



BFN-700+

Ionizing Air Blower

User Manual



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V1.0.0

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HORB Mall

Company Profile

Shenzhen Horb Technology Co., Ltd. was founded in 2001 with stock code 870762. Horb Has Long Been Committed to the Research and Development of "Intelligent Solutions for Controlled Environment" for More Than 20 Years, And Provided Customers With P+1+1 Industry Solutions: P01 Smart Cleanroom Engineering, P02 CLEANCLOUD Intelligent Platform, P03 Best-MRO Digital Intelligence, +1 HORB Industrial Products Mall, +1 BEST-RESOURCE Consulting & Training.

The Company Has Won The Honors And Qualifications Of National High-Tech Enterprises, Specialized And Special New Enterprises In Guangdong Province, And Shenzhen Post-Doctoral Innovation Practice Base And Other Honorary Qualifications. HORB Has Obtained 100+ Intellectual Property Rights, National Industrial Product Production License, ISO9001 And Other Quality System Certification, Class II Medical Device Certification, Participated In The Preparation Of More Than 10 National Standards. It Has Many Own Brands Such As HORB, BFN, ECO, KANBO, And BEST-RESOURCE.

Adhering To The Values Of "Customer First, Integrity, Openness, Professionalism, Co-Creation And Sharing", The Company Has Set Up Domestic Offices In Shenzhen, Suzhou, Wuhan, Hefei, Changsha, Chengdu, Chongqing, Huizhou, And Subsidiaries In Hong Kong, Vietnam, Thailand, India, Philippines, Germany, American, Mexico And Other Places, And Has Established A Long-Term Cooperation Ecology With Industry Leaders. Business Coverage Of 50+ Countries And Regions, A Wide Range Of Services At Home And Abroad 5000+ Intelligent Manufacturing Leaders.



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Product Overview

The high-frequency ionizing air blower is a practical air-blowing static elimination device developed by our company. It supports RS485 communication, adopts high-frequency AC technology, , then conveying ions outward through the fan. It delivers ultra-stable ion balance to realize wide-range static neutralization.

Industry Applications

Widely applied in precision electronics, semiconductor manufacturing, pharmaceutical production and other static-sensitive production workshops.

Product Features

- ◆ Automatic ion balance control system, ion balance controlled within $\pm 10V$.
- ◆ Digital tube real-time display of fan speed gear and equipment fault codes.
- ◆ Highly integrated built-in high-voltage circuit, compact body with safe and convenient installation.
- ◆ Dual status indicator lights (FAN / H.V.) for intuitive real-time operation monitoring.
- ◆ Tungsten alloy emitter needles with excellent wear resistance and long service life
- ◆ Detachable emitter needle assembly and air outlet grille for easy cleaning, replacement and maintenance.
- ◆ 6-speed adjustable high-volume fan to meet static elimination demands of diverse working conditions.
- ◆ It features a locking function to prevent accidental operations and effectively ensures stable operation of the device.

Performance Specifications

Item	Specification	Remarks
Product Name	High-Frequency Ionizing Air Blower	-
Static Decay Time	≤2 seconds	Note 1
Ion Balance	≤ ±10V	Note 1
Input Power Supply	DC24V±5%	-
Operating Current	≤ 500mA	-
Communication	RS485	
Auto Clean Interval	24 Hour	
Ion Emission Mode	High-Frequency AC	-
Ion Generation Method	Corona Discharge	-
Discharge Output Voltage	2KV	-
Maximum Air Volume	30CFM	Note 2
Fan Speed Gears	6 level	-
FAN Indicator Light	Green = Normal; Red = Fan Fault	-
H.V Indicator Light	Green = Normal; Red = High-Voltage Fault	-
Noise Level	50dB	Note 3
Ozone Generation	≤0.03ppm	Note 4
Operating Ambient Temperature	0–60°C (No Condensation)	-
Operating Ambient Humidity	30%–70% RH (No Condensation)	-
Material	Main body & bracket: ABS + Carbon Steel; Emitter Needle: Tungsten Alloy	-
Net Weight (Main Unit Only)	480g	-
Overall Dimensions (Main Unit Only)	125mm*92mm*68mm	-

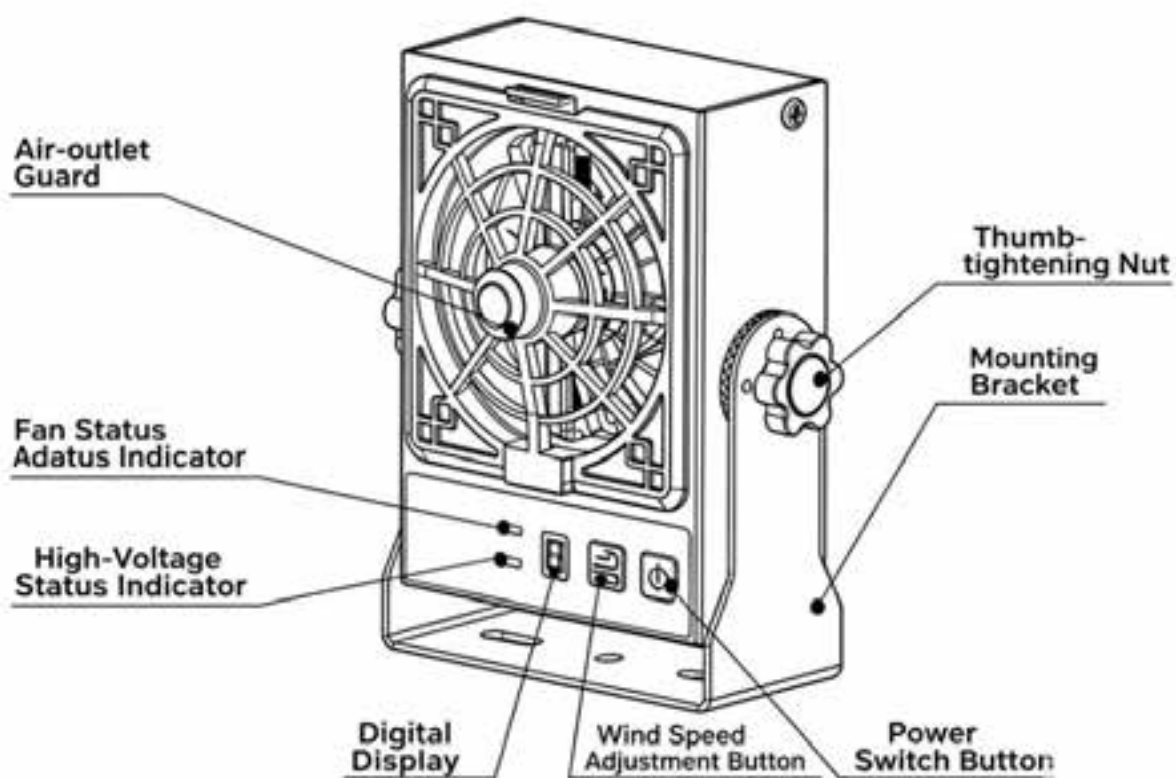
Notes:

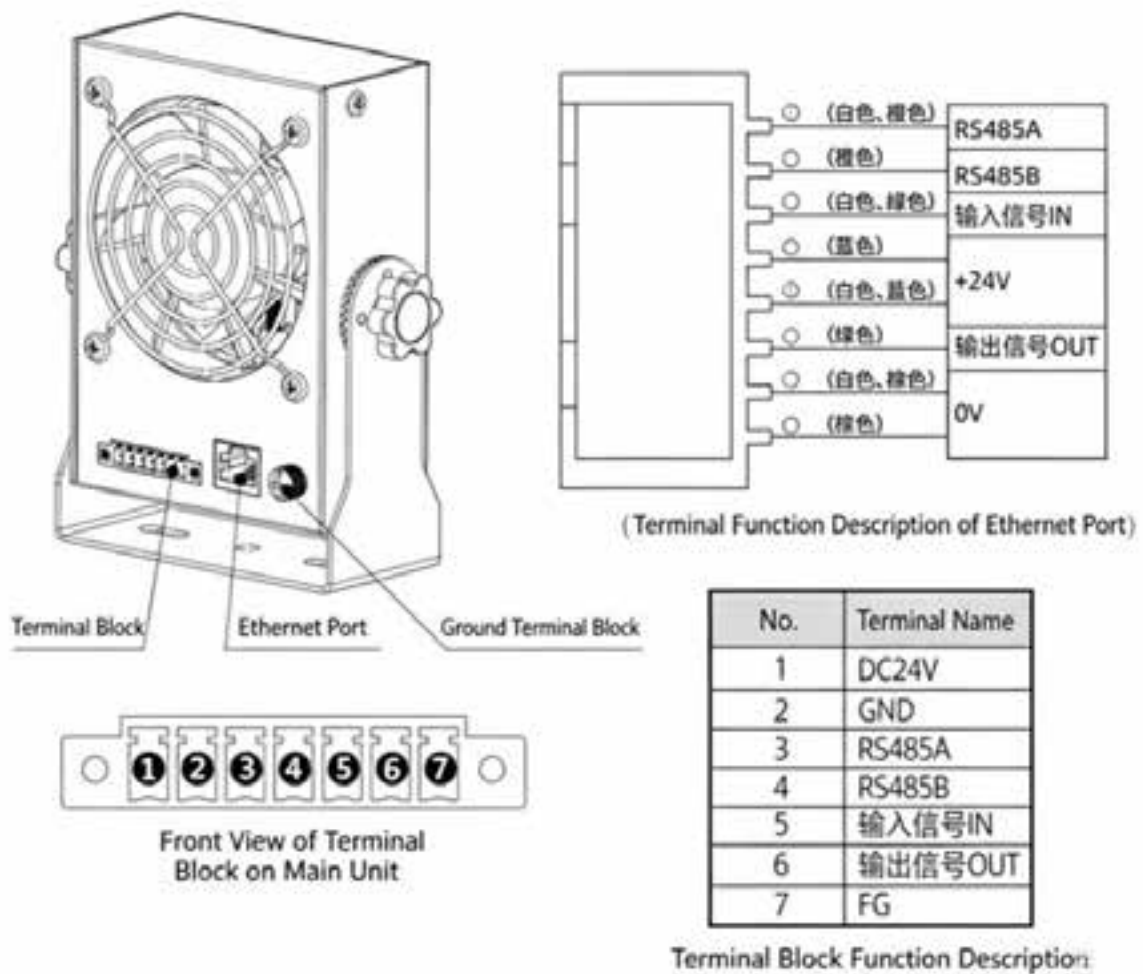
1. Tested at 300mm in front of air outlet (@ maximum fan speed) .
2. Static elimination cannot work without air flow; ozone concentration inside the unit will rise sharply without air circulation and may damage the unit or surrounding electronic equipment. Shut down if fan stops running.
3. Tested at 1000mm in front of air outlet (@ maximum fan speed) .
4. Tested at 300mm in front of air outlet.

Product Structure Diagram

◆ Front Panel Components

1. Air Outlet Grille
2. Fan Status Indicator
3. High-Voltage(H.V.) Status Indicator
4. Digital Display Tube
5. Fan Speed Adjustment Button
6. Power Button
7. Tightening Nut
8. Mounting Bracket





◆ Rear Terminal Definition (7-pin Terminal Block)

1. DC24V: Power Positive
 2. GND: 0V Power Negative
 3. RS485A: Communication Line A
 4. RS485B: Communication Line B
 5. IN: External Input Signal
 6. OUT: External Output Signal
 7. FG: Functional Ground
- Ethernet Port: For remote network communication control
 - Ground Terminal Base: Connect reliably to earth ground

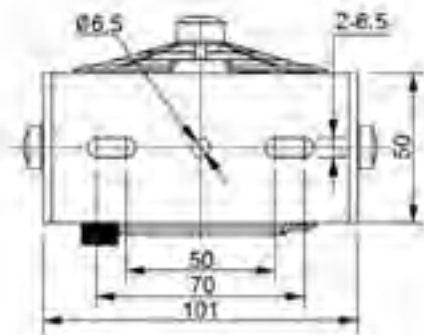
Installation & Wiring

⚠ WARNING Safety Instructions

1. Always cut off power supply before adjusting installation angle to avoid electric shock accidents or equipment failure.
2. Do not deploy the unit in areas with severe electromagnetic interference or surge noise.
3. Keep the unit away from water, oil and liquid splashes to prevent short circuit hazards.
4. Arrange placement based on target static elimination area; conductive objects near the workpiece will greatly reduce neutralization efficiency.
5. Fully cover charged workpieces with ion wind, maintain effective working distance and adjust fan speed accordingly.
6. Reliably earth the FG terminal, otherwise static elimination performance will degrade severely.
7. Reserve sufficient clearance around the unit: minimum 30mm clearance on both sides, $\geq 100\text{mm}$ rear clearance, $\geq 100\text{mm}$ distance between air outlet and target workpiece to avoid reverse charging.

◆ Mounting Steps

1. Detach the mounting bracket from the main unit, fasten bracket to fixed surface with M6 screws (customer-provided, not included in package).

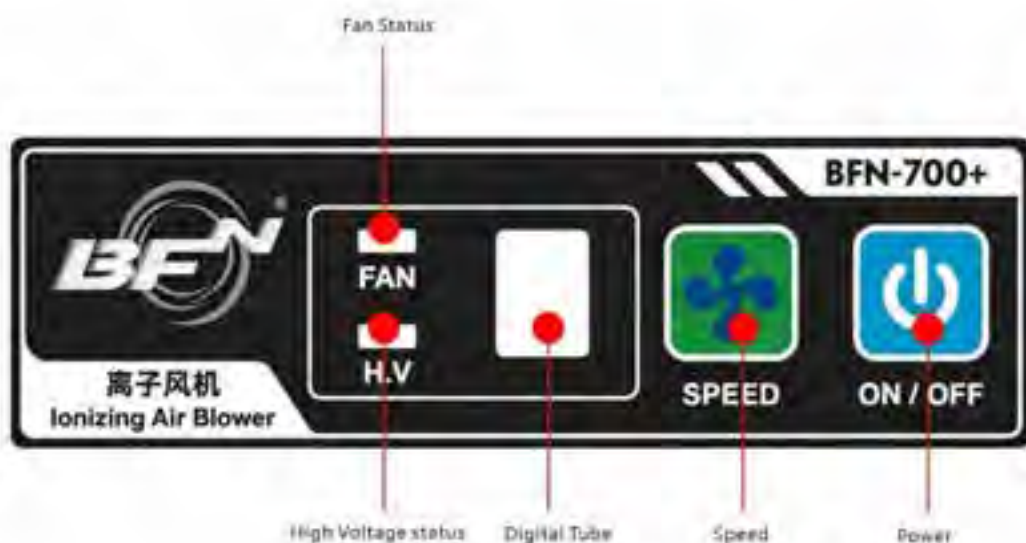


2. Loosen two hand-tightening nuts to tilt the blower to required angle, retighten nuts to lock position firmly.

◆ External Wiring Diagram

- NPN Output (Factory Default)
- PNP Output (Optional Customization)
- RS485 bus available for centralized industrial control
- Digital IN/OUT signal for linkage with production line PLC equipment

Operation Instructions



◆ Panel Function Description

1. FAN Status: Green = Fan Normal; Red = Fan Malfunction
2. H.V. Status: Green = High-Voltage Circuit Normal; Red = Discharge Fault
3. Digital Tube: Displays current fan speed gear & fault codes
4. Speed: Cycle switch between gear 1–6 fan speed
5. ON/OFF: Power switch ON/OFF & button unlock key

◆ Fault Code Table

Fault Code	Fault Description
A	Air outlet grille fault alarm
F	Fan motor fault alarm
H	High-voltage output abnormal
J	Regular cleaning reminder alarm
P	Operating current abnormal

◆ Button Operation Guide

1. Power on, short press ON/OFF button to start the unit; digital tube shows current speed gear.
2. All buttons except ON/OFF are locked by default to prevent misoperation.
3. Unlock function: Long press SPEED button for 3 seconds until a beep sounds, then adjust fan speed via SPEED button (cycle gear 1 to 6).
4. Auto-lock function: Buttons lock automatically after 30 seconds of inactivity, returning to main status display.

Maintenance & Servicing

◆ Precondition

Cut off power supply completely and wait 60 seconds for residual high voltage release before all cleaning and maintenance operations.

◆ Maintenance Cycle

1. Routine manual cleaning: Once per month; increase frequency for high-dust/humid harsh environments.
2. Built-in auto-clean reminder: Alarm every 48 cumulative operating hours.
3. Emitter needle service life: Replace once per year (shorter cycle for severe working environments).

⚠ WARNING

1. Emitter needles are extremely sharp; do not touch directly to avoid cuts.
2. Only use original factory replacement needles; third-party needles may damage the internal high-voltage module.

◆ Emitter Needle Cleaning Steps

1. Disconnect power, wait 60 seconds to fully discharge residual high voltage inside the unit.
2. Remove air outlet grille carefully, avoid touching internal circuit components.
3. Keep needle module installed on the unit; wipe needle tip and surrounding dirt with alcohol cotton swabs. For heavy contamination, scrub gently with alcohol soft brush first then wipe clean. Do not bend or apply force to needle tip.
4. Reinstall grille only after alcohol evaporates completely.

◆ Emitter Needle Replacement Steps



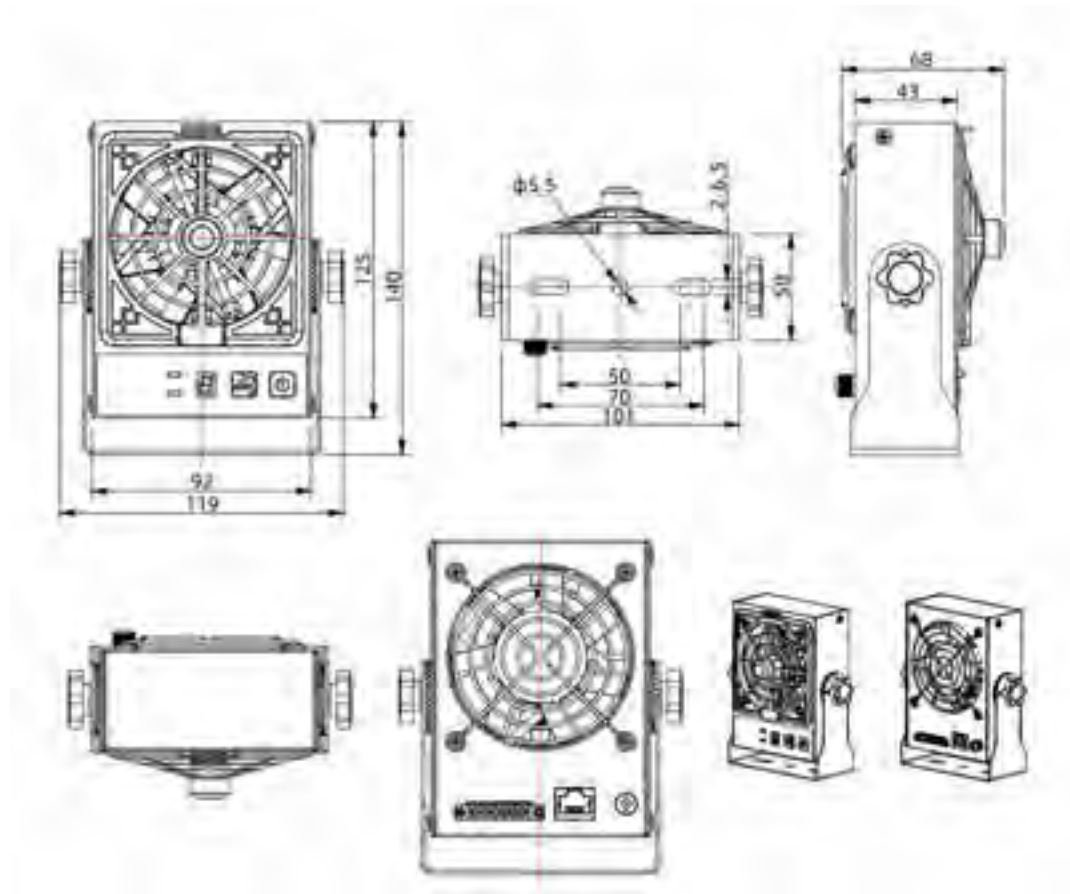
1. Power off and remove air outlet grille.
2. Rotate needle module counterclockwise to unscrew and extract the assembly.
3. Take out worn/damaged needle, insert new original tungsten alloy needle carefully (avoid scratching sharp tip).
4. Screw needle module clockwise back into position with moderate torque (do not over-tighten).
5. Reinstall air outlet grille and restore power supply.

Troubleshooting Common Faults

Fault Phenomenon	Root Cause	Solution
No indicator light, fan does not run after power-on	1. Incorrect / disconnected DC24V power supply 2. Loose or miswired terminal wiring	1. Verify power input specification and resecure power connector 2. Check all wiring terminals for firm contact
Fan stalls or unstable rotation speed	1. Power supply fault 2. Damaged fan motor 3. Defective speed control driver module	1. Recheck power supply 2. Replace fan motor 3. Replace speed regulation driver board
Fan runs normally, H.V light turns red	1. Abnormal input voltage 2. Dirty / aged emitter needle 3. Damaged high-voltage driver module	1. Correct power supply specification 2. Clean or replace emitter needle 3. Replace high-voltage circuit module
Fan operates normally but poor static elimination performance	1. Contaminated / worn emitter needle 2. Metal obstructions or high humidity near air outlet 3. Unit not reliably earthed 4. High-voltage module failure	1. Clean or replace emitter needle 2. Improve surrounding working environment 3. Connect FG terminal to earth ground firmly 4. Replace high-voltage driver module

Note: Contact our technical support if above solutions cannot resolve faults. Do not disassemble internal circuits without authorization.

Dimension Specifications



All dimension drawings are for reference only; physical product size shall prevail if minor dimensional differences exist.

Packing Accessories List

1. BFN-700+ Ionizing Air Blower Main Unit ×1
2. DC24V Power Adapter ×1
3. Grounding Wire ×1
4. Metal Mounting Bracket ×1
5. Plastic Hand-tightening Knobs ×2
6. Operation Manual (Including Certificate & Warranty Card) ×1

