

# DHI-ITRTSC-036B-HS-YKQ

## Dahua Traffic Signal Controller



### System Overview

The Traffic Signal Controller is the core device in the traffic signal control system. Highly reliable, it has strong safety features, is widely compatible and offers functions such as fault diagnosis. This critical tool in modern urban traffic management also supports intelligent traffic coordination, self-adaptive flow control, data management, adjusting the timing of its signals and handling emergencies. The controller is ideal for traffic scenes as it improves traffic efficiency, optimizes traffic flow, and offers people safer and smoother traffic conditions.

### Functions

#### Self-adaptive Flow Control

Collects traffic flow data in real time through its detection device to adapt the timing of its signals to suit the situation. When a peak period begins or congestion is detected, the controller automatically extends the green light time or adjusts the timing of its signals to alleviate traffic congestion.

#### Intelligent Traffic Coordination

Optimizes traffic situations by using traffic flow data and predictive modeling. It can also coordinate with adjacent traffic lights to build a green wave to reduce the number of times a vehicle has to wait, which improves traffic throughput and efficiency.

#### Data Management and Monitoring

Collects and records data on traffic flow, faults, and more. It also performs real-time monitoring and management through its data analysis and monitoring system, producing information that is valuable for making plans and decisions related to urban traffic.

#### Adjustable Signal Timing

Adjusts the timing of its signals based on the traffic flow and period to enhance the smoothness and efficiency of traffic.

#### Emergency Handling

When an emergency occurs that requires fire trucks, ambulances, police vehicles or other emergency vehicles to travel on the road, the controller automatically adjusts the timing of its signals to give priority to the emergency vehicle so that they can quickly respond to their incident.

- Adopts international standard communication protocol NTCIP, providing interface that meets the standard.
- Embedded control system, modular design, easy to operate and maintain.
- Reliable circuit design and industrial-grade components ensure stable and reliable performance.
- Real-time clock (RTC) ensures time accuracy. Supports manual time adjustment and GPS/NTP time synchronization.
- All-weather outdoor casing, modular design of the entire device, flexible to adjust hardware configuration, providing ease of maintenance and replacement.
- Works independently, or networks with multiple controllers for regional traffic control.
- Failure flasher control: Supports software flasher and hardware flasher (only for models with flasher) independent on program control helps improve traffic safety.
- Hot standby of main control board.
- Supports temperature and humidity reporting.
- Supports low voltage downgrade.
- Adjustable startup sequence.
- Detects failures such as green conflict, lights off, red and green lights on, and designed with automatic degradation mechanism.
- Multiple control methods such as cableless linking control, actuated control, pretimed control, response to pedestrian pushbutton, manual control, special status control, emergency coordination, and more.
- Smooth transition mechanism for signal control helps ensure traffic safety at intersections.
- Connects to traffic enforcement cameras, coils, pedestrian pushbuttons and more to collect traffic flow data and offer integrated solution of traffic signal control.
- Supports up to 64-channel traffic enforcement cameras and 16-channel coils.
- Different phase parameters for different cycle schemes. Supports independent parameter setting of repeated phase.
- Supports 16 parent phases and 16 overlap phases. Supports repeated running of parent phase. Up to 4 rings and 4 barriers.
- Up to 112 daily schemes, 48 pretimed periods, 30 weekly dispatch schemes, 30 daily dispatch schemes, 30 special dispatch schemes, and 54 cycle schemes.
- Supports setting special phase, channel, and phase default status, ideal for scenes of no passing, or those require slow movement. For example, you can set no passing when red light is on, and slow movement when amber light flashes or is on.
- Supports configuring the waiting area to ensure that vehicles can pass an intersection safely and orderly.

- Self-learning, pulse, and RS-485 communication countdown timers are available. Supports up to 32-channel RS-485 communication countdown timer.
- Network storm protection function ensures the normal operation of the device under abnormal network conditions.
- Supports configuration through platform and DSS ASCS configuration tool, providing ease of use.
- Supports configuring temporary scheme and special tasks through platform to allow quick response to emergency road conditions.
- Outputs signals of traffic lights to camera through network, supporting the camera to capture traffic violations.
- Supports platform central control by sending data of traffic flow statistics, traffic saturation and lane occupancy to the platform.
- Comprehensive fault diagnosis and log storage allow convenient fault diagnosis.
- Supports exporting and importing defined schemes for backup.
- Supports independent control of two intersections.
- Supports control of uncoordinated pedestrian crossing request.
- Manual timing settings on LCD screen.
- Supports setting offset.
- Alarm and lighting linkage when door of the signal controller is opened or closed.
- Gives out light when door of the signal controller is opened or closed.
- Data can be saved in case of power failure.
- Update through network, USB, or TF card.
- Mains power surge protection and network surge protection.

Scene

This traffic signal controller is ideal for various intersections for road signal control and coordination (no more than 36 channels).

Technical Specification

|                     |                                                                                                                                                                      |
|---------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function            |                                                                                                                                                                      |
| Display Screen      | LCD                                                                                                                                                                  |
| Flasher             | Standard hardware flasher, independent on program control                                                                                                            |
| Flashing Yellow     | Flashing yellow during failure                                                                                                                                       |
| Channel             | 3 output boards, supporting 36 channels                                                                                                                              |
| Types of Phases     | 16 parent phases and 16 overlap phases. Supports repeat running of parent phase, meeting requirements of repeat timing in a cycle and independent parameter settings |
| Signal Group Output | 12 groups                                                                                                                                                            |
| Cycle Scheme        | Up to 54 cycle schemes                                                                                                                                               |
| Multi-period Timing | Up to 112 daily schemes, 48 pretimed periods, 30 weekly schemes, 30 daily dispatch schemes, and 30 special dispatch schemes                                          |
| Pedestrian Crossing | Input and output of up to 8 pedestrian pushbuttons                                                                                                                   |
| Actuated Control    | Up to 16-channel coils and 64-channel traffic enforcement cameras. Two detecting devices (include camera, coil, and more) can be used for detecting one lane         |

|                                     |                                                                                                                                                                                   |
|-------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Signal Control Mode                 | Manual control, pretimed control, cableless link control, actuated control, pedestrian crossing coordination control                                                              |
| Manual Control                      | Manual control and remote control through host computer or central platform to meet on-site requirements                                                                          |
| Change of Control Modes             | Natural change between manual control and automatic control (pretimed control, actuated control, and more)                                                                        |
| Cableless Link Control              | Yes. Coordination control is realized by GPS time synchronization and setting offset                                                                                              |
| Special Mode Control                | Yes                                                                                                                                                                               |
| Two-intersection Control            | Yes                                                                                                                                                                               |
| Temporary Scheme                    | Supports configuring or clearing temporary schemes through platform                                                                                                               |
| Waiting Area                        | Yes                                                                                                                                                                               |
| Default Light Color                 | Default light colors include all red, flashing yellow, light off, and red flashing. Default light color displays when no phase is running in a scheme or no channel is configured |
| Special Status                      | Supports special status control of traffic lights, such as all red, flashing yellow, light off, and red flashing                                                                  |
| Count down                          | Self-learning, pulse, and RS-485 communication countdown timers. Supports setting baud rate when using RS-485 communication countdown timer                                       |
| Timing                              | Network Sync; GPS; NTP; Manual Time Adjustment                                                                                                                                    |
| Hot Standby of Main Control         | Yes                                                                                                                                                                               |
| Phase                               | Separately set parameters of phase for cycle schemes and repeated phase. Each cycle scheme can be set with different phase parameters                                             |
| Signal Control Duration             | Adjustable                                                                                                                                                                        |
| Auto Phase Timing                   | When adjusting a cycle, set the total cycle length, and the phases will be timed automatically according to the split (the ratio of phase time and cycle length in a cycle)       |
| Failure Detection                   | Degradation mechanism in case of green conflict and light fault; independent hardware yellow flashing control; fault information upload and search                                |
| Access Control Monitoring           | Supports door open/close monitoring and reporting                                                                                                                                 |
| Network Control                     | Communicates with host computer or central platform through network; supports setting temporary scheme and special tasks on platform                                              |
| Information Security                | Identity authentication, control order verification, update verification of operation parameters, and broadcast storm protection                                                  |
| Parameters Configuration            | Supports setting control parameters on PC client and remote server                                                                                                                |
| Update                              | Network upgrade, USB/TF card upgrade                                                                                                                                              |
| Lighting                            | Yes, supports door open/close and lighting linkage                                                                                                                                |
| Voltage Monitoring                  | Monitoring and display of input voltage, input current, and overall power consumption                                                                                             |
| Auto Maintenance                    | yes                                                                                                                                                                               |
| Temperature and Humidity Monitoring | Reports temperature and humidity to platform                                                                                                                                      |
| Low Voltage Downgrade               | Yes                                                                                                                                                                               |
| Startup Sequence                    | Adjustable                                                                                                                                                                        |
| Port                                |                                                                                                                                                                                   |
| Control Switch                      | 1 main power switch, 1 controller switch, 1 signal light control switch, 1 flasher switch, and 1 lighting switch                                                                  |

# Traffic Signal Controller | DHI-ITRTSC-036B-HS-YKQ

|              |                                                                                                           |
|--------------|-----------------------------------------------------------------------------------------------------------|
| Power Input  | 1                                                                                                         |
| Network Port | 3 RJ-45 10/100 Mbps Ethernet ports: 1 on the main control board, and 2 on the communication control board |
| RS-232       | 8                                                                                                         |
| RS-485       | 4                                                                                                         |
| USB          | 2                                                                                                         |
| TF Card      | 2                                                                                                         |
| GPS          | 2                                                                                                         |
| Alarm Input  | 14 (pedestrian pushbutton input port included)                                                            |
| Alarm Output | 10 (pedestrian pushbutton output port included)                                                           |

## General

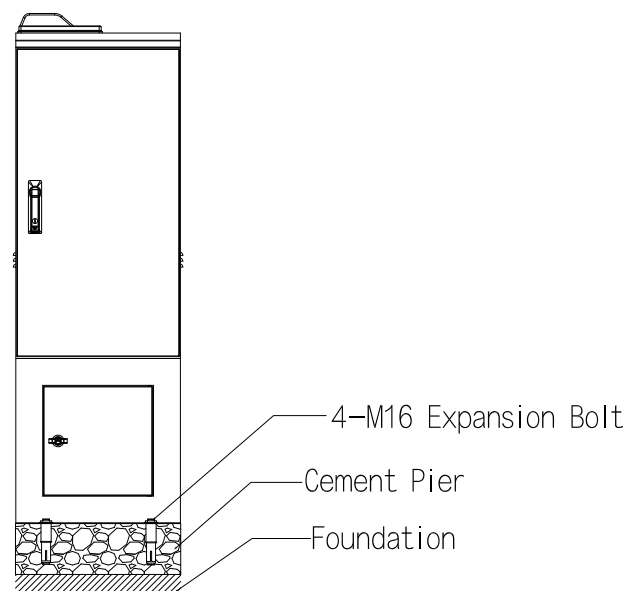
|                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|-----------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Power Supply          | 220 VAC ± 20%, 50 Hz ± 2 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Insulation            | Insulation resistance ≥10 MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Voltage Withstanding  | 1500 VAC, 50 Hz (1500 VAC, 50 Hz voltage is applied between the power electrode or other conductive circuits connected to the power electrode and easily accessible parts such as cabinets and installation casing)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Power Consumption     | ≤60 W (no load)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Drive Power           | ≤550 W                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Operating Temperature | −40 °C to +80 °C (−40 °F to +176 °F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Operating Humidity    | 10%–95% (RH), non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Protection            | IP54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Anti-corrosion Level  | Moderate Protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Protective Features   | Mains lightning protection; network lightning protection; electromagnetic immunity (no electrical failure in electromagnetic disturbance environments such as electrostatic discharge, fast electrical transient bursts, surges, and short-term voltage interruptions); waterproof (passed rain test. The signal controller works normally during and after the test, and there is no water seepage or accumulation inside the signal controller); dustproof (during and after the dust test, the signal controller works normally, and there is no large amount of dust inside the signal controller); corrosion (the signal controller works normally after the salt spraying test, and there is no serious corrosion of metal components such as the signal controller casing and internal rack); passed vibration test and steel ball impact test |
| Product Dimensions    | 450.0 mm × 300.0 mm × 1,348.2 mm (17.72" × 11.81" × 53.08") (L × W × H), without antenna cover;<br>450.0 mm × 300.0 mm × 1,388.5 mm (17.72" × 11.81" × 54.67") (L × W × H), with antenna cover                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Packaging Dimensions  | 710.0 mm × 570.0 mm × 1,650.0 mm (27.95" × 22.44" × 64.96")                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Net Weight            | 66.0 kg (145.51 lb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Gross Weight          | 73.0 kg (160.94 lb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Certifications        | CE-LVD: EN 62368-1:2014+A11:2017<br>CE-EMC: EN IEC 61000-6-1:2019; EN IEC 61000-6-3:2021<br>CE-RED: EN 301 489-1 V2.2.3; EN 301 489-3 V2.3.2; EN 301 489-19 V2.2.1; EN 300220-1 V3.1.1 433MHz; EN 300220-2 V3.1.1 433MHz; EN 303413 V1.2.1 GPS; EN IEC 62311:2020                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Installation          | Floor-standing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Remote control        | Included                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

|                           |                       |
|---------------------------|-----------------------|
| RF433M Modulation Type    | FSK                   |
| RF433M Frequency Range    | 433.05 MHz–434.79 MHz |
| RF433M Power Transmission | 10 mw (EIRP)          |

## Ordering Information

| Type                      | Model                  | Description                                                                 |
|---------------------------|------------------------|-----------------------------------------------------------------------------|
| Traffic Signal Controller | DHI-ITRTSC-036B-HS-YKQ | Traffic signal controller. Select one from two                              |
|                           | ITRTSC-036B-HS-YKQ     | Traffic signal controller. Select one from two                              |
| Accessories               | ZKB-036B               | Main control board. 2 included in packing list, and more optional           |
|                           | DYB-036B               | Power board. 1 included in packing list, and more optional                  |
|                           | DKB-036B               | Traffic signal control board. 3 included in packing list, and more optional |
|                           | TXB-036B               | Communication control board. 1 included in packing list, and more optional  |
|                           | CMSKB-036B             | LCD panel. 1 included in packing list, and more optional                    |
|                           | CLJCB-036B             | Vehicle detection board. 2 included in packing list, and more optional      |
|                           | XRJCB-036B             | Pedestrian detection board. 1 included in packing list, and more optional   |
|                           | HSQ-036B               | Flasher. 1 included in packing list, and more optional                      |
|                           | ZJB-036B               | Adapter board. 1 included in packing list, and more optional                |
|                           | YKQE-000B              | Remote control. 1 included in packing list, and more optional               |

## Installation



Dimensions (mm[inch])

