

AMP-119F type Spark detector

User manual



Jiangsu Ampeon Electronic Engineering Co.,Ltd.

<http://www.ampeon.cn>

Preface

Thanks for using AMPEON's high-performances spark diverter AMP series. The AMP series is manufactured with high-quality components and materials and incorporates the latest microprocessor technology available. Jiangsu AMPEON continuously practices the design and innovation of the product and provides excellent products with professional attitude. Furthermore, it responds to the customers with professional service and benefits each other with the customers.

The manual is to be used for the installing, parameter setting, troubleshooting and daily maintenance of spark diverter. In order to assure the proper installing and usage of the product, please read this manual in detail before installing. Please keep this user manual at hand and distribute to all users for reference.

Welcome to visit the website www.ampeon.cn.



ATTENTION!

1. First please carry out the delivery inspection and check whether there is damage caused by transportation process.
2. After unpacking, please compare with the packing list and check the type, specification and components of the product. If it does not conform to your order documents or if you have any questions regarding the product, you can contact to the dealer or the service office of our company.
3. Jiangsu Ampeon provides services of the three guarantee period 18 months from the delivery date.
4. Troubles due to lightening strike, water invasion and obvious artificial miss or damage etc. are not in the range of repair guarantee.
5. Metal & spark diverter series products are important products of the fore-spinning procedure in cotton spinning mill. But the users in cotton spinning mill should also take integrated measures in fire protection equipments, selection of material, management regulations etc. to assure the safety production.



CAUTION!

1. The power supply must first be shut down before the electric wiring.
 2. Wiring, repairing & maintenance of the machine should be carried out by electric professionals.
 3. Do not carry out compression test toward the inner components because the semiconductor units are easy to be broken down by the high voltage and are easy to damage.
 4. The circuit board CMOS integrated circuit is apt to static electricity damage. So you should take the static electricity prevention measure before touching the circuit board with hand.
 5. As the machine is installed to the pipe in high place, installing personnel should take safety measures. Suspending or bracket should be solid to prevent the machine from dropping down.
 6. Select safety area to install the equipment, prevent the high temperature & direct shinning and avoid humidity and splashing of the water drops.
-

Contents

A、 Overview	错误! 未定义书签。
1、 Use and structural characteristics.....	1
2、 External dimensio and names of parts.....	1
3、 Techical data.....	4
B、 Installing and wiring	3
1、 Installing.....	3
2、 Wiring.....	4
C、 Debugging and usage maintenance	5
1、 Debugging.....	5
2、 Fire alarm simulatio test.....	5
3、 Usage and maintenance.....	6
D、 Troubleshooting	6

A、 Overview

1、 Use and structural characteristics

AMP-119F spark detector is installed on the duct of pneumatic transport systems for materials like fibers or tuft in spinning mills . Once the detector detects sparks, it will alarm immediately shut down the fan and other production machinery, It is one of the series equipments which can make sure the safe production of cotton spinning mill.

AMP-119F Spark detector is an independent control unit. The machine has the characteristics of simple structure, economic durable , easy installation and maintenance.

AMP-119F Spark detector can directly installed on multi mixer, reciprocation bale plucker, dust filtration system and other ducts.

2、 External dimensions and names of parts

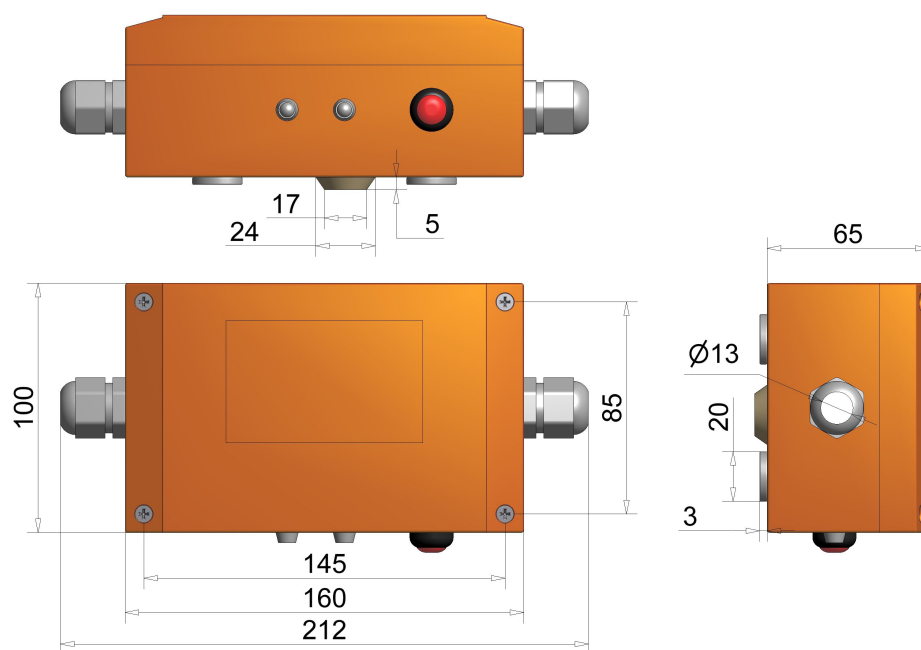
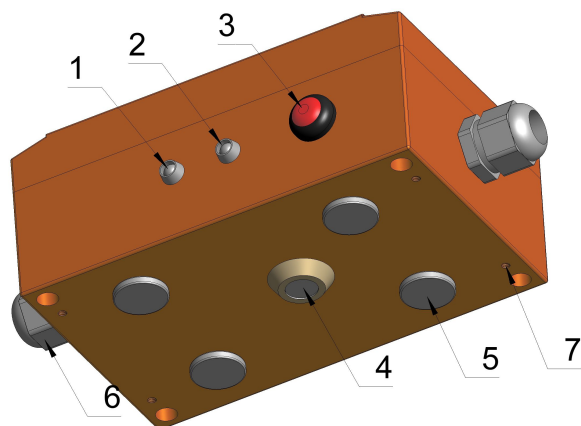


Fig.1a The dimensions of the detector control box

Specification for parts



- 1) Alarm lamp (red)
- 2) Working lamp (green)
- 3) Alarm reset button
- 4) Spark sensor
- 5) Magnet
- 6) Cable gland
- 7) Fix hole

Fig.1b: The names of AMP-119F parts

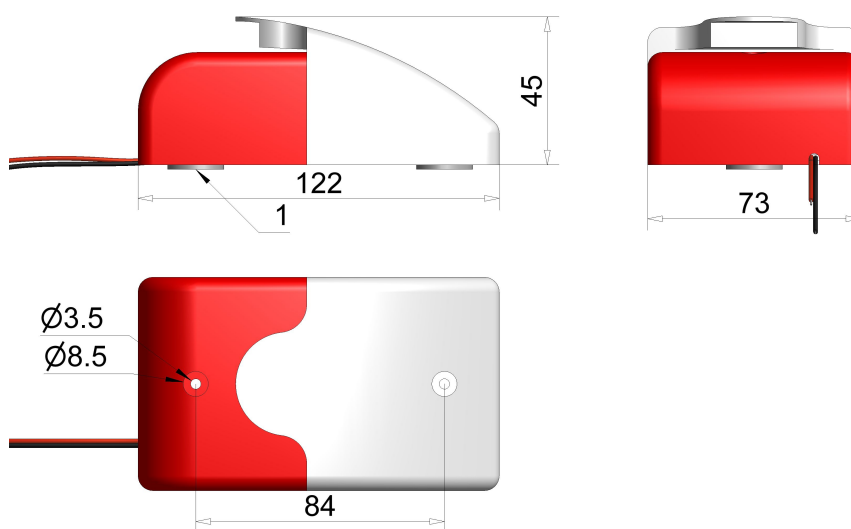
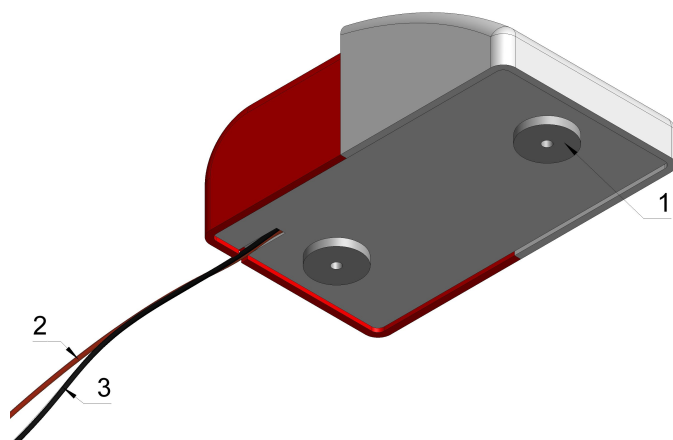


Fig2a: The dimensions of Norn-strobe



Specification for parts

- 1) Magnet
- 2) Red cable+ (DC12V)
- 3) Black cable-

Fig2b: The names of horn-strobe parts

3、 Technical data

Sensitivity: $\Phi 1\text{mm}$ spark, (moving spark visual angle is not less than 90 degree.)

Response time: $\leq 0.3\text{s}$

Operating voltage: AC220V $\pm 10\%$

Power: $< 5\text{VA}$

Sound level of Alarm: $> 60\text{db}$

Relay Output: N.O. or N.C. (3A, 240VAC)

Environmental Requirements: temperature $0^{\circ}\text{C}-40^{\circ}\text{C}$, and relative humidity $\leq 60\%$

B、 Installing and wiring

1、 Installing

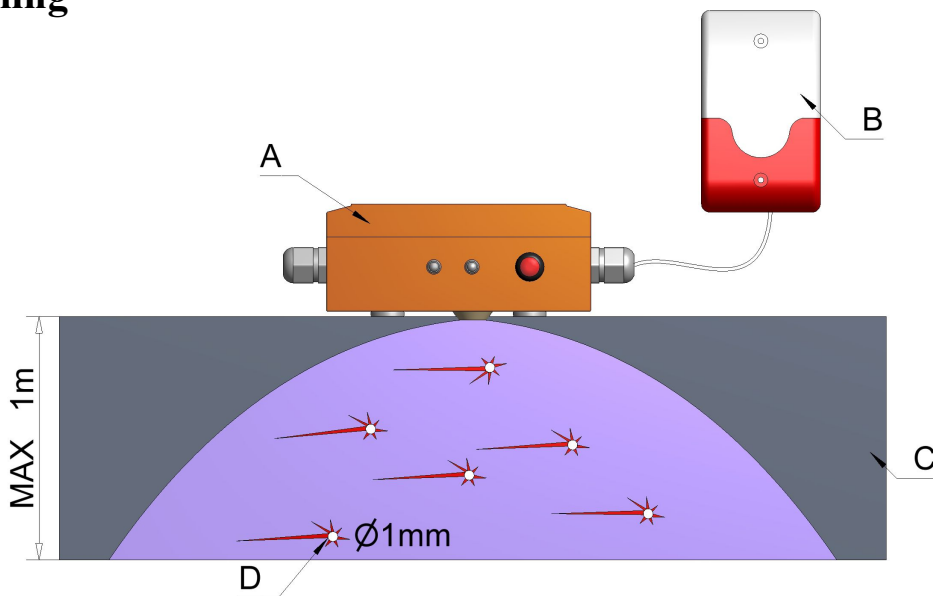


Fig3: Installation diagram

Note: A. Detector control box B. Horn strobe
 C. Conducting pipe or box D. Moving sparks

1) Installing conditions

- ※A place free from water drop, steam and oily dirt.
- ※A solid place free from vibration.
- ※A place free from strong electromagnetic interference.
- ※A place with ambient temperature no more than 40°C .

2) Installing the spark detector

.※A hole of $\Phi 22\text{mm}$ (it should be smooth without burr) is needed to be drilled on the duct in the inspection area when we install the spark detector, we just make the detector aim at the hole and fix it. Or we can install the detector directly on the cotton box or pipe depending on the magnets under the detector, (see Figure 3).

※If the detector is installed on the round pipe , please fix it with screws, or reliably fix with cable tie or adhesive tape to avoid falling off and damage machines.

Caution: Avoid direct sunlight or reflecting to the inspection area of probe head, because under this condition, the mistaken alarm may happen.

3) The Horn-strobe shall be installed at visible positions. AMP-119F type detector has a alarm reset button. After pressing the button, the alarm reset and the detector will back in normal operation. If necessary, users can also connect external alarm reset button. Of course, if shut off the power, the alarm state can also be reset.

2、Wiring

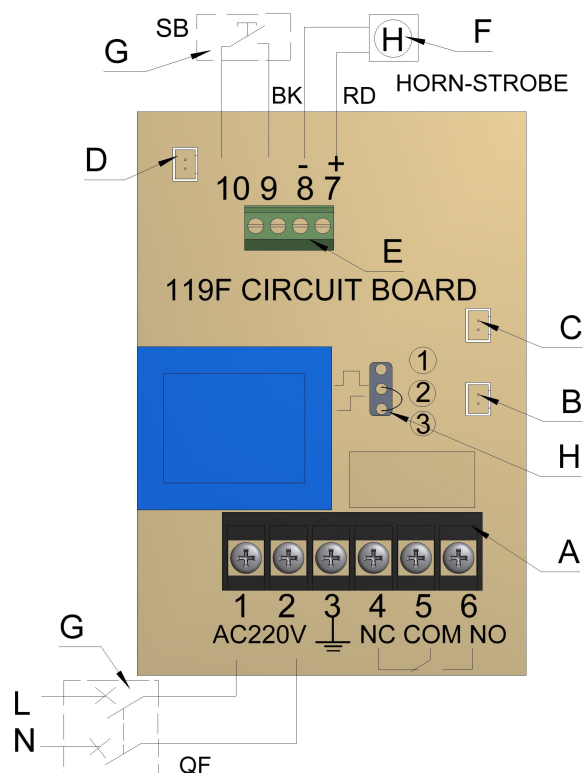


Fig4: Electrical wiring diagram

A. Terminal 1 and 2 are power input AC220V. Terminal 3 is earthing.

👉 **NOTE!**

We shall avoid the share of power supply with other equipments that may produce interference radiation. We shall pay special attention to avoiding the

phenomenon that on the time of spark alarm stopping, the power supply of instrument itself can't be shut down for output of relay signal.

Terminal 4 and 5 provide passive normally closed relay contact, they can be connected in the contactor circuit of control fan. Terminal 5 and 6 provide relay output(N.O.), they can be used to stop fan and other machines when the fire alarm is activated.

If the cut-off circuit current is excessive, it can be controlled by the conversion of an intermediate relay.

B. Socket of alarm lamp

C. Socket of working lamp

D. Socket of alarm reset button

E. Terminal 7 and 8 are connected to Horn-strobe Terminal 7 is anode connected with the red wire on the Horn-stroke., and Terminal 8 is cathode connected with the black wire on the Horn-stroke. Terminal 9 and 10 can be externally connected with alarm reset button if necessary.

F. Horn-strobe

G. Externally alarm reset button SB and the breaker QF (supplied by user)

H. If ②③ are short, relay output state remains unchanged and it needs to manually reset; ①② are short, relay output state keeps 1 second, It will be automatic reset; The factory Settings:②③ are short.

Note: power consumption of the instrument is only 5W, so it is recommended that you use the power wire over 1.0mm².

C、 Debugging and usage maintenance

1、 Debugging

1. The operation lamp (green) will be on delayed 25-30seconds after the machine is first power on, which means that the instrument is normal operation.

2. The signal lamp (red) will be on when the spark goes through the inspection area, Horn-strobe works, at the same time, relay works, and fan shall immediately stop operation.

2、 Fire alarm simulation test

We can use flash light to shine the spark sensor, it will be ok if the detector can carry out normal action (The tungsten filament of the torch is a hot body and includes infrared ray). During action, the Horn-strobe works, after resetting the alarm, the machine will turn to working conditions again.

Caution: Do not test by means of flashlight with LED light source, because LED light is featured by cold light source and less infrared radiation. If test with LED flashlight, the detector may not make normal alarms.

3、 Usage and maintenance

1. During the normal operation, if fire alarm is activated, operation can not be started until the cause is found out. Even when occasional small sparks activate the alarm, we should also stop for no less than half an hour, and we can not start until it is inspected and safety can be assured.
2. The spark detector should be checked at least once every two weeks by simulation test to assure that they are in good working state.
3. The duct and the fibers on the surface of lens in the spark detector must be regular checked and cleaned.

D、 Troubleshooting

In the below table, common faults and elimination methods during debugging or normal operation are listed.

If faults still fails to be eliminated after referring to the below table, please contact after-sale service department of Jiangsu Ampeon or visit our website to acquire relevant technical support and services.

Incident	Cause	Location to check	Remedy
When power on, the working lamp do not light.	<ol style="list-style-type: none"> 1. Power supply circuit 2. The green indicator lamp is broken or the plug loosens 3. The machine is damaged 	<ol style="list-style-type: none"> 1. AC220V power supply 2. The green indicator lamp and plug 3. Circuit board 	<ol style="list-style-type: none"> 1. Ensure reliable AC220V power supply 2. Tightly plug or replace indicator light 3. Replace detector
Cannot reset alarm	<ol style="list-style-type: none"> 1. Alarm reset plug loosen 2. Alarm reset button is damaged(or externally connected alarm reset button is damaged) 3. The machine is damaged 	<ol style="list-style-type: none"> 1. Alarm reset plug 2. Alarm reset button 3. Circuit board 	<ol style="list-style-type: none"> 1. Tightly plug 2. Replace externally connected alarm reset button 3. Replace detector
It alarms frequently without any fire	<ol style="list-style-type: none"> 1. Direct sunlight or reflection within machine inspection area 2. The machine is damaged 	<ol style="list-style-type: none"> 1. Check whether there is heat radiant light source within inspection area 2. Circuit board 	<ol style="list-style-type: none"> 1. Avoid heat radiant light source reflects inspection area 2. Replace detector
When fire alarm is activated, the Horn-strobe does not work	<ol style="list-style-type: none"> 1. Horn-strobe is damaged 2. The machine is damaged 	<ol style="list-style-type: none"> 1. Horn-strobe 2. Circuit board 	<ol style="list-style-type: none"> 1. Replace the Horn-strobe 2. Replace detector
The sensitivity of spark detector is poor	<ol style="list-style-type: none"> 1. Dust and fibers are on the surface of les in spark detector 2. The machine is damaged 	<ol style="list-style-type: none"> 1. Spark detector 2. Circuit board 	<ol style="list-style-type: none"> 1. Clean the dust and the fibers on the lens. 2. Replace detector

Jiangsu Ampeon Electronic Engineering Co., Ltd.

<http://www.ampeon.cn>

E-mail: ampeon@ampeon.cn

Tel: 0519-82612300 82616999 82616111

Fax: 0519-82616555