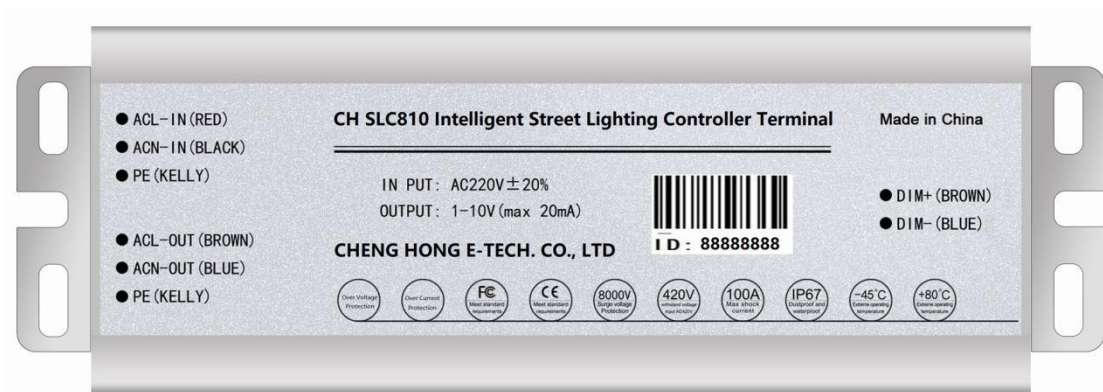


CH-SLC810 Smart Lighting Controller Terminal

(PLC Solution)



User Manual
Version: CH-810
CHENG HONG E-TECH. CO., LTD

I. Introduction

CH-SCL810 Smart Lighting Control Terminal is independently developed by our company, which is widely used in the Smart City Street Lighting Projects, Express highway Tunnels and the High Bay Lighting System etc., to control lighting fixtures through the Man-Machine Interface, Lamp Monitoring and Data acquisition.

Although the traditional lighting fixtures have widely used in the street lighting, tunnel and high buildings, but there are still a lots of problem exist there: Lifetime, Light Attenuation, Bad Factory Environments, etc., any of these 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 managers on time. For these reasons, we offer this muti-functions smart lighting management terminal: Data Acquisition, Fault Detect, Data Process, Remote Control, Dimming, Auto-Running, Tempt. Collecting, etc.

The Smart Controller Terminal adopt the most advanced and popular PLC communication Technology at present. Communication distance arrive 400m without any repeater; each single lamp controller is working both as a Node Equipment and also the Repeater, it can be 10,000m perfectly working with the repeaters along it.

II. Electrical Parameter

1. Electrical Parameter

Item		Rating Range
Working Voltage		AC 220V \pm 20%
Working Frequency		50Hz
Static power		<2W
Dimming Output Voltage		0~10V
Dimming Output Current		0~20mA
Insulation withstand voltage	L/N-PE	1.5KV
	L/N-485/DIM	3.5KV
Surge Protection (L-N L-PE N-PE)		\pm 8KV
Static Electricity		\pm 8KV

2. Environmental Parameter

Item	Rating Range
Working Temperature	-25°C ~ +60°C
Extreme Operating Temperature	-40°C ~ +70°C
Storage and Transport Tempt.	-45°C ~ +70°C
Storage and Working Humidity	≤85%

III. Functions

1. Wiring instructions

Wiring Instruction		
Item	Name	Functions
1	ACL-IN	AC 220V Input Live
2	ACN-IN	AC 220V Input Neutral
3	PE	GND
4	ACL-OUT	AC 220V Output Live
5	ACN-OUT	AC 220V Output Neutral
6	PE	GND
7	DIM1+	10V Anode Dimming Output, Max. Output 20mA
8	DIM1-	10V Anode Dimming Output, Max. Output 20mA

2. Dimming

The Terminal with 0~10V output, to control the Driver's Current to achieve expect brightness from the Fixtures. It includes two kinds of Dimming Method: Remote Control Dimming , and Auto-Run Dimming.

Remote Control Dimming: Remote Control by Manually-- send the Dimming Commands as required, the Controlling Terminal will keep its control status after receiving the command. To Prevent Manual Operator forget this operating which will lead to the lamp long time can not recover, the terminal controller will back to Auto-Run after 24 hours or when it is powered again. Or to Release that Status immediately by "Recover Auto-Operation" .

Automatic Control Dimming: the Terminal will control the lamps automatically by the setting Schedule with its Dimming Range very day.

3. Electrical Parameter Acquisition

Real Time Monitor the Power Line: Current, Voltage, Power etc. , and sending the Data by PLC to the Centralized Controller and Server.

4. Fault Report

1). Failure Driver or Fail LED chips will be reported to the Centralized Controller, Server and Man-machine Interface immediately once the Fixtures is detected with above malfunctions;

2). Failure Signal include: Fixture Failure, Driver and LED Chips Failure(optional), and Over-Temperature Warning(Optional);

3). Failure Fixture Judging Standard: When Dimming Range >10%, lamp power <5W (Determine the power value can be set as desired. For example the lamp original power is only 40W, 10% will only 4W);

4). Over Temperature Fault Judging Standard: when the Fixture' s tempt. Detect over 85 °C (Terminal itself will not over heating, with Max. 2W).

5. Auto Protection / Auto-Recover

After 5 years Continuous data statistics, the main failure reasons for the Dimming LED lamps are:

- A. Power Line Surge Energy Impact;
- B. Power Supply with Fluctuation Voltage;
- C. The neutral wire is disconnected on the transformer side.

To avoid above problems and better protection, we update the Protection-Circuit, Sensor-Circuit, and Smart-Judging Automatic Protection Program, with 8kV Surge Protection, the terminal will be fine working under 420VAC, and keep the terminal controller fine working when the The neutral wire is disconnected on the transformer side.

6. PLC ~ Power Line Communication

By PLC communication channel, the data exchange and control command reception between the Terminal Controller, Centralized Controller and Computer are realized, with strong advantage as following:

1): Adopting the latest international Internet of Things OFDM communication technology, With CSMA conflict detection avoidance mechanism and self-organizing network technology, communication distance, reliability and security are greatly improved.

2): Maximum Point to Point communication distance arrive 1,000m. Measured old power line average distance arrive 400m.

3): The measured communication distance arrived 10,000m when there is the Repeater along it.

7. Self-organizing network, Blind Repeater(No fixed routing)

Every Terminal will not only work as the Control Node, but also like Repeater Node, no need Extra equipment--they will Auto-organizing Network. The Repeat Node will automatically choose the best routing scheme, keep the system communication more convenience & reliable.

8. Extended Functions(Optional)

1) Temperature Linkage

Except to shut off the Driver's input power and extend the lamp lifetime, the management terminal will detect the lamp's real time temperature, auto-dimming the power range to cool down the fixture's temperature when it is found of over-temperature, and extend the lamps lifetime at last.

2). Light attenuation Compensation

The Lamps will become darkness(Light Attenuation) after long years working, the terminal controller will auto-adjusting illuminance according to the user's providing Light decay curve, to achieve Light Attenuation Compensation.

IV: Wiring Diagram & Dimensions

