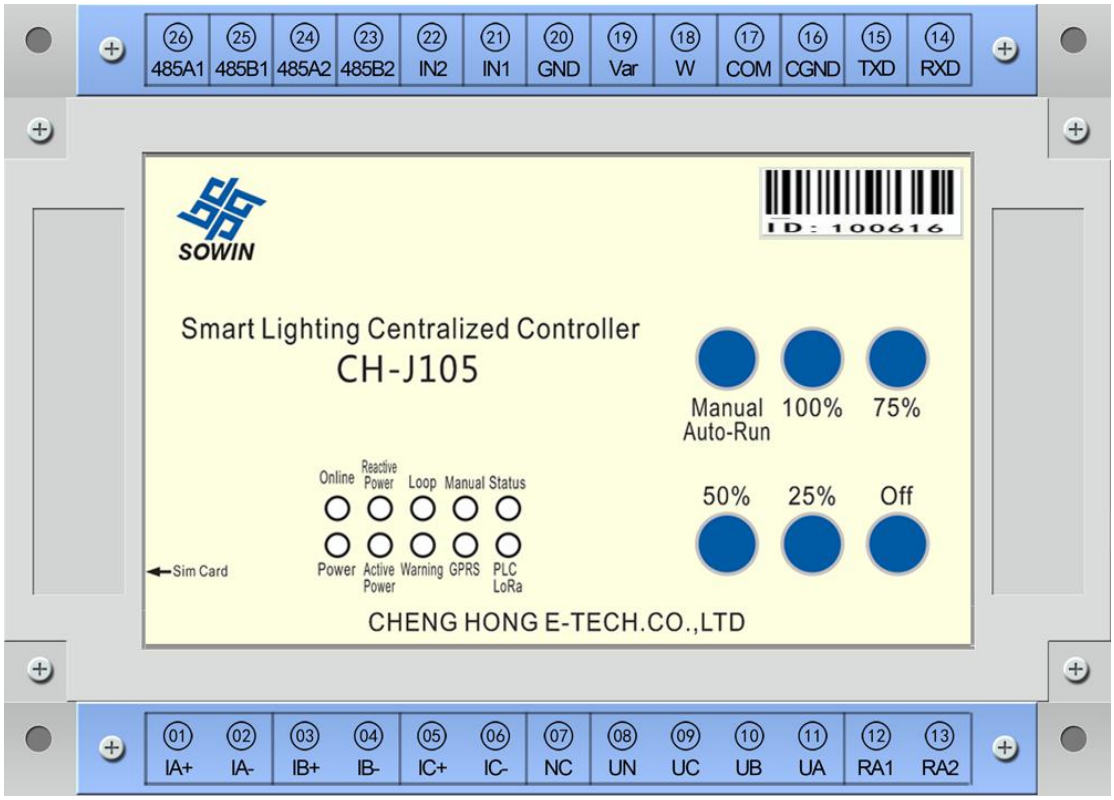
SMART LIGHTING CENTRALIZED CONTROLLER



TECHNICAL SPECIFICATION

VERSION：CH-J105-01

I.Product Description

CH-J105 Smart Lighting Management Centralized Controller is independently developed by our company,which is widely used in the Smart City Street Lighting Projects, Super-highway’s Tunnels and the High Bay Lighting System.,control lighting fixtures through the man-machine interface,data acquisition and Monitoring of lamps.

Although the Traditional lighting fixtures have widely used in the street lighting, tunnel and high buildings, but there are still a lots of problem exit there: Lifetime, Light Attenuation, Bad Factory Environments etc. which will lead to damage the lamps,moreover, dead plate controlling method, Lighting Scene, the fault points and failure lamps only be found by when the worker inspection there, it can not provide a reliable working data to the controllers on time. For these reasons, we offer this muti-functions smart lighting Centralized Controller: Electric Energy/Data acquisition, Fault Detect,Data Process, Remote Copying Control,Loop Power Control, Dimming,Auto-Running, Temperature Collecting, Sensor Data Acquisition etc.

The device has multiple interfaces, in addition to reserved Industrial Bus RS-485, RS-232, it is also equipped with Industrial Touch Screen Interactive Interface, Ethernet Communication Interface, GPRS Communication Interface, Lighting Control Interface (Power Line Carrier or LoRa Communication Channel) Communication Interface to the Loop Controller and Communication Interface with Sensors (such as Illuminance Sensors).The communication performance of the main communication interface is as follows: the communication distance of the RS-485 Industrial Bus can reach 2 km without Relay, and the actual measurement in the tunnel can reach 1 km.; A 7-level gateway can be set in the scene, and the maximum distance can reach 7 km according to one kilometer of the gateway of each level, and the capacity of the equipment in the gateway is up to 255 units; LoRa Communication Interface, the communication distance can reach 2 km without Relay, the measured distance can reach 1 km, and the communication distance can reach 10 km in the case of relay.

II. Electrical Parameter

1. Electrical Parameter

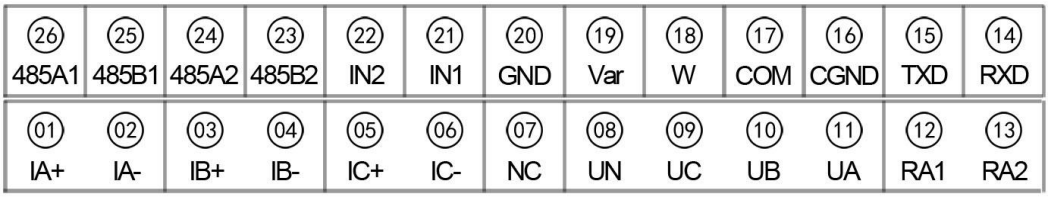
Item	Rating Range
Working Voltage	AC 220V±20%
Working Frequency	50Hz
Static Power Consume	<3W
Switching Output Over-current Capacity (resistive load)	8A（MAX）
Insulation withstand voltage (RS485 interface and power supply)	4KV
Surge Protection	±4KV

2. Environmental Parameter

Item	Rating Range
Working Temperature	-25℃～+60℃
Extreme Operating Temperature	-40℃~+65℃
Storage and Transport Tempt.	-45℃～65℃

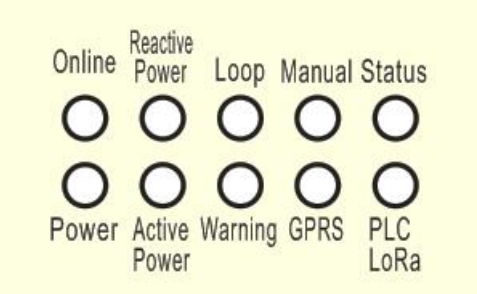
III: PRODUCT FUNCTIONS

1. Terminal Description



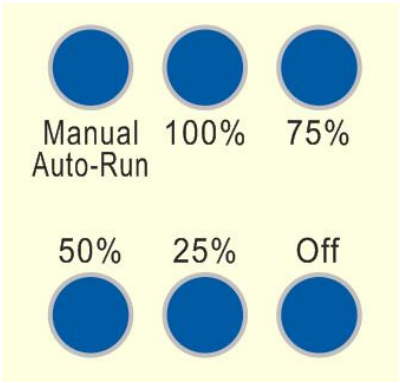
NO.	MARKS	功能说明
01	IA+	**A** Phase Current Sampling Interface +
02	IA-	**A** Phase Current Sampling Interface -
03	IB+	**B** Phase Current Sampling Interface +
04	IB-	**B** Phase Current Sampling Interface -
05	IC+	**C** Phase Current Sampling Interface +
06	IC-	**C** Phase Current Sampling Interface -
07	NC	Empty
08	UN	Power supply **N** Line
09	UC	Communication coupling **C** phase
10	UB	Communication coupling **B** phase
11	UA	Power supply/communication coupling **A** phase
12	RA1	Power Supply Status **Output** Detect Port --In
13	RA2	Power Supply Status **Output** Detect Port --In
14	RXD	RS232 Receiving Port
15	TXD	RS232 Sending Port
16	CGND	RS232 Common Port
17	COM	Power Pulse Common Port
18	W	Active energy pulse output
19	Var	Reactive energy pulse output
20	GND	Power Supply Status **Input** Detect Port - Common
21	IN1	Power Supply Status **Input** Detect Port - 1
22	IN2	Power Supply Status **Input** Detect Port - 2
23	485B2	RS485 Communication Port 2 B
24	485A2	RS485 Communication Port 2 A
25	485B1	RS485 Communication Port 1 B
26	485A1	RS485 Communication Port 1 A

2.Indicator description



No.	Name	Functions
01	Online	GPRS Online Indication
02	Reactive Power	Reactive Energy Pulse Output
03	Loop	Power Supply Output Status
04	Manual	Manual/Auto-Run Status
05	Status	Device is working- flashing 1/sec
06	Power	Device Power Supply
07	Active Power	Reactive Energy Pulse Output
08	Warning	Failure Indication
09	GPRS	GPRS Network port communication indication
10	PLC / LoRa	Power Line Carrier or LoRa Communication

3. Button Operation Instructions



1). **Manual /Auto Run**

Under Manual Status -The Dimming Button Operation on the panel is Effective, otherwise the operation is invalid.

Press the "Manual/Auto-Run" button to achieve manual / automatic state transition. That is to say, now it is Manual State, press again to enter the Auto-Run state.

When changing from Manual state to Automatic state, the equipment will automatically broadcast and issue Automatic Operation Recovery Command.

2). Controlling Button

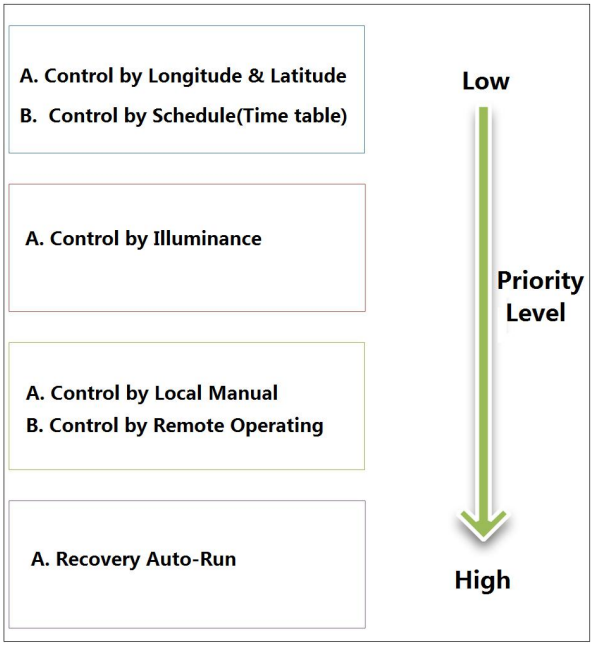
No.	Button	Function
01	100%	Send 100% dimming command to the selected loop
02	75%	Send 75% dimming command to the selected loop
03	50%	Send 50% dimming command to the selected loop
04	25%	Send 25% dimming command to the selected loop
05	Off	Send Off command to the selected Loop (0% dimming)

4. Lighting Controlling Functions

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

At this time, the state of priority Level 4 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).

a) The server or client remotely issues “Recovery Auto-Run” command.

b) Press the "Manual/Auto - Run" Button on the device panel

3). Local Manual Control, Priority Level 2

Change the illuminance of the lamp through the control button on the device panel; at this time, the control commands of priority 3 and priority 4 will not be executed if the manual command is executed.

4).Remote Operation Control, Priority Level 2

Remotely issue of control Commands through the Server or the Client; at this time, the Lighting that executes the Manual Command, the Priority Level 3 and Priority Level 4 control status will not be executed.

5). Illumination Control, Priority Level 3

Controls the Brightness values of all Fixtures according to preset rules by the received illuminance value.

6). Latitude &Longitude Control, Priority Level 4

By setting the Latitude and Longitude values, the Sunrise and Sunset times are calculated, Disconnect the Loop at the sunrise time, Closed the Loop at the sunset time . The On-Off time can be fine-tuned by the Sunrise and Sunset offset time, and the range of fine-tuned for 30 minutes.

7). Schedule Control, Priority Level 4

Control the Brightness Value of the Fixture through the set 6-Segment Schedule.

5. Data Collection Function

Remote or Local Acquisition of Loop Controllers and Lamps Operating Status and Parameters.

6. Electrical Parameter Acquisition (Optional)

1). Collection of Electricity Consumption

The device has a Built-in Three-Phase Energy Collection Module, which can collect the Energy Measurement Value of the Internal Module and Report it.

The Device can Collect the Energy Measurement Value of the Loop Controller and the Energy Meter and Report it.

2). Electrical Parameter Acquisition

The Built-in Three-Phase Energy Collection Module can collect the Voltage, Current, Active Power and Power Factor of the internal Module and Report it.

The Device can collect the Voltage, Current, Active Power and Power Factor of the Loop Controller, the Energy Meter and the Intelligent Lighting management Terminal, and Report it.

7. Fault Reporting Function

The Fault of the Device itself Occurs(AC Contactor Fault, Clock Fault, Communication Fault, etc.), and the Fault Information is automatically reported to the Server.

Collect the Information: such as Loop Controllers Fault and Light Controllers Fault, etc. (AC Contactor Faults, Clock Faults, Communication Faults, Lamp Faults, Temperature Faults, etc.)

8. Main Data Communication Channel Spec.

1). LoRa Wireless Communication

Through LoRa Wireless Communication Channel, the Data Exchange and Control Command Reception between the Device and the Man-Machine Interface Device are realized. The Technical advantages are as follows:

a) Adopting the latest International IoT(Internet of Things) LoRa Communication Technology, combined with AES128 Communication Encryption Technology and Self-Organizing Network Technology, the Communication Distance, Reliability and Security are greatly improved.
b) The Point-to-Point Communication Distance can reach 3,000m, and the measured average in the Power Plant is 1,000m.
c) In the case of Relay, measured 13,000m can be normal communication.

2). RS-485 Communication Function

Through RS-485 Communication Channel, the 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 255.

b). Strong Anti-Interference, Differential Mode Communication, and Software Fault Tolerance, no need to use Dedicated RS-485 Communication Line, reduce engineering cost under the premise of Ensuring Reliability

9. Extended Function (Optional)

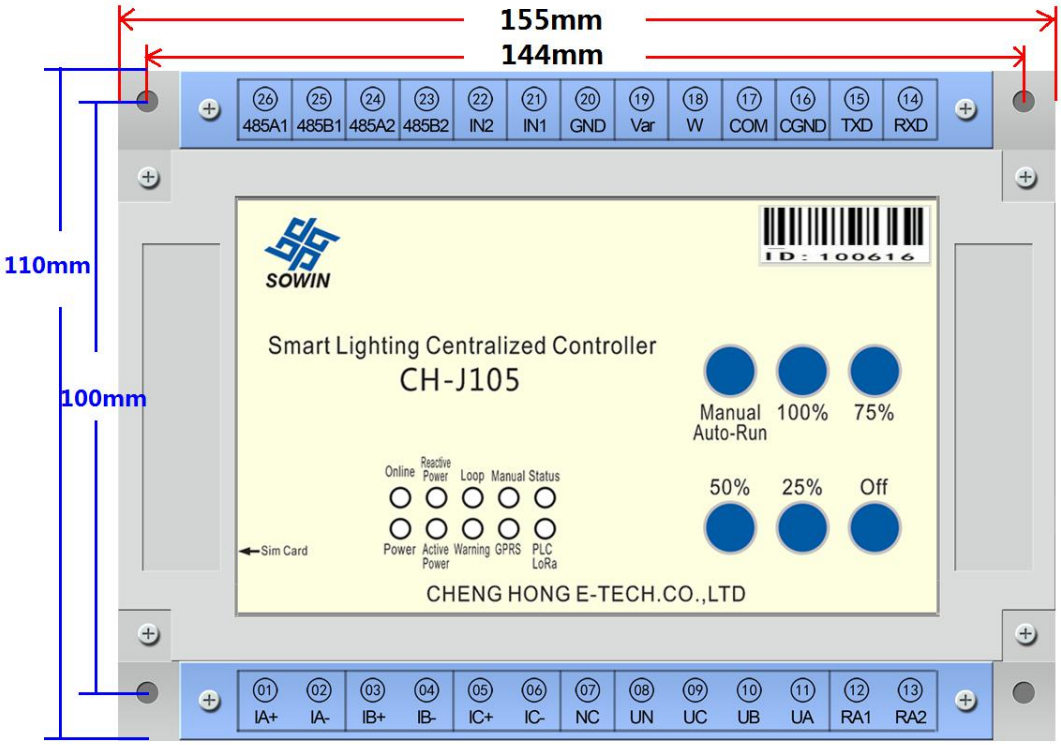
1). Linkage Function

The Device can be linked with Equipment such as Cameras and Conveyer Belt; For example, when the Camera is activated, the Brightness of the Corresponding Lighting Area is Raised lighting the whole area, to Restore the Original Illumination when the Camera Stop Shooting; Another example, when the Conveyor Belt start transmission, its corresponding lighting area is adjusted the brightness, illuminates the area, and restores the minimum safe illuminance when Stop Transmission.

2). **Dimming Loop Extension Function**

The Control Loop can be concatenated to realize the application of Multiple Requirements.

IV: INSTALLING DIMENSIONS



1. The equipment can be mounted on standard rails, but also can be fixed by sampling screws.
2. **Dimensions**：155mm*110mm*101mm ± 0.5mm

V: WIRING DIAGRAM