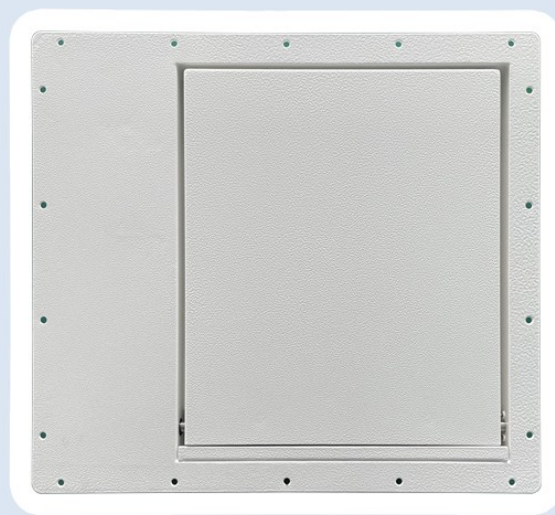
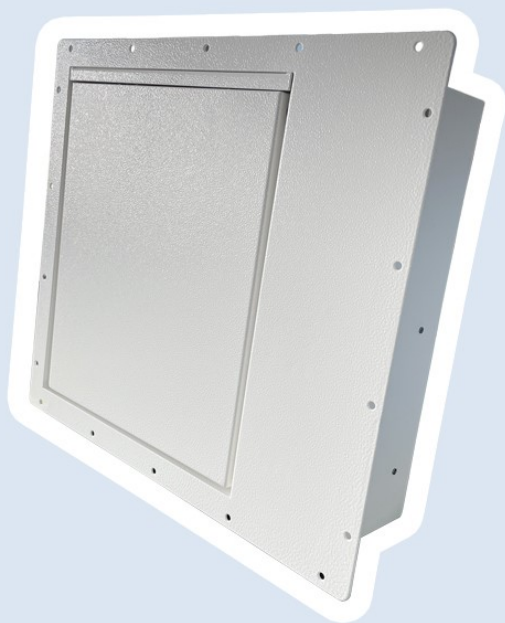


TPF13、TPF14 通排风系统

产品使用说明书

(V1.3)



南京和本机电设备科技有限公司

安全警告

使用该设备前，请务必认真阅读此说明书！

警告：进排风百叶如果不正确地操作会严重影响产品寿命和质量，造成质量下降和财产损失。在操作产品前，操作人员必须经过专业的培训，掌握进排风百叶的连接和运行方式。

以下安全要求必须时刻遵守：

- 1.不可以手动下压或抬起百叶，会造成推杆的损坏及百叶变形；
- 2.不能将电源正负极反接，会使控制板烧坏；
- 3.保持风机表面干净整洁，不要对系统外壳造成磕碰导致掉漆锈蚀；
- 4.端子和连接件应防止受潮和其他污染物；
- 5.安装过程中不得将铁屑溅入 AC/DC 开关电源；
- 6.安装位置的选择应不超过系统部件的最高工作温度；
- 7.安装位置应包括安装、维修、检查和维护的安全通道，包括当地工作场所安全法规要求的工作平台。

存贮：通排风系统在存贮时应保持关闭状态，避免有可能的撞击导致百叶变形及推杆损坏。

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1 概述

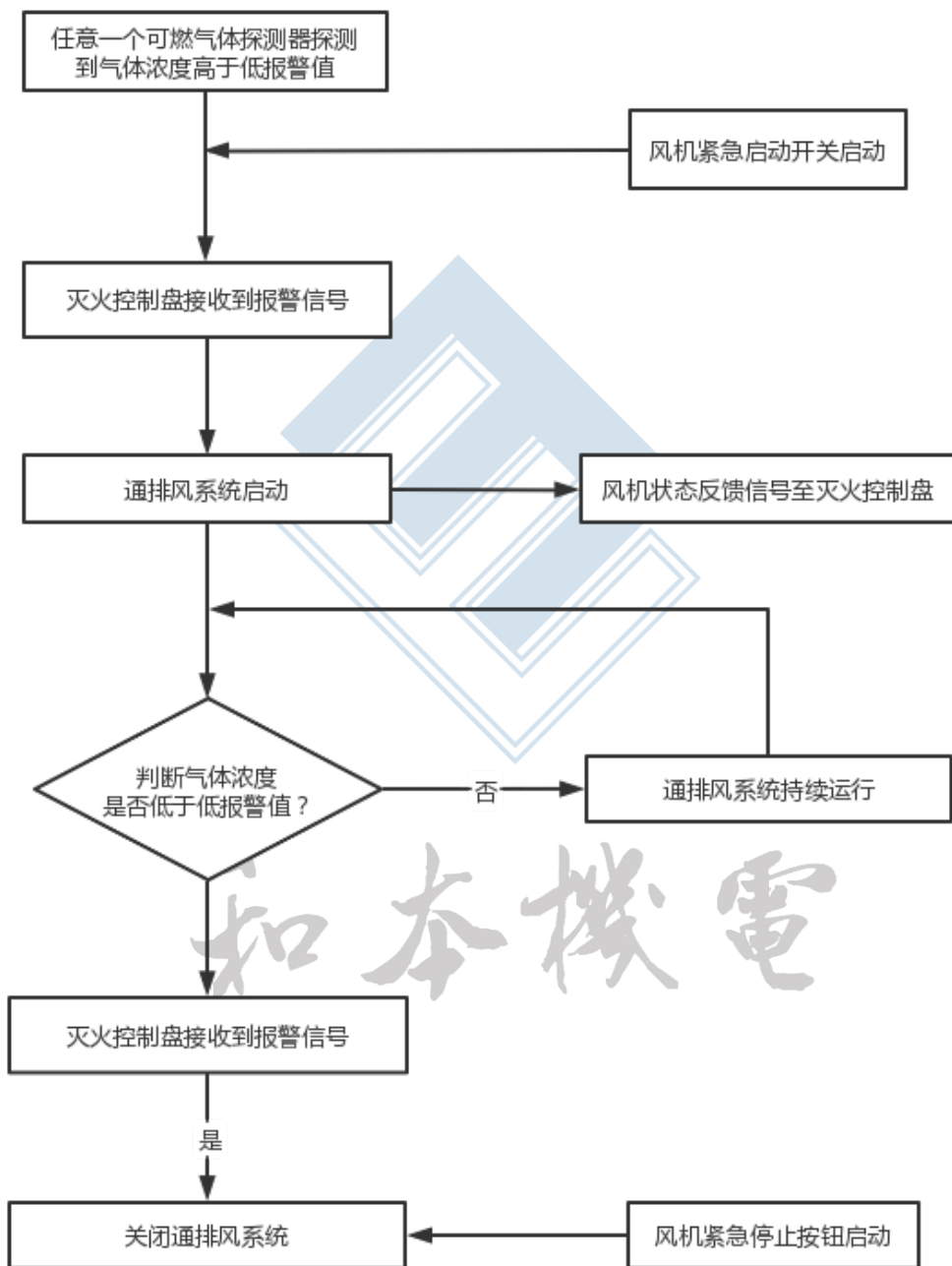
通排风系统由防爆排风风机、防爆通风百叶构成，跟可燃气体探测器、报警主机构成储能集装箱的泄爆系统，防止因可燃气体聚集，达到爆炸浓度，产生爆炸风险。

消防系统灭火控制盘接收到可燃气体探测器发出的报警信号后，发出信号给通风排气系统，排风风机（TPF13）内的控制模块接收到报警信号，打开排风风机（TPF13）和电动通风百叶（TPF14）。通排风系统开始工作，将储能箱中电池热失控产生的可燃气体（CO、CO₂、H₂、CH₄、C₂H₆、C₂H₄）排出，当可燃气体浓度降到阈值以内，接收来自灭火控制盘的信号自动关闭通排风系统，或者接到二次报警信号，喷放灭火剂同时关闭排风风机。

通排风系统具有以下明显的优点：

- ✧ 自动化控制，设置好以后不需要人工干预便可以自行运作；
- ✧ 可以及时将危险气体排出，降低安全隐患；
- ✧ 密闭空间内压力过高可以及时泄压，避免更严重的后果产生；
- ✧ 不会因油、灰尘等恶劣的环境而影响运行；
- ✧ 结构简单，安装方便；
- ✧ 风扇具有防爆功能，可防止在排气过程中出现的意外；
- ✧ 通排风系统可广泛运用于储能集装箱和储能柜。

通排风系统控制流程图



2 主要产品和性能参数

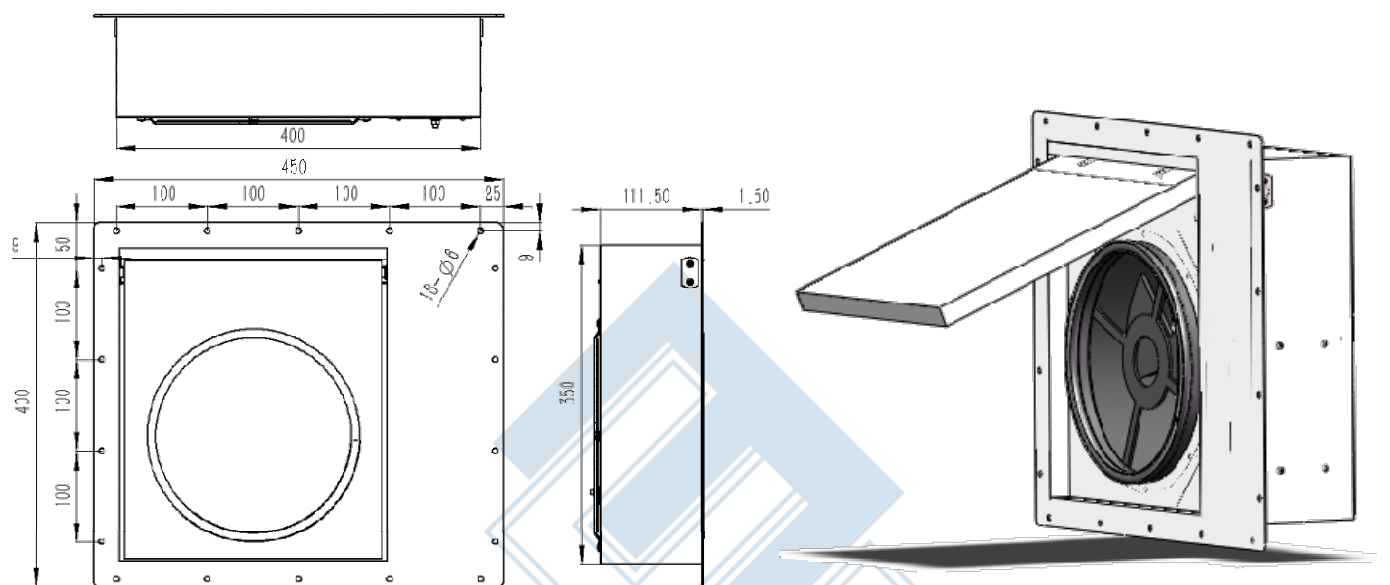
2.1 性能技术参数

结 构	排风风机	电动通风百叶
	TPF13	TPF14
动作机构	电动推杆自带行程开关，当电动推杆达到极限位置，电机自动停止	
工作方式	气体探测器给与控制系统信号，打开关闭风机、百叶	
材 质	碳钢喷塑	
颜 色	外表面喷塑 RAL9003（或客户指定）处理	
控制电路	电动百叶、风机接外部信号同时打开、关闭	
安装方式	整体通过法兰面安装	
工作温度	-20℃~60℃	
防护等级	IP55	
腐蚀等级	C5	
额定电压	AC220V	DC24V
额定功率	135W	60W
安装开孔尺寸	410×360mm	
风量	820 ± 15%CFM	/
噪 音	70dB	/
防爆特级	风扇满足 ATEX II 3G Ex ec IIC Gc、UL、CE； AC/DC 开关电源满足 UL、CE 认证； 电动推杆满足 CE 认证。	

3 主要部件

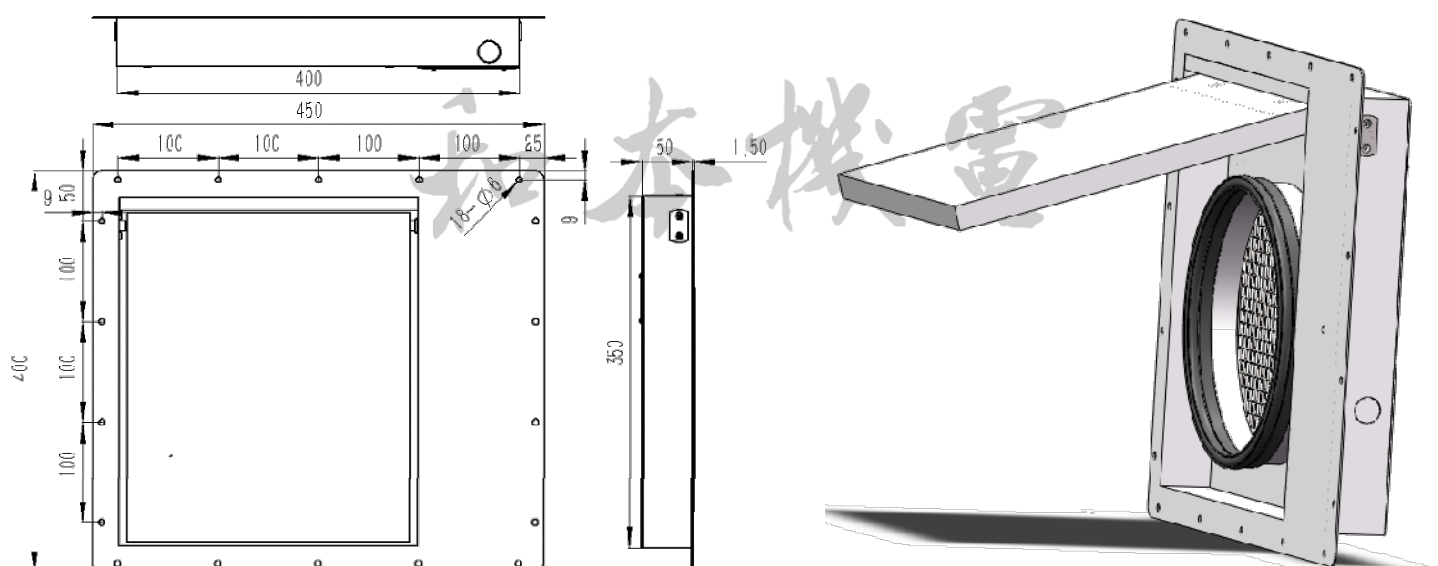
3.1 排风风机 TPF13

结构尺寸及安装方向



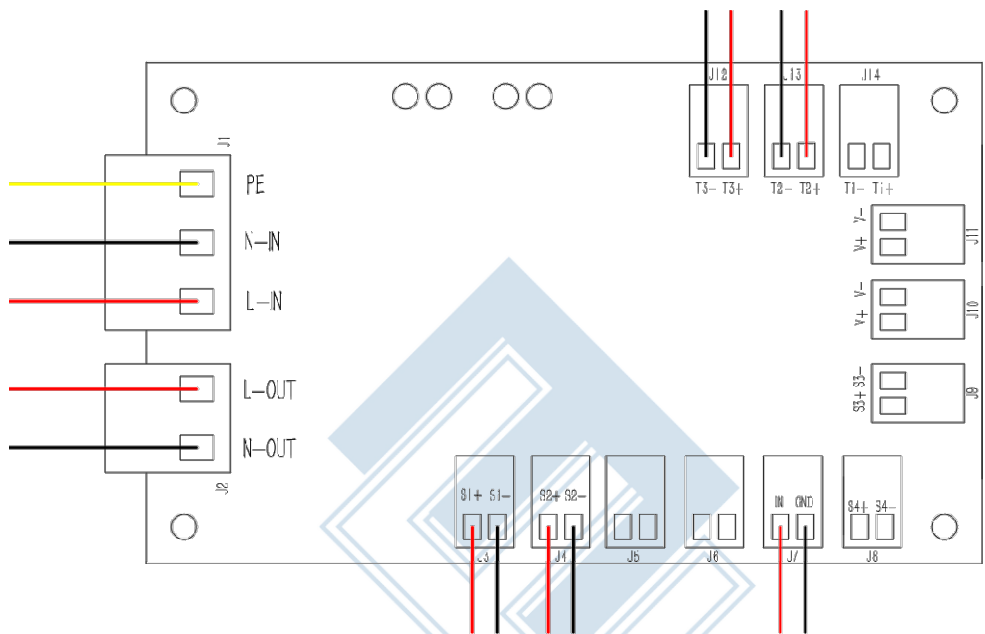
3.2 电动通风百叶 TPF14

结构尺寸及安装方向



4 安装调试

4.1 TPF13 PCB 控制板接线说明



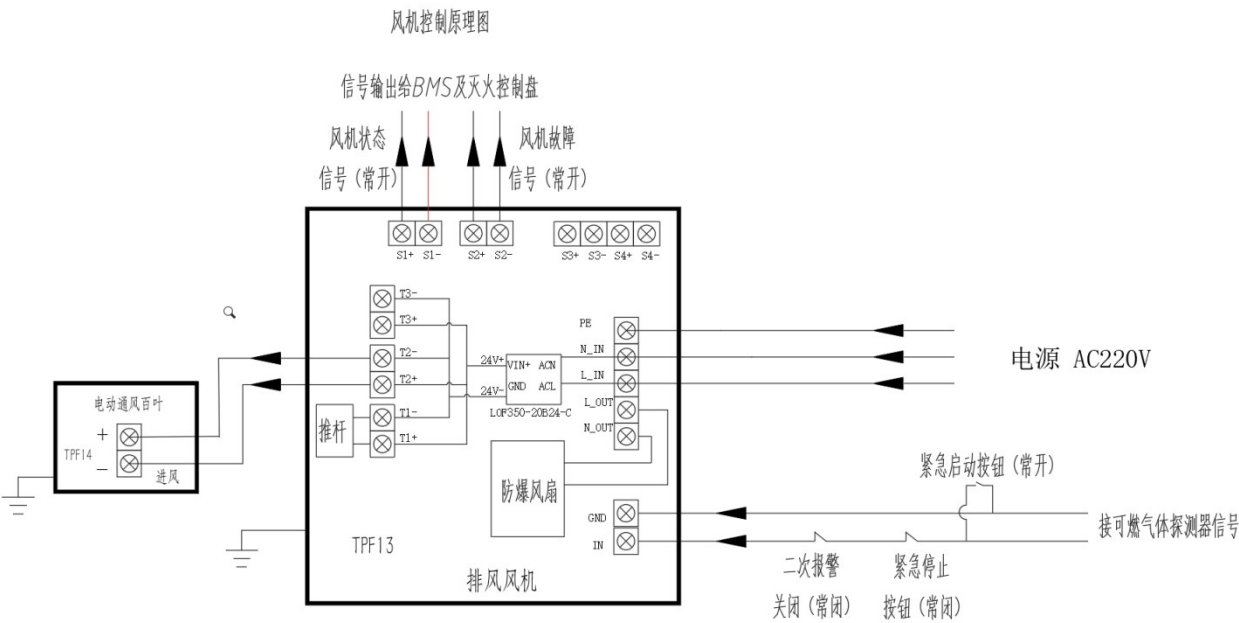
红色为正（火）接线端，黑色为负（零）接线端，橙色为接地线端严禁将正负反接造成 PCB 板的损坏。

端子号说明	
L_IN、N_IN、PE	220V 接入系统电源
L_OUT、N_OUT	220V 风扇电源
J12 (T ₂ +/T ₂ -)	TPF13 电动推杆
J13 (T ₃ +/T ₃ -)	TPF14 电动推杆
J3 (S ₁ +/S ₁ -)	状态反馈信号
J4 (S ₂ +/S ₂ -)	故障反馈信号
J7 (GND/IN)	系统信号
J8 (S ₄ +/S ₄ -)	二级报警信号（预留）

J9 (S₃+ / S₃-)

手动信号 (预留)

风机控制原理图



4.2 注意事项

- 通排风系统安装工作应由通过专业培训的人员及队伍承担；
- 通排风系统的安装应依据设备平面布置图施工；
- 接到风机控制器的线需要使用软线，不然会导致控制器损坏。

4.2.1 安装步骤

- 1.将产品装入集装箱预留孔位后将螺栓放入预留螺栓孔后锁紧螺栓，扭力值为 4 (N · M)，将通排风系统安装好，保证表面整洁美观。
- 2.将 TPF14 电动通风百叶的推杆电源线接到 TPF13 排风风机的控制板上，同时连接好 220V 电源，注意电源不可以反接，否则会导致控制板烧掉。

3.将电源线接好后，将防雨罩装入集装箱预留孔位，防雨罩与风机百叶之间需要打胶保证雨水不会从安装面渗入箱体。

4.将信号开关接入消防系统，统一由集装箱消防系统控制通排风系统的运行即可。

4.3 调试

输入信号进行开启关闭测试,查看 TPF13 和 TPF14 的百叶是否能同步开启，同时风扇正常运行，关闭后百叶应基本与安装面平行。

调试完毕后，重新检查通排风系统表面是否整洁无掉漆，注意风机和百叶法兰密封面与集装箱箱体连接处要贴密封胶条。

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5 注意事项及维护说明

5.1 注意事项

1. **严禁手动下压或抬起百叶，会造成推杆的损坏及百叶变形；**
2. **严禁将 220V 电源接入电动推杆，会使控制板烧坏；**
3. 在安装过程中，注意不要让铁屑进入 AC/DC 电源；
4. 气感信号发生状态变化时电流检测程序运行；
5. 风扇热插拔操作，会造成第一次状态切换时误报警；
6. 突然断电时，百叶的物理状态无法判断，如第一次切换状态和物理状态一致，会影响电流检测值造成误报警，因此在突然断电，在上电时不会进行自复位；
7. 通排风系统的维修及更换配件应至专业部门或联系本单位，严禁私自更换，严禁替换非本公司提供的零部件。

存贮：通排风系统在存贮时应保持关闭状态，避免有可能的撞击导致百叶变形及推杆损坏；直立放置，避免可能的撞击，而且要有可靠的固定。

5.2 维护保养

检查和维护程序应符合制造商的说明

5.2.1 维护

- ✓ 每月应检查通排风系统的固定情况并对通排风系统的外观检查，应无磕伤，变形，生锈现象；
- ✓ 系统安装完成后，每季度对通排风系统功能例行检查，确保功能完整、如出现异常请及时联系制造商；

- ✓ 每年全功能检测一次；
- ✓ 每次通电，需目视检查密封胶条是否损坏，如损坏需更换；
- ✓ 每三年对密封胶条进行一次更换；
- ✓ 应在有任何可能损害保护系统的情况下进行维护；
- ✓ 在维护时应该断开通排风系统的供电防止高压击伤；
- ✓ 每次工艺维修周期结束后，应进行目视检查。

5.2.2 记录

- ✓ 最终客户或操作员应保存一份记录，表明每次检查的日期和结果，以及每次维护活动的日期和说明，同时应向制造商提供一份检查记录副本；
- ✓ 任何维护和维修记录应至少保存 10 年。

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服务承诺

- 1.公司遵循快速响应，主动上门，为用户提供一流服务的宗旨。
- 2.产品质量保证期为一年。
 - 在质保期内，对本公司制造因素造成的质量问题实行三包（保修、包换、包退）。
 - 超过质保期后，本公司提供终身有偿服务。
 - 产品交付后，非本公司制造因素造成的质量问题，本公司提供有偿服务。

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制造商信息

公司名称：南京和本机电设备科技有限公司

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TPF13/TPF14 Ventilation & Exhaust System

Operating Instructions

(V1.3)



Nanjing Heben M&E Equipment Technology Co., Ltd.

Warning!

Please read this instructions carefully before using the equipment !

Warning: Incorrect operation of the ventilation and exhaust louvers will seriously affect their service life and quality, resulting in quality degradation and property losses. Before operating the products, the operator must receive professional training to master the connecting and operating mode of the louvers.

The following safety requirements must be followed at all times:

1. Do not manually press or lift the louver, which will cause damage to the push rod and deformation of the louver;
2. The positive and negative poles of the power supply cannot be connected in reverse, which will burn out the control module;
3. Keep the surface of the fan clean and tidy, and do not bump the system shell and cause paint loss and corrosion;
4. Terminals and connectors should be protected from damp and other pollutants;
5. Scrap iron shall not be splashed into AC/DC switching power supply during installation;
6. The installation location should not exceed the maximum working temperature of the system's components;
7. Installation location shall have safety passageway for the installation, repair, inspection and maintenance, including working platforms required by local workplace safety regulations.

Storage: The ventilation and exhaust system should be kept closed during the storage to avoid possible impact leading to louver deformation and push rod damage; Place it upright, avoid possible impact and fix reliably.



In case of any ambiguity, the Chinese version shall prevail
如有歧义请以中文版为准

Please refer to the actual situation!

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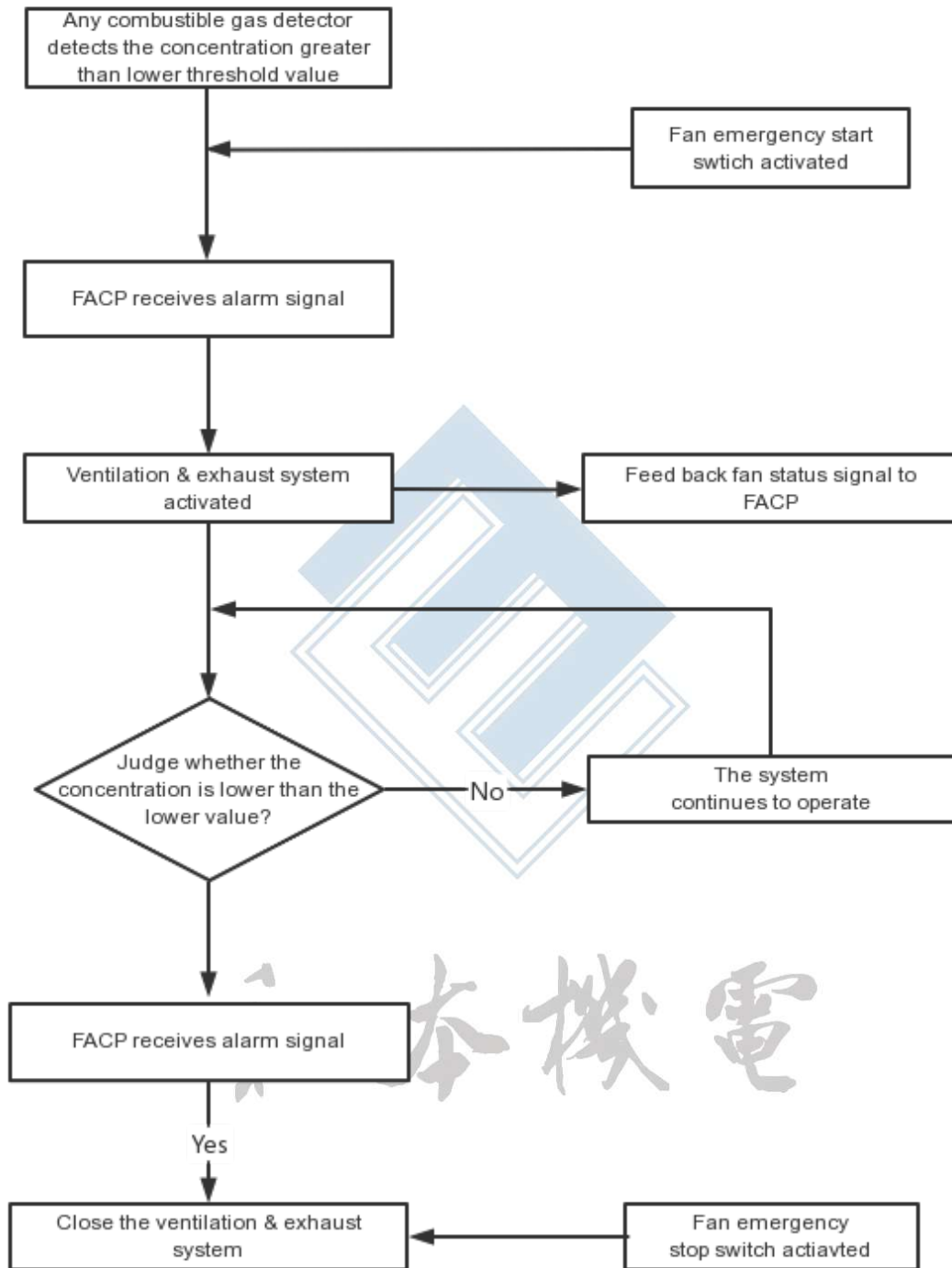
1. General

The ventilation and exhaust system consists of the explosion-proof exhaust fan and the explosion-proof ventilation louver, which form the explosion relief system of ESS container together with the combustible gas detectors and fire alarm controller, so as to prevent explosion risk caused by combustible gases' gathering and reaching the explosion concentration.

After receiving the alarm signal from the combustible gas detectors, the fire alarm control module(FACP)sends a signal to the ventilation and exhaust system. The control module in the exhaust fan (TPF13) receives the alarm signal and turns on the fan (TPF13) and the ventilation louver (TPF14). The ventilation and exhaust system starts to work, and the combustible gases (CO、CO₂、H₂、CH₄、C₂H₆、C₂H₄) generated by the thermal runaway of the battery in the ESS container are removed. When the concentration of combustible gases falls within the threshold, the signal from the FACP is received to automatically shutdown the ventilation & exhaust system, or the stage 2 alarm signal is received to release fire extinguishing agent and shut down the exhaust fan at the same time. The ventilation & exhaust system has the following outstanding advantages:

- ✧ Automatic: after setting, it can operate by itself without manual operation;
- ✧ Dangerous gases can be discharged in time to reduce potential safety hazards;
- ✧ Excessive pressure in the confined space can be released in time to avoid more serious consequences;
- ✧ The operation will not be affected by harsh environment such as oil and dust;
- ✧ Simple structure and convenient installation;
- ✧ The product has explosion-proof function, which can prevent accidents in the exhaust process;
- ✧ The system can be widely used in different ESS containers.

Control Flow Chart:



2. Main Parameters

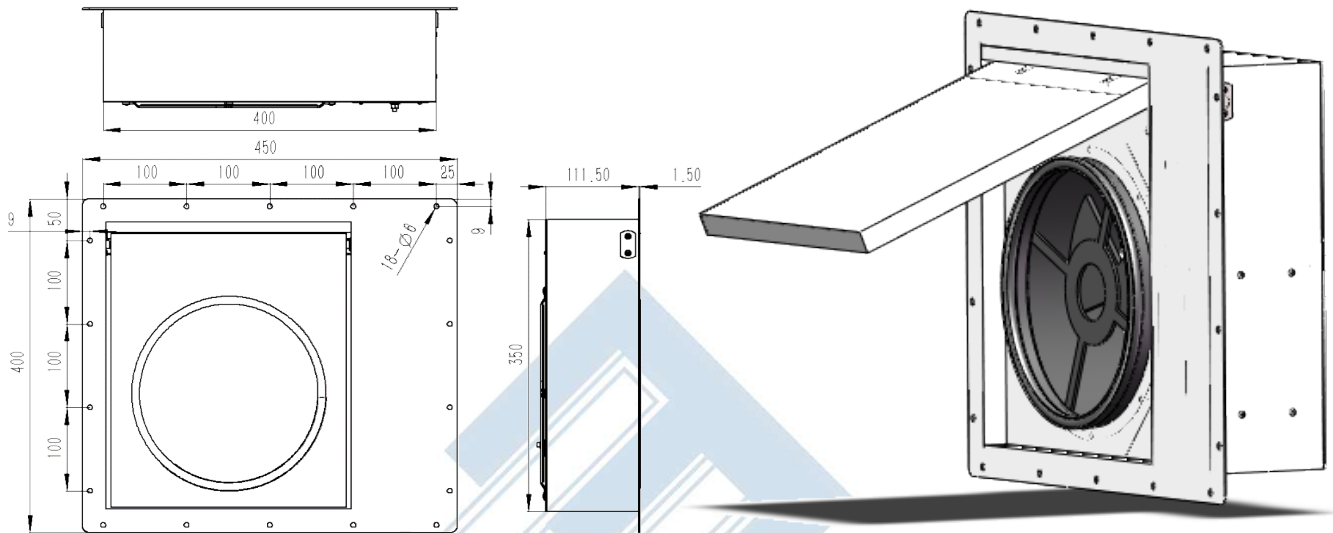
2.1 Performance parameters

Description	TPF13 Exhaust fan	TPF14 Electric ventilation louver
Actuator	Electric push rod, which has its own travel switch. When the push rod reaches the limit position, the motor will stop automatically	
Working mode	The gas detector gives a signal to the control system to open and close the fan and louver	
Material	Powder coated carbon steel	
Color	External surface is powder coated (RAL9003, or customized)	
Control circuit	Electric louver and fan are turned on or off at the same time when receiving external signals	
Installation method	The whole product is installed via the flange surface	
Working temperature	-20°C ~ 60°C	
Degree of protection	IP55	
Corrosion grade	C5	
Rated voltage	AC220V	DC24V
Rated power	135W	60W
Dimensions of mounting openings	410×360mm	
Maximum air flow	820 ± 15%CFM	/
Noise	70dB	/
Explosion-proof class	The axial flow fan complies with ATEX II 3G Ex ec IIC Gc ,CE,UL; The AC/DC power complies with UL and CE; The Electric push rod is CE certified.	

3. Main Components

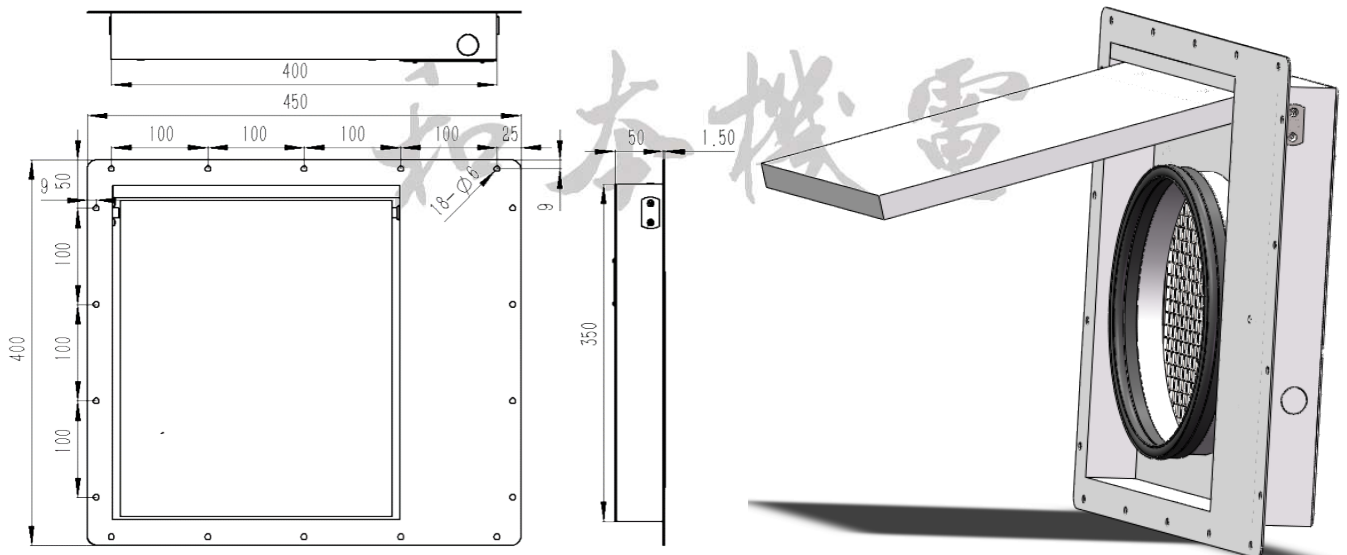
3.1 TPF13 Exhaust Fan

Dimension and mounting direction



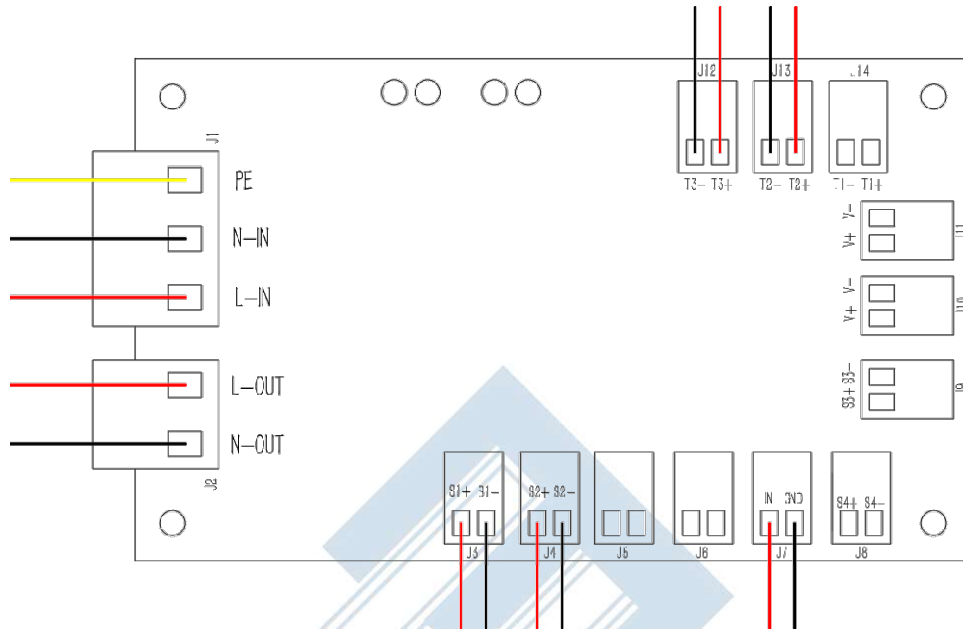
3.2 TPF14 Electric Ventilation Louver

Dimension and mounting direction



4. Installation and Commissioning

4.1 TPF13 PCB Wiring instruction



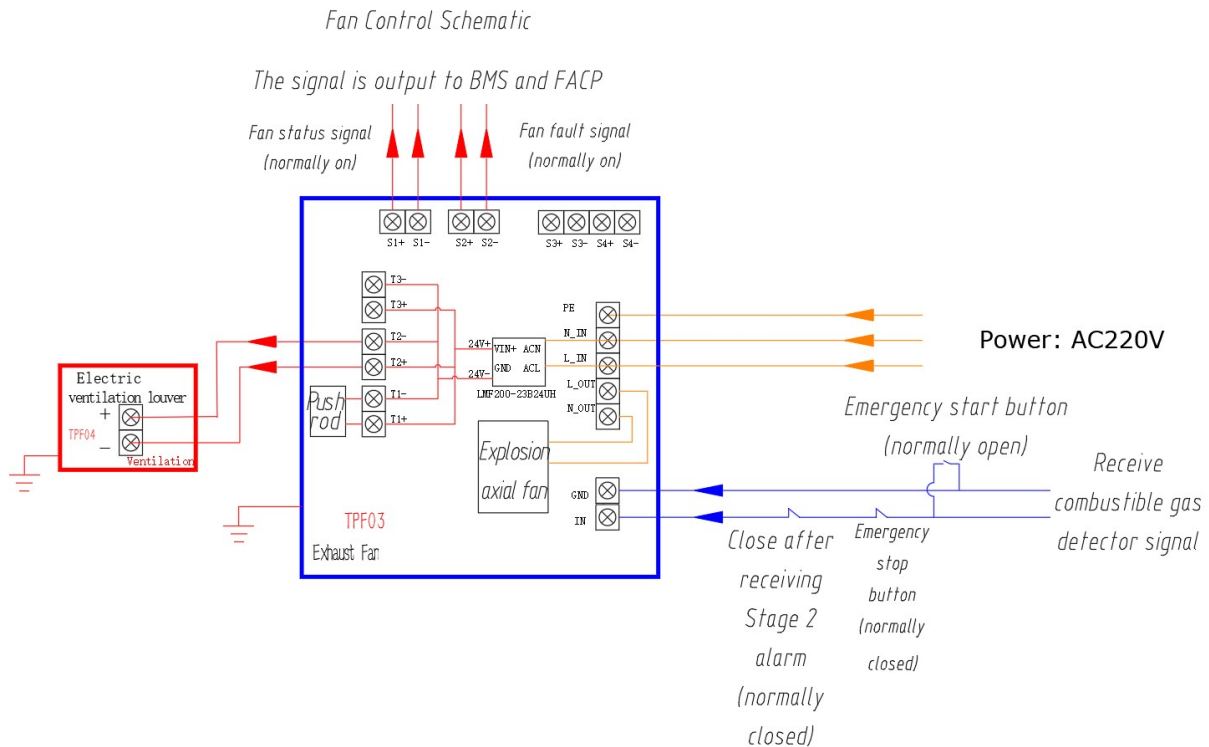
The red is for positive wiring (live wire), the black is for negative wiring (zero wire), and the orange is for grounding wiring. It is strictly forbidden to make wrong/reversed connection that will cause PCB damage.

Description of Terminal No.	
L_IN、N_IN、PE	Connect the power of the system, 220V
L_OUT、N_OUT	Axial flow fan's power supply, 220V
J12 (T ₂ + / T ₂ -)	TPF13, Electric push rod
J13 (T ₃ + / T ₃ -)	TPF14, Electric push rod
J3 (S ₁ + / S ₁ -)	Status feedback signal
J4 (S ₂ + / S ₂ -)	Fault feedback signal
J7 (GND / IN)	System signal
J8 (S ₄ + / S ₄ -)	Secondary alarm signal (reserved)

J9 (S₃+ / S₃-)

Manual signal (reserved)

Fan Control Schematic



4.2 Precautions

- The installation of this system shall be undertaken by professionally trained personnel and teams;
- The installation of this system shall be based on the layout of the equipment.
- The cable connected to the fan controller requires the use of a flexible cable, otherwise it may cause damage to the controller.

4.2.1 Installation steps

1. After loading the product into the reserved hole of the container, lock the bolt with a torque value of 4 (N·M). Install the system well and ensure the clean and beautiful surface.
2. Connect the push rod power cord of the TPF14 electric

louver to the control module of the TPF13 exhaust fan, and connect the 220V power supply at the same time. Pay attention to the point that the power supply cannot be connected in reverse, otherwise the control module will burn off.

3. After connecting the power cord, install the rain cover into the reserved hole position of the container. Glue should be applied between the rain cover and the fan louver to ensure that rainwater does not seep into the box from the installation surface.

4. Connect the signal switch to the fire protection system and control the operation of the ventilation and exhaust system through the container fire protection system.

4.3 Commissioning

Input signal to perform open/close test, check whether the **louvers** of TPF13 and TPF14 can be opened synchronously, and whether the axial flow fan can run normally at the same time. After closing the system, the louvers should be basically **parallel** to the installation surface.

After the commissioning finishes, re-check whether the surface of the ventilation and exhaust system is **clean and free of paint peeling**, and pay attention to stick the **sealing strips** at the connection between the **flange sealing surface** of the fan/louver and the ESS container.

5. Precautions and Maintenance Instructions

5.1 Precautions

1. It is strictly forbidden to manually press or lift the louvers, which will cause push rod damage and louver deformation;

2. It is strictly forbidden to connect 220V power supply to the electric push rod, which will burn out the control module;

3. During the installation, be careful not to let scrap iron enter the AC/DC power supply;

4. When the state of the gas sensing signal changes, the current detection program runs;

5. Fan hot swapping operation may cause false alarms during the first state switch;

6. When a sudden power outage occurs, the physical state of the louver cannot be determined. If the first switching state is consistent with the physical state, it will affect the current detection value and cause false alarms. Therefore, in the event of a sudden power outage, self reset will not occur when powered on;

7. The maintenance and replacement of accessories for the ventilation and exhaust system should be carried out by a professional department or contact our unit. Unauthorized replacement is strictly prohibited, and it is strictly prohibited to replace parts not provided by our company.

Storage: The system should be kept closed during the storage to avoid possible impact leading to louver deformation and push rod damage; Place upright and avoid possible impact and have reliable fixation.

5.2 Maintenance Instructions

Inspection and maintenance procedures shall comply with manufacturer's instructions!

5.2.1 Maintenance

- ✓ Check if the ventilation system is fixed reliably every month, and check the appearance there should be no knock, deformation and rust;
- ✓ After the installation is completed, routinely check the functions of the system every quarter to ensure that the functions are complete. If there is any abnormality, please contact us in time;
- ✓ Full function test once a year;
- ✓ Observe the sealing strip each time when it is powered on; replace it if it is damaged.
- ✓ Replace the sealing tape every three years;
- ✓ Maintenance should be carried out under any circumstances that may damage the system;
- ✓ During maintenance, the power supply of the system should be cut off to prevent high-voltage injuries;
- ✓ After each process maintenance cycle, visual inspection should be carried out.

5.2.2 Record

- ✓ The owner or operator shall keep a record showing the date and result of each inspection as well as the date and description of each maintenance, and shall provide the manufacturer with a copy of the inspection record;
- ✓ Any maintenance and repair records should be kept for at least 10 years.

Service Commitments

1. We follow the tenet of quick response, door-to-door and first-class service for users.
2. The warranty is one year.
 - During the warranty, we will implement three guarantees (repair, replacement and refund) for quality problems caused by manufacturing factors.
 - When the warranty expires, we can provide lifelong paid services.
 - After the delivery of the product, our company can provide paid services for the quality problems caused by non-manufacturing factors.

和奔機電

Manufacturer

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