

DHI-ITRTSC-072B-HS

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.

Scene

Designed to improve traffic safety, the controller is suitable for locations with heavy traffic and strict security requirements such as city intersections, highway entrances and exits, pedestrian crosswalks, construction sites, the areas around schools and communities, and busy commercial areas.

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.

- Built with a modular design, it is easy to configure, operate and maintain.
- Stable and reliable, it has a standby main control board and power-off protection.
- Supports temperature and humidity reporting, access control, and electricity meter.
- Supports configuring start sequence. Smooth transition mechanism for signal control helps ensure traffic safety at intersections.
- Detects failures such as green conflict, lights off, red and green lights on, and designed with automatic degradation mechanism.
- Offers multiple functions to control traffic lights such as manual control, coordination of all the traffic lights for emergency vehicles, and changing the light to its next status. It can also make traffic lights flash yellow or turn off, and trigger all the traffic lights to turn red.
- Supports configuring special tasks through DSS ASCS client and configuration tool.
- Communicates with various front-end devices and outputs traffic light signals to cameras through the network. It also triggers cameras to take snapshots of traffic violations.
- Supports platform central control by sending data of traffic flow statistics, traffic saturation and lane occupancy to the platform.
- Network storm protection function ensures the normal operation of the device under abnormal network conditions.

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.

Technical Specification

Function

Signal Switch	GB-14886
Display Screen	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
Flashing Yellow	Flashing yellow during failure
Channel	6 output boards, supporting 72 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; Separately set parameters of phase for cycle schemes and repeated phase. Each cycle scheme can be set with different phase parameters
Signal Group Output	24 groups of independent signal output
Cycle Scheme	Up to 54 cycle schemes
Multi-period Timing	Up to 112 daily schemes, 48 pretimed periods, 20 weekly schemes, 30 daily dispatch schemes, and 30 special dispatch schemes
Pedestrian Crossing	Input of up to 8 pedestrian pushbuttons
Actuated Control	Up to 16-channel coils and 64-channel traffic enforcement cameras. Two detecting devices can be used for detecting one lane
Signal Control Mode	Manual control, pretimed control, cableless linking control, actuated control, adaptive control, and pedestrian crossing coordination control
Manual Control	Manual control through LCD screen, wireless remote control, and remote control through host computer to meet on-site requirements
Change of Control Modes	Switches between manual control and automatic control, meeting minimum safety time and smooth signal switch
Cableless Link Control	Yes. Coordination control is realized by GPS time synchronization and setting offset
Special Mode Control	Supports special mode control
Two-intersection Control	Supports control of two intersections
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, yellow flashing, 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
Network Status Monitoring	NTP, GPS, network sync, manual time adjustment
Hot Standby of Main Control	Yes
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; fault information upload and search
Access Control Monitoring	Supports door open/close monitoring and reporting
Network Control	Communicates with host computer through network; supports setting temporary scheme and special tasks
Information Security	Supports 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	Supports network upgrade, USB/TF card upgrade
Lighting	Support lighting (includes a port for the light inside the cabinet)
Voltage Monitoring	Monitoring and display of input voltage, input current, and overall power consumption
Auto Maintenance	yes
Temperature and Humidity Monitoring	Detects and reports temperature and humidity
Low Voltage Downgrade	Supports low voltage downgrade
Startup Sequence	Configures start sequence

Port

Control Switch	1 main power switch and leakage protection, 1 controller switch, 1 signal light control switch, 1 flasher switch, 1 socket switch with a reserved port
Power Input	1 power input
Network Port	Three 10/100M Ethernet ports (RJ-45): One electrical port on main control board, and two electrical ports on communication board
RS-232	4
RS-485	4 ports, 2 are dedicated for countdown timers
USB	2
TF Card	2
GPS	2
Alarm Input	14 (pedestrian pushbutton input port included)
Alarm Output	10 (pedestrian pushbutton output port included)

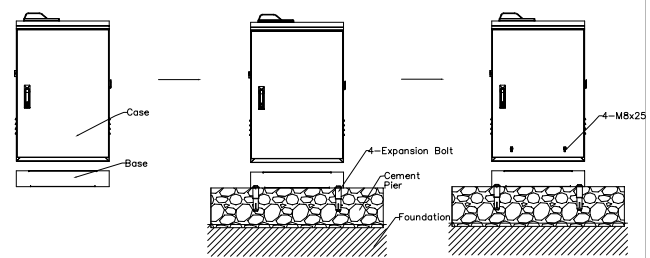
General

Power Supply	220 VAC $\pm$ 30%, 50 Hz $\pm$ 2%
Insulation	Insulation resistance $\geq$ 10 M Ω
Voltage Withstanding	1,500 VAC, 50 Hz (1,500 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	$\leq$ 60 W (no load)
Drive Power	$\leq$ 550 W
Operating Temperature	-40 °C to + 80°C (-40 °F to 176 °F)
Operating Humidity	10%–95% (RH), non-condensing

Protection	IP54; 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
Anti-corrosion Level	Moderate Protection
Product Dimensions	Without antenna cover: 670.0 mm × 531.0 mm × 1,338.3 mm (26.38" × 20.91" × 52.69") (L × W × H); With antenna cover: 670.0 mm × 531.0 mm × 1,383.0 mm (26.38" × 20.91" × 54.45") (L × W × H)
Packaging Dimensions	823.0 mm × 726.0 mm × 1,634.0 mm (32.40" × 28.58" × 64.33")
Net Weight	≤115.0 kg (253.53 lb)
Gross Weight	≤125.0 kg (275.58 lb)
Certifications	Meets GB/T 20999-2007, GB/T 20999-2017, and NTCIP protocols
Installation	Floor-standing cabinet
Remote control	Optional
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-072B-HS	Traffic signal controller. Select one from three
	ITRTSC-072B-HS	Traffic signal controller. Select one from three
	BJJCX-072B	Traffic signal controller. Select one from three
Accessories	ZKB-072B	Main control board. 2 included in packing list, and more optional
	DYB-072B	Power board. 1 included in packing list, and more optional
	DKB-072B	Traffic signal control board. 6 included in packing list, and more optional
	TXB-072B	Communication control board. 1 included in packing list, and more optional
	CMSJB-072B	LCD panel. 1 included in packing list, and more optional
	CLJCB-072B	Vehicle detection board. 2 included in packing list, and more optional
	XRJCB-072B	Pedestrian detection board. 1 included in packing list, and more optional
	HSQ-072B	Flasher. 1 included in packing list, and more optional
	ZJB-072B	Adapter board. 1 included in packing list, and more optional

Installation



Dimensions (mm [inch])

