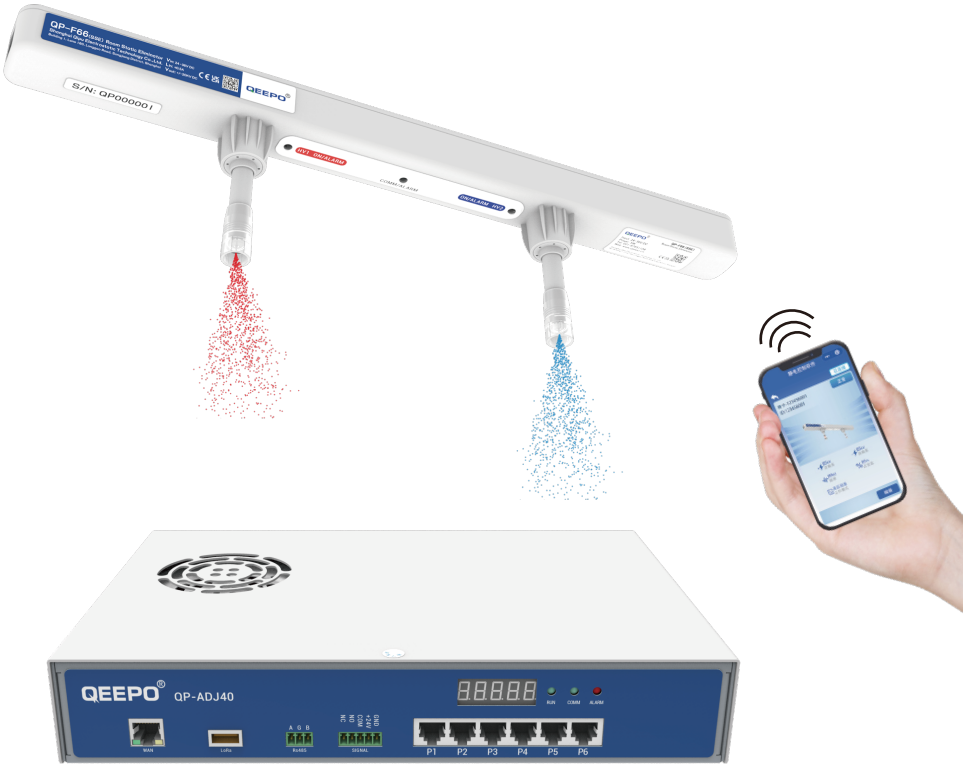
Space Electrostatic Elimination System

QP-F66(SSE) & QP-ADJ40

User Manual



Preface

Thank You For Using This Space Electrostatic Eliminator. Before Using This Space Electrostatic Eliminator, Please Carefully Read The User Manual And Understand The Information We Provide For You, So That You Can Better Use The Space Electrostatic Eliminator.

Attention

To Ensure Safe Operation And Achieve Optimal Product Performance, Please Follow The Following Precautions And Warnings, As Well As Other Information In This Manual.

- This Device Does Not Have Anti Riot Function And Is Strictly Prohibited From Being Used In Anti Riot Areas.
- This Device Can Only Function Properly If It Is Reliably Grounded, So Please Ensure That The Ground Wire Connected To The Device Is Firm And Reliable.
- This Device Is A High-voltage Discharge Product, So It Cannot Be Used In Humid Environments. Please Ensure That The Working Environment Humidity Of This Device Is ≤ 70% RH.
- The Working Temperature Is 0~65 ℃.
- There Is High Voltage At The Front End Of The Discharge Electrode, Please Do Not Approach Or Touch It.
- Unauthorized Disassembly Of This Equipment Is Strictly Prohibited.

Before Using The Space Electrostatic Eliminator, Please Read This User Manual For Optimal Performance. Please Keep This User Manual Safe For Easy Reference At Any Time.

Enterprise Introduction

Shanghai Pengpu Electrostatic Technology Co., Ltd. Is Located At Building 1, Lane 160, Longgao Road, Songjiang District, Shanghai. It Is A High-tech Enterprise That Integrates The Research And Development, Manufacturing, Sales, And Service Of Electrostatic Control Equipment And High-efficiency Corona Discharge Equipment. The Main Products Developed And Produced By The Company Are: High-efficiency Corona Discharge Machines, Electrostatic Eliminators, Ion Wind Rods, Electrostatic Polarizing Equipment, Electrostatic Generation Equipment, High-voltage Generators, Electrostatic Testers, Electrostatic Sensors, Ion Fans, Etc. The Company's Products Are Mainly Applied In Multiple Fields Such As New Energy Industry, Semiconductor Industry, New Materials Industry, Packaging And Printing Industry, Plastic Industry, Textile Industry, Optoelectronics Industry, Medical Industry, And Material Surface Corona Treatment. The Company Insists On Seeking Development Through Quality And Survival Through Reputation. In Terms Of Technology, It Dares To Innovate, And Its Product Quality Has Reached The International Advanced Level Of Similar Products, All Of Which Have Passed CE Certification. For Many Years, The Company Has Provided High-quality And Satisfactory Services To Enterprises Across The Country, Winning The Trust And Praise Of Numerous Enterprises. The Company Not Only Has Advanced Products, But Also Has Established A Comprehensive After-sales Service System To Provide Guidance And Assistance For The Difficulties And Problems Encountered In Production. Through Our Continuous Efforts And Pursuit, We Can Definitely Achieve Mutual Benefit And Win-win For The Enterprise. We Firmly Believe That:

“Innovation Is The Driving Force Of Enterprise
Quality Is The Foundation Of Enterprise Development”

Catalogue

I、 Overview Of Space Electrostatic Eliminators

1. Characteristics Of Space Electrostatic Eliminator Products

QP-F66 (SSE) Space Static Eliminator Is A Product Independently Developed And Produced By Our Company, Which Is Suitable For Eliminating Space Static Electricity And Achieving A Certain Range Of Static Electricity Values In The Environment. It Has Multiple Adjustment, Protection, And Indication Functions And Can Be Monitored And Adjusted Through A Mobile Mini Program Or QP-CONTROL Soft Software (Connected To A QP-ADJ40 Control Relay). It Can Adjust And Set The Output Voltage (Positive And Negative Can Be Independently Adjusted), Working Frequency, And Working Proportion; The Product Adopts An Integrated Design And Is Equipped With A 24V DC Input For Direct Use; The Discharge Electrode Can Be Replaced To Better Meet Customer Needs And Extend The Product's Service Life; Pulse Dc Or Steady-state Dc Operating Mode.

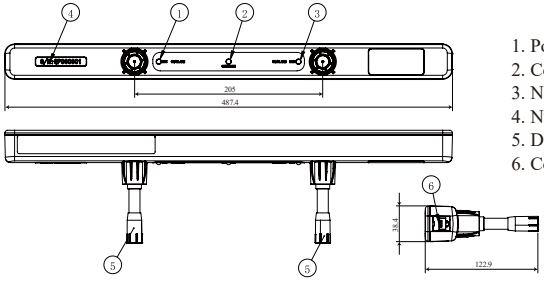
- Multiple Adjustable Parameters For Better Adaptation To Different Environments.
- The Design Of Replaceable Monocrystalline Silicon Electrodes Matches The Requirements Of The Usage Environment, Resulting In A Longer Service Life Of The Product.
- Can Be Designed With A Series Connection Structure, Making Installation And Use More Convenient.
- Status Reminder Function, Displaying The Working Status In Real-time Through Led, For Intuitive And Convenient Viewing.
- You Can View And Set Parameters Through A Mobile Mini Program.

2. Specification Parameters Of Space Electrostatic Eliminators

Model	QP-F66(SSE)
Input Voltage	24-36V DC
Power	≤5W
Working Voltage	0～±20KV DC Positive And Negative High Voltage Can Be Individually Adjusted
Working Frequency	0.1-5Hz
Work Proportion	40%: 60% (POS: NEG)
Working Mode	Pulse DC/Steady-State DC
Connection Line	RJ45 8P8C (Both Ends Of The Product Have RJ45 Sockets)
Control Mode	Through Mobile Mini Programs Or QP-CONTROL SOFT Software
Ozone Production	≤0.005ppm
Material Of Discharge Electrode	Single Crystal Silicon (Replaceable)/W
Main Material	PC、ABS FR.
Working Humidity	35% to 75% RH (Non Condensing, Non Condensing)
Working Temperature	0-50 °C

1. The Working Voltage Can Be Adjusted, And The Positive And Negative Electrodes Can Be Adjusted Separately, With A Range Of Adjustment Of 7.5-20KV;
2. The Working Frequency Can Be Adjusted Within The Range Of 0.1-5Hz;
3. The Proportion Of Work Can Be Adjusted, With An Adjustment Range Of 20% To 90%;
4. The Above Adjustments Can Be Made Through Wechat Mini Programs Or QP-ADJ40 With QP-CONTROL SOFT Software.

3. Structure Names And Dimensions Of Space Electrostatic Eliminators



1. Positive High Voltage Status Indicator Light
2. Communication Status Indicator Light
3. Negative High Voltage Status Indicator Light
4. Number Label
5. Discharge Electrode
6. Connecting Network Ports (On Both Sides)

II、 Overview Of Control Relay

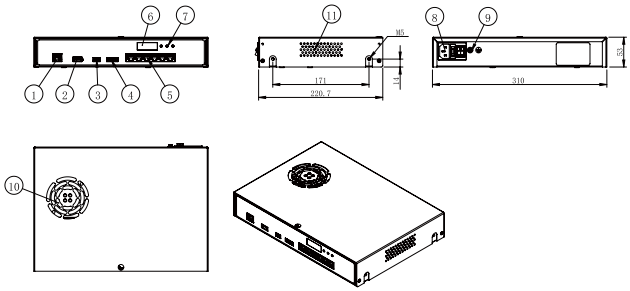
1. Characteristics Of Control Relay Products

QP-ADJ40 Control Relay Is Specifically Designed For Connection Control With QP-F66 (SSE), With A Maximum Of 40 Connections; And Connect Wirelessly Or Wired With QP-CONTROL SOFT Software. It Can Display The Working Status Of The Electrostatic Eliminator In Real Time, And Can Output Working Signals Or Connect To Sound And Light Alarms.

2. Control Relay Specification Parameters

Model	QP-ADJ40
Input Voltage	220V AC
Output Current	36VDC
Power	600W
Communication Methods	Communicate With QP-F66 (SSE) Via CAN Protocol
Maximum Load	The QP-CONTROL SOFT Software Can Connect Up To 40 Devices Through Ethernet Communication, And Each Output Network Port Can Connect Up To 7 Devices. When Connecting 7 Devices, The Maximum Connection Length Is 30m, And When Connecting 1 Device, The Maximum Connection Length Is 60m
Working Temperature	0～50℃
Working Humidity	35%～75%RH（Non Condensing, Non Condensing)

3. Control Relay Structure Name And Size



1. Wan Output Port
2. Lora Connection Port
3. Rs485 Interface
4. Signal Output
5. Connecting Loads
6. Digital Tube
7. Status Indicator Light
8. Power Input
9. Grounding
10. Heat Dissipation Air Outlet
11. Air Inlet

III、 Installation And Use Of Space Electrostatic Elimination System

1. Selection Of The Use Of Space Electrostatic Elimination Systems

(1) The Planned Density Of The Space Electrostatic Eliminator Is 1200mm×1200mm (According To Specific Circumstances, The Maximum Is 2000mm, And It Should Be At Least 1 Meter Away From The Wall).

(2) The Height Of The Needle Tip Of The Space Electrostatic Eliminator From The Floor Is 2400-3000 mm.

(3) The Height Of The Charging Tablet Tester From The Electrostatic Eliminator Is 1600 mm (Or Depending On The Location Of The On-site Machine).

(4) The Entire System Needs To Be Connected To UPS Power Supply.

(5) The Space Electrostatic Eliminator Is Installed Using An SSE Fixed Bracket (Optional 3M Adhesive Velcro Or SSE Fixed Bracket -500).

(6) Do Not Install A Space Static Eliminator Directly Above The Machine.

(7) Paired In Pairs.

Note: Refer To The Above Content For Layout Planning, Quantity Selection, And Installation Height.

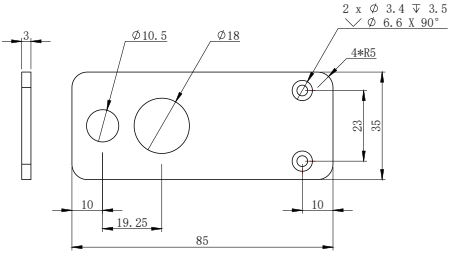
2. Installation Of Space Electrostatic Elimination System

Installation, Operation, Use, Maintenance, Major Repairs, And Repair Work Must Be Carried Out By Professional Personnel. Before Installing, Debugging, Running, And Maintaining The Product, Please Carefully Read This Manual In Its Entirety. Not Following The Instructions May Result In Damage To Components, Electric Shock, Serious Personal Injury, Or Death.

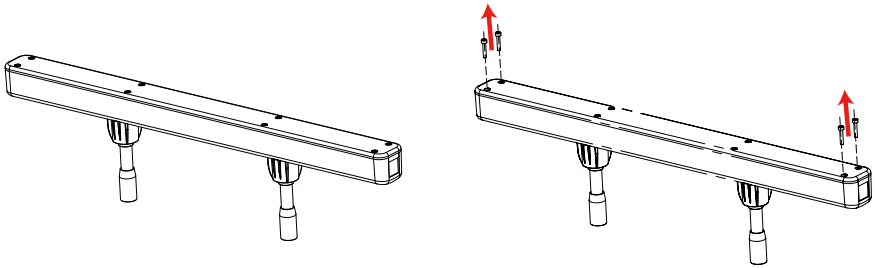
1		The Equipment Should Be Permanently Grounded And Ensure Use When Grounded.
2		This Power Supply Belongs To High-voltage Equipment, And Improper Operation Poses A Risk Of Electric Shock.
3		Maintenance Gloves Are Required For Equipment Power Transmission, Power Outage Operations, And Daily Maintenance.
4		The Controller Of This Device Is Manufactured Using CMOS Integrated Circuits And Is Susceptible To Electrostatic Damage. Do Not Touch The Pins Of Integrated Circuit Chips Or Circuit Board Leads With Your Hands. When Dismantling Panels For Maintenance, It Is Necessary To First Release Static Electricity From The Body.
5		During Normal Operation Of The Equipment, It Is Prohibited To Open The Control Cabinet Door Or Touch Internal Components Without Permission.

(1) When Using Space Static Eliminators, They Should Be Installed On The Top Of The Room Or Above The Work Area, And Laminar Air Is Required. It Is Recommended That The Wind Speed Be Greater Than 0.3m/s.

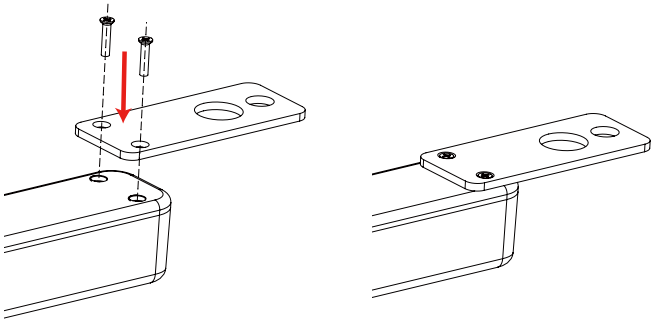
(2) Fixed To The Outside Through A Bracket, The Standard Bracket Drawing Is As Follows:



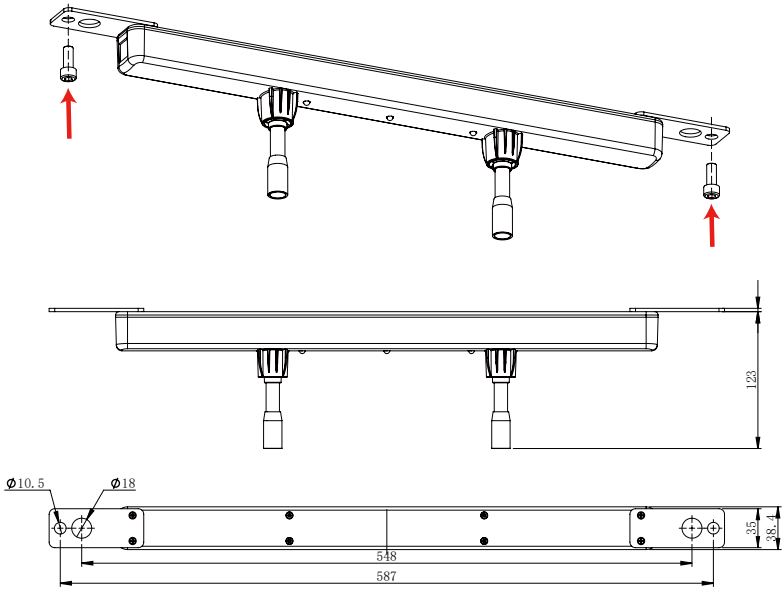
(3) First, Remove The Original Fixing Screws On Both Sides



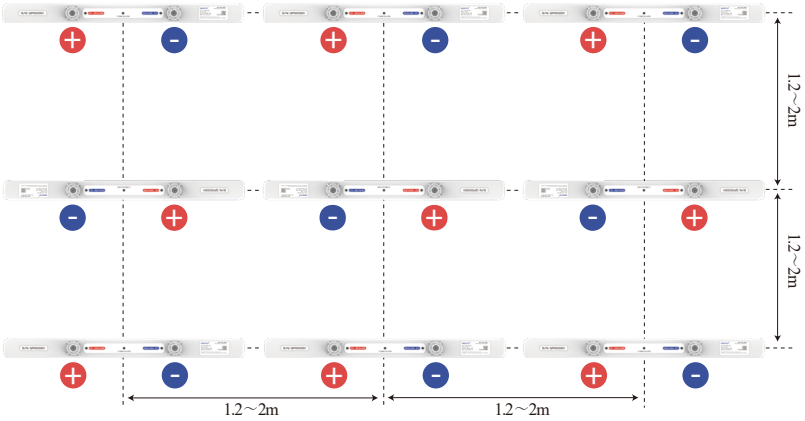
(4) Fix The Bracket With M3 * 14 Screws



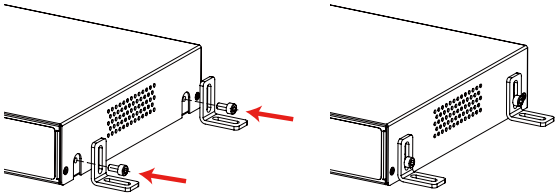
(5) Fix With Screws To The Outside, With Dimensions Shown In The Following Figure



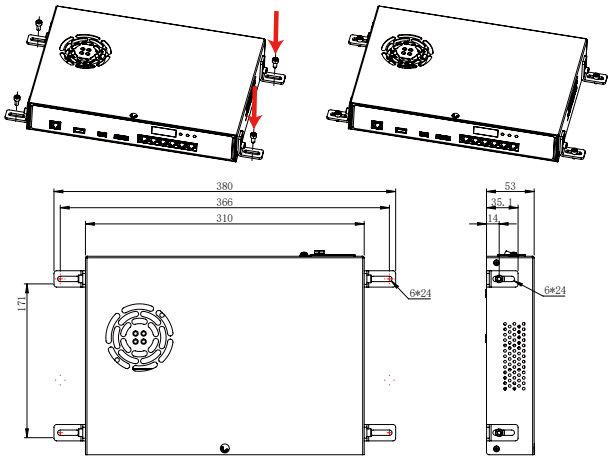
(6) When Arranging Space Electrostatic Eliminators, It Is Necessary To Arrange Them Alternately In Red And Blue, With A Spacing Of 1.2-2m (Depending On The Actual Situation) (The Effect Diagram Is Shown In The Following Figure)



(7) QP-ADJ40 Control Relay Uses M5 * 10 Screws To Fix The Bracket On Both Sides



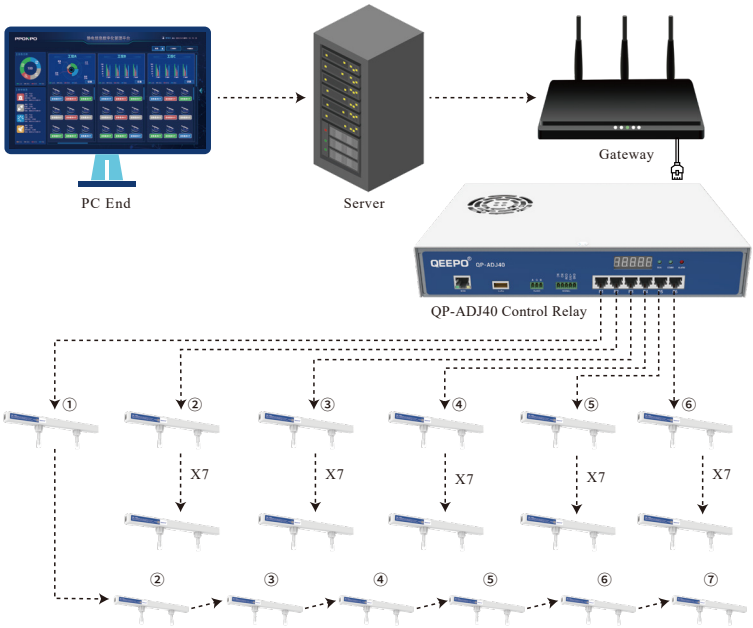
(8) Fix The External Part With M5 Screws, And The Relevant Dimensions Are Shown In The Following Figure



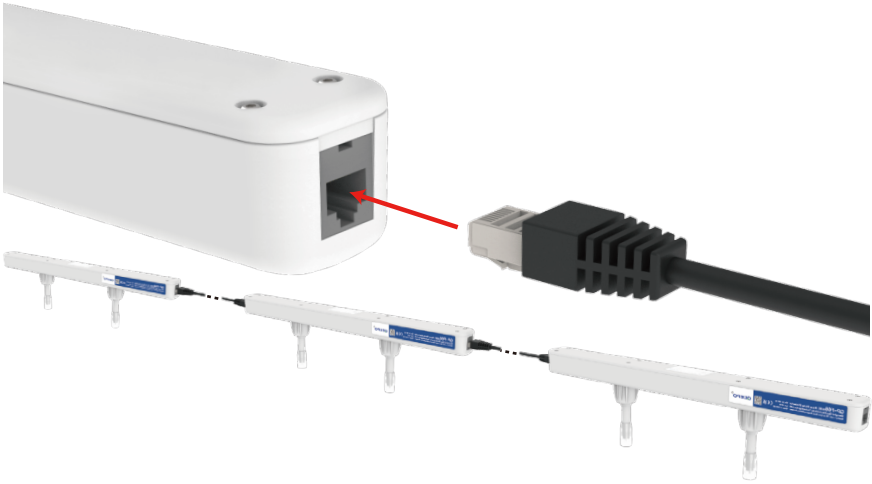
3. The Use Of Space Electrostatic Elimination Systems

(1) Connection Of Space Electrostatic Elimination System

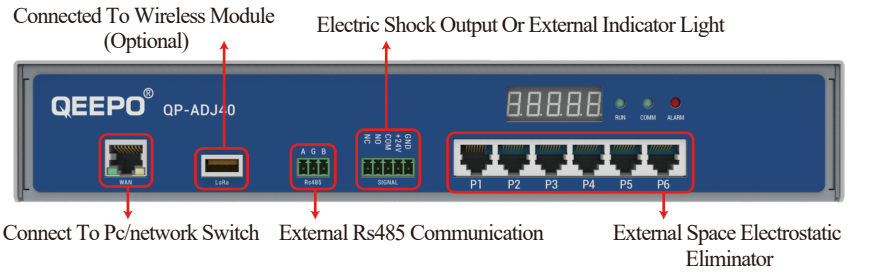
The Space Electrostatic Eliminator Is Connected To The Control Relay Through A Network Cable, And The Control Relay Is Connected To The Pc Through A Network Cable. If Multiple Control Relays Are Used Simultaneously, It Is Necessary To First Connect The Control Relay To The Network Switch Through A Network Cable, And Then Connect The Network Switch To The Pc Through A Network Cable.

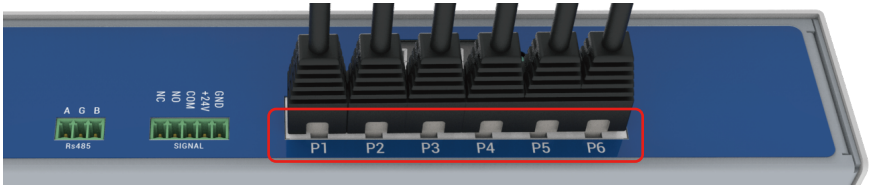


(2) Space Static Eliminators Are Connected, As Shown In The Following Figure, And Connected To Each Other Through Ethernet Cables



(3) Control The Connection Of The Relay

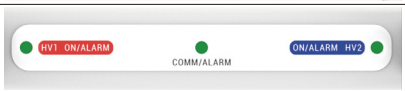




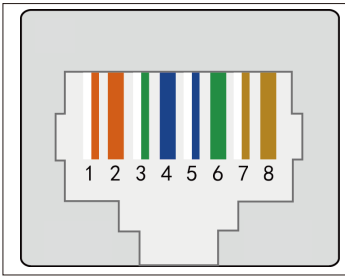
P1~P6 Interface External Space Electrostatic Eliminators, Each Interface Can Be Connected With A Maximum Of 7 Cables. When Connecting 7 Cables, The Total Length Of The Network Cable Should Not Exceed 30m. When Only One Cable Is Connected, The Total Length Of The Network Cable Should Not Exceed 60m.

4. Function Description Of Space Static Electricity Elimination System

(1) Space Static Eliminator Indicator Light

State	Explain
	HV1 High Voltage Is Being Outputted
	HV1 High Voltage Output Abnormality
	HV2 High Voltage Is Being Outputted
	HV2 High Voltage Output Abnormality
	Power On, Standby (Flashing)
	Communication Failure
	Communication In Progress (Left And Right Constantly Lit, Flashing In The Middle)

(2) Space Electrostatic Eliminator Mesh Port

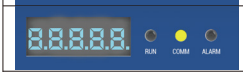
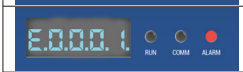
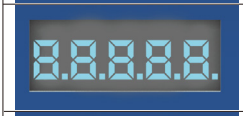
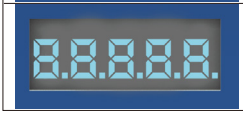


1	White Orange	+VCC
2	Orange	+VCC
3	White Green	NC
4	Blue	NC
5	White Blue	-VCC
6	Green	-VCC
7	White Brown	CANH
8	Brown	CANL

(3) Parameter settings for space electrostatic eliminators

Content	Range
Frequency	0.1HZ～5HZ
Positive High Pressure	7.2KV～20KV
Negative High Voltage	7.2KV～20KV
Duty Cycle	20%～90%
Working Mode	High Voltage Dual Circuit, Single Positive Pressure, Single Negative Pressure, Phase Controlled Output

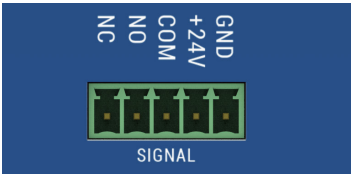
(4) Control Relay Indicator Lights And Digital Tubes

State	Explain
	Standby (Flashing)
	Working
	Abnormal Communication With PC End
	0001 Electrostatic Eliminator Malfunction (Last Four Digits Are Product Number)
	Fault Equipment Number (Four Digits After E)
	Abnormal Or Unconnected Communication (Flashing) Between Control Relay And Space Electrostatic Eliminator
	Communication Between Control Relay And Space Electrostatic Eliminator Is Normal

(5) Control Relay Signal Interface Connection Description

This Interface Outputs Relay On/off Signals And 24V Voltage, Which Can Be Used For External Sound And Light Alarms.

Note: The Relay Output Or Sound And Light Alarm Function Can Only Be Selected As Either.

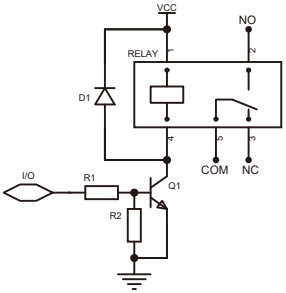


Relay Output:

When Using This Function, Choose NC+COM Or NO+COM According To Actual Needs; The COM Port Is The Common Contact Of The Relay, The NC Port Is The Normally Closed Contact Of The Relay, And The NO Port Is The Normally Open Contact Of The Relay;

When The Space Electrostatic Eliminator Connected To ADJ40 Is Normal, The Relay Contacts Do Not Act, And There Is Continuity Between NC+COM And Non Continuity Between CO+COM; When The Space Electrostatic Eliminator Connected To ADJ40 Is Abnormal, The Relay Contact Acts, The Normally Closed Contact (NC) Of The Relay Opens, And The Normally Open Contact (NO) Of The Relay Closes.

The Schematic Diagram Of Relay Output Is As Follows:

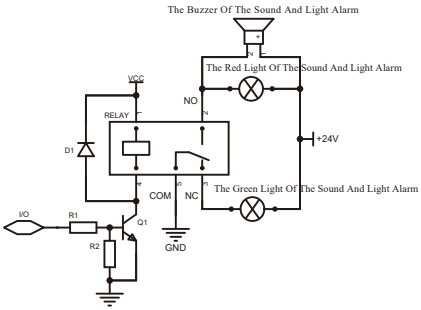


External Sound And Light Alarm:

Connect The COM Port And GND Port Together, Connect The NC Port To The Green Light Of The Sound And Light Alarm, Connect The NO Port To The Red Light Of The Sound And Light Alarm And One End Of The Buzzer, And Connect The+24V Port To The Common End Of The Sound And Light Alarm.

When The Space Electrostatic Eliminator Connected To ADJ40 Is Normal, The Relay Contacts Do Not Act, And The Green Light Of The Sound And Light Alarm Remains On; When The Space Electrostatic Eliminator Connected To ADJ40 Is Abnormal, The Relay Contact Acts, The Normally Closed Contact (NC) Of The Relay Opens, The Normally Open Contact (NO) Of The Relay Closes, The Red Light Of The Sound And Light Alarm Stays On, And The Buzzer Sounds.

The Schematic Diagram Of The External Sound And Light Alarm Is As Follows:



IV、 Communication Protocol

1. CAN Protocol For Space Electrostatic Eliminators

Protocol: CAN Extension With A Baud Rate Of 10K.
Communication Mechanism: The SSE Space Rod Actively Reports And Sends Once. The Data Cycle Is About 500MS. Upload Protocol Content:
A1 A2 A3 A4 A5 A6 A7 A8
A1: Equipment Type Bit: 0X - Static Sensor 1X-S35 Static Rod 2X-SSE Space Rod 3X - Fan
The Last Four Digits Of X Represent The Status, 0- Normal 1- High Voltage Phase Loss 2- Ignition 3- Fault
Example Explanation: 0x20- SSE Electrostatic Rod Working Normally 0x21- SSE Electrostatic Rod High Voltage Phase Loss
A2: Working Frequency: Range (0.1HZ-10HZ). Uploading Data Requires Dividing By 10
Example: 0x32->decimal 50. 50/10=5HZ
A3: Working Duty Cycle: Range 20-90%
Example: 0x32->decimal 50. Duty Cycle 50%
A4: Positive High Voltage Value: Range (0KV-20.0KV). Uploading Data Requires Dividing By 10
Example: 0x64->decimal 100. Positive Voltage Equal To=100/10=10.0KV
A5: Negative High Voltage Value: Range (0KV-20.0KV). Uploading Data Requires Dividing By 10
Example: 0x64->decimal 100. Negative Voltage Equals=100/10=10.0KV
A6: The Current Device Start/stop Status For The Upper Four Digits. Low Four Digit Working Mode.
Example: 0x00->start/high Voltage Dual Circuit. 0x10->stop/high Voltage Dual Circuit.
0x03->start/phase Control Output.
A7: Positive Pressure Value Set By The Upper Computer
A8: Negative Pressure Value Set By The Upper Computer

Send Commands To The Corresponding Terminal Device For Parameter Settings. Communication Can Be Achieved Through PLC, Microcontroller, CAN Debugging Assistant, Etc
Set Up And Distribute Protocol Content:
B1 B2 B3 B4 B5 B6 B7 B8
B1: Equipment Type Position: 00- Static Sensor 10-S35 Static Rod 20-SSE Space Rod 30- Fan The Last Four Digits Are Filled With 0 By Default:
Example: 0x20- This Command Is Issued To The SSE Static Bar.
B2: Function Setting Bits: 00- Reserved, 01- Set Frequency, 02- Set Duty Cycle, 03- Set Positive Voltage, 04- Set Negative Voltage, 05- Set Start/stop, 06- Hold,
B3: B4: Data Bits: B3 Data Has 8 High Bits, B4 Data Has 8 Low Bits.
Description: Function Setting Bit: 00- Reserved
Function Setting Bit: 01- Set Frequency - B3 B4: Data Range (0x0001-0x0032)
Function Setting Bit: 02 Setting Proportion - B3 B4: Data Range (0x0014-0x005a)
Function Setting Bit: 03- Set Positive Pressure - B3 B4: Data Range (0x0048-0x00c8)
Function Setting Bit: 04- Set Negative Pressure - B3 B4: Data Range (0x0048-0x00c8)
Function Setting Bit: 05- Set Start/stop - B3 B4: Data Range (0x0000 Start 0x0001 Stop)
Function Setting Bit: 06- Reserved B5: Reserved B6: Reserved B7: Reserved B8: Reserved

2. Control Relay Rs485 Protocol

1. Communication Mode: Customized RS485 Communication Protocol
2. The Upper Computer (I.E. External Device) Serves As The Host Computer
3. QP-ADJ40 Control Relay As Slave

4. The Relay Device Actively Sends A Packet Of Data To The Upper Computer (I.E. External Device) Every 500MS Time Interval
5. Data Verification Tool: BCC Verification (Xor Verification) Online Calculation
6. Serial Port Configuration: Baud Rate -115200, Data Bit -8 Bits, Stop Bit -1 Bit, Checksum Bit - None

(1) Upper Computer (i.e. external Device) ->Relay Device (Data Format HEX)

EA EB EC (Starting Needle)+0A (9Byte+1Byte After Length)+C0 (Function Code: C0-- Set SSE Address, C1-- Set SSE Frequency, C2-- Set SSE Duty Cycle, C3-- Set SSE Positive Voltage, C4-- Set SSE Negative Voltage, C5-- Set SSE start/stop, C6-- Set SSE Working Mode)+00 01 (SSE Static Rod Address)+00 02 (Set Parameters, Distinguish Numerical Range And Meaning Based On Function Code)+24 (XOR Verification) +CE BE AE (End Needle Tail)

[Set The Frequency Of SSE # 1 To 5Hz ->EA EB EC 0A C1 00 01 00 64 15 CE BE AE] EA EB EC (Starting Needle)+0A (9Byte+1Byte After Length)+C1 (SSE Static Rod Frequency Setting)+00 01 (SSE # 1)+00 32 (SSE Static Rod Frequency Setting Value, Range 0x0001~0x0032, Actual Value Divided By 10)+15 (XOR Verification)+CE BE AE (Ending Needle Tail)

[Set The Duty Cycle Of SSE # 1 to 80% ->EA EB EC 0A C2 00 01 00 50 74 CE BE AE] EA EB EC (Starting Needle)+0A (9Byte+1Byte After Length)+C2 (SSE Static Bar Duty Cycle Setting)+00 01 (SSE # 1)+00 50 (SSE Static Bar Duty Cycle Setting Value, Range 0x0014~0x005A)+74 (XOR Verification)+CE BE AE (Ending Needle Tail)

[Set Positive Voltage Of SSE # 1 to 10.0kV ->EA EB EC 0A C3 00 01 00 64 41 CE BE AE] EA EB EC (Starting Needle)+0A (9Byte+1Byte After Length)+C3 (SSE Static Rod Positive Voltage Setting)+00 01 (SSE # 1)+00 64 (SSE Static Rod Positive Voltage Setting Value, Range Of 0x0048~0x00C8, Actual Value Divided By 10, Unit In kV)+41 (XOR Verification)+CE BE AE (End Needle Tail)

[Set Negative Voltage Of SSE # 1 to 8.5kV ->EA EB EC 0A C4 00 01 00 55 77 CE BE AE] EA EB EC (Starting Needle)+0A (9Byte+1Byte After Length)+C4 (Negative Voltage Setting Of SSE Static Rod)+00 01 (SSE # 1)+00 55 (Negative Voltage Setting Of SSE Static Rod, Range Of 0x0048~0x00C8, Actual Value Divided By 10, Unit In kV)+77 (XOR Verification)+CE BE AE (End Needle Tail)

[SSE # 1 Set To Start ->EA EB EC 0A C5 00 01 00 23 CE BE AE]
EA EB EC (Start Needle)+0A (9Byte+1Byte After Length)+C5 (SSE Static Bar Start/stop Setting)+00 01 (SSE No.1)+00 00 (SSE Static Bar Set To Start, 0x0000: Start, 0x0001: Stop)+23 (XOR Verification)+CE BE AE (End Needle Tail)

[Set SSE # 1 To Stop ->EA EB EC 0A C5 00 01 00 01 22 CE BE AE]
EA EB EC (Start Needle)+0A (9Byte+1Byte After Length)+C5 (SSE Static Bar Start/stop Setting)+00 01 (SSE No.1)+00 01 (SSE Static Bar Set To Stop, 0x0000: Start, 0x0001: Stop)+22 (XOR Verification)+CE BE AE (End Needle Tail)

[Confirmation command received from relay device data on upper computer ->EA EB EC 0A 55 00 00 00 00 B2 CE BE AE]
EA EB EC (starting needle)+0A (9Byte+1Byte after length)+55 (function code: communication response) +00 00 00 00 (default)+B2 (XOR verification)+CE BE AE (ending needle tail)

(2) Relay Device ->upper Computer (I.E. External Device) (Data Format HEX)
No SSE Space Rod Connection:
FA FB FC 00 08 FF 0A 01 CF BF AF

FA FB FC (starting needle)+00 08 (last byte+2 Byte)+FF (default)+0A (XOR checksum)+01 (software version)+CF BF AF (ending needle tail)

1 SSE space stick connection:
FA FB FC 00 14 00 02 00 C0 00 0A 32 64 55 64 55 EF FE 02 01 CF BF AF

FA FB FC (starting needle)+00 14 (number of bytes after+2 bytes)+00 02 (SSE address No.2 SSE stick)+00 (current device start/stop status: 00 start, 01 stop)+C0 (the high 4 digits mean device type: AX static sensor, BX-S35 static stick, CX-SSE space stick, DX fan...); The meaning of the lower 4 bits is the working status: X0- normal, X1- high voltage phase loss, X2- ignition, X3- fault)+00 (reserved)+0A (working frequency 0x0A decimal 10/10=1HZ)+32 (duty cycle: 0x32 decimal 50%)+64 (positive voltage real-time value: 0x64 decimal 100/10=10.0KV)+55 (negative voltage real-time value: 0x55 decimal 85/10=8.5kV)+64 (positive voltage setting value)+55 (negative voltage setting value)+EF FE (partition character)+02 (XOR verification)+01 (software version)+CF BF AF (end pin tail)

10 SSE space stick connections:
FA FB FC 00 89 00 01 00 C0 00 01 32 64 55 64 55 EF FE 00 02 00 C0 00 01 32 64 55 64 55 EF FE 00 03 00 C0 00 01 32 64 55 64 55 EF FE 00 04 00 C0 00 01 32 64 55 64 55 EF FE 00 05 00 C0 00 01 32 64 55 64 55 EF FE 00 06 00 C0 00 01 32 64 55 64 55 EF FE 00 07 00 C0 00 01 32 64 55 64 55 EF FE 00 08 00 C0 00 01 32 64 55 64 55 EF FE 00 09 00 C0 00 01 32 64 55 64 55 EF FE 00 0A 00 C0 00 01 32 64 55 64 55 EF FE 7F 01 CF BF AF

FA FB FC (starting needle)+00 89 (number of bytes after+2 bytes)+00 01 (SSE address 1 SSE stick)+00 (current device start/stop status: 00 start, 01 stop)+C0 (the high 4 digits mean device type: AX static sensor, BX-S35 static stick, CX-SSE space stick, DX fan...); The meaning of the lower 4 bits is the working status: X0- normal, X1- high voltage phase loss, X2- ignition, X3- fault)+00 (reserved)+01 (working frequency 0x01 decimal 1/10=0.1HZ)+32 (duty cycle: 0x32 decimal 50%)+64 (positive voltage real-time value: 0x64 decimal 100/10=10.0KV)+55 (negative voltage real-time value: 0x55 decimal 85/10=8.5kV)+64 (positive voltage set value)+55 (negative voltage set value)+EF FE (partition character)+00 02 (SSE address No.2 SSE pole) + 64 (positive voltage setting value)+55 (negative voltage setting value)+EF FE (cut-off character)+ 00 0A (SSE address 10 SSE stick)+ 64 (positive voltage setting value)+55 (negative voltage setting value)+EF FE (cut-off character)+7F (XOR verification)+01 (software version)+CF BF AF (end pin tail)

3. Control the output protocol of the relay WAN port

1. Communication mode: Ethernet TCP protocol
2. Host computer: TCP Server
3. QP-ADJ40 Control Relay: TCP Client
4. QP-ADJ40 controls the IP of the relay to be fixed (the upper computer adapts to the local IP. The relay sets a fixed IP based on customer feedback on the computer IP)
5. QP-ADJ40 controls the relay device to send a packet of data to the PC upper computer every 300MS time interval. After receiving the corresponding relay data, the upper computer sends a confirmation of receiving a complete data packet within<2 seconds.
6. Data verification tool: BCC verification (XOR verification) online calculation

(-). PC upper computer ->relay device (HEX)
EA EB EC (Starting Needle)+0A (9Byte+1Byte after Length)+C0 (Function Code: C0- Set SSE Address, C1- Set SSE Frequency, C2- Set SSE Duty Cycle, C3- Set SSE Positive Voltage, C4- Set SSE Negative Voltage, C5- Set SSE Start/Stop, C6- Set SSE Working Mode)+00 01 (SSE Electrostatic Rod Address)+00 02 (Set Parameters, Distinguish Numerical Range and Meaning Based on Function Code)+24 (XOR Verification) +CE BE AE (End Needle Tail)

[SSE frequency set to 5Hz ->EA EB EC 0A C1 00 01 00 64 15 CE BE AE]
EA EB EC (starting needle)+0A (9Byte+1Byte after length)+C1 (SSE static rod frequency setting)+00 01 (SSE No.1)+00 32 (SSE static rod frequency setting value, range 0x0001~0x0032, actual value divided by 10)+15 (XOR verification)+CE BE AE (ending needle tail)

[SSE duty cycle set to 80% ->EA EB EC 0A C2 00 01 00 50 74 CE BE AE]
EA EB EC (starting needle)+0A (9Byte+1Byte after length)+C2 (SSE static rod duty cycle setting)+00 01 (SSE No.1)+00 50 (SSE static rod duty cycle setting value, range 0x0014~0x005A)+74 (XOR verification) +CE BE AE (ending needle tail)

[SSE positive voltage set to 10.0kV ->EA EB EC 0A C3 00 01 00 64 41 CE BE AE]
EA EB EC (starting needle)+0A (9Byte+1Byte after length)+C3 (SSE static rod positive voltage setting)+0 0 01 (SSE No.1)+00 64 (SSE static rod positive voltage setting value, range 0x0048~0x00C8, actual value divided by 10, unit in kV)+41 (XOR verification)+CE BE AE (ending needle tail)

[SSE negative voltage set to 8.5kV ->EA EB EC 0A C4 00 01 00 55 77 CE BE AE]
EA EB EC (starting needle)+0A (9Byte+1Byte after length)+C4 (SSE static rod negative voltage setting) +00 01 (SSE No.1)+00 55 (SSE static rod negative voltage setting value, range 0x0048~0x00C8, actual value divided by 10, unit in kV)+77 (XOR verification)+CE BE AE (ending needle tail)

Set SSE 1 to start ->EA EB EC 0A C5 00 01 00 00 23 CE BE AE
EA EB EC (starting needle)+0A (9Byte+1Byte after length)+C5 (SSE static rod start/stop setting)+00 01 (S SE No.1)+00 00 (SSE static rod set to start, 0x0000: start, 0x0001: stop)+23 (XOR verification)+CE BE AE (end needle tail)

Set SSE 1 to stop ->EA EB EC 0A C5 00 01 00 01 22 CE BE AE
EA EB EC (starting needle)+0A (9Byte+1Byte after length)+C5 (SSE static rod start/stop setting)+00 01 (SSE No.1)+00 01 (SSE static rod set to stop, 0x0000: start, 0x0001: stop)+22 (XOR verification)+CE BE AE (end needle tail)

[PC upper computer receives confirmation command for relay device data ->EA EB EC 0A 55 00 00 00 B 2 CE BE AE]
EA EB EC (starting needle)+0A (length followed by 9Byte+1Byte)+55 (function code: communication response)+00 00 00 (default)+B2 (XOR verification)+CE BE AE (ending needle tail)

V、Troubleshooting

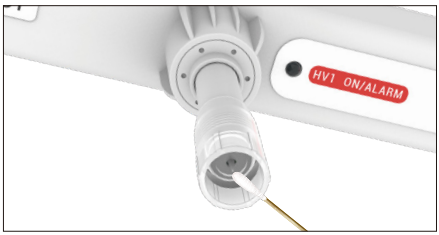
Fault phenomenon	Cause analysis	Troubleshooting
Space Electrostatic Eliminators		
The indicator light is not working	Power cord connection error	Check if the input power cord is connected correctly
The indicator light is dim	Input voltage too low	Check if the input voltage is between 24-36VDC
The red light is always on	Abnormal high voltage output	Send it back to our company for maintenance
The anti-static effect is not ideal	The static eliminator is too close to the conductor	Adjust the installation position of the static eliminator and ensure sufficient distance from the conductor
	Discharge needle contamination	Clean the discharge needle
	Ungrounded wire	Check if the ground wire is connected
	Misalignment of installation direction	Check if the positive and negative installation is staggered

	Improper installation spacing	Check if the installation spacing is between 1200-2000mm
	Inappropriate parameter settings	Check if the setting parameters are appropriate
Control relay		
COMM lights up yellow	Abnormal communication with PC end	Check if the connection line is normal and reliable
The red light is always on	Static eliminator malfunction	Analyze the reasons based on the previous table
Digital tube flashing	Not connected or communicating abnormally with the static eliminator	Check if the connection line between the control relay and the static eliminator is normal and reliable
The digital display shows E0001	0001 static eliminator malfunction	Analyze the reasons based on the previous table (0001 is the static eliminator number)

VI、 Maintenance And Upkeep

1. Daily Maintenance

(1) The discharge needle needs regular cleaning and maintenance



During the operation of a space static eliminator, the discharge needle may attach dust and other debris, resulting in poor product performance. Therefore, it is necessary to regularly clean the discharge electrode. Use a cotton swab dipped in alcohol to clean the surface and surrounding dust of the discharge needle; The cleaning of the discharge needle should be carried out at least once every quarter (recommended once a month).

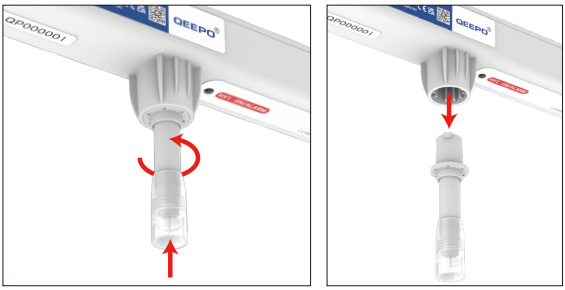
(2) System adjustment and calibration

Static eliminators may experience changes in performance due to environmental changes, dust adhesion, and electrode wear during use. Therefore, adjustments to ion output are necessary. This is a routine maintenance task during the first installation and daily maintenance, and calibration should be performed at least once every six months (recommended every three months or depending on actual conditions).

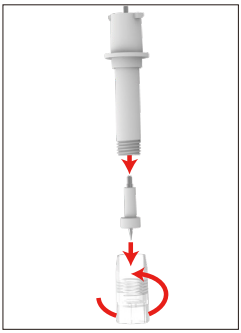
2. Replacement Of Discharge Electrodes

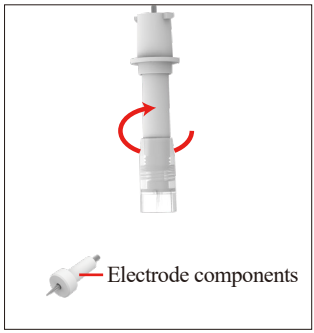
When the electrode cannot meet the usage requirements due to needle tip wear after long-term use, it needs to be replaced. The replacement cycle varies depending on the usage environment and working hours (it is recommended to replace it every 2 to 4 years). When the ideal working condition cannot be achieved after multiple maintenance or parameter adjustments, the discharge electrode should be replaced. When disassembling and placing the electrode, hold it with your hand and rotate it counterclockwise to remove it.

When disassembling the electrode needle, hold it by hand and rotate it counterclockwise while pressing it in the direction of the host.

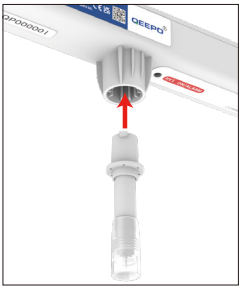


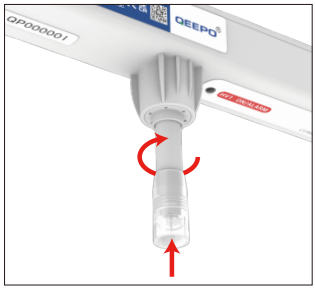
Disassemble the upper transparent component and remove the electrode assembly. Replace with a new electr -ode assembly and screw on the upper transparent component.





When installing, align the groove and insert the electrode needle. While pressing in the direction of the host, rotate it clockwise and install it.





VII、Packaging List

1. Daily Maintenance

Picture	Name
	Electrode assembly-63
	Electrode assembly-380
	Electrode assembly-610
	Electrode assembly-915
	Electrode components

2. All Factory Accessories

The following are all the accessories included in the product when it leaves the factory. Please pay attention to whether the accessories are complete when unpacking.

Category	Picture	Name	Quantity	Unit
Space Electrostatic Eliminators		3-meter white network cable	1	Piece
		SSE fixed bracket	2	Piece

Space Electrostatic Eliminators		M3 * 14 countersunk cross head screw	4	Piece
Control relay		35 * 35L bracket	4	Piece
		M5 * 10 hexagon socket head cap screw	8	Piece
		1.8-meter power cord	1	Piece
		1.5m grounding wire OT1-6 terminal	1	Piece
		Subject	1	Piece
Currency		An instruction manual	1	Piece
		Certificate	1	Piece
		Warranty card	1	Piece

VIII、After Sales Service And Guarantee

Strictly adhere to the principle of product quality first, reputation first, and customer first, and make the following commitments to the products sold:

(1) Warranty period

The warranty period for all products sold by our company is one year, calculated from the date of purchase.

(2) Warranty coverage

If there is a product malfunction during the warranty period, our company will repair or replace any defective parts or products that have been inspected by our company free of charge. However, this commitment does not apply to the following situations:

- Not using this product according to the operating conditions and environment specified in the manual, instructions, or technical requirements.
- Malfunctions caused by equipment modification or maintenance by non company personnel.
- Malfunctions caused by incorrect operation by operators.
- Our company is not responsible for warranty for disasters caused by force majeure such as earthquakes and fires, or faults caused by external factors such as abnormal voltage.

(3) Post warranty services

After the warranty period, our company is still responsible for repairing the products sold, and only charges a certain cost fee to protect the interests of customers.

This product has undergone strict factory inspection. If any malfunctions occur during use, please contact the after -sales service.

QEEPO
鹏普静电

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wechat number Andy

Official Website

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