

# DHI-ITRTSC-036B

## Traffic Signal Controller



### System Overview

This intelligent traffic signal controller controls the coordination of traffic signals at an intersection and makes traffic signals arranged properly. It uses the latest optimization algorithm of signal control, and supports traffic flow control and multiple control strategies based on road network.

Supports control of multiple intersections and various control modes: Central control, cableless linking control, actuated control, pretimed control, manual control, yellow flashing, and light off, suitable for vehicular and pedestrian movement control of various intersections.

Connects to traffic enforcement cameras, coils, central control platform, and more to offer you an integrated solution of traffic signal control.

Adopts multi-channel fault detection and modular design to monitor the voltage and current of each output channel in real time, ensuring improved reliability and intelligence in respect of fault detection.

Power-off protection functions for safe device running; intersections are controlled in a coordinated manner, and time information and control parameters will not be lost after an unexpected power-off.

The use of solid-state relay driver circuit reduces the wear at non-contact points and extends the service life of the device.

Attractive appearance; simple structure and reasonable layout provide ease of operation; high stability and reliability, low power consumption, and long service life make this controller distinguished from the others.

### Functions

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.

- Supports configuring start sequence.
- Detection and report of temperature and humidity.
- Display and control through LCD screen.
- Supports two-intersection control, waiting area configuration and display, and more.
- Supports repeated running of phase, and different phase parameters for different cycle schemes can be separately configured.
- Monitoring and display of input voltage, input current, and overall power consumption. Supports low voltage downgrade.
- Reversible lane control, suitable for tidal lanes and reversible lanes.
- Supports configuring default light color and special status, ideal for road that cannot enter within defined time and roads requiring slow passing.
- Connects to traffic enforcement cameras, coils, pedestrian pushbuttons and more to collect traffic flow data and offer integrated solution of traffic signal control.
- Cableless linking control.
- Update through network, USB, or TF card; alarm and lighting linkage when door of the signal controller is opened or closed.
- In actuated control, the controller can stop timing different barriers (used for separating the rings) at the same time.

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. Hot standby of main control board.
9. Supports temperature and humidity reporting.
10. Supports low voltage downgrade.
11. Adjustable startup sequence.
12. Detects failures such as green conflict, lights off, red and green lights on, and designed with automatic degradation mechanism.
13. 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.
14. Smooth transition mechanism for signal control helps ensure traffic safety at intersections.

15. Connects to traffic enforcement cameras, coils, pedestrian pushbuttons and more to collect traffic flow data and offer integrated solution of traffic signal control.
16. Supports up to 64-channel traffic enforcement cameras and 16-channel coils.
17. Different phase parameters for different cycle schemes. Supports independent parameter setting of repeated phase.
18. Supports 16 parent phases and 16 overlap phases. Supports repeated running of parent phase. Up to 4 rings and 4 barriers.
19. Up to 112 daily schemes, 48 pretimed periods, 30 weekly dispatch schemes, 30 daily dispatch schemes, 30 special dispatch schemes, and 54 cycle schemes.
20. 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.
21. Supports configuring the waiting area to ensure that vehicles can pass an intersection safely and orderly.
22. Self-learning, pulse, and RS-485 communication countdown timers are available. Supports up to 32-channel RS-485 communication countdown timer.
23. Network storm protection function ensures the normal operation of the device under abnormal network conditions.
24. Supports configuration through platform and DSS ASCS configuration tool, providing ease of use.
25. Supports configuring temporary scheme and special tasks through platform to allow quick response to emergency road conditions.
26. Outputs signals of traffic lights to camera through network, supporting the camera to capture traffic violations.
27. Supports platform central control by sending data of traffic flow statistics, traffic saturation and lane occupancy to the platform.
28. Comprehensive fault diagnosis and log storage allow convenient fault diagnosis.
29. Supports exporting and importing defined schemes for backup.
30. Supports independent control of two intersections.
31. Supports control of uncoordinated pedestrian crossing request.
32. Manual timing settings on LCD screen.
33. Supports setting offset.
34. Alarm and lighting linkage when door of the signal controller is opened or closed.
35. Gives out light when door of the signal controller is opened or closed.
36. Data can be saved in case of power failure.
37. Update through network, USB, or TF card.
38. Mains power surge protection and network surge protection.

## Technical Specification

### Performance

LCD	LCD screen: Supports displaying time, phase direction, phase number, phase countdown, phase total time; searching for fault and software information; configuring cycle scheme, control mode, time and date, and network
Flasher	Standard hardware flasher, independent on program control (only for models with flasher)
Channel	3 output boards, supporting 36 channels
Phase	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	12 groups
Cycle Scheme	Up to 54 cycle schemes
Pretimed Control	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
Signal Control Mode	Manual control, pretimed control, cableless link control, actuated control, pedestrian crossing coordination control
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
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 Linking 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 Configuration	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, yellow flashing, light off, and red flashing
Countdown Timer	Self-learning, pulse, and RS-485 communication countdown timers. Supports setting baud rate when using RS-485 communication countdown timer
Time Synchronization	NTP, GPS, network sync, manual time adjustment
Hot Standby of Main Control Board	Yes
Phase Parameters	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
Door Monitoring	Monitors door of the controller, and report door status (opened or closed) to platform
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
Parameter Setting	Supports setting control parameters on PC client and remote server
Upgrade	Network upgrade, USB/TF card upgrade
Lighting	Gives out light when door of the signal controller is opened or closed
Voltage Monitoring	Monitors input voltage
Temperature and Humidity Monitoring	Yes
Low Voltage Downgrade	Reports temperature and humidity to platform
Startup Sequence	Yes

#### Port

Control Switch	1 main power switch, 1 controller switch, 1 signal light control switch, 1 flasher switch (only for models with flasher), 1 socket switch, 1 three-pin socket, and 1 lighting switch
Power Input	1
Network	3 RJ45 10/100M Ethernet ports: 1 on the main control board, and 2 on the communications 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	220V AC±30%/110V AC±20%, 50 Hz±2 Hz
Insulation Resistance	≥10MΩ
Voltage Resistance	1500V AC, 50Hz (1500V AC, 50Hz 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)
Overall Power Consumption	≤60W (no load)
Drive Power	≤550W
Operating Temperature	-40°C to +80°C (-40°F to +176°F)
Operating Humidity	10%–95% (no condensation)

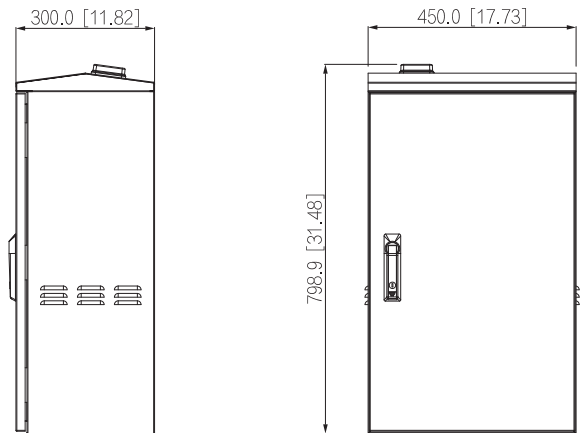
Protection Grade	IP54
Protection	Mains lightning protection; network lightning protection; electromagnetic immunity (no electrical failure in electromagnetic disturbance environments such as electrostatic discharge, fast electrical transient bursts, surges, and short-term voltage interruptions); waterproof (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
Dimensions	Without antenna cover: 450.0 mm × 300.0 mm × 780.0 mm (17.73" × 11.82" × 30.71") (L × W × H) With antenna cover: 450.0 mm × 300.0 mm × 789.9 mm (17.73" × 11.82" × 31.48") (L × W × H)
Net Weight	50.0 kg (110.23 lb)
Gross Weight	65.0 kg (143.30 lb)
Certification	NTCIP compliance
Installation	Floor-standing

#### Ordering Information

Type	Part Number	Description
Traffic Signal Controller	DHI-ITRTSC-036B-HS	Traffic signal controller. Select one from eight
	DHI-ITRTSC-036B	
	ITRTSC-036B-HS	
	ITRTSC-036B	
	DHI-ITRTSC-036B-HS-AC110	
	DHI-ITRTSC-036B-AC110	
	ITRTSC-036B-HS-AC110	
	ITRTSC-036B-AC110	
Accessories, Tools, and Platform	CMSKB-036B	LCD panel. 1 included in packing list, and more optional
	ZKB-036B	Main control board. 2 included in packing list, 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 (only available for models with 220V AC power supply)
	DKB-036B-AC110	Traffic signal control board. 3 included in packing list, and more optional (only available for models with 110V AC power supply)

TXB-036B	Communication control board. 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
ConfigTool	Network upgrade tool
DSS_ASCS_ConfigTool	Configuration tool
DSS-T9170	Traffic signal control platform

**Dimensions (mm[inch])**



**Installation**

