

Instruction Manual

Air ionizer (WINSTAT Model BF-SZAI)

Thank you for purchasing the WINSTAT BF-SZAI Fan-type ionizer. Please read this manual before using the product in order to fully understand its functions. Also make sure to store this manual so that it can be referred to in the future.

Warning

● This product is not specified as an Explosion-proof Type. Do not use this product at a location or an atmosphere, in which combustible gas or solvent is handled, or else ignition or explosion may occur.

High Voltage

● A high voltage is applied to the Discharge Needle. Do not allow any conductive material, including your finger, any part of your body, wire or any tool to get close to the Needle, or an electrical shock accident or a malfunction of the product may occur.

1. Safety Precautions

Installation

- Install the product in a location where the power indicator and output signals can be easily checked.
- Do not install the product in any of the following locations, as doing so may cause fire or electrocution.
 - Locations subject to high temperature, or high or low humidity
 - Dusty locations
 - Locations where the air inlet of the fan will be blocked
 - Locations where the product may be exposed to organic solvents such as thinner
 - Locations subject to condensation
- This product emits ozone into an atmosphere. Do not use this product in an enclosed space.
- Locations where the product may be exposed to corrosive gas
- Locations subject to flames or explosions
- Locations subject to frequent vibrations
- Locations subject to sudden changes in temperature or humidity
- Locations where the product may be exposed to water or oil

Power Supply

- Do not insert or remove the cable with wet hands. Doing so may cause electrocution.
- Do not use the cable provided with the products, for a moving section. Otherwise, they may break down.
- Avoid scratching the cable. Letting the cable be subject to scratching, excessive bending, pulling, rolling up, or being placed under heavy objects or squeezed between two objects, may result in current leaks or defective continuity that lead to fires, electric shocks, or abnormal operation.
- Do not pull out the connectors while the power is ON. Also, do not apply unnecessary stress on the connector. It could result in erratic equipment operation that could lead to personal injury, equipment breakdown, or electrical shocks, etc.

Maintenance

- Make sure to turn the main power of the product OFF before removing the cable for cleaning.

Handling

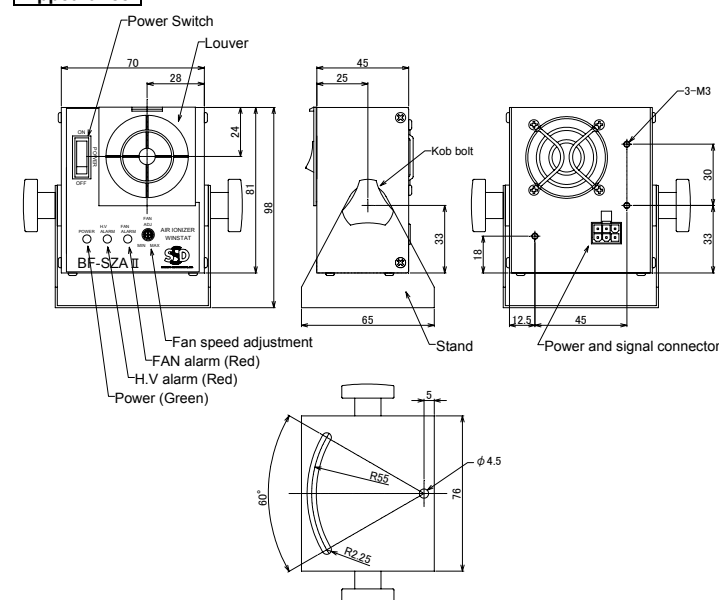
- Do not disassemble or modify the product.
- The product may affect medical devices such as hearing aids or pacemakers.
- Take care when using the product, as its internal parts are subject to high voltage.
- Do not insert any foreign objects into the product. Doing so may result in a short circuit or current leakage, and cause fire or electrocution.
- Make sure to connect the earth wire to an appropriate place. Forgetting to connect the earth wire, or connecting the earth wire to an inappropriate place may cause electrocution.
- For safety purposes, remove the cable if you plan on not using the product for an extended period of time.
- If the product emits any abnormal odors or sounds, smoke, or heat, turn OFF the main power immediately, remove the cable, and contact your point of purchase. Failure to do so may result in fire or a short circuit.
- Do not directly touch the discharge needles with your hands.
- Do not do anything with the product that is not described in this manual.

2. Outline

- This product uses a fan to blow air ionized with the corona discharge of an electrode to eliminate the static electricity in electrically charged materials that are located at a distance.
- Since it is an ultra-miniaturized device, the BF-SZAI is suitable for incorporation in devices and spot neutralizing.
- The high frequency corona discharge system enables a balanced amount of positive and negative ions to be released for high neutralization performance. The performance of the product also deteriorates little with age, making it low maintenance.
- Includes output signals abnormal high voltage output (red indicator) and regular fan rotating (red indicator).
- The front louver can be easily removed/attached for easy electrode maintenance. This product also includes a safe circuit design that ensures that the high voltage output and fan stop when the louver is removed.
- The amount and angle of the air blowing from the fan is adjustable.

3. Specifications

Appearance



Indication part name

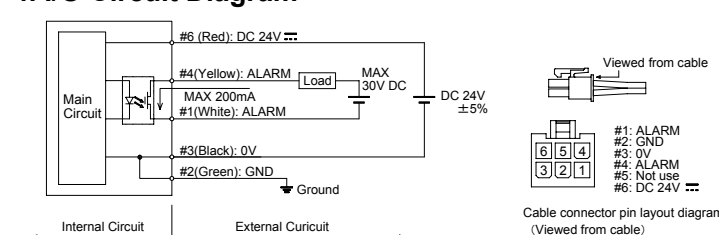
Name	Indication	Color	description
Power output	POWER	Green	Lights up when this product is turned ON.
High voltage output	H.V ALARM	Red	Lights up when abnormal high voltage output occurred.
High voltage alarm	FAN ALARM	Red	Lights up when fan motor is locked.

List of Specifications

Model No.	BF-SZAI
Input voltage	24 V DC ± 5%
Capacity	5 VA
Discharge method	High frequency AC method
High voltage output	AC 2,500V approx.
Ion balance (NOTE1)	±10 V or less
Static charge removal time (NOTE1)	2 sec. approx.
Alarm Output	Normally close (B contact) with non voltage contact MOS FET relay output maximum allowed current: 200 mA Applied voltage: 30 V DC or less
Airflow	0.2 to 0.3 m ³ /min
Air flow out angle	Vertically 360° variable
Quantity of produced ozone	0.1 ppm or less(at the center of the fan outlet [150 mm])
Noise level	48dB(A) (at a distance of 1m)
Environment	Indoor / Altitude up to 2000m
Ambient temperature	0 to 40°C
Ambient humidity	15 to 65% (No condensation allowed)
Dimensions: (mm)	70W×81H×45D (Main unit only)
Weight	370 g approx. (including stand)
Material	Enclosure: SUS304, Discharge needles: Tungsten, Stand: SUS304
Accessories	Instruction manual, AC adapter, Wide angle louver, Alarm output connection wire, Cleaning brush

Note1: Typical value at a distance of 200 mm from the center of the fan outlet, at maximum flow rate (before shipment).

4. I/O Circuit Diagram



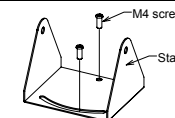
Pin No.	Color	Signal name	I/O	Description
1	White	ALARM	Output	Alarm output (b contact)
2	Green	GND	--	Grounding wire
3	Black	0V	--	Power supply 0V
4	Yellow	ALARM	Output	Alarm output (a contact)
5	-	-	--	-
6	Red	DC 24V	--	Power supply +24V

Note1: GND(#2) is connected internally to 0V(#3).

5. Installation

- Be sure to turn OFF the power before installing this product.

- Place this product on a level surface. If you want to fix the product to the surface, use the screws already inside the holes, and make sure the product is secured firmly before using it.



- The angle of the main unit may be freely adjusted by loosening the Knob Bolt. After the adjustment is completed, be sure to tighten the Knob Bolt again to ensure that the angle of the main unit will stay unchanged.
- When attaching only the main unit to a direct device, it attaches to a mechanical frame etc. using the fitting holes of the rear face of a main unit. Use the screws which suited the fitting holes (3-M3). Check that the main unit is being fixed firmly. The screws should use what enter less than 5mm into the main unit.

6. Wiring

Caution

- Be sure to carry out the grounding procedure (according to the class D procedure). Otherwise, an electric shock accident or a malfunction of the product may occur. In addition, this product may not be able to work up to the full performance.
- Output signals do not incorporate a short-circuit protection circuit. Do not connect the power supply or capacity load directly. Otherwise internal circuit is damaged, and accidents or problems with operation may occur.
- Connect the green lead wire to the Grounding Point (class D procedure). If it is not securely grounded, this product may not be able to work up to the fullest performance.
- Please connect red and black lead wire of cable to your power supply.
- If the Alarm Output Signal is needed, connect the cable to your external equipment.

7. Operation

- Turn the power switch of the product ON, and green 'Power' led becomes light up. The electrode becomes charged with high voltage, releases corona discharge, and generates neutralizing ions. At the same time, the fans spin, and blow neutralizing air from the front of the main unit. Charged materials placed in the neutralizing air will be immediately neutralized.
- In accordance with the distance to the charged object, adjust the 'Fan speed adjustment' to provide the appropriate amount of airflow. Turn the 'Fan speed adjustment' gradually with phillips screwdriver.
- Press the 'Power switch' OFF to stop the product.

8. Indicator and Alarm output signals

- The internal relay contacts will generate Alarm output signals as follows. The terminal block is rated for a maximum current of 100 mA and 30 V DC.

	LED state			Alarm output signals
	H.V [green]	H.V ALARM [red]	FAN ALARM [red]	ALARM [1pin-4pin]
Normal	○			ON
H.V abnormality		○		OFF
Fan lock			○	OFF
Power OFF				OFF

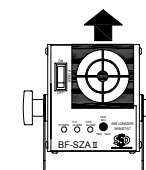
9. Maintenance

Warning

- Before care and maintenance of the product, make sure to turn OFF the power. Otherwise damage or operating problems may occur.
- The tip of the discharge needle is sharp, be careful not to touch the Discharge Needle.
- When this product is used for long periods of time, the discharge needle and the air inlet/ outlet section will get dirty. Clean the discharge needle and the air inlet/ outlet section regularly, otherwise you could not get the desired effect, and operating errors and accidents may occur.
- The maintenance required depends on the environment of use. As a reference, cleaning both the discharge needle unit and fan filter should be done once per 2 weeks.
- The discharge needle is a part having a product life time. If the charge removal performance is not restored after cleaning the discharge needle, it is recommended to replace the entire discharge needle unit with a new one. The expected life span is seemed to be 20,000 hours in case of natural wear and use.
- If you use the discharge needle unit or fan filter for replacement mentioned, please purchase below.
 - DNU-W29 : Discharge needle unit

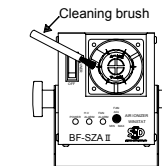
Cleaning the Front Louver

- Push in the tabs on both sides of the front louver, and pull it towards yourself to remove it from the main unit. Clean the louver using the included cleaning brush. If the louver is extremely dirty, wash it with water (or a neutral detergent).
- Re-attach the front louver to the main unit after drying it thoroughly.



Cleaning the Discharge needles

- Remove the front louver.
- Clean the discharge needles using the included cleaning brush. If the discharge needles are extremely dirty, it is recommended you add IPA (isopropyl alcohol) to the cleaning brush.

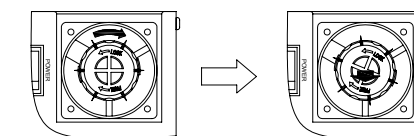


Replacing the Discharge needle unit

- Remove the front louver.
- While securely holding down the main unit in place, remove the discharge needle unit by gripping the Finger Grip at the center of the discharge needle unit and turning it in the direction of FREE (clockwise), and releasing the unit.

Turn in the direction of FREE.

Release the unit.

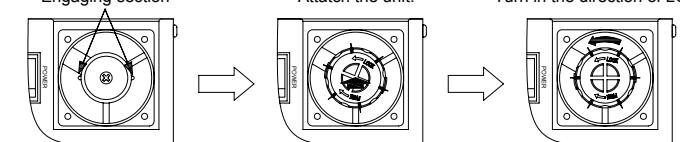


- Prepare a new set of discharge needle unit.
- Align the protrusion on the main unit in the section to be engaged with the discharge needle unit with the engaging section on the discharge needle unit. Press the discharge needle unit into the main unit, so that both units will be engaged with each other. Turn the discharge needle unit in the LOCK direction (counterclockwise) until the discharge needle unit is securely locked with the main unit.

Engaging section

Attach the unit.

Turn in the direction of LOCK.



Note1: Turn the discharge needle unit until securely locked. The correct installation of the discharge needle unit on the main unit is essential for the optimum operation of the product.

10. Troubleshooting

Problem	Main case	Remedy
The power cannot be supplied to the product.	Cable is not connected to the main unit or power supply.	Check the cable is connected to the main unit and the power supply correctly.
	Louver is not installed.	Check the Louver to confirm that it is correctly installed.
	Discharge needle is shorted. Abnormal discharge.	Check that the discharge needle is free from conductive materials.
HV ALARM is lights up.	Discharge needle is dirty.	Clean the discharge needle. But ALARM LED remains light even after the discharge needle has been cleaned, clean the area around the needle is dirty.
	Grounding wire is not connected.	Check that the Grounding wire is securely grounded.
	Internal circuit is broken.	Turn off the power, and then turn the power back on. If the ionizer still is not recovered, inform to a nearby sales office.
FAN ALARM is lights up.	Foreign objects or dirt.	Check that there is any object or dirt inside.

Letter of Guarantee

- This product has passed the inspection carried out by our company. This product will be subject to repair or replacement, free of charge, of any failed or broken part, if a failure or a breakage should occur during the guarantee period under the condition of normal use, caused by a defect in the design or manufacture by our company.
- The Period of Guarantee: One (1) year starting from the date of delivery.
- Any repair work or replacement for any failure or breakage caused by any of the following reasons will be carried out by the user bearing the cost:
 - (1) Any failure or breakage caused by usage or storage not under the normal condition.
 - (2) Any failure or breakage caused by an unauthorized repair or a modification carried out by other person than our company, or not in accordance with the specifications provided by our company.
 - (3) Any failure or breakage caused by a disaster or force majeure such as fire, natural calamity, or an act of God.
 - (4) Any failure or breakage caused by any other reason that cannot be attributable to our company.

Product Name	Fan type Ionizer	Model Name	WINSTAT model BF-SZAI
Serial Number	Date of Delivery	Inspection Seal	

SHISHIDO ELECTROSTATIC, LTD.

EXPORT DIV.
1-3-3, HIGASHI-YUKIGAYA, OTA-KU, TOKYO 145-0065 JAPAN
TEL: +81-3-3727-0161 FAX: +81-3-3727-0342
e-mail: ssd-export@shishido-esd.co.jp URL: <http://www.shishido-esd.co.jp/>