



Operating Manual

**Model 221
Ionising Blower**

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Introduction

The Model 221 has been designed and developed to meet the demanding requirements of the electronic and pharmaceutical industries. It combines fast static charge removal with highly balanced ion output. The charge decay and ion balance performance of the 221 combined with its quiet operation, low particulation and minimum maintenance requirements make the unit ideal for electronic ESD applications.

Unpacking And Inspection

The Model 221 Ioniser has been carefully packed at the factory in a container designed to protect it from accidental damage, dust and contamination. Nevertheless, we recommend careful examination of the carton and contents for any damage. If damage is evident, do not destroy the carton or packing material and immediately notify the carrier of a possible damage claim. Shipping claims must be made by the consignee to the delivering carrier. Meech Static Eliminators should be notified of any claims.

Description

The Meech Model 221 is a powerful ionising blower that uses sophisticated electronics to maintain a highly balanced ion output with long-term stability. Visual indicators and an audible alarm warn the operator if the unit goes out of balance or if ion production falls below acceptable limits due to dirty pins.



Installation and Use

The Model 221 Ioniser is designed for under-shelf mounting. Swivel mounting brackets allow the unit to be rotated and clamped so that the ion airstream can be directed over the required work bench area.

The mains supply is connected to the ioniser via its IEC socket (the mains supply must be electrically grounded / earthed.) located on the rear of the blower. The IEC socket of the blower incorporates the blower's main ON / OFF switch. The unit contains an internal switch mode and thus will operate from mains voltages of 95-265 Volts AC at frequencies between 47-63Hz.

An earthing post on the rear panel of the Ioniser may be used to connect the unit's enclosure to the same potential as the anti-static workbench.

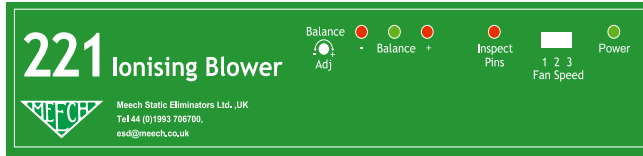
During normal operation of the Ioniser, care should be taken not to upset the ion balance by touching the grill or allowing any object to come into contact with it.

WARNING - High voltages are present in the unit.

Qualified / Authorised personnel only

Under no circumstances should the unit be opened without first turning off the power and isolating the unit by disconnection of the power cord. Operators must not try to insert fingers or any other object through the grill apertures.

Front Panel Features



Indicator LED's

1. Power On LED (Green)

This illuminates when the unit is switched ON and indicates that an electrical supply is present within the Ioniser.

2. (a, 2b, 2c) Ion Balance Indicator LED's (Red, Green, Red)

This array of three lamps indicates the ion balance state. Under normal operating conditions only the middle (Green) lamp will be illuminated. This indicates that the ion output from the ioniser is balanced. If the ion emission becomes imbalanced and the imbalance exceeds the alarm limits (standard factory setting +/- 25V) then the green lamp will dim or extinguish and either the positive (+ve) red LED or the negative (-ve) red LED will illuminate dependant upon the polarity of the out of balance condition (see "Fault Finding" later).

3. Inspect Pins (Red)

This lamp only illuminates when the emitter pins of the ioniser have become dirty and the ion output has fallen below a factory pre-set level. i.e. when insufficient ionisation is being created to fully maintain optimum performance.

4. Ion Balance Adjustment POT.

Balance adjustment is achieved via the recessed potentiometer. Turning this potentiometer will increase or decrease the +ve or –ve ion output resulting in a change in ion balance at the target surface.

Fan Speed Selection

5. Fan Speed Selection Switch

The fan speed can be selected using the fan speed selector switch on the front panel of the blower. In this mode the fan speed can be adjusted to one of 3 positions: high, medium and low.

Rear Sockets



Fig .6

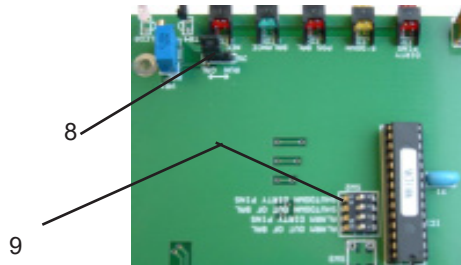
6. Mains Input Socket with illuminated rocker switch

Connection of the mains supply via an IEC plug and cable (supplied) is at this point. The electrical supply must be earthed / grounded. The rocker switch on the IEC socket provides the Main ON/ OFF switch for the Blower.

7. Calibration trim POTS

Used for factory calibration

Alarm Function / Selection (found on blower PCB)



8. Alarm Selection DIP switch

The DIP switch enables various alarm functions to be set - typically sounding of an internal audible alarm and auto shut down functions in the event of either out of balance and / or inspect pins alarms .

9. Calibration / Normal Operation Jumper

This jumper selects either normal operation mode or calibration mode. In calibration mode some functionality of the blower is disabled.

Periodic Maintenance

The periodic maintenance required by the unit will depend on the amount of dust or contaminants in the operating environment. The high voltage emitter pins and grill will typically require monthly cleaning. However, the optimum frequency of cleaning will depend upon the operating environment and the number of hours of operation. Periodic cleaning should not be postponed until the Inspect Pins lamp becomes illuminated. However if the Inspect Pins lamp does illuminate then the unit should be cleaned as soon as possible.

Touching or cleaning of the emitter pins or grill should only be performed with the unit turned off and isolated from the electrical supply.

Access to the pins is achieved by removing the door retaining screws and hinging it open. Cleaning of the pins and grill should be carried out using a cotton swab dampened in isopropanol. Operators should avoid touching the pins with their fingers as they are very sharp.

The emitter pins must be allowed to dry before the unit is switched back on (typically 5 minutes)

If the pins are found to be worn and require replacement, the pins should be removed using a pair of round nose pliers and replacements fitted. Replacement pins are available from Meech.

Calibration This should be completed by Authorised Personnel only

The Model 221 has been factory calibrated in accordance with ANSI-EOS/ESD-S3.1-1991. to achieve a maximum balanced ion output in standard applications. It is calibrated using a charge plate monitor at maximum fan speed with the charge plate 450mm from the blower grill.

Normal Operational Mode - Ion Balance Adjustment

(A suitable charge plate monitor is required - 6" Charge plate , 1000 to 100V decays).

In normal operational mode (jumper on PCB set to NORM) ion balance can be adjusted using the Ion Balance Control POT on the face of the blower.

Insert a POT adjuster tool through the hole and rotate the ion balance control POT until zero volts is displayed on the charge plate monitor.

When the POT adjuster is inserted into the blower the ion balance indicator light will flash to indicate adjustment is being made.

On removal of the POT adjuster tool the factory set OOB alarm limits (+/-25V) will automatically be readjusted around the new zero ion balance setting.

On removal of the POT adjuster tool the OOB light will cease flashing after 2 seconds.

Normal Mode - Verification of Out of Balance (OOB) Alarm Limits.

It is possible to check the OOB alarm set points in normal mode.

- i) Before making any adjustments make a note of the charge plate monitor voltage reading. Insert a POT adjuster tool (**do not remove it during this procedure**)
- (ii) Rotate the Balance Control POT towards positive. The Positive OOB alarm LED will illuminate at its set point. Note the voltage seen on the charge plate monitor.
- (iii) Turn the balance control towards negative. The negative OOB alarm LED will illuminate at its set point. Note the voltage on the charge plate monitor.
- (iv) Adjust the balance control POT for the reading noted in (i) above . The positive and negative alarm set points will remain at the readings noted in (ii) and (iii).

Specification

Dimensions	: A221-0600 100 x 600 x 200 (H x L x D)
	: A221-1000 100 x 1000 x 200
	: A221-1200 100 x 1200 x 200
Weight	: A221-0600 4.6 Kg
	: A221-1000 8.2 Kg
	: A221-1200 10.5 kg
Enclosure	: Powder Coated steel
Access to emitter pins	: Through hinged door.
Input voltage	: 95 to 265 V 43 to 76 Hz
Ozone	: < 0.01ppm
Ion Balance at set up	: +/- 5V (+/1V or better with remote sensor)
Max operating temp	: 60 Deg C
Decay Speed	: < 4 seconds at maximum fan speed using a charge plate monitor at 450mm (18") from the blower, 1000 to 100V test.

Fault Finding

Fault	Corrective Action
Inspect pins LED on face of blower illuminated	(i)Emitter pins of ioniser need cleaning (see periodic maintenance).
Positive or Negative OOB LED illuminated	(i) Adjust icon balance control POT until green balance light is illuminated. (ii) Clean blower emitter pins

If problems persist contact your local Meech Distributor.

CE Approval

A CE Declaration of Conformity for this product exists in respect of the Low Voltage Directive:72/23/EEC (“LVD”) & Electromagnetic Compatibility Directive: 89/336/EEC (“EMCD”)



Health and Safety

Emission of Ozone: Considerably below international standard of 0.1ppm.

Repairs And Warranty

The Ioniser is warranted by Meech Static Eliminators Ltd to the original purchaser against defects in material and workmanship for one year after purchase. Should any malfunction occur, please return the bar directly to Meech Static Eliminators or your local agent. All products returned to the factory MUST be accompanied by a return authorisation number and must be shipped prepaid. For prompt service, ship the unit to the factory with the return authorisation number shown clearly on the label. Be sure it is well packed in a sturdy carton with shock absorbing material.

Include a note stating the nature of the problem as specifically as possible, and also include instructions for returning the bar to you. We will pay one-way return surface shipping costs on any repairs covered under the warranty.

Field repairs should not be undertaken during the warranty period. Repair attempts by unqualified personnel will invalidate the warranty.

Your Ioniser has been designed to minimise the effects of localised static charges. If your processing involves generation of considerable static charges you may need more powerful equipment. Meech Static Eliminators Ltd has available a complete line of Ionising Blowers, Air Guns, Bars and Overhead Room Systems to meet all your Static Elimination requirements.



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