

# DHI-ITRTSC-M48B-HS

## Dahua Traffic Signal Controller



### Series 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.

- 1. Adopts international standard communication protocol NTCIP, providing interface that meets the standard.
- 2. Embedded control system, modular design, easy to operate and maintain.
- 3. Reliable circuit design and industrial-grade components ensure stable and reliable performance.
- 4. Real-time clock (RTC) ensures time accuracy. Supports manual time adjustment and GPS/NTP time synchronization.
- 5. All-weather outdoor casing, modular design of the entire device, flexible to adjust hardware configuration, providing ease of maintenance and replacement.
- 6. Works independently, or networks with multiple controllers for regional traffic control.
- 7. Failure flasher control: Supports software flasher and hardware flasher (only for models with flasher) independent on program control helps improve traffic safety.
- 8. Adjustable startup sequence.
- 9. Detects failures such as green conflict, lights off, red and green lights on, and designed with automatic degradation mechanism.
- 10. 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.
- 11. Smooth transition mechanism for signal control helps ensure traffic safety at intersections.
- 12. Connects to traffic enforcement cameras, coils, pedestrian pushbuttons and more to collect traffic flow data and offer integrated solution of traffic signal control.
- 13. Supports up to 64-channel traffic enforcement cameras.
- 14. Different phase parameters for different cycle schemes. Supports independent parameter setting of repeated phase.
- 15. Supports 16 parent phases and 16 overlap phases. Supports repeated running of parent phase. Up to 4 rings and 4 barriers.
- 16. Up to 112 daily schemes, 48 pretimed periods, 20 weekly dispatch schemes, 16 daily dispatch schemes, 16 special dispatch schemes, and 54 cycle schemes.
- 17. 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.
- 18. Supports configuring the waiting area to ensure that vehicles can pass an intersection safely and orderly.

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.

Scene

This traffic signal controller is ideal for various intersections for road signal control and coordination (no more than 48 channels).

Technical Specification

|                         |                                                                                                                                                                                                                                                                                                             |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Function                |                                                                                                                                                                                                                                                                                                             |
| Flasher                 | Standard hardware flasher, independent on program control                                                                                                                                                                                                                                                   |
| Flashing Yellow         | Flashing yellow during failure                                                                                                                                                                                                                                                                              |
| Channel                 | 8 output boards, supporting 48 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     | 16 groups                                                                                                                                                                                                                                                                                                   |
| Cycle Scheme            | Up to 54 cycle schemes                                                                                                                                                                                                                                                                                      |
| Multi-period Timing     | Up to 112 daily schemes, 48 pretimed periods, 20 weekly schemes, 16 daily dispatch schemes, and 16 special dispatch schemes                                                                                                                                                                                 |
| Pedestrian Crossing     | (standard) 0 pedestrian button detector inputs, (optional) 1 pedestrian detection board that supports 8 pedestrian button detector inputs, and (optional) 2 pedestrian detection boards that support 16 pedestrian button detector inputs. A total of 2 pedestrian and vehicle detector boards are optional |
| Coil                    | (standard) 0 coil inputs, (optional) 1 vehicle detection board that supports 8 coil inputs, and (optional) 2 vehicle detection boards that support 16 coil inputs. A total of 2 pedestrian and vehicle detector boards are optional                                                                         |
| Actuated Control        | Up to 64-channel traffic enforcement cameras. 2 detecting devices (include camera, coil, and more) can be used for detecting 1 lane                                                                                                                                                                         |
| Signal Control Mode     | Supports manual control, pre-timed control, cableless link control, human/vehicle actuated control, adaptive control, and special mode control.                                                                                                                                                             |
| Manual Control          | Side door manual control and remote control through side door or host computer 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 setting offset                                                                                                                                                                                                                                                     |
| Special Mode Control    | Supports flashing yellow, all red, and light off control                                                                                                                                                                                                                                                    |

|                           |                                                                                                                                                                                              |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temporary Scheme          | Supports configuring or clearing temporary schemes through platform                                                                                                                          |
| Waiting Area              | Yes                                                                                                                                                                                          |
| Default Light Color       | Default light colors include all red, flashing yellow, solid yellow, light off, and solid red. 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, solid yellow, light off, and solid red                                                                  |
| Count down                | Self-learning, pulse, and RS-485 communication countdown timers. Supports setting baud rate when using RS-485 communication countdown timer                                                  |
| Timing                    | Manual Time Adjustment;Network Sync;GPS;NTP                                                                                                                                                  |
| 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                                                                                                                                           |
| Auto Maintenance          | Yes                                                                                                                                                                                          |

Port

|                       |                                                                                                                |
|-----------------------|----------------------------------------------------------------------------------------------------------------|
| Control Switch        | 1 main power switch, 1 flasher switch, 1 signal light control switch, 1 controller switch, and 1 socket switch |
| Power Input           | 1                                                                                                              |
| PDU Output            | 1                                                                                                              |
| Network Port          | 6 RJ-45 10/100 Mbps Ethernet ports: 1 on the network lightning surge protector, and 5 on the switch            |
| RS-232                | 6                                                                                                              |
| RS-485                | 4                                                                                                              |
| USB                   | 1                                                                                                              |
| TF Card               | 1                                                                                                              |
| Positioning Interface | 1, GPS antenna included                                                                                        |
| Alarm Input           | 22 (16 pedestrian pushbutton input ports and 6 weak electricity terminal input ports )                         |

|                           |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Output              | 18 (16 pedestrian pushbutton output ports and 2 weak electricity terminal output ports )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| <b>General</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Power Supply              | 100–240 VAC;50 Hz/60 Hz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Insulation                | Insulation resistance ≥10 MΩ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Voltage Withstanding      | 1500 VAC, 50/60 Hz (1500 VAC, 50/60 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 +70 °C (–40 °F to +158 °F)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Operating Humidity        | 10%–95% (RH), non-condensing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Protection                | IP54                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Anti-corrosion Level      | Basic Protection<br>*The products are designed for general use and are applicable even in areas with no specific requirements for anti-corrosion 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        | 604.4 mm × 600.0 mm × 1397.7 mm (23.8" × 23.62" × 55.03") (L × W × H), without GPS antenna 604.4 mm × 600.0 mm × 1397.7 mm (23.91" × 23.62" × 40.66") (L × W × H), with GPS antenna                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Packaging Dimensions      | 773.0 mm × 747.0 mm × 1860.0 mm (30.43" × 29.41" × 73.23") (L × W × H)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Net Weight                | 100.0 kg (220.47 lb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Gross Weight              | 120.0 kg (264.56 lb)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Installation              | Floor-standing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Remote control            | Included                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| RF433M Modulation Type    | FSK                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| RF433M Frequency Range    | 433.05 MHz–434.79 MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| RF433M Power Transmission | 10 mw ( ERP )                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## Ordering Information

| Type                      | Model                | Description                                             |
|---------------------------|----------------------|---------------------------------------------------------|
| Traffic Signal Controller | DHI-ITRTSC-M48B-HS   | Dahua Traffic Signal Controller                         |
| Accessories (Optional)    | ZZM10/PDU(8 USA 250) | 8 outlet rackmount power strip                          |
|                           | DH-IPC-HFW71242H-Z-X | 12MP IR Bullet WizMind Network Camera                   |
|                           | DHI-ITC431-SU1F-FIR  | 4MP Smart Vehicle Detector                              |
|                           | DHI-ITC431-RW4F      | Dahua 4MP All-in-One Enforcement Camera                 |
|                           | ITRTSC-MB-HSQ        | Flasher                                                 |
|                           | ITRTSC-MB-RF         | RF board                                                |
|                           | ITRTSC-MB-YKQ        | Remote Control                                          |
|                           | ITRTSC-MB-DYB        | Power Board                                             |
|                           | ITRTSC-MB-XRJCB      | Pedestrian Detection Board                              |
|                           | ITRTSC-MB-ZKB        | Main Control Board                                      |
|                           | ITRTSC-MB-JXB        | Wiring Board (with relay)                               |
|                           | ITRTSC-MB-CMSKB      | Manual Control Panel                                    |
|                           | DH-WM4720-OW         | Industrial 4G Router                                    |
|                           | ITRTSC-MB-DKB        | Traffic Signal Control Board                            |
|                           | ITRTSC-MB-CLJCB      | Vehicle Detection Board                                 |
|                           | ITRTSC-MB-TXB        | Communication Board                                     |
|                           | CHS4212-8GT-110      | 12-Port Managed Hardened Gigabit Switch with 8-Port PoE |

## Accessories

Optional:



ZZM10/PDU(8 USA 250)  
8 outlet rackmount power strip



DH-IPC-HFW71242H-Z-X  
12MP IR Bullet WizMind Network Camera



DHI-ITC431-SU1F-FIR  
4MP Smart Vehicle Detector



DHI-ITC431-RW4F  
Dahua 4MP All-in-One Enforcement Camera



ITRTSC-MB-HSQ  
Flasher



ITRTSC-MB-RF  
RF board

Optional:



ITRTSC-MB-YKQ  
Remote Control



ITRTSC-MB-DYB  
Power Board



ITRTSC-MB-XRJCB  
Pedestrian Detection  
Board



ITRTSC-MB-ZKB  
Main Control Board



ITRTSC-MB-JXB  
Wiring Board (with relay)



ITRTSC-MB-CMSKB  
Manual Control Panel



DH-WM4720-OW  
Industrial 4G Router



ITRTSC-MB-DKB  
Traffic Signal Control  
Board



ITRTSC-MB-CLJCB  
Vehicle Detection Board



ITRTSC-MB-TXB  
Communication Board



CHS4212-8GT-110  
12-Port Managed  
Hardened Gigabit Switch  
with 8-Port PoE

Dimensions (mm[inch])

