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VECTECH443C STATIC ELIMINATOR

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OPERATION MANUAL

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Thank you for purchasing the Static Eliminator. It is designed to eliminate the static electricity from a charged object. Please read this manual before operating it and keep this manual readily accessible for reference.

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Safety Instruction

In this instruction manual, "Warning" and "Caution" are defined as followings:

⚠ WARNING: Misuse may potentially cause death or serious injury to the user.

⚠ CAUTION: Misuse may potentially cause injury to the user or physical damage to the objects involved. For your own safety, be sure to comply with these precautions.

⚠ WARNING

- No touch the needle when the power supply has switched on.
- Before clean or replace the ion needles, it must do the discharge by the special person.
- Do not insert any object through intake or outlet grille.
- It must often do the daily maintain and check.
- Do not operate the unit under the inflammable or explosive atmospheres.

⚠ CAUTION

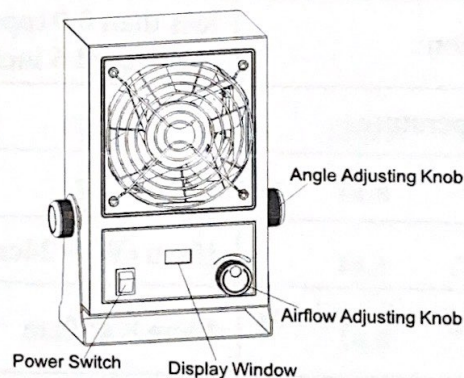
To prevent accidents and failures, be sure to observe the following precautions:

- Read the instruction manual completely before operating the unit.
- Check the using power supply is accordant with the voltage on the nameplate.
- Turn off the power switch when stop or finish work.
- Don't do the maintenance by yourself. It must have the professional person do the inner check and maintenance.
- Change the replacing parts with the quality components.
- Don't damp the unit or use with wet hands.

I . Summary

The unit is a portable table design, with LED displaying the ion balance. The ion balance is stable and when it has offset the setting range, it will alarm. The unit has a DC generator. Direct current voltage to needle products positive and negative ions. By the blower, the ion airflow blows to the charged objects to neutralize static charge. Besides, the unit can communicate with the PC by the RS-485 interface to monitor the many units' work at the same time, at most 99pcs.

The unit is designed for use with sensitive electronic components, where electrostatic discharge is a problem. It can also be used where static electricity causes problems such as: attraction of dirt to product, misalignment of small parts due to electrostatic "jumping" and undesirable adhesion of plastic films due to electrostatic charge.



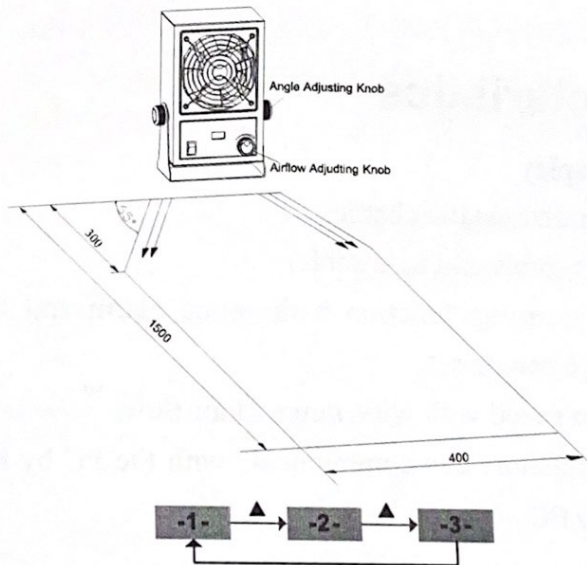
II . Characteristics

1. With LED display.
2. Rapidly neutralizes static charges.
3. Ion balance is stable and adjustable.
4. Ion balance alarming function with sound alarm and window display. The alarming range can be set.
5. Adjustable fan speed with wide range of air flow.
6. Many ion eliminators can communicate with the PC by RS-485 interface and be managed by PC.

7. Fasten the grid cover with magnet and cleaning the ion needle is convenient.
8. Ion needle is insert-plug installing and change is convenient.
9. Small appearance, light, portable design.

III. Specifications

Ion Balance (offset voltage):	less than $\pm 10V$ when regulating in the company, determined as association standard ANSI/ESD-S20.20-2014
Output Voltage:	$\pm 5000VDC$
Setting Range of the Ion Balance Alarming:	$\pm 15V \sim \pm 35V$
Ozone Production:	less than 0.01ppm (Measured 6 inches in front of unit, fan low)
Operating Temperature:	$0^{\circ}C \sim 50^{\circ}C$
Weight:	1.7Kg
Dimension:	19cm (W) \times 24cm (H) \times 9.5cm (D)
Efficiency Range of Ionizing Air Area:	40cm \times 150cm



Audible Noise:

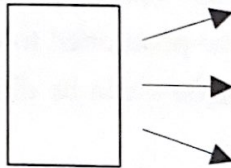
Fan Speed (Measured 3¹/₄ ft. from unit.) 1meter

Low 40dB

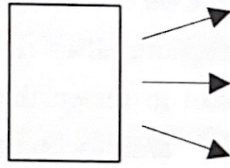
High 45dB

Eliminating static time (s):

Fan Speed – High

	30cm	60cm	90cm	120cm	
	1.8	3.3	5.9	9.0	15cm
	1.2	2.5	5.2	8.3	Center Line
	1.8	3.3	5.9	9.0	15cm

Fan Speed – Low

	30cm	60cm	90cm	120cm	
	2.5	5.0	9.1	14.8	15cm
	1.3	3.7	9.0	14.5	Center Line
	2.5	5.0	9.1	14.8	15cm

1. Offset voltage and discharge time determined as American National Standards institute/ESD Association ANSI/ESD-S20.20-2014 using charged plate analyzer.
2. Discharge times are in seconds from 1000 volts to 100 volts at locations shown.
3. Above testing value is testing at 22 °C /60%RH .The testing value can be changed with difference of temperature, humidity, air pressure and ambient environment.
4. Suggest using it in the humidity range of 50%~70%.

IV. Installation and Fixation

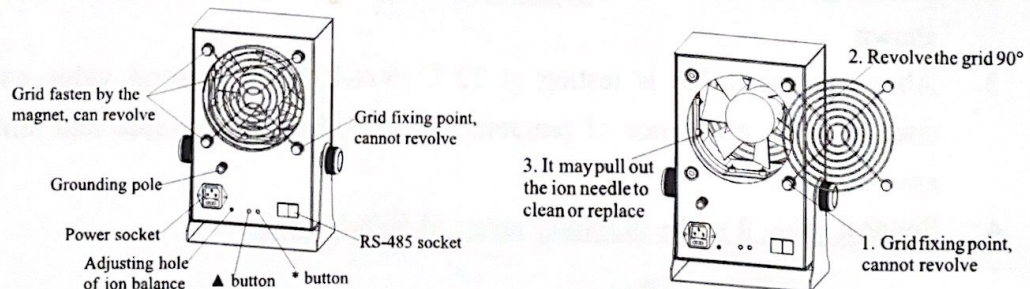
4.1 Fixate the Unit

1. The ionizing blower is generally placed at the workbench or area to be neutralized. It may also be mounted on wall or mounted on a shelf. If the bench stand is bolted in place, use M4mm screws or bolts to secure it.
2. The blower should be placed approximately 300mm to 900mm from the critical work area or objects to be neutralized. It should be positioned to cover as much area as possible with the ionized airflow. The airflow can be directed upward or downward by tilting the unit on the stand.

4.2 Clean & Replace the Ion Needle

⚠ Warning: it must do the discharge before change or clean the ion needles.

1. The metal grid is fasten by the magnetic and it can revolve 90° .
2. At first, pull the metal grid and then fasten it on the magnetic after revolving 90° clockwise. The ion needles can be cleaned. If want to fasten the metal grid to original, pull the metal grid and then revolving 90° anticlockwise.
3. **Clean the ion needles:** before cleaning the needle tips, revolve the metal grid. And then take down the brush to clean.
4. **Change the ion needles:** the needles are fastened by insert-plug type. And when changing, pull out the ion needles and replace new ones.



V. Daily Inspection

- Clean ion needles.
- Check grounding connection.
- Inspect equipment for damage.
- Inspect for moisture or other contaminants.
- Check the using power is according with the rate voltage marking on the nameplate.
- Make sure no abnormal odors, smoke, or abnormal noises are emitted from the unit while it is running.

VI. Operation

1. Connect power cord

Check whether the used voltage accords with the voltage on the nameplate of the unit before using. Plug the power socket into a standard 3-terminal grounded receptacle.

2. Turn on/off the power switch

After turning on the power switch, the ion airflow is blow out, the LED window displays the unit's address valve firstly and then displays the ion balance.

The unit will stop output the ion airflow when turn off the power switch.

3. Adjust the airflow

Adjust the airflow adjusting knob to select suitable airflow. Adjust clockwise, the airflow becomes bigger. Adjust anticlockwise, the airflow becomes lower.

4. Adjust the angel of the unit

Loosen the angle adjusting knobs at the sides of the unit, and then lean the unit to make the ion airflow blow at the static electricity objects. After that, tighten the angle adjusting knobs.

5. Eliminate the static

The unit produces airflow that is rich in positive and negative ions. Directing the airflow on an object that has a static electricity charge will neutralize the charge. If the object has a negative static charge, it will draw positive ions from the airflow. Conversely, if the object has a positive static charge, it will draw negative ions from the airflow.

⚠Caution: if smelly or unmorally sound, please stop work at once. And then turn off the power and remove the power cord, inform the agent.

6. Menu setting

- (1) “▲” & “*” buttons, at the back cover of the unit, are used to setting the ion balance alarming range and input the password of the menu.
- (2) Turn off the power switch, press “*” button not loosely, then turn on the power switch, the window displays “”, and then into the password inputting state, the window displays “-”.
- (3) There are two times to input the right password, the inputting method as followings:
 - ① Setting the hundred digit firstly, press “▲” button to change the data. Press the “*” button when selecting suitable digit, then into the ten digit setting.
 - ② Ten digit and one digit setting methods are as the hundred setting.
 - ③ Press the “*” button after inputting the password. If the inputting password is right, it will come into the menu setting.
 - ④ If the inputting password is wrong, it will come into the secondary password inputting.
 - ⑤ If the secondary password inputting is wrong, it cannot come into the menu setting. It will come into the working state and the LED displays the current ion balance.
- (4) In the menu setting, there are three submenus “-1-” & “-2-” & “-3-”. Press the “▲” button to select menu and then press “*” button into the submenu setting.

“-1-”: Exit

Selecting this menu, then press “*” button can exit menu setting.

“-2-”: Setting ion balance alarming digit

After selecting this menu, press “*” button into the menu setting, and then press “▲” button to set the ion balance alarming digit.

Ion balance alarming range: 15~50 (namely, $\pm 15V \sim \pm 35V$)

Note: the system alarming digit is 15, which means the system alarming when the ion balance is over $-15V \sim 15V$.

“-3-”: Change the password

After selecting this menu, press “*” button into the menu setting, and then press “▲” to input new password. The password change is successful only when the new password inputting digits of two times are same.

VII. Alarming Information

The window will display some information to inform error and alarm when the ion output is in malfunction.

When displaying the following information, please refer to the “maintain” and “trouble-shooting” to check the unit.

- “Err”+“OFF” : “ERR”&“OFF” display alternately, mean without ion output or the sensor is in malfunction. Here, the system will power off automatically.
- “***”+“OFF” : “***”&“OFF” display alternately, mean current ion balance is above the ion balance alarm setting data. Here, the system will power off automatically.

NOTE: “***”denote the current ion balance.

For example: if the ion balance alarm setting data is $-15V \sim +15V$, if the ion balance is +20, the window displays “+20”& “OFF” alternately. If the ion balance is -20, the window displays “-20”& “OFF” alternately.

- “- -” : The ion balance offset to “+” too much.
- “- - -” : The ion balance offset to “-” too much.

VIII. Maintenance

⚠ Warning: *It has high voltage inside. It must do the discharge of the needles before clean or change the needles.*

1. Clean or Replace the Ion Tip

Clean the ion needles: turn off the power switch. Remove the grid cover about 90° , and then clean the ion needles by the brush attaching at the back of the unit.

Change the ion needles: if the needles have been weaned down, it must change the needles.

2. Check the ion output

1. It may use a charge plate monitor (for instance 432) to check the ion balance, according to the Ionization Standard ANSI/ESD-S20.20-2014 American National Standards institute/ESD Association
2. If there is only a charge plate monitor held by hands, check the neutralizing performance periodically according to the following steps.
 - ① Measure the static voltage of a charged object by a charge plate monitor.
 - ② Turn on the power switch and the ionizing nozzle works normally. Make the charged objects under the air outlet of ionizing bar and 15~30mm from it for several seconds.
 - ③ Measure the static voltage of the charged object again. If the voltage obtained is within the eligible range, it means that the unit is in good service.

- (3) If not available testing instrument, the unit's operation can be verified with the following procedure. Tear off about a 250mm length of transparent tape. You will note that the tape is charged and will easily attract to a nearby surface such as a wall when held vertically approximately 30mm from the surface. Pass the tape through the ionized air stream approximately 300mm from the unit and 5 seconds later, approach the non-adhesive side of the tape with your free hand.

IX. Trouble Shooting

⚠ Warning:

To avoid electric shock, always remove the power-supply cord and wait about 5minutes before inspecting the inside of the unit or changing parts.

1. The unit doesn't operate when the power switch is turned ON.

CHECK: Is the power cord plugged in?

ACTION: Plug it in.

CHECK: Is the fuse blown?

ACTION: Replace the fuse.

⚠CAUTION: Be sure to replace with a fuse of the same rating.

2. The air is flowing but the static is not eliminated.

CHECK: Is the dust or other matter adhered to the electrodes?

ACTION: Clean the tip of the electrodes.

NOTE: For any other problems than those listed above, contact your distributor.