



CH-J106 Centralized Loop Controller

User Manual



VERSION: CH-J106-02

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Introduction:

The CH-J106 Centralized Loop Controller is independently developed by our company. Aimed for Highway, Tunnel, industry lighting for Warehouse and Factory, Buildings and stations, etc., to control the power supply of lighting fixtures through a human-machine interface, to collect data and monitor the status of the lighting fixtures.

The management of traditional lighting fixtures in factories, warehouses, buildings, and stations mostly adopts special personnel manual control and special personnel inspection status, which not only takes up a lot of manpower and material resources, but also has problems such as inadequate management and untimely management. For example, special personnel are required to switch lights every day, Even if time-space equipment such as time controllers and theodolites are used, it still cannot solve multi-time management, abnormal weather operations such as cloudy days, accidents and other incidents, and equipment operations on site are still required. Another example: rigid control methods, lighting scenes, only relying on personnel inspections to find faulty equipment, and unable to provide managers with timely and reliable operating data. In response to these problems, our company has launched this lighting control equipment that integrates data collection, fault monitoring, data processing, local manual control, remote control, automatic operation by settings, theodolite, and sensor linkage.

The device has multiple interfaces: Reserved industrial bus RS-485 and RS-232, interaction with an Industrial Touch Screen, Ethernet Port, Lighting Control connector, communication with sub-control boxes, and sensors (such as Illumination sensor, etc.) communication interface. The main function of the device is to link and expand the control module through many interfaces, collect, feedback data, and issue control command and other centralized management and control functions.

The main communication interface communication performance are as follows:

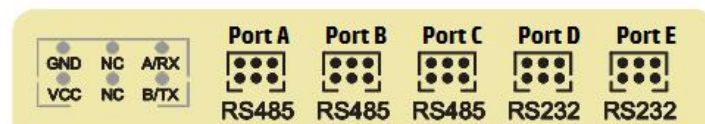
1. The communication distance of the RS-485 industrial bus can reach 2 kilometers without relay, and the actual measurement in the tunnel can reach 1 kilometer; 7-level gateways can be set up in the scene, and the longest distance can be up to 7 kilometers per gateway. km, the device capacity in the gateway reaches 255;
2. LoRa communication interface, the communication distance can reach 2 kilometers without relay, the actual measurement can reach 1 km, and the communication distance can reach 10 kilometers with relay.

1: Parameters

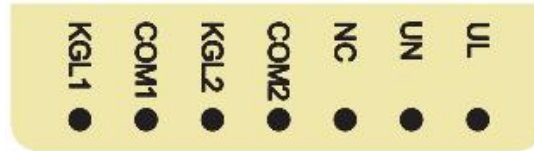
Item	Rating
Working Voltage	AC 220V±20% or DC 12V
Working Frequency	50Hz
Static Power	35W
485 Communication Port	3 Loops
Control Current Per Loop (Resistive Load)	30A (MAX)
Insulation	4KV
Power Surge (L-N L-PE N-PE)	±4KV
Normal Working Temperature	-25℃ ~ + 60℃
Limited Working Temperature	-40℃ ~ + 65℃
Storage and Transportation Temp. Range	-45℃ ~ + 65℃
Storage and Working Humidity Range	≤85%

2: Functions Specifications

2.1 Terminal Description

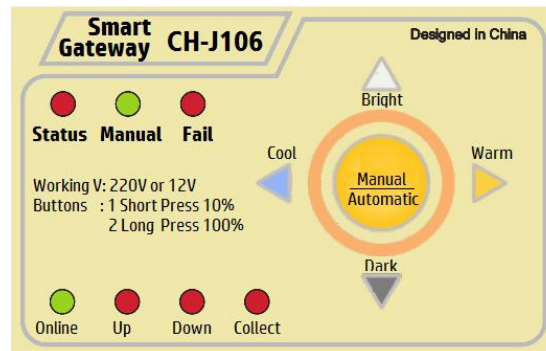


N/M	Marks	Function
01	Port A	RS485-1 Communication Interface
02	Port B	RS485-2 Communication Interface
03	Port C	RS485-3 Communication Interface
04	Port D	RS232-2 Communication Interface
05	Port E	RS232-1 Communication Interface



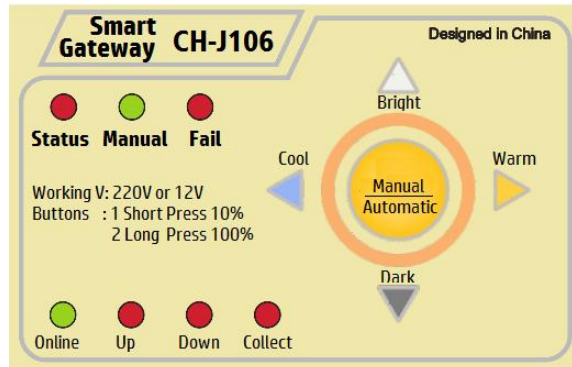
N/M	Marks	Function
01	KGL1	Digital Signal Input 1 Port
02	COM1	Digital Signal Input - Common
03	KGL2	Digital Signal Input 2 Port
04	COM2	Digital Signal Input - Common
05	NC	Standby
06	UN	220V Input N
07	UL	220V Input L

2.2 Indicator



Indicators N/M	Name	Functions Specification
01	Status	Device is working normally Always flashing, Frequency - 1S
02	Manual	Manual/Automatic switching indicator Always on : Manual Always off: Automatic
03	Warning	Light On - Device Failure Always on : Device Failure, Always off: Device Normal
04	Online	Online Indicate Flash Frequency 1S : Device Connected Server Flash Frequency 0.5S: Device is dialing up Always on: Device network module is abnormal
05	Up	Uplink send indicator Lights up for 1S: sending uplink data Always off: NO Data sent
06	Down	Downlink send Indicator Light on for 1S: send downlink collected data Always off: NO data is sent
07	Collect	Receive Indicator Lights up for 1S: Terminal data is received Always off: NOT received data

2.3 Press Buttons Specification



2.3.1 Manual/Automatic

In the Manual state, the operation of the dimming button on the panel is valid, otherwise the operation is invalid.

Press the "Manual/Automatic" button to realize the manual/automatic state conversion, that is manual state at this time, press it again to enter the automatic state.

When changing from manual state to automatic state, the device will automatically broadcast and issue the command to resume automatic operation.

2.3.2 Controlling Buttons

Indicators N/M	Name	Functions Specification
01	Bright	Send Dimming commands to all Terminals Short press for 1S: the Dimming value increases the brightness by 10% Press and hold for 5S: the Dimming value is directly adjusted to 100% brightness
02	Dark	Send dimming commands to all terminals Short press for 1S: the dimming value reduces the brightness by 10% Long press for 5S: the dimming value is directly adjusted to 0% brightness
03	Manual Automatic	The device switches to the automatic state Press 1 time: the device switches to manual state Press 2 times: the device switches to the automatic state
04	Cool	Send Color Temperature(CCT) adjustment commands to all terminals Short press for 1S: the dimming value decreases the warm white color temperature by 10% Long press for 5S: the dimming value is directly adjusted to 0% warm white color temperature

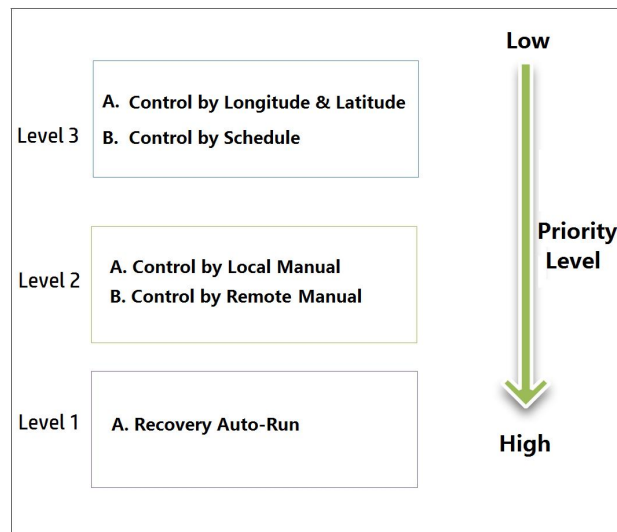
05	Warm	Send color temperature adjustment commands to all terminals Short press 1S: the dimming value increases the warm color temperature by 10% Long press for 5S: the dimming value is directly adjusted to 100% warm color temperature
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2.4 Lighting Control Functions

2.4.1 Control Priority Level

High priority or Same Level can change the state of low priority or same level, while low priority can not change the state of high priority.

The control mode corresponds to the following priorities.



2.4.1.1 Recovery Auto-Run Operating, Priority Level 1 (Highest Priority Level)

At this time, the state of priority Level 3 is executed regardless of the control state in which it was previously operated (the specific operation is performed according to the setting value at the time of installation).

The "Recovery automatic-Run" command can be issued by:

- a. The Server or the Client can remotely issue the "Recovery automatic-Run" command;
- b. Press the "Manual-Automatic" button on the device panel;
- c. Press the "Manual-Automatic" button on the display screen.

2.4.1.2 Local Manual Control, Priority Level 2

To change the illuminance of the lamps through the control buttons on the device panel; at this time, the lamps that execute Manual Commands, the control commands of priority 3 will not be executed.

2.4.1.3 Remote Manual Control, Priority Level 2

Remotely issue control commands through the server or client; at this time, the lamps that execute manual commands. The control state of priority 3 will not be executed.

2.4.1.4 Longitude and latitude control, Priority 3

The intelligent lighting centralized controller calculates the sunrise and sunset times through the set latitude and longitude values. The Digital Signal Switch Output Loop Circuit is disconnected at the sunrise time, and the Digital Signal Switch Output Loop Circuit is closed at the sunset time. The on-off time can be fine-tuned through the sunrise and sunset offset time, and the fine-tuning range is 30 minutes.

2.4.1.5 Schedule Control, Priority 3

Through the set 6-segment schedule, the brightness value of the lamps is regularly controlled.

2.5 Data Collection

The operating status and parameters of the controlling loop or a single luminaire can be collected remotely or locally. The gateway can connect to a variety of devices and collect data information (single lamp, loop, brightness, illuminance, traffic flow, energy meter, etc.)

2.6 Collection of electrical parameters

According to the requirements of the project scene, the device can be equipped with a variety of acquisition devices to detect the status information of the on-site loop; cooperate with the meter to collect; it can collect the parameter information of loop energy consumption, voltage, current, and power.

With the loop dimmer, the data of loop dimming power consumption, loop dimming voltage, loop output current and absorption current can be collected.

With single-phase loop controller, it can collect loop switch status, loop voltage, current, function and other parameter information

With the single lamp controller, it can collect real-time parameters such as single lamp status, voltage, current, power, etc.

2.7 Fault Protection and Reporting Function

When a fault occurs, the device reports the fault information to the server, and feeds it back to the management personnel through the server platform;

When a terminal fault is collected, the device reports the faulty terminal equipment information to the server, and feeds it back to the management personnel through the server platform.

2.8 Main Data Communication Channel:

2.8.1 RS-485 communication function

Through the RS-485 communication channel, data exchange and control command reception between the device and the man-machine interface device are realized.

The technical advantages are as follows:

A. The device capacity in the gateway is up to 255, and through cascading and relaying, the device capacity can reach 65535.

B. Strong anti-interference ability, differential mode communication mode, high fault tolerance with software, no need to use special RS-485 communication line, and reduce engineering costs under the premise of ensuring reliability.

2.8.2 RJ45 network communication function

The RJ45 network channel realizes data exchange with the server through the hardware TCP/IP protocol stack;

The technical advantages are as follows:

A. Using hardware TCP/IP protocol stack, high reliability;

B. The channel maintains a stable and reliable connection, and the software detects fault tolerance to ensure the real-time link transmission function;

2.8.3 Lora communication function (not standard)

Lora communication realizes data exchange between the main controller and the sub-controller through wireless Lora communication technology;

The technical advantages are as follows:

A. Low power consumption Lora signal transmission, long transmission distance and low power consumption;

B. Adopt self-organizing networking technology to realize self-routing networking;

2.9 Extended functions (non-standard)

2.9.1 Linkage function

The equipment can be linked with the equipment outside the lighting system such as cameras and conveyor belts; for example: when the camera starts, the lamps in the corresponding lighting area increase the brightness, fill the area with light, stop the camera and restore the original illuminance; another example: when the conveyor belt starts, the lighting area corresponding to the conveyor belt The brightness of the lamps and lanterns is increased, and the area is illuminated with supplementary light. When it stops, the minimum safe illumination is restored.

2.9.2 Control loop extension function

Control loops can be cascaded for multiple demand applications.

2.9.3 Channel extension function

Various communication channels can be expanded, Lora communication interface, PLC communication interface, RS485 communication interface;

3: Installation Dimension

The device can be installed on standard rails or fixed with sampling screws.