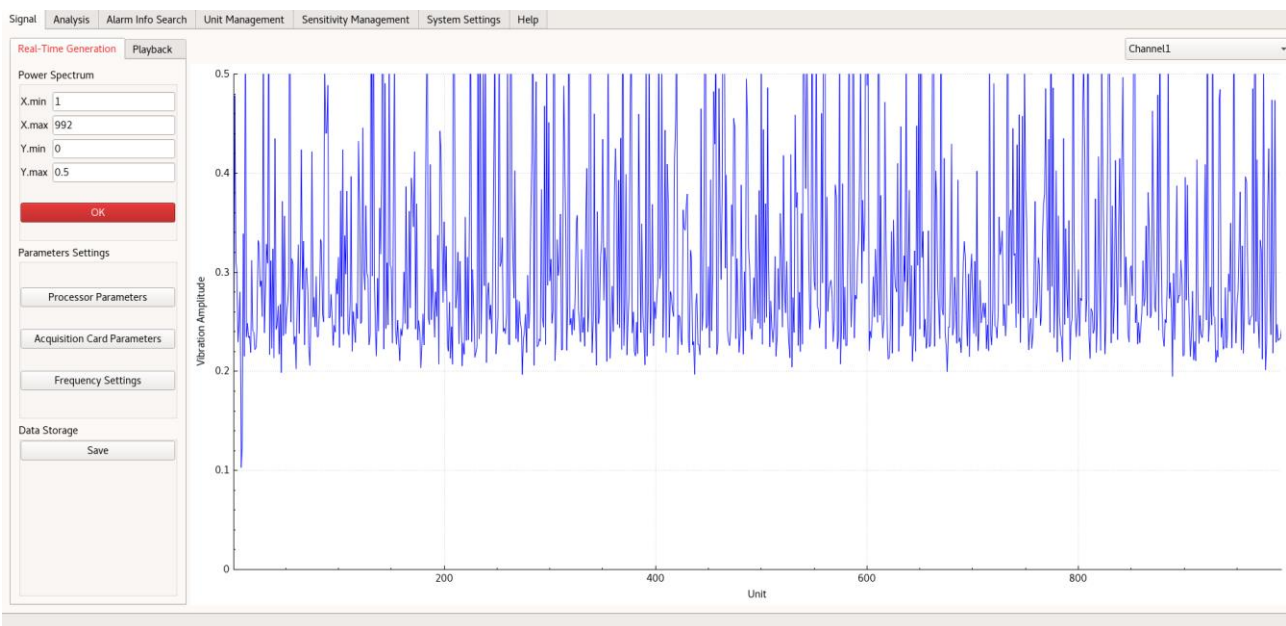


Figure 2-1 Signal Interface

2.1.1 Parameter Settings

The photoelectric parameters, acquisition card parameters and frequency settings are usually debugged and set by technical support personnel, and are not recommended for change.

2.1.2 Real-Time Generation

Click **OK** in real-time generation. The right-side chart area starts to generate real-time signal charts (slab chart and spatial intensity chart). Click **Stop** to stop generating.

The dual-channel device can switch between channel 1 and channel 2.

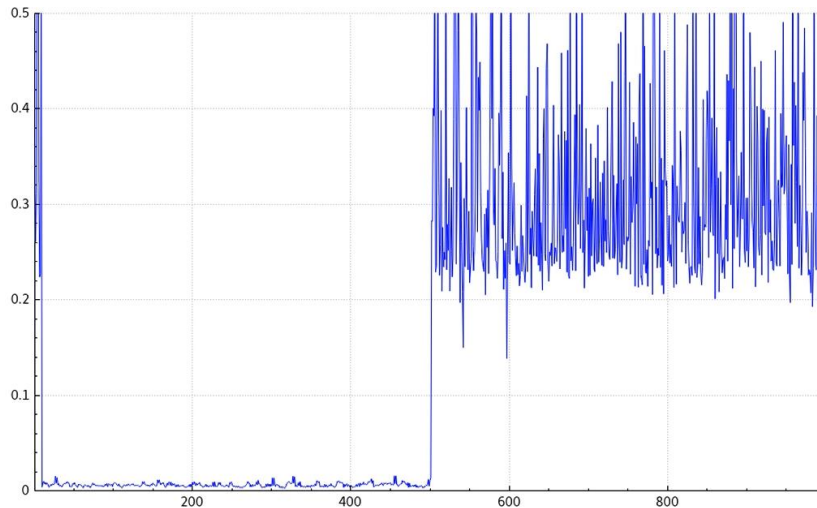


Figure 2-2 Vibration Amplitude

As shown in the above figure, the lower-level line segment on the left indicates that the signals of unit 1 to 500 are normal, and the bottom noise on the right indicates that units above 500 have no signal.

When there is vibration, the left line segment will fluctuate according to the vibration intensity.

X.min/X.max/Y.min/Y.max

Adjust the max. and min. value of X and Y axis, and press **Enter** to confirm.

2.1.3 Data Saving and Playback

Save data in a certain time period. You can read the power map data through playback.

Data Saving

1. Click **Save** in the **Data Storage**.
2. Select **Save Raw Data** and **Save Power Map Data** as needed in pop-up window.

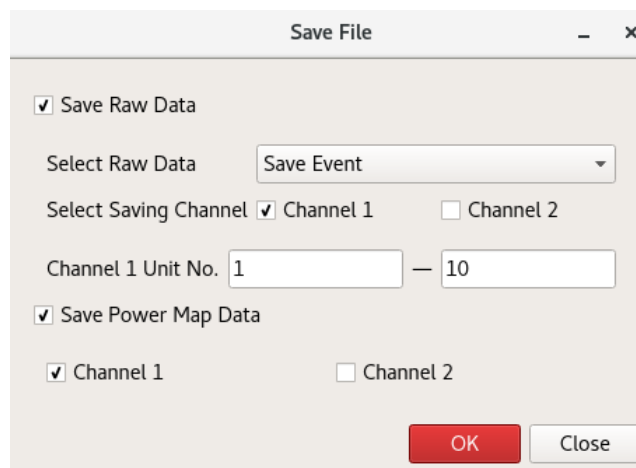


Figure 2-3 Save File

Saving Type

Save Event: When alarms occur in the selected unit No. range, the system records alarm data of the unit and the four units before and after it.

Save Manually: The phase data in the selected unit No. range can be saved.

Saving Channel

Select the channel to save data.

Unit No.

The unit No. to save data cannot be 0.

Raw Data and Power Map Data

The power map data is a wave band graph generated in the graph. Only power map data can be played back in playback. The raw data is only for professional analysis.

3. Click **OK** to save the raw data. Click **OK** in the Real-Time Generation window to generate power map data after setting the condition.
4. When data saving needs to be ended:
 - To disable **Save Raw Data**, you can cancel the selected items.
 - To disable **Save Power Map Data**, you can cancel the selected item, click **OK** to close the window, or close the client.
5. Set the path to save the file to local.

Playback

1. Go to **Signal** → **Playback**, and click **Import**.
2. Select **Path** and set **Playback Rate (Milliseconds)**.
3. Click **OK**.
4. View data playback in playback interface.

2.2 Analysis

Click **Analysis** to enter the interface. View waterfall plot, spectrogram and spatial intensity map.

2.2.1 Waterfall Plot

Click **Start** to generate spectrogram, and click **Stop** to stop generating.
Two-channel device can switch channel 1 or channel 2.

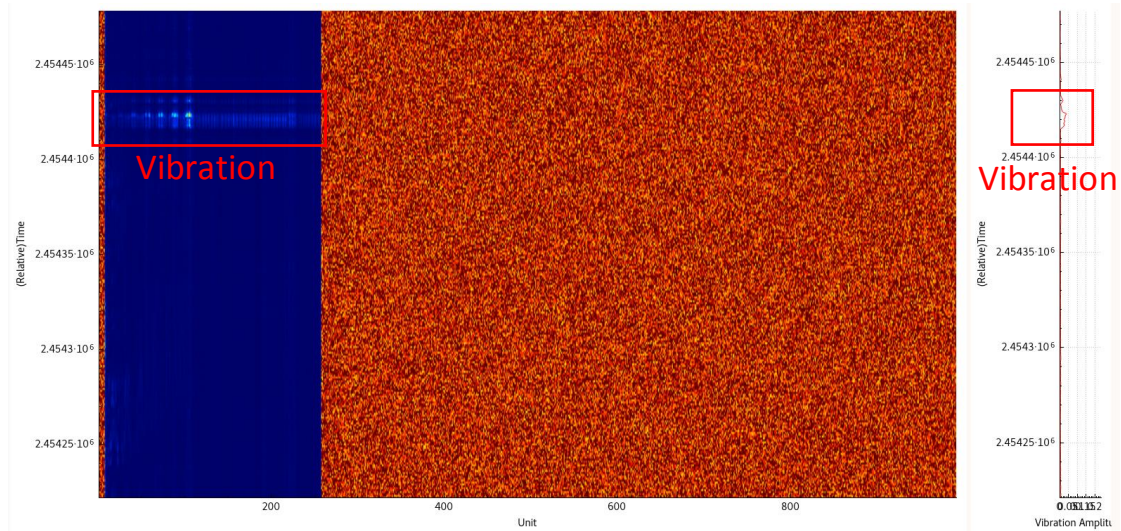


Figure 2-4 Waterfall Plot (With Vibration)

The vertical axis of the left picture is relative time, and the horizontal axis is unit No.
The vertical axis of the right picture is relative time, and the horizontal axis is vibration amplitude.
As shown in the above picture, the unit 1 to 250 on the left have signals and the signals are normal, and the bottom noise on the right indicates that units above 250 have no signals.

2.2.2 Spectrum

Click **Start** to generate spectrogram, and click **Stop** to stop generating.
Two-channel device can switch channel 1 or channel 2.

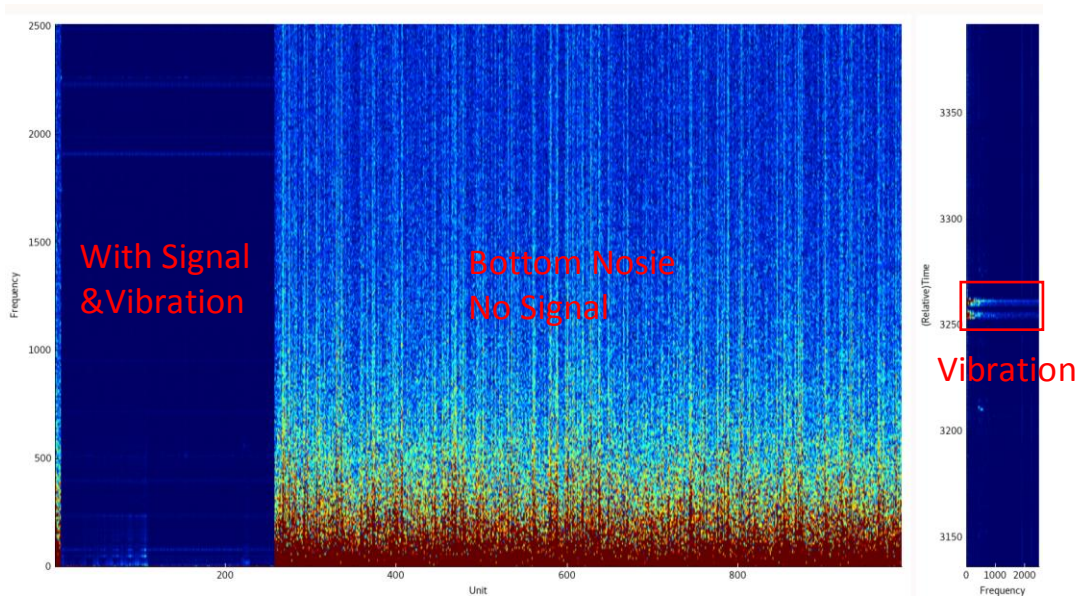


Figure 2-5 Spectrogram (With Vibration)

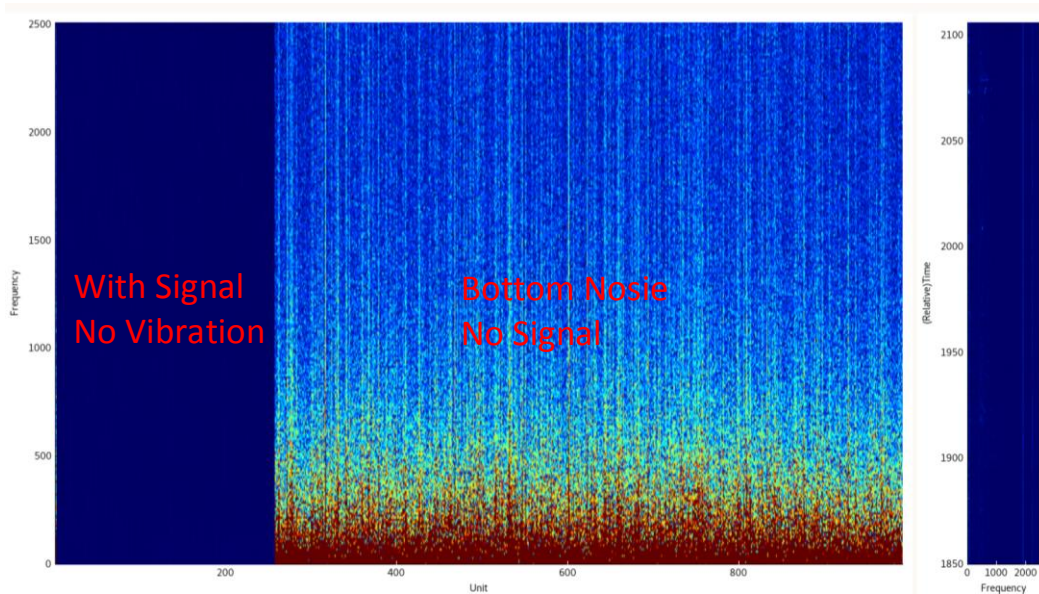


Figure 2-6 Spectrogram (No Vibration)

The vertical axis of the left picture is frequency, and the horizontal axis is unit No. The vertical axis of the right picture is relative time, and the horizontal axis is frequency. As shown in the above picture, the unit 1 to 250 on the left have signals and the signals are normal, and the bottom noise on the right indicates that units above 250 have no signals.

2.2.2 Spatial Intensity Map

Click **Start** to generate space intensity map. Click **Stop** to stop generating. Two-channel device can switch channel 1 or channel 2.

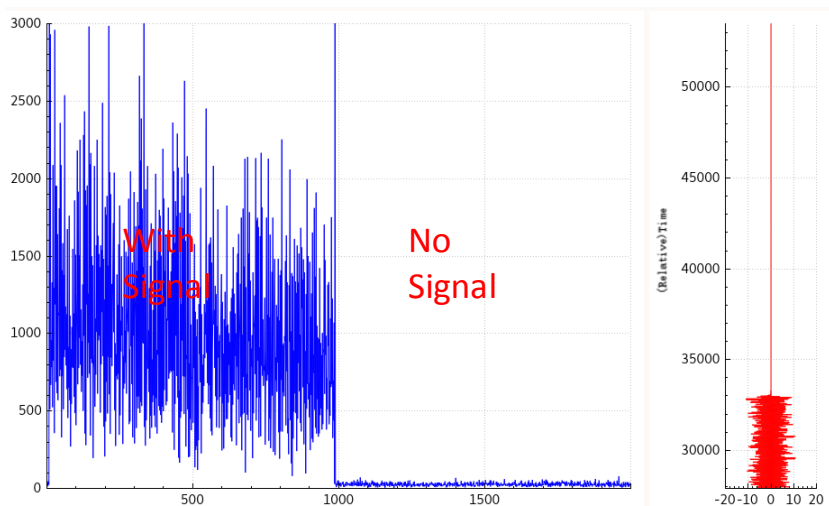


Figure 2-7 Spatial Intensity Map (Normal Signal)

The vertical axis of the left picture is the vibration amplitude, and the horizontal axis is the unit. The larger the vibration amplitude, the stronger the signal.

The vertical axis of the right picture is relative time, and the horizontal axis is phase.

As shown in the above picture, the unit 1 to 1000 on the left have signals and the signals are normal, and the

units above 1000 have no signals.

The space intensity map is mainly used to display signal strength. When there is vibration, the left map fluctuates slightly. The initial signal peak value of the device should be around unit 2500. If it is lower, the signal is weak.

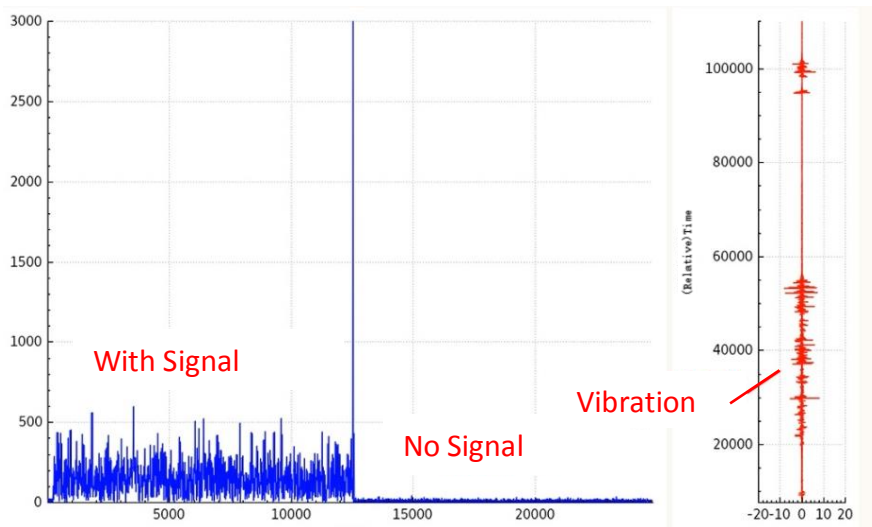


Figure 2-8 Spatial Intensity (Weak Signal)

2.3 Search alarm information.

Click **Alarm Info Search** to enter the interface.

After setting the condition, click **Search**.

Alarm Confidence

After enabling AI switch in unit management, the system will automatically judge if the alarm is true or false. Validity1 indicates that the alarm event is more likely to be true. Validity0 indicates that the alarm event is more likely to be false.

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The screenshot shows a web interface for searching alarm information. At the top, there are navigation tabs: Signal, Analysis, Alarm Info Search (selected), Unit Management, Sensitivity Management, System Settings, and Help. The main area is divided into a left sidebar with search filters and a right table of results.

Search Filters:

- Start Time:** 2024-04-22 00:00:00
- End Time:** 2024-04-23 00:00:00
- Unit No.:** 1 — 11500
- Alarm Confidence:** Confidence 0, Confidence 1
- Alarm Level:** First-Level Alarm, Second-Level Alarm, Third-Level Alarm

Table Headers: Unit No., Alarm Level, Alarm Time, Confidence, Handle Method, Longitude, Latitude

Table Content: The table is currently empty.

Footer: A red "Search" button is on the left. To its right, it says "Total Number of Alarms (Within Query Time) 0". Further right are navigation buttons: "Before", "Next", "Current" (with a small "1" in a box), "Page Jump", "Page", and "Go".

Figure 2-9 Search Alarm Information

The unit No. of channel 1 shows the original unit No.

If the device is the dual-channel device, the unit No. of channel 2 shows 10000 + original unit No. For example, channel 1 unit No. 502 is shown as 502, and channel 2 unit No. 502 is shown as 10502.

2.4 Unit Management

Click **Unit Management** to enter the interface.

This interface is used to configure the fiber optic unit.

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Signal	Analysis	Alarm Info Search	Unit Management	Sensitivity Management	System Settings	Help								
Add		Batch Delete		Batch Edit		Channel1								
Unit No.	Sensitivity	AI Switch	Alarm Switch	Unit Type	Longitude	Latitude	A	F1	F2	B	F3	F4		
1	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
2	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
3	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
4	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
5	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
6	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
7	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
8	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
9	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
10	1	On	Off	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
11	1	On	On	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
12	1	On	On	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
13	1	On	On	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
14	1	On	On	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		
15	1	On	On	Indoor Fence	E120....	N30.2...	0	1	2	1	4	250		

Figure 2-10 Unit Management

Channel 1 or channel 2 can be switched by dual-channel device.

2.4.1 Add Unit

Click **Add** to enter the unit parameters in the pop-up window, and click **OK** to add the unit.

Start Unit/End Unit

The system will automatically generate the unit within the range. For example, if the start unit is 1, and the end unit is 5, then it will add 5 units, 1, 2, 3, 4, and 5.

Max. number of units varies with device models.

Unit Type

Select the unit type as your needs.

Sensitivity

Only preset sensitivity can be selected. You can configure sensitivity in [2.5 Sensitivity Management](#) in advance

Alarm Switch

After enabling, the unit will alarm according to the triggering type

AI Switch

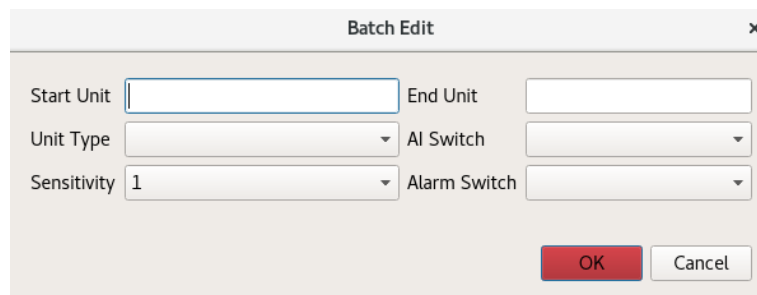
After enabling, the system judges alarm confidence according to smart algorithm. The system will automatically judge if the alarm is true or false. 1 means that the alarm event is likely to be true. 0 means that the alarm event is likely to be false. If the AI switch is disabled, the confidence level of the alarm will be 0 by default.

2.4.2 Edit Unit

Edit **AI Switch**, **Alarm Switch**, and **Unit Type** of a single unit in the list.

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Or click **Batch Edit** to edit the units and parameters in the pop-up window. Click **OK**.



The screenshot shows a dialog box titled "Batch Edit" with a close button (X) in the top right corner. It contains the following fields:

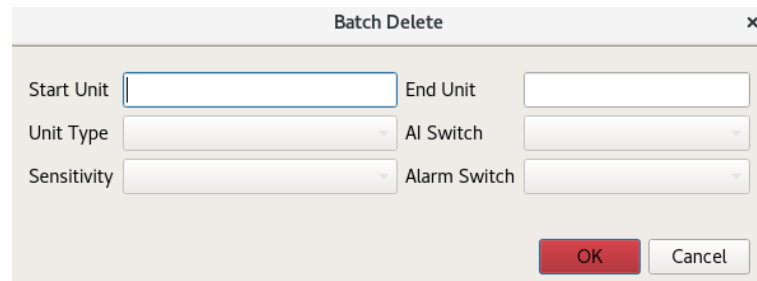
- Start Unit:
- End Unit:
- Unit Type:
- AI Switch:
- Sensitivity:
- Alarm Switch:

At the bottom right, there are two buttons: "OK" (highlighted in red) and "Cancel".

Figure 2-11 Batch Edit

2.4.3 Delete Unit

Click **Batch Delete**, enter the **Start Unit** and **End Unit** to delete the units, and click **OK**.



The screenshot shows a dialog box titled "Batch Delete" with a close button (X) in the top right corner. It contains the following fields:

- Start Unit:
- End Unit:
- Unit Type:
- AI Switch:
- Sensitivity:
- Alarm Switch:

At the bottom right, there are two buttons: "OK" (highlighted in red) and "Cancel".

Figure 2-12 Batch Delete

2.5 Sensitivity Management

Click **Sensitivity Management** to enter the interface.

Double-click the data to edit.

I stands for intensity. N stands for number of times. T stands for duration (ms).

Recommended Sensitivity: Third-Level Alarm: I0.2/N10/T2000, Second-Level Alarm: I1/N30/T5000, First-Level Alarm: I3/N50/T10000.

Alarm Intensity: First-Level Alarm Intensity > Second -Level Alarm Intensity > Third -Level Alarm Intensity.

Sensitivity	Third-Level			Second-Level			First-Level		
	I	N	T	I	N	T	I	N	T
1	0.1	3	2000	1	3	5000	3	3	10000
2	0.1	5	2000	1	5	5000	3	5	10000
3	0.1	7	2000	1	7	5000	3	7	10000
4	0.1	10	2000	1	10	5000	3	10	10000
5	0.2	3	2000	1.1	3	5000	3.1	3	10000
6	0.2	5	2000	1.1	5	5000	3.1	5	10000
7	0.2	7	2000	1.1	7	5000	3.1	7	10000
8	0.2	10	2000	1.1	10	5000	3.1	10	10000
9	0.3	3	2000	1.2	3	5000	3.2	3	10000
10	0.3	5	2000	1.2	5	5000	3.2	5	10000
11	0.3	7	2000	1.2	7	5000	3.2	7	10000
12	0.3	10	2000	1.2	10	5000	3.2	10	10000
13	0.4	3	2000	1.3	3	5000	3.3	3	10000
14	0.4	5	2000	1.3	5	5000	3.3	5	10000

Figure 2-13 Sensitivity Management

2.6 System Settings

Click **System Settings** to enter the interface.

Enable **Web Service**, and input **IP Address**.

Web page will not be available when web service is disabled.

2.7 Help

Click **Help** to view **Open Source Software Licenses**.

Chapter 3 Web Client Operation Instructions

3.1 Alarm Record Display

The alarm display interface will pop up prompt according to the missing configuration, and you can click to go to the corresponding interface.

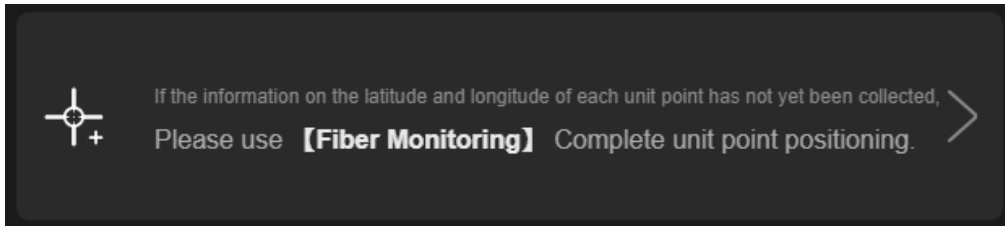


Figure 3-1 Fiber Monitoring Prompt

Go to [3.4.2 Fiber Monitoring](#) to set parameters when you see the prompt above.

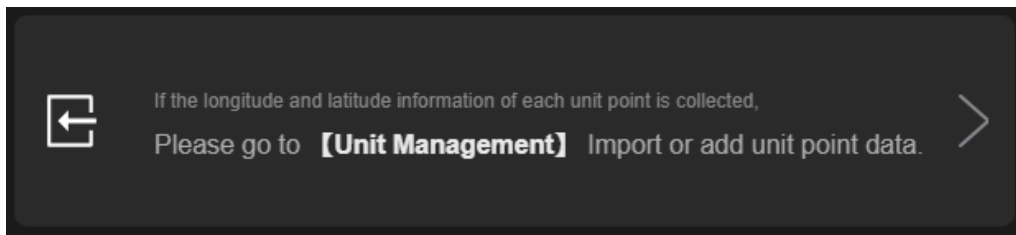


Figure 3-2 Unit Management Prompt

Go to [Sensitivity Preset](#) to set sensitivity and [Unit Management](#) to set unit when you see the prompt above.

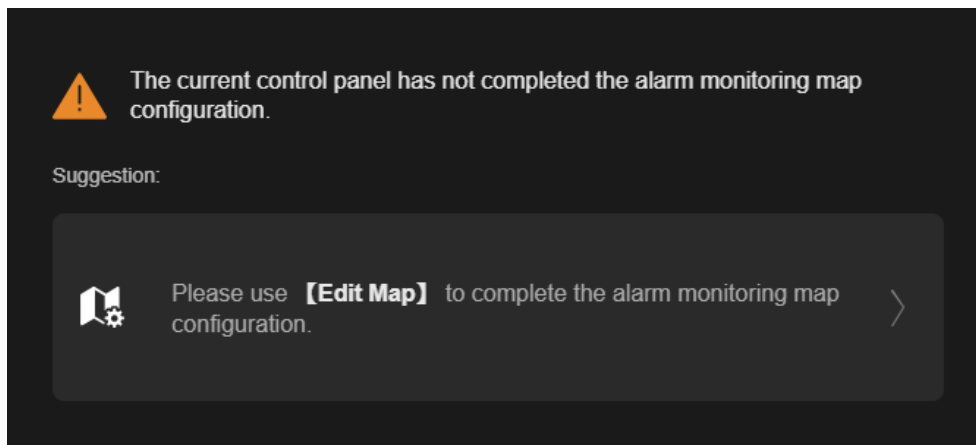


Figure 3-3 Edit Map Prompt

Go to [3.1.1 Map Configuration](#) to finish map configuration when you see the prompt above..

3.1.1 Map Configuration

Steps

1. The pop-up window will be displayed when you enter the display screen for the first time. Click the pop-up window.

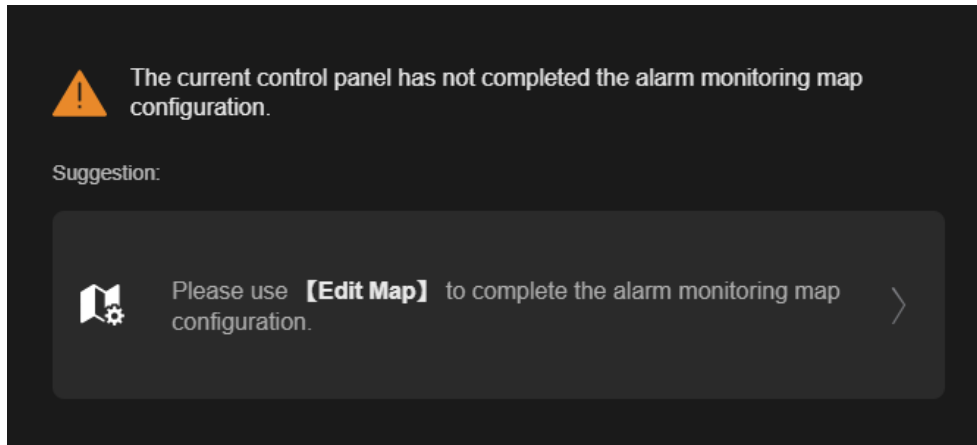


Figure 3-4 Edit Map Prompt

Otherwise, click  **Edit Map** on the upper right, and click **Import Map Again**.

2. Import map according to pop-up prompt and wait for the map to load.

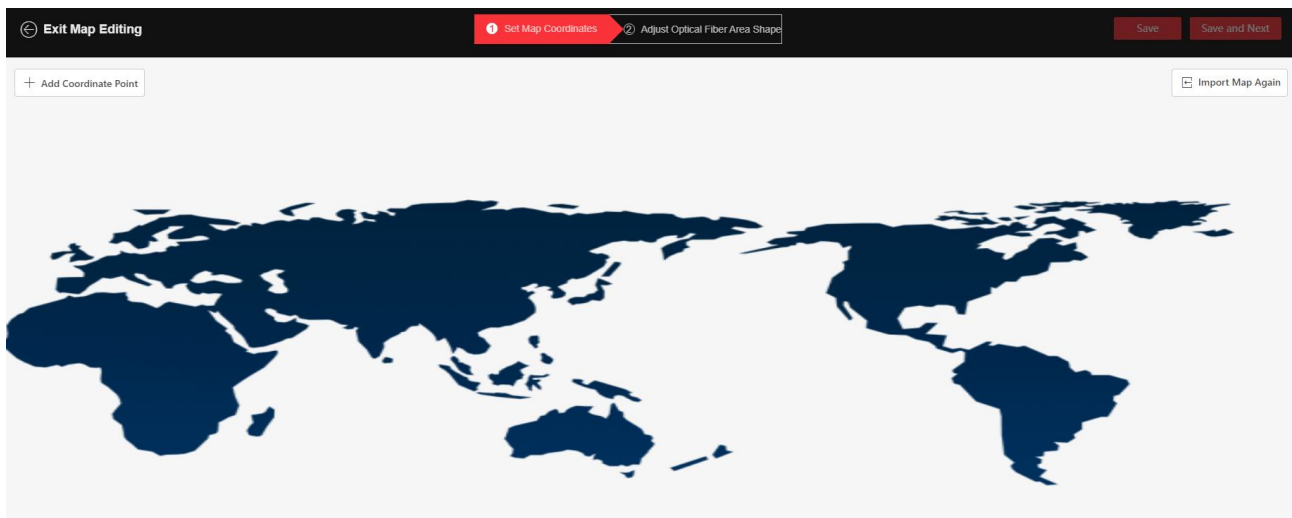



Figure 3-5 Map Imported

3. Click **+ Add Axis Point**, and then left click to generate the axis of the map. You can enter longitude, latitude, and altitude. If the information filled is incorrect, click  to delete the axis point.

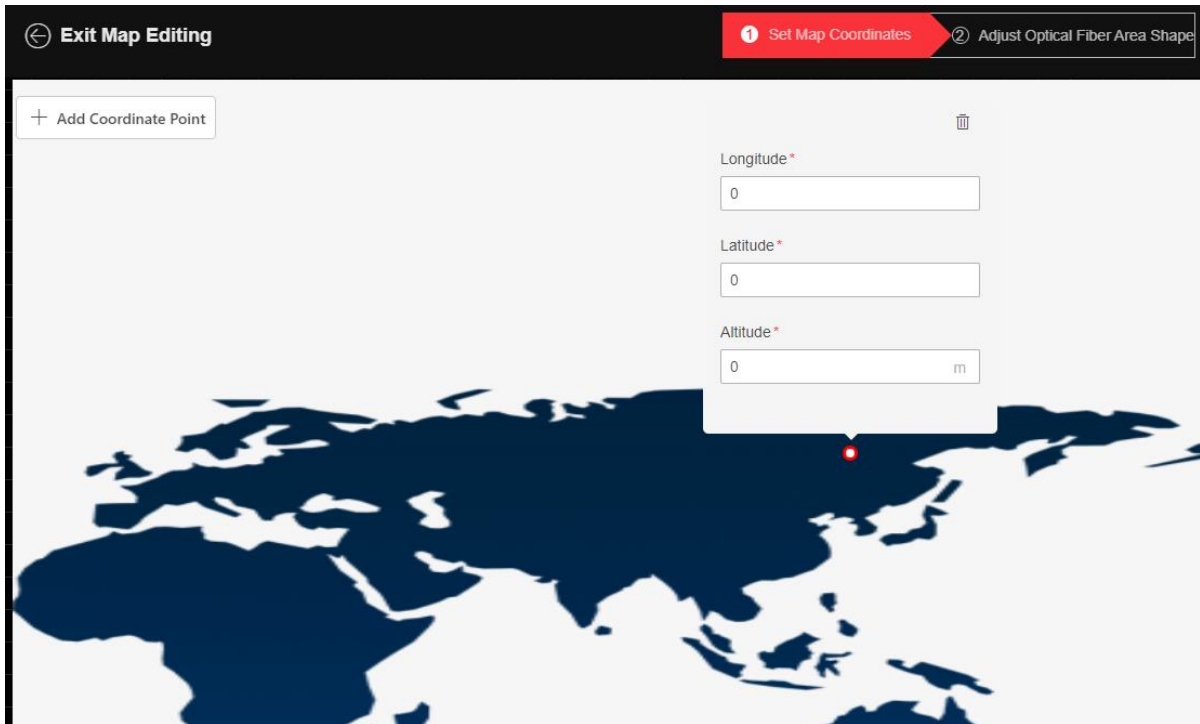


Figure 3-6 Add Axis Point

4. Click **+ Add Axis Point** again. Repeat the previous step to generate the second point. Only two axis points can be added.

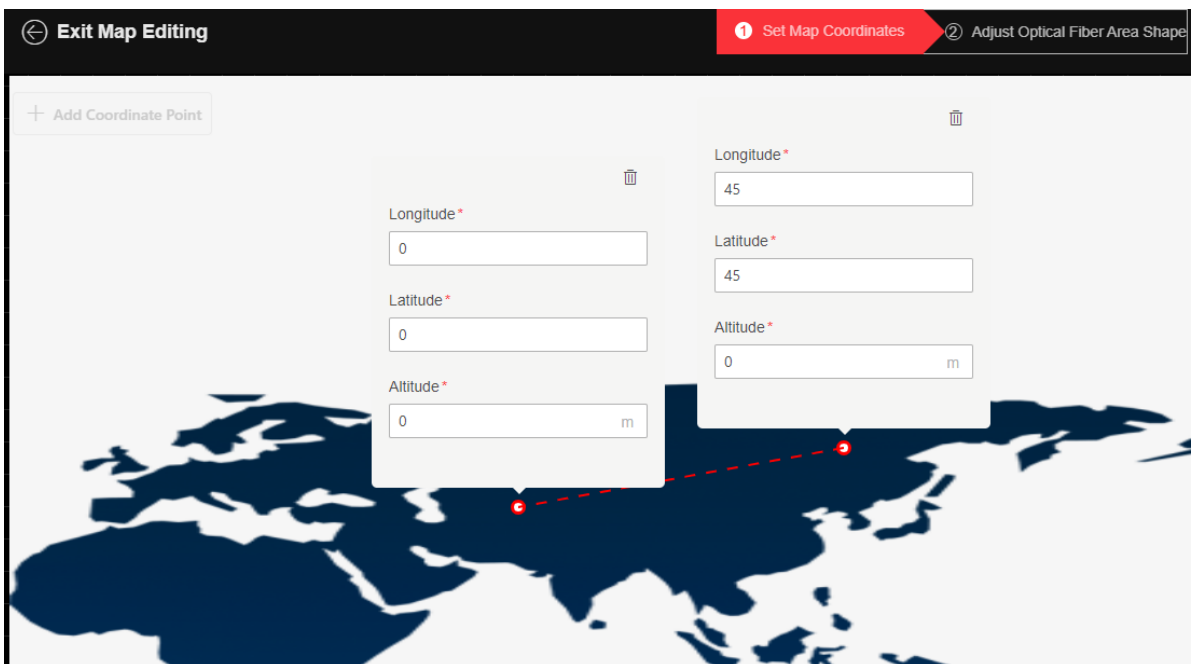


Figure 3-7 Add Second Axis Point

5. Click **Save and Next**.
6. Enter the fiber shape adjustment interface. Number of units is set in the Unit Management.

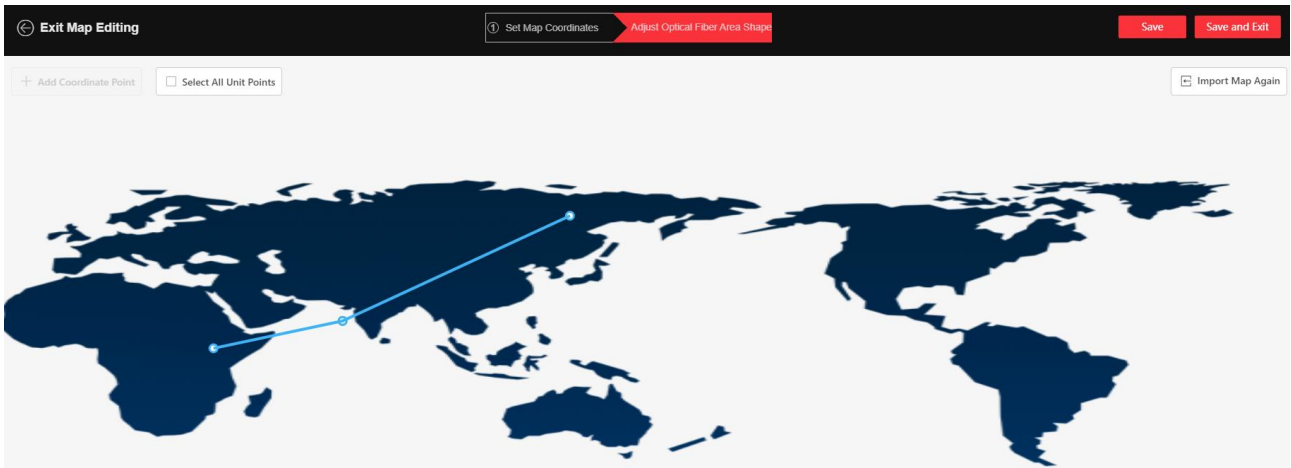


Figure 3-8 Adjust Fiber Shape

7. Drag the end point to adjust the fiber shape. Check **Select All Unit Points** to drag all the points together.
8. Click **Save and Exit**.

3.1.2 Function

Fiber Monitoring

The upper-left page is displayed with fiber monitoring.

The dual-channel device can switch between channel 1 and channel 2.

Power Spectrum

Display the power statistics of each unit.

As shown in the figure below, the lower-level segment on the left indicates that the signals of unit 1 to 500 are normal, and the bottom noise on the right indicates that units above 500 have no signals.

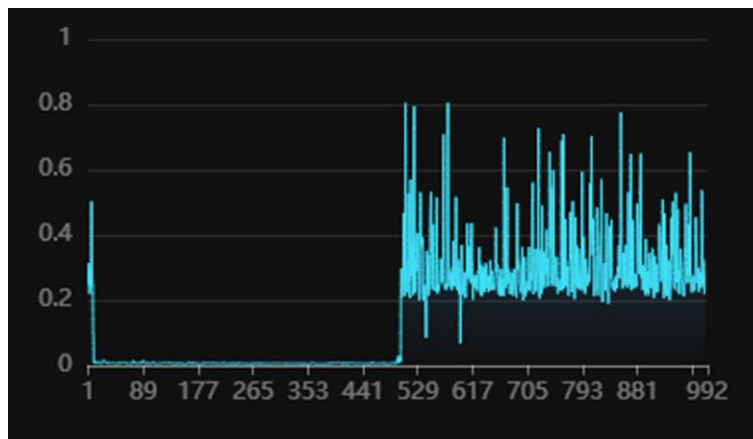


Figure 3-9 Power Spectrum

When there is vibration, the left part will fluctuate.

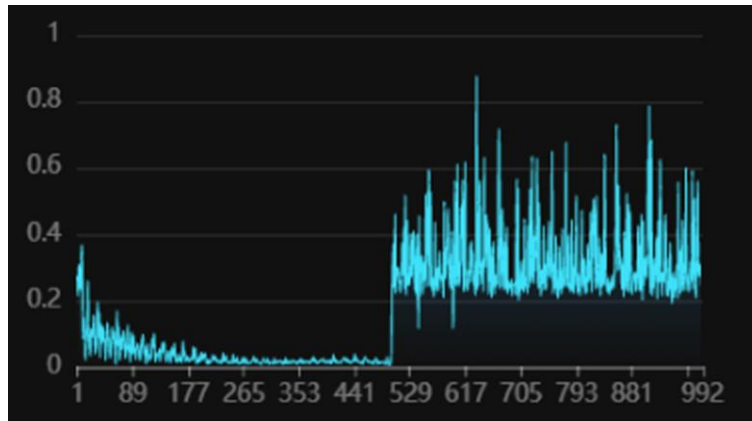


Figure 3-10 Power Spectrum (With Vibration)

Amplitude Curve

It is mainly used to check signal strength and whether the fiber is broken.

Under normal circumstances, it is fluctuating curve. If the fiber is broken, there is no curve. As shown in the following figure, the signals of unit 1 to 230 are normal (the vertical axis can be regarded as signal strength). Units above 230 have no signals.

You can see the broken unit through the amplitude curve.



Figure 3-11 Amplitude Curve

Alarm Statistics

The lower-left page shows alarm data.

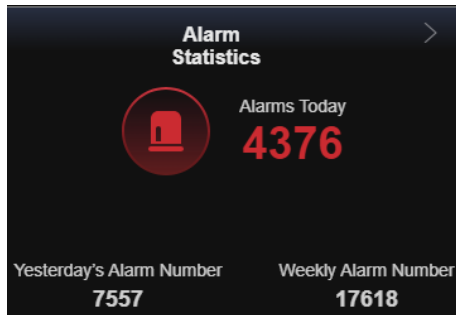


Figure 3-12 Alarm Statistics

Alarm List

The screen on the right shows the alarm. You can select the handled alarms and unhandled alarms.

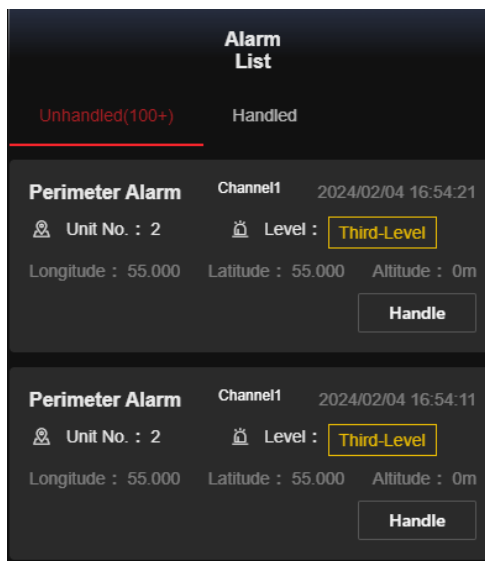


Figure 3-13 Alarm List

Click *Handle* to view alarm type, time, unit No., and alarm level in pop-up window. Please select true or false alarm in handle method.

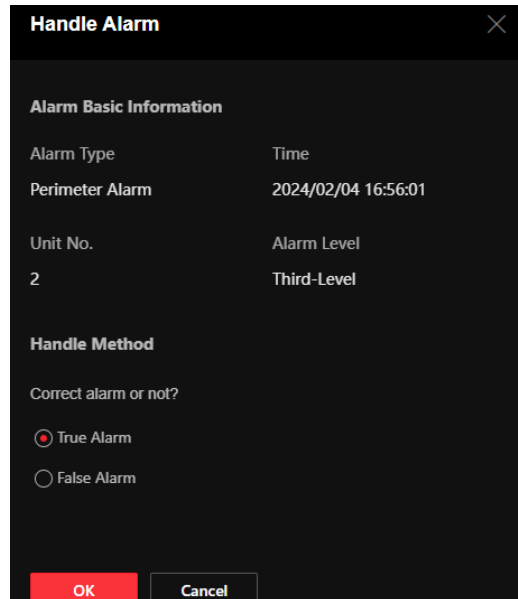


Figure 3-14 Alarm Basic Information

Click **More Unhandled Alarms** to go to the historical alarm record page.



Smart algorithm and alarm handling are two parallel mechanisms. Whether the alarm confidence is 1 or 0, you should handle the alarm manually and set it as true or false.

Alarm Type

Perimeter Alarm

The fiber is vibrating. Check if there are people crossing.

The preset sensitivity is divided into first to third level. Unit No. refers to the alarm triggering location.

Fiber Cut Alarm

The fiber is broken and has no signal. The default alarm level is first-level. The unit No. is the position of the fiber cut closest to the start of the fiber.

3.2 Alarm Record

Click **Alarm Record** in the list on the left to enter the interface.

You can view alarm data.

3.2.1 Alarm Statistics

Go to **Alarm Record** → **Alarm Statistics** to enter the interface.

User Manual

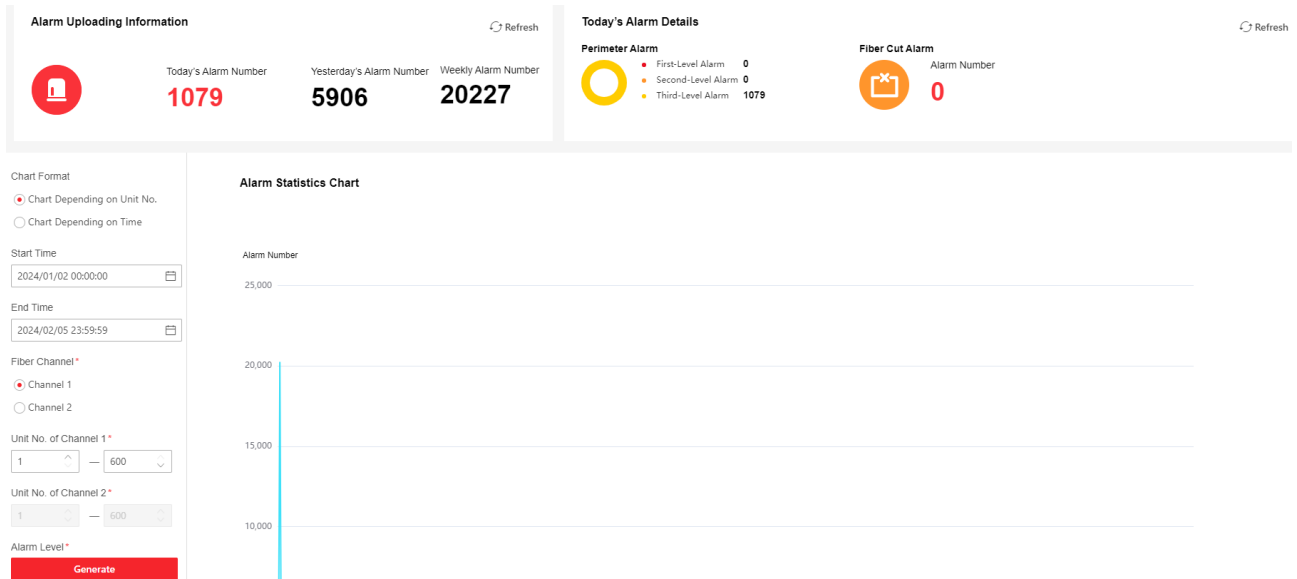


Figure 3-15 Alarm Statistics

Alarm uploading information and today's alarm details are displayed in the upper side of the interface. Set the filter conditions on the left, click **Generate** to generate the alarm statistics chart on the right.

Note

Hover the cursor over the alarm statistics chart. Slide the roller to zoom in or out the statistics chart.

Chart Depending on Unit No.

In the statistics chart, the vertical axis is the alarm number, and the horizontal axis is the unit No. The number of alarms in each unit that meet the selected condition in start time and end time will be displayed.

Alarm Statistics Chart

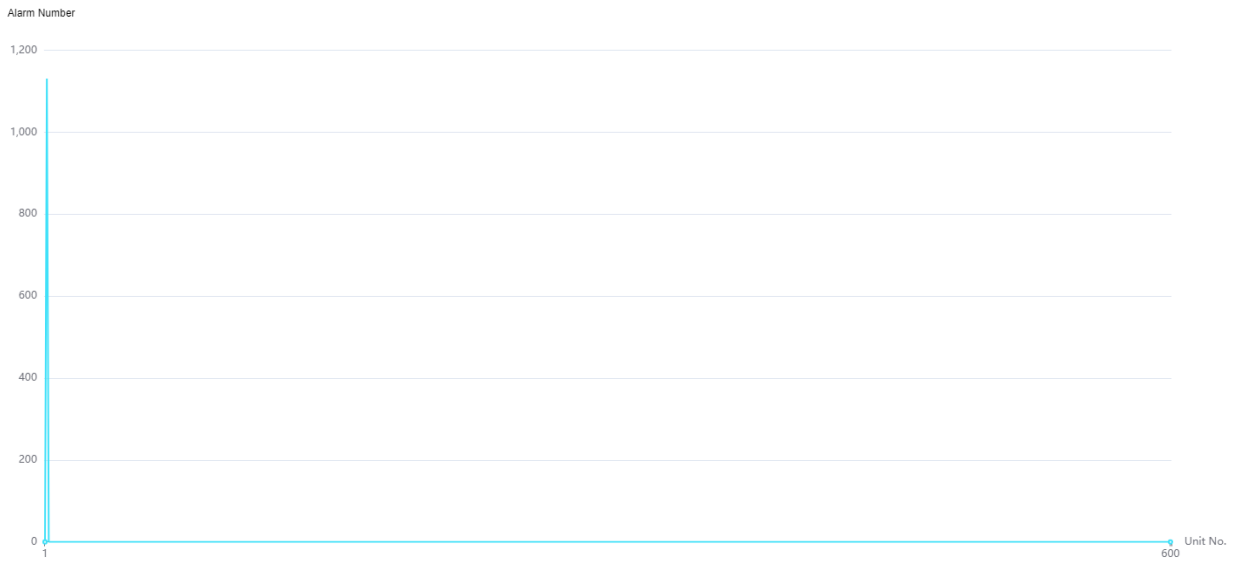


Figure 3-16 Chart Depending on Unit No.

Chart Depending on Time

In the statistics chart, the vertical axis is the alarm number, and the horizontal axis is the time. The number of alarms that meet the selected condition will be displayed by time.

Alarm Statistics Chart

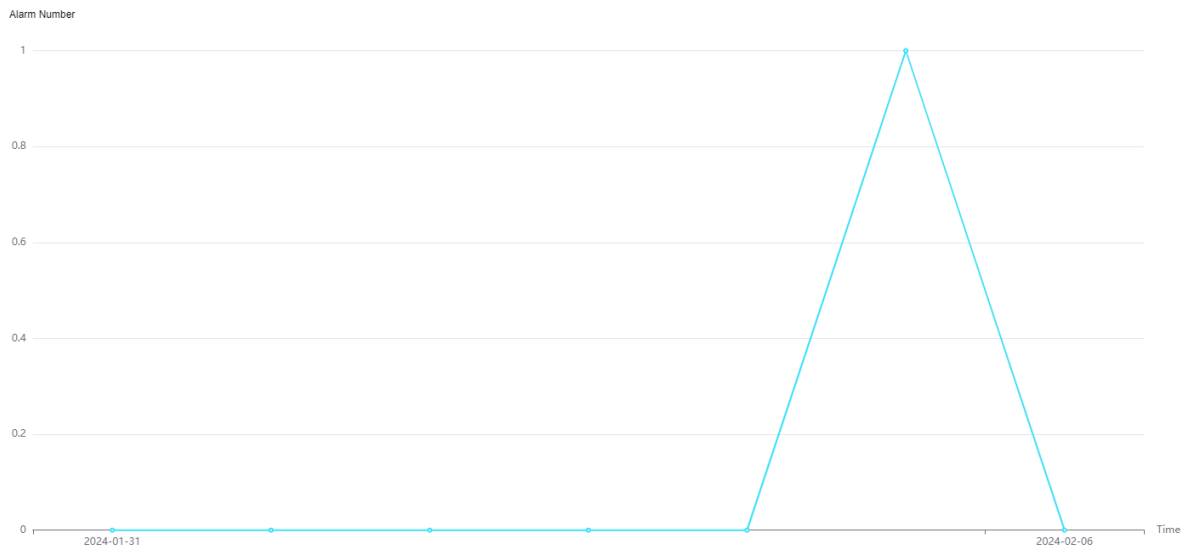


Figure 3-17 Chart Depending on Time

Alarm Confidence

After enabling smart algorithm in unit management, the system will automatically judge if the alarm is true or false. Validity1 indicates that the alarm event is more likely to be true. Validity0 indicates that the alarm event is more likely to be false.

3.2.2 Historical Alarm Record

Go to **Alarm Record** → **Historical Alarm Record** to enter the interface.

Start Time*
2024/02/05 00:00:00

End Time*
2024/02/05 23:59:59

Fiber Channel*
 Channel 1
 Channel 2

Unit No. of Channel 1*
1 — 600

Unit No. of Channel 2*
1 — 600

Alarm Level*
 First-Level Alarm
 Second-Level Alarm
 Third-Level Alarm

Handling Status*
 Unhandled
 Handled-True Alarm
 Handled-False Alarm

Alarm Type*
 Perimeter Alarm
 Fiber Cut Alarm

Alarm Confidence*
 Validity0
 Validity1

Search

<input type="checkbox"/>	Time	Alarm T...	Alarm L...	Unit No.	Longitude and Latitude	Altitude	Handling Status	Validity	Operation
<input type="checkbox"/>	2024/02/05 11:42:28	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:42:18	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:42:08	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:41:48	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:41:28	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:40:58	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:40:48	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:40:38	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:40:28	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:40:18	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:40:08	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:39:58	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:39:48	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:39:38	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:39:18	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:39:08	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:38:58	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:38:48	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:38:38	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle
<input type="checkbox"/>	2024/02/05 11:38:28	Perimeter Al...	Third-Level	2	+42.557, +3.841	0m	Unhandled	1	Handle

Figure 3-18 Historical Alarm Record

Set the filter conditions on the left, and click **Search** to search historical alarm records. You can handle unhandled alarms here. Select true or false alarm.

Alarm Confidence

After enabling smart algorithm in unit management, the system will automatically judge if the alarm is true or false. Validity1 indicates that the alarm event is more likely to be true. Validity0 indicates that the alarm event is more likely to be false.



Note

Smart algorithm and alarm handling are two parallel mechanisms. Whether the alarm confidence is 1 or 0, you should handle the alarm manually and set it as true or false.

3.3 Configuration

3.3.1 System

Basic Information

You can view device information, such as Model, Serial No. and Version.

Enter **Configuration** → **System** → **System Settings** → **Basic Information** to view the device information, and you

can edit device name.

Time Settings

Synchronize Time Manually

Steps

1. Go to **Configuration** → **System** → **System Settings** → **Time Settings**.
2. Select **Manual** in **Time Synchronization Mode**.

Device Time 2024-02-06 15:25:01

Time Synchronization mode NTP Manual

Set Time 2024-02-06 15:24:58



Sync With Com...

Save

Figure 3-19 Synchronize Time Manually

3. Select date and time in **Set Time**.
4. Click **Sync. With Computer Time** to synchronize the time of the device with that of the local PC.
5. Click **Save**.

Set NTP Server

You can use NTP server when accurate and reliable time source is required.



Note

Only certain models support the function.

Before You Start

Set up a NTP server or obtain NTP server information.

Steps

1. Go to **Configuration** → **System** → **System Settings** → **Time Settings**.
2. Select **NTP** in **Time Synchronization Mode**.

User Manual

Device Time 2024-02-06 15:26:22

Time Synchronization mode NTP Manual

* Server IP Address

* NTP Port

* Interval Minute(s)

Save

Figure 3-20 Set NTP Server

3. Set Server IP Address, NTP Port and Interval.



Server IP Address is NTP server IP address.

4. Click **Save**.

User Management

Add Users



To increase security of using the device on the network, please change the password of your account regularly. Changing the password every 3 months is recommended. If the device is used in high-risk environment, it is recommended that the password should be changed every month or week.

Steps

1. Go to **Configuration** → **System** → **User Management** → **User Management**.
2. Click **+Add**. Enter **User Name**, select **User Role**, and enter **Password** and **Confirm Password**. Assign remote permission to users based on needs.

Administrator

The administrator has the authority to all operations and can add installers and operators and assign permission.

Installer

The administrator can select whether to enable the installer, and whether to grant the installer permission to configure the parameters.

The default password of the Installer is setter12345. Please change password after initial login.


Operator

The administrator can select whether to grant the operator permission to configure the parameters.


3. Click **Save**.

Edit Users

Steps

1. Go to **Configuration** → **System** → **User Management** → **User Management**.
2. Click . Edit the information as your needs.
3. Click **Save**.

Delete User

- Click  to delete a single user.
- Select the user in the list. Click  **Delete** to delete the user in a batch.



Note

The administrator and Installer cannot be deleted.

Online Users

Go to **Configuration** → **System** → **User Management** → **Online Users** to view the list of online users.

3.3.2 Network

Network Settings

TCP/IP settings must be properly configured before you operate the device over network.

Steps

1. Go to **Configuration** → **Network** → **Basic Settings** → **TCP/IP**.
2. Select **Network ID**.
3. Enable **DHCP**, or manually input IPv4 parameters.

DHCP

The device automatically gets the IPv4 parameters from the network if you check **DHCP**. The device IP address is changed after enabling the function. You can use SADP to get the device IP address.

4. Click **Save**.

Network Service

The device port can be modified when the device cannot access the network due to port conflicts. For debuggers only.

Go to **Configuration** → **Network** → **Network Service** to enter the interface.

Device Access

The device can be accessed to the maintenance platform via OTAP protocol, in order to search and acquire device information, upload device status and alarm information, reboot and update the device.

Steps

1. Go to **Configuration** → **Network** → **Device Access** → **OTAP** to enable the function
2. Set related parameters.

3. Click **Test** to check if the device connects to server.
4. Click **Save**.

Result

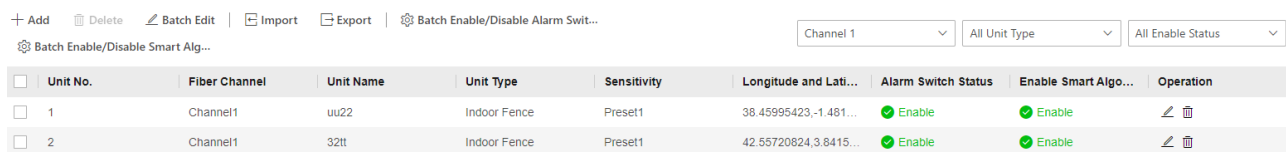
Register Status turns to **Online** when the function is correctly set.

3.3.3 Optical Fiber Monitoring Settings

Unit Management

Go to **Configuration** → **Optical Fiber Monitoring Settings** → **Optical Fiber Unit** → **Unit Management** to enter the interface.

You can configure the fiber unit.



The screenshot shows the Unit Management interface. At the top, there are filter controls: a dropdown menu for 'Channel 1', a dropdown menu for 'All Unit Type', and a dropdown menu for 'All Enable Status'. Below these are three buttons: '+ Add', 'Delete', 'Batch Edit', 'Import', 'Export', and 'Batch Enable/Disable Alarm Swit...'. Below the buttons is a table with the following columns: Unit No., Fiber Channel, Unit Name, Unit Type, Sensitivity, Longitude and Lati..., Alarm Switch Status, Enable Smart Algo..., and Operation. The table contains two rows of data.

Unit No.	Fiber Channel	Unit Name	Unit Type	Sensitivity	Longitude and Lati...	Alarm Switch Status	Enable Smart Algo...	Operation
1	Channel1	uu22	Indoor Fence	Preset1	38.45995423,-1.481...	Enable	Enable	
2	Channel1	32tt	Indoor Fence	Preset1	42.55720824,3.8415...	Enable	Enable	

Figure 3-21 Unit Management

Filter Display Unit

Set the condition bar on the right to select the unit to be displayed in the list.

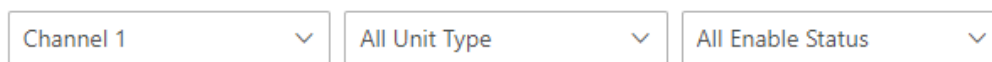



Figure 3-22 Unit Condition

Single Add/Edit Unit

- Click **+ Add**, enter unit parameters in the pop-up window on the right, and click **Save** to add unit.
- Click  to enter unit parameter in the pop-up window on the right, and click **Save** to edit the unit.

Add Unit No.

Max. number of units varies with device models
Unit No. in each channel is unique.

Unit Name

It can be duplicated.

Sensitivity

Only preset sensitivity can be selected. You can configure sensitivity in **Sensitivity Preset** in advance.

Longitude and Latitude

Enter the latitude and longitude of the unit.

Enable Alarm Switch

After enabling, the unit will alarm according to the triggering type.

Enable Smart Algorithm

After enabling, the system judges alarm confidence according to smart algorithm. The system will automatically judge if the alarm is true or false. 1 means that the alarm event is likely to be true. 0 means that the alarm event is likely to be false. If the smart algorithm is disabled, the confidence level of the alarm

will be 0 by default.

Batch Add Unit/Import&Export Unit Data

1. Click **Import**.
2. Click **Download Template** in the pop-up window. Enter relevant parameters according to template.



Note

- The batch import will clear all the original unit information. Please operate with care.
 - The imported form template is English.
-

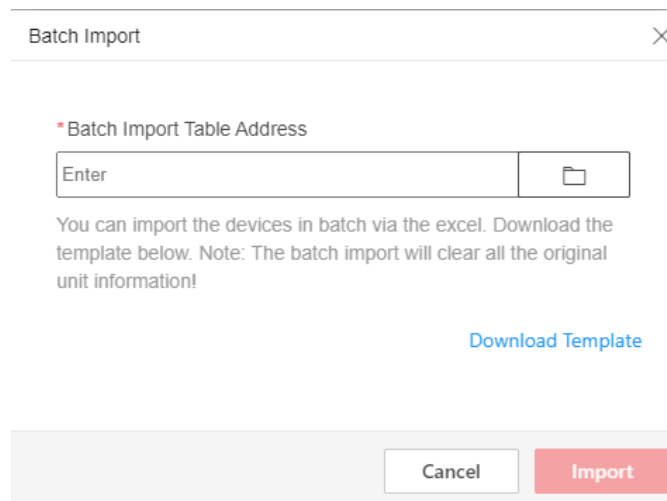


Figure 3-23 Batch Import

3. Click **Import**.
4. Select the completed template.
5. **Optional Operation:** Click **Export** to export the unit parameters. Only all unit parameters can be exported.



Batch Edit Unit

1. Select the unit in the list.
2. Click **Batch Edit**.
3. Edit the parameters to be edited in the pop-up window.
You can batch edit unit name, unit type, and sensitivity. You can also enable or disable alarm switches and smart algorithms in a batch.
4. Click **Save**.

Batch Edit Alarm Switch

Select the unit in the list. Click **Bath Enable/Disable Alarm Switches**. Select **Bath Enable the Above Units** or **Bath Disable the Above Units** in a pop-up window. Click **Save**.


Delete Unit

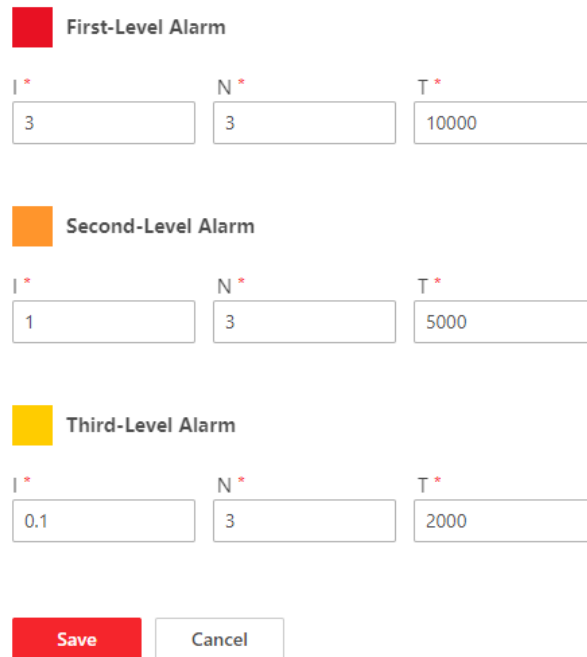
- Click  to delete the unit.
- Select the units, click  **Delete** , and delete them in a batch.

Sensitivity Preset

Go to **Configuration** → **Fiber Monitoring Configuration** → **Optical Fiber Unit** → **Sensitivity Preset** to enter the

interface.

Click  to edit and save the parameters in the pop-up window.



Alarm Level	I*	N*	T*
First-Level Alarm	3	3	10000
Second-Level Alarm	1	3	5000
Third-Level Alarm	0.1	3	2000

Buttons: Save, Cancel

Figure 3-24 Edit Sensitivity

I stands for intensity. N stands for number of times. T stands for duration (ms).

Recommended Sensitivity: Third-Level Alarm: I0.2/N10/T2000, Second-Level Alarm: I1/N30/T5000, First-Level Alarm: I3/N50/T10000.

Alarm Intensity: First-Level Alarm Intensity > Second -Level Alarm Intensity > Third -Level Alarm Intensity.

Optical Fiber Basic Information

Go to **Configuration** → **Optical Fiber Monitoring Settings** → **Optical Fiber Unit** → **Optical Fiber Basic Information** to enter the interface.

Select **Channel**, and enter the usage length. The system will read the actual length automatically.

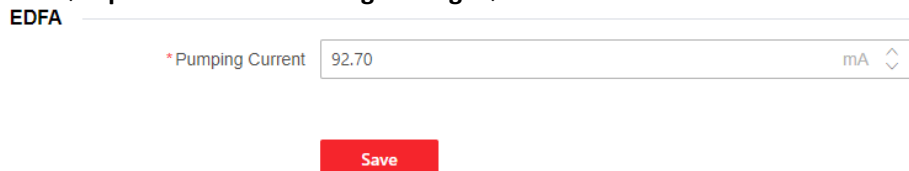
The actual length depends on the fiber cut position.

Processor Settings

Note

Only certain models support the function.

Go to **Configuration** → **Optical Fiber Monitoring Settings** → **Processor** to enter the interface.



EDFA

*Pumping Current: 92.70 mA

Buttons: Save

Figure 3-25 Processor Settings

EDFA is a optical fiber amplifier used to amplify the power of the optical fiber.

Pumping Current

The higher the current value, the higher the power of the optical fiber.

Acquisition Card Settings

Go to **Configuration** → **Optical Fiber Monitoring Settings** → **Acquisition Card** to enter the interface.

You can view data collection parameters and pulse modulation parameters.

Data Collection Parameters

Sampling Rate 250MHz

Number of Samples 124800

Frame 128

Upload Frequency 250MHz

Pulse Modulation Parameters

Data Collection Frequency 2KHz

Pulse Width 100ns

Center Frequency 80MHz

Figure 3-26 Processor Settings

3.3.4 Upload Event Report

Go to **Configuration** → **Upload Event Report** to enter the interface.

Set **Alarm Confidence** and **Alarm Uploading Priority**.

Alarm Confidence

After enabling smart algorithm in unit management, the system will automatically judge if the alarm is true or false. 1 indicates that the alarm event is likely to be true. 0 indicates that the alarm event is likely to be false.

*Alarm Confidence Validity0

Validity1

*Alarm Uploading Priority First-Level Alarm

Second-Level Alarm

Third-Level Alarm

Save

Figure 3-27 Upload Event Report

3.4 Maintenance and Security

Go to **Maintenance and Security** to enter the interface.

You can view device status, fiber monitoring, log, etc. Reboot or debug the device.

3.4.1 Device Status

Go to **Maintenance and Security** → **Maintenance** → **Device Status** to enter the interface.

View device status, device network status, device temperature, etc. Click **Configure** to enter configuration interface.

Note

The interface varies with models.

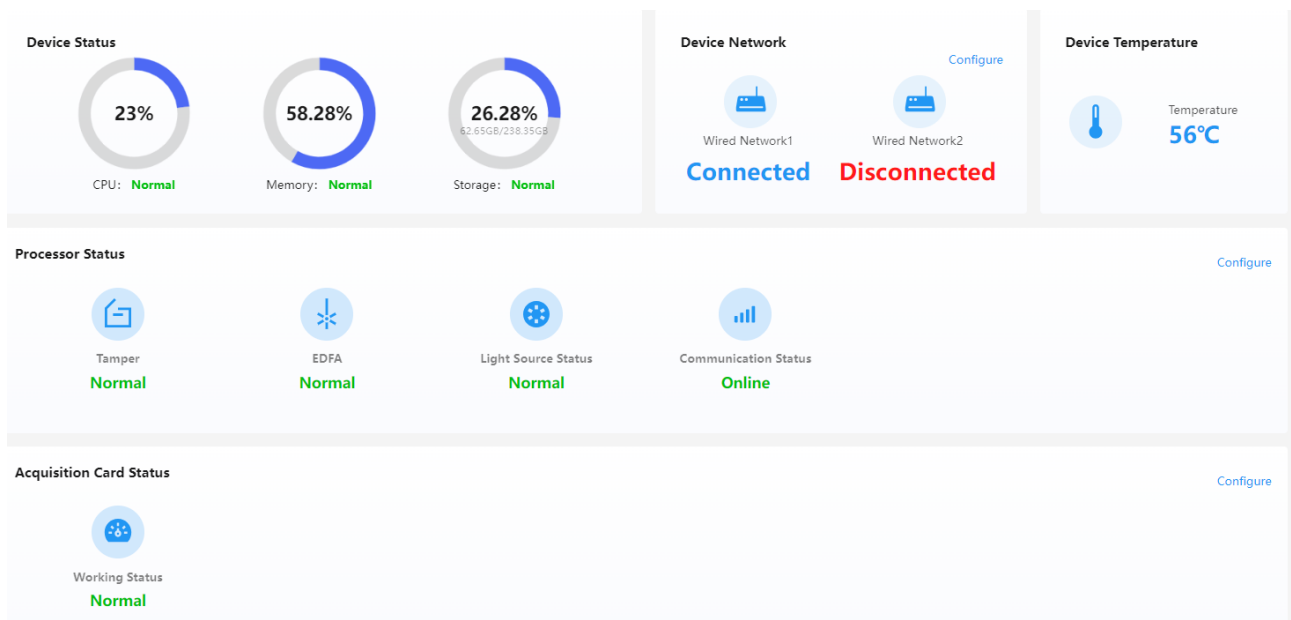



Figure 3-28 Device Status

3.4.2 Fiber Monitoring

Go to **Maintenance and Security** → **Maintenance** → **Fiber Monitoring** to enter the interface.

Hover the cursor over the chart to zoom in or out. Hold the left mouse button to drag the chart.

Dual-Channel device can switch channel to view the chart of different channels. Click  to display the chart in full screen.

Note

The interface varies with models.

Power Spectrum

Display the power statistics of each unit.

As shown in the figure below, the lower-level segment on the left indicates that the signals of unit 1 to 500 are normal, and the bottom noise on the right indicates that units above 500 have no signal.

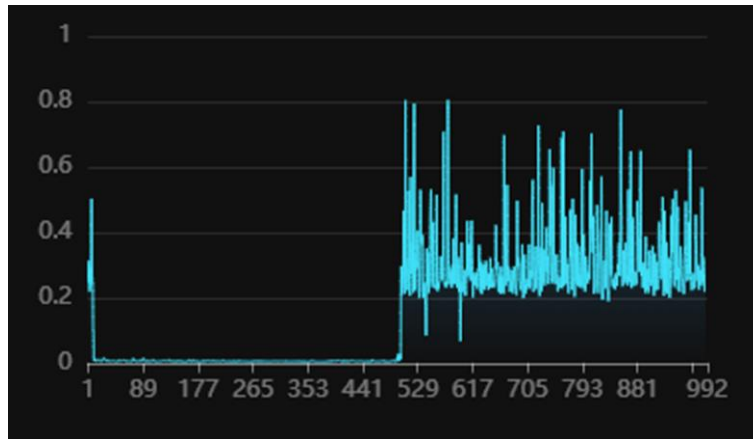


Figure 3-29 Power Spectrum

When there is vibration, the left part will fluctuate.

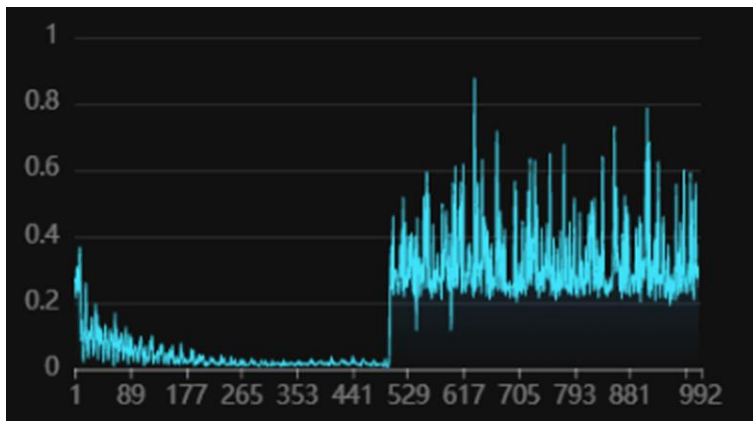


Figure 3-30 Power Spectrum (With Vibration)

Waterfall Plot

The vertical axis is the time, and the horizontal axis is the unit. It shows vibration ranges in past time with two-dimensional figure.

As shown in the figure below, the unit 1 to 500 on the left have signals and the signals are normal, and the bottom noise on the right indicates that units above 500 have no signals.

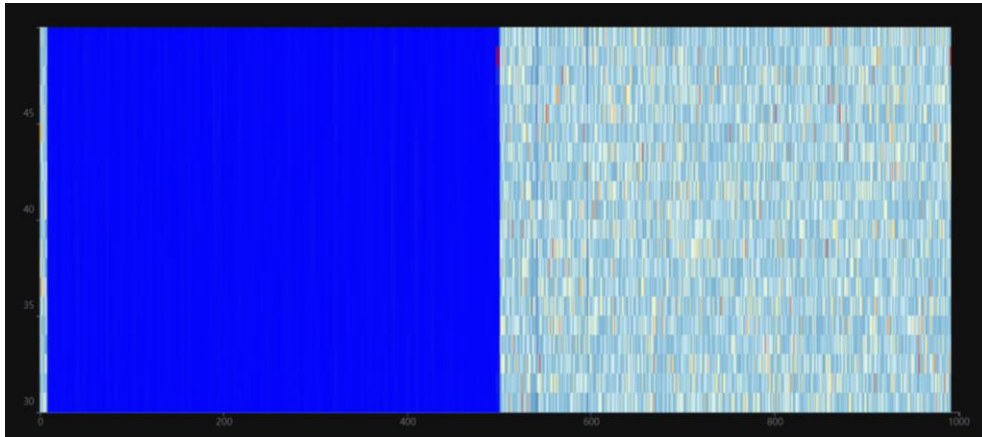


Figure 3-31 Waterfall Plot

When there is vibration, a white vibration band will be displayed.

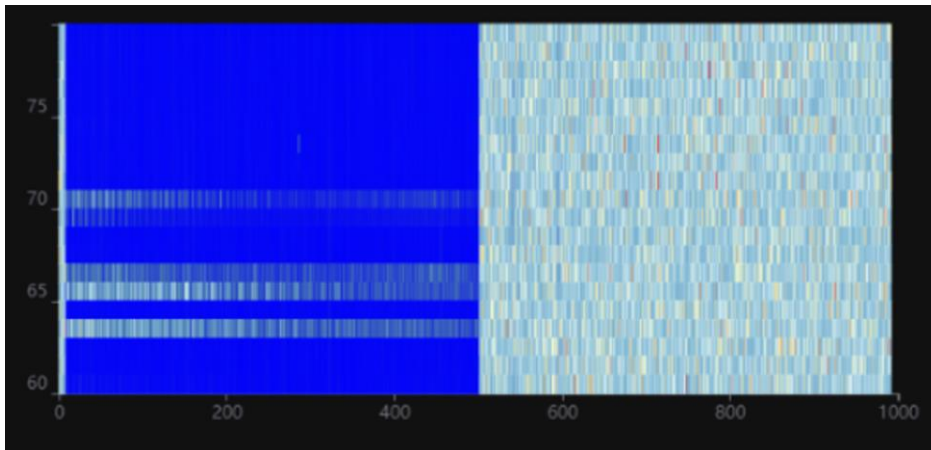


Figure 3-32 Waterfall Plot (With Vibration)

Amplitude Curve

It is mainly used to check signal strength and whether the fiber is broken.

Under normal circumstances, it is fluctuating curve. If the fiber is broken, there is no curve. As shown in the following figure, the signals of unit 1 to 230 are normal (the vertical axis can be regarded as signal strength). Units above 230 have no signals.

You can see the broken unit through the amplitude curve.



Figure 3-33 Amplitude Curve

Current Alarm

Display current alarm event and alarm unit.

Alarm Time	Alarm Unit Point
2024-02-06 13:04:56	2
2024-02-06 13:05:06	2
2024-02-06 13:05:16	2
2024-02-06 13:05:46	2
2024-02-06 13:05:56	2
2024-02-06 13:06:06	2

① If the unit point coordinates have been recorded, please go to the optical fiber unit management page to edit the unit point information. [Go To Fiber Unit Managemen...](#)

Figure 3-34 Current Alarm

3.4.3 Restart

Go to **Maintenance and Security** → **Maintenance** → **Restart** to enter the interface.

You can restart the device manually.

Manually Reboot

Reboot Device

Restart

Figure 3-35 Restart

3.4.4 Upgrade

Go to **Maintenance and Security** → **Maintenance** → **Upgrade** to enter the interface.
You can view the current version, select the upgrade module and upgrade files to upgrade.

Current Version V1.0.5 build 240201_11:13:22

Local Upgrade

Upgrade Module

Upgrade Files

Figure 3-36 Upload

3.4.5 Backup and Reset

Go to **Maintenance and Security** → **Maintenance** → **Backup and Reset** to enter the interface.

Backup

Export Device Parameters

Default

Restore to Default Settings
All data except network parameters and user accounts will be cleared.

Restore to Factory Settings
All functions and parameters will be restored to factory settings.

Import Config. File

Device Parameters

Figure 3-37 Backup and Reset

Export Device Parameters

Click **Export** to export configuration file. The configuration file contains parameter information of the device.

Restore to Default Settings

Click **Restore**, all data except network parameters and user accounts will be cleared.

Restore to Factory Settings

Click **Restore All**, all functions and parameters will be restored to factory settings.

Import Config. File

Select the file address and click **Import** to import the configuration file from the local computer to the device.

3.4.6 Search and Manage Log

Log helps locate and troubleshoot problems.

Steps

1. Go to **Maintenance and Security** → **Maintenance** → **Log**.
2. Set search conditions, **Major Type**, **Minor Type**, **Start Time**, and **End Time**.
3. Click **Search**.

The matched log files will be displayed on the log list.

4. Optional Operation: Click **Export** to save the log files in your computer.

Major Type: All Type (dropdown) | Minor Type: All Type (dropdown) | Time: 2024-01-02 00:00:00 - 2024-02-06 23:59:59 (calendar icon)

Export TXT

No.	Time	Major Type	Minor Type	Description
01	2024/02/06 13:55:47	Alarm	Perimeter Alarm	Unit:2, Channel:1
02	2024/02/06 13:55:37	Alarm	Perimeter Alarm	Unit:2, Channel:1
03	2024/02/06 13:55:07	Alarm	Perimeter Alarm	Unit:2, Channel:1
04	2024/02/06 13:54:57	Alarm	Perimeter Alarm	Unit:2, Channel:1
05	2024/02/06 13:54:37	Alarm	Perimeter Alarm	Unit:2, Channel:1
06	2024/02/06 13:54:27	Alarm	Perimeter Alarm	Unit:2, Channel:1
07	2024/02/06 13:54:07	Alarm	Perimeter Alarm	Unit:2, Channel:1
08	2024/02/06 13:53:37	Alarm	Perimeter Alarm	Unit:2, Channel:1
09	2024/02/06 13:53:27	Alarm	Perimeter Alarm	Unit:2, Channel:1
10	2024/02/06 13:52:57	Alarm	Perimeter Alarm	Unit:2, Channel:1
11	2024/02/06 13:52:47	Alarm	Perimeter Alarm	Unit:2, Channel:1
12	2024/02/06 13:52:17	Alarm	Perimeter Alarm	Unit:2, Channel:1
13	2024/02/06 13:52:07	Alarm	Perimeter Alarm	Unit:2, Channel:1
14	2024/02/06 13:51:57	Alarm	Perimeter Alarm	Unit:2, Channel:1

Figure 3-38 Log

3.4.7 Security Audit Log

Go to **Maintenance and Security** → **Maintenance** → **Security Audit Log** to enter the interface.

Enable **Enable Log Upload Server**, input **Log Server IP Address** and **Log Server Port**, and click **Save**.

Enable Log Upload Server

* Log Server IP Address

* Log Server Port

Figure 3-39 Security Audit Log

3.4.8 Device Debugging

Go to **Maintenance and Security** → **Maintenance** → **Device Debugging** to enter the interface.

You can enable SSH for debugging. It is recommended to disable SSH during daily use.

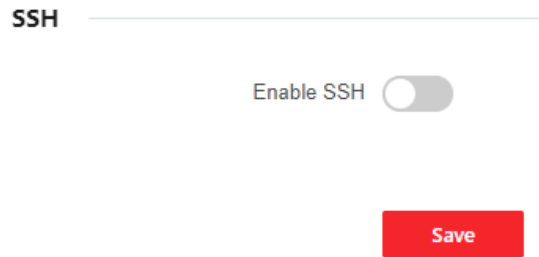


Figure 3-40 Device Debugging

3.4.9 Login Management

It helps to improve the security when accessing the device via Internet.

Steps

1. Go to **Maintenance and Security** → **Security** → **Login Management** to enter the interface.
2. Enable **Illegal Login Lock**.
3. Set parameters.

Number of Error Attempts

When your login attempts with the wrong password reach the set times, the device is locked.

Lock Duration

The device releases the lock after the setting duration.

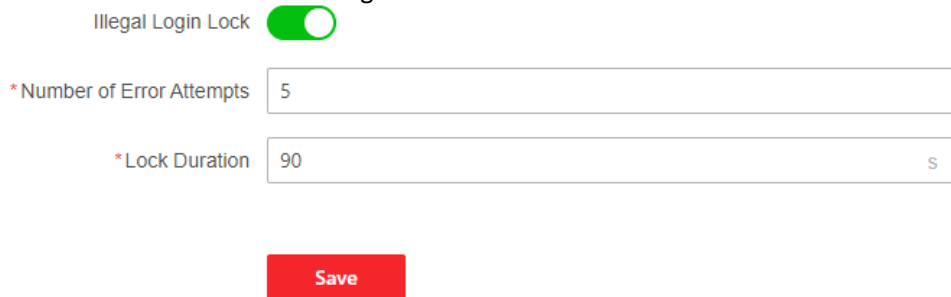




Figure 3-41 Illegal Login Lock

4. Click **Save**.
5. Optional Operation: The user can be unlocked through the following operations.
 - Click  to unlock the locked user in the list.
 - Click  **Unlock All** to unlock all locked users.



See Far, Go Further