



Traffic Signal Controller

User Manual

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Symbol Conventions

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

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

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Chapter 1 Product Introduction

1.1 Product Introduction

Intelligent traffic signal controller (hereinafter referred to as signal controller or device) is a device designed to control traffic lights. It has strong control and communication functions. Web access and configuration are supported, and single device can be configured without a central platform.

1.2 Product Features



Some functions are dependent on the model. Please refer to the actual device.

- 3D channelization display: Real-time monitoring of execution status.
- Multi intersection configuration: It supports the simultaneous control of signal lights at multiple intersections.
- Visual interaction design: It supports configuring multiple scenarios and quick switch during holidays and peak periods.
- Fusion scheme control: Self-developed phase domain control. It can be used to both ring mode and phase mode.

1.3 Operation Environment

- Operating System: Win7 32/64 bits and above.
- CPU: i5-4590@3.3 GHz, E3-1226 V3@3.30 GHz and above.
- Graphics: GTX970 (N-Card), Inter® HD Graphics P4600 and above.
- Resolution Ratio: 1024 × 768 and above.
- Browser: The 32-bit version of Chrome 100 above is recommended.

Chapter 2 Activation and Login

2.1 Activate

The traffic signal controller must be activated, and the login password must be set before it can be used for the first time



To protect your privacy and corporate data and avoid product network security issues, you need to set a strong password that meets security requirements.

The default value is shown below.

- IP address: Single port device: 192.168.1.101; dual-port device: 192.168.1.101 and 192.168.0.64.
- Admin User: admin

2.1.1 HiTools Delivery Activation

HiTools Delivery aims to streamline and enhance the activation, networking, and batch configuration for various devices. You can use the software to detect, activate, and modify the IP addresses of multiple devices over the LAN.

Before you start

- Set the device and the computer that runs the software to the same network segment.
- Access the official website (<https://www.hikvision.com/en>) and enter Support → Download → Software → HiTools → HiTools Delivery to download HiTools Delivery and install it according to the prompts.

Step 1 Run the software.

Step 2 Click **Home Page** → **Search** → **Current Subnet**. Click **Refresh**, and the list will display all the online devices in the same network segment.

Step 3 Select the inactive device(s) in the list. Set a new password according to the popup requirements and confirm the password.

Step 4 Click **Activation**. The device activation status will change to **Activated** after successful activation.

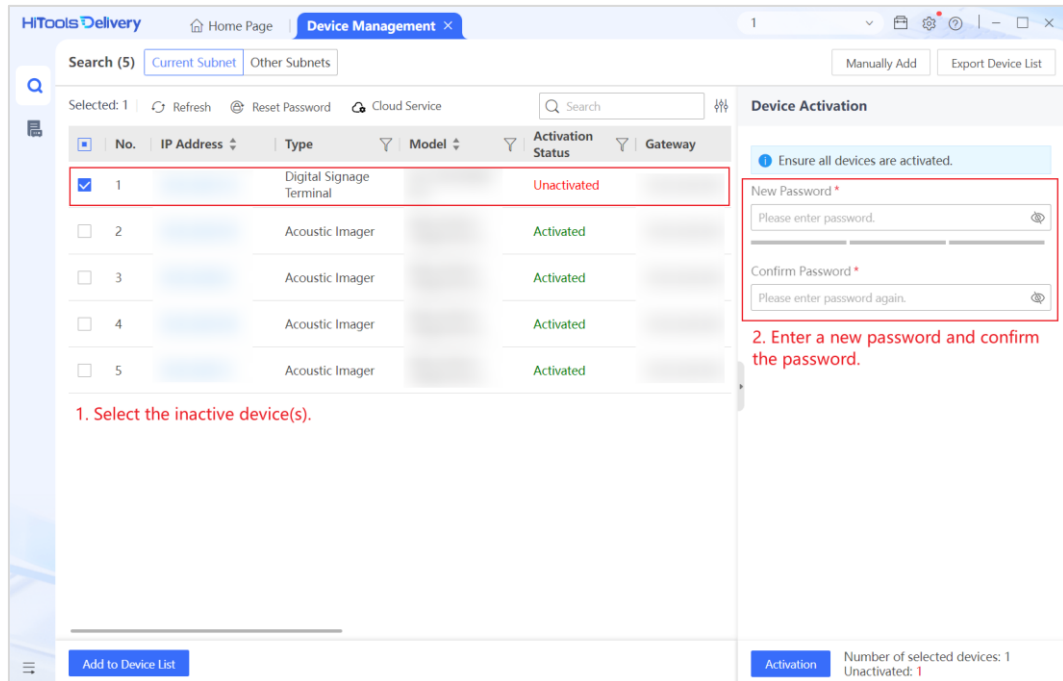


Figure 2-1 Activation

Step 5 (Optional) Change the IP address of the device.

1. On **Current Subnet** interface, select multiple devices that need to change the IP addresses.
2. On the right **Network Parameter** window, set the start IP address, port No., IPv4 subnet mask, IPv4 gateway, etc., and the selected devices will be automatically assigned to increasing IP addresses. Or check **Enable DHCP** to assign dynamic IP addresses.
3. Enter the admin password and click **OK**.

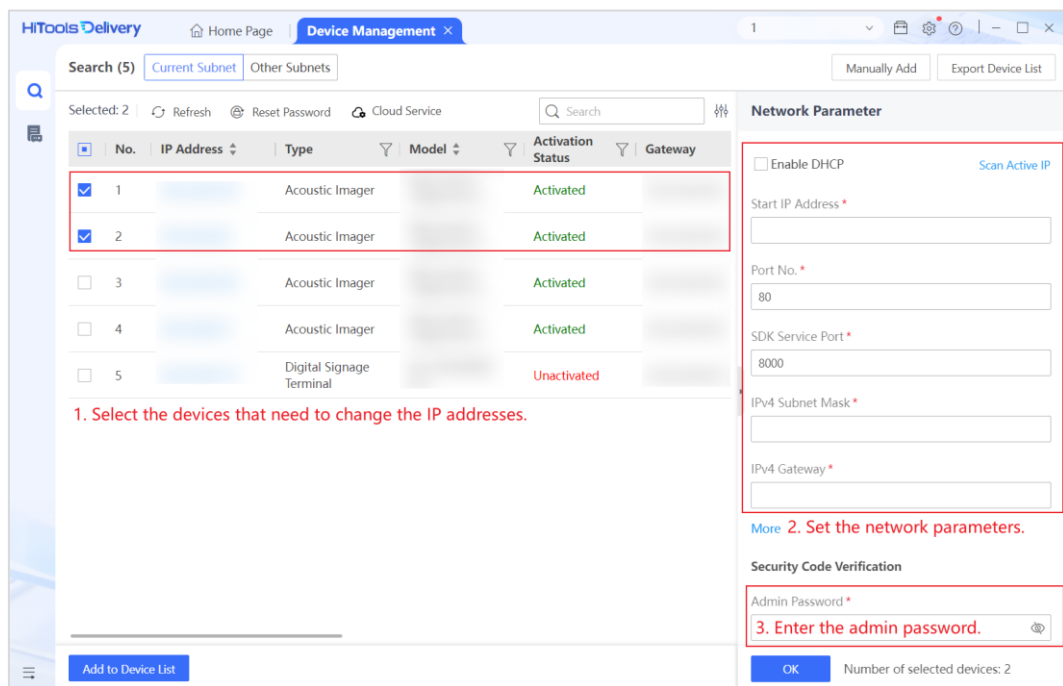


Figure 2-2 Modify Network Parameters

 Note

- Set the device IP address to the same network segment with that of your computer.
- You can click **Scan Active IP** to detect and view the available IP addresses. Refer to the help of HiTools Delivery for details.
- You can also click **Home Page** → **Maintenance** → **Change IP** to change the IP addresses in batch by exporting and importing the template. Refer to the help of HiTools Delivery for details.

2.1.2 Web Activation

Web activation is available when accessing via browser, live view, and Device Settings.

Prerequisite

The PC and device are connected to the same network segment LAN.

Step 1 Set PC and device IP addresses in the same network segment (e.g., 192.168.1.100).

Step 2 Enter the device's default IP address in the browser address bar (e.g.,
`http://192.168.1.101/`).

 Caution

To protect your privacy and corporate data and avoid network security problems, you need to set a strong password in compliance with security requirements.

Step 3 Enter a password and confirm the password.

Step 4 Click **OK**.

2.2 Login and Logout

After the traffic signal controller is connected to the computer, you can log in via the web browser to operate the device.

Step 1 Enter the device's IP address in the address bar of the web browser, and press **Enter**.

Step 2 Enter the user name and password.

Step 3 Click **Login**.

Step 4 (Optional) If you want to log out of the system, click **admin** → **Logout** on the upper right corner of the page to log out.

Chapter 3 Status Display

After login, you will enter the status display page. You can view the device information, cycle status, control mode, and other status information.

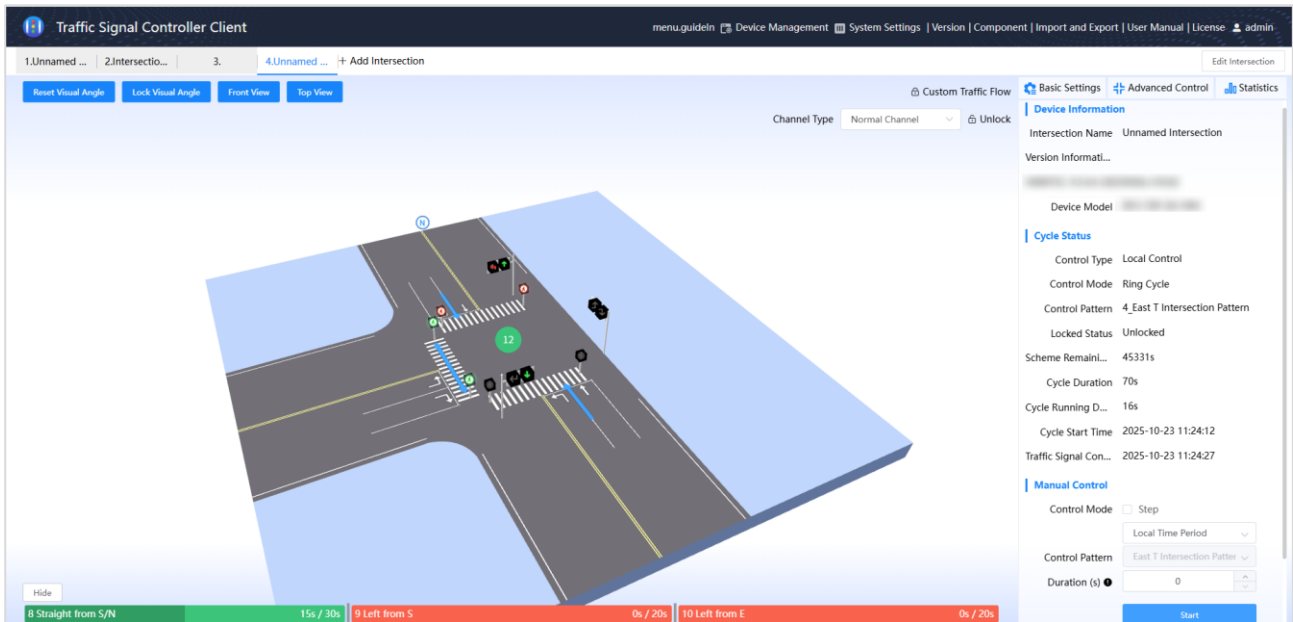


Figure 3-1 Status Display

- **Front View/Top View:** Click to select the visual view.
- **Reset Visual Angle:** Click to switch to the default visual view.
- **Lock Visual Angle:** Click to lock the current view. Then you cannot drag the left button of the mouse to adjust the visual view, or scroll the mouse wheel up or down to zoom in or zoom out.
- **Hide/Display:** Click **Hide/Display** on the lower left corner of the page to hide/display the phases and the execution condition of each phase.
- **Custom Traffic Flow:** Click to set the channels in custom. Select **Channel Type** first. Select the channel(s) on the diagram and click **Lock**. The selected channel(s) will be locked with the green light(s), and the deselected channel(s) will be locked with the red light(s). Make sure the channel(s) locked with the green light(s) do not conflict with each other, or you have set the conflicted channels in advance.

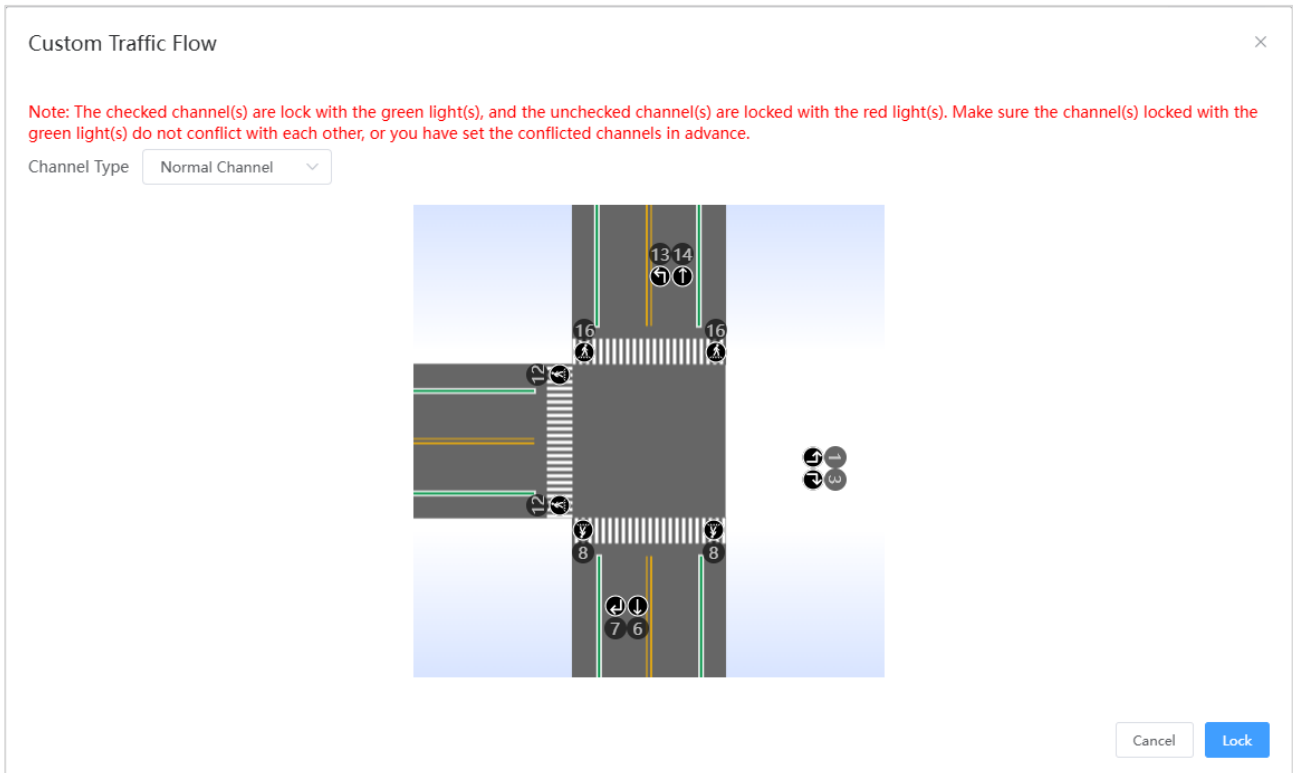


Figure 3-2 Custom Traffic Flow

- **Unlock:** Click to unlock the signal channels. You can click **Device Management** → **Unit** to set **Unlock Mode** which is the phase to be run after the channel is unlocked.
- **Basic Settings:** Click to set the basic parameters of the signal controller. Follow the navigation bar on the left to complete the settings. You can also click **menu.guideln** on the upper menu bar to enter basic settings. Refer to [Chapter 4 Basic Settings](#) for detailed settings. Click **Return Status Display** to return to the status display page.
- **Advanced Control:** Click to set **Actuation Control**, **Single-Point Self-Adaption**, and **Pedestrian Crossing**. Refer to [Chapter 5 Advanced Control](#) for detailed settings. Click **Return Status Display** to return to the status display page.
- **Statistics:** Click to set the intersection information and view the cyclic flow statistics and cyclic running statistics. Refer to [8.1 View Statistics Information](#) for detailed settings. Click **Return Status Display** to return to the status display page.
- **Manual Control:** You can switch the control mode and control pattern manually. Click **Start**, and the signal light will execute the selected mode and pattern during the duration you set. If the time is exceeded, it will automatically recover.

Note

When the duration is set as 0, it means continuous control.

Chapter 4 Basic Settings

Click **Basic Settings** or **menu.guideln** on the status display page. Follow the navigation bar on the left to complete the basic settings.

4.1 Get and Apply Parameters

Obtain and apply traffic signal controller parameters.

- Click **Obtain** to get the latest configuration parameters of the traffic signal controller. The system will run yellow flash by default when the traffic signal controller is enabled for the first time.
- After parameters are set, click **Apply** to take the current settings into effect.

4.2 Add or Delete Intersection

- Add Intersection

On the status display page, click **+Add Intersection** on the top to add an intersection. Then the page will jump to **Basic Settings** page automatically. You can click the area of intersection name to edit the intersection name. Click the empty area to save the settings. Click **Return Status Display** to return to the status display page.



Figure 4-1 Add Intersection



Figure 4-2 Edit Intersection Name

- Delete Intersection

On the status display page, click **Edit Intersection** on the upper right corner. Click **X** to delete the intersection. Then click **OK** on the upper right corner of the page to save.



Figure 4-3 Delete Intersection

Note

- If you cannot add or delete intersections, click **Device Management** → **Unit** to enable **Multi-Intersection Mode**.
- Deleting an intersection will clear all the data set for the intersection.

4.3 Set Intersection Background Picture

You can select the template for the intersection, and add the detectors, channels, and lanes for the intersection.

Step 1 Select an intersection, and click **Basic Settings** → **Background Picture**.

Step 2 Click **Template** and select an intersection template according to the actual scene.

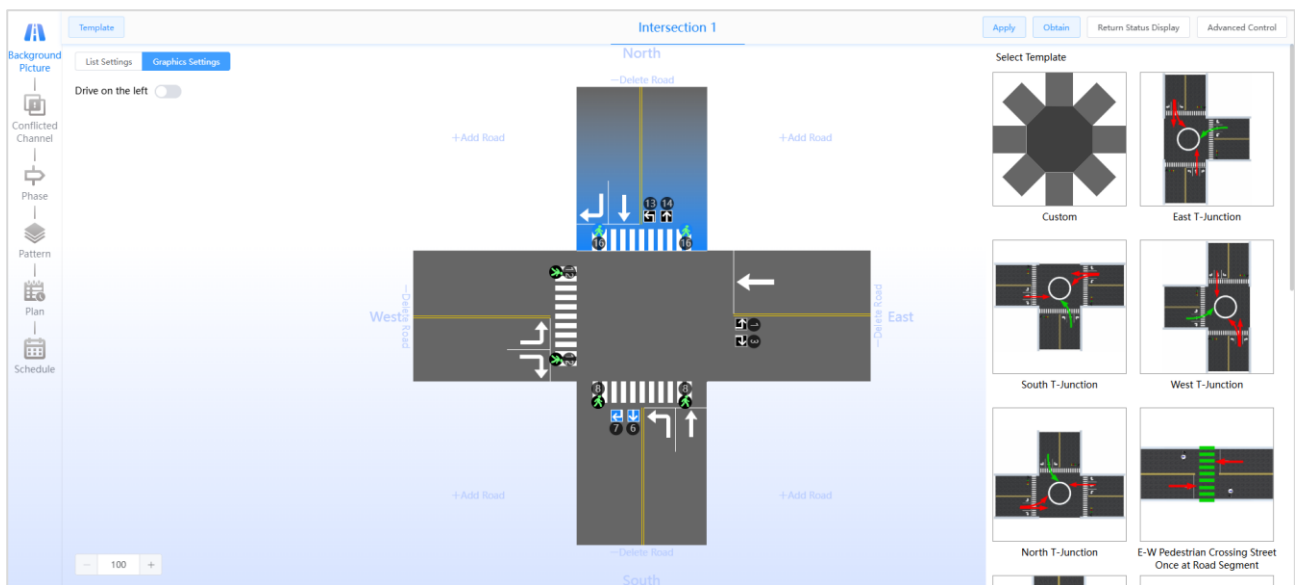


Figure 4-4 Set Intersection Background Picture

Step 3 (Optional) Click **Add Road** to add a road segment at the corresponding location. Click **Delete Road** to delete the corresponding road segment.

Step 4 (Optional) Enable **Drive on the left** to change the road directions of the intersection according to the local laws and regulations.

Step 5 Click **Apply**.

4.4 Set Road

You can set road name, direction, and other information of the roads in the intersection.

Step 1 Select an intersection, and click **Basic Settings** → **Background Picture** → **Graphics Settings**.

Step 2 Click the road to be set on the background picture to expand the settings page.

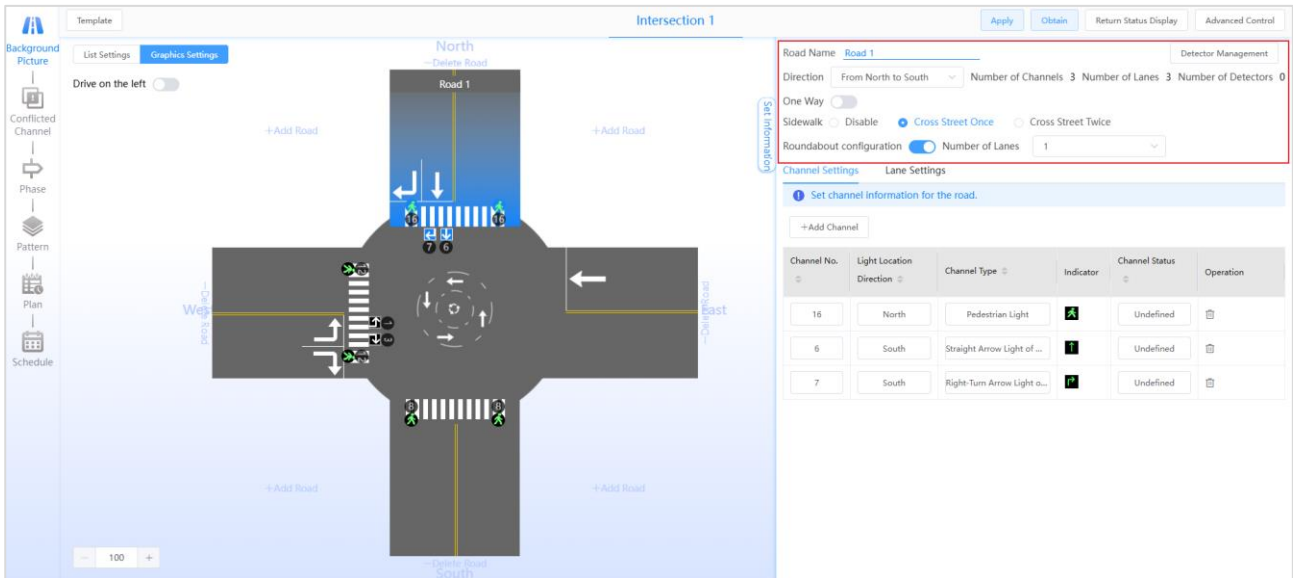


Figure 4-5 Set Road

Step 3 Edit **Road Name** and set **Direction** of the selected road.

Step 4 Set other parameters.

- **One Way:** Enable it if the road is an one-way road.
- **Sidewalk:** Select **Disable** if the road has no sidewalk. Select **Cross Street Once** if the road is equipped with one whole sidewalk. Select **Cross Street Twice** if the road is equipped with two sidewalk segments.
- **Roundabout configuration:** Enable it if there is a roundabout at the intersection. Select **Number of Lanes** for the roundabout.

Step 5 Click **Apply**.

4.5 Set Channels

You can adjust the channel parameters such as the light's direction, channel type, and status.

Step 1 Select an intersection, and click **Basic Settings** → **Background Picture** → **Graphics Settings**.

Step 2 Click the road to be set on the background picture to expand the settings page.

Step 3 Click **Channel Settings**.



Figure 4-6 Set Channels

Step 4 Set **Light Location Direction**, **Channel Type**, and **Channel Status**.

Note

- After the channel status is selected, the channel is always in this selected status, which is not affected by the switching of the common signal control pattern. If you need to switch the channel status according to the switching pattern, select **Undefined**.
- You can click after the channel No. to adjust the channel sequence.

Step 5 (Optional) Click **Add Channel** to add a new channel and set corresponding parameters.

Step 6 (Optional) Drag the traffic light icon on the intersection picture to adjust the channel position.

Step 7 (Optional) Click to delete the channel.

Step 8 Click **Apply**.

Note

You can also click **Basic Settings** → **Background Picture** → **List Settings** → **Channel** to view the channel settings of all the roads, add channels, and set corresponding parameters.

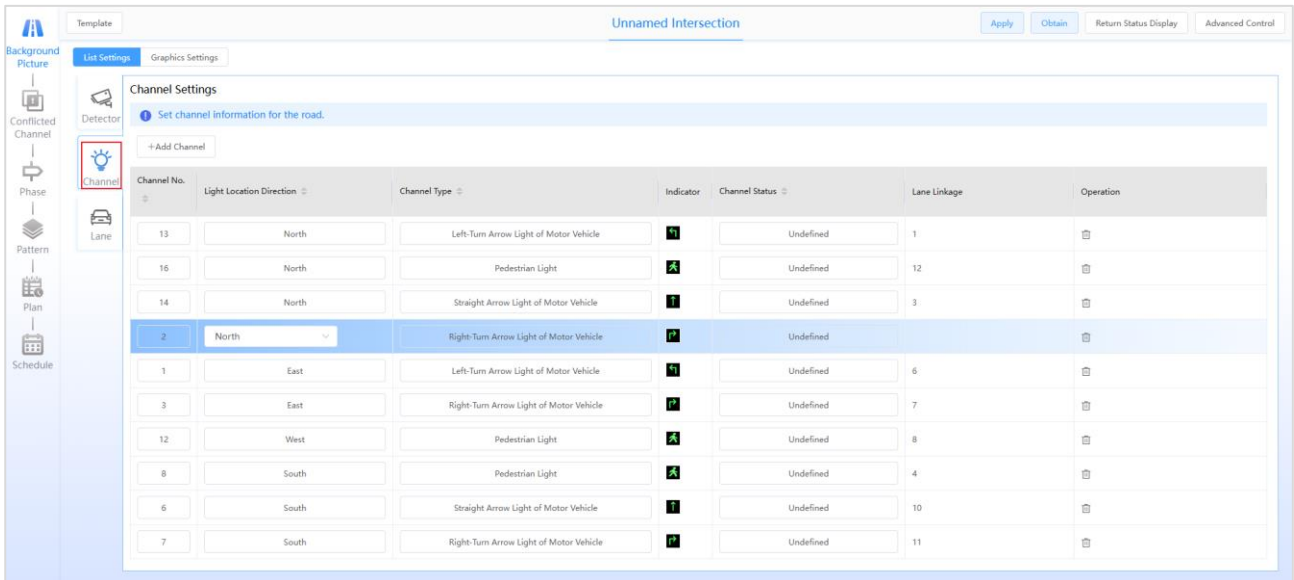


Figure 4-7 Set Channels in List Settings

4.6 Set Lane

You can adjust the lane direction, type, linked channel, etc.

Step 1 Select an intersection, and click **Basic Settings** → **Background Picture** → **Graphics Settings**.

Step 2 Click the lane to be set on the background picture to expand the settings page.

Step 3 Click **Lane Settings**.

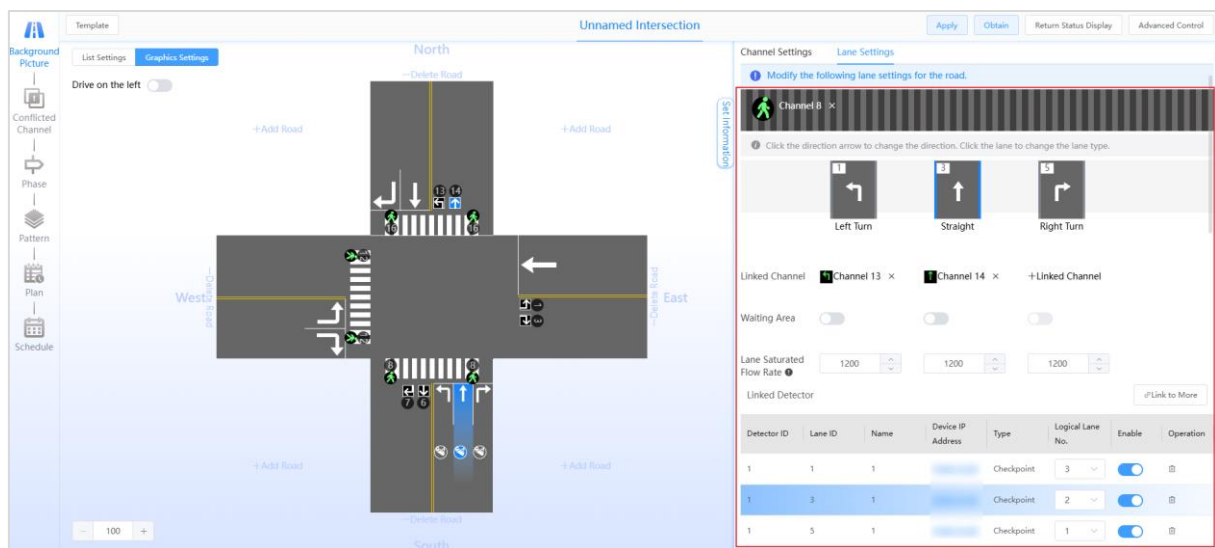


Figure 4-8 Set Lane

Step 4 Click the direction arrow to change the lane type and direction.

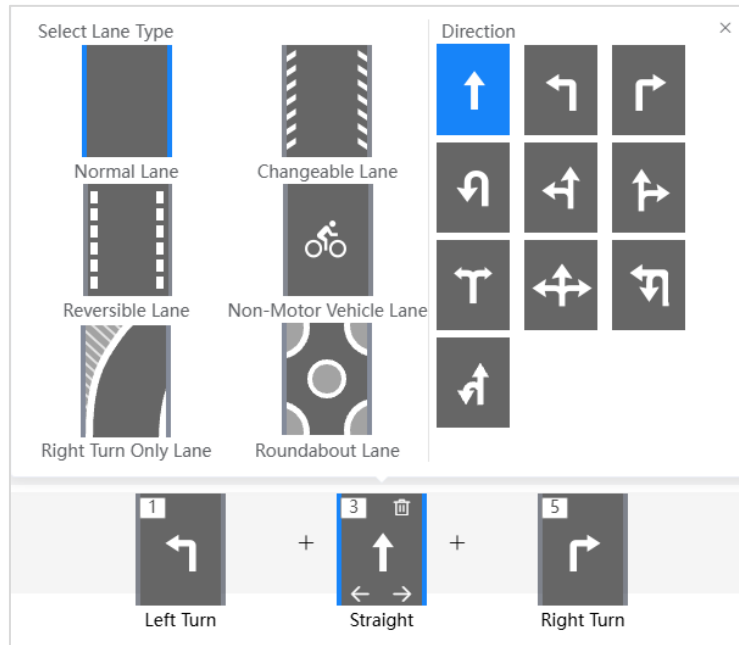


Figure 4-9 Select Lane Type and Direction

Note

You can click  to add lanes on the left or right of the selected lane, click  to adjust the layout of the current lane to the left or to the right, or click  to delete the selected lane.

Step 5 Set **Linked Channel**.

- 1) Click the linked signal light channel on the opposite direction of the corresponding lane direction. Select the linked channel and click **OK**.

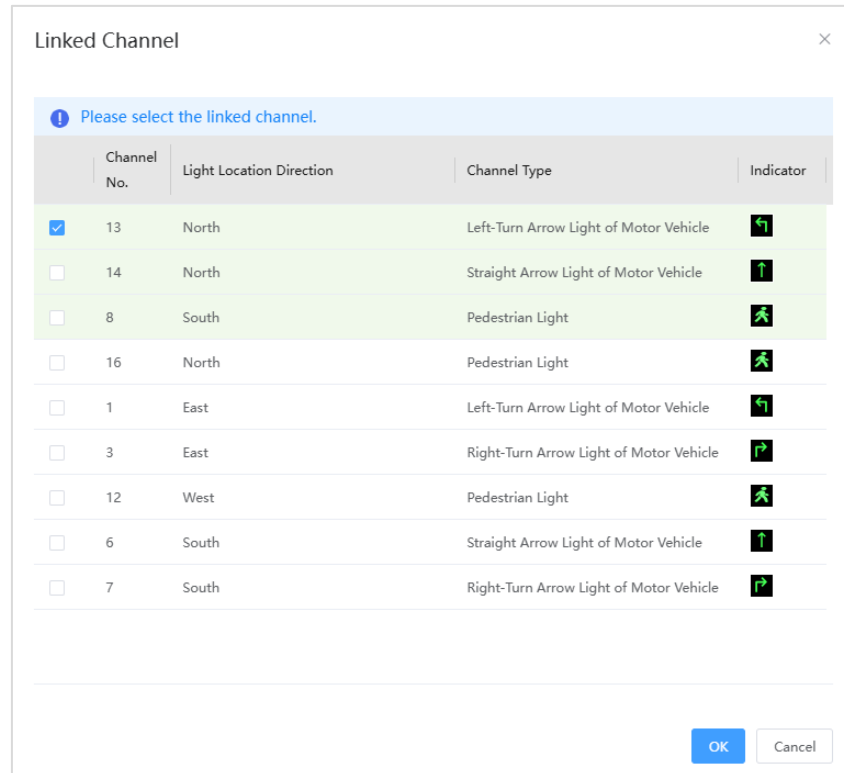


Figure 4-10 Select Linked Channel

2) (Optional) Click **+Linked Channel** to add a linked channel for the added lane.

Step 6 (Optional) If there is a waiting area for the lane, enable **Waiting Area** of the corresponding lane.

Step 7 Set **Lane Saturated Flow Rate** for the corresponding lane. It refers to the max. traffic flow (generally be measured in standard small-sized coach) within the green light duration of a single lane. The unit is the number of vehicles/(hour × lane).

Step 8 Set the linked detector for the lane.

- 1) Enable the already added detector in the list to link to the lane.
- 2) If no detector listed, or you want to link more detectors, click **Link to More** to select other detectors or click **The intersection detector manages** to jump to detector management page to add more detectors. Refer to [4.7 Add Detector](#) for details.

Step 9 (Optional) View the detailed lane information in **Lane List**.

Step 10 Click **Apply**.

Note

You can also click **Basic Settings** → **Background Picture** → **List Settings** → **Lane** to view the lane settings of all the roads, add lanes, and set corresponding parameters.

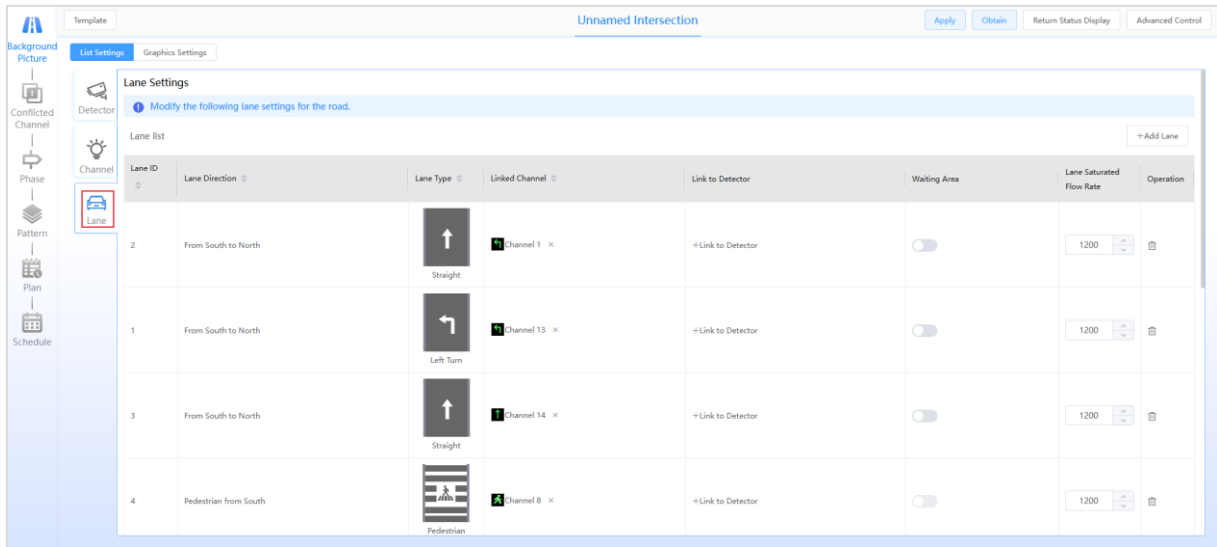


Figure 4-11 Set Lane in List Settings

4.7 Add Detector

A detector detects traffic flow, vehicle speed, occupation rate, and other traffic parameters in real-time. The traffic information detected by the detector can be processed by the information transmission facility and sent to the traffic signal controller for corresponding control.

Step 1 Enter **Detector Management** page in the following ways.

- Select an intersection, and click **Basic Settings** → **Background Picture** → **Graphics Settings** → **Set Information** → **Detector Management**.
- Select an intersection, and click **Basic Settings** → **Background Picture** → **Graphics Settings** → **Lane Settings** → **Link to More** → **The intersection detector manages**.
- Select an intersection, and click **Basic Settings** → **Background Picture** → **List Settings** → **Detector**.

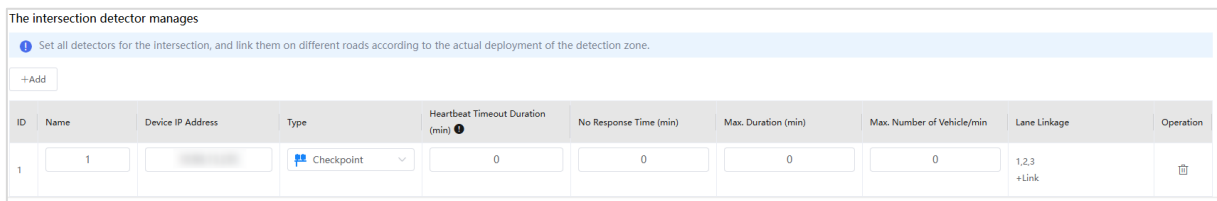


Figure 4-12 Add Detector

Step 2 Click **Add**.

Step 3 Set detector name, IP address, type, etc.

- **Heartbeat Timeout Duration:** If no heartbeat information is received within the set time range for 3 times, the detector is offline. When this value is set to 0, the heartbeat detection function is disabled.

- **No Response Time:** If the detector fails to detect the vehicle passing or report the road condition information (such as lane congestion information) within the set time, there are faults occurred to the detector. When this value is set to 0, the fault detection function does not work.
- **Max. Duration:** If the detector detects that there are vehicles continuously for the set duration, there are faults occurred to the detector. When this value is set to 0, the fault detection function does not work.
- **Max. Number of Vehicle:** If the detector detects that the number of passing vehicles per minute is higher than this value, there are faults occurred to the detector. When this value is set to 0, the fault detection function does not work.
- **Lane Linkage:** Click **+Link** to link lane(s) to the detector. Click to select the lane(s) and click **OK**.

Step 4 (Optional) Click  to delete the detector.

Step 5 Click **Apply**.

4.8 Set Conflicted Channel

Conflicted channel settings are required for channels that cannot be released simultaneously at the same time.



Caution

Conflicted channel must be set for the channels that cannot be released simultaneously at the same time. In case of conflicting release caused by other settings or device exception if conflicted channels are not set, our company will not be responsible.

Step 1 Select an intersection, and click **Basic Settings** → **Conflicted Channel**.

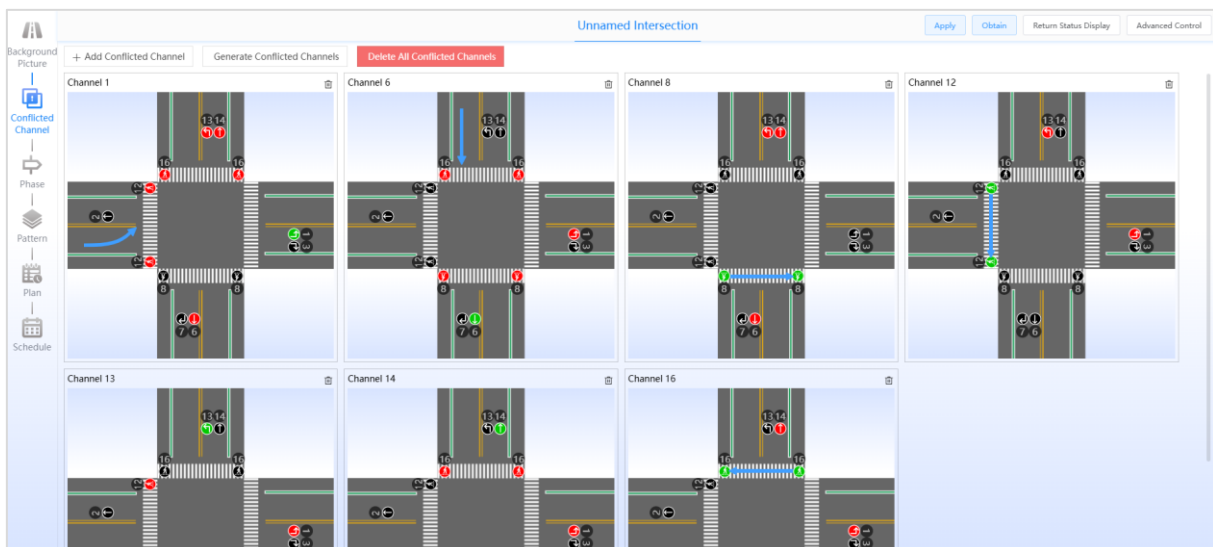


Figure 4-13 Conflicted Channel

Step 2 Add conflicted channel.

- Quick Add

Click **Generate Conflicted Channels**, and the system will generate all conflicted channels according to the set channel information.
- Add Manually
 - 1) Click **Add Conflicted Channel**.
 - 2) Select **Channel No.** for reference.
 - 3) Click the channel icon on the graphics to select the channel(s) that conflict with the selected channel No.

 Note

Green indicates the channel for reference. Red indicates the channel that conflicts with it.

- 4) Click **OK**.

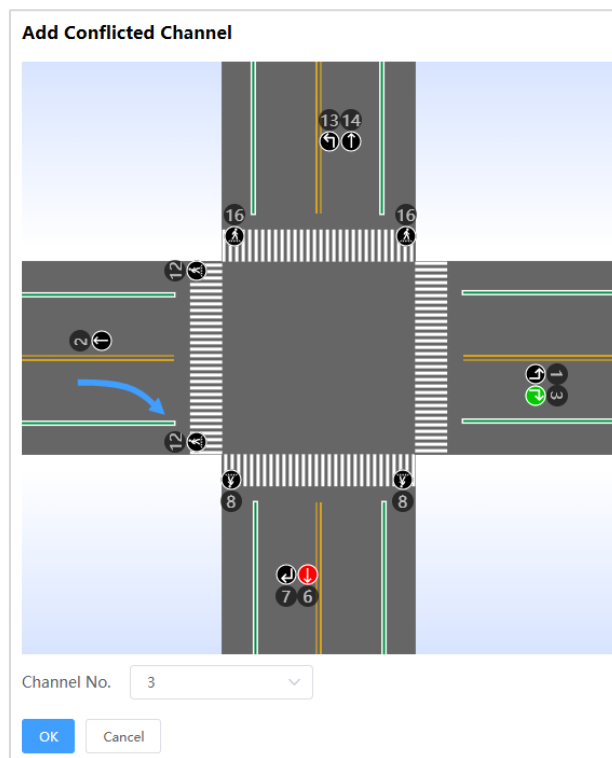


Figure 4-14 Add Conflicted Channel

Step 3 (Optional) Other operations.

- Click the channel to edit the conflicted channel.
- Click  to delete the conflicted channel.
- Click **Delete All Conflicted Channels** to delete all the conflicted channels.

Step 4 Click **Apply**.

4.9 Set Phase

Phase refers to the signal display status of one or more traffic flows that obtain the right of way at the same time in a signal cycle, that is, the release status of vehicles.

Step 1 Select an intersection, and click **Basic Settings** → **Phase**.

Step 2 (Optional) Select **List View** or **Card View**.

Step 3 Click **Add Phase**.

Figure 4-15 Add Phase (Card View)

Step 4 Select **Phase Name**, or click the channel on the right graphics to set the phase channel. The selected channel is marked as green, and the lane direction is marked as blue.

Step 5 Set the phase parameters.

- **Phase Name:** Select the already existed phase, or select **Custom** and edit its name.
- **Green Flash:** The length of time when the green light flashes before the yellow light is about to be executed, and the phase is about to end the green light.
- **Yellow Light:** The length of time the phase executes the yellow light after the green light ends.
- **All Red:** The length of time when the phase executes the red light after the green light and yellow light are completed and before the next phase in the same ring executes the green light.

- **Red Flash:** The length of time when the red light flashes before the green light is about to be executed, and the phase is about to end the red light.
- **Green Flash for Pedestrian:** The flashing time of pedestrian light when green light is released.
- **Green Light for Pedestrian:** The time when the pedestrian light is always green and does not flash. When the pedestrian green light time is 0, the following motor vehicle phase will be released. By default, the green time of vehicles (including green light and green flashing) minus the green flashing time of pedestrians will be taken as the green light time for pedestrians.

**Note**

Green flash for pedestrian time plus green light for pedestrian time should be less than or equal to the vehicle green light time (including green flash and green light). If the green flash for pedestrian time plus the green light for pedestrian time is larger than the vehicle green light time, the program will reduce the green flash for pedestrian time by default when executing this phase.

Step 6 Click **Advanced Settings** to set advanced parameters.

- **Min. Green Light:** The minimum green light time of phase release including green flashing. It is generally set according to pedestrian crossing time.
- **Max. Green Light:** The maximum time the green light can reach. Generally, it can be set as 1.5 to 2 times the fixed cycle green light time.
- **Extended Green for Every Detected Vehicle:** The extended unit time required for each actuation detected vehicle. At the same time, the extension of green also involves the window time of induction detection. The longer the green is, the longer the window time is, and the longer the time period for vehicle detection is. Generally, the configuration lasts for 3 seconds.
- **Sensor Detection Time:** The time of stopping vehicle detection before the end of a phase.
- **Auto Request:** Whether the phase can automatically request release during half induction control. If checked, this phase will be released automatically when the phase sequence wheel is released to this phase. If it is not checked, the wheel must detect that there is a vehicle in the lane corresponding to this phase that needs to pass before it can be released. Otherwise, this phase will not be released and will be skipped directly.

Step 7 Click **OK**.

Phase No.	Description	Green Flash (s)	Yellow (s)	All Red (s)	Red Yellow (s)	Green Flash for Pedestrian (s)	Green Light for Pedestrian (s)	Min. Green Light (s)	Max. Green Light (s)	Linked Channel	Operation
1	S-N Straight	3	3	0	0	5	0	15	50	14 12 5	
2	South Left-Turn	3	3	0	0	5	0	15	50	13 16	
3	West Left-Turn	3	3	0	0	5	0	15	50	1 8	

Figure 4-16 Added Phases (List View)

Step 8 (Optional) Other operations.

- Click the set phase to edit the phase parameters.
- Click to delete the phase.
- Click to add a phase same with the current phase quickly.
- Enter the phase No. or name in the searching text field and click **Search** to search the phase.

Step 9 Click **Apply**.

4.10 Set Pattern

Set a suitable pattern according to the specific scene. Generate the corresponding pattern by specifying the phase's execution order and execution time. The execution period is the sum of the execution time of the linked phase.

Step 1 Select an intersection, and click **Basic Settings** → **Pattern**.

Step 2 Click **Add Pattern**.

Step 3 Set **Pattern Name** and **Offset**. Offset refers to the time difference between the start time of the phase in Green Wave Control and the start time of the baseline traffic signal controller.

Step 4 (Optional) If you want to use the start time of the pattern as the coordinated phase start time when no coordinated phase is set, enable **Set the start time of the pattern as the coordinated phase**.

Step 5 Click **Add Ring** or **Add Phase Domain**. Drag the phase in the phase pool to the corresponding ring or phase domain to add it.

- **Add Phase Domain:** Multiple phase domains will compose a cycle. You can add multiple rings for one phase domain, and add same or different phases for each ring.
- **Add Ring:** You can add one or multiple phases to one ring to compose a signal cycle.

Note

- If multiple rings are set, the ring cycles of each pattern should be the same.
- When multiple phases are added to the same one ring, you can click ↓ / ↑ to change the phase sequence.

Step 6 Click **OK**.

Add Pattern

Pattern Name: Offset (s):

Phase Pool ● Drag a phase to the corresponding ring to add it.

1 S-N Straight

2 South Left-Turn

3 West Left-Turn

Details ⓘ Drag phase to change phase sequence. Click phase to set the pattern parameters.

(Note: Barriers can be set when there are multiple rings. Barriers will be reset after the phase duration is edited or the phase sequence is adjusted.)

Cycle (s) 0 ■ Coordinated Phase ■ Selected Barrier ■ Optional Barrier

1	S-N Straight	18s	2	South Left-Turn	18s		
3	West Left-Turn	18s					

+ Add Ring

Figure 4-17 Add Pattern to Ring

Add Pattern

Pattern Name Offset (s)

Phase Pool ● Drag a phase to the corresponding ring to add it.

1 S-N Straight

2 South Left-Turn

3 West Left-Turn

Details ● Drag phase to change phase sequence. Click phase to set the pattern parameters. Cycle (s) 0 ■ Coordinated Phase

Set the start time of the pattern as the coordinated phase. ☐

Phase Domain 1			
1	S-N Straight	18s	2 South Left-Turn 18s
3	West Left-Turn	18s	3 West Left-Turn 18s
+ Add Ring			

Figure 4-18 Add Pattern to Phase Domain

Step 7 Click the added phase to set corresponding parameters.

Details ● Drag phase to change phase sequence. Click phase to set the pattern parameters.

(Note: Barriers can be set when there are multiple rings. Barriers will be reset after the phase duration is edited or the phase sequence is adjusted.)

Cycle (s) 0 ■ Coordinated Phase ■ Selected Barrier ■ Optional Barrier

Phase ID	Phase Description	Green Light Time (s)	Yellow Light Time (s)	All Red Time (s)	Phase Duration (s)	Status	Coordinated Phase	Operation
1	S-N Straight	15	3	0	18	Undefined	☐	↓
2	South Left-Turn	15	3	0	18	Undefined	☐	↑
3	West Left-Turn				18s			⚙️
+ Add Ring								

Figure 4-19 Set Phase Parameters (Ring)

Phase ID	Phase Description	Green Light Time (s)	Yellow Light Time (s)	All Red Time (s)	Phase Duration (s)	Phase Delay Start (s)	Phase Early End (s)	Status	Coordinated Phase	Operation
1	S-N Straight	15	3	0	18	0	0	Undefined	☐	↓
2	South Left-Turn	15	3	0	18	0	0	Undefined	☐	↑

Figure 4-20 Set Phase Parameters (Phase Domain)

- **Phase Duration:** The sum of the time of All Red Time + Yellow Light Time + Green Light Time (including green flash time). It is calculated automatically according to various status in the phase configuration. You can change the value manually.

- **Phase Delay Start:** After configuration, the current phase will be started later according to the set time.
- **Phase Early End:** After configuration, the current phase will end earlier according to the set time.

Note

The actual phase duration (including the sum of green light, green flashing, yellow light and all red time) is equal to the configured phase duration minus the value of late start and early end.

- **Status:** The status of the traffic light during the current phase. If you need to switch the traffic light color according to the set time, select **Undefined**.
- **Coordinated Phase:** The phase used for coordination status of each intersection when coordinating green wave control. Only one coordinated phase is supported in one pattern.

Step 8 Click **OK**. The added patterns will be listed in the pattern list.

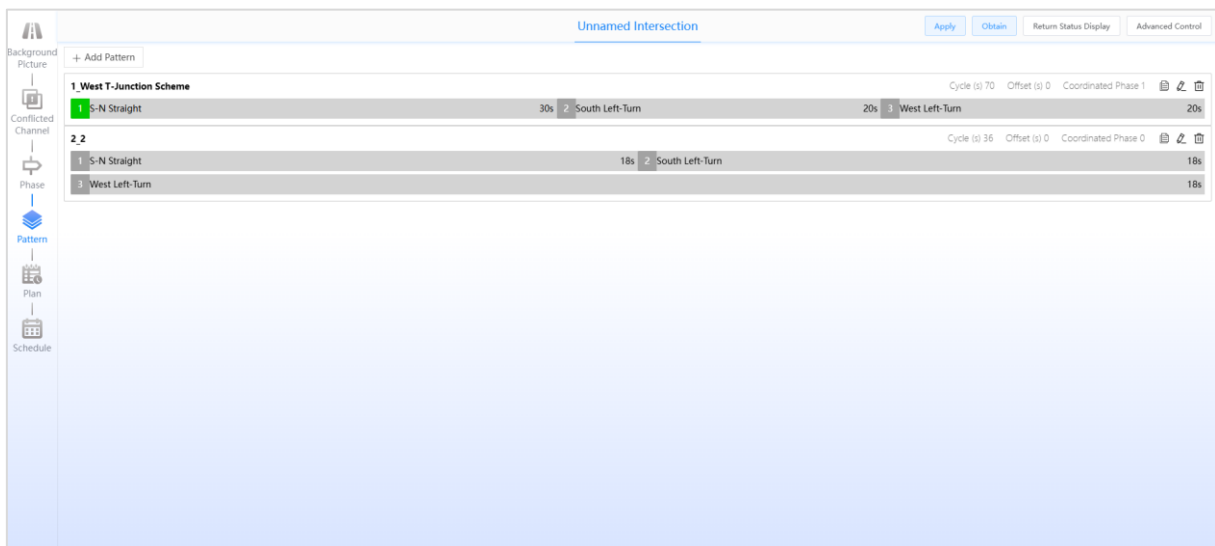


Figure 4-21 Pattern List

Step 9 (Optional) Other operations.

- Click  to edit the pattern.
- Click  to copy the pattern.
- Click  to delete the pattern.
- Click **Delete All** to delete all the patterns (for phase domain only).

Step 10 Click **Apply**.

4.11 Set Plan

4.11.1 Set General Plan

Set a regular plan to define the protocol executed by the traffic signal controller during different periods of the day.

Step 1 Select an intersection, and click **Basic Settings** → **Plan** → **General Plan**.

Step 2 Click **Add Plan**.

Step 3 Set the plan.

- 1) Enter the plan name.
- 2) Click **Display** on the upper right corner of the plan to expand the plan settings.
- 3) Click on the timeline to locate the start time. You can set multiple time periods for one day, and set different control modes and execution patterns for different time periods.
- 4) Select **Control Mode** and **Execution Pattern** for the corresponding time period.
 - Disabling/Yellow Flash/All Red: All Lights are disabled/yellow flash/red.
 - Ring Cycle: The signal intersection release according to the preset pattern and the phase sequence, and the cycle duration is fixed.
 - Coordinated Green Wave: Under certain conditions, lights are green all the way, which is used in combination with phase difference.
 - Full Reaction: Link with coil or vehicle detector and adjust the green light time in real-time. The minimum green light will run when the phase has no passing, and the green light time will be extended when the phase has passing.
 - Semi-Reaction: The passing status of the intersection will be switched according to the real-time status. The phase is skipped when there is no passing, and the phase is executed when there is passing.
 - Coordinated Reaction: On the premise of meeting green wave's requirements, control other phases by means of reaction control.
 - Pedestrian Crossing: The control mode for pedestrian crossing scene.
 - Single-Point Self-Adaption: According to traffic information such as traffic flow and queue length, sequence of the next phase will be calculated by dynamic tuning.
- 5) (Optional) Click the added pattern to edit it.

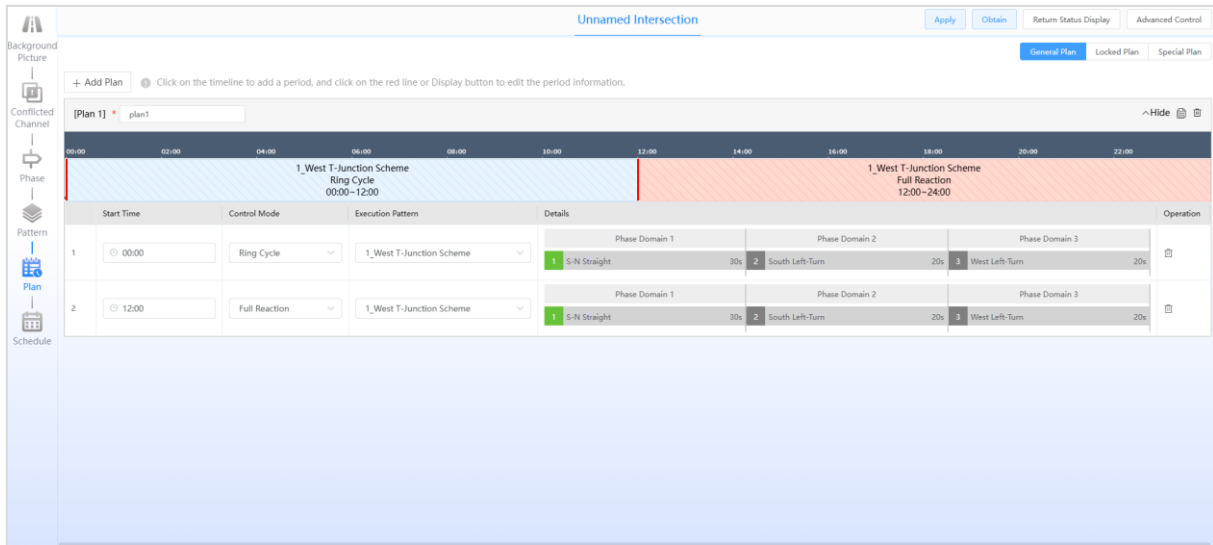


Figure 4-22 Set General Plan

Step 4 (Optional) Other operations.

- Click  to copy the plan.
- Click  to delete the added plan.

Step 5 Click **Apply**.

4.11.2 Set Special Plan

Special plans can be set to overwrite the original plan and mode when scheduling needs occur frequently.

Step 1 Select an intersection, and click **Basic Settings** → **Plan** → **Special Plan**.

Step 2 Click **Add Plan**.

Step 3 Set **Plan Name**.

Step 4 Set **Start Time** and **End Time**.

Step 5 Set **Control Mode**.

- Disabling/Yellow Flash/All Red: All Lights are disabled/yellow flash/red.
- Ring Cycle: The signal intersection release according to the preset pattern and the phase sequence, and the cycle duration is fixed.
- Coordinated Green Wave: Under certain conditions, lights are green all the way, which is used in combination with phase difference.
- Full Reaction: Link with coil or vehicle detector and adjust the green light time in real-time. The minimum green light will run when the phase has no passing, and the green light time will be extended when the phase has passing.

- **Semi-Reaction:** The passing status of the intersection will be switched according to the real-time status. The phase is skipped when there is no passing, and the phase is executed when there is passing.
- **Coordinated Reaction:** On the premise of meeting green wave's requirements, control other phases by means of reaction control.
- **Pedestrian Crossing:** The control mode for pedestrian crossing scene.
- **Single-Point Self-Adaption:** According to traffic information such as traffic flow and queue length, sequence of the next phase will be calculated by dynamic tuning.

Step 6 Select **Pattern**.

Step 7 (Optional) Click **Add Plan** or **Add Special Period** to add more plans or special periods for the plan.

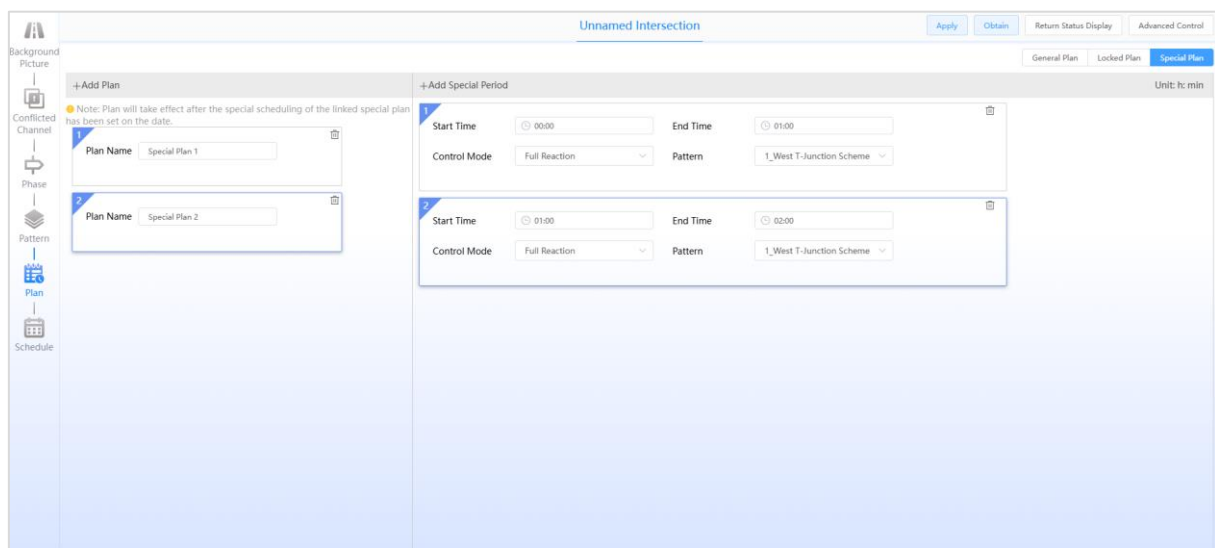


Figure 4-23 Set Special Plan

Step 8 (Optional) Click  to delete the added plan or special period.

Step 9 Click **Apply**.

4.11.3 Set Locked Plan

After locking, the traffic light will remain selected during the set period and will not be switched.

Step 1 Select an intersection, and click **Basic Settings** → **Plan** → **Locked Plan**.

Step 2 Click **Add Plan**.

Step 3 Set **Plan Name**.

Step 4 Set **Lock Type** to keep a channel in one status.

Note

The lock type should be the same as the channel type set in the background picture.

- Lock as Normal Lane: Lock the guidance light of the normal lane (such as the straight lane, left turn, right turn, etc.).
- Lock as Changeable Lane: Lock the guidance light of the changeable lane.
- Lock as Reversible Lane: Lock the guidance light of the reversible lane.
- Others: Lock the guidance lights except the lights above.

Step 5 Click **Add Locked Period** and set the parameters.

- Start/End Time: Lock period.
- Transient Green Flash Time: The duration of green flash when the light color turns green to red.
- Transient Yellow Light Time: Yellow Light Duration.
- Transitional Time:
 - In lock as changeable lane mode, it refers to the time of the current status flashing before disappearing.
 - In lock as reversible lane mode, it refers to the time of the yellow light.



Note

The locking parameters supported by different lock types are different. Refer to the actual page for details.

Step 6 Set the locked status of the channel.

ID	Channel	Channel Type	Light Location Direction	Locked Status
1	Left-Turn Arrow Light of Motor Vehicle	East	Red Light	
2	Straight Arrow Light of Motor Vehicle	West	Red Light	
3	Right-Turn Arrow Light of Motor Vehicle	East	Red Light	
6	Straight Arrow Light of Motor Vehicle	South	Red Light	
7	Right-Turn Arrow Light of Motor Vehicle	South	Red Light	
8	Pedestrian Light	South	Red Light	
12	Pedestrian Light	West	Red Light	
13	Left-Turn Arrow Light of Motor Vehicle	North	Red Light	
14	Straight Arrow Light of Motor Vehicle	North	Red Light	
16	Pedestrian Light	North	Red Light	

Figure 4-24 Set Locked Plan

Step 7 (Optional) Click to delete the added plan or locked period.

Step 8 Click **Apply**.

4.12 Set Schedule

You can set the plan executed by the traffic signal controller on different days.

Step 1 Select an intersection, and click **Basic Settings** → **Schedule**.

Step 2 Click **Add Rule**.

Step 3 Set the rule.

- 1) Enter rule description.
- 2) Select **By Week** or **By Date** to execute the plan.
 - By Week: Select the date to execute the plan.
 - By Date: Click the calendar to select the date to execute the plan.
- 3) Select **Scheduling Type**.
 - Pattern Scheduling: Apply the pattern within the selected date.
 - Lock Scheduling: Apply the locking plan within the selected date.
 - Special Scheduling: Apply the special plan within the selected date.
- 4) Select the plan to apply.

Note

- When Local Time Period is enabled, the priority of special date is higher than that of week. Prioritize selecting by date over selecting by week. When adding multiple date rules, the higher the sequence number, the higher the priority.
- In the same period, the priority of scheduling is: locked schedule > special scheduled > general schedule.

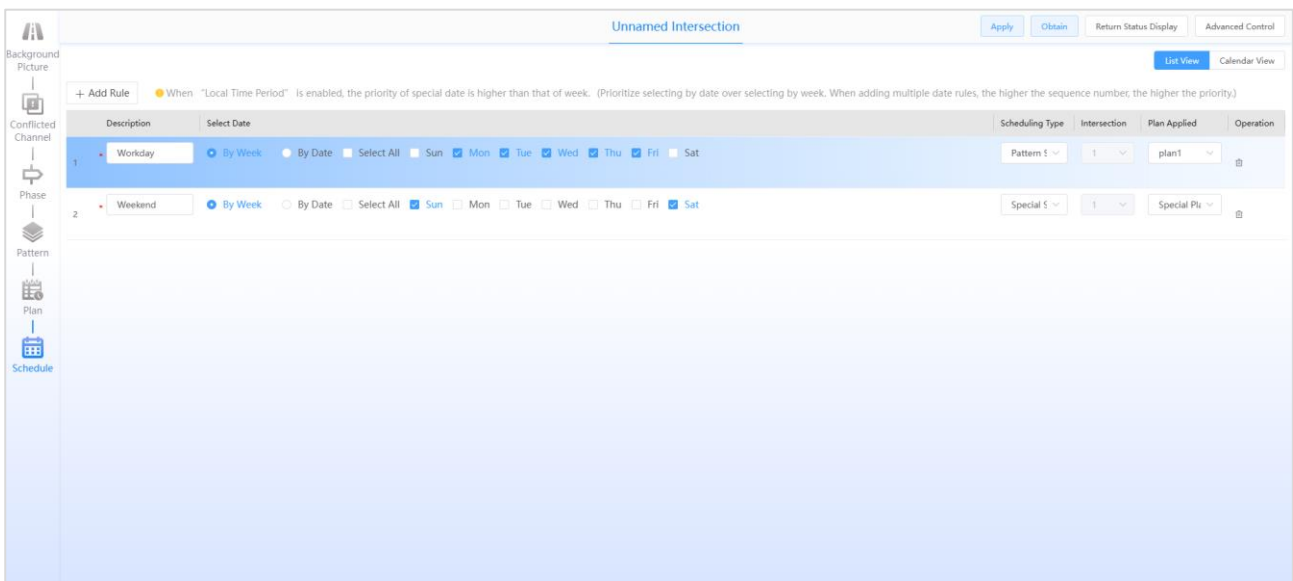


Figure 4-25 Set Schedule

Step 4 (Optional) Click  to delete the rule.

Step 5 Click **Apply**.

Chapter 5 Advanced Control

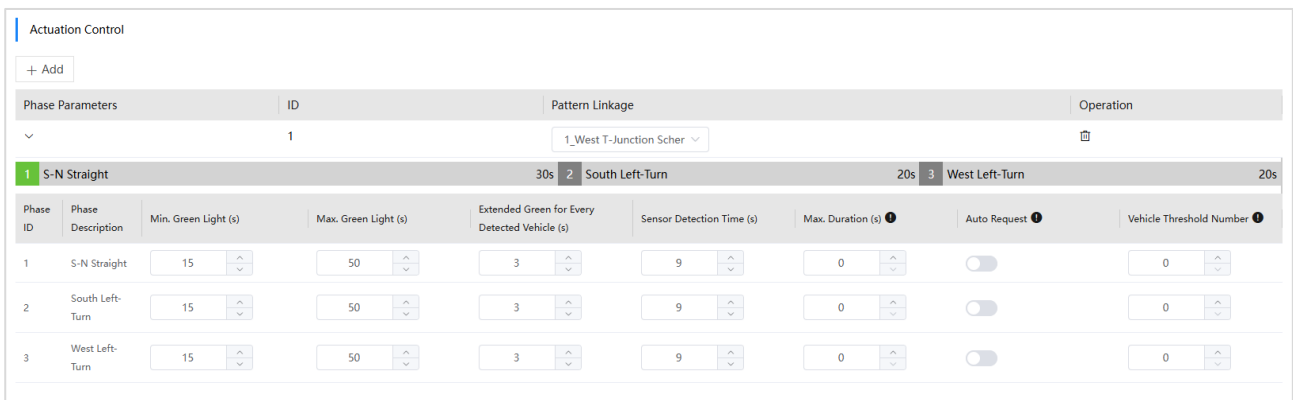
5.1 Set Actuation Control

Set the actuation control parameters to perform pattern-level actuation control.

Step 1 Select an intersection, and click **Advanced Control** → **Actuation Control**.

Step 2 Click **Add**, and then select **Pattern Linkage**.

Step 3 Click  to set phase parameters.



The screenshot shows the 'Actuation Control' window. At the top, there is a '+ Add' button. Below it, a summary bar shows 'Phase Parameters', 'ID: 1', 'Pattern Linkage: 1_West T-Junction Scher', and an 'Operation' icon. The main table lists three phases: 1 S-N Straight (30s), 2 South Left-Turn (20s), and 3 West Left-Turn (20s). Each phase has a set of parameters: Min. Green Light (s), Max. Green Light (s), Extended Green for Every Detected Vehicle (s), Sensor Detection Time (s), Max. Duration (s), Auto Request (toggle), and Vehicle Threshold Number.

Phase ID	Phase Description	Min. Green Light (s)	Max. Green Light (s)	Extended Green for Every Detected Vehicle (s)	Sensor Detection Time (s)	Max. Duration (s)	Auto Request	Vehicle Threshold Number
1	S-N Straight	15	50	3	9	0	☐	0
2	South Left-Turn	15	50	3	9	0	☐	0
3	West Left-Turn	15	50	3	9	0	☐	0

Figure 5-1 Actuation Control

- **Min. Green Light:** Used for actuation control. It is usually determined according to the pedestrian passing time.
- **Max. Green Light:** The maximum time the phase green light can run in actuation control mode.
- **Extended Green for Every Detected Vehicle:** The extended unit time for each actuation detected vehicle, also the window period width of actuation detection.
- **Sensor Detection Time:** The time from the last second of the detection window to the end of the phase green or green flash.
- **Max. Duration:** It is effective under semi-actuated mode. If the time has reached the max. waiting time for the sub-phase without a passing request, the vehicles will be forcibly released once. The default is 0, meaning the function is disabled.
- **Auto Request:** It is effective under semi-actuated mode. Enable the function to control main phase, and disable to control sub-phase.
- **Vehicle Threshold Number:** It refers to the maximum number of vehicles that can pass through an intersection in a single phase, used for single-point optimization involving actuation and time extension assessment.

Step 4 (Optional) Click  to delete the added actuation control.

Step 5 Click **Apply**.

5.2 Set Single-Point Self-Adaption

The device supports optimization and adaptive control of a single intersection.

Step 1 Select an intersection, and click **Advanced Control** → **Single-Point Self-Adaption**.

Step 2 Click **Add**.

Control Type Description:

Control Type 1: Only use the leaving vehicle statistics to calculate the traffic flow. It is applicable to the radar-assisted traffic camera, video detector, intersection violation system, and inductive loop vehicle detector.

Control Type 2: Only use the arriving vehicle statistics (based on the queue length) to calculate the traffic flow. It is applicable to the radar-assisted traffic camera.

Control Type 3: Use the leaving vehicle flow and the arriving vehicle flow (based on the queue length) to calculate the traffic flow. It is applicable to the radar-assisted traffic camera.

Control Type 4: Only use the queue length to calculate the traffic flow. It is applicable to the radar-assisted traffic camera.

Figure 5-2 Single-Point Self-Adaption

Step 3 Set single-point self-adaption parameters.

- **Optimization:** Whether to execute single-point optimization control. Enable it to apply single-point optimization control. Disable it to apply single-point self-adaption control.
- **Max. Cycle Duration:** It is the max. cycle duration when the algorithm optimization is enabled. The unit is second, and the range is from 10 to 400. You are recommended to set the value as 1.5 times the linked pattern cycle duration.
- **Pattern Linkage:** Select the pattern set in **Basic Settings** → **Pattern** for algorithm optimization. The single-point optimization control of each period should apply different patterns.

Step 4 Click **Details** of **Phase Parameters** to set the detailed phase parameters, and click **OK**.

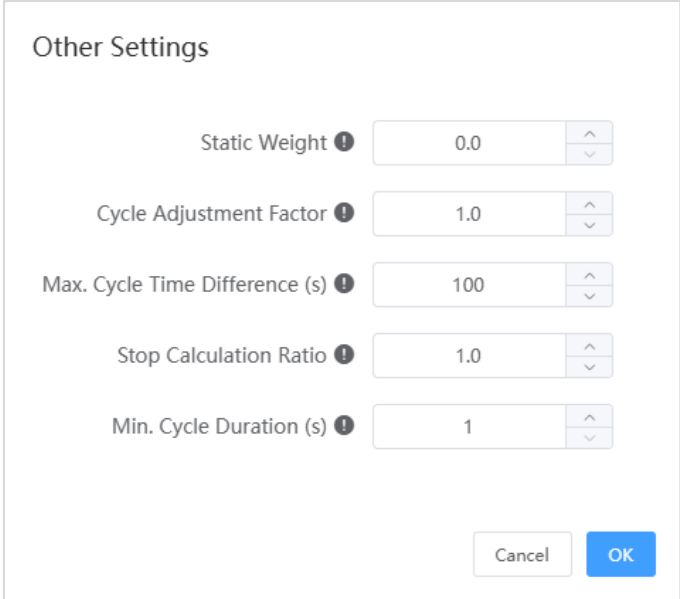
Phase No.	Phase Description	Min. Green Light (s)	Startup Loss	Static Factor	Sensor Detection Time (s)	Extended Green for Every Detected Vehicle (s)	Vehicle Threshold Number
8	Straight from S/N	15	3	0.10	6	3	0
9	Left from S	15	3	0.10	6	3	0
10	Left from E	15	3	0.10	6	3	0

Figure 5-3 Set Phase Parameters

- **Min. Green Light:** It is for the single-point optimization control or single-point self-adaption control. Unless there are special circumstances, it is determined by the pedestrian crossing time. Unit: second.

- **Startup Loss:** It refers to the startup lost time of phase. Unit: second. Range: [1, 10].
- **Static Factor:** It refers to the expected proportion of green light of phase. The higher the value, the larger the green light proportion of phase. Range: (0, 1].
- **Sensor Detection Time:** The time from the last second of the detection window to the end of the phase green or green flash.
- **Extended Green for Every Detected Vehicle:** The extended unit time for each actuation detected vehicle, also the window period width of actuation detection.
- **Vehicle Threshold Number:** It refers to the maximum number of vehicles that can pass through an intersection in a single phase, used for single-point optimization involving actuation and time extension assessment.

Step 5 Click **Details** of **Others** to set other parameters, and click **OK**.



Other Settings

Static Weight ⓘ 0.0

Cycle Adjustment Factor ⓘ 1.0

Max. Cycle Time Difference (s) ⓘ 100

Stop Calculation Ratio ⓘ 1.0

Min. Cycle Duration (s) ⓘ 1

Cancel OK

Figure 5-4 Set Other Parameters

- **Static Weight:** The weight of static factor to the single-point self-adaption algorithm. The higher value, the more possible the static control. It only affects the time allocation, not the cycle.
- **Cycle Adjustment Factor:** Output cycle=algorithm calculation cycle × cycle factor. For example, if the algorithm calculation cycle is 200 s and the cycle adjustment factor is 0.8, the output cycle would be 160 s. Range: [0.5, 2].
- **Max. Cycle Time Difference:** The max. time difference allowed between two consecutive cycles. Range: [0, 200]. The cycle time will not change if the value is 0.
- **Stop Calculation Ratio:** If the ratio of lanes with 0 detection data to all lanes reaches or exceeds the value, it will stop optimization and degrade to the ring cycle control. Range: [0.1, 2]. If the value is 1, when all detected lanes have no detection data, it will report an error. If the value is 2, when all detected lanes have no detection data, it will not report an error.
- **Min. Cycle Duration:** It is the min. cycle duration when the algorithm optimization is enabled. Unit: second. Range: [1, 400]. If the min. cycle duration is shorter than the sum of the min.

green light of each phase, the algorithm will use the latter as the min. cycle duration by default.

Step 6 Click **Apply**.

Step 7 (Optional) Other operations.

- Click  to delete the added single-point self-adaption.
- Click **Real-Time Information** or **Historical Information** to view the running condition of the added single-point self-adaption.

5.3 Set Pedestrian Crossing

Set the pedestrian crossing to optimize the pedestrian crossing scene of the road section.

Step 1 Select an intersection, and click **Advanced Control** → **Pedestrian Crossing**.

Step 2 Click **Add**.

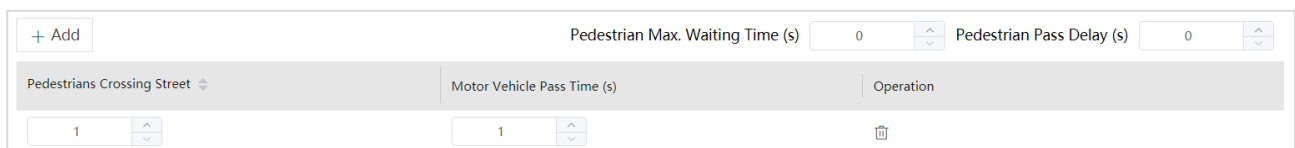


Figure 5-5 Pedestrian Crossing

Step 3 Set the pedestrian crossing parameters.

- **Pedestrian Max. Waiting Time:** The time interval for forced entry and exit when there is no pedestrian request. If it is set as 0, a forced entry and exit will not be allowed.
- **Pedestrian Pass Delay:** The delay time to start entry and exit after the pedestrian button has been requested.
- **Pedestrians Crossing Street:** When using pedestrian button, the number of pedestrians crossing the street should be larger than 0. It is recommended to set it to 1. When using pedestrian camera to detect people crossing the street, you need to configure the actual number of people crossing the street (the number of people passing the street corresponds to the passing time).
- **Motor Vehicle Pass Time:** The passing time of motor vehicles refers to pedestrian red light time, excluding red flash time.

Step 4 (Optional) Click  to delete the added pedestrian crossing.

Step 5 Click **Apply**.

Chapter 6 Device Management

6.1 View Running Indicator

Click **Device Management** → **Running Indicator** to view the running indicators.

- RF: To view if the wireless remote controller is enabled.
- CAN Receive: To view the command receiving times of corresponding point.
- CAN Send: To view the command sending times of corresponding point.
- Satellite: To view if the satellite time sync. is enabled.
- Yellow Flash Board Status: To view the yellow flash board status.

6.2 Set Unit

You can set the parameters of each unit.

Step 1 Click **Device Management** → **Unit**.

The screenshot displays the 'Unit' configuration interface, which is organized into three main sections: System Parameters, Detection Parameters, and NTP.

- System Parameters:**
 - Yellow Flash Duration (s): 6
 - All Red Duration (s): 6
 - Transient Cycle: 5
 - Transition Mode: ☐ Extend Time, ☒ Extend or Shorten Time
 - Unlock Mode: Next Phase
 - Log Output Level: Output Debug Infor
 - Multi-Intersection Mode: ☒
- Detection Parameters:**
 - Voltage Detection: ☒
 - Current Detection: ☐
 - Flashing in Faults: ☐
 - Control Light by Light Control Board: ☐
- NTP:**
 - NTP Service: ☐

Figure 6-1 Unit

Step 2 Set system parameters.

- **Yellow Flash Duration:** The yellow flash time of the traffic signal controller when it starts. After the signal controller is powered on, the yellow flash will be applied for a while first to ensure safety.
- **All Red Duration:** The red light time of the traffic signal controller when it starts. After the device is powered on and start, to ensure safety, the yellow flash shall be conducted for a period of time first, and then the full red flash shall be conducted for a period of time.
- **Transient Cycle:** The number of cycles that the controller needs to pass in the process of entering the green wave state from another state.
- **Transition Mode:** When running the coordinated green wave and coordinated reaction mode, the transition time can be calculated by **Extend Time** or **Extend or Shorten Time** to achieve coordination.
- **Unlock Mode:** Select the phase to be run after channel lock is released.
- **Log Output Level:** Select according to the actual needs. The log content of different levels is different.
- **Multi-Intersection Mode:** Enable the function to set multiple intersections in complex intersection scenes.

Step 3 Set detection parameters.

- **Voltage Detection:** Enable voltage fault detection.
- **Current Detection:** Enable current fault detection.
- **Flashing in Faults:** When it is turned on, when the annunciator is detected to have a fault, the intersection signal light will execute the hard yellow flash control. In this state, regardless of the state of the software control lamp, the signal light will only flash yellow.
- **Control Light by Light Control Board:** After enabling, when the main control board fails, the light control board can continue to work. After disabling, when the main control board fails, the light control board flashes yellow. This function is only supported for single intersection.

Step 4 (Optional) Enable **NTP Service** to sync the traffic signal controller time by the NTP server or use the traffic signal controller as an NTP time sync source to sync other devices.

Step 5 Click **Apply**.

6.3 Set Countdown Timer

Set the countdown timer. Self-learning mode is used by default.

Before You Start

The traffic signal controller has been connected to the countdown light plate and dial-up has been set for the light plate. Record the dial-up parameters to ensure the traffic signal controller communicates with the light plate normally.

Step 1 Click **Device Management** → **Countdown Timer**.

Step 2 Select countdown timer mode.

- Self-Learning Mode: The countdown timer learns the duration of red, yellow and green signals through two fixed cycles of signal lights, and displays the countdown number of corresponding signal lights synchronously at the third cycle. The countdown will not display during learning.
- Pulse Countdown: The countdown timer learns the pulse occurrence time and yellow light signal time through one red, yellow and green signal cycles. The countdown will not display during the learning period. At the beginning of the second signal cycle, the countdown timer displays the red, yellow and green light countdown numbers according to the pulse signal or yellow light signal. Set **Pulse Width** which indicates the time duration of sending pulse signal.
- National Standard 2004/2014: The countdown timer receives the signal command through the RS-485 data line according to the national standard protocol, and displays the countdown value output by the signal in real-time.
- Rice Protocol: The countdown timer receives the signal command through the RS-485 data line according to Rice standard protocol, and displays the countdown value output by the signal in real-time.
- Hisense Protocol: The countdown timer receives the signal command through the RS-485 data line according to Hisense standard protocol, and displays the countdown value output by the signal in real-time.

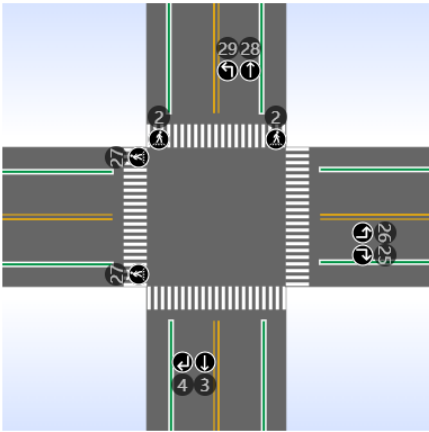
Step 3 (Optional) For the light board communicating via RS-485, select the RS-485 serial No. according to the interface of RS-485 that is accessed.

Step 4 Add a countdown timer.

- 1) Click **+**.
- 2) Select a channel and set corresponding parameters.
 - Address Code: The address dial-up position on the countdown dial.
 - Green Light Countdown Timer: It refers to the time when the countdown is required before the green light ends. If set as **Whole Journey**, the green light will count down all the time. If set as **Disable**, the green light countdown will be turned off.
 - Red Light Countdown Timer: It refers to the time when the countdown is required before the red light ends. If set as **Whole Journey**, the red light will count down all the time. If set as **Disable**, the red light countdown will be turned off.
- 3) Click **OK**.

Add Countdown Timer

Select All



Address Code

0

Green Light Countdown Timer(s)

6

Red Light Countdown Timer(s)

6

OK Cancel

Figure 6-2 Add Countdown Timer

Step 5 Click **Apply**.

6.4 Set Wireless Remote Controller

You can control traffic signal lights with the wireless remote controller. Remote controller control is prior to system control.

Step 1 Click **Device Management** → **Wireless Remote Controller**.

Step 2 Enable **Wireless Remote Controller**.

Step 3 Select **Remote Controller Model**.

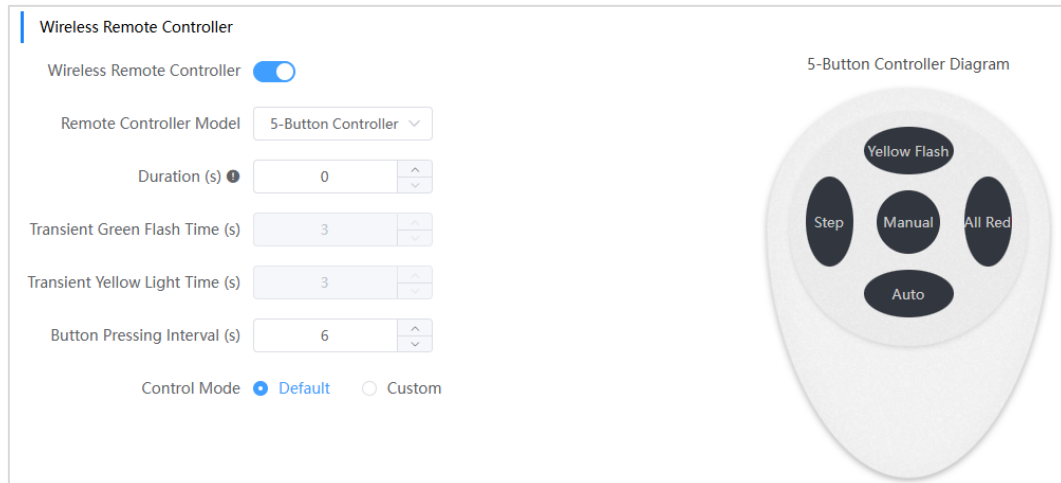


Figure 6-3 5-Button Remote Controller

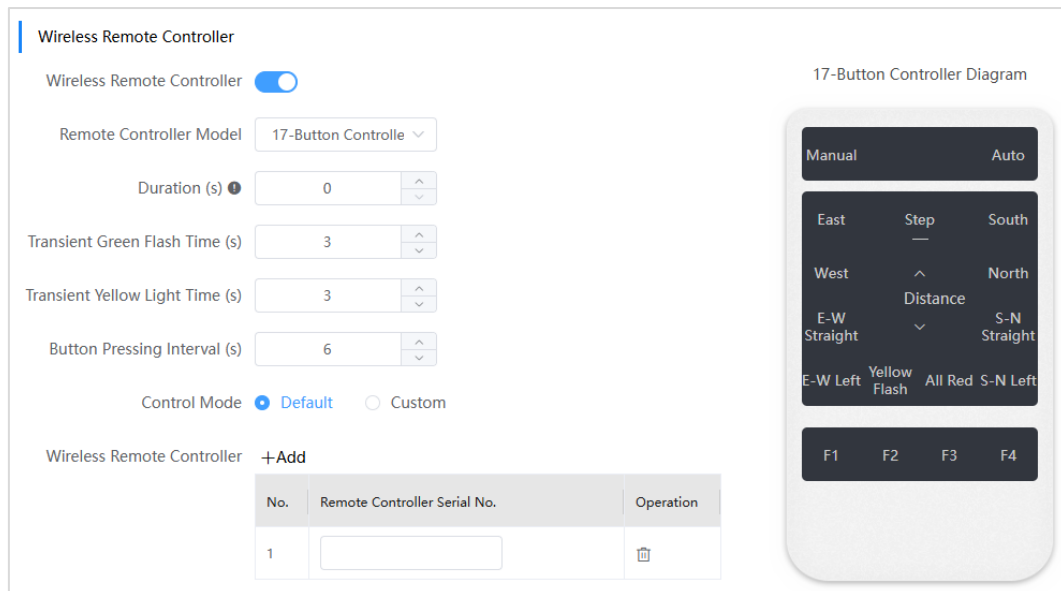


Figure 6-4 17-Button Remote Controller

Note

The default remote controller model is 5-button controller. If you select 17-button controller, click **+Add** and enter the serial No. to add the remote controller.

Step 4 Set the parameters of the remote controller.

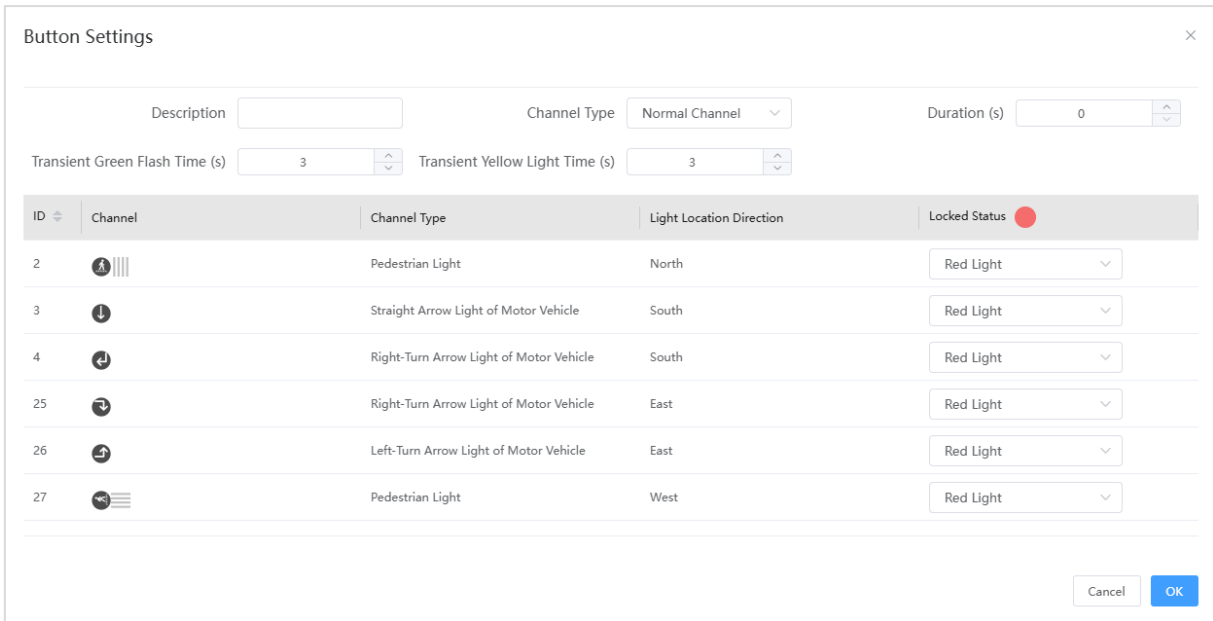
- **Duration:** The time from the remote controller button taking effect to restoring to the system control automatically. 0 represents continuous control.
- **Transient Green Flash Time:** The duration of the green flash when the light color turns from green to red.
- **Transient Yellow Light Time:** The duration of yellow light.
- **Button Pressing Interval:** The response time of the device during continuous pressing button. It is used to protect the traffic signal controller from frequent switching.

Step 5 Select Control Mode.

- Default: Perform remote control operations using the system's default remote control button functions.
- Custom: Click the button on the remote controller diagram to customize its function. You can click **Custom Button Sync. Settings** to sync. the parameters including **Duration**, **Transient Green Flash Time**, **Transient Yellow Light Time** to the custom button.

 Note

The internal custom time prevails when the time set by the remote controller or control panel is inconsistent with the custom time.



ID	Channel	Channel Type	Light Location Direction	Locked Status
2		Pedestrian Light	North	Red Light
3		Straight Arrow Light of Motor Vehicle	South	Red Light
4		Right-Turn Arrow Light of Motor Vehicle	South	Red Light
25		Right-Turn Arrow Light of Motor Vehicle	East	Red Light
26		Left-Turn Arrow Light of Motor Vehicle	East	Red Light
27		Pedestrian Light	West	Red Light

Figure 6-5 Set Custom Functions for Remote Controller Buttons

Step 6 Click Apply.

6.5 Set Control Panel

You can set the traffic signal controller control panel button functions. The control panel commands are prior to system settings.

Step 1 Click Device Management → Control Panel.**Step 2 Enable control panel.**



Figure 6-6 Control Panel

Note

Panels supported by different models may be different. Please refer to the actual device.

Step 3 Set the parameters of the control panel.

- **Duration:** The time from the control panel buttons taking effect to restoring to the system control automatically. 0 represents continuous control.
- **Transient Green Flash Time:** The duration of the green flash when the light color turns from green to red. 3 s by default.
- **Transient Yellow Light Time:** The duration of yellow light. 3 s by default.
- **Button Pressing Interval:** The response time of the device during continuous pressing button. It is used to protect the traffic signal controller from frequent switching.

Step 4 Select **Control Mode**.

- **Default:** The system has pre-assigned each button a specific function, which can be used directly.
- **Custom:** Click the button on the control panel diagram to customize its function. You can click **Custom Button Sync. Settings** to sync. the parameters including **Duration**, **Transient Green Flash Time**, **Transient Yellow Light Time** to the custom button.

Note

The internal custom time prevails when the time set by the remote controller or control panel is inconsistent with the custom time.

Button Settings

Description Channel Type Duration (s)

Transient Green Flash Time (s) Transient Yellow Light Time (s)

ID	Channel	Channel Type	Light Location Direction	Locked Status
2		Pedestrian Light	North	Red Light
3		Straight Arrow Light of Motor Vehicle	South	Red Light
4		Right-Turn Arrow Light of Motor Vehicle	South	Red Light
25		Right-Turn Arrow Light of Motor Vehicle	East	Red Light
26		Left-Turn Arrow Light of Motor Vehicle	East	Red Light
27		Pedestrian Light	West	Red Light

Figure 6-7 Set Custom Functions for Control Panel Buttons

Step 5 Click **Apply**.

6.6 Set Trigger Control

The traffic signal controller can control traffic lights by triggering conditions.

Step 1 Click **Device Management** → **Trigger Control**.

Step 2 Enable the function.

Step 3 Add **Trigger Action**.

- 1) Click **Add**.
- 2) Select trigger action type(s).
- 3) Click **OK**.
- 4) Set the parameters of the trigger action according to actual needs. You can move the cursor to to view the details.
 - Pattern Level: After the running cycle ends, switch to the specified pattern.
 - Phase Level: After the running phase meets the minimum green time, switch to the specified pattern.
 - Step Level: Advance the running phase to the green flash status. After the phase ends, switch to the specified pattern.

Trigger Action ⓘ

+ Add

Switch Pattern ⓘ

ID	Intersecti on No.	Pattern	Control Mode	Response Level	Duration (s)	Operation
1	1	1 pattern 1	Yellow Flasl	Pattern	0	
2	1	1 pattern 1	All Red	Pattern	0	
3	1	1 pattern 1	Local Time	Pattern	0	
4	1	1 pattern 1	Disabling	Pattern	0	

Extend/Shorten Phase ⓘ

ID	Intersection No.	Phase	Extend/Shorten	Time (s)	Operation
5	1	Select	Extend	0	

Insert/Cancel Phase ⓘ

ID	Intersection No.	Insert/Cancel	Phase	Time (s)	Operation
6	1	Select	Select	30	

Figure 6-8 Add Trigger Action

Note

One trigger action can be linked to one or more triggering conditions or combinations of triggering conditions.

Step 4 Add Trigger Condition. When the traffic signal controller receives a signal meeting the trigger condition, it will execute the control action automatically.

Trigger Condition ⓘ

+ Add

Detector ⓘ

ID	Action No.	Lane	Status	Operation
1	1 3	2	Occupied	
2	2	2	Occupied	

Condition Combination ⓘ

ID	Action No.	Condition Combination	Operation
3	4	ID1 ID2	

Figure 6-9 Add Trigger Condition

- 1) Click **Add**.
- 2) Select trigger condition type(s).
- 3) Set the parameters of the trigger condition according to actual needs. You can move the cursor to ⓘ to view the details.
- 4) (Optional) Select trigger condition type as **Condition Combination**. The conditions can be combined through AND, OR, and NON logical operations. Click ⓘ to modify the condition combination. Click **Add** to combine the current condition with other ID conditions. You can enable **Non-Operational Switch** to add NON logic before the condition. For example, "ID2 || ID3" will change to "ID2 || !ID3" if you enable **Non-Operational Switch**.

**Note**

Each action No. can only be linked to one trigger condition. The action that is already linked with a trigger condition is grayed out in the **Action No.** drop-down list.

Trigger Condition ID	Non-Operational Switch	Logical Operation	Operation
1	☐		Delete
2	☒		Delete

Figure 6-10 Modify Condition Combination

Example:

For example, set the trigger action as **Switch Pattern**, the trigger condition as **I/O**, and the level type as **High Level**. When the device reaches a high level, the device will switch to the specified pattern.

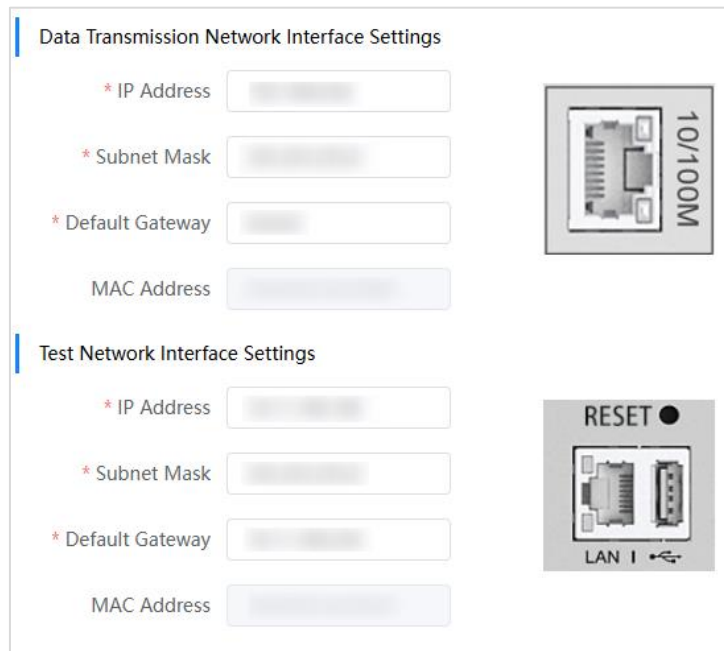
Step 5 Click **Apply**.

Chapter 7 Network Settings

7.1 Set Network

Set the network according to the following steps to ensure the device network communication is normal.

Step 1 Click **System Settings** → **Network Settings**.



The screenshot displays the 'Data Transmission Network Interface Settings' and 'Test Network Interface Settings' sections. Each section contains four input fields: IP Address, Subnet Mask, Default Gateway, and MAC Address. The 'Data Transmission' section is accompanied by a 10/100M Ethernet port icon, while the 'Test' section includes a RESET button and a LAN I icon.

Figure 7-1 Network Settings

Step 2 Set the IP address, subnet mask, and default gateway of data transmission network interface.

Note

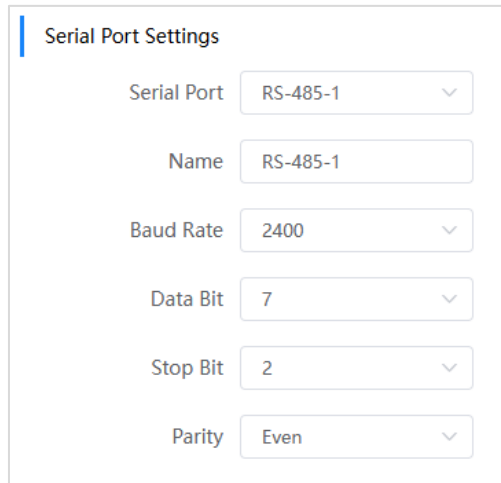
If you need to connect to two different networks simultaneously, you can set the test network interface parameters. The transmission and test interfaces are entirely the same.

Step 3 Click **Apply**.

7.2 Set Serial Port

Set serial port parameters if the device needs to access to peripheral devices.

Step 1 Click **System Settings** → **Serial Port Settings**.



The image shows a 'Serial Port Settings' window. It contains six configuration fields, each with a label and a dropdown menu. The settings are: Serial Port (RS-485-1), Name (RS-485-1), Baud Rate (2400), Data Bit (7), Stop Bit (2), and Parity (Even).

Setting	Value
Serial Port	RS-485-1
Name	RS-485-1
Baud Rate	2400
Data Bit	7
Stop Bit	2
Parity	Even

Figure 7-2 Serial Port Settings

Step 2 Select serial port.

Step 3 Set parameters such as serial port name, baud rate, data bit, etc.

Step 4 Click **Apply**.

7.3 Manage Port

Manage port permissions or change the port No.

Step 1 Click **System Settings** → **Port Management**.



The image shows a 'Port Management' window. At the top, there is a toggle for 'SSH Service' which is turned on. Below it are two port configuration sections: 'SSH Port' with a value of 22 and 'WEB Port' with a value of 80. A yellow warning icon and text 'It will take effect after restart.' are next to the WEB Port. At the bottom, there is a table with columns: Description, Port, Protocol Type, Enable, and Operation. The table contains one entry with Description '1', Port '8081', Protocol Type 'TCP', and Enable toggle turned on. There is a '+ Add' button above the table.

Description	Port	Protocol Type	Enable	Operation
1	8081	TCP	☒	

Figure 7-3 Port Management

Step 2 Enable **SSH Service**.

Step 3 Change the port No. as needed.

- SSH Port: SSH service port. The default is 22.
- WEB Port: WEB service port. The default is 80. Reboot the device to take the changed settings into effect.

Step 4 Click **Add** to add a custom port.

1. Set the port description and port No.
2. Select **Protocol Type**, including TCP and UDP.

3. Enable the port. When enabled, the other configuration port will be blocked. It is disabled by default.

Step 5 Click **Apply**.

Chapter 8 System Management and Maintenance

8.1 View Statistics Information

- Intersection Information

The intersection and area can be numbered in **Statistics** → **Intersection Information** for easy management.

- Statistics Information

Click **Statistics** → **Statistics** to view information such as cycle flow statistics and cycle running statistics.

8.2 Channel Detection

Check whether the wiring between the terminal of the light control panel and the traffic light is normal.



Note

The number of light control boards of different models may be different. Please refer to the actual device.

Step 1 Click **System Settings** → **Channel Detection**.



Figure 8-1 Channel Detection

Step 2 Click the light on the light control board to test. Check if the corresponding signal light in the actual scene is lit with the same color. If the color and status of the signal light match those on the light control board, the wiring is correct. Otherwise, please inspect for wiring issues.

Step 3 (Optional) Click **Cancel Control** to turn off the light immediately.

8.3 Upgrade

You can update the software version of the device.

Before You Start

Prepare the upgrade package.

Step 1 Click **System Settings** → **System Management** → **Online Upgrade**.

Step 2 Click the file loading field to select the upgrade file.

Step 3 Select the upgrade mode.

- Seamless Upgrade: The intersection runs normally during the upgrade, and there is no yellow flash.
- Reboot to Upgrade: Yellow flash will be displayed during the upgrade. You are recommended to select **Reboot to Upgrade** for version upgrade or cross version upgrade with many updates when the intersection environment is allowed for reboot.

Step 4 Click **Upgrade**.

8.4 Restore Parameters

When a configuration parameter error causes a device function exception, you can restore parameters.

Step 1 Click **System Settings** → **System Management** → **Device Maintenance**.

Step 2 Select restoration mode.

- Restore to Default Settings: Restore the device to the default parameters except the password and network settings. Reboot the device to bring the new settings into effect.
- Factory Reset: Restore the device to factory settings. The device will be inactive after factory reset.

Step 3 (Optional) Select **Reboot device after restoration** to restore the parameters and reboot the device automatically.

Step 4 Enter the admin password and click **OK**.

8.5 Reboot

8.5.1 Reboot Device

Restart the device via software. Do not power off.

Step 1 Click **System Settings** → **System Management** → **Device Maintenance** → **Reboot Device**.

Step 2 Click **Reboot**.

Step 3 Click **OK**.

8.5.2 Reboot Touch Screen



Note

This function is dependent on the device model. The actual device prevails.

Step 1 Click **System Settings** → **System Management** → **Device Maintenance** → **Reboot Touch Screen**.

Step 2 Click **Reboot**.

Step 3 Click **OK**.

8.6 View Logs

View device operation records, exceptions, and other information.

Step 1 Click **System Settings** → **System Management** → **Device Maintenance** → **View Logs**.

Step 2 Click **View**.

Step 3 Search log.

- 1) Click **Log Query** → **Retrieving Logs**.
- 2) Set search condition.
- 3) Click **Query**.



Note

Click the data line of the log to check the log content in **Log Query** → **Original Logs**.

Step 4 (Optional) Click **Log Query** → **Original Logs**, select the log type, and click **Load Log** to export.

8.7 Time Sync

Synchronize the device time when it is inconsistent with the actual time.

Step 1 Click **System Settings** → **System Management** → **Time Sync Management**.

Step 2 Select **Time Sync Mode**.

- Select **NTP** to synchronize the device time with that of the NTP server. Set the server IP address/source address and time sync frequency. Click **Test** to test if the connection between the device and the server is normal.
- Select **Manual** to synchronize the device time with that of the computer. Set time manually, or enable **Sync. with Computer Time**.
- Select **Satellite** to synchronize the device time with that of the satellite.

- If the device is connected to the platform, you can select **Platform** to synchronize the device time with that of the platform.
- To disable time sync, select **No**.

**Note**

The time of manual time sync should be later than 0:00:00 PM on 1 January 1970 Greenwich Mean Time. The time of different time zones should be later than 8:00 PM on 1 January 1970.

Step 3 Click **Apply**.

8.8 Time Zone

According to the selected time zone, the device will automatically adjust the time according to the time zone.

Step 1 Click **System Settings** → **System Management** → **Time Zone**.

Step 2 Enable time zone and select a time zone.

Step 3 Click **Apply**.

8.9 Set DST

If the region where the device is located adopts Daylight Saving Time (DST), you can set this function.

Step 1 Click **System Settings** → **System Management** → **DST**.

Step 2 Enable NST.

Step 3 Select start time, end time, and DST bias.

Step 4 Click **Apply**.

8.10 Export Parameters

You can export the parameters of one device, and import them to another device to set the two devices with the same parameters.

Step 1 Click **Import and Export** on the upper right corner of the page.

Step 2 Click **Export**.

Step 3 Enter the admin password and click **OK**.

Step 4 Save or open the file according to the browser prompt.

8.11 Import Parameters

Import the configuration file of another device to the current device to set the same parameters.

Before You Start

Save the configuration file to the computer.



Importing configuration file is only available to the devices of the same model and same version.

Step 1 Click **Import and Export** on the upper right corner of the page.

Step 2 Select import file and click **Import**.

Step 3 Enter the admin password and click **OK**.

Step 4 Click **Apply**.

8.12 Edit Password

To improve device security, please change the administrator password regularly.



To protect your privacy and corporate data and avoid product network security issues, it is recommended that you configure high-intensity passwords that meet security requirements.

Step 1 Click **admin** in the upper-right corner of the page.

Step 2 Select **Edit Password**.

Step 3 Enter the old password and a new password.

Step 4 Confirm the new password.

Step 5 Click **OK**.

8.13 TSC Maintenance Tools

You can log in to the TSC Maintenance Tools to view the resource dashboard, search logs, upgrade offline, or debug device.

Before you start

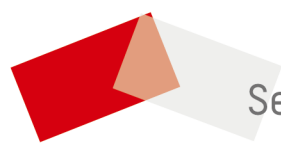
Click **System Settings** → **Port Management**. Add 8081 port and enable the port.

Step 1 Click **System Settings** → **System Management** → **Device Maintenance** → **View Logs**.

Step 2 Click **View**.

Step 3 Enter admin as the user name, and the password when logging in to the traffic signal controller to log in to the TSC Maintenance Tools.

Step 4 View the resource dashboard, search logs, upgrade offline, or debug device according to your needs.



See Far, Go Further