

Explosion-proof LED Independent Emergency Control Unit

1106001 Series

Highlights & Features



- DC30–39V, 0.37A constant current emergency output, compatible with various explosion-proof luminaire specifications
- Explosion-proof glue-sealed design, safe and reliable
- Wide voltage input, adapts to harsh industrial environments
- Suitable for flammable and explosive hazardous environments
- Intelligent emergency switching, ensuring critical lighting
- High efficiency and energy saving, long-life design, 5-year warranty
- Suitable for Class I luminaire types

Safety Standards



Description

This is an independent emergency control device developed for explosion-proof LED luminaires. Adopting isolated topology circuit and digital control technology, it works with regular LED driving power supply and emergency battery to form luminaires for normal and emergency lighting. The output of regular LED power supply drives the light source through this emergency control device. Under mains power supply, the LED light source is powered by the regular driver while the independent emergency control device charges the battery. Once mains power fails, the device automatically switches to emergency mode within 0.3 seconds, boosting battery voltage to LED operating voltage to drive the LED light source. It is equipped with an output port for status indicator to show various operating states of the luminaire. Its internal circuits and electronic components are designed in compliance with explosion-proof standards, and the inner cavity is fully potted with silicone gel. It applies to sites with strict requirements for explosion protection and emergency lighting such as petrochemical plants, gas stations, mines, tunnels, pharmaceutical factories and dust workshops.

Model Information

Model No.	110600100009
Input voltage range	100–277Vac
Rated output voltage	25–45Vdc
Rated output current	370mA

Product Features

This is an independent emergency control device specially developed by our company for explosion-proof LED luminaires. In recent years, with the continuous emergence of new materials, new technologies and new processes, an increasing variety of LED drivers have been developed and manufactured. The lighting industry is at a critical stage of upgrading. The 1106001 series emergency control device adopts a brand-new isolated topology circuit design with comprehensive technical design, complete circuit combination and digital control. It features low noise, energy saving, environmental friendliness, high efficiency, isolated input and output, direct emergency driving of light sources, and rapid heat dissipation when combined with the luminaire housing.

Product Performance

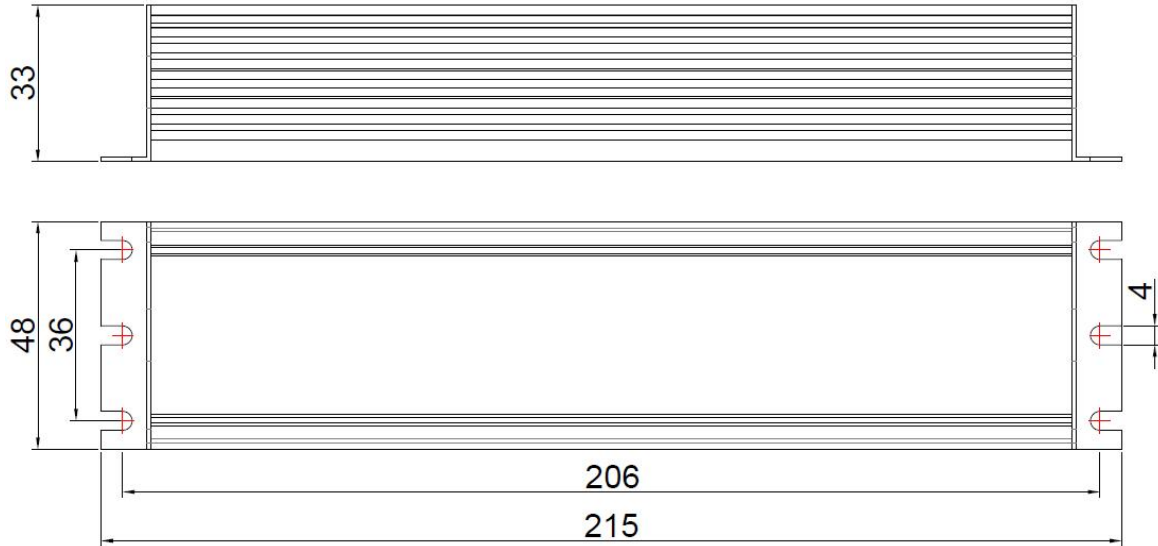
- Open-circuit Protection: When there is no load or open circuit at the output terminal, the output immediately enters the voltage-stabilized state to prevent damage caused by excessive output voltage. It automatically resumes constant-current operation after the open circuit is cleared.
- Short-circuit Protection: If the positive and negative output terminals are short-circuited due to abnormality, the product automatically stops output to avoid permanent damage. It returns to normal constant-current or constant-voltage state immediately after the short circuit is removed.
- Overload / Underload Protection: This product adopts constant-current design. The output current remains stable when the load is within the designed operating range. If the load exceeds or falls outside the design range, the device switches to overload/underload protection mode:
 1. When the output voltage is too low, the driver enters a cycle of frequent startup and shutdown, which is observed as LED flickering.
 2. When the output voltage is too high, the unit enters constant-voltage protection. LED brightness decreases and the current cannot reach the preset value.
- Battery Overcharge Protection: The controller adopts voltage-limited constant-current charging. When the voltage of a single battery cell reaches 1.42V, the controller switches to trickle charging.
- Battery overdischarge protection: The controller automatically cuts off the output power when the single-cell voltage drops to a preset point in the 0.9V–1.1V range.
- Withstand Voltage:
 - 1500V±10% / 5mA / 1min / 50Hz between main power input and housing
 - 500V±10% / 5mA / 1min / 50Hz between external live terminals and housing

- Insulation Resistance:
Insulation resistance $\geq 50\text{M}\Omega$ between main power input and housing
Insulation resistance $\geq 20\text{M}\Omega$ for external live terminals requiring insulation and housing
- Indicator Function: External green, red and yellow LED indicators are supported.
Green light stays on under mains supply;
Red light on during battery charging;
Red light off in trickle charging mode;
Yellow light on for battery fault.

Electrical Characteristics

Parameter	Symbol	Condition	Min	Rated	Max	Unit
Rated Supply Voltage	U _{in}	25℃	-	220	-	V _{rms}
Operating Voltage Range	U _{inr}	25℃	100	-	277	V _{rms}
Input Current	A _{in}	25℃	0.098	0.045	0.035	A
Input Power	P _{in}	-	-	6.5	-	W
Mains Frequency	f _{in}	25℃	-	50/60	-	Hz
Compatible Light Source Power	-	25℃	-	14	-	W
Load Voltage	O _{cv}	25℃	30	-	39	V
No-load Voltage	O _{cv}	25℃	-	-	50	V _{rsm}
Emergency Output Current	-	25℃	350	370	390	mA
Backup Battery	-	Ni-MH, Ni-Cd	-	7.2/4 7.2/8	-	V/Ah
Charging Current	-	25℃	240	-	500	mA
Trickle Charging Current	-	25℃	80	-	200	mA
Conversion Efficiency	-	-	80	-	-	%
Emergency Duration	-	25℃	90@4Ah 180@8Ah	-	-	Minute
Charging Time	-	25℃	-	24	-	Hour
Mode Switching Time	-	25℃	-	-	0.5	S
Maximum Case Temperature	t _c	-	-	-	75	℃

Dimension Drawing

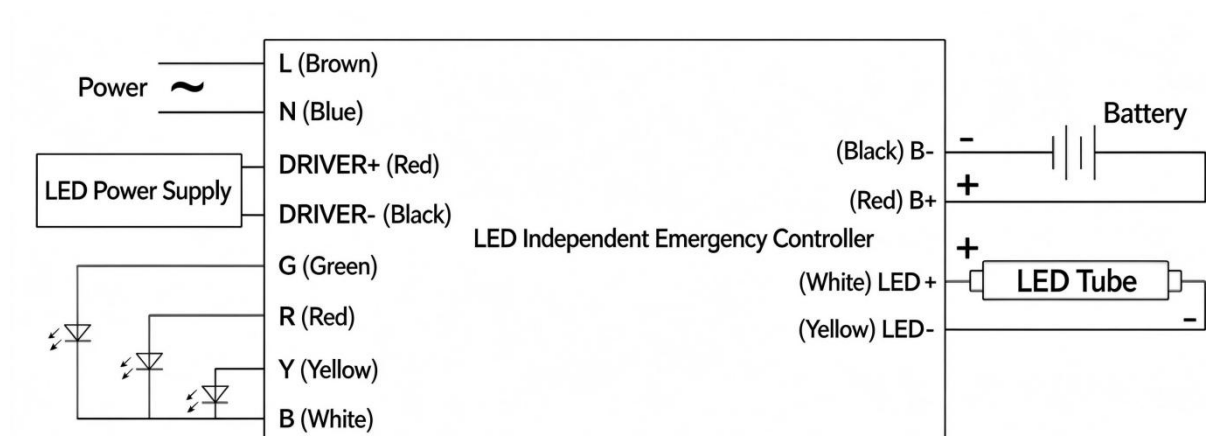


Unit (mm)

Dimensions (L × W × H)

110600100009	215 x 48 x 33 mm
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Wiring Diagram



Precautions for Use and Installation Instructions

Precautions for Use:

- The input voltage shall be within the specified operating voltage range of AC100V-277V.
- The product shall be used under the rated ambient temperature, and the power supply shall be provided with proper heat dissipation space and environment.

Installation Instructions:

- Connect the power supply to the mains power source with protective earth connection to ensure operator safety.
- Wire strictly in accordance with the terminal markings on the housing surface. Make secure connections. Ensure input and output wires are not reversed, and battery positive/negative terminals are correctly connected without polarity reversal.
- Connect the power supply only after verifying that the load specifications fully match those of the power supply system.

Abnormal Phenomena and Corresponding Troubleshooting

- If the unit fails to light up or shows other abnormalities after the initial electrical connection, disconnect the AC input, check whether wiring is correct, and verify loose contacts at the output or AC input terminals.
- If the LED indicator lights up after electrical connection but the output is abnormal, disconnect the AC input and check for overloading or underloading at the DC output side.