SJ-DYX-1007 Power Supply Box User Manual

1. Overview

The SJ-DYX-1007 Power Supply Box (referred to as the power supply box) provides a 24V DC power supply for the fire control system. The power supply box can communicate with the fire alarm controller via the 9000 fire bus, upload the current status of the power supply box to the fire alarm controller, and receive and execute control commands from the fire alarm controller. There are 8 LEDs on the power supply box panel indicating the current status, and the power supply box can accommodate a pair of 7AH/12V batteries.

2. Main Technical Indicators

1. Input Characteristics

1) AC Input: AC 220V Single Phase

2)Bus Input: Non-polar two-bus connection

2. DC Output Characteristics

1) Rated Voltage: DC27.6±0.3V

2) Rated Current: 10A

3. Backup Power Output: Dependent on the current battery voltage, shut off when below 19V

4. Bus Working Current: ≤300μA

5. Encoding Method: Electronic encoding, each power supply box occupies one bus encoding address, with the encoding range adjustable between 1 and 324

6. Operating Environment: Temperature: -10℃ to +50℃, Relative Humidity: ≤95% (40℃±2℃, no condensation)

7. Dimensions: 420mm × 360mm × 115mm

8. Maximum Manageable Backup Battery Capacity: Four pairs of 7Ah/12V batteries

3. Panel Diagram and LED Display

1. Panel Diagram

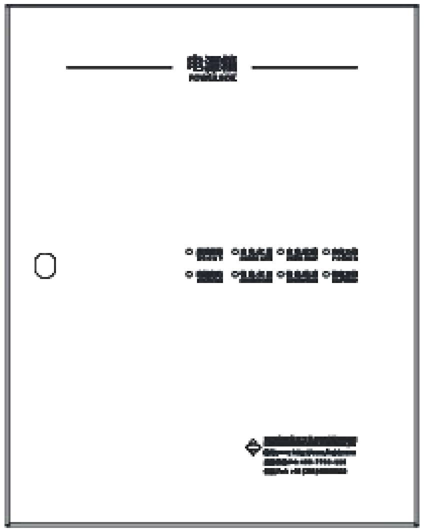

Figure 1 Panel Schematic

2. LED Indicator Correspondence

Symbol / LED	Main Power Working POWER	Main Power Under-voltage POWER LOW	Main Power Fault POWER FAULT	Inspection Indicator SCOUT	Backup Power Working BATTERY	Backup Power Under-voltage BATTERY LOW	Backup Power Fault BATTERY FAULT	Battery Charging CHARGE
Color	GREEN	YELLOW	YELLOW	GREEN	GREEN	YELLOW	YELLOW	GREEN
Mention	H1	H2	H3	H4	H5	H6	H7	H8

3. Power Supply Board Indicator Light Schematic:

4. Light Emitting Diode Display Description:

Power Supply Unit Status	H1	H2	H3	H4	H5	H6	H7	H8
Bus input normal(H4 is only bus related)	-	-	-	Twinkle	-	-	-	-
Bus input not normal(H4 is only bus related)	–	–	–	Unlit	–	-	-	-
AC Input Normal（187±1VAC～265VAC）, Battery Voltage at 17V~ 26.1V	T	U	U	–	U	U	U	U
AC Input Normal（187±1VAC～265VAC）, Battery Voltage Above 26.1V	T	U	U	–	U	U	U	U
AC Input Under-voltage（175VAC～187±1VAC）, Battery Voltage at 17V~ 26.1V	T	T	U	-	U	U	U	T
AC Input Under-voltage（175VAC～187±1VAC）, Battery Voltage Above 26.1V	T	T	U	–	U	U	U	U
AC Input normal, battery voltage less than 17V	T	U	U	–	U	U	T	U
AC Input Under-voltage, battery voltage less than 17V	T	T	U	–	U	U	T	U
AC Input lost, battery voltage above 21.5V	U	U	T	–	T	U	U	U
AC Input lost, battery voltage above 19V less than 21.5V	U	U	T	–	T	T	U	U
Battery Independent power supply, battery voltage less than 19V	U	U	U	-	U	U	U	U
PS-10 not connected, or PS-10 not operational	U	U	U	–	U	U	U	U

4. External Dimensions and Wiring

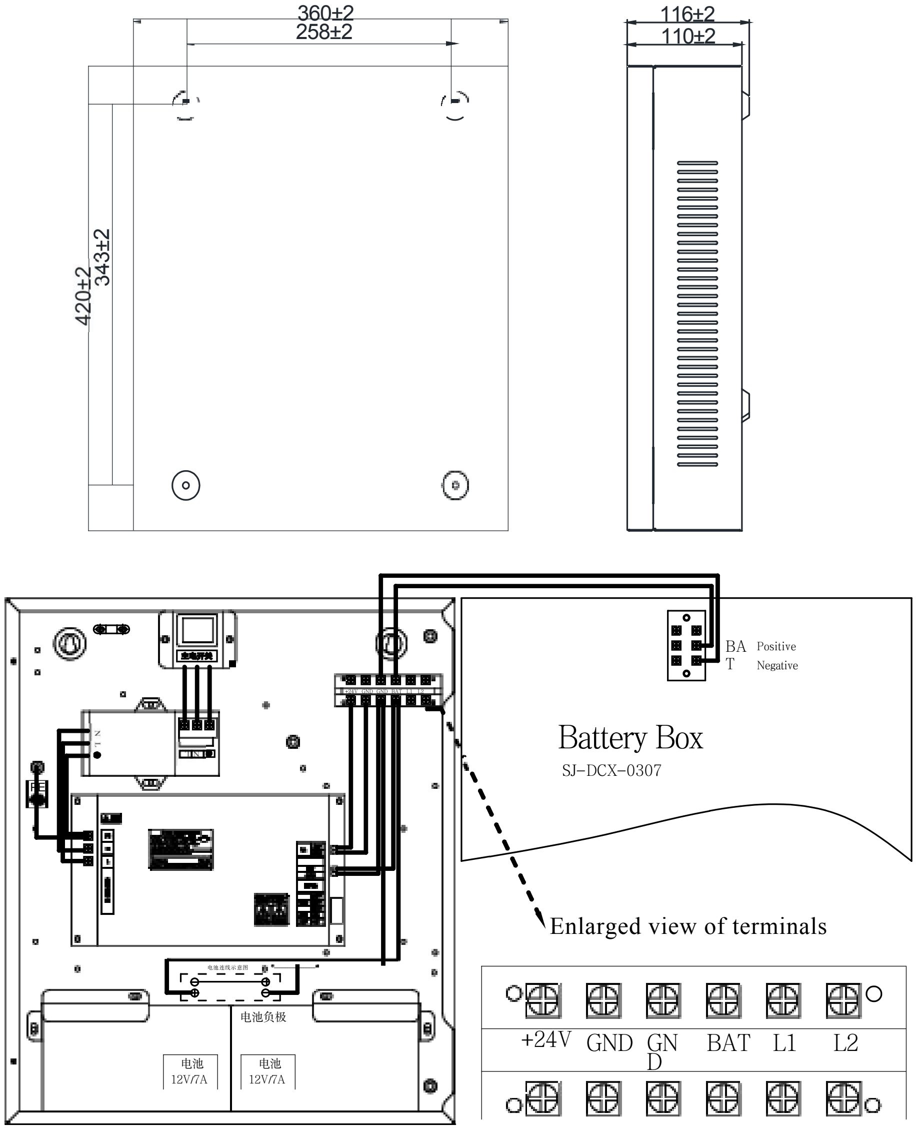

图2 外形尺寸及接线示意图

五、 电源箱状态分项描述(Power Supply Box State Description)

1. 后级输出定义：电源控制电路检测到交流输入在合理范围内（175VAC～265VAC），或交流输入不在合理范围内但电池电压大于19V，则判定为满足后级供电的需求，此时+24V才有输出；

2. 交流输入正常（187±1VAC～265VAC），电池电压在17V～27.6V的合理范围内：给出后级输出；
3. 交流输入欠压（135VAC～187±1VAC），电池电压在17V～27.6V的合理范围内：给出后级输出，面板上主电欠压指示灯亮，火灾报警系统报此电源箱主电故障；
4. 交流输入正常，电池电压小于17V：给出后级输出，电池停止充电，面板上备电故障灯亮，火灾报警系统报此电源箱备电故障；
5. 交流输入欠压，电池电压小于17V：给出后级输出，电池停止充电，面板上主电欠压指示灯和备电故障灯亮，火灾报警系统报此电源箱主电和备电故障；
6. 交流输入丢失，电池电压高于21.5V：给出后级输出，面板上主电故障灯亮，火灾报警系统报此电源箱主电故障；
7. 交流输入丢失，电池电压大于19V小于21.5V：给出后级输出，面板上主电故障灯和备电欠压指 示灯亮，火灾报警系统报此电源箱主电和备电故障；
8. 电池独立供电，电池电压小于19V：后级保护性断电，电源箱面板上主电、备电故障报警取消。断电后电池耗电电流为0，最大限度的保护电池不至于过放电而损坏；这种情况下，电源箱仍会通过总线给控制器发送主电和备电故障的信息，火灾报警系统将报此电源箱主电和备电故障。

六、 注意事项(Precautions)

1. 电源箱要在规定的环境条件下使用；
2. 在常温环境中，当输出总功率大于300W（例如27.6V@12A）时，电源会进入过功率保护状态，电源箱输出会被切断；
3. 电源具有输出短路保护功能。当输出短路时，电源箱会切断输出，此时需关闭主、备电开关，消除短路故障后，再开启开关。开关时间间隔需大于10秒钟；
4. 电源箱在使用时，周围环境应保持良好的通风、散热，在开机或使用中，发现冒烟或难闻气味，应立即切断电源。
5. 当电源箱从寒冷环境转到温暖环境时，由于凝露可能引起危险，所以电源箱外壳必须良好接地；
6. 对电源设备进行维护时，需要切断电源停机3分钟以上，才可对电源设备进行维护处理；
7. 三对控制线的长度在出厂时已经确定，请不要随意加长；如果必须加长控制线请在专业人员指导下完成；
8. 电源保险管须使用相同规格的保险丝更换，备电保险丝为12A保险丝。
9. 机内无任何维修备件，非专业人员不得拆开内置PS-10机盖，以防高压触电；如电源万一被损坏， 请与我公司客服中心联系。

7. 七、 温馨提示(Warm Tips）

在市电输入可能长时间超过270VAC 的地区，市电必须通过稳压设备接入，否则将可能对电源箱造成损害，稳压设备的功率需≥300W。

电池在储存期间，建议每三个月对电池充电一次，电池应在充满电的状态下储存。

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5. Power Supply Box State Description

1. Definition of Downstream Output: The power control circuit detects the AC input is within the reasonable range (175VAC to 265VAC), or if the AC input is not within the range but the battery voltage is above 19V, it meets the downstream power supply requirement, and +24V will be output.
2. If the AC input is normal (187±1VAC to 265VAC) and the battery voltage is within 17V to 27.6V: downstream output is provided.
3. If the AC input is undervoltage (135VAC to 187±1VAC) and the battery voltage is within 17V to 27.6V: downstream output is provided, and the main power undervoltage indicator on the panel lights up, reporting this power supply box's main power fault to the fire alarm system.
4. If the AC input is normal and the battery voltage is less than 17V: downstream output is provided, battery charging stops, and the backup power fault indicator lights up on the panel, reporting this power supply box's backup power fault to the fire alarm system.
5. If the AC input is undervoltage and the battery voltage is less than 17V: downstream output is provided, battery charging stops, and both the main power undervoltage indicator and the backup power fault indicator light up on the panel, reporting both main and backup power faults of this power supply box to the fire alarm system.
6. If the AC input is lost and the battery voltage is above 21.5V: downstream output is provided, and the main power fault indicator lights up on the panel, reporting this power supply box's main power fault to the fire alarm system.
7. If the AC input is lost and the battery voltage is between 19V and 21.5V: downstream output is provided, both the main power fault indicator and the backup power undervoltage indicator light up on the panel, reporting both main and backup power faults of this power supply box to the fire alarm system.
8. If the battery alone supplies power and the battery voltage is below 19V: downstream protective power-off occurs, and the main and backup power fault alarms on the power supply box panel are canceled. After power-off, the battery power consumption current is 0, maximizing battery protection from over-discharge damage; in this case, the power supply box will still send the main and backup power fault information to the controller via the bus, and the fire alarm system will report the main and backup power faults of this power supply box.

6. Precautions

1. The power supply box must be used under the specified environmental conditions.
2. In normal temperature environments, when the total output power exceeds 300W (e.g., 27.6V@12A), the power supply will enter over-power protection mode, and the output of the power supply box will be cut off.
3. The power supply has an output short circuit protection function. When the output is short-circuited, the power supply box will cut off the output. In this case, turn off the main and backup power switches, eliminate the short circuit fault, then turn on the switch again. The switch time interval should be more than 10 seconds.
4. During use, ensure good ventilation and heat dissipation in the surrounding environment. If smoke or an unpleasant smell is found during startup or use, immediately cut off the power.
5. When the power supply box moves from a cold environment to a warm environment, condensation may cause danger, so the shell of the power supply box must be well-grounded.
6. When maintaining the power equipment, cut off the power and stop the machine for more than 3 minutes before maintenance.
7. The length of the three control lines has been determined at the factory; do not arbitrarily extend them. If it is necessary to extend the control lines, do so under the guidance of professionals.
8. The power fuse must be replaced with a fuse of the same specification, and the backup power fuse is a 12A fuse.
9. There are no spare parts inside the machine for maintenance. Non-professionals should not open the PS-10 cover to avoid high voltage electric shock. If the power supply is damaged, contact our customer service center.

7. Warm Tips

In areas where the municipal power input may exceed 270VAC for a long time, the municipal power must be connected through a voltage stabilization device, otherwise, the power supply box may be damaged. The power of the voltage stabilization device should be ≥300W.

It is recommended to charge the battery once every three months during storage, and the battery should be stored in a fully charged state.